# Maharashtra Industrial Township Limited (MITL)

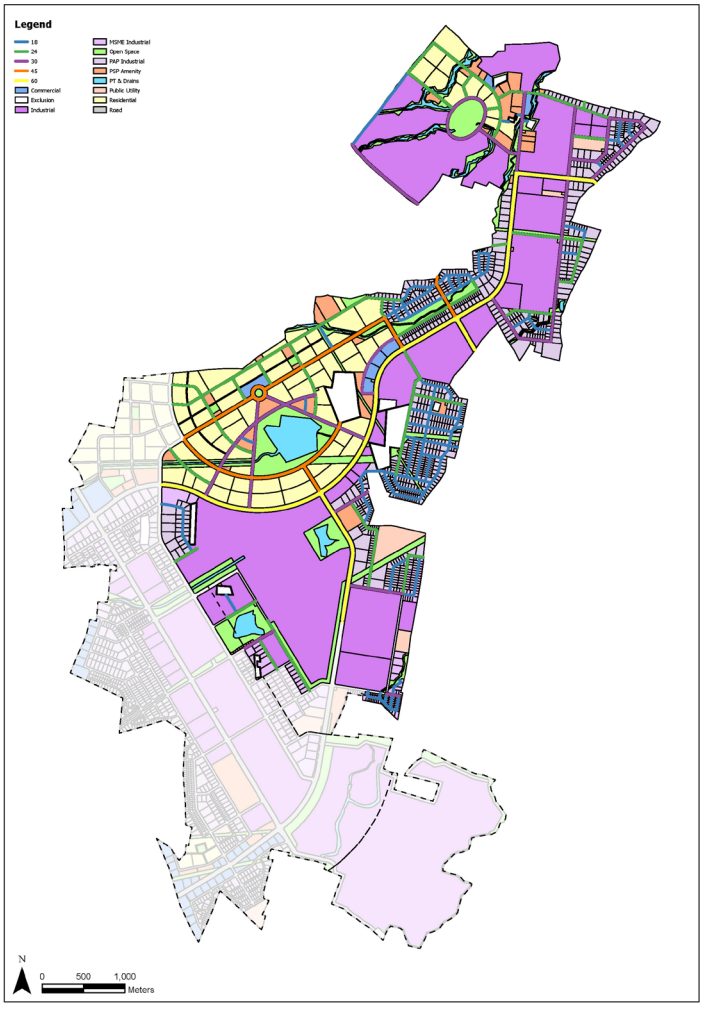
Design, Construction, Testing, Commissioning, Operation and Maintenance of Infrastructure Works at AURIC -Bidkin Industrial Area (BIA) Sector B & C on EPC Basis – Package A

Request for Proposal cum Request for Qualification

Volume I

## Part II – EPC Agreement

**November 2026**



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# 1 Form of Contract Agreement

**Engineering, Procurement and Construction Agreement**

This Agreement Is Entered into On This The ……. Day Of ……, 20……

Between

The Managing Director, Maharashtra Industrial Township Limited (MITL), incorporated under Indian laws having its registered office at Udyog Sarathi, MIDC Office, Andheri East, Mumbai – 400093, India (hereinafter referred to as the "Employer" which expression shall, unless repugnant to the context or meaning thereof, include its administrators, successors, and assigns) of one part.

AND

{----------,} means the selected bidder incorporating under Indian laws having its registered office at ……, (hereinafter referred to as the "Contractor" which expression shall, unless repugnant to the context or meaning thereof, include its successors and permitted assigns) of the Other Part.

Whereas:

a) A Special Purpose Vehicle (SPV) viz Maharashtra Industrial Township Limited (MITL), is set up (the "Employer") with the equity participation of Central and State Governments for procurement and Construction of trunk infrastructure in AURIC – Bidkin Industrial Area (BIA), Chhatrapati Sambhaji Maharaj District, Maharashtra .

b) Accordingly, the Employer has decided to undertake the "Design, Construction, Testing, Commissioning and Operation & Maintenance of Infrastructure Works at AURIC – Bidkin Industrial Area (BIA) – Sector B & C under Delhi Mumbai Industrial Corridor (DMIC) "On EPC Basis", (the "Project), in accordance with the terms and conditions to be set forth in an Agreement to be entered.

c) The Employer had prescribed the qualification for technical and commercial terms and conditions and invited bids (the "Request for Qualification (RFQ) cum Request for Proposals (RFP)") from the bidders.

d) After evaluation of the bids received, the Employer accepted the Bid of the selected bidder and issued its Letter of Award No. Dated…….... (hereinafter called the "LOA") to the selected bidder for "Design, Construction, Testing, Commissioning and Operation & Maintenance of Infrastructure Works at AURIC – Bidkin Industrial Area (BIA) – Sector B & C under Delhi Mumbai Industrial Corridor (DMIC) "On EPC Basis", at the BID price specified hereinafter, requiring the selected bidder to inter alia:

i. deliver to the Employer a legal opinion from the legal counsel of the selected bidder with respect to the authority of the selected bidder to enter into this Agreement and the enforceability of the provisions thereof, within 10 (Ten) days of the date of issue of LOA; and

ii. Execute this Agreement within 30 (Thirty) days of the date of issue of LOA.

e) The Contractor has fulfilled the requirements specified in Recital (d) above.

Now Therefore in consideration of the foregoing and the respective covenants and agreements

set forth in this Agreement, The sufficiency and adequacy of which are hereby acknowledged, the Employer hereby covenants to pay the Contractor, in consideration of the obligations specified herein, the Contract Price or such other sum as may become payable under the provisions of the Agreement at the times and in the manner specified by the Agreement and intending to be legally bound hereby, the Parties agree in subsequent sections/clauses.

In Witness whereof the Parties have executed and delivered this Agreement as of the day, month and year first above written.

| | |
|---|---|
| Signed, Sealed and Delivered | Signed, Sealed and Delivered |
| For and on behalf of | For and on behalf of |
| THE EMPLOYER by: | |
| (Signature) | (Signature) |
| (Name) | (Name) |
| (Designation) | (Designation) |

In the presence of:

1._____

2._____

{COUNTERSIGNED and accepted by:

Name and particulars of other members of the Consortium}

# 2 Definitions and Interpretation

## 2.1 Definitions

The words and expressions beginning with capital letters and defined in this Agreement (including those in Section 29) shall, unless the context otherwise requires, have the meaning ascribed thereto herein, and the words and expressions defined in the Schedules and used therein shall have the meaning ascribed thereto in the Schedules.

## 2.2 Interpretation

2.2.1 In this Agreement, unless the context otherwise requires,

a) references to any legislation or any provision thereof shall include amendment or re-enactment or consolidation of such legislation or any provision thereof so far as such amendment or re-enactment or consolidation applies or is capable of applying to any transaction entered into hereunder.

b) references to laws of India or Indian law or regulation having the force of law shall include the laws, acts, ordinances, rules, regulations, bye-laws or notifications which have the force of law in the territory of India and as from time to time may be amended, modified, supplemented, extended or re-enacted.

c) references to a “person” and words denoting a natural person shall be construed as a reference to any individual, firm, company, corporation, society, trust, Government, state or agency of a state or any association or partnership (whether or not having separate legal personality) of two or more of the above and shall include successors and assigns.

d) the table of contents, headings or sub-headings in this Agreement are for convenience of reference only and shall not be used in, and shall not affect, the Construction or interpretation of this Agreement.

e) the words “include” and “including” are to be construed without limitation and shall be deemed to be followed by “without limitation” or “but not limited to” whether or not they are followed by such phrases.

f) references to “Construction” or “building” include, unless the context otherwise requires, survey and investigation, design, developing, engineering, procurement, supply of plant, Materials, equipment, labour, delivery, transportation, installation, processing, fabrication, testing, and commissioning of the Project Works, including Maintenance during the Construction Period, removing of defects, if any, and other activities incidental to the Construction and “construct” or “build” shall be construed accordingly;

g) references to “development” include, unless the context otherwise requires, Construction, renovation, refurbishing, augmentation, upgradation and other activities incidental thereto during the Construction Period, and “develop” shall be construed accordingly.

h) any reference to any period of time shall mean a reference to that according to Indian standard time.

i) any reference today shall mean a reference to a calendar day.

j) references to a "business day" shall be construed as a reference to a day (other than a Sunday) on which banks in Raigad, Maharashtra are generally open for business.

k) any reference to a month shall mean a reference to a calendar month as per the Gregorian calendar.

l) references to any date, period or Project Milestone shall mean and include such date, period or Project Milestone as may be extended pursuant to this Agreement.

m) any reference to any period commencing "from" a specified day or date and "till" or "until" a specified day or date shall include both such days or dates; provided that if the last day of any period computed under this Agreement is not a business day, then the period shall run until the end of the next business day;

n) the words importing singular shall include the plural and vice versa.

o) references to any gender shall include the other and the neutral gender.

p) "lakh" means a hundred thousand (100,000) and "crore" means ten million (10,000,000);

q) "indebtedness" shall be construed so as to include any obligation (whether incurred as principal or surety) for the payment or repayment of money, whether present or future, actual or contingent.

r) references to the "winding-up", "dissolution", "insolvency", or "reorganization" of a company or corporation shall be construed so as to include any equivalent or analogous proceedings under the law of the jurisdiction in which such company or corporation is incorporated or any jurisdiction in which such company or corporation carries on business including the seeking of liquidation, winding-up, reorganization, dissolution, arrangement, protection or relief of debtors;

s) save and except as otherwise provided in this Agreement, any reference, at any time, to any Agreement, deed, instrument, license or document of any description shall be construed as reference to that Agreement, deed, instrument, license or other document as amended, varied, supplemented, modified or suspended at the time of such reference; provided that this Clause shall not operate so as to increase liabilities or obligations of the Employer hereunder or pursuant hereto in any manner whatsoever;

t) any agreement, consent, approval, authorization, notice, communication, information or report required under or pursuant to this Agreement from or by any Party or the Employer's Engineer shall be valid and effective only if it is in writing under the hand of a duly authorized representative of such Party or the Employer's Engineer, as the case may be, in this behalf and not otherwise.

u) the Schedules, any addendum/corrigendum and Recitals to this Agreement form an integral part of this Agreement and will be in full force and effect as though they were expressly set out in the body of this Agreement.

v) references to Recitals, Articles, Clauses, Sub-clauses or Schedules in this Agreement shall, except where the context otherwise requires, mean references to Recitals, Articles, Clauses, Sub-clauses and Schedules of or to this Agreement, and references to a Paragraph shall, subject to any contrary indication, be construed as a reference to a Paragraph of this Agreement or of the Schedule in which such reference appears.

w) the damages payable by either Party to the other of them, as set forth in this Agreement, whether on per diem basis or otherwise, are mutually agreed genuine per-estimated loss and damage likely to be suffered and incurred by the Party entitled to receive the same and are not by way of penalty (the “Damages”); and

x) time shall be of the essence in the performance of the Parties’ respective obligations. If any time period specified herein is extended for the reasons specified in the Agreement, such extended time shall also be of the essence.

2.2.2 Unless expressly provided otherwise in this Agreement, any Documentation required to be provided or furnished by the Contractor to the Employer shall be provided free of cost and in five copies, and if the Employer is required to return any such Documentation with its comments and/or approval, it shall be entitled to retain two copies thereof.

2.2.3 The rule of Construction, if any, that a contract should be interpreted against the Parties responsible for the drafting and preparation thereof, shall not apply.

2.2.4 Any word or expression used in this Agreement shall, unless otherwise defined or construed in this Agreement, bear its ordinary English meaning and, for these purposes, the General Clauses Act, 1897 shall not apply.

## 2.3 Measurements and Arithmetic Conventions

All measurements and calculations shall be in the metric system and calculations done to 2 (two) decimal places, with the third digit of 5 (Five) or above being rounded up and below 5 (Five) being rounded down.

## 2.4 Priority of Contract Agreements and errors/discrepancies

2.4.1 This Contract Agreement and all other Agreements and documents forming part of or referred to in this Agreement are to be taken as mutually explanatory and, unless otherwise expressly provided elsewhere in this Agreement, the priority of this Agreement and other documents and Agreements forming part hereof or referred to herein shall, in the event of any conflict between them, be in the following order:

a) this Agreement; and

b) All other Agreements and documents forming part hereof or referred to herein, i.e. this Agreement at (a) above shall prevail over the Agreements and documents at (b).

2.4.2 Order of Precedence

For interpretation, the priority of the documents shall be under the following sequence:

a) the Letter of Award,

b) the Letter Comprising the technical Bid and financial bid

c) Pre-bid clarifications and Corrigendum if any

d) the Contract Agreement,

e) the Technical Specifications,

f) the Indicative Tender Drawings,

g) Any other documents forming part of the contract

If an ambiguity or discrepancy is found in the documents, the Engineer shall issue any necessary clarification or instruction.

2.4.3 Subject to the provisions of Clause 2.4.1, in case of ambiguities or discrepancies within this Agreement, the following shall apply:

a) between two or more Clauses of this Agreement, the provisions of a specific Clause/ Stringent/ better/ higher specification relevant to the issue under consideration shall prevail over those in other Clauses.

b) between the Clauses of this Agreement and the Schedules, the Clauses shall prevail and between Schedules and Annexes, the Schedules shall prevail.

c) between any two Schedules, the Schedule relevant to the issue shall prevail.

d) between the written description on the Drawings and the Specifications and Standards, the latter shall prevail.

e) between the dimension scaled from the Drawing and its specific written dimension, the latter shall prevail; and

f) Between any value written in numerals and that in words, the latter shall prevail.

## 2.5 Joint and several liability[$]

2.5.1 If the Contractor has formed a Joint Venture of two or more persons for implementing the Project:

a) these persons shall, without prejudice to the provisions of this Agreement, be deemed to be jointly and severally liable to the Employer for the performance of the Agreement; and

b) the Contractor shall ensure that no change in the composition of the Consortium is affected without the prior consent of the Employer.

2.5.2 Without prejudice to the joint and several liability of all the members of the Consortium, the Lead Member shall represent all the members of the Consortium and shall at all times be liable and responsible for discharging the functions and obligations of the Contractor. The Contractor shall ensure that each member of the Consortium shall be bound by any decision, communication, notice, action, or inaction of the Lead Member on any matter related to this Contract Agreement and the Employer shall be entitled to rely upon any such action, decision, or communication of the Lead Member. The Employer shall have the right to release payments solely to the Lead Member and shall not in any manner be responsible or liable for the inter se allocation of payments among members of the Consortium[$].

**Note:**
$ This Clause 2.5 may be omitted if the Contractor is not a JV/Consortium.

# Part D: EPC Agreement
# Section B-Scope of Project

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# 3 Scope of the Project

## 3.1 Contractor's Scope

Under this Agreement, the scope of the Project (the "Scope of the Project") shall mean and include the below-mentioned activities for the following project components

a) Roads including cross drainage structures, bridges, and avenue plantation*

b) Water distribution network including Firefighting System and Service Reservoir

c) Industrial effluent collection network, including pumping stations and rising main

d) Domestic sewage collection network, including pumping stations and rising main

e) Recycle Water distribution network, including the rising main

f) Stormwater drainage network, including outfalls

g) Power distribution network including sub-stations, RMUs, transformers, etc

h) ICT infrastructure components & SCADA

*Avenue plantation of Sector A,B & C for all ROW are part of the scope.

The Contractor's scope shall include the following activities for each of the above-mentioned project components

1) Design, Engineering, Manufacture, Supply, Transportation to site, Storage, Construction, Installation/Erection, Testing, Commissioning of infrastructure works including all Civil, Structural, Architectural, Mechanical, Electrical, Control & Instrumentation and all Infrastructural work covering lighting, drains, avenue plantation, and all preparatory and temporary works for the purpose of meeting the entire scope of works at AURIC - BIA as per 'Design Scope' specified in Clause 2.1 of Volume 1 Part I and Specifications & Standards set forth in Volume II

| Phase-Wise Area Statement | | | | |
|---|---|---|---|---|
| Sr. No. | Land Use | Sector | | Grand Total |
| | | B | C | |
| 1 | Industrial | 401.24 | 315.85 | 717.09 |
| 2 | MSME Industrial | 56.66 | | 56.66 |
| 3 | PAP Industrial | 157.48 | 137.40 | 294.87 |
| 4 | Residential | 251.77 | 47.62 | 299.38 |
| 5 | Commercial | 12.76 | 3.17 | 15.93 |
| 6 | PSP Amenity | 45.53 | 26.76 | 72.29 |
| 7 | Public Utility | 29.91 | 7.84 | 37.75 |
| 8 | Open Space | 125.76 | 54.78 | 180.54 |
| 9 | PT & Drains | 45.52 | 16.39 | 61.91 |
| 10 | Road | 168.97 | 79.31 | 248.29 |
| **11** | **Grand Total** | **1,295.59** | **689.11** | **1,984.71** |

2) Operation and Maintenance of the infrastructure works at AURIC - BIA Sector B & C in accordance with the provisions of this Agreement, as specified above and in conformity with the requirements set forth in the tender; and the Contractor shall

maintain minimum 1% stock of spares for each type of pipes, fittings, valves, manhole covers, cables, cable joints, panels, switches, light fittings, poles etc. at the times during the O&M period.

3) Performance and fulfilment of all other obligations of the Contractor in accordance with the provisions of this Agreement and matters incidental thereto or necessary for the performance of any or all of the obligations of the Contractor under this Agreement.

The scope under this contract comprises ETS Survey, Geotech Investigation, Design, Engineering, obtaining approval on Detailed Engineering Drawings, GFC (Good for Construction) drawings, Construction, Erection, Installation, Testing and Commissioning of Roads, Stormwater Drains, Bridges, Culverts, Water Supply Distribution Network, Sewerage network, Utility ducts for Power & ICT, Power distribution system, Recycle Water Distribution Network, Avenue Plantation on EPC Basis including performance based Operation and Maintenance for 4 Years (inclusive of 4 years DLP). For the avoidance of doubt, it is further clarified that the contractor's scope on an EPC basis will include all Civil, Structural, Architectural, Mechanical, Electrical, Control & Instrumentation and all Infrastructural work covering lighting, drains, all preparatory & temporary works for the purpose of meeting the entire scope of works.

The Contractor shall be fully responsible for ensuring that the whole of the Works, including each individual component, is designed and constructed in a manner so that the system as a whole operates as a fully integrated system which is capable of achieving the required output in an efficient and economical manner, and to include all plant, equipment and accessories required for the safe and satisfactory operation of the facilities. To achieve this, the Contractor shall ensure that each individual component performs in a manner which is complementary to that of all other components. Any accessories which are not specifically mentioned in the specifications, but which are usual or necessary for completion of the Works and successful performance of the System and facilities shall be provided by the successful Bidder within the tendered cost. The Contractor shall, to the maximum extent practical and feasible, endeavour to standardise the manufacture and supply of plant and equipment so as to minimise the operation and maintenance requirements. The Contractor shall ensure that his designs are "maintenance-friendly" and that all items of plant and equipment are designed and installed in a manner which will facilitate routine and periodic maintenance operations. For a detailed scope of various disciplines (viz. Roadworks, Avenue Plantation, Wet Utilities, Power and Electrical Systems, Civil and Structural, Mechanical, Piping, Instrumentation, Control and Automation, ICT) refer to clause 2.1, Vol 1 Part I and relevant clauses in Volume II.

## 3.2 Employer's Proposed Integration Plan

The client intends to implement the infrastructure comprising of roads, wet utilities, power & other allied infrastructure on an EPC basis.

The overall AURIC -BIA has been divided into 3 Sectors .

Under this EPC package, the contractor's scope shall include the design and construction works for infrastructure in the area mentioned above in Sector B & C and avenue plantation of Sector A,B & C.

All the works required for integration with Sector A shall be deemed to be included in the quoted

price. The related utilities under the contractor's scope shall extend up to the interface, i.e., the common boundary of Sector A with Sector B & C .

The Contractor shall, to the maximum extent practical and feasible, endeavour to standardise the power system and allied infrastructure, designed and installed in a manner which will facilitate the integration of works of subsequent infrastructure components of Sector D in the future.

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# 4 Obligations of the Contractor

## 4.1 Obligations of the Contractor

EPC contractor to provide preference to MSME and Make in India as per the Public Procurement (Preference to Make in India), Order 2017 and MSME policy.

4.1.1 Subject to and on the terms and conditions of this Agreement, the Contractor shall undertake the ETS Survey, Geotech Investigation, Design, Engineering, obtaining approval on Detailed Engineering Drawings, GFC (Good for Construction) drawings, Construction, Erection, Installation, Testing and Commissioning of Roads, Stormwater Drains, Bridges, Culverts, Water Supply Distribution Network, Sewerage network, Utility ducts for Power & ICT, Power distribution system, Recycle Water Distribution Network, Avenue Plantation on EPC Basis including performance based Operation and Maintenance for 4 Years (inclusive of 4 years DLP) as defined in Scope and observe, fulfil, comply with, and perform all its obligations set out in this Agreement or arising hereunder.

4.1.2 The Contractor shall design, execute and complete the works in accordance with the contract terms, and shall also remedy any defects in the works. When completed, the works shall be fit for the purposes for which the works are intended as defined in the contract. The Contractor shall provide all the documents specified in the contract, plant, equipment, machinery, material, personnel, consumables, ancillary items and services, whether of a temporary or permanent nature, required in and for the design, engineering, execution, completion and remedying of defects. The works shall include any work which is necessary to satisfy the Employer's requirements or is implied by the contract, and all works which (although not explicitly mentioned in the contract) are necessary for stability, completion, safe and smooth operation of the works complying with the statutory requirements. The Contractor shall be responsible for the adequacy, stability, and safety of all site operations, of all methods of installation and of all the works. The Contractor shall obtain prior approval from the Employer's Engineer upon submitting details of the arrangements and methods which the Contractor proposes to adopt for the execution of the works. No significant alteration to these arrangements and methods shall be made without such alterations having previously been notified to the Employer and without the prior approval of the Employer/Employer's Engineer.

4.1.3 The Contractor shall submit a Quality Assurance Plan (QAP) within 21 days from the Appointed Date for approval of the Employer. The Contractor shall institute a quality assurance system to demonstrate compliance with the requirements of the contract. The system shall be in accordance with the details stated in the contract. The Employer or his representative shall be entitled to audit any aspect of the system. Details of all procedures and compliance documents shall be submitted to the Employer for information before each design and execution stage is commenced. When any documents of a technical nature are issued to the Employer, evidence of the prior approval by the Contractor himself shall be evident on the document itself. Compliance with the quality assurance system shall not relieve the Contractor of any of his duties, obligations, or responsibilities under the contract. The Contractor has to make his own arrangements of manpower, water, drainage/sewerage and electricity or alternative power supply and any land for use and such other facilities and provisions including to site office etc., required for the works and

to the accommodation of his workers and at work sites, fair wages/remuneration, statutory insurance of manpower, their security and safety measures, compliance of various statutory provisions for commencement, execution and completion of the works contract, save those specifically agreed to be provided by the Employer, at his own cost. The Contractor who has to engage the full-time key personnel in the works-shall instruct at least reasonable persons among them to work in the quality control area exclusively, that too in coordination with the field engineers and quality control wing of the Employer for ensuring qualitative and quantitative performance by checks and balances.

4.1.4 The Contractor shall comply with all Applicable Laws and obtain all Applicable Permits (including renewals as required) in the performance of its obligations under this Agreement. All statutory permits to be obtained by the contractor shall be valid up to the end of the Construction/ Operation and Maintenance period, as applicable. These permits shall also be renewed periodically as required. The application shall be submitted in the name of the Employer. However, the Employer shall not be liable to the Contractor or any authorities for the non-compliance by the Contractor. All permit fees are deemed to be included in the price and shall be paid by the Contractor. Further, the contractor shall be liable for any loss resulting from clearance being delayed or refused and keep the employer indemnified of any consequences.

4.1.5 Subject to the provisions of Clauses 4.1.1 and 4.1.4, the Contractor shall discharge its obligations in accordance with Good Industry Practice.

4.1.6 The Contractor shall remedy any and all loss or damage to the Project Roads and Services/utilities from the Appointed Date until the end of the Construction Period at the Contractor's cost, save and except to the extent that any such loss or damage shall have arisen from any default or neglect of the Employer.

4.1.7 The Contractor shall remedy any and all loss or damage to the Project Roads and Services/utilities during the Defect Liability Period at the Contractor's cost to the extent that such loss or damage shall have arisen out of the reasons specified in Clause 18.3.

4.1.8 The Contractor shall remedy any and all loss or damage to the Project Roads and Services/utilities including water supply system, sewerage system, storm water drains, etc. during the Operation and Maintenance Period at the Contractor's cost, including those stated in Clause 15.1.2, save and except to the extent that any such loss or damage shall have arisen on account of any default or neglect of the Employer or on account of a Force Majeure Event.

4.1.9 The Contractor shall not deposit materials at any place within the project area which may cause inconvenience to the public or other contractor/supplier. The Employer/Employer's Representative may direct the Contractor to remove such materials or may undertake the job at the cost of the Contractor. The Contractor shall dispose of the waste or pollutants generated during the execution of the contract works as per MPCB norms with the information to the Employer or as and when requested by the Employer. The Contractor shall protect adjoining sites against structural, geotechnical or other damages including any functional or aesthetic/decorative damage that could be caused by the execution of the works and make good any such damages, at his cost.

4.1.10 The Contractor shall, at its own cost and expense, in addition to and not in derogation of

its obligations elsewhere set out in this Agreement:

a) make, or cause to be made, necessary applications to the relevant Government Instrumentalities with such particulars and details as may be required for obtaining Applicable Permits set forth in Schedule-A and obtain and keep in force and effect such Applicable Permits in conformity with the Applicable Laws.

b) procure, as required, the appropriate proprietary rights, licenses, Agreements and permissions for Materials, methods, processes and systems used or incorporated into the Project Roads, Utilities and Services as cited above.

c) make reasonable efforts to maintain harmony and good industrial relations among the personnel employed by it or its Sub-contractors in connection with the performance of its obligations under this Agreement.

d) ensure and procure that its Sub-contractors comply with all Applicable Permits and Applicable Laws in the performance by them of any of the Contractor's obligations under this Agreement.

e) not do or omit to do any act, deed or thing which may in any manner be violative of any of the provisions of this Agreement.

f) support, cooperate with and facilitate the Employer in the implementation and operation of the Project in accordance with the provisions of this Agreement.

g) ensure that the Contractor and its Sub-contractors comply with the safety and welfare measures for labour in accordance with the Applicable Laws and Good Industry Practice.

h) keep, on the Site, a copy of this Agreement, publications named in this Agreement, the Drawings, Documents relating to the Project, and Change of Scope Orders and other communications given under this Agreement. The Employer's Engineer and its authorized personnel shall have the right of access to all these documents at all reasonable times.

i) cooperate with other contractors employed by the Employer and personnel of any public authority.

j) not interfere unnecessarily or improperly with the convenience of the public, or the access to and use and occupation of all roads and footpaths, irrespective of whether they are public or in the possession of the Employer or of others.

k) the Contractor shall be responsible for the development of an integrated 3D BIM model including all the infrastructure components as a part of Design and Detailed Engineering before the commencement of Construction as per the requirements mentioned in Schedule L.

l) The contractor shall prepare a project-specific Health, Safety and Environmental plan based on guidelines provided in Schedule M for implementation.

m) Contractor and their sub-contractors shall comply with Project Management requirements as mentioned in Schedule-N.

n) the Contractor shall conduct the aerial photography of the Project as mentioned in Schedule O; and

o) the Contractor shall have to provide a project architectural model of size about 6 m x 3.0 m of the entire AURIC - BIA project area of 3245 Ha at a place designated by the Employer/ Employer's Engineer depicting the master plan features using acrylic or any other approved durable material within 3 months from the date of issue of the LOA. This model should be designed for easy dismantling and resemblance at the Site location in the Admin cum ICCC building at a later date. The cost of the model is deemed to be included in the contract price.

4.1.11 The Contractor shall undertake all necessary superintendence to plan, arrange, direct, manage, inspect, and test the Works.

4.1.12 The Contractor shall check the design criteria and calculations (if any) included in the Bid Documents and satisfy itself regarding their accuracy and adequacy. The contractor shall meet the minimum design and sizing requirements specified in the Bid Documents – a design that does not meet such minimum requirements shall not be acceptable and will result in the rejection of the bid as non-responsive. Further, if the Contractor believes that the minimum design and sizing requirements are not adequate to meet the minimum performance requirements specified, then the Contractor shall make whatever upward adjustments to the design and sizing it deems necessary to meet the performance requirements and include these in the Bid Price. The contractor assumes full responsibility for meeting the specified performance requirements and ensuring the adequacy of the Works for this purpose."

4.1.13 The design criteria provided in the respective schedules are basic design criteria and have to be met in totality. However, if the Contractor feels that he requires additional work to meet the contractual conditions, the cost of the same shall be deemed to be included in the Price and no extra cost shall be paid over and above the quoted price.

4.1.14 The Contractor shall establish a design liaison office headed by a Senior Design Manager and supported by a team of Mechanical, Electrical, Civil, Instrumentation, Control and Automation, ICT Engineer/s and reasonable numbers of 3D BIM modellers, 3D modellers, CAD designers/draughtsman etc. at the project site office within 45 days from the Appointed Date to facilitate preparation and submission of designs, drawings, schedules, materials, method statements, HIRA (Hazard Identification Risk Assessment) and construction documents, etc., for review and approval by the Employer's Engineer. The design liaison office shall preferably be located near the Employer's Engineer site office to facilitate communications and frequent interactions with the Employer's Engineer and the Employer. The Contractor shall maintain the design liaison office until such time as all necessary designs and construction documents have been completed, reviewed, and approved by the Employer's Engineer. The cost of the Employer's Office, Employer's Engineer and Contractor's design office and its running costs are deemed to be included in the price bid.

4.1.15 The Contractor will be fully responsible for ensuring that its designs, drawings, work method statements, HIRA (Hazard Identification Risk Assessment) and construction documents satisfy all requirements for constructing Works that are complete and fully

functional in all respects and meet the Performance Guarantee requirements as well as Environmental, Health and Safety requirements.

4.1.16 In addition to the above, the Contractor shall establish a Site office in AURIC - BIA, Chhatrapati Sambhaji Maharaj District, Maharashtra, headed by its Construction Manager/Project Manager at the Site, for which sufficient land will be provided by the Employer for construction activity in the project area till the completion of the work. The land shall be handed over to the Employer after removing & clearing the temporary or permanent structures, debris etc., if any. However, the cost of construction of the site office, office equipment including furniture, etc. and its running cost should have been deemed to be included in the price bid with no additional implication to the Employer.

4.1.17 The set down area required by the Contractor for its construction equipment and materials shall be provided by the Employer with no cost to the Contractor.

## 4.2 Project Office for the Employer's Engineer

4.2.1 The Contractor shall provide, furnish, equip, insure, service, maintain and clean a detached office as detailed in the sub-clause 4.2 to this Specification for the exclusive use of the Employer's Engineer. The office plan and location/position shall be approved by the Employer's Engineer.

4.2.2 The office shall be ready for use and occupation and fully serviced within [90] days of the Appointment Date, until such time a temporary office space shall be provided within 28 days of the appointed date. The office shall be provided until a period of [28] days after the successful completion of the Operation and Maintenance period or an earlier date if instructed by the Employer's Engineer.

4.2.3 The Contractor shall arrange at his own expense for the provision and disconnection on completion of the Operation and Maintenance period, the facility of power, potable water, sewerage, drainage, telephone, and internet (minimum speed should be 100 Mbps for leased line with fibre optic line) to the Employer's Engineer's office including making all payments to utility providers for connection and use. Where a septic tank is provided, the Contractor shall be responsible for its installation, regular maintenance like emptying and the like, and removal on completion.

4.2.4 The Contractor shall submit full details of the site offices to the Employer's Engineer for approval prior to erection. The offices shall be weatherproof, fire-protected, heat-insulated, properly ventilated and secure. Windows shall give adequate light and ventilation [be protected with metal mosquito-proof gauze, have security bars] and have Venetian or other approved blinds. The clear false ceiling height shall be at least 2.4m above the floor level. All internal partition walls shall be sound-insulated. Floors shall be PVC tile covered. Floors in toilets and other wet areas shall have drains. The internal decoration shall be of good standard and to the satisfaction of the Employer's Engineer. The Contractor shall be responsible for raising the ground where necessary, grading and drainage in the vicinity of the building and providing suitable access and walkways.

4.2.5 Each room shall have at least four double gang 13-amp sockets and shall be adequately illuminated. Rooms used as office, waiting room, reception, server room or meeting rooms shall be all air-conditioned by installing split air conditioners. The air conditioning shall be

adequate to maintain a temperature of not more than [23°C (dry bulb) at a relative humidity of 50% during the hottest season of the year]. The noise level of the air conditioning while operating shall be sufficiently low to allow normal voice-level discussions to take place.

4.2.6 The Contractor shall supply, install, and maintain fittings, furnishings, and equipment (including computers and related information technology equipment) for the Employer's Engineer office as described in Clause 4.2.9 and replenish consumables as necessary. The fittings, furnishings and equipment shall be approved by the Employer's Engineer before being brought to the Site.

4.2.7 The Contractor shall arrange regular cleaning of the Employer's Engineer's office to the satisfaction of the Employer's Engineer and shall provide cleaners, cleaning equipment and consumables at his own expense.

4.2.8 The Employer's Engineer office, fittings, furnishings, and equipment supplied by the Contractor will remain the property of the Contractor and will revert to him upon completion of the Contract.

4.2.9 Project Office Specifications

1) Introduction

The following guidelines shall be considered as the main criteria for the safe design, construction, management, and operation of the project site office. Where requirements of this guidance conflict with the Employer's requirements, regulatory authority, or other specifications, the more stringent requirements will prevail.

2) General requirements

A layout plan based on the guidelines for the site office and the Contract shall be submitted by the Contractor for review and approval by the Employer's Engineer prior to the start of construction works on the site office. All works shall be undertaken in line with the requirements of India HSE Legislation and relevant IS standards.

All certifications, permits and/or licensing that may be required for the site offices shall be obtained by the Contractor and made available for review to the Employer's Engineer.

Prior to occupation, the Contractor shall ensure that the site office has a valid occupational permit from the relevant authorities.

3) Site layout and location of offices

Site offices and car park layout shall allow safe segregation of pedestrian and vehicular traffic, with unobstructed access for emergency vehicles. Adequate lighting is to be provided for the car park and pedestrian walkways.

4) Facility Construction

All materials used for the construction of the offices, shall conform to the requirements of the National Building Code and Local Fire regulations requirements. As a minimum, the materials used shall take into consideration the local climatic conditions and prevent dust, water, and other elements from coming into the offices. The offices shall as a minimum have 30-minute fire rating.

The contractor shall ensure that as-built drawings for the construction of the site offices, electricals, plumbing, firefighting and any other operations shall be submitted to the Employer's Engineer prior to or at the time of occupation.

5) Electrical safety

The design, operation, and maintenance of electrical systems for the site office shall meet the requirements of the National Building Code. As a minimum, the Contractor shall ensure that RCDs (residual circuit breakers) are used for protection of the circuits and take care to ensure that joints are minimised in the electrical cables.

If generators are to be used then they must be adequate for the site load, serviced and maintained and shall meet the requirements of the Local Fire regulations for fire precautions and the Ministry of Environment for air emissions and sound levels.

6) Lighting

Provisions shall be made for natural lighting through windows or through roof lights to be at least 10% of the office floor area. Ambient light levels in offices and surrounding areas including pathways, car park and emergency exits should conform to required lux levels. Lighting inside the site office shall be suitable for the works being undertaken in the site office environment.

7) Ventilation

The site offices shall be sufficiently ventilated and provide air circulation that is free of impurities. Windows shall be designed such that at least 50% of the window shall be openable and have insect mesh screens.

8) Temperature

The temperatures inside offices should be capable of being maintained within 20°C to 25°C. The temperature shall be such that they should provide comfort without the need of special clothing.

9) Noise Levels

Provisions shall be made for noise levels inside the office to be less than 50 dBA. Where noise levels inside the office exceed 50dBA, provisions shall be made for sound proofing (as required).

10) Sanitary facilities

Sufficient, adequately ventilated, sanitary conveniences must be provided with 1 x Toilet cubicle, 2x urinals and 1 x hand wash basin per 10 occupants as a minimum. These facilities shall have a supply of clean hot and cold water for washing purposes and, supply of soap and paper towels.

Separate facilities shall be provided for men, women, physically handicapped, and they shall have doors that are lockable from the inside. The surfaces of internal walls and floors of these facilities shall have a surface which permits wet cleaning.

One additional washroom directly accessible from the outside shall be provided for use by drivers/security staff. This washroom shall contain 1 urinal, 1 WC and 1 wash

basin.

These facilities shall be adequately ventilated and aerated with proper exhaust. Care shall be taken to ensure that air from these facilities does not mix or enter any facilities that may be used to prepare, cook and consume food.

11) Drinking water and Kitchen facilities

A dedicated facility for preparing and eating food must be provided, with suitable storage to store food. The kitchen facility shall not be placed adjacent to the sanitary facilities. As a minimum, it shall be equipped with a double drainer sink unit with adequate plumbing, work surfaces and storage cupboards, a kettle, a microwave, a refrigerator, a hot plate, etc.

The use of LPG shall be kept to a minimum and a hot plate shall be the preferred choice of cook top. An adequate supply of wholesome potable drinking water must be always available.

12) Shower & changing facility.

Separate changing rooms (male and female) shall be provided for personnel to change their clothing for work. These rooms shall include facilities for showers.

13) Access and doors

Access to the office compound must have adequate security, and an access control presence to control entry to the site.

Main access doors to the office facilities should have vision panels and access steps including the landing area must be constructed or coated with non-slip materials. Where there are two or more steps at entrances a handrail must be provided.

14) Pest Control

The site office shall have all necessary and effective measures to prevent rodents, insects and other pests inside and in the vicinity of the office. This shall include a maintenance contract with a company specialized in the prevention of rodents & pests.

15) Car Park Facilities

The site office shall have a covered car park that can accommodate 10 vehicles (Exclusively for Employer/Employer's Engineer). The car park shall be well-lit, in a hard-standing area, with appropriate surface drainage. The car park shall be adjacent to the site office separated at least by 10 meters and not more than 50 meters from the site office.

16) Space Requirements

The site offices shall either be in one block, or separate blocks connected by covered walkways. The accommodation shall comprise the following separate rooms or zones. Below are the configurations of the Employer's Engineer including Employer office space.

| Room | Minimum Area Consideration |
|---|---|
| Reception/secretarial area | 30 m2 |

| Room | Minimum Area Consideration |
|---|---|
| Conference room | 100 m2 |
| Project Manager/ Employer's Manager office with attached toilet (2 Nos) | Each 30 m2 |
| Meeting Room (2 Nos) (one each connecting to the Project Manager and Employer's Manager office respectively) | Each 30 m2 |
| Resident Engineer/ Employer's Engineer office (6 Nos) | Each 20 m2 |
| Site engineers and inspectors open configuration office (for 30 Nos) | Space and size suitable for accommodating one executive table, chair, drawer and 2 chairs for visiting personnel for each engineer |
| Printing room | 20 m2 |
| Filing and storage room with adequate racks for keeping all drawings and documents | 100 m2 |
| Dining/ Kitchen | Dining facility with tables and chairs and pantry area with kitchen. The dining space and size shall be suitable for accommodating 20 persons at a time. |
| Toilet/ washroom | As per NBC standard |
| Sample Storage Room | 20 m2 |
| Document Control and Storage Room | 30 m2 |

17) Environmental Management

The office facilities shall be part of the contractor's Environmental Management System (EMS) and managed accordingly. The site waste management plan should cover office facility environmental and waste issues such as:

a) Water waste

b) Food waste

c) Recycling of paper, cardboard, and printer cartridges

d) Power saving

e) Noise suppression where required.

f) Prevention of dust ingress from the site

g) Garbage and refuse disposal

h) Water supply

i) Vermin Control

18) Maintenance and Cleaning

The office facilities shall have routine maintenance and emergency repair protocols for the fire alarm system, air conditioning, water purification, emergency lighting, building electrical testing, drainage system, etc.

The contractor will be responsible for daily cleaning and maintenance of the field offices. The Contractor shall ensure that a cleaning regime will be in place to maintain acceptable levels of

food hygiene standards and sanitation and cleanliness. The facilities should be routinely cleaned with suitable cleaning techniques appropriate for areas such as:

a) General office area and windows

b) Kitchen facilities

c) Toilets and changing rooms.

d) General surroundings (car parks).

19) Fire safety.

The office shall have a fire alarm system, conforming to local fire brigade requirements, installed by an approved contractor and under a routine maintenance agreement. As a minimum, the site office shall have - Fire detection in the form of smoke alarms and fire extinguishers. These shall be provided all across the site office, including common areas and the kitchen. The office shall have two designated exits as a minimum.

A fire muster point must be located away from the building, with clear signage and cover for shade. There should be a minimum of two exits to facilitate the egress.

20) First Aid

A first aid kit shall be provided in the office. The contents of the first aid kit shall meet the requirements of the 'Red Cross Society'. The first aid kit and its contents shall be maintained regularly.

21) Workstations & Seating Arrangements

The offices shall have workstations and seating arrangements that are suitable to the work being undertaken in the offices. As a minimum 'Wipro' and 'Featherlight' shall be the preferred brand for workstations and chairs. The desks and seating arrangements shall meet the following requirements:

a) Desk Dimensions: All desks provided shall have a clear working space of 1200mm (length) x 800mm (depth). Leg space under the desk shall be a minimum of 1000mm. Additional space required for desktop computers, laptops, printer, pedestals, inverters, etc. shall be considered. The executive tables shall be provided with drawers.

b) Seating chairs: All seating chairs provided shall as a minimum have Height, Seat, Backrest and Arms adjustability. They shall provide good lumbar support and have adequate tilt mechanisms. The executive chairs shall be high-back chairs.

22) Emergency Arrangements

An emergency plan shall be developed for the site office in line with accepted best practices and local regulations and issued to the Employer's Engineer for review and approval prior to occupation, including arrangement for Fire drills, periodic testing of equipment, etc.

23) Fuel Storage Safety

Fuel and oil storage tanks should be in bunded storage areas that comply with environmental legislation (typically can contain 110% of maximum fuel tank capacity). They should be at least 6m safe distance from office facilities (more may be required for larger storage facilities).

24) Furniture Requirements for the site office

The following furniture shall be provided, as a minimum, each in the office of Project Manager/ Employer's Manager:

a) 1 No. executive table and chair

b) 4 No. swivel chairs on castors

c) 1 No. bookcase

d) 1 No. bulletin board

e) 1 No. lockable cupboard

f) 1 No. 4-drawer lockable filing cabinets

g) Hooks for hanging safety jackets and hats.

25) The following furniture shall be provided, as a minimum, in each of the remaining offices provided for the Engineer's staff:

a) 2 No. executive tables and 2 No. executive chairs in each room for Resident Engineers

b) 3 No. swivel chairs on castors for each desk in the Resident Engineer's office

c) 15 No. executive tables and 15 No. swivel chairs on castors in each room for Site engineer and inspector offices

d) 2 No. swivel chairs on castors for each desk in Site engineer and inspector offices

e) 1 No. bookcases for each desk in Resident Engineer (4 Nos)

f) 1 No. bulletin boards for each desk in Resident Engineer (4 Nos)

g) 1 No. lockable cupboards for each desk in Resident Engineer (4 Nos)

h) 1 No. 4-drawer lockable filing cabinets for each desk in Resident Engineer (4 Nos)

i) Hooks for hanging safety jackets and hats.

j) 1 No. lockable Drawer (3 drawers) for each desk in site engineer and inspector offices (15 Nos)

26) The following furniture shall be provided, as a minimum, in the reception/ secretarial area:

a) 1 No. reception desk

b) 1 No. swivel chair on castors

c) 2 No. two-seater sofas

d) 1 No. coffee table

e) 1 No. bulletin board

f) 1 No. bookcase

g) 1 No. 4-drawer lockable filing cabinet.

27) The following furniture shall be provided, as a minimum, in the conference room:

a) 1 No. long conference table (min. 30 numbers seat capacity with executive chairs)

b) 40 No. swivel chairs excluding 30 executive chairs.

c) White boards and bulletin boards of size, type, and numbers to be approved by the Employer's Engineer.

28) The following furniture shall be provided, as a minimum, in the meeting room:

a) 1 No. long conference table

b) 12 No. swivel chairs

c) White boards and bulletin boards of size, type, and numbers to be approved by the Engineer.

The kitchen area shall be equipped with a kettle/water boiler, cool drinking water dispenser, fridge, microwave oven, fire extinguisher, first aid kit, cups, plates, and utensils, as necessary and in numbers adequate for the size of team occupying these facilities. The occupation of the site offices shall consider visitors to the office such as Employer's, Investors, and other stakeholders.

The kitchen, washroom and toilet facilities shall be provided with an adequate supply of essential materials including soap, towels, and toilet paper, as required by the Engineer.

29) Other minimum Facilities to be provided as below

a) 7 No. Laptops (AI enabled) & 10 No. Desktops as per the requirement prescribed by Employer.

b) 2 No. combined 60 pages per minute black and white and 45 pages per minute full colour A4 and A3 multifunctional laser printer/scanner/copier, with document auto feeder, tandem paper trays, paper bypass, 2- sided printing, high capacity internal memory, network enabled, Windows compatible.

c) 1 No. laser colour A0 paper size multifunction plotter/scanner/copier, minimum plotting resolution 2400 x 1200 dpi, with roll feed and collection basket, high-capacity internal memory, network enabled, Windows compatible.

d) 1 No. black and white and colour combined A4 and A3 photocopier, with a document feeder, duplex and reduction/zoom capability.

e) 2 No. Digital photography and videography Camera with time stamp facility.

f) 1 No. facsimile machine (if a landline is available).

g) 1 No. telephone in the reception/ secretarial area, the Project Manager's, and each of the Resident Engineer's offices (if a landline is available) Providing Land line connection is in scope of bidder.

h) 1 No. LED TV (min 102 inches)/ Projector Screen for projection and Video conferencing, Wireless USB Mic & Speaker system and 1 No. Polycom make conference telephone with a loudspeaker and remove microphones in the conference room.

i) 1 No. each LED TV (min 55 inches) for projection and screen and 1 No. conference telephone with loudspeaker in the meeting room.

j) All printers and the plotter shall be connected to the office computers via an internal network for print sharing.

k) All computers shall be connected to the internet via high-speed broadband with additional Wi-Fi connection available for visitors.

l) All computers, printers, plotters, and photocopier shall be connected to voltage regulators and UPS (uninterrupted power supply) units, the latter being able to bridge power cuts up to 15 minutes.

m) Adequate Steel cabinets for storage of files and drawings separately in the document control room.

n) Adequate Drawing storage cabinets.

o) All stationery and office supplies as required by the Employer/ Employer's Engineer.

p) All the different areas of the site office shall relate to an intercom facility.

4.2.10 The Contractor shall at any time during the contract period including O&M provide at least 6 numbers of new Multi-Utility Vehicle (MUV) (Innova, Hycross) with minimum 2000 cc engine (Air conditioned) vehicles with Driver, required Manpower, all fuel, lubricants (POL) etc. for Employer/Employer's Engineer staff/Project staff and always maintain and keep them in good condition. The contractor shall also maintain all insurances with respect to the same throughout the contract period. The contractor shall provide the maintenance logs every quarter. The monthly travel per MUV shall be between 5000 km to 7000 km. The RTO registration shall not be before the year 2026/27.

## 4.3 Labour Camp

4.3.1 Background

These guidelines are aimed at providing practical guidance and basic standards to Contractors on the standards that should be applied to the planning, construction, and provision of workers' accommodation on the BIA Project.

All works shall be undertaken in accordance with Indian HSE legislation and IS standards like the Building and Other Construction Workers (Regulation of Employment and Conditions of Service) Act, 1996 (BOCW Act) and its associated Central Rules, 1998. Where there is a conflict, the more stringent legislation shall apply.

The Contractor shall be responsible for complying with all statutory requirements and rules issued relating to workers' accommodation/labour camp.

It shall be one of the prime responsibilities of the Contractor to ensure the worker's accommodation/ labour camp is free from alcohol and drug use. The Contractor should implement non-alcohol and drug-free site policies.

The entire premises of a workers' accommodation/ labour camp shall be free from rubbish, wastepaper, garbage and other litter. When workers' accommodation/labour camp is closed, all garbage, litter and debris shall be removed from the site.

The Contractor or his representative shall inspect daily or provide a competent individual to inspect daily the grounds and common-use areas including toilets, washing facilities, bathing facilities, mess halls, dormitories, kitchens or any facilities relating to the operation of the facility and ensure that each is maintained in a clean, satisfactory operating condition and kept in good repair.

The Contractor shall be held responsible for any Civil or Criminal act inside the worker's accommodation/ labour camp or outside the workers' accommodation/labour camp conducted by the Contractor's worker and or resident of the workers' accommodation/labour camp.

It shall be the responsibility of the Contractor to maintain peace, law and order and a cordial environment inside the workers' accommodation/labour camp.

It shall be the duty of the Contractor or camp supervisor to report immediately to the local health officer the name and address of any individual in the camp known to have or suspected of having a communicable disease.

Irrespective of whether workers are supposed to keep their facilities clean, it is the responsibility of the Contractor to ensure that rooms/dormitories and sanitary facilities are in good condition.

#### 4.3.2 General Design Requirements

When choosing the site intended for workers' accommodation, the Contractor shall ensure that the site is at least 300 meters away from any construction works. Only single-level buildings shall be built, and the space between two buildings shall not be less than 5 meters. In case the Contractor proposes to build a multi-level facility, detailed drawings/designs for the same including safety and firefighting services, shall be submitted and approved by the local authorities.

All buildings, structures, life safety devices and safeguards and parts thereof of the worker accommodation, shall as a minimum meet the requirements of the 'National Building Code of India' and 'Maharashtra Fire Prevention and Life safety Measures Act 2006' or any amendment thereafter and be always maintained in a safe condition.

The Contractor shall ensure that a drawing showing the details of the worker accommodation including general location, horizontal projections, facades, sections, constructional and electric plans, firefighting plans, sanitary drainage, and roads is maintained and submitted to the Employer's Engineer. This drawing shall be always kept up to date by the Contractor.

Land will be provided within the site boundaries at no charge to the EPC Contractor. The successful bidder shall hand over the land free of encumbrances after completion of the work.

#### 4.3.3 Materials

The worker accommodation units (including kitchen & sanitary facilities) shall be built with concrete blocks or cement wall blocks. The flooring shall also be made of concrete and shall be non-slip. Non-flammable materials shall be used, and the Contractor shall ensure that as far as practicable, only sustainable materials are used.

The Contractor shall ensure that all materials used to build the workers' accommodation (including roofing material) are weatherproof. The use of only GI sheets for roofing shall be prohibited.

#### 4.3.4 Outdoor Requirements

The area leading from the workers' accommodation buildings should be sufficient for the safe movement of people and vehicles within the labour accommodation. All corridors within the labour accommodation shall be paved such that, as a minimum, they can support vehicle movements (including emergency vehicles such as ambulances and fire trucks) in all weather conditions. Corridors in between buildings shall be a minimum of 6 meters wide and shall allow for easy movement of an emergency vehicle (fire brigade/ambulance).

### 4.3.5 Lighting

All areas of the workers' accommodation shall be adequately lit. The Contractor shall ensure that all outdoor lighting is suitable for the weather conditions. Consideration shall be given to sustainable/low power consumption light luminaries. Light levels as a minimum shall meet the following requirements:

| Location | Area / Activity | Minimum / Average (Lux) |
|---|---|---|
| General | Passages & corridors inside the building | 100 |
| | Passages outside building | 50 |
| Residential area /units | Bedrooms | 100 |
| | Kitchens | 150 |
| | Bathrooms & Toilets | 100 |
| Emergency areas | First aid room | 300 |
| | Recreational areas | 200 |

The outdoor lighting shall allow the pedestrians to distinguish the borders of the sidewalks/corridors, direction changes, crossroads and any obstacles or potential risks. Changes in gradation in any location should have more lighting than the passages. The lighting poles/towers shall be placed in a way so as not to obstruct pedestrian and emergency vehicle movement.

### 4.3.6 Electricity

The design, operation, and maintenance of electrical systems for the labour accommodation shall meet the requirements of the National Building Code. As a minimum, the Contractor shall ensure that RCDs (residual circuit breakers) are used for the protection of the circuits and take care to ensure that joints are minimised in the electrical cables. All electrical systems shall have adequate earthing and shall be maintained with regular periodic checks.

### 4.3.7 Firefighting Equipment and Emergency Exits

The worker's accommodation shall be provided with adequate fire detection and firefighting equipment. These shall be provided as per the Fire Prevention & Life Safety Act/National Building Code, or any other statutory/ regulatory requirements of the Govt. of Maharashtra for Fire Prevention and Life Safety as may be applicable.

### 4.3.8 Dwelling Units

a) No dwelling units shall be of a space less than 3.5m x 3.5m (inner dimensions) and each worker shall have a space of not less than 3.5 m2. In the case of bigger rooms, the number of workers allowed per room shall be kept under 10 while observing the specified individual space area for each worker. The ceiling of the rooms shall be not less than 2.5 meters high, and each room shall have adequate natural ventilation which will allow for natural light into the room and a door which is lockable from inside and outside.

b) Each worker shall be provided with an individual bed and where preferred a cot. No bunk beds shall be allowed. The space in between the beds shall not be less than 2 feet on either side. Where cots are provided, the cot shall not be less than 12 inches from the floor. Each worker shall be provided with his own sleeping area even in the case of work in shifts.

c) Each worker shall be provided with storage space to keep his belongings. Provision shall be made for workers to store their footwear outside the rooms.

d) No cooking or washing shall be allowed inside the rooms.

4.3.9 Sanitary Facilities

a) The sanitary facilities shall not be located at a distance of more than 50 meters from the main accommodation blocks and no closer than 50 meters from any food/kitchen facility. Sanitary facilities shall be provided such that an individual will not need to pass through a dwelling room to access the facility.

b) Sanitary facilities shall be provided such that there is 1 toilet & 1 bathroom for every 10 people and one urinal for every 20 people. Urinals may be replaced by toilets (one toilet for every 2 urinals). The toilet and bathroom shall not be provided in the same cubicle.

c) Sanitary facilities shall have a window to allow for natural ventilation and a door that is lockable from inside.

d) The sanitary facilities shall be cleaned on a daily basis and maintained regularly.

4.3.10 Kitchens

a) The kitchen facility provided shall take into consideration the number/groups of people staying in the accommodation and shall allow for multiple groups of people to cook together.

b) The kitchen shall be provided with potable/ drinking quality water and appropriate storage areas for different kinds of food.

c) The area used to wash utensils shall be separate from the kitchen.

d) Gas cylinders should be placed outside the building and shaded from sunlight.

e) The kitchen should be equipped with nontoxic pest control means (meshing) to prevent rodent infestation.

f) The kitchen area shall be cleaned on a daily basis.

4.3.11 Medical care

The Contractor shall ensure that the workers staying within the Labor accommodation have access to medical facilities 24 hours a day. If access to this medical facility requires the labour to travel outside the perimeter of the accommodation, the Contractor shall ensure that a vehicle is available 24x7. In such cases, the provision of first aid will be available within the labour accommodation.

4.3.12 Washing facility

The washing area (to wash clothes) shall be separate from the accommodation rooms and toilet facilities. The washing area shall have adequate water supply and not be placed near the kitchen or cooking area.

4.3.13 Waste disposal.

a) Waste that is accumulated from the labour accommodation shall be disposed of in a manner that complies with the Ministry of Environment regulations. The Contractor shall ensure that waste is collected and disposed of on a regular basis (no longer than 7 days

for general waste and no more than 2 days for kitchen waste) and that no waste is burned.

b) The kitchen and accommodation blocks shall be provided with separate waste bins.

c) Adequate sewage tanks shall be built for the sanitary facilities (toilets, bathrooms, and wash area) and provision shall be made to ensure that the sewage can be disposed of safely. Care shall be taken to ensure that the sewage tanks are not close to the dwelling rooms & cooking facility (at least 50 meters away). Tanks shall be built such that they do not leak into the soil and stacks (provided for ventilation) are at sufficient height and that fumes do not affect the accommodation area.

#### 4.3.14 Drinking water

Fresh portable drinking water shall be available for cooking and consumption within the labour accommodation. Any water stored in tanks shall be filtered through a filtration system before it is consumed. Holding tanks shall be cleaned on a monthly basis as a minimum and water tested for portability.

#### 4.3.15 Vermin Control

Effective measures shall be taken by the Contractor to prevent infestation by and harborage of vermin. All workers' accommodation / labour camp shall be free of all vermin and maintained in a vermin free and vermin proof condition. All outside openings shall be effectively sealed or screened with a 16 mesh screen or equivalent in order to prevent entry of insects, rodents, or other vermin. The Contractor shall inform the workers by posting a notice in the camp or housing to which it applies of any indoor application of pesticides prior to the application.

#### 4.3.16 Accommodation Management

The Contractor shall ensure that the labour accommodation shall have a designated person who is in charge of safely managing the accommodation. The designated person shall be responsible for the day-to-day running of the accommodation.

#### 4.3.17 Recreation

The Contractor shall ensure provision for suitable recreation activities (such as volleyball, cricket, or football) is available within the worker accommodation.

#### 4.3.18 Creches

Where Contractor's workmen are staying in workers' accommodation/labour camp with family and have children, the Contractor shall ensure that a crèche is maintained inside the workers' accommodation/labour camp and shall be manned by trained staff.

## 4.4 Health and Safety

All necessary precautions shall be taken by the EPC Contractor to ensure the health and safety of staff and Labour engaged for the Works. The EPC Contractor shall, in collaboration with and to the requirements of the local health authorities, ensure that para-medical staff, first aid facilities, and ambulance service are available 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 EPC Contractor shall appoint an HSE Manager to be responsible for the safety of personnel on the Site. This HSE Manager shall be qualified for his work and shall have the authority to issue instructions concerning safety and take protective measures to prevent accidents. The EPC Contractor shall maintain records and make reports concerning the health, safety and welfare of personnel, and damage to property, in such manner as the Authority may reasonably require.

## 4.5 Protection from Rainwater

Before the onset of the rainy season, the Contractor should submit the details of the measures to be taken to protect the work site from the accumulation of rainwater and flooding or any rainwater-related obstructions. Throughout the contract period, flooding shall not occur at the work site. As well the work executed or under construction shall be appropriately protected from rainwater and its accumulation or flooding or rainwater related damages. The contractor should take care of the runoff water by making proper arrangements in the form of bunds/ drainage arrangements etc. throughout the contract period and at no extra cost to the Employer. The contractor should get this methodology or plan for the same approved by the Employer. Any damages resulting due to neglect of the above will be solely at the risk and cost of the Contractor.

## 4.6 Adequacy, stability and safety of all site operations:

The Contractor shall be responsible for the adequacy, stability and safety of all site operations, of all methods of construction and of all the Works.

The Works shall include any work which is necessary to satisfy the Employer's Requirements, or is implied by the Contract, and all works which (although not mentioned in the Contract) are necessary for stability or for the completion, or safe and proper operation, of the Works.

## 4.7 Works shall include any work which is necessary:

The Works shall include any work which is necessary to satisfy the Employer's requirements or is implied by the Contract and all works which are necessary for stability or for the completion, or safe and proper orientation of the works.

## 4.8 Safe Worthiness Certificate for equipment

All construction equipment shall be maintained in sound mechanical working condition. The Contractor shall ensure that each piece of equipment is inspected and certified by a competent person designated by the Contractor, in accordance with relevant safety standards and regulations, prior to its use on site.

## 4.9 Work Permit System

The Contractor shall develop a Work Permit system, which is a formal written system used to control certain types of work that are potentially hazardous at construction activities. They allow work to start only after safe procedures have been defined and they provide a clear record that all foreseeable hazards have been considered. Permits to Work are usually required in high-risk areas as identified by the Risk Assessments.

## 4.10 Personal Protective Equipment (PPE)

The Contractor shall provide safety helmets, safety shoes and high visibility clothing for all visitors, its own or sub-contractor's employees, including workmen, traffic marshal and other employees who are engaged for any work. The PPEs and safety appliances provided by the Contractor shall

be of the standard as prescribed by Bureau of Indian Standards (BIS).

## 4.11 Welfare Measures for Workers

Latrine and Urinals - Latrine and urinals shall be provided as per Section 33 of BOCWA and maintained as per Rule 243 of BOCWR and shall also comply with the requirements of public health authorities.

In case of works like road works, excavation works, the zone of work is constantly moving. In such cases, mobile toilets with proper facilities to drain the sullage shall be provided at a reasonably accessible distance.

Drinking water - As per Section 32 of BOCWA, the Contractor shall make in every worksite, effective arrangements to provide a sufficient supply of wholesome drinking water with a minimum quantity of 5 litres per workman per day. Quality of the drinking water shall conform to the requirements of national standards on Public Health

On-site rest shelters with shade and seating for meal/rest breaks shall be provided.

Regular health check-ups for workers involved in hazardous activities.

## 4.12 Obligations Relating to Sub-contracts and any other Agreements

4.12.1 There is no right for the Contractor to sub-contract any part of the contract works, but to address the Employer seeking permission. If the Contractor desires to sub-contract any part of the work during execution, the Contractor should submit in writing the necessity of sub-contracting any part of the contract work, subject to the ceiling of 25% in all, along with the name of the proposed Sub-Contractor, details of qualification, experience and valid registration and as to the proposed Sub-Contractor gets eligibility from a suitable class for such sub-contract work and that he has verified and found genuineness of the proposed sub-Contractor's information. No further qualification criteria other than valid registration are required to consider sub-contracting the works up to a value of Rs. 2.00 crores. However, the total value of works to be awarded on sub-contracting shall not exceed 25% of the contract value. The Tender Accepting Authority before awarding of works on sub-contracting (subject to total sub-contracting of not more than 25 % of the contract value of either one or more sub-Contractors) shall verify the genuineness of the proposed Subcontractors qualification and other eligibility criteria and if the Sub-Contractor satisfies the qualification and other eligibility criteria with reference to the criteria of Contractor in proportion to the value of work proposed to be sub-contracted, he may address for approval by Employer/Employer's Representative. The Contractor shall not sub-contract any Works in more than 25% (Twenty Five percent) of the total Contract Price of the Project and shall carry out Works directly under its own supervision and through its own personnel in at least 75% (Seventy Five percent) of the total Contract Price of the Project. Provided, however, that in respect of the Works carried out directly by the Contractor, it may enter into contracts for the supply and installation of Materials, Plant, equipment, road furniture, safety devices and labour, as the case may be, for such Works. The Parties further agree that all obligations and liabilities under this Agreement for the entire Project Works shall at all times remain with the Contractor. In the case of a Joint Venture, the Parties also agree that the obligation of the Contractor to carry out Works directly in at least 75% (Seventy five percent) of the total Contract Price of the Project shall be

discharged solely by the Lead Member/Joint Venture.

4.12.2 It is after according of approval by the Employer/Employer's Representative for any such Sub-Contracting, the Tender Accepting Authority can permit such Sub-Contracting and mention as to earlier any part of work permitted by sub-contracting and if so with the proposed one it no way exceeds 25% of the contract value. The Employer shall examine the particulars of the sub-contractor from the National Security and public interest perspective and may require the Contractor, no later than 15 (Fifteen) business days from the date of receiving the communication from the Contractor, not to proceed with the sub-contract, and the Contractor shall comply therewith.

4.12.3 It is expressly agreed that the Contractor shall, at all times, be responsible and liable for all its obligations under this Agreement notwithstanding anything contained in the Agreements with its Sub-contractors or any other Agreement that may be entered into by the Contractor, and no default under any such Agreement shall excuse the Contractor from its obligations or liability hereunder.

## 4.13 Employment of Foreign Nationals

The Contractor acknowledges, agrees, and undertakes that employment of foreign personnel by the Contractor and/ or its Sub-contractors and their sub-contractors shall be subject to the grant of requisite regulatory permits and approvals including employment/ residential visas and work permits, if any are required, and the obligation to apply for and obtain the same shall and will always be of the Contractor. The Contractor shall be responsible for the return to the place where they were recruited or to their domicile of imported Contractor's Personnel. The Contractor shall be responsible for such personnel who are to return until they have left the Site or, in the case of foreign nationals who have been recruited outside the country, shall have left it. Notwithstanding anything to the contrary contained in this Agreement, refusal of or inability to obtain any such permits and approvals by the Contractor or any of its Sub-contractors or their sub-contractors shall not constitute a Force Majeure Event and shall not in any manner excuse the Contractor from the performance and discharge of its obligations and liabilities under this Agreement.

## 4.14 Contractor's Personnel

4.14.1 The Contractor shall ensure that all the personnel engaged by it or by its Subcontractors in the performance of its obligations under this Agreement are at all times appropriately qualified, skilled and experienced in their respective functions in conformity with Good Industry Practice.

4.14.2 The Employer's Engineer may, for reasons to be specified in writing, direct the Contractor to remove any member of the Contractor's or Sub-contractor's personnel. Provided that any such direction issued by the Employer's Engineer shall specify the reasons for the removal of such person.

4.14.3 The Contractor shall on receiving such a direction from the Employer's Engineer order for the removal of such person or persons comply with directions with immediate effect. It shall be the duty of the Contractor to ensure that such persons are evicted from the Site within 10 (Ten) days of any such direction being issued in pursuance of Clause 4.15.2. The Contractor shall further ensure that such persons have no further connection with the Works or Maintenance under this Agreement. The Contractor shall then appoint (or cause

to be appointed) a replacement immediately.

4.14.4 The Contractor shall report to the Employer the total number of workmen, including those engaged by any subcontractor, within 2 hours of the start of each shift. This reporting is the primary responsibility of the Contractor's Chief HSE Manager and shall be conducted via email or other mode of communication as approved by the Employer's Engineer. The Contractor shall ensure the timely receipt of these reports by the Employer's Engineer.

4.14.5 Contractors may utilise the services of experts/agencies empanelled under Rule 250 of BOCWR for training, internal audit, third party inspection of lifting equipment, gears and any other HSE services with prior approval of the Employer.

## 4.15 Advertisement on Project Site

The Project Site or any part thereof shall not be used in any manner to advertise any commercial product or service.

## 4.16 Contractor's Care of the Works

The Contractor shall bear full risk in and take full responsibility for the care of the Works, and of the materials, goods and equipment for incorporation therein, from the Appointed Date until the date of the Substantial Completion Certificate (with respect to the Works completed prior to the issuance of the Substantial Completion Certificate) and/or Completion Certificate for construction works (with respect to the Works referred to in the Punch List), save and except to the extent that any such loss or damage shall have arisen from any default or neglect of the Employer.

## 4.17 Electricity, Water, and Other Services

4.17.1 For Construction Period: The Contractor shall be responsible for the provision of all power, water, and other services he may require for the performance of the Construction period of the Contract including hydro-testing of pipes and tanks/ structures etc. This includes contacting the appropriate utility or service providers and applying for connections as necessary. The contractor shall, at his own risk and cost, provide all piping, fittings, and other equipment necessary for his use and for metering of the water and any treatment needed. The Contractor is to ensure that the quality of water remains suitable for the purpose for which it is intended.

4.17.2 For Trial Run and Commissioning, Performance Test and O&M Period

The power and water shall be supplied free of cost by the Employer only during the O&M Period upon issuance of Completion Certificate for Construction works. For trial run and commissioning, performance test, arrangement for necessary power, water and cost shall be borne by the contractor. Sewage and industrial effluent shall be provided by Employer for trial run and commissioning of the sewerage and effluent networks.

Cost towards Diesel used in case of power breakdowns during the O&M period for emergency/essential services, approved by Employer, will be reimbursed as per actuals.

Be noted, if sewage and /or industrial effluent can't be provided by Employer, for any reasons for trial run and commissioning of the sewage and effluent networks, water shall be used by the contractor at no extra cost. If effluent is available in 930$^{th}$ day the commissioning to be done otherwise the contractor to provide an undertaking that he will do the commissioning and

performance testing once the effluent is available within the 4 years of O&M period at no additional cost. If the effluent is not available even after 4 years from completion the contractor is relieved from the responsibility. The contractor to provide a BG equivalent to the weightage amount for commissioning and performance testing for release of payment on non-availability of effluent. However, water shall be provided by employer for trial run and commissioning of the recycled water networks

Be noted, that the O&M for other project components/ facilities shall begin after the issue of the Substantial Completion Certificate for construction works and shall be paid for the project components for which the certificate has been issued according to Clause 15 of the said agreement.

## 4.18 Working Hours

4.18.1 Normal hours during which construction work will be permitted to be carried out at the Site shall be between 08:00 Hrs to 18:00 Hrs, Monday to Saturday, excluding holidays. Working hours and Working days shall also be subject to adherence to Labour Laws.

4.18.2 Operation and Maintenance shall be carried out 24 hours a day, 7 days a week, 365 days of a year.

4.18.3 No Construction work shall be carried out on the Site on locally recognized days of rest, or outside the normal working hours as stated in clause 4.19.1 unless:

a) otherwise stated in the Contract, or

b) the Employer's Engineer gives consent, or

c) necessary for the protection of life or property or for the safety of the Works, in which case the Contractor shall immediately advise the Employer's Engineer.

## 4.19 Labour Laws

The Contractor shall comply with all the relevant labour Laws applicable to the Contractor's Personnel, including Laws relating to their employment, health, safety, welfare, immigration, and emigration, and shall allow them all their legal rights. The Contractor shall require his employees to obey all applicable Laws, including those concerning safety at work.

## 4.20 Facilities for Contractor's Staff and Labour

Except as otherwise stated in the Specification, the Contractor shall provide and maintain all necessary accommodation and welfare facilities for the Contractor's Personnel. The Contractor shall not permit any of the Contractor's Personnel to maintain any temporary or permanent living quarters within the structures forming part of the Permanent Works.

a) Within 60 days of the award of work, the contractor shall provide the site office with independent soundproof air-conditioned cabins for use by Employer's Engineer and consultant and its staff appointed by Employer. The site office should have at least one Conference room, one meeting room, pantry and toilet facilities. The site office shall include necessary furniture, required office equipment i.e. Fax, photocopy, computer with a colour laser printer of the latest configuration/ software and broadband internet connections for use by contractor's staff.

b) The location and layout of site offices shall be got approved from the Employer's Engineer before providing the same. Preferably the setting out of contractors site office should be near the offices provided for the Employer's Engineer.

c) The Contractor shall appoint a duly qualified HSE Officer who shall be stationed at the site from the time the Contractor mobilises at the site. These personnel or a suitable replacement, if required, and for which prior permission of the Employer is to be obtained, shall be stationed at the site till the end of the contract period.

d) The Contractor shall provide electricity, water, and telephone connections to the site office at his own cost along with other required facilities.

e) Running expenses of the site offices including consumables like tea bags, milk for tea, sugar, tissue boxes, etc., shall be borne by the Contractor.

f) The Contractor shall not use any part of the project site or any adjoining/nearby site for labour camp or for accommodation/housing of any labour without the written permission of Employer's Engineer.

## 4.21 Measures against Insects and Pest Nuisance

The Contractor shall at all times take the necessary precautions to protect all staff and labour employed on the Site from insect and pest nuisance, and to reduce the dangers to health and general nuisance occasioned by the same. The Contractor shall provide his staff and labour with suitable prophylactics for the prevention of malaria and take steps to prevent the formation of the stagnant pools of water. The Contractor shall comply with all the regulations of the local health authorities and shall arrange to spray thoroughly with approved insecticide in all.

## 4.22 Epidemics

In the event of any outbreak of illness of an epidemic nature, the Contractor shall comply with and carry out such regulations, orders and requirements as may be made by the Government, or the local medical or sanitary authorities, for the purpose of dealing with and overcoming the same.

## 4.23 Burial or Cremation of the Dead

The Contractor shall make all necessary arrangements for the transport, to anyplace as required for burial/ cremation, of any of his expatriate employees or members of their families who may die at the works. The Contractor shall also be responsible, to the extent required by local regulations, for making any arrangements with regard to burial/ cremation of any of his local employees who may die while engaged upon the Works.

## 4.24 Alcoholic Liquor or Drugs

The Contractor shall not, otherwise than in accordance with the Laws of the Country import, sell, gift, barter or otherwise dispose of any alcoholic liquor or drugs, or permit or allow importation, sale gift, barter, or disposal by Contractor's Personnel.

## 4.25 Arms and Ammunition

The Contractor shall not give, barter, or otherwise dispose of to any person or persons, any arms or ammunition of any kind or permit or allow Contractor's personnel to do so.

## 4.26 Festivals and Religious Customs

The Contractor shall respect the Country's/Locally recognized festivals, days of rest and religious or other customs.

## 4.27 Unforeseeable difficulties

Except as otherwise stated in the Agreement:

(a) the Contractor accepts complete responsibility for having foreseen all difficulties and costs of successfully completing the Works;
(b) the Contract Price shall not be adjusted to take account of any unforeseen difficulties or costs; and
(c) the Scheduled Completion Date shall not be adjusted to take account of any unforeseen difficulties or costs

## 4.28 Site Data

The Contractor shall be deemed to have inspected and examined the Site and its surroundings and to have satisfied himself before entering into the Agreement in all material respects including but not limited to:

(a) the form and nature of the Site (including, inter-alia, the surface and subsurface conditions and geo-technical factors);
(b) the hydrological and climatic conditions;
(c) the extent and nature of the works already completed and Materials necessary for the execution and completion of the Works and the remedying of any defects that includes already executed part also.
(d) the suitability and the adequacy of the Site for the execution of the Works;
(e) the means of access to the Site and the accommodation the Contractor may require;
(f) arranging permits as required as stated in this Agreement.
(g) the requirements of operation and maintenance; and
(h) all other factors and circumstances affecting the Contractor's rights and obligations under the Agreement, the Contract Price and Time for Completion

## 4.29 Clearance of the Site

During the provision of the Works, and as a pre-condition to the issue of the Taking-Over Certificate, the Contractor shall clear away and remove from the Site, all Contractor's equipment, surplus material, wreckage, rubbish and temporary Works, and shall keep the Site free from all unnecessary obstructions, and shall not store or dispose of any Contractor's equipment or surplus materials on the Site. The Contractor shall promptly clear away and remove from the Site any wreckage, rubbish or temporary Works no longer required and leave the Site and the Works in a clean and safe condition to the sole satisfaction of the Employer.

# 5 Obligations of the Employer

## 5.1 Obligations of the Employer

5.1.1 The Employer shall, at its own cost and expense, undertake, comply with, and perform all its obligations set out in this Agreement or arising hereunder.

5.1.2 To assist in the due discharge of its obligation, the Employer has/ will appointed a Programme Manager for New Cities ("PMNC") to act as "Employer's Engineer" wherein M/s …….. is appointed as the PMNC. The role of the Employer's Engineer is to perform activities necessary to plan, integrate, package, administer, and manage the implementation of the AURIC -BIA Project. Specifically, the Employer's Engineer will be responsible during the design and construction stage, overseeing the work of consultants and contractors, including reviewing, monitoring, resolution of interface issues, and reporting to the State Nodal Agency and MITL on the Programme progress. All communications and documents related to contract management, project and construction progress, design, drawings, method statements, quality, health, safety and environment etc shall be submitted to the Employer's Engineer for final approval of Employer.

5.1.3 The Employer's Engineer's decision on the Scope of the Project shall be final for the proposed contract.

5.1.4 The Employer shall provide to the Contractor:

5.1.5 Upon receiving the Performance Security under Clause 8.1.1 and signing of the Contract Agreement under Clause 28.8, the Employer shall provide all environmental clearances as required under Clause 5.2.

5.1.6 The Employer agrees to provide support to the Contractor and undertakes to observe, comply with, and perform, subject to and in accordance with the provisions of this Agreement and the Applicable Laws, the following:

a) upon written request from the Contractor, and subject to the Contractor complying with Applicable Laws, provide reasonable support to the Contractor in procuring Applicable Permits required from any Government Instrumentality for implementation of the Project.

b) upon written request from the Contractor, provide reasonable assistance to the Contractor in obtaining access to all necessary infrastructure facilities and utilities, including water and electricity at rates and on terms no less favourable than those generally available to commercial customers receiving substantially equivalent services.

c) that no barriers that would have a material adverse effect on the Works are erected or placed on or about the Project Site by any Government Instrumentality or persons claiming through or under it, except for reasons of Emergency, national security, law and order or collection of inter-state Taxes.

d) not do or omit to do any act, deed or thing which may in any manner be violative of any of the provisions of this Agreement.

e) support, cooperate with and facilitate the Contractor in the implementation of the Project in accordance with the provisions of this Agreement; and

f) upon written request from the Contractor and subject to the provisions of Clause 4.14, provide reasonable assistance to the Contractor and any expatriate personnel of the Contractor or its Subcontractors to obtain applicable visas and work permits for the purposes of discharge by the Contractor or its Sub-contractors of their obligations under this Agreement and the Agreements with the Subcontractors.

## 5.2 Environmental Clearances

5.2.1 The Employer represents and warrants that the environmental clearances required for the Construction of the Project are being procured by the Employer prior to the date of issue of LOA. The Employer agrees and undertakes that the statutory environmental clearance shall be procured by the Employer no later than 90 (Ninety) days from the Date of Agreement. In the event of any delay beyond such 90(ninety) days period, the Contractor shall be entitled to Time Extension for the period of such delay in accordance with the provision of Clause 11.4 of this Agreement without any payment of compensation for delay.

5.2.2 The contractor shall be required to develop a site-specific Health, Safety & Environment (HSE) plan in line with the Contract Agreement and the conditions stipulated in the Environmental Clearance for the project and get it approved from the Employer's Engineer. Further, the contractor shall be required to comply with the conditions and requirements stipulated in the approved HSE plan, Environment Management Plan (EMP) prepared during the EIA stage of the project and all the statutory approvals applicable for the project such as Environmental Clearance etc. which is mandatorily to be followed during the construction and operational phase of the project as part of statutory compliance and Contractor's HSE Plan for the project.

5.2.3 The Contractor shall comply with all Applicable Laws and Applicable Permits (including renewals as and when required) in the performance of its obligations under this Agreement. The employer shall not be liable for any delay in issuance of the same.

5.2.4 The contractor shall be required to submit the application and obtain all relevant approvals like Consent to Establish (CTE), Consent to Operate (CTO) for the construction activities such as RMP, HMP & WMM and permits such as Labour Licence, BOCWA, ESIC, PF, etc., applicable to its employees and shall duly pay them and afford to them all their legal rights. The Contractor shall establish an Environment Cell and appoint an Environment Officer to be responsible for the implementation of environmental safeguards at the Site.

5.2.5 The Contractor shall conform to the tender requirements and shall indemnify the Employer against any liability or damages or claims arising out of his operations. The Contractor shall be responsible and liable for any stoppage, closure, or suspension of the Works due to any contravention of statutory requirements relating to the protection of the environment and shall indemnify and keep indemnified the Employer in this regard.

5.2.6 Felling of trees- The employer shall assist the Contractor in obtaining the Applicable Permits for the felling of trees in non-forest areas. The Contractor shall fell these trees as per the Permits obtained. The cost for tree felling & disposal shall be borne by the contractor. The Contractor shall also be responsible for the plantation of compensatory trees as per the requirement of the permission for felling of trees. The cost & expenses for plantation of compensatory trees shall be borne by the contractor. The site/ location of

plantation of compensatory trees shall be decided and provided by the Employer.

5.2.7 List of approvals and permits to be obtained by the EPC contractor is enclosed as Schedule- A.

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# 6 Representations and Warranties

## 6.1 Representations and Warranties of the Contractor

The Contractor represents and warrants to the Employer that:

a) it is duly organized and validly existing under the laws of India and has full power and authority/capability to execute and perform its obligations under this Agreement and to carry out the transactions contemplated hereby.

b) it has taken all necessary corporate and/or other actions under Applicable Laws to authorize the execution and delivery of this Agreement and to validly exercise its rights and perform its obligations under this Agreement.

c) this Agreement constitutes its legal, valid and binding obligation, enforceable against it in accordance with the terms hereof, and its obligations under this Agreement will be legally valid, binding and enforceable against it in accordance with the terms hereof.

d) it is subject to the laws of India, and hereby expressly and irrevocably waives any immunity in any jurisdiction in respect of this Agreement or matters arising thereunder including any obligation, liability, or responsibility hereunder.

e) the information furnished in the Bid and as updated on or before the date of this Agreement is true and accurate in all respects as on the date of this Agreement.

f) the execution, delivery and performance of this Agreement will not conflict with, result in the breach of, constitute a default under, or accelerate performance required by any of the terms of its memorandum and articles of association or any Applicable Laws or any covenant, contract, Agreement, arrangement, understanding, decree or order to which it is a party or by which it or any of its properties or assets is bound or affected;

g) there are no actions, suits, proceedings, or investigations pending or, to its knowledge, threatened against it at law or in equity before any court or before any other judicial, quasi-judicial or other authority, the outcome of which may result in the breach of this Agreement or which individually or in the aggregate may result in any Material impairment of its ability to perform any of its obligations under this Agreement.

h) it has no knowledge of any violation or default with respect to any order, writ, injunction or decree of any court or any legally binding order of any Government Instrumentality which may result in any Material adverse effect on its ability to perform its obligations under this Agreement and no fact or circumstance exists which may give rise to such proceedings that would adversely affect the performance of its obligations under this Agreement.

i) it has complied with Applicable Laws in all material respects and has not been subject to any fines, penalties, injunctive relief or any other civil or criminal liabilities which in the aggregate have or may have a Material adverse effect on its ability to perform its obligations under this Agreement.

j) no representation or warranty by it contained herein or in any other document furnished by it to the Employer or to any Government Instrumentality in relation to Applicable Permits contains or will contain any untrue or misleading statement of Material fact or

omits or will omit to state a Material fact necessary to make such representation or warranty not misleading.

k) no sums, in cash or kind, have been paid or will be paid, by it or on its behalf, to any person by way of fees, commission or otherwise for securing the contract or entering into this Agreement or for influencing or attempting to influence any officer or employee of the Employer in connection therewith.

l) all information provided by the {selected bidder/ members of the Consortium} in response to the Request for Qualification and Request for Proposals or otherwise, is to the best of its knowledge and belief, true and accurate in all material respects; and

m) nothing contained in this Agreement shall create any contractual relationship or obligation between the Employer and any Sub- contractors, designers, consultants, or agents of the Contractor.

## 6.2 Representations and Warranties of the Employer

The Employer represents and warrants to the Contractor that:

a) it has full power and authority to execute, deliver and perform its obligations under this Agreement and to carry out the transactions contemplated herein and that it has taken all actions necessary to execute this Agreement, exercise its rights and perform its obligations, under this Agreement.

b) it has taken all necessary actions under the Applicable Laws to authorize the execution, delivery and performance of this Agreement.

c) it has the financial standing and capacity to perform its obligations under this Agreement.

d) this Agreement constitutes a legal, valid and binding obligation enforceable against it in accordance with the terms hereof.

e) it has no knowledge of any violation or defaults with respect to any order, writ, injunction or any decree of any court or any legally binding order of any Government Instrumentality which may result in any Material adverse effect on the Employer's ability to perform its obligations under this Agreement.

f) it has complied with Applicable Laws in all material respects.

g) it has good and valid rights to the Site.

## 6.3 Disclosure

6.3.1 In the event that any occurrence or circumstance comes to the attention of either Party that renders any of its aforesaid representations or warranties untrue or incorrect, such Party shall immediately notify the other Party of the same. Such notification shall not have the effect of remedying any breach of the representation or warranty that has been found to be untrue or incorrect nor shall it adversely affect or waive any obligation of either Party under this Agreement.

# 7 Disclaimer

## 7.1 Disclaimer

7.1.1 The Contractor acknowledges that prior to the execution of this Contract Agreement, the Contractor has, after a complete and careful examination, made an independent evaluation of the Request for Qualification (RFQ) cum Request for Proposal (RFP), Scope of the Project, Specifications and Standards of design, Approved Vendor List, Construction and Maintenance, Project Site, local conditions including weather conditions throughout the year, climate change impacts, physical qualities of ground, subsoil and geology, traffic volumes, suitability and availability of access routes to the Project Site and all information provided by the Employer or obtained, procured or gathered otherwise, and has determined to its satisfaction the accuracy or otherwise thereof and the nature and extent of difficulties, risks and hazards as are likely to arise or may be faced by it in the course of performance of its obligations hereunder. Save as provided in Clause 5.1.4 and Clause 6.2, the Employer makes no representation whatsoever, express, implicit or otherwise, regarding the accuracy, adequacy, correctness, reliability and/or completeness of any assessment, assumptions, site survey data, statement or information provided by it and the Contractor confirms that it shall have no claim whatsoever against the Employer in this regard.

7.1.2 The Contractor acknowledges and hereby accepts to have satisfied itself as to the correctness and sufficiency of the BID and Contract Price.

7.1.3 The Contractor acknowledges and hereby accepts the risk of inadequacy, mistake or error in or relating to any of the matters set forth in Clause 7.1.1 above and hereby acknowledges and agrees that the Employer shall not be liable for the same in any manner whatsoever to the Contractor, or any person claiming through or under any of them, and shall not lead to any adjustment of Contract Price or Scheduled Completion Date.

7.1.4 The Parties agree that any mistake or error in or relating to any of the matters set forth in Clause 7.1.1 above shall not vitiate this Agreement or render it voidable.

7.1.5 In the event that either Party becomes aware of any mistake or error relating to any of the matters set forth in Clause 7.1.1 above, that Party shall immediately notify the other Party, specifying the mistake or error.

7.1.6 Except as otherwise provided in this Agreement, all risks relating to the Project shall be borne by the Contractor, and the Employer shall not be liable in any manner for such risks or the consequences thereof.

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# Part D: EPC Agreement
## Section C- Construction, Operation and Maintenance

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# 8 Performance Security

## 8.1 Performance Security

8.1.1 The Contractor shall, for the performance of its obligations hereunder during the Construction Period, provide to the Employer, within 21 (Twenty One) days of the date of issue of LOA, an irrevocable and unconditional guarantee from a Bank or an Insurance Surety Bond in the form set forth in Schedule-B (the "Performance Security") for an amount equal to 5% (Five percent) of the Contract Price. The Performance Security shall be valid until 28 (Twenty-Eight) days after successful completion of the Defect Liability Period. Until such time the Performance Security is provided by the Contractor pursuant hereto and the same comes into effect, the Bid Security shall remain in force and effect, and upon such provision of the Performance Security, the Employer shall release the Bid Security to the Contractor.

8.1.2 Notwithstanding anything to the contrary contained in this Agreement, the Parties agree that in the event of failure of the Contractor to provide the Performance Security in accordance with the provisions of Clause 8.1.1 and within the time specified therein or such extended period as may be provided by the Employer, in accordance with the provisions of Clause 8.1.3, the Employer may encash the Bid Security and appropriate the proceeds thereof as Damages, and thereupon all rights, privileges, claims and entitlements of the Contractor under or arising out of this Contract Agreement shall be deemed to have been waived by, and to have ceased with the concurrence of the Contractor, and this Contract Agreement shall be deemed to have been terminated by mutual Agreement of the Parties.

8.1.3 In the event the Contractor fails to provide the Performance Security within 21 (Twenty One) days of the issue of LOA, it may seek an extension of time for a period not exceeding 20 (Twenty) days on payment of Damages for such extended period in a sum calculated at the rate of 0.05% (zero point zero five per cent) of the performance security amount for each day until the Performance Security is provided.

## 8.2 Extension of Performance Security

8.2.1 The Contractor shall provide the Performance Security for whole project duration including Defect Liability Period. In case of extension of contract, the extension of the validity of the Performance Security, as necessary shall be submitted, at least 2 (Two) months prior to the date of expiry of Performance Security thereof.

## 8.3 Appropriation of Performance Security

8.3.1 Upon the occurrence of a Contractor's Default, the Employer shall, without prejudice to its other rights and remedies hereunder or in law, be entitled to encash and appropriate the relevant amounts from the Performance Security as Damages for such Contractor's Default.

8.3.2 Upon such encashment and appropriation from the Performance Security, the Contractor shall, within 30 (Thirty) days thereof, replenish, in case of partial appropriation, to its original level the Performance Security, and in case of appropriation of the entire Performance Security provide a fresh Performance Security, as the case may be, and the Contractor shall, within the time so granted, replenish or furnish fresh Performance

Security as aforesaid failing which the Employer shall be entitled to terminate the Agreement in accordance with Clause 24. Upon replenishment or furnishing of a fresh Performance Security, as the case may be, as aforesaid, the Contractor shall be entitled to an additional Cure Period of 30 (Thirty) days for remedying the Contractor's Default, and in the event of the Contractor not curing its default within such Cure Period, the Employer shall be entitled to encash and appropriate such Performance Security as Damages, and to terminate this Agreement in accordance with Clause 24.

## 8.4 Release of Performance Security

8.4.1 The Employer shall return the Performance Security to the Contractor on the successful completion of the Defect Liability Period (DLP)/maintenance period (+) 28 days' grace period from the end of the DLP/maintenance period (or) from the date of check measurement of the rectification plus One year of grace period in case the defect rectification completed beyond the DLP/maintenance period..

## 8.5 Retention Money

8.5.1 From every payment for Works due to the Contractor in accordance with the provisions of Clause 20.5, the Employer shall deduct 5% (Five per cent) thereof as guarantee money for the performance of the obligations of the Contractor during the Construction Period (the "Retention Money").

8.5.2 Upon the occurrence of a Contractor's Default, the Employer shall, without prejudice to its other rights and remedies hereunder or in law, be entitled to appropriate the relevant amounts from the Retention Money as Damages for such Contractor's Default.

8.5.3 Deleted.

8.5.4 The 50% of this Retention Money shall be released within 28 days of the issue of the completion certificate for construction works upon furnishing an irrevocable and unconditional Bank guarantee substantially in the form provided and valid for 28 days beyond the end of the Defect Liability Period. The balance 50% will be retained without interest and shall be released within 28 days after the expiry of the Defect Liability Period.

8.5.5 The Parties agree that in the event of Termination of this Agreement, the Retention Money and the Bank guarantees specified in this Clause 8.5 shall be treated as if they are Performance Security and shall be reckoned as such for the purposes of Termination Payment under Clause 24.6.

8.5.6 From every quarterly payment for O&M due to the Contractor in accordance with the provisions of Clause 24.6, the Employer shall deduct 5% (Five per cent) thereof as guarantee money for the performance of the obligations of the Contractor during the O&M Period (the "Retention Money").

8.5.7 The same shall be released to the Contractor on the successful completion of the Defect Liability Period (DLP)/maintenance period (+) 28 days' grace period from the end of the DLP/maintenance period (or) from the date of check measurement of the rectification plus 28 days of grace period in case the defect rectification completed beyond the DLP/maintenance period.

# 9 The Project Site

## 9.1 The Site

The Site of the Project Works (the "Site") is described in Clause 9. The site shall be provided by the Employer to the Contractor. The Employer shall be responsible for:

a) acquiring and providing the Site in accordance with the alignment finalised by the Employer, free from all encroachments and encumbrances, and free access thereto for the execution of this Agreement; and

b) The employer shall assist in obtaining licenses and permits for Environmental Clearance for the Project Works.

9.1.1 Brief Description of Site

a) The Government of India has envisaged the development of Delhi-Mumbai Industrial Corridor (DMIC) along the alignment of the proposed Multi-modal High Axle Load Dedicated Freight Corridor between Delhi and Mumbai, covering an overall length of 1,483 km. The AURIC – Shendra Bidkin Industrial Area (SBIA) is one of the nine projects under the Delhi-Mumbai Industrial Corridor (DMIC).

b) An area of 3245 ha has been earmarked for the development of AURIC – Bidkin Industrial Area at Chhatrapati Sambhaji Maharaj District in the State of Maharashtra under the NICDIT framework.

c) The development strategy of the AURIC – Bidkin Industrial Area focuses on the infrastructure components to be developed within the BIA to position it as a leading manufacturing hub in the state of Maharashtra. Road Network, Water Supply, Drainage, Wastewater Management, Power Supply, Solid Waste Management and ICT Network are the various components to be developed within the AURIC- SBIA node. The Industrial area is proposed to be built in three phases. The Project site has been divided into 3 Sectors. The scope of the project includes the Sector B & C. This Sector B & C will be designed and implemented for an area of about 1984.71 ha under this contract.

d) The master plan and its land use summary is given below -

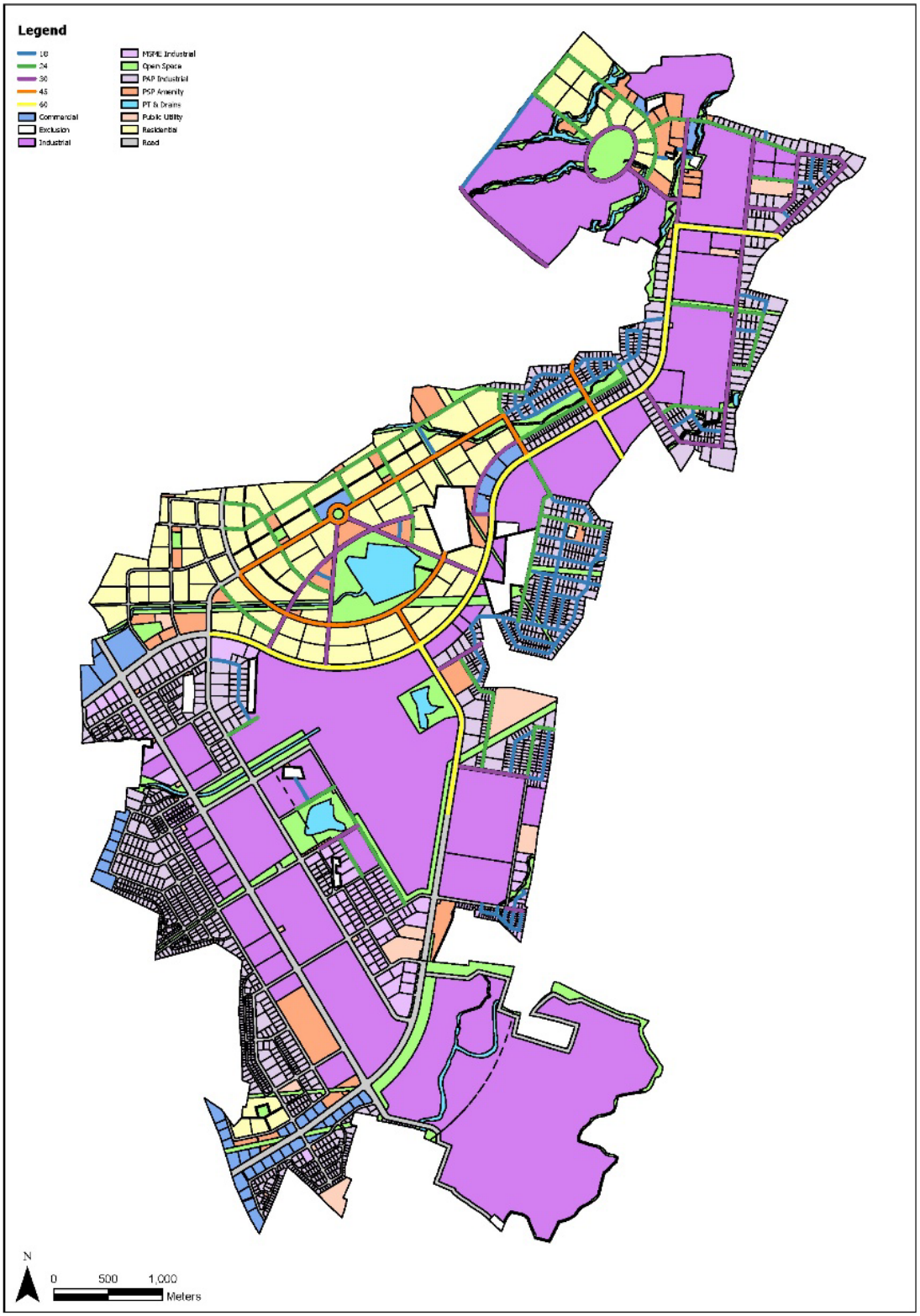



**Figure 1 - BIA Master Plan**

Land Use Statement for BIA Sector B & C

| Phase-Wise Area Statement | | | | |
|---|---|---|---|---|
| Sr. No. | Land Use | Sector | | Grand Total |
| | | B | C | |
| 1 | Industrial | 401.24 | 315.85 | 717.09 |
| 2 | MSME Industrial | 56.66 | | 56.66 |
| 3 | PAP Industrial | 157.48 | 137.40 | 294.87 |
| 4 | Residential | 251.77 | 47.62 | 299.38 |
| 5 | Commercial | 12.76 | 3.17 | 15.93 |
| 6 | PSP Amenity | 45.53 | 26.76 | 72.29 |
| 7 | Public Utility | 29.91 | 7.84 | 37.75 |
| 8 | Open Space | 125.76 | 54.78 | 180.54 |
| 9 | PT & Drains | 45.52 | 16.39 | 61.91 |
| 10 | Road | 168.97 | 79.31 | 248.29 |
| **11** | **Grand Total** | **1,295.59** | **689.11** | **1,984.71** |

## 9.2 Procurement of the Site

9.2.1 The Employer's Engineer/ Representative and the Contractor shall, within 15 (Fifteen) days of the date of this Agreement, inspect the Site and prepare a memorandum containing an inventory of the Site including the vacant and unencumbered land, buildings, structures, road works, power network, trees, and any other immovable property on or attached to the Site.

9.2.2 The memorandum shall be appended thereto an appendix (the "Appendix") specifying in reasonable detail those parts of the Site to which vacant access has not been given to the Contractor. The signing of the memorandum, in two counterparts (each of which shall constitute an original), by the authorized representatives of the Parties shall be deemed to constitute valid evidence of giving Site to the Contractor for discharging its obligations under and in accordance with the provisions of this Agreement and for no other purpose whatsoever.

9.2.3 Whenever the Employer is ready to hand over any part or parts of the Site included in the Appendix, it shall inform the Contractor, by notice, of the proposed date and time of such handing over. The Employer's Engineer/ Representative and the Contractor shall, on the date so notified, inspect the specified parts of the Site, and prepare a memorandum containing an inventory of the vacant and unencumbered land, buildings, structures, road works, power network, trees, and any other immovable property on or attached to the Site so handed over. The signing of the memorandum, in two counterparts (each of which shall constitute an original), by the authorised representatives of the Parties shall be deemed to constitute valid evidence of giving the relevant site to the Contractor.

9.2.4 The Right of Way including Utility area in accordance with the provisions of this Clause, shall be handed over to the contractor, no less than 70% (Seventy percent) of the Right of Way (RoW) shall be handed over to the contractor within a period of 90 (Ninety) days from the date of this Agreement, for Construction of Project. No compensation will be paid for any delay in handing over of RoW for construction; however, a time extension can be

granted upon submission of the schedule impact.

9.2.5 The Contractor shall not be permitted to enter (other than for inspection purposes) or take possession of the site until instructed to do so by the Employer's Engineer in writing. The portion of the site to be occupied by the Contractor shall be defined and/or marked on the site plan, failing which these shall be indicated by the Employer's Engineer and the Contractor shall on no account be allowed to extend his operations beyond these areas. The Contractor will be allowed to use such land free of charge for the purpose of sheds, and offices thereon for themselves and for the Employer's Engineer and his subordinates and shall remove the same from the ground at the completion of the Works or whenever required to do so by the Employer's Engineer after receiving 7 days' notice. He shall make good any damage which may have been done and restore to good condition anything which may have been disturbed during the period of his occupation.

9.2.6 The Contractor shall not use or allow to be used any such ground, sheds or offices, or any portion of the site of the Works, for any other purpose than the carrying out of Works under the Contract. The Contractor shall, in any case, pay all taxes which have to be paid in respect of all ground sheds or offices used as above, and all the license fees, etc., that may be demanded for the storage or otherwise of the various articles as per rules in force. The Contractor shall provide, if necessary or if required, on the site, all temporary access thereto and shall alter, adopt, and maintain the same as required from time to time and shall take up and clear them away as and when no longer required and make good all damage done to the site.

## 9.3 Site to be Free from Encumbrances

9.3.1 Subject to the provisions of Clause 9.2, the Site shall be made available by the Employer to the Contractor pursuant hereto free from all Encumbrances and occupations and without the Contractor being required to make any payment to the Employer on account of any costs, compensation, expenses and charges for the acquisition and use of such Site for the duration of the Project Completion Schedule. For the avoidance of doubt, it is agreed that the existing rights of way, easements, privileges, liberties, appurtenances, existing water, and power transmission lines etc., to the Site shall not be deemed to be Encumbrances. It is further agreed that, unless otherwise specified in this Agreement, the Contractor accepts and undertakes to bear any and all risks arising out of the inadequacy or physical condition of the Site.

## 9.4 Protection of Site from Encroachments

9.4.1 On and after signing the memorandum and/or subsequent memorandum referred to in Clause 9.2, and until the completion of the O&M Period, the Contractor shall maintain a round-the-clock vigil over the Site and shall ensure that no encroachment thereon takes place. During the Construction Period, the Contractor shall protect the Site from any and all occupations, encroachments or Encumbrances, and shall not place or create nor permit any Sub-contractor or other person claiming through or under the Agreement to place or create any Encumbrance or security threat over all or any part of the Site or the Project Assets, or on any rights of the Contractor therein or under this Agreement, save and except as otherwise expressly set forth in this Agreement. In the event of any encroachment or occupation on any part of the Site, the Contractor shall report such encroachment or

occupation forthwith to the Employer and undertake its removal at the Contractor's own cost and expenses.

## 9.5 Special/Temporary Roads

9.5.1 The Contractor shall bear all costs and charges for any special or temporary roads required by it in connection with access to the Site. The Contractor shall obtain at its cost such facilities on or outside the Site as may be required by it for the purposes of the Project Works and the performance of its obligations under this Agreement.

## 9.6 Access to the Employer and the Employer's Engineer

9.6.1 The Site given to the Contractor hereunder shall always be subject to the right of access of the Employer and the Employer's Engineer and their employees and agents for inspection, viewing and exercise of their rights and performance of their obligations under this Agreement.

9.6.2 The Contractor shall ensure, subject to all relevant safety procedures, that the Employer has unrestricted access to the Site during any emergency situation, as decided by the Employer's Engineer.

## 9.7 Fossils, Geological and Archaeological Facets

9.7.1 All fossils, coins, articles of value or antiquity, and structures and other remains or items of geological or archaeological interest found on the Site shall be placed under the care and authority of the Employer. The Contractor shall take reasonable precautions to prevent Contractor's Personnel or other persons from removing or damaging any of these findings.

9.7.2 The Contractor shall, upon discovery of any such finding, promptly give notice to the Employer, who shall issue instructions for dealing with it as per the instructions of concerned Government. Instrumentality and comply with such instructions as the Employer or the concerned Government Instrumentality may reasonably give for the removal of such property.

9.7.3 It is expressly agreed that mining, geological or archaeological rights do not form part of this Agreement with the Contractor for the Works, and the Contractor hereby acknowledges that it shall not have any mining rights or interest in the underlying minerals, fossils, antiquities, Structures or other remnants or things either of particular geological or archaeological interest and that such rights, interest and property on or under the Site shall vest in and belong to the Employer or the concerned Government Instrumentality. The Contractor shall take all reasonable precautions to prevent its workmen or any other person from removing or damaging such interest or property and shall inform the Employer forthwith of the discovery thereof and comply with such instructions as the concerned Government Instrumentality may reasonably give for the removal of such property. For the avoidance of doubt, it is hereby confirmed that any reasonable expenses incurred by the Contractor hereunder shall be reimbursed by the Employer. It is also agreed that the Employer shall make all endeavours that the instructions hereunder are issued by the

concerned Government Instrumentality within a reasonable period.

## 9.8 Disposal of Materials

9.8.1 All materials arising from excavation for road and other structures of the project site shall be disposed of by the Contractor with all leads and lifts at a location identified by the contractor and as agreed by the employer. The disposal of materials is the responsibility of the Contractor.

## 9.9 Sublease of Site Land

9.9.1 The contractor shall not sub-lease, assign or share the project site or part thereof for any material or non-material gain or consideration in any form and in any case without the written consent of the Employer.

# 10 Utilities and Trees

## 10.1 Existing Utilities and Roads

10.1.1 Notwithstanding anything to the contrary contained herein, the Contractor shall ensure that the respective entities owning the existing roads, right of way, level crossings, structures, or utilities on, under or above the Site are enabled by it to keep them in continuous satisfactory use, if necessary, by providing suitable temporary diversions with the authority of the controlling body of that road, right of way or utility.

## 10.2 Shifting of Obstructing Utilities

10.2.1 The Contractor shall, in accordance with Applicable Laws and with the assistance of the Employer, cause shifting of any utility (including electric lines, water pipes and telephone cables) to an appropriate location or alignment, if such utility or obstruction adversely affects the execution of Works or Operation and Maintenance of the Project Works or as per directions of Employer/Employer's Engineer in accordance with this Agreement. The actual cost of such shifting, as approved and communicated by the entity owning the utility, shall be paid by the Contractor and reimbursed by the Employer to the Contractor at actuals.

10.2.2 Dismantling and removal of existing utilities, nonfunctional utilities, including power distribution lines, which are not to be shifted/relocated with the consent of the Employer and the entity owning the utility shall be part of the scope of works under the contract and the cost of dismantling shall be included in the Contract Price. The material so dismantled shall be the property of the owning entity/ Employer and shall be handed over to the owning entity/ Employer.

## 10.3 New Utilities

10.3.1 The Contractor shall allow, subject to such conditions as the Employer may specify, access to, and use of the Site for laying telephone lines, water pipes, electric cables or other public utilities. The contractor shall manage the interface of various services in the designated area and from adjoining areas to ensure seamless integration of services. The contractor shall also manage the interface of services in case implementation is carried out through multiple contractors. Where such access or use causes any financial loss to the Contractor, it may require the user of the Site to pay compensation or Damages as per Applicable Laws. For the avoidance of doubt, it is agreed that the use of the Site under this Clause 10.3 shall not in any manner relieve the Contractor of its obligation to construct and maintain the Project Works in accordance with this Agreement and any damage caused by such use shall be restored forthwith at the cost of the Employer.

10.3.2 The Employer may, by notice, require the Contractor to connect any adjoining road to the Project roads, and the connecting portion thereof falling within the Site shall be constructed by the Contractor at the Employer's cost in accordance with Clause 11.

10.3.3 Contractor's Acknowledgement

10.3.4 The Contractor acknowledges that Related Works shall be performed and that it is of paramount importance that the design and execution of the Works are coordinated with

any Related Works.

10.3.5 Related Works' responsibilities

Accordingly, the Contractor shall at all times and otherwise in accordance with the reasonable requirements and directions of the Employer's Engineer:

a) Take all reasonable steps to coordinate and to integrate the design and execution of the Works, including the work of Subcontractors, with the activities of the Related Works Contractors; and

b) Attend such coordination meetings called by the Employer's Engineer to plan, review and determine coordinated activities for the management of interfaces between the Works and any Related Works; and

c) At all times refrain from carrying out any operation on the Site in a manner which is likely to cause damage or inconvenience to the execution of any Related Works; where such damage or inconvenience is the unavoidable consequence of operations properly to be carried out on the Site, the Contractor shall not carry out such operations without first giving reasonable advance notice in writing thereof to the Employer's Engineer (with a copy to those responsible for carrying out any Related Works reasonably likely to be affected thereby) with a view to reaching an agreed procedure to prevent or minimize any such damage or inconvenience. In particular, the Contractor shall at all times prevent the discharge of surface water across the Site except where the Employer's Engineer gives its prior written consent for such discharge; and

d) At all times co-operate with the Employer, the Employer's Engineer, and any Related Works Contractors so as to promote and foster a coordinated and integrated approach to the Works and any Related Works; and

e) Monitor the coordination and integration of the Works with any Related Works and advise the Employer's Engineer in writing as and when it becomes apparent that the design or execution of the Works is likely to be the subject of delay and/or disruption and recommend reasonable proposals to reduce or prevent such delay and/or disruption.

10.3.6 In the event that the Construction of any Works is affected by a new utility or Works undertaken in accordance with this Clause 10.3, the Contractor shall be entitled to a reasonable Time Extension as determined by the Employer’s Engineer.

## 10.4 Felling of Trees

10.4.1 The Employer shall assist the Contractor in obtaining the Applicable Permits for felling of trees to be identified by the Employer for this purpose if and only if such trees cause a Material Adverse Effect on the Construction and Operation and Maintenance of the Project Works. The cost of such felling trees shall be borne by the Contractor and in the event of any delay in felling thereof for reasons beyond the control of the Contractor, it shall be excused for failure to perform any of its obligations hereunder if such failure is a direct consequence of the delay in the felling of trees. The Parties hereto agree that the felled trees (except the scheduled trees, which shall be Employer’s Property) shall be deemed to be owned by the Employer and shall be disposed of in such a manner and subject to such conditions as the Employer may in its sole discretion deem appropriate, as

appropriate with required statutory approvals. Obtaining the required statutory approvals for the above shall be the responsibility of the Contractor. For the avoidance of doubt, the Parties agree that if any felling of trees hereunder is in a forest area, the Applicable Permit thereof shall be procured by the Employer within the time specified in the Agreement. No forest area is present in the project area.

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# 11 Design and Construction of the Project Works

## 11.1 Obligations prior to commencement of Works

11.1.1 Within 15 (Fifteen) days of the Appointed date, the Contractor shall:

a) appoint its representative, duly authorised to deal with the Employer in respect of all matters under or arising out of or relating to this Agreement.

b) appoint a design manager (the "Design Manager") who will head the Contractor's design unit and shall be responsible for surveys, investigations, collection of data, and preparation of preliminary and detailed designs.

c) undertake and perform all such acts, deeds and things as may be necessary or required before commencement of Works under and in accordance with this agreement, the applicable Laws, and applicable permits; and

d) make its own arrangements for quarrying of Materials needed for the project works under and in accordance with the applicable laws and applicable permits.

11.1.2 The Employer has/ will appointed M/s …….. as an engineer (the "Employer's Engineer") to discharge the functions and duties specified in this Agreement.

Within 30 (Thirty) days of the Appointed Date, the Contractor shall submit to the Employer and the Employer's Engineer a Programme (the "Programme") for the Works, developed using networking techniques in Primavera P6, giving the following details outlined in Clause 11.1.3.

11.1.3 Part I-Contractor's organisation for the Project, the general methods and arrangements for design and Construction, environmental management plan, Environment and Social Management Plan, Quality Assurance Plan including design quality plan, traffic management and Health & safety plan covering safety of users and workers during Construction, Contractor's key personnel and equipment.

Part II- Programme for completion of all stages of Construction and Project Milestones of the Works as specified in the Project Completion Schedule set forth in Schedule-E. The Programme shall include:

a) The order in which the Contractor intends to carry out the Works, including the anticipated timing of design and stages of Works.

b) The periods for reviews under Clause 11.2;

c) The sequence and timing of inspections and Tests specified in this Agreement.

d) The approved baseline schedule shall be resource-loaded (manpower, equipment and finance)

The Contractor shall submit a revised Programme whenever the previous Programme is inconsistent with the actual progress or with the Contractor's obligations.

Part III- Monthly cash flow forecast.

11.1.4 The Contractor shall compute, on the basis of the Drawings prepared in accordance with Clause 11.2.7, and provide to the Employer's Engineer, the length, area and numbers, as the case may be, in respect of the various items of work specified in Schedule C and comprising the scope of the Project. The Parties expressly agree that these details shall

form the basis for estimating the interim payments for the Works in accordance with the provisions of Clause 20.3. For the avoidance of doubt, the sum of payments to be computed in respect of all the items of work shall not exceed the Contract Price, as may be adjusted in accordance with the provisions of this Agreement.

11.1.5 The Contractor shall appoint a safety consultant (the "Safety Consultant") to carry out a fire and safety audit at the design stage of the Project Works in accordance with the Applicable Laws and Good Industry Practice. The Safety Consultant shall be appointed after proposing to the Employer a panel of three names of qualified and experienced firms, along with their firms and personnel experience, from whom the Employer may choose one to be the Safety Consultant. Provided, however, that if the panel is not acceptable to the Employer and the reasons for the same are furnished to the Contractor, the Contractor shall propose to the Employer a revised panel of three names from the firms empanelled as safety consultants by the Employer for obtaining the consent of the Employer. The Contractor shall also obtain the consent of the Employer for the key personnel of the Safety Consultant, who shall have adequate experience and qualifications in the safety audit of similar infrastructure projects. The Employer shall, within 15 (Fifteen) days of receiving a proposal from the Contractor hereunder, convey its decision, with reasons, to the Contractor and the Contractor shall propose a revised panel for the consent of the Employer.

11.1.6 The safety audit pursuant to Clause 11.1.5 shall be carried out by the Safety Consultant in respect of all such design details that have a bearing on the safety of Users as well as pedestrians and animals involved in or associated with accidents. The recommendations of the Safety Consultant shall be incorporated in the design of the Project Works and the Contractor shall forward to the Employer's Engineer a certificate to this effect, together with the recommendations of the Safety Consultant. In the event that any Works required by the Safety Consultant shall fall beyond the scope as mentioned in Volume II, the Contractor shall make a report thereon and seek the instructions of the Employer. For the avoidance of doubt, the Safety Consultant to be engaged by the Contractor shall be independent of the design and implementation team of the Contractor.

## 11.2 Design and Drawings

11.2.1 The Contractor shall carry out, and be responsible for, the complete design of the works, including basic engineering, detailed engineering and construction drawings. Design shall be prepared by qualified designers/ professionals/ experts who comply with the criteria stated in the Employer's Requirements or as directed by the Employer's Engineer. The Contractor shall furnish the credentials and curriculum vitae (CV) of the expert(s) deployed on the project upon the Client's request. This information shall be provided in a timely manner and shall include all relevant qualifications, experience, and certifications necessary to demonstrate the expert's suitability for the project. The Contractor undertakes that the expert(s)/designer(s) shall be available to attend discussions with the Employer's Engineer at all times with reasonable notice during the Contract Period.

11.2.2 Contractor shall be responsible for obtaining the approval of design, detailed engineering drawings, construction documents and drawings from the Employer's Engineer or any agency or consultant appointed by the Employer for this purpose. No extra payment or

charges shall be paid to the contractor for this purpose.

11.2.3 The Contractor is required to study the Employer's Design criteria, specifications etc., as included in the contract agreement and assume complete responsibility for its design. Design and Drawings shall be developed in conformity with the Specifications and Standards set forth in Volume II and Volume III. In the event the Contractor requires any relaxation in design standards due to restricted right-of-way in any section or non-availability of the project site, the alternative design criteria for such Section shall be provided for review by the Employer's Engineer. The contractor, within 30 days of LOA, shall submit the drawing and document list with submission dates for approval by the Employer's Engineer and abide by the agreed dates for submission of the drawings and documents.

11.2.4 The Contractor shall deploy a 3D BIM (for infrastructure) consultant who has experience in implementing projects having linear infrastructure components such as roads, sewer, stormwater, power distribution, etc. and civil structures like substations, etc. The Contractor shall propose a panel of three names of qualified and experienced firms from whom the Employer/Employer's Engineer may choose one to be the 3D-BIM (for infrastructure) modelling Consultant. Provided, however, that if the panel is not acceptable to the Employer and the reasons for the same are furnished to the Contractor, the Contractor shall propose to the Employer a revised panel of three names from the firms empanelled as 3D-BIM (for infrastructure) modelling consultants by the Employer along with their firms and personnel experience for obtaining the consent of the Employer. The Employer shall, within 30 (Thirty) days of receiving a proposal from the Contractor or providing sufficient information as desired by the Employer, whichever is later hereunder, convey its decision, with reasons, to the Contractor for engaging a 3D-BIM modelling (for infrastructure) Consultant. In case the contractor has in-house capability for 3D-BIM modelling (for infrastructure), he may propose an in-house team having prior experience and capability for review and approval by the Employer's Engineer. Notwithstanding anything to the contrary, the Contractor shall be solely responsible for the implementation of an integrated and coordinated 3D BIM model for the project infrastructure, integrating each of the structure/unit/component of the project.

11.2.5 The Contractor shall appoint a proof check consultant (the "Proof Consultant") for independent reviews of the designs and drawings approved by the Employer's Engineer for safety, IS code compliance, and constructability. The proof consultant shall verify calculations, assess risks, suggest corrections, and coordinate with the Contractor's design team. The proof consultant shall certify that the design meets all applicable standards and project requirements, ensuring structural integrity and regulatory compliance. The contractor shall propose to the Employer a panel of three names of qualified and experienced firms (preferably IITs/NITs/ Government Engineering Institute/s) from whom the Employer may choose one to be the Proof Consultant. Provided, however, that if the panel is not acceptable to the Employer and the reasons for the same are furnished to the Contractor, the Contractor shall propose to the Employer a revised panel of three names from the firms empanelled as proof consultants by the Employer along with their firms and personnel experience for obtaining the consent of the Employer. The Contractor shall also obtain the consent of the Employer for two key personnel of the Proof

Consultant who shall have adequate experience and qualifications of such infrastructure projects including Roads & Bridges, Buildings, Structures, Drains, Culverts, Water Supply, Sewage, Gas, Power systems, ICT, Fire, and any other relevant discipline. The Employer shall, within 30 (Thirty) days of receiving a proposal from the Contractor or providing sufficient information as desired by the Employer, whichever is later hereunder, convey its decision, with reasons, to the Contractor for engaging Proof Consultant. Notwithstanding anything to the contrary, the Contractor shall be solely responsible for the safe design of each of the structure/ unit/ component, complying with the relevant Indian Standards (IS) codes.

11.2.6 The Proof Consultant shall:

a) Evolve a systems approach with the Design Manager so as to minimise the time required for final designs and Construction Drawings, covering and ensuring compliance with respect to the scope of the contract agreement.

b) Proof checks the detailed calculations, drawings, and designs, which have been approved by the Employer's Engineer and ensures compliance with respect to the scope of the contract agreement.

11.2.7 In respect of the Contractor's obligations with respect to the Design and Drawings of the Project Works as set forth in Volume II and III, the following shall apply:

a) The Contractor shall prepare and submit, within the stipulated time and in such sequence as is consistent with the Project Completion Schedule, five copies and one set of soft copy in CD/pen drive each of the Design and Drawings, duly certified by the Proof Consultant, to the Employer's Engineer for record. .

b) Drawings submitted to the Employer's Engineer shall be deemed to have been certified by the Contractor's Design Manager thereto and are in conformity with the Scope of the Project, the Specifications and Standards and the Applicable Laws.

c) Within 21 (Twenty-one) days of the receipt of the Drawings, the Employer's Engineer shall review the same and convey its observations to the Contractor with particular reference to their conformity or otherwise with the Scope of the Project and the Specifications and Standards.

d) If the aforesaid observations of the Employer's Engineer indicate that the designs/drawings are not in conformity with the Scope of the Project or the Specifications and Standards, such designs/Drawings shall be revised by the Contractor to ensure conformity with the provisions of this Agreement and resubmitted to the Employer's Engineer for review and approval. The Employer's Engineer shall give its observations, if any, within 15 (Fifteen) days of receipt of the revised designs/Drawings. In the event the Contractor fails to revise and resubmit such designs/Drawings to the Employer's Engineer for review as aforesaid, the Employer's Engineer, in consultation with the Employer, may withhold the payment for the affected Works in accordance with the provisions of Clause 20.5. If the Contractor Disputes any decision, direction or determination of the Employer's Engineer hereunder, the Dispute shall be resolved in accordance with the Dispute Resolution Procedure.

e) No review and/or observation of the Employer's Engineer and/or its failure to review and/or convey its observations on any Drawings shall relieve the Contractor of its obligations and liabilities under this Agreement in any manner nor shall the Employer's Engineer or the Employer be liable for the same in any manner; and if errors, omissions, ambiguities, inconsistencies, inadequacies or other Defects are found in the Drawings, they and the Construction Works shall be corrected at the Contractor's cost, notwithstanding any review under this Section 11;

f) The Contractor shall be responsible for delays in submitting the designs/drawings as set forth in Volume III caused by reason of delays in surveys and field investigations, and shall not be entitled to seek any relief in that regard from the Employer; and

g) The Contractor warrants that its designers, including any third parties engaged by it, shall have the required experience and capability in accordance with Good Industry Practice and it shall indemnify the Employer against any damage, expense, liability, loss or claim, which the Employer might incur, sustain or be subject to arising from any breach of the Contractor's design responsibility and/or warranty set out in this Clause.

h) The Contractor undertakes that the designers shall be available and attend discussions with the Employer's Representative at the scheduled time.

i) The contractor shall obtain verification from the proof consultant in respect of design and engineering, including field Construction criteria and constructability for each structure as indicated by the Employer's Engineer. If the Contractor wishes to modify any design or document which has previously been submitted for review (and if specified as approved by the Employer's Engineer), the Contractor shall immediately give Notice to the Employer's Engineer, accompanied by a written explanation of the need for such modification. Thereafter, the Contractor shall submit revised documents to the Employer's Engineer in accordance with the above procedure.

j) If the Employer's Engineer instructs that further Contractor's Documents are required, the Contractor shall prepare them promptly at his own cost. The Contractor undertakes that the Design, the Contractor's Documents, the Execution, and the Completed Works will be in accordance with:

   i. The Laws of the Country; and

   ii. The documents forming the Contract, as altered or modified by Variations.

11.2.8 Any cost or delay in Construction arising from review by the Employer's Engineer and/or Proof consultant shall be borne by the Contractor.

11.2.9 Works shall be executed in accordance with the Drawings provided by the Contractor in accordance with the provisions of Clause 11.2 and the observations of the Employer's Engineer thereon as communicated pursuant to the provisions of Clause 11.2.7 (d). Such Drawings shall not be amended or altered without prior written notice to the Employer's Engineer. If a Party becomes aware of an error or Defect of a technical nature in the design or Drawings, that Party shall promptly give notice to the other Party of such error or defect. Works shall only be carried out on drawings duly signed and stamped as Good for Construction by the Employer's Engineer.

11.2.10 Any design or drawing submitted by the Contractor for review and approval of the

Employer's Engineer shall include references or list all dependent designs and drawings (e.g. the structural drawing submitted for approval shall include the references of the dependent Mechanical GA drawing, Architectural drawing, etc.) along with the status of approval for the same. The Contractor must obtain the Employer's Engineer's prior approval for the dependent designs and drawings or the contingent factors/ parameters/ loads/ equipment manufacturer's requirement associated with the drawing or design being submitted for approval.

11.2.11 Within 30 (Thirty) days of the Project Construction Completion Date before issuance of Construction Completion Certificate, the Contractor shall furnish to the Employer and the Employer's Engineer a complete set of as built Drawings, in 5 (Five) hard copies and in soft copy form or in such other medium as may be acceptable to the Employer along with the integrated 3D BIM model, reflecting the Project Works as actually designed, engineered and constructed, including an as built survey illustrating the layout of the Project Works and setback lines, if any, of the buildings and Structures forming part of Project Facilities. Construction of the Project Works

## 11.3 Construction of the Project Works

11.3.1 The Contractor shall construct the Project Works as specified in Volume II, and in conformity with the Specifications and Standards set forth in Volume II. The Contractor shall be responsible for the correct positioning of all parts of the Works and shall rectify any error in the positions, levels, dimensions, or alignment of the Works. The 1095$^{th}$ (One Thousand Ninety Fifth) day from the Appointed Date shall be the scheduled completion date for construction works (the "Scheduled Completion Date") and the Contractor agrees and undertakes that the Construction shall be completed on or before the Scheduled Completion Date, including any extension thereof.

11.3.2 The Contractor shall construct the Project Works in accordance with the Project Completion Schedule set forth in Schedule-E. In the event that the Contractor fails to achieve any Project Milestone or the Scheduled Completion Date (including any extension granted by the Employer) from the date set forth in Schedule-E, unless such failure has occurred due to Force Majeure or for reasons solely attributable to the Employer, it shall pay Damages to the Employer of a sum calculated at the rate of 0.05% (zero point zero five percent) of the Contract Price for delay of each day reckoned from the date specified in Schedule –E and until such Project Milestone is achieved or the Works are completed; provided that if the period for any or all Project Milestones or the Scheduled Completion Date is extended in accordance with the provisions of this Agreement, the dates set forth in Schedule-E shall be deemed to be modified accordingly and the provisions of this Agreement shall apply as if Schedule-E has been amended as above; provided further that in the event the Works are completed within or before the Scheduled Completion Date including any Time Extension, applicable for that work or section, the Damages paid under this Clause shall be refunded by the Employer to the Contractor, but without any interest thereon. For the avoidance of doubt, it is agreed that recovery of Damages under this Clause 11.3.2 shall be without prejudice to the rights of the Employer under this Agreement including the right of Termination thereof. The Parties further agree that Time Extension hereunder shall only be reckoned for and in respect of the affected Works as specified in

Clause 11.5.2.

11.3.3 The Employer shall notify the Contractor of its decision to impose Damages in pursuance with the provisions of this Clause 11.3. Provided that no deduction on account of Damages shall be affected by the Employer without notifying the Contractor of its decision to impose the Damages, and taking into consideration the representation, if any, made by the Contractor within 20 (Twenty) days of such notice. The Parties expressly agree that the total amount of Damages under Clause 11.3.2 shall not exceed 10% (Ten percent) of the Contract Price.

## 11.4 Maintenance during Construction Period

11.4.1 During the Construction Period, the Contractor shall maintain, at its cost, the existing lane(s) of the Project roads so that the traffic worthiness and safety thereof are at no time Materially inferior as compared to their condition 10 (Ten) days prior to the date of this Agreement, and shall undertake the necessary repair and maintenance works for this purpose; provided that the Contractor may, at its cost, interrupt and divert the flow of traffic if such interruption and diversion is necessary for the efficient progress of Works and conforms to Good Industry Practice; provided further that such interruption and diversion shall be undertaken by the Contractor only with the prior written approval of the Employer's Engineer which approval shall not be unreasonably withheld. For the avoidance of doubt, it is agreed that the Contractor shall at all times be responsible for ensuring safe operation of the Project roads.

## 11.5 Extension of time for Completion

11.5.1 Without prejudice to any other provision of this Agreement for and in respect of extension of time, the Contractor shall be entitled to extension of time in the Project Completion Schedule (the "Time Extension") to the extent that completion of any Project Milestone is or will be delayed by any of the following, namely:

a) Delay in providing the Site, Environmental Clearances (bidder to note that delay in obtaining Environmental clearance will be without any financial implications to the Employer).

b) Change of Scope (unless an adjustment to the Scheduled Completion Date has been agreed under Clause 14).

c) Occurrence of a Force Majeure Event.

d) Any delay, impediment or prevention caused by or attributable to the Employer, the Employer's personnel, or the Employer's other contractors on the Site.

e) Any other cause or delay which entitles the Contractor to Time extension in accordance with the provisions of this Agreement; and

f) Any other cause or delay attributed to the contractor which entitles the Contractor to Time extension in accordance with the provisions of this Agreement. However, in such case the Employer will freeze the indices and no Price adjustment as per Clause 20.10 will be applicable for such Extension of Time till completion of work.

11.5.2 The Contractor shall, no later than 15 (Fifteen) business days from the occurrence of an event or circumstance specified in Clause 11.5.1, inform the Employer's Engineer by

notice in writing, with a copy to the Employer, stating in reasonable detail with supporting particulars, the event or circumstances giving rise to the claim for Time Extension in accordance with the provisions of this Agreement. Provided that the period of 15 (Fifteen) business days shall be calculated from the date on which the Contractor became aware, or should have become aware, of the occurrence of such an event or circumstance.

11.5.3 Provided further that notwithstanding anything to the contrary contained in this Agreement, Time Extension shall be due and applicable only for the Works which are affected by the aforesaid events or circumstances and shall not in any manner affect the Project Completion Schedule for and in respect of the Works which are not affected hereunder.

11.5.4 In the event of the failure of the Contractor to issue to the Employer's Engineer a notice in accordance with the provisions of Clause 11.5.2 within the time specified therein, the Contractor shall not be entitled to any Time Extension and shall forfeit its right for any such claims in future. For the avoidance of doubt, in the event of failure of the Contractor to issue notice as specified in this clause 11.5.4, the Employer shall be discharged from all liability in connection with the claim.

11.5.5 The Employer's Engineer shall, on receipt of the claim in accordance with the provisions of Clause 11.5.2, examine the claim expeditiously within the time frame specified herein. In the event the Employer's Engineer requires any clarifications to examine the claim, the Employer's Engineer shall seek the same within 15 (Fifteen) days from the date of receiving the claim. The Contractor shall, on receipt of the communication of the Employer's Engineer requesting for clarification, furnish the same to the Employer's Engineer within 10 (Ten) days thereof. The Employer's Engineer shall, within a period of 60 (Sixty) days from the date of receipt of such clarifications, forward in writing to the Contractor its determination of Time Extension.

Provided that when determining each extension of time under this Clause 11.5, the Employer's Engineer shall review previous determinations and may increase, but shall not decrease, the total Time Extension.

11.5.6 If the event or circumstance giving rise to the notice has a continuing effect:

a) a fully detailed claim shall be considered as interim.

b) the Contractor shall, no later than 10 (Ten) days after the close of each month, send further interim claims specifying the accumulated delay, the extension of time claimed, and such further particulars as the Employer's Engineer may reasonably require; and

c) the Contractor shall send a final claim within 30 (Thirty) days after the effect of the event, or the circumstance ceases.

Upon receipt of the claim hereunder, the Employer's Engineer shall examine the same in accordance with the provisions of Clause 11.5.5 within a period of 60 (Sixty) days of the receipt thereof.

## 11.6 Incomplete Works

11.6.1 In the event the Contractor fails to complete the Works in accordance with the Project Completion Schedule, including any Time Extension granted under this Agreement, the Contractor shall endeavour to complete the balance work expeditiously and shall pay

Damages to the Employer in accordance with the provisions of Clause 11.3.2 for delay of each day until the Works are completed in accordance with the provisions of this Agreement. Recovery of Damages under this Clause shall be without prejudice to the rights of the Employer under this Agreement including the right to Termination under Clause 24.1.

## 11.7 Operation and Maintenance Manual

11.7.1 No later than 60 (Sixty) days prior to the Project Completion Date but before issuance of Project Completion cum Taking Over Certificate, the Contractor shall, in consultation with the Employer's Engineer, evolve a Maintenance Manual (the "Operation and Maintenance Manual") for the regular and preventive Operation and Maintenance of the Project Works in conformity with the Specifications and Standards, Safety Requirements and Good Industry Practice, and shall provide 5 (Five) copies thereof to the Employer's Engineer/ Designated Person. The Employer's Engineer shall review the Operation and Maintenance Manual within 15 (Fifteen) days of its receipt and communicate its comments to the Contractor for necessary modifications, if any.

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# 12 Quality Assurance, Monitoring and Supervision

## 12.1 Quality of Materials and Workmanship

The Contractor shall ensure that the Construction, Materials, and workmanship are in accordance with the requirements specified in this Agreement, Specifications and Standards and Good Industry Practice.

## 12.2 Quality Control System

12.2.1 The Contractor shall establish a quality control mechanism to ensure compliance with the provisions of this Agreement (the "Quality Assurance Plan" or "QAP").

12.2.2 The Contractor shall, within 30 (Thirty) days of the Appointed Date, submit to the Employer's Engineer its Quality Assurance Plan which shall include the following:

a) Organization, duties and responsibilities, procedures, inspections, and documentation.

b) Quality control mechanism including sampling and testing of Materials, test frequencies, standards, acceptance criteria, testing facilities, reporting, recording and interpretation of test results, approvals, checklist for Site activities, and proforma for testing and calibration in accordance with the Specifications as mentioned in this tender document, relevant specifications, BIS standards, Indian Standards relevant to project components and Good Industry Practice.

c) Internal quality audit system; and

d) Details of all procedures and compliance documents shall be submitted to the Employer before each design and execution stage is commenced. When any document of a technical nature is issued to the Employer's Engineer, evidence of the prior approval by the Contractor's Design Manager should be available on the submission.

12.2.3 The Employer's Engineer shall convey its comments to the Contractor within a period of 21 (Twenty-one) days of receipt of the QAP, stating the modifications, if any, required, and the Contractor shall incorporate those in the QAP to the extent required for conforming with the provisions of this Clause 12.2.

12.2.4 The Contractor shall procure all documents, apparatus and instruments, fuel, consumables, water, electricity, labour, Materials, samples, and qualified personnel as are necessary for examining and testing the Project Assets and workmanship in accordance with the Quality Assurance Plan.

12.2.5 The cost of testing of Construction, Materials and Workmanship under this Section shall be borne by the Contractor.

## 12.3 Methodology

12.3.1 The Contractor shall, at least 15 (Fifteen) days prior to the commencement of the Construction, submit to the Employer's Engineer for review the methodology proposed to be adopted for executing the Works, giving details of equipment to be deployed, traffic management and measures for ensuring safety. The Employer's Engineer shall complete the review and convey its comments to the Contractor within a period of 15 (Fifteen) days

from the date of receipt of the proposed methodology from the Contractor.

## 12.4 Inspection and Technical Audit by the Employer

12.4.1 The Employer or any representative authorized by the Employer on this behalf may inspect and review the progress and quality of the Construction of Project Works and issue appropriate directions to the Employer's Engineer and the Contractor for taking remedial action in the event the Works are not in accordance with the provisions of this Agreement.

## 12.5 External Technical Audit

12.5.1 At any time during Construction, the Employer may appoint an external technical auditor to conduct an audit of the quality of the Works. The findings of the audit, to the extent accepted by the Employer, shall be notified to the Contractor and the Employer's Engineer for taking remedial action in accordance with this Agreement. The Contractor shall provide all assistance as may be required by the auditor in the conduct of its audit hereunder. Notwithstanding anything contained in this Clause 12.5, the external technical audit shall not affect any obligations of the Contractor or the Employer's Engineer under this Agreement.

## 12.6 Inspection of Construction Records

12.6.1 The Employer shall have the right to inspect the records of the Contractor relating to the Works.

## 12.7 Monthly Progress Reports

12.7.1 During the Construction Period and O&M period, the Contractor shall, no later than 7 (Seven) days after the close of each month, furnish to the Employer and the Employer's Engineer a monthly report on the progress of the Works for their review and shall promptly give such other relevant information as may be required by the Employer's Engineer.

## 12.8 Inspection

12.8.1 The Employer/ Employer's Engineer and its authorized representative shall at all reasonable times:

a) Have full access to all parts of the Site and to all places from which natural Materials are being obtained for use in the Works; and

b) During production, manufacture and Construction at the Site and the place of production, be entitled to examine, inspect, measure, and test the Materials and workmanship, and to check the progress of the manufacture of Materials.

12.8.2 The Contractor shall give the Employer/ Employer's Engineer and its authorized agents access, facilities and safety equipment for carrying out their obligations under this Agreement.

12.8.3 The Employer's Engineer shall submit a monthly inspection report (the "Inspection Report") to the Employer and the Contractor bringing out the results of inspections and the remedial action taken by the Contractor in respect of Defects or deficiencies. For the avoidance of doubt, such inspection or submission of the Inspection Report by the Employer's Engineer shall not relieve or absolve the Contractor of its obligations and

liabilities under this Agreement in any manner whatsoever.

## 12.9 Samples

The Contractor shall submit the following samples of Materials and relevant information to the Employer's Engineer for pre-construction review:

a) Manufacturer test reports and standard samples of manufactured materials; and

b) Samples of such other Materials as the Employer's Engineer may require, shall be got tested by State/Central Government approved laboratories at the cost of the contractor.

## 12.10 Tests

12.10.1 For determining that the Works conform to the Specifications and Standards, the Employer's Engineer shall require the Contractor to carry out or cause to be carried out Tests, at such time and frequency and in such manner as specified in this Agreement, and in accordance with Good Industry Practice for quality assurance. The test checks by the Employer's Engineer shall comprise at least 20 (Twenty) percent of the quantity or number of Tests prescribed for each category or type of test for quality control by the Contractor.

12.10.2 In the event that results of any Tests conducted under this Clause 12.10 establish any Defects or deficiencies in the Works, the Contractor shall carry out remedial measures and furnish a report to the Employer's Engineer in this behalf. The Employer's Engineer shall require the Contractor to carry out or cause to be carried out Tests to determine that such remedial measures have brought the Works into compliance with the Specifications and Standards, and the procedure shall be repeated until such Works conform to the Specifications and Standards. For the avoidance of doubt, the cost of such Tests and remedial measures in pursuance thereof shall be solely borne by the Contractor.

## 12.11 Examination of Work Before Covering up

12.11.1 In respect of the work which the Employer's Engineer is entitled to examine, inspect, measure and/or test before it is covered up or put out of view or any part of the work is placed thereon, the Contractor shall give notice to the Employer's Engineer whenever any such work is ready and before it is covered up. The Employer's Engineer shall then either carry out the examination, inspection or testing without unreasonable delay or promptly give notice to the Contractor that the Employer's Engineer does not require to do so. Provided, however, that if any work is of a continuous nature where it is not possible or prudent to keep it uncovered or incomplete, then the Contractor shall notify the schedule of carrying out such work to give sufficient opportunity, not being less than 3 (Three) business days' notice, to the Employer's Engineer to conduct its inspection, measurement or test while the work is continuing. Provided further that in the event the Contractor receives no response from the Employer's Engineer within a period of 3 (Three) business days from the date on which the Contractor's notice hereunder is delivered to the Employer's Engineer, the Contractor shall be entitled to assume that the Employer's Engineer would not undertake the said inspection.

## 12.12 Rejection

12.12.1 If, as a result of an examination, inspection, measurement or testing, any Plant, Materials,

design or workmanship is found to be defective or otherwise not in accordance with the provisions of this Agreement, the Employer's Engineer shall reject the Plant, Materials, design or workmanship by giving notice to the Contractor, with reasons. The Contractor shall then promptly make good the Defect and ensure that the rejected item complies with the requirements of this Agreement.

12.12.2 If the Employer's Engineer requires the Plant, Materials, design, or workmanship to be retested, the Tests shall be repeated under the same terms and conditions, as applicable in each case. If the rejection and retesting cause the Employer to incur any additional costs, such cost shall be recoverable by the Employer from the Contractor; and may be deducted by the Employer from any monies due to be paid to the Contractor.

## 12.13 Remedial Work

12.13.1 Notwithstanding any previous test or certification, the Employer's Engineer may instruct the Contractor to:

a) Remove from the Site and replace any Plant or Materials which are not in accordance with the provisions of this Agreement.

b) Remove and re-execute any work which is not in accordance with the provisions of this Agreement and the Specification and Standards; and

c) Execute any work which is urgently required for the safety of the Project Works, whether because of an accident, unforeseeable event or otherwise; provided that in case of any work required on account of a Force Majeure Event, the provisions of Clause 22.6 shall apply.

12.13.2 If the Contractor fails to comply with the instructions issued by the Employer's Engineer under Clause 12.13.1, within the time specified in the Employer's Engineer's notice or as mutually agreed, the Employer's Engineer may advise the Employer to have the work executed by another agency. The cost so incurred by the Employer for undertaking such work shall, without prejudice to the rights of the Employer to recover Damages in accordance with the provisions of this Agreement, be recoverable from the Contractor and may be deducted by the Employer from any monies due to be paid to the Contractor.

## 12.14 Delays during Construction

12.14.1 Without prejudice to the provisions of Clause 11.3.2, in the event the Contractor does not achieve any of the Project Milestones or the Employer's Engineer shall have reasonably determined that the rate of progress of Works is such that Completion of the Project Works is not likely to be achieved by the end of the Scheduled Completion Date, it shall notify the same to the Contractor, and the Contractor shall, within 15 (Fifteen) days of such notice, by a communication inform the Employer's Engineer in reasonable detail about the steps it proposes to take to expedite progress and the period within which it shall achieve the Project Completion Date.

## 12.15 Quality Control Records and Documents

12.15.1 The Contractor shall hand over to the Employer's Engineer a copy of all its quality control records and documents before the Project Completion cum Taking Over Certificate is

issued pursuant to Clause 13.2.

## 12.16 Video Recording

12.16.1 During the Construction Period, the Contractor shall provide to the Employer for every calendar quarter, a drone video recording and on-ground photography of the project site, as per the directions of the Employer's Engineer, covering the status and progress of Works in that quarter. The video recording shall be provided to the Employer's Engineer no later than 15 (Fifteen) days after the close of each quarter after the stipulated date.

## 12.17 Suspension of Unsafe Construction Works

12.17.1 Upon recommendation of the Employer's Engineer to this effect, or observations and findings during inspection/ technical audit by the Employer, the Employer may by notice require the Contractor to suspend forthwith the whole or any part of the Works if, in the reasonable opinion of the Employer's Engineer, such work threatens the safety of the users and/or workers and/or site engineers and/or pedestrians.

12.17.2 The Contractor shall, pursuant to the notice under Clause 12.17.1, suspend the Works or any part thereof for such time and in such manner as may be specified by the Employer and thereupon carry out remedial measures to secure the safety of suspended Works, the Users and/or workers and/or site engineers and/or pedestrians. The Contractor may by notice require the Employer's Engineer to inspect such remedial measures forthwith and make a report to the Employer recommending whether or not the Suspension hereunder may be revoked. Upon receiving the recommendations of the Employer's Engineer, the Employer shall either revoke such Suspension or instruct the Contractor to carry out such other and further remedial measures as may be necessary in the reasonable opinion of the Employer, and the procedure set forth in this Clause 12.17 shall be repeated until the Suspension hereunder is revoked.

12.17.3 Subject to the provisions of Clause 22.6, all reasonable costs incurred for maintaining and protecting the Works or part thereof during the period of Suspension (the "Preservation Costs"), shall be borne by the Contractor; provided that if the Suspension has occurred as a result of any breach of this Agreement by the Employer, the Preservation Costs shall be borne by the Employer.

12.17.4 If Suspension of Works is for reasons not attributable to the Contractor, the Employer's Engineer shall determine any Time Extension to which the Contractor is reasonably entitled.

12.17.5 The Contractor shall take up the Aerial photography based on the details provided in Schedule O.

## 12.18 Third Party Inspection

12.18.1 Third Party Inspection agency shall be appointed by the contractor at their own cost after proposing to the Employer a panel of three names of qualified and experienced firms as per the qualifying criteria approved by the Employer's Engineer. Employer may choose one to be the Third-Party Inspection Agency. Provided, however, that if the panel is not acceptable to the Employer and the reasons for the same are furnished to the Contractor, the Contractor shall propose to the Employer a revised panel of three names from the

firms empanelled as Third Party Inspection agency by the Employer for obtaining the consent of the Employer and shall also provide a sole nodal coordinator for all related activities regarding third party inspections. The Employer shall, within 30 (Thirty) days of receiving a proposal from the Contractor or providing sufficient information as desired by the Employer, whichever is later hereunder, convey its decision, with reasons, to the Contractor for engaging a Third Party Inspection agency.

12.18.2 The contractor shall submit the list of equipment/ material proposed for third-party inspection for review and approval by the Employer's Engineer before the start of the procurement. All materials required but not limited to materials such as all types of pipes (of all sizes) R.C.C. / P.S.C. / M.S./ D.I. /CI. /A.C. /HDPE /PVC /GRP & other power equipment's like transformers, switchgear, cables, panels etc., all type of valves (of all sizes), any other materials as per requirements which are supplied by the contractor under this contract are subject to third party inspection. The charges for such inspection shall be paid by the contractor. All the arrangements for inspection i.e. measuring tools, testing equipment and tools, labour required for handling materials during testing etc. shall be made available/ arranged by the manufacturer/ Vendor/ contractor in their premises at their own costs. These costs shall be deemed included in the contractor's price bid and nothing extra shall be paid to the said account. If any particular testing facility is not available at the premises/ location of the Factory, then the test shall be arranged by the factory owner / Vendor at his own cost at other locations/ test laboratories. All expenses in this regard shall also have to be borne by the manufacturer /vendor /contractor only.

12.18.3 If the material inspected fails during a test at no fault of the inspecting agency, fees are payable to the inspecting agency for the said inspection and for any further re-inspection of the same material.

12.18.4 If it is subsequently observed that there are defects in the quality of the material, the contractor shall replace the material without any extra cost.

12.18.5 In addition to third-party inspection, the Employer's Engineer or his representative may conduct inspection intermittently. The contractor shall also submit a fortnightly testing plan for review and approval by the Employer's Engineer.

12.18.6 Third-Party Inspection Report: The third-party inspection report merely in the certificate form stating that pipes/valves/specials or any other material inspected are found satisfactory will not be accepted, but it should be in the form of detailed report stating the parameters checked & observations made with comments of the Inspecting Officer in accordance with the respective Specifications/detailed item wise specifications/ as per Tender notice.

## 12.19 Inspection Categories

12.19.1 The contractor should comply following Inspection Categories to the proposed/ preferred vendor list as shown in Volume II.

12.19.2 **Category A:** All design drawings and QAP are to be approved by the Employer's Engineer before manufacturing and Testing. Inspection/Testing in the presence and witness by TPA/Employer's Engineer or its authorised representative at Works/based on approved drawings and QAP. DC (Dispatch clearance) shall be issued by the Employer only after

CHP clearance (Customer Hold points) and Test reports approved by the Client. Typical Type tests (any of the last 5 years) and current Routine tests are mandatory. e.g. items like Pumps, Transformers, Switchgear and their Panels, DG sets, PLC/SCADA Panels with their FAT, Control and Power Cables, all analytical and non-analytical Instruments like DO, Flow, Level etc. and any other Electromechanical/Instrumentation items as per the list approved by Client in advance based on BBU. The material has to be inspected by the Employer's Engineer or by an Inspecting agency approved by the Employer's Engineer at the manufacturer's premises before packing and dispatching. The Inspection charges of the agency will be borne by the Contractor. The Contractor shall provide the necessary equipment and facilities for tests, and the cost thereof shall be borne by the Contractor. Submission of Internal test Certificates (TCs) to the Engineer, by the Manufacturer through the contractor, is mandatory before raising the inspection call, well in advance of ten days.

12.19.3 **Category B**: All design drawings and QAP are to be approved by the Employer's Engineer before manufacturing and Testing. Inspection/Testing in the presence and witness by the Contractor/TPA or its authorised representative at Works/based on approved drawings and QAP. DC (Dispatch Clearance) shall be issued by the Employer's Engineer only after CHP is cleared (Customer Hold Points) and Test reports are approved. Typical Type tests (any of the last 5 years) and current Routine tests are mandatory. Like small lighting panels, JBs, some I&C cables, non-critical instruments, and lab instruments. The material has to be inspected by the Engineer or by an Inspecting agency approved by the Engineer at the manufacturer's premises before packing and dispatching. The Inspection charges of the agency will be borne by the Employer, but the contractor has to pay the inspection charges. The Contractor shall include the inspection charges in the next bill, and the same will be reimbursed by the Employer from the provisional Sum. Notwithstanding the above, the Engineer, after examination of the test certificates, reserves the right to instruct the Contractor to retest, if required, in the presence of the Contractor's representative without any additional cost.

12.19.4 **Category C**: The material may be manufactured as per standard and delivered to the site. No Inspection is required by the Employer's Engineer. Inspection/Testing Test Certificates shall be submitted by the Manufacturer through the Contractor. Only TCs submitted and reviewed by the Client/Authorised representative/TPA, based on clearance material, are dispatched. No type tests are required. Items like glands, pipe fittings, etc.

12.19.5 For material/Equipment under categories "A" and "B", the Engineer will provide authorisation for packing and shipping after inspection. The testing, approval for dispatching shall not absolve the Contractor of the obligation for satisfactory performance of the plant.

12.19.6 Contractor shall bear the air travel, taxi, and hotel expenses acceptable to the Employer's Engineer, along with the sustenance charges for any outstation inspections.

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# 13 Completion Certificate

## 13.1 Tests on Completion

13.1.1 At least 30 (Thirty) days prior to the likely completion of the Project Works, or a Section thereof, the Contractor shall notify the Employer's Engineer of its intent to subject the Project Works or a Section thereof, to Tests. The date and time of each of the Tests shall be determined by the Employer's Engineer in consultation with the Contractor and notified to the Employer who may designate its representative to witness the Tests. The Contractor shall either conduct the Tests as directed by the Employer's Engineer or provide such assistance as the Employer's Engineer may reasonably require for conducting the Tests and the costs for such tests shall be borne by the contractor. In the event of the Contractor and the Employer's Engineer failing to mutually agree on the dates for conducting the Tests, the Contractor shall fix the dates by giving not less than 10 (Ten) days' notice to the Employer's Engineer.

13.1.2 All Tests shall be conducted in accordance with Schedule-F. The Employer's Engineer shall either conduct or observe, monitor and review the Tests conducted by the Contractor, as the case may be, and review the results of the Tests to determine compliance of the Project Works or a Section thereof, with Specifications and Standards and if it is reasonably anticipated or determined by the Employer's Engineer during the course of any Test that the performance of the Project Works or Section or any part thereof, does not meet the Specifications and Standards, it shall have the right to suspend or delay such Test and require the Contractor to remedy and rectify the Defect or deficiencies. Upon completion of each Test, the Employer's Engineer shall provide to the Contractor and the Employer copies of all Test data including detailed Test results. For the avoidance of doubt, it is expressly agreed that the Employer's Engineer may require the Contractor to carry out or cause to be carried out additional Tests, in accordance with Good Industry Practice, for determining the compliance of the Project Works or Section thereof with the Specifications and Standards.

## 13.2 Certificate of Substantial Completion

13.2.1 Subject to the provisions of Clause 13.2.5, upon completion of all Works forming part of the Project Works, save and except the Works for which Time Extension has been granted under Clause 11.5, the Employer's Engineer shall, at the request of the Contractor, issue a Certificate of Substantial Completion in the form set forth in Schedule-G (the "Substantial Completion Certificate") if the Tests for and in respect of the completed Works are successful. The Substantial Completion Certificate shall have appended thereto a list of outstanding items of work (the "Punch List") that need to be completed in accordance with the provisions of this Agreement. The Contractor undertakes to complete the minor outstanding items of Works in respect of those Sections of the Project Works for which the Substantial Completion Certificate has been issued, within a period of 30 (Thirty) days of the date of Substantial Completion Certificate, and those parts of the Works in respect of which Time Extension has been granted, within the extended period thereof. For the avoidance of doubt, the Parties agree that the Punch List shall include all Works for which Time Extension has been granted and shall also include any minor outstanding items of work forming part of the completed Sections if such Works do not materially affect the use

of the completed Sections for their intended purpose. The Parties further agree that a Substantial Completion Certificate shall not be issued if the completed Works cannot be safely and reliably placed in service of the Users thereof.

13.2.2 Deleted.

13.2.3 If the Employer's Engineer determines that the Project Works or any completed part thereof does not conform to the provisions of this Agreement and cannot be safely and reliably placed in operation, it shall forthwith make a report on this behalf and send copies thereof to the Employer and the Contractor and withhold issuance of the Substantial Completion Certificate until the Defects or deficiencies are rectified by the Contractor and Tests are successful in accordance with this Section.

13.2.4 Notwithstanding anything to the contrary contained in Clause 13.2.3, the Employer may, at any time after receiving a report from the Employer's Engineer under that Clause, direct the Employer's Engineer to issue a Substantial Completion Certificate under Clause 13.2.1 and such direction shall be complied with forthwith.

13.2.5 Substantial Completion Certificate shall not be issued under the provisions of this Clause 13.2 until the Contractor has submitted valid claims for payment of at least 90% (Ninety per cent) of the amount arrived at after reducing the lump sum price specified in Clause 20.1.1 by the amount attributable to Works which have been withdrawn. For the avoidance of doubt and by way of illustration, the Parties agree that if the Contract Price specified in Clause 20.1.1 is Rs. 105 Cr. (Rs. One Hundred and Five Crores only) and the Works withdrawn have a value of Rs. 5 Cr. (Rs. Five Crores only), a Substantial Completion Certificate shall not be issued until valid claims for payment of an amount of Rs. 90 Cr. (Rs. Ninety Crores only) have been submitted by the Contractor in accordance with the provisions of this Agreement. It is further agreed that all price adjustments made in pursuance of Clause 20.10 shall not be reckoned for the computation of the claims for payments referred to in this Clause 13.2.5.

## 13.3 Completion of Remaining Works

13.3.1 All items in the Punch List shall be completed by the Contractor in accordance with the provisions of this Agreement. For any delay in their completion other than for reasons solely attributable to the Employer or due to Force Majeure, the Employer shall be entitled to recover Damages from the Contractor in accordance with the provisions of Clause 11.2.13 of this Agreement.

## 13.4 Completion Certificate for Construction Works

13.4.1 Upon completion of all Construction Works, including the items specified in the Punch List, and the Employer's Engineer determining the Tests to be successful, it shall forthwith issue to the Contractor and the Employer a certificate substantially in the form set forth in Schedule-G (the "Completion Certificate for Construction Works"). The following documents shall be submitted by the contractor along with its application for the Completion Certificate.

a) All as-built drawings, updated 3D BIM models (for infrastructure) as per the as-built drawings

b) Approved copy of the completion of the punch list points

c) Closure report for all the NCRs and HSE violations

d) Original guarantee and warranty certificates for all equipment/works as received from the manufacturer/vendor

e) Operation and Maintenance Manual for each item of work and equipment

## 13.5 Project Completion cum Taking Over Certificate

13.5.1 Upon completion of all Works as per the scope of this tender including the O&M/ Defect Liability period, the Employer shall forthwith issue to the Contractor, a “Project Completion cum Taking Over Certificate”.

13.5.2 Upon receiving the Project Completion cum Taking Over Certificate, the Contractor shall remove its equipment, Materials, debris and temporary Works from the Site within a period of 30 (Thirty) days thereof, failing which the Employer may remove or cause to be removed, such equipment, Materials, debris and temporary Works and recover from the Contractor an amount equal to 120% (one hundred and twenty per cent) of the actual cost of removal incurred by the Employer.

13.5.3 Without prejudice to the obligations of the Contractor specified in Clause 15 and 18, the property and ownership of all the completed Works forming part of the Project Works shall vest in the Employer.

## 13.6 Rescheduling of Tests

13.6.1 If the Employer’s Engineer certifies to the Employer and the Contractor that it is unable to issue the Substantial Completion Certificate, as the case may be, because of events or circumstances on account of which the Tests could not be held or had to be suspended, the Contractor shall be entitled to re-schedule the Tests and hold the same as soon as reasonably practicable.

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# 14 Change of Scope

## 14.1 Change of Scope

The Employer may, notwithstanding anything to the contrary contained in this Agreement, require the Contractor to make modifications/alterations to the Works ("Change of Scope") before the issue of the Completion Certificate for construction works either by giving an instruction or by requesting the Contractor to submit a proposal for Change of Scope involving additional cost or reduction in cost. Any such Change of Scope shall be made and valued in accordance with the provisions of this Section.

14.1.1 Change of Scope shall mean:

a) Change in specifications of any item of Works.

b) Omission of any work from the Scope of the Project provided that, subject to Clause 14.5, the Employer shall not omit any work under this Clause in order to get it executed by any other Contractor/ Employer; and/or

c) Any additional work, plant, materials, or services which are not included in the Scope of the Project

14.1.2 If the Contractor determines at any time that a Change of Scope will, if adopted,

a) Accelerate completion,

b) Reduce the cost to the Employer of executing, maintaining, or operating the Project Works,

c) Improve the efficiency or value to the Employer of the completed Project Works, or

d) Otherwise, be of benefit to the Employer, it shall prepare a proposal with relevant details at its own cost.

The Contractor shall submit such proposal, supported with the relevant details and the amount of reduction in the Contract Price to the Employer to consider such Change of Scope. The Employer shall, within 15 (Fifteen) days of receipt of such proposal, either accept such Change of Scope with modifications, if any, and initiate proceedings thereof in accordance with this Section or reject the proposal and inform the Contractor of its decision. For the avoidance of doubt, the Parties agree that the Contractor shall not undertake any Change of Scope without the express consent of the Employer, save and except any Works necessary for meeting any Emergency.

## 14.2 Procedure for Change of Scope

14.2.1 In the event of the Employer determining that a Change of Scope is necessary, it may direct the Employer's Engineer to issue to the Contractor a notice specifying in reasonable detail the Works and services contemplated thereunder (the "Change of Scope Notice").

14.2.2 Upon receipt of a Change of Scope Notice, the Contractor shall, with due diligence, provide to the Employer and the Employer's Engineer such information as is necessary, together with preliminary Documentation in support of:

a) The impact, if any, which the Change of Scope is likely to have on the Project Completion Schedule if the Works or services are required to be carried out during the Construction Period; and

b) The options for implementing the proposed Change of Scope and the effect, if any, each such option would have on the costs and time thereof, including the following details:

i. Breakdown of the quantities, unit rates and cost for different items of work.

ii. Proposed design for the Change of Scope; and

iii. Proposed modifications, if any, to the Project Completion schedule of the Project Works.

For the avoidance of doubt, the Parties expressly agree that subject to the provisions of Clause 14.4.2, the Contract Price shall be increased or decreased, as the case may be, on account of Change of Scope.

14.2.3 The Contractor's quotation of costs for the Change of Scope shall be determined on the following principles:

a) The latest available edition of State PWD, MJP, and MSEDCL Schedule of Rates (Rates to be adopted as printed in SOR) applicable to BIA, Chhatrapati Sambhaji Maharaj District Region will be adopted for the valuation of any Works which are not already covered by the items included in Price Schedules. Payments for the Variations Items shall be made in Indian Rupees only.

b) In the event that items are not covered in the Basic Schedule of Rates mentioned above, the market rates substantiated with 3 quotations, followed by a work order and/or Tax Invoice shall be considered only when the executed variation items are not covered under Price Schedule or the above-referred schedule of rates. A fixed percentage of 15% shall be added to cover the Contractor's Overhead and Profit for the rates evaluated under this category (b).

14.2.4 Upon reaching an Agreement, the Employer shall issue an order (the "Change of Scope Order") requiring the Contractor to proceed with the performance thereof. In the event that the Parties are unable to agree, the Employer may:

a) Issue a Change of Scope Order requiring the Contractor to proceed with the performance thereof at the rates and conditions approved by the Employer till the matter is resolved in accordance with Clause 27; or

b) Proceed in accordance with Clause 14.5.

14.2.5 The provisions of this Agreement, insofar as they relate to Works and Tests, shall apply mutatis mutandis to the Works undertaken by the Contractor under this Section.

## 14.3 Payment for Change of Scope

Payment for Change of Scope shall be made in accordance with the payment schedule specified in the Change of Scope Order.

## 14.4 Restrictions on Change of Scope

14.4.1 No Change of Scope shall be executed unless the Employer has issued the Change of Scope Order, save and except any Works necessary for meeting any Emergency.

14.4.2 Unless the Parties mutually agree to the contrary, the total value of all Change of Scope

Orders shall not exceed 10 (Ten) per cent of the Contract Price.

14.4.3 Notwithstanding anything to the contrary in this Section, no change made necessary because of any default of the Contractor in the performance of its obligations under this Agreement shall be deemed to be a Change of Scope and shall not result in any adjustment of the Contract Price or the Project Completion Schedule.

## 14.5 Power of the Employer to undertake Works.

14.5.1 In the event the Parties are unable to agree to the proposed Change of Scope Orders in accordance with Clause 14.2, the Employer may, after giving notice to the Contractor and considering its reply thereto, award such Works or services to any person on the basis of open competitive bidding from amongst bidders who are pre-qualified for undertaking the additional work; provided that the Contractor shall have the option of matching the first ranked Bid in terms of the selection criteria, subject to payment of 2% (Two per cent) of the Bid amount to the Employer, and thereupon securing the award of such Works or services. For the avoidance of doubt, it is agreed that the Contractor shall be entitled to exercise such option only if it has participated in the bidding process and its Bid does not exceed the first ranked Bid by more than 10% (Ten percent) thereof. It is also agreed that the Contractor shall provide assistance and cooperation to the person who undertakes the Works or services hereunder but shall not be responsible for rectification of any Defects and/ or Maintenance of Works carried out by other agencies.

14.5.2 The Works undertaken in accordance with this Clause 14.5 shall conform to the Specifications and Standards and shall be carried out in a manner that minimizes the disruption in operation of the Project Works. The provisions of this Agreement, insofar as they relate to Works and Tests, shall apply mutatis mutandis to the Works carried out under this Clause. 14.5.

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# 15 Operation and Maintenance

## 15.1 Operation and Maintenance Obligations of the Contractor

15.1.1 The Contractor shall operate and maintain all the Project Works as per the scope executed under this contract agreement for a period of [4 (Four) years] commencing from the date of issue of the Completion Certificate for construction works (the "**Maintenance Period**"). The Operation and Maintenance period may be further extended up to a period of six (6) years as per mutual agreement. For the performance of its Maintenance obligations, the Contractor has to operate and maintain the following components.

a) Roads including cross drainage structures, bridges, and avenue plantation

b) Water distribution network including Firefighting System and Service Reservoir

c) Industrial effluent collection network, including pumping stations and rising main

d) Domestic sewage collection network, including pumping stations and rising main

e) Recycle Water distribution network, including the rising main

f) Stormwater drainage network, including outfalls

g) Power distribution network including sub-stations, RMUs, transformers, etc

h) ICT infrastructure components

i) .

j) Any other items which are in the scope of this contract.

The contractor shall be paid a total amount as indicated in the table below

| Sl | Year from the date of issue of the Completion Certificate | O&M Payment as per cent of the Contract price |
|---|---|---|
| 1 | Year 1 | 0.4% (zero point four per cent) |
| 2 | Year 2 | 0.5% (zero point five per cent) |
| 3 | Year 3 | 0.5% (zero point five per cent) |
| 4 | Year 4 | 0.6% (zero point Six per cent) |

The amount payable for Maintenance shall be adjusted to reflect any increase or decrease arising out of variation in Labour (70%) & all commodities (30%) as per relevant CPI & WPI indices in accordance with the provisions of Clause 20.10. It is further agreed that the Contract Price hereunder shall be reckoned with reference to the amount specified in Clause 20.1.1, which shall be adjusted to the extent of the Change of Scope.

15.1.2 During the Operation and Maintenance Period, the Employer shall provide to the Contractor access to the Site for Operation and Maintenance in accordance with this Agreement. The obligations of the Contractor hereunder shall include:

a) Permitting safe, smooth, and uninterrupted flow of traffic on the Project Roads.

b) Undertaking routine Maintenance including prompt repairs of roads, footpaths and bicycle tracks for potholes, cracks, joints, drains, embankments, structures, pavement markings, lighting, road signs and other traffic control devices, etc.

c) Undertaking repairs to structures, pump house, retaining wall, substation building, POP building etc.

d) Undertaking repairs to pump machinery, piping, valves, actuator, transformer, substation equipment, cables, switchgear, Poles etc.

e) Undertaking upkeep, nurturing, watering, pruning and routine maintenance of the avenue plantation

f) Informing the Employer of any unauthorised use of the Project Roads.

g) Informing the Employer of any encroachments on the Project Roads; and

h) Operation and Maintenance of all power distribution, communication, patrolling, and administrative systems necessary for the efficient maintenance of the Project Works in accordance with the provisions of this Agreement.

15.1.3 In respect of any Defect or deficiency not specified in Maintenance Requirements in Volume II, the Contractor shall, at its own cost, undertake repair or rectification in accordance with Good Industry Practice, save and except to the extent that such defect or deficiency shall have arisen on account of any default or neglect of the Employer or a Force Majeure Event.

15.1.4 The Contractor shall remove promptly from the project roads any waste Materials (including hazardous Materials and wastewater), rubbish and other debris (including, without limitation, accident debris) and keep the project roads in a clean, tidy, and orderly condition, and in conformity with the Applicable Laws, Applicable Permits and Good Industry Practice.

## 15.2 Maintenance Requirements

15.2.1 The Contractor shall ensure that at all times during the Maintenance Period; the Project Works conforms to the Maintenance requirements set forth in Schedule-Q (the “Operation and Maintenance Requirements”).

## 15.3 Maintenance Programme

15.3.1 The Contractor shall prepare a monthly Maintenance Programme (the Maintenance Programme”) in consultation with the Employer’s Engineer and submit the same to the Employer’s Engineer not later than 10 (Ten) days prior to the commencement of the month in which the preventive maintenance and scheduled maintenance is to be carried out. For this purpose, a joint monthly inspection by the Contractor and the Employer’s Engineer shall be undertaken. The Maintenance Programme shall contain the following:

a) The past and present condition of the road, footpath, cycle tracks, avenue plantation, watering system, firefighting systems, street lighting, environmental sensors and surveillance equipment in the format prescribed by the Employer’s Engineer.

b) The proposed preventive and scheduled Maintenance Works; and

c) Deployment of resources for preventive and scheduled Maintenance Works.

## 15.4 Safety, Vehicle Breakdowns and Accidents

15.4.1 The Contractor shall ensure safe conditions for the Users, and in the event of unsafe conditions, landslides, water logging, road damages, fallen trees, lane closures, diversions, vehicle breakdowns and accidents, it shall follow the relevant operating procedures for removal of obstruction and debris without delay. Such procedures shall conform to the provisions of this Agreement, Applicable Laws, Applicable Permits and Good Industry Practice.

15.4.2 The Contractor shall promptly remove any damaged vehicles and debris from the Project Road to enable safe movement of traffic and shall report all accidents to the police forthwith.

## 15.5 Lane closure/Utility line closure

15.5.1 The Contractor shall not close any lane of the Project Road/ Utility line for undertaking Maintenance Works except with the prior written approval of the Employer's Engineer. Such approval shall be sought by the Contractor through a written request to be made at least 10 (Ten) days before the proposed closure of the lane and shall be accompanied by particulars thereof. The employer shall grant permission with such modifications as it may deem necessary. The contractor shall provide the requisite support for sharing a copy of such permission with the local concerned authorities or stakeholders before the commencement of maintenance/ repair activities.

15.5.2 Upon receiving the permission pursuant to Clause 15.5.1, the Contractor shall be entitled to close the designated lane for the period specified therein, and in the event of any delay in re-opening such lane, the Contractor shall, for every stretch of 250 (Two Hundred and Fifty) meters, or part thereof, pay Damages to the Employer calculated at the rate of 0.1% (zero point one percent) of the Quarterly Maintenance payment for each day of delay until the lane has been re-opened for traffic/public use.

## 15.6 Reduction of Payment for Non-performance of Operation and Maintenance Obligations

15.6.1 In the event that the Contractor fails to repair or rectify any Defect or deficiency set forth in Schedule-Q within the period specified therein, it shall be deemed as a failure of performance of Operation and Maintenance obligations by the Contractor and the Employer shall be entitled to effect reduction in Quarterly lump sum payment for Maintenance in accordance with Clause 20.7 and Schedule-H, without prejudice to the rights of the Employer under this Agreement, including Termination thereof.

15.6.2 If the nature and extent of any Defect justifies more time for its repair or rectification than the time specified in Schedule Q, the Contractor shall be entitled to additional time in conformity with Good Industry Practice. Such additional time shall be determined by the Employer's Engineer and conveyed to the Contractor and the Employer with reasons thereof.

## 15.7 Employer's Right to Take Remedial Measures

15.7.1 In the event the Contractor does not maintain and/or repair the Project Works or any part thereof in conformity with the Maintenance Requirements, the Maintenance Manual or the

Maintenance Programme, as the case may be, and fails to commence remedial Works within 15 (Fifteen) days of receipt of the Maintenance Inspection Report under Clause 16.2 or a notice on this behalf from the Employer or the Employer's Engineer, as the case may be, the Employer shall, without prejudice to its rights under this Agreement including Termination thereof, be entitled to undertake such remedial measures at the cost of the Contractor, and to recover its cost from the Contractor. In addition to recovery of the aforesaid cost, a sum equal to 20% (Twenty per cent) of such cost shall be paid by the Contractor to the Employer as Damages.

## 15.8 Restoration of Loss or Damage to Project Works

15.8.1 Save and except as otherwise expressly provided in this Agreement, in the event that the Project Works or any part thereof suffers any loss or damage during the Maintenance from any cause attributable to the Contractor, the Contractor shall, at its cost and expense, rectify and remedy such loss or damage forthwith so that the Project Works conforms to the provisions of this Agreement.

## 15.9 Overriding powers of the Employer

15.9.1 If in the reasonable opinion of the Employer, the Contractor is in Material breach of its obligations under this Agreement and, in particular, the Maintenance Requirements, and such breach is causing or likely to cause Material hardship or danger to the Users and pedestrians, the Employer may, without prejudice to any of its rights under this Agreement including Termination thereof, by notice require the Contractor to take reasonable measures immediately for rectifying or removing such hardship or danger, as the case may be.

15.9.2 In the event that the Contractor, upon notice under Clause 15.9.1, fails to rectify or remove any hardship or danger within a reasonable period (decided by Employer), the Employer may exercise overriding powers under this Clause 15.9.2 and take over the performance of any or all the obligations of the Contractor to the extent deemed necessary by it for rectifying or removing such hardship or danger; provided that the exercise of such overriding powers by the Employer shall be of no greater scope and of no longer duration than is reasonably required hereunder; provided further that any costs and expenses incurred by the Employer in the discharge of its obligations hereunder shall be recovered by the Employer from the Contractor, and the Employer shall be entitled to deduct any such costs and expenses incurred from the payments due to the Contractor under Clause 20.7 for the performance of its Maintenance obligations.

15.9.3 In the event of a national emergency, civil commotion or any other circumstances specified in Clause 22.3, the Employer may take over the performance of any or all the obligations of the Contractor to the extent deemed necessary by it, and exercise such control over the Project Works or give such directions to the Contractor as may be deemed necessary; provided that the exercise of such overriding powers by the Employer shall be of no greater scope and of no longer duration than is reasonably required in the circumstances which caused the exercise of such overriding power by the Employer. For the avoidance of doubt, it is agreed that the consequences of such action shall be dealt in accordance with the provisions of Section 22. It is also agreed that the Contractor shall comply with such instructions as the Employer may issue in pursuance of the provisions of this Clause

15.9.3, and shall provide assistance and cooperation to the Employer, on a best-effort basis, for the performance of its obligations hereunder.

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# 16 Supervision and Monitoring during Operation and Maintenance

## 16.1 Inspection by the Contractor

16.1.1 The Employer's Engineer shall undertake regular inspections to evaluate continuously the compliance with the Operation and Maintenance Requirements.

16.1.2 The Contractor shall carry out a detailed pre-monsoon inspection of all bridges, culverts, and drainage systems in accordance with the guidelines contained in IRC: SP35 and guidelines provided by the Employer from time to time. A report of this inspection together with details of proposed Maintenance Works as required shall be conveyed to the Employer's Engineer forthwith, in any case by the end of March each year. The Contractor shall complete the proposed Maintenance Works before the onset of the monsoon and send a compliance report to the Employer's Engineer by 15 May each year. Post-monsoon inspection shall be undertaken by the Contractor and the inspection report together with details of any Damages observed and proposed action to remedy the same shall be conveyed to the Employer's Engineer forthwith before the end of August each year.

## 16.2 Inspection and Payments

16.2.1 The Employer's Engineer may inspect the Project Works at any time, but at least once every month, to ensure compliance with the Maintenance Requirements. It shall make a report of such inspection ("Maintenance Inspection Report") stating in reasonable detail the Defects or deficiencies, if any, with particular reference to the Maintenance Requirements, the Maintenance Manual, and the Maintenance Programme, and send a copy thereof to the Employer and the Contractor within 10 (Ten) days of such inspection.

16.2.2 After the Contractor submits to the Employer's Engineer the Quarterly Maintenance Statement for the Project Works pursuant to Clause 20.6, the Employer's Engineer shall carry out an inspection within 10 (Ten) days to certify the amount payable to the Contractor. The Employer's Engineer shall inform the Contractor of its intention to carry out the inspection at least 3 (Three) business days in advance of such inspection. The Contractor shall assist the Employer's Engineer in verifying compliance with the Operation and Maintenance Requirements.

16.2.3 For each case of non-compliance with the Operation and Maintenance Requirements as specified in the inspection report of the Employer's Engineer, the Employer's Engineer shall calculate the amount of reduction in payment in accordance with the formula specified in Schedule H.

16.2.4 Any deduction made on account of non-compliance will be paid 75% of the value of work subsequently after establishing the compliance thereof.

## 16.3 Tests

16.3.1 For determining that the Project Works conforms to the Operation and Maintenance Requirements, the Employer's Engineer shall require the Contractor to carry out, or cause to be carried out, Tests specified by it in accordance with Good Industry Practice. The Contractor shall, with due diligence, carry out or cause to be carried out all such Tests in accordance with the instructions of the Employer's Engineer and furnish the results of such

tests forthwith to the Employer's Engineer.

## 16.4 Reports of Unusual Occurrence

16.4.1 The Contractor shall, during the Operation and Maintenance Period, prior to the close of each day, send to the Employer and the Employer's Engineer, by facsimile or e-mail, a report stating accidents and unusual occurrences on the Project Works relating to the safety and security of the Users and Project Roads and satisfactory performance of the utility lines. A monthly summary of such reports shall also be sent within 3 (Three) business days of the closing of the month. For the purposes of this Clause 16.4, accidents and unusual occurrences on the Project Road/Works shall include:

a) Accident, death, or severe injury to any person.

b) Damaged or dislodged fixed equipment.

c) Flooding of Project Roads.

d) Functioning of the utility's lines; and

e) Any other unusual occurrence.

# 17 Traffic Regulation

## 17.1 Traffic Regulation by the Contractor

17.1.1 The Contractor shall take all the required measures as per the traffic management plan prepared by the contractor and approved by the Employer/ Local Traffic Authorities and make arrangements for the safety of users during the Construction and Maintenance of the Project Road or a Section thereof in accordance with the provisions of MORTH Specifications. It shall provide, erect, and maintain all such barricades, signs, markings, flags, and lights as may be required by Good Industry Practice for the safety of the traffic passing through the Section under Construction or Maintenance.

17.1.2 All Works shall be carried out in a manner that creates the least interference to traffic passing through the Project area or a Section thereof. In sections where Construction or Maintenance Works on the carriageway are taken up, the Contractor shall ensure that proper passage is provided for the traffic. Where it is not possible or safe to allow traffic on part width of the carriageway, a temporary diversion of proper specifications shall be constructed by the Contractor at its own cost. The Contractor shall take prior approval of the Employer's Engineer for any proposed arrangement for traffic regulation during Construction and Maintenance, which approval shall not be unreasonably withheld.

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# 18 Defect Liability

## 18.1 Defect Liability Period

18.1.1 The Contractor shall be responsible for all the Defects and deficiencies, except usual wear and tear in the Project Works or any Section thereof, till the expiry of a period of 4 (four) years commencing from the date of issue of Completion Certificate for construction works (the "Defects Liability Period"). For the avoidance of doubt, any repairs or restoration on account of usual wear or tear in the Project Works or any Section thereof shall form a part of the Maintenance obligations of the Contractor as specified in Section 15.

## 18.2 Remedying Defects

18.2.1 Save and except as provided in Clause 18.1.1, the Contractor shall repair or rectify or replace all defects and deficiencies observed by the Employer's Engineer during the Defect Liability Period within a period of 15 (Fifteen) days from the date of notice issued by the Employer's Engineer in this behalf, or within such reasonable period as may be determined by the Employer's Engineer at the request of the Contractor, in accordance with Good Industry Practice.

## 18.3 Cost of Remedying Defects

18.3.1 For the avoidance of doubt, any repair or rectification or replacement of any/all units of the project undertaken in accordance with the provisions of Clause 18.2, including any additional testing, shall be carried out by the Contractor at its own risk and cost, to the extent that such rectification and repair is attributable to:

a) The design of the Project:

b) Delay in remedying any defects

c) Inadequate size, number and quality of material

d) Plant, materials or workmanship not being in accordance with this agreement and the Specifications and Standards.

e) Improper maintenance during construction of the Project Works by the Contractor; and/or

f) Failure by the Contractor to comply with any other obligation under this agreement.

## 18.4 Contractor's Failure to Rectify Defects

18.4.1 In the event that the Contractor fails to repair or rectify such Defect or deficiency within the period specified in Clause 18.2, the Employer shall be entitled to get the same repaired, rectified or remedied at the Contractor's cost so as to make the Project Works conform to the Specifications and Standards and the provisions of this Agreement. All costs consequent thereon shall, after due consultation with the Employer and the Contractor, be determined by the Employer's Engineer. The cost so determined for repair or rectification or replacement of such defects plus an amount equal to hundred percent (100%) of the above cost as Damages shall be recoverable by the Employer from the Contractor and may be deducted by the Employer from any monies due to the Contractor and/or from any

BG/PG.

## 18.5 Contractor to Search Cause

18.5.1 The Employer's Engineer may instruct the Contractor to examine the cause of any Defect in the Works or part thereof before the expiry of the Defect Liability Period.

18.5.2 In the event any Defect is identified under Clause 18.5.1 is attributable to the Contractor, the Contractor shall rectify such Defect within the period specified by the Employer's Engineer and shall bear the cost of the examination and rectification of such Defect.

18.5.3 In the event such Defect is not attributable to the Contractor, the Employer's Engineer shall, after due consultation with the Employer and the Contractor, determine the costs incurred by the Contractor on such examination and notify the same to the Contractor, with a copy to the Employer, and the Contractor shall be entitled to payment of such costs by the Employer.

## 18.6 Extension of Defect Liability Period

18.6.1 The Defect Liability Period shall be deemed to be extended till the identified Defects under Clause 18.2 have been remedied.

# 19 Employer's Engineer

## 19.1 Appointment of the Employer's Engineer

19.1.1 The Employer has/ will appointed M/s …….., as the Programme Manager for New Cities (PMNC), a Consulting Engineering firm, to be the Engineer for the said project under this Agreement (the "Employer's Engineer").

19.1.2 The staff of the Employer's Engineer shall include suitably qualified engineers and other professionals who are competent to assist the Engineer in carrying out its duties.

## 19.2 Duties of the Employer's Engineer

19.2.1 The Employer's Engineer shall perform the duties and exercise the Authority in accordance with the provisions of its Agreement, and substantially in accordance with the terms of reference ("Terms of Reference" or "TOR") of this document, but subject to obtaining prior written approval of the Employer before determining:

a) Any Time Extension

b) Any change of scope

c) Any additional cost to be paid by the Employer to the Contractor.

d) The Termination Payment; and

19.2.2 No decision or communication of the Employer's Engineer shall be effective or valid unless it is accompanied by an attested true copy of the approval of the Employer for and in respect of any matter specified in Clause 19.2.1.

## 19.3 Delegation by the Employer's Engineer

19.3.1 The Employer's Engineer may, by order in writing, delegate any of his duties and responsibilities to suitably qualified and experienced personnel who are accountable to the Employer's Engineer, or may revoke any such delegation, under intimation to the Employer and the Contractor. Provided, however, that the Employer's Engineer shall be responsible and liable for all actions and omissions of such personnel.

19.3.2 Any failure of the Employer's Engineer to disapprove any design, drawings, 3D models, reports, work, workmanship, plant or materials shall not constitute approval and shall therefore not prejudice the right of the Employer to reject the design, drawings, 3D models, reports, work, workmanship, plant or materials, which is not in accordance with the provisions of this Agreement and the Specifications and Standards.

19.3.3 Notwithstanding anything stated in Clause 19.3.1 above, the Employer's Engineer shall not delegate his Employee to refer any matter for the Employer's prior approval wherever required in accordance with the provisions of Clause 19.2.

## 19.4 Instructions of the Employer's Engineer

19.4.1 The Employer's Engineer may issue to the Contractor instructions for remedying any Defect. The Contractor shall take such instructions from the Employer's Engineer, or from personnel to whom appropriate Authority has been delegated under Clause 19.3.

19.4.2 The instructions issued by the Employer's Engineer shall be in writing (email

communication needs to be followed by a formal letter). However, if the Employer's Engineer issues any oral instructions to the Contractor, it shall confirm in writing the oral instructions within 2 (Two) business days of issuing them.

19.4.3 In case the Contractor does not receive the confirmation of the oral instruction within the time specified in Clause 19.4.2, the Contractor shall seek the written confirmation of the oral instructions from the Employer's Engineer. The Contractor shall obtain an acknowledgement from the Employer's Engineer of the communication seeking written confirmation. In case of failure of the Employer's Engineer or its delegated personnel to reply to the Contractor within 2 (Two) business days of the receipt of the communication from the Contractor, the Contractor may not carry out the instruction.

19.4.4 In case of any Dispute on any of the instructions issued by the delegated personnel, the Contractor may refer the Dispute to the Employer's Engineer, who shall then confirm, reverse, or vary the instructions within [3 (Three)] business days of the Dispute being referred.

## 19.5 Determination by the Employer's Engineer

19.5.1 The Employer's Engineer shall consult with each Party in an endeavour to reach an Agreement wherever this Agreement provides for the determination of any matter by the Employer's Engineer. If such Agreement is not achieved, the Employer's Engineer shall make a fair determination in accordance with this Agreement having due regard to all relevant circumstances. The Employer's Engineer shall give notice to both the Parties of each Agreement or determination, with supporting particulars.

19.5.2 Each Party shall give effect to each Agreement or determination made by the Employer's Engineer in accordance with the provisions of this Agreement. Provided, however, that if any Party Disputes any instruction, decision, direction or determination of the Employer's Engineer, the Dispute shall be resolved in accordance with the Dispute Resolution Procedure.

## 19.6 Remuneration of the Employer's Engineer

19.6.1 The remuneration, cost and expenses of the Employer's Engineer shall be paid by the Employer.

## 19.7 Termination of the Employer's Engineer

19.7.1 The Employer may, in its discretion, replace the Employer's Engineer at any time during the tenure of the contract, if in the opinion of the Employer, the Employer's Engineer had acted in contrary to the Terms of Reference of the Employer's Engineer Contract, after due diligence, but only after the appointment of another Employer's Engineer in accordance with Clause 19.1.

# Part D: EPC Agreement
# Section D- Financial Covenants

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# 20 Payments

## 20.1 Contract Price

20.1.1 The Employer shall make payments to the Contractor for the Works on the basis of the lump sum price accepted by the Employer in consideration of the obligations specified in this Agreement for an amount of Rs…….(Rupees……..) indicated in the Letter of Award (the "Contract Price"), which shall be subject to adjustments in accordance with the provisions of this Agreement. For the avoidance of doubt, the Parties expressly agree that the Contract Price shall not include the Cost of Operation and Maintenance which shall be paid separately in accordance with the provisions of Clause 20.7. The Parties further agree that save and except as provided in this Agreement, the Contract Price shall be valid and effective until the issue of a Completion Certificate for the construction works.

20.1.2 The Contract Price includes all applicable taxes (but excluding GST), duties, taxes, royalties, fees etc. that may be levied in accordance with the laws and regulations in force as on the Base Date under this Agreement. Nothing in this Agreement shall relieve the Contractor from its responsibility to pay any tax including any tax that may be levied in India on profits made by it in respect of this Agreement. Good and Service Tax (GST) would be payable at the applicable rates as may be in force from time to time.

20.1.3 Procedure for Royalty payments, in case the same is not paid directly by the contractor.

a) A copy of the agreement shall be forwarded to the Revenue officer with intimation that the royalty for minor mineral/excavation involved in the work such as murrum, sand, metal, rubble etc. will be deducted from each IPC of the contractor will be remitted by Employer directly with them, if the same is not paid directly by the contractor to Revenue authorities.

b) For working out the amount of royalty to be recovered, a consumption statement of minor minerals such as metal, rubble, sand etc. shall be prepared for the items where minor minerals are used for the work. No bulkage shall be considered while arriving quantities and the amount of royalty for each minor mineral shall be worked out as per prevailing rate. However, the amount so recovered shall be certified by the Revenue Authorities before the finalization of a bill to implement exact recovery.

c) As regards items such as cement concrete pipe, ready-mix concrete, precast concrete material, premix asphalt brought from a plant, all types of tiles etc., consumption of minor minerals need not be worked out and royalty for the same shall not be recovered and paid to Revenue Department.

d) If the contractor submits that he has already paid the royalty to the Revenue Department even in such cases the royalty charges shall have to be recovered from the bills of the contractor and shall be kept in deposit for confirmation from the Revenue Authority. The amount in the deposit shall be released only after getting confirmation from the Revenue Authorities. In such cases, the Employer's Engineer shall forward the receipts of payment of Royalty charges produced by the contractor to the Revenue Authorities and obtain their confirmation. Till such time, the Royalty charges shall be recovered and kept in deposit.

20.1.4 The Contract Price shall not be adjusted for any change in costs stated in Clause 20.1.1 above, except as stated in Clause 20.1.2 , 20.10 and 20.17 respectively.

20.1.5 The Contract Price shall not be adjusted to take account of any Force Majeure unless otherwise provided for in this Agreement.

20.1.6 Unless otherwise stated in this Agreement, the Contract Price covers all the Contractor's obligations for the Works under this Agreement and all things necessary for the Construction and the remedying of any Defects in the Project Works.

20.1.7 All payments under this Agreement shall be made in Indian Rupees.

## 20.2 Advance Payment

20.2.1 The Employer shall make an interest-bearing advance payment @ SBI MCLR + 3% per annum applicable on the date of payment of mobilization advance (the "Advance Payment"), equal in amount to 10 (Ten) percent of the Contract Price, for mobilisation expenses and acquisition of equipment. The Advance Payment shall be made in two instalments. The first instalment shall be an amount equal to 5% (five percent) of the Contract Price and the second instalment shall be equal to 5% (five percent) of the Contract Price.

20.2.2 The Contractor may apply to the Employer for the first instalment of the Advance Payment at any time after the signing of the Contract Agreement, along with an irrevocable and unconditional guarantee from a Bank or in the form of Insurance surety Bond for an amount equivalent to 110% (one hundred and ten per cent) of such instalment, substantially in the form provided in Schedule-B, to remain effective till the complete and full repayment thereof.

20.2.3 At any time after 10% of Financial progress have been achieved by contractor and duly certified by Employer's Engineer , the Contractor may apply for the second instalment of the Advance Payment along with an irrevocable and unconditional guarantee from a Bank or in the form of Insurance Surety Bond for an amount equivalent to 110% (one hundred and ten per cent) of such instalment, substantially in the form provided at Schedule-B, to remain effective till the complete and full repayment thereof along with proof of satisfactory utilization of first instalment of Advance Payment in this Project.

20.2.4 No advance shall be given after 40% of the original Contract amount has been paid.

20.2.5 The first and second instalments shall be paid by the Employer to the Contractor within 15 (Fifteen) days of the receipt of its respective requests in accordance with the provisions of this Clause 20.2.

20.2.6 The recovery of all Advances shall commence when 20% (Twenty per cent) of the original Contract Price of the work has been paid, or at twelve months after the Commencement of the Contract whichever is the earlier, and it will be completed by the time 80% of the original contract value has been paid or by the time of original Completion Date whichever is earlier.

20.2.7 If the Advance Payment has not been fully repaid prior to Termination under Clause 22.7 or Section 24, as the case may be, the whole of the balance then outstanding including

interest shall immediately become due and payable by the Contractor to the Employer.

## 20.3 Procedure for Estimating the Payment for the Works

20.3.1 The Employer shall make interim payments to the Contractor as certified by the Employer's Engineer upon completion of a stage, in a length, number or area as specified, and value in accordance with the proportion of the Contract Price assigned to each item and its stage in Schedule-C. The Contractor shall base its claim for an interim payment for the stages completed till the end of the month for which the payment is claimed, valued in accordance with Clause 20.3.1, supported with necessary particulars and documents in accordance with this Agreement.

20.3.2 Any reduction in the Contract Price arising out of Change of Scope or the Works withdrawn shall not affect the amounts payable for the items or stage payments thereof which are not affected by such Change of Scope or withdrawal. For the avoidance of doubt and by way of illustration, the Parties agree that if the amount assigned to Bridges is reduced from Rs.100 Crores to Rs. 80 Crores owing to Change of Scope or withdrawal of work, the reduction in payment shall be restricted to relevant payments for Bridges only and the payment due in respect of all other stage payments under the item Bridges shall not be affected in any manner. The Parties further agree that the adjustments arising out of the aforesaid modifications shall be carried out in a manner that the impact of such modifications is restricted to the said Change of Scope or withdrawal, as the case may be, and does not alter the payments due for and in respect of items or stage payments which do not form part of such Change of Scope or withdrawal.

## 20.4 Stage Payment Statement for Works

20.4.1 The Contractor shall submit a statement (the "Stage Payment Statement"), in 3 copies, by the 7th (Seventh) day of the month to the Employer's Engineer in the form set forth in Schedule-J, showing the amount calculated in accordance with Clause 20.3 to which the Contractor considers himself entitled for completed stage(s) of the Works. The Stage Payment Statement shall be accompanied by the monthly progress reports, marked-up drawing indicating items covered in the previous invoice and current invoice, approved drawings, approved material inspection requests, approved work inspection requests, test reports, approved method statements, third-party inspection reports and any other supporting documents as requested by the Employer's Engineer. The Contractor shall not submit any claim for payment of incomplete stages of work and for the completed work where compliance related to health, safety, environment and quality has not been approved by the Engineer in charge.

## 20.5 Stage Payment for Works

20.5.1 Within 15 (Fifteen) days of the receipt of the Stage Payment Statement referred to in Clause 20.4, the Employer's Engineer shall determine and shall deliver to the Employer and the Contractor an Interim Payment Certificate (IPC) certifying the amount due and payable to the Contractor, after adjusting the payments already released, if any to the Contractor. Within 15 (Fifteen) days of the receipt of the IPC certificate, the Employer shall pay the contractor the approved/certified sum against the said IPC.

20.5.2 In cases where there is a difference of opinion as to the value of any stage, the Employer's

Engineer's view shall prevail, and interim payments shall be made to the Contractor on this basis, provided that the foregoing shall be without prejudice to the Contractor's right to raise a Dispute.

20.5.3 The Employer's Engineer may, for reasons to be recorded, withhold from payment:

a) The estimated value of work or obligation that the Contractor has failed to perform in accordance with this Agreement and the Employer's Engineer had notified the Contractor; and

b) The estimated cost of rectification of work done being not in accordance with this Agreement.

20.5.4 Payment by the Employer shall not be deemed to indicate the Employer's acceptance, approval, consent, or satisfaction with the work done.

## 20.6 Operation and Maintenance Statement of the Project Works

20.6.1 The Contractor shall submit to the Employer's Engineer a Quarterly Maintenance statement ("Quarterly Maintenance Statement") in 3 (Three) copies by the 7th (Seventh) day of the starting Quarter in the format set forth in Schedule-J for the Maintenance of the Project Works during the previous month. However, the contractor needs to submit the monthly O&M report for records and performance.

20.6.2 The Quarterly lump sum amount payable for Maintenance shall be 1/4$^{th}$ (one-fourth) of the annual cost of Maintenance as specified in Clause 15.1.1.

## 20.7 Payment for Operation & Maintenance of the Project Works

20.7.1 Within 15 (Fifteen) days of receipt of the Quarterly Maintenance Statement from the Contractor pursuant to Clause 20.6, the Employer's Engineer shall verify the Contractor's Quarterly Maintenance statement and certify the amount to be paid to the Contractor taking into account:

a) Compliance with the Operation and Maintenance Requirements; and

b) Reduction for non-compliance with the Maintenance Requirement in accordance with Clause 20.7.4.

20.7.2 The Employer's Engineer shall deliver to the Employer an IPC approving or amending the quarterly Maintenance statement to reflect the amount due to the Contractor in accordance with this Agreement.

20.7.3 Within 15 (Fifteen) days of the receipt of the certified IPC, the Employer shall pay the contractor the approved/certified sum against the said IPC.

20.7.4 Maintenance shall be measured in units of one kilometre for each length of road/drain/pipelines (water, recycled water, sewerage, industrial wastewater) and all other units as decided by the Employer's Engineer based on the O&M of such units; provided, however, that payment thereof shall be made in fixed Quarterly amounts in accordance with this Agreement. If the Maintenance Requirements set forth in Schedule-Q are not met, a reduction in payments shall be made in accordance with the provisions of Schedule-H. The reductions for noncompliance with the Maintenance Requirements shall be applied

on the basis of monthly inspections by the Employer's Engineer.

20.7.5 The deduction made on account of non-compliance with the Maintenance Requirements shall not be subsequently considered for payment after the compliance is achieved by repair or rectification.

20.7.6 The Employer shall pay to the Contractor every quarter any amount due under any IPC under this Clause 20.7. The payment shall be made no later than 30 (Thirty) days from the date of submission of the last IPC for the relevant quarter.

20.7.7 The proportionate payment towards O&M charges for the part completion and commissioned for the intervening period will be paid separately.

## 20.8 Payment of Damages

20.8.1 The Contractor may claim Damages due and payable to it in accordance with the provisions of this Agreement.

20.8.2 The Employer's Engineer shall issue the IPC within 15 (Fifteen) days of the receipt of the claim under Clause 20.8.1, after making adjustments in accordance with the provisions of this Agreement. The Employer shall pay to the Contractor the amount due under any IPC within a period of 30 (Thirty) days from the date of the submission of the claim under this Clause.

20.8.3 In the event of the failure of the Employer to make payment to the Contractor within the specified time, the Employer shall be liable to pay to the Contractor interest thereon and the provisions of Clause 20.9 shall apply mutatis mutandis thereto.

## 20.9 Time of Payment and Interest

20.9.1 The Employer shall pay to the Contractor any amount due under any payment certificate issued by the Employer's Engineer in accordance with the provisions of this Section 20, or in accordance with any other clause of this Agreement as follows:

a) Payment shall be made no later than 30 (Thirty) days from the date of submission of the Approved Stage Payment Statement by the Contractor to the Employer's Engineer for certification in accordance with the provisions of Clause 20.4 for an IPC; provided that, in the event the IPC is not issued by the Employer's Engineer within the period of 30 (Thirty) days, the Employer shall pay the amount shown in the Contractor's Stage Payment Statement and any discrepancy therein shall be added to, or deducted from, the next payment certificate issued to the Contractor; and

b) Payment shall be made no later than 30 (Thirty) days from the date of submission of the Final Approved Payment Certificate for Works along with the discharge submitted to the Employer's Engineer in accordance with the provisions of Clause 20.15 for certification.

20.9.2 In the event of the failure of the Employer to make payment to the Contractor within the time period stated in this Clause 20.9, the Employer shall be liable to pay to the Contractor interest at Rate of 6% p.a., on all sums remaining unpaid from the date on which the same should have been paid, calculated in accordance with the provisions of Clause 20.9.1 (a)

and (b) and till the date of actual payment.

## 20.10 Price Adjustment for the Works

20.10.1 The amounts payable to the Contractor shall be adjusted for rises or falls in the cost of labour, Goods, and other inputs to the Works, by the addition or deduction of the amounts determined by the formulae prescribed in this Sub-Clause. To the extent that full compensation for any rise or fall in Costs is not covered by the provisions of this or other Clauses, the Accepted Contract Amount shall be deemed to have included amounts to cover the contingency of other rises and falls in costs.

20.10.2 The adjustment to be applied to the amount otherwise payable to the Contractor, as valued in accordance with the appropriate Schedule and certified in Payment Certificates, shall be determined from formulae for the currencies in which the Contract Price is payable.

20.10.3 The Contract Price shall be adjusted for an increase or decrease in rates and price of labour, cement, steel, bitumen, fuel, and other materials as well as electrical works in accordance with the principles, procedures and formulae specified below:

20.10.4 The price adjustments for the works shall also be applicable during the approved Extension of time.

20.10.5 The following expressions and meanings are assigned to the value of the work done:

a) Electrical Works

Unless otherwise specified, the Price of supply of electrical equipment specified under Price Schedule C for the respective Electrical Scope of Work shall be subject to adjustment as per the formulae of the Indian Electrical & Electrical Manufacturers Association (IEEMA). For the items of facilities for which IEEMA formulae do not exist, the formulae given for other Materials below in 20.10.5 (b) shall be applicable for the purpose of calculation of the price adjustment.

b) All works (Other than Electrical works)

Price adjustment for changes in cost (other than Electrical works) shall be paid in accordance with the following formulae:

VR= 0.85 R x [PL x (LI – LO)/LO + PC x (CI – CO)/CO+ PS x (SI – SO)/SO + PB x (BI – BO)/BO + PF x (FI –FO)/FO +PA x (AI - AO)/AO+ PM x (MI – MO)/MO]

Where,

R = Value of work done during the month under consideration for Price Adjustment

VR = Increase or decrease in the cost during the period under consideration due to changes in the rates for relevant components as stated in sub-paragraph (c)

PL, PC, PS, PB, PF, PA and PM are the percentages of Labour, Cement, Steel, Bitumen, Fuel, Percentage of Plant & Machinery, and spare component & other materials, respectively for the relevant item as stated in sub-paragraph (c)

LO = The consumer price index for industrial workers for the [applicable for Raigad District in the State of Maharashtra], published by the Labour Bureau, Ministry of Labour, Government of India, (hereinafter called “CPI”) for the month of the Base Date.

LI = The CPI for the month under consideration for which the IPC relates to.

CO = The WPI for grey cement for the month of the Base Date.

CI=The WPI for grey cement for the month under consideration for which the IPC relates to.

SO = The WPI for Mild Steel (Long Products) for the month of the Base Date.

SI = The WPI for Mild Steel (Long Products) for the month under consideration for which the IPC relates to.

BO = The WPI for Bitumen for the month of the Base Date.

BI = The WPI for Bitumen for the month under consideration for which the IPC relates to.

FO = The WPI for Fuel and Power for the month of the base Date.

FI = The WPI for Fuel and Power for the month under consideration for which the IPC relates to.

AO = WPI for construction machinery for the month of the Base Date.

AI = The WPI for construction machinery for the month under consideration for which the IPC relates to.

MO = The WPI for all commodities for the month of the Base Date.

MI = The WPI for all commodities for the month under consideration for which the IPC relates to.

c) The following percentages shall govern the price adjustment of the Contract Price:

Table of adjustment data for all works (other than Electrical works)

| S. No. | Particulars | Percentage (%) |
|---|---|---|
| 1 | Labor PL | 15% |
| 2 | Cement PC | 15% |
| 3 | Steel PS | 10% |
| 4 | Bitumen PB | 15% |
| 5 | Fuel PF | 10% |
| 6 | Plant, machinery and spares PA | 15% |
| 7 | Other Materials PM | 20% |
| Total | | 100% |

d) The Price escalation shall be admissible only in respect of Works executed in accordance with the applicable Project Milestones and duly certified after the expiry of 18 (eighteen) months from the Appointed Date. Notwithstanding anything to the contrary, the net cumulative price escalation, after accounting for both positive and negative adjustments, shall in no event exceed 5% (five per cent) of the original Contract Price.

## 20.11 Discharge

20.11.1 Upon submission of the Final Payment Statement for Works under Clause 20.13, the Contractor shall give to the Employer, with a copy to the Employer's Engineer, a written discharge confirming that the total of the Final Payment Statement represents the full and

final settlement of all monies due to the Contractor in respect of this Agreement for all the Works arising out of this Agreement, except for any monies due to either Party on account of any Defect. Provided that such discharge shall become effective only after the payment due has been made in accordance with the Final Payment Certificate issued pursuant to Clause 20.15.

## 20.12 Final Payment Certificate

20.12.1 Within 30 (Thirty) days after receipt of the Final Payment Statement for Works under Clause 20.13, and the written discharge under Clause 20.14, and there being no Disputed items of claim, the Employer's Engineer shall deliver to the Employer, with a copy to the Contractor, a final payment certificate (the "Final Payment Certificate") stating the amount which, in the opinion of the Employer's Engineer, is finally due under this Agreement or otherwise. For the avoidance of doubt, before issuing the Final Payment Certificate, the Employer's Engineer shall ascertain from the Employer all amounts previously paid by the Employer and for all sums to which the Employer is entitled, the balance, if any, due from the Employer to the Contractor or from the Contractor to the Employer, as the case may be.

20.12.2 The Employer shall, in accordance with the provisions of Clause 20.9, pay to the Contractor the amount which is stated as being finally due in the Final Payment Certificate.

## 20.13 Final payment statement for Operation and Maintenance

20.13.1 Within 30 (Thirty) days after completion of the Operation and Maintenance Period, the Contractor shall submit to the Employer's Engineer six copies of the final payment statement for Maintenance of the Project Works, with supporting documents showing the details set forth below in the form prescribed by the Employer's Engineer

a) The total amount claimed in accordance with the Quarterly statement for Maintenance of Project Works.

b) The amount paid in accordance with the Interim Payment Certificates; and

c) Any sums which the Contractor considers to be due to it, with supporting documents.

20.13.2 The Employer's Engineer shall certify final payment within 30 (Thirty) days of the receipt of the final payment statement of Maintenance under Clause 20.163.1, segregating the items of amount payable from the items of amount disallowed. The Employer shall make payment on the basis of the final payment authorized by the Employer's Engineer within a period of 30 (Thirty) days of the receipt of the Final Payment Statement from the Employer's Engineer.

20.13.3 If the Employer's Engineer does not prescribe the form within 15 (Fifteen) days of the date of issue of the Completion Cum Taking Over Certificate, the Contractor shall submit the statement in such form as it deems fit.

## 20.14 Change in Laws

20.14.1 If as a result of Change in Law, the Contractor suffers any additional costs in the execution of the Works or in relation to the performance of its other obligations under this Agreement, the Contractor shall, within 15 (Fifteen) days from the date it becomes reasonably aware of such addition in cost, notify the Employer with a copy to the Employer's Engineer of

such additional cost due to Change in Law.

20.14.2 If as a result of Change in Law, the Contractor benefits from any reduction in costs for the execution of this Agreement or in accordance with the provisions of this Agreement, either Party shall, within 15 (Fifteen) days from the date it becomes reasonably aware of such reduction in cost, notify the other Party with a copy to the Employer's Engineer of such reduction in cost due to Change in Law.

20.14.3 The Employer's Engineer shall, within 15 (Fifteen) days from the date of receipt of the notice from the Contractor or the Employer, determine any addition or reduction to the Contract Price, as the case may be, due to the Change in Law.

## 20.15 Correction of Interim Payment Certificates

20.15.1 The Employer's Engineer may by an Interim Payment Certificate make any correction or modification in any previous Interim Payment Certificate issued by the Employer's Engineer.

## 20.16 Employer's claims

20.16.1 If the Employer considers itself to be entitled to any payment from the Contractor under any Clause of this Agreement, it shall give notice and particulars to the Contractor 15 (Fifteen) days before making the recovery from any amount due to the Contractor and shall take into consideration the representation, if any, made by the Contractor in this behalf, before making such recovery. The employer's decision in this regard will be final.

## 20.17 Bonus for early completion

20.17.1 In the event that the Project Completion Date occurs prior to the Scheduled Completion Date, the Contractor shall be entitled to receive a payment of bonus equivalent to 0.50 % (Zero-point Fifty percentage) of the total Contract Price calculated on a monthly basis by which the Project Completion Date precedes the Scheduled Completion Date, but subject to a maximum of 3% (Three percent) of the Contract Price.

20.17.2 Provided, however, that the payment of bonus, if any, shall be made only after the issue of the Project Completion cum Taking Over Certificate. For the avoidance of doubt, the Parties agree that for the purpose of determining the bonus payable hereunder, the Contract Price shall always be deemed to be the amount specified in Clause 20.1.1, and shall exclude any revision thereof for any reason. The Parties also agree that bonus shall be payable only if each work for which Extension of Time has been granted is completed within respective Extended Time.

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# 21 Insurance

## 21.1 Insurance for Works and Maintenance

21.1.1 The Contractor shall affect and maintain at its own cost the insurances specified in Schedule-K and as per the requirements under the Applicable Laws.

21.1.2 Subject to the provisions of Clause 22.6, the Employer and the Contractor shall, in accordance with its obligations as provided for in this Agreement, be liable to bear the cost of any loss or damage that does not fall within the scope of this Section or cannot be recovered from the insurers.

21.1.3 Subject to the exceptions specified in Clause 21.1.5 below, the Contractor shall, save and except as provided for in this Agreement, fully indemnify, hold harmless and defend the Employer and Employer's Engineer from and against any and all losses, damages, costs, charges and/or claims with respect to:

a) the death of or injury to any person; or

b) the loss of or damage to any property (other than the Works).

21.1.4 That may arise out of or in consequence of any breach by the Contractor of this Agreement during the execution of the Works or the remedying of any defects therein.

21.1.5 Notwithstanding anything stated above in Clause 21.1.3, the Employer shall fully indemnify the Contractor from and against any and all losses, damages, costs, charges, proceedings and/or claims arising out of or with respect to

a) The use or occupation of land or any part thereof by the Employer.

b) The right of the Employer to execute the Works, or any part thereof, on, over, under, in or through any land.

c) The damage to property which is the unavoidable result of the execution and completion of the Works, or the remedying of any Defects therein, in accordance with this Agreement; and

d) The death of or injury to persons or loss of or damage to property resulting from any act or neglect of the Employer, its agents, servants or other contractors, not being employed by the Contractor Provided that, in the event of any injury or damage as a result of the contributory negligence of the Contractor, the Employer shall be liable to indemnify the Contractor from and against any and all losses, Damages, costs, charges, proceedings and/or claims to the extent as may be proportionately determined to be the liability of the Employer, its servants or agents or other contractors not associated with the Contractor in such injury or damage.

21.1.6 Without prejudice to the obligations of the Parties as specified under Clauses 21.1.3 and 21.1.5, the Contractor shall maintain or effect such third party insurances as may be required under the Applicable Laws.

21.1.7 The Contractor shall provide to the Employer, within 30 days of the Appointed Date, evidence of professional liability insurance maintained by its Design Manager and/or consultants to cover the risk of professional negligence in the design of Works. The professional liability coverage shall be for a sum of not less than 3% (Three percent) of the

Contract Price and shall be maintained until the end of the Defect Liability Period. The Employer's Engineer will not issue Project Completion cum Taking Over Certificate until the Contractor has produced evidence that coverage of the professional indemnity insurance has been provided for the aforesaid period.

## 21.2 Notice to the Employer

21.2.1 No later than 15 (Fifteen) days after the date of this Agreement, the Contractor shall by notice furnish to the Employer, in reasonable detail, information in respect of the insurances that it proposes to effect and maintain in accordance with this Section. Within 10 (Ten) days of receipt of such notice, the Employer may require the Contractor to effect and maintain such other insurances as may be necessary pursuant hereto, and in the event of any difference or disagreement relating to any such insurance, the Dispute Resolution Procedure shall apply.

## 21.3 Evidence of Insurance Cover

21.3.1 All insurances obtained by the Contractor in accordance with this Section shall be maintained with insurers on terms consistent with Good Industry Practice. Within 30 (Thirty) days from the Appointed Date, the Contractor shall furnish to the Employer notarized true copies of the certificate(s) of insurance, copies of insurance policies and premium payment receipts in respect of such insurance, and no such insurance shall be cancelled, modified, or allowed to expire or lapse until the expiration of at least 45 (Forty-five) days after notice of such proposed cancellation, modification or non-renewal has been delivered by the Contractor to the Employer. The Contractor shall act in accordance with the directions of the Employer. Provided that the Contractor shall produce to the Employer the insurance policies in force and the receipts for payment of the current premium.

21.3.2 The Contractor shall ensure the adequacy of the insurance at all times in accordance with the provisions of this Agreement.

## 21.4 Remedy for Failure to Insure

21.4.1 If the Contractor shall fail to effect and keep in force all insurances for which it is responsible pursuant hereto, the Employer shall have the option to either keep in force any such insurances, and pay such premium and recover the costs thereof from the Contractor, or in the event of computation of a Termination Payment, treat an amount equal to the Insurance Cover as deemed to have been received by the Contractor.

## 21.5 Waiver of subrogation

21.5.1 All insurance policies in respect of the insurance obtained by the Contractor pursuant to this Section shall include a waiver of any and all rights of subrogation or recovery of the insurers thereunder against, inter alia, the Employer, and its assigns, successors, undertakings and their subsidiaries, Affiliates, employees, insurers and underwriters, and of any right of the insurers to any set-off or counterclaim or any other deduction, whether by attachment or otherwise, in respect of any liability of any such person insured under any such policy or in any way connected with any loss, liability or obligation covered by

such policies of insurance.

## 21.6 Contractor's Waiver

21.6.1 The Contractor hereby further releases, assigns and waives any and all rights of subrogation or recovery against, inter alia, the Employer and its assigns, undertakings and their subsidiaries, Affiliates, employees, successors, insurers and underwriters, which the Contractor may otherwise have or acquire in or from or in any way connected with any loss, liability or obligation covered by policies of insurance maintained or required to be maintained by the Contractor pursuant to this Agreement (other than third party liability insurance policies) or because of deductible clauses in or inadequacy of limits of any such policies of insurance.

## 21.7 Cross Liabilities

21.7.1 Any such insurance maintained or effected in pursuance of this Section shall include a cross-liability clause such that the insurance shall apply to the Contractor, Empolyer and to the Employer's Engineer as separately insured.

## 21.8 Accident or Injury to Workmen

21.8.1 Notwithstanding anything stated in this Agreement, it is hereby expressly agreed between the Parties that the Employer and/or Employer's Engineer shall not be liable for or in respect of any damages or compensation payable to any workman or other person in the employment of the Contractor or Sub-contractor, save and except as for death or injury resulting from any act, omission or default of the Employer, its agents, or servants. The Contractor shall indemnify and keep indemnified the Employer from and against all such claims, proceedings, damages, costs, charges, and expenses whatsoever in respect of the above save and except for those acts, omissions, or defaults for which the Employer shall be liable.

## 21.9 Insurance Against Accidents to Workmen

21.9.1 The Contractor shall affect and maintain during the Agreement such insurances as may be required to insure the Contractor's personnel and any other persons employed by it on the Project Site from and against any liability incurred in pursuance of this Section. Provided that for the purposes of this Clause, the Contractor's personnel/any person employed by the Contractor shall include the Sub-contractor and its personnel. It is further provided that, in respect of any persons employed by any Sub-contractor, the Contractor's obligations to insure as aforesaid under this Clause 21.9 shall be discharged if the Sub-contractor shall have insured against any liability in respect of such persons in such manner that the Employer is indemnified under the policy. The Contractor shall require such Sub-contractor to produce before the Employer when required, such policy of insurance and the receipt for payment of the current premium within 10 (Ten) days of such demand being made by the Employer.

## 21.10 Application of Insurance Proceeds

21.10.1 The proceeds from all insurance claims, except for life and injury, shall be applied for any necessary repair, reconstruction, reinstatement, replacement, improvement, delivery or installation of the Project Works and the provisions of this Agreement in respect of the

Construction of Works shall apply mutatis mutandis to the Works undertaken out of the proceeds of insurance.

## 21.11 Compliance with Policy Conditions

21.11.1 Each Party hereby expressly agrees to fully indemnify the other Party from and against all losses and claims arising from its failure to comply with conditions imposed by the insurance policies effected in accordance with this Agreement.

# Part D: EPC Agreement
# Section E- Force Majeure and Termination

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# 22 Force Majeure

## 22.1 Force Majeure

22.1.1 As used in this Agreement, the expression “Force Majeure” or “Force Majeure Event” shall mean the occurrence in India of any or all of Non-Political Event, Indirect Political Event and Political Event, as defined in Clauses 22.2, 22.3 and 22.4 respectively, if it affects the performance by the Party claiming the benefit of Force Majeure (the “Affected Party”) of its obligations under this Agreement and which act or event (i) is beyond the reasonable control of the Affected Party, and (ii) the Affected Party could not have prevented or overcome by exercise of due diligence and following Good Industry Practice, and (iii) has Material Adverse Effect on the Affected Party.

## 22.2 Non-Political Event

A Non-Political Event shall mean one or more of the following acts or events:

a) Act of God, pandemic, epidemic, extremely adverse weather conditions, lightning, earthquake, landslide, cyclone, flood, volcanic eruption, chemical or radioactive contamination or ionizing radiation, fire or explosion (to the extent of contamination or radiation or fire or explosion originating from a source external to the Site);

b) Strikes or boycotts (other than those involving the Contractor, Subcontractors or their respective employees/representatives, or attributable to any act or omission of any of them) interrupting supplies and services to the Project Works for a continuous period of 24 (Twenty-four) hours and an aggregate period exceeding 10 (Ten) days in an Accounting Year, and not being an Indirect Political Event set forth in Clause 22.3;

c) Any judgment or order of any court of competent jurisdiction or statutory Employer made against the Contractor in any proceedings for reasons other than (i) failure of the Contractor to comply with any Applicable Law or Applicable Permit, or (ii) on account of breach of any Applicable Law or Applicable Permit or of any contract, or (iii) enforcement of this Agreement, or (iv) exercise of any of its rights under this Agreement by the Employer.

d) The discovery of geological conditions, toxic contamination or archaeological remains on the Site that could not reasonably have been expected to be discovered through a Site inspection.

## 22.3 Indirect Political Event

An Indirect Political Event shall mean one or more of the following acts or events:

a) An act of war (whether declared or undeclared), invasion, armed conflict or act of a foreign enemy, blockade, embargo, riot, insurrection, terrorist or military action, civil commotion or politically motivated sabotage.

b) Industry-wide or State-wide strikes or industrial action for a continuous period of 24 (Twenty-four) hours and exceeding an aggregate period of 10 (Ten) days in an Accounting Year.

c) Any civil commotion, boycott or political agitation which prevents the construction of the Project Works by the Contractor for an aggregate period exceeding 10 (Ten) days in an Accounting Year.

## 22.4 Political Event

A Political Event shall mean one or more of the following acts or events by or on account of any Government Instrumentality:

a) Change in Law, only if the consequences thereof cannot be dealt with under and in accordance with the provisions of Clause 20.14;

b) Compulsory acquisition in national interest or expropriation of any Project Assets or rights of the Contractor or of the Sub-Contractors.

c) Unlawful or unauthorized or without jurisdiction revocation of, or refusal to renew or grant without valid cause, any clearance, license, permit, authorization, no objection certificate, consent, approval or exemption required by the Contractor or any of the Sub-contractors to perform their respective obligations under this Agreement; provided that such delay, modification, denial, refusal or revocation did not result from the Contractor's or any Sub- contractor's inability or failure to comply with any condition relating to grant, Maintenance or renewal of such clearance, license, authorization, no objection certificate, exemption, consent, approval or permit;

d) Any failure or delay of a Sub-contractor but only to the extent caused by another Political Event.

## 22.5 Duty to report Force Majeure Event

22.5.1 Upon the occurrence of a Force Majeure Event, the Affected Party shall by notice report such occurrence to the other Party forthwith. Any notice pursuant hereto shall include full particulars of:

a) The nature and extent of each Force Majeure Event which is the subject of any claim for relief under this Clause with evidence in support thereof.

b) The estimated duration and the effect or probable effect which such Force Majeure Event is having or will have on the Affected Party's performance of its obligations under this Agreement.

c) The measures which the Affected Party is taking or proposes to take for alleviating the impact of such Force Majeure Event; and

d) Any other information relevant to the Affected Party's claim.

22.5.2 The Affected Party shall not be entitled to any relief for or in respect of a Force Majeure Event unless it shall have notified the other Party of the occurrence of the Force Majeure Event as soon as reasonably practicable, and in any event no later than 10 (Ten) days after the Affected Party knew, or ought reasonably to have known, of its occurrence, and shall have given particulars of the probable Material effect that the Force Majeure Event is likely to have on the performance of its obligations under this Agreement.

22.5.3 For so long as the Affected Party continues to claim to be materially affected by such Force Majeure Event, it shall provide the other Party with regular (and not less than weekly)

reports containing the information as required by Clause 22.5.1, and such other information as the other Party may reasonably request the Affected Party to provide.

## 22.6 Effect of Force Majeure Event on the Agreement

22.6.1 Deleted.

22.6.2 Save and except as expressly provided in this Clause, neither Party shall be liable in any manner whatsoever to the other Party in respect of any loss, damage, cost, expense, claims, demands and proceedings relating to or arising out of the occurrence or existence of any Force Majeure Event or exercise of any right pursuant hereto.

22.6.3 Upon the occurrence of any Force Majeure Event during the Construction Period, the Project Completion Schedule for and in respect of the affected Works shall be extended on a day-for-day basis for such period as performance of the Contractor's obligations is affected on account of the Force Majeure Event or its subsisting effects.

## 22.7 Termination Notice for Force Majeure Event

22.7.1 If a Force Majeure Event subsists for a period of 60 (Sixty) days or more within a continuous period of 120 (one hundred and twenty) days, either Party may at its discretion terminate this Agreement by issuing a Termination Notice to the other Party without being liable in any manner whatsoever, save as provided in this Clause, and upon the issue of such Termination Notice, this Agreement shall, notwithstanding anything to the contrary contained herein, stand terminated forthwith; provided that before issuing such Termination Notice, the Party intending to issue the Termination Notice shall inform the other Party of such intention and grant 15 (Fifteen) days' time to make a representation, and may after the expiry of such 15 (Fifteen) days period, whether or not it is in receipt of such representation, in its sole discretion issue the Termination Notice.

## 22.8 Termination Payment for Force Majeure Event

22.8.1 In the event of this Agreement being terminated on account of a Non-Political Event, the Termination Payment shall be an amount equal to the sum payable under Clause 24.5.

22.8.2 Provided that in the event Termination occurs during the Maintenance Period, the Employer's Engineer shall only determine the value of Works associated with Maintenance.

22.8.3 If Termination is on account of an Indirect Political Event, the Termination Payment shall include:

a) Any sums due and payable under Clause 24.5; and

b) The reasonable cost, as determined by the Employer's Engineer, of the Plant and Materials procured by the Contractor and transferred to the Employer for use in Construction or Maintenance, only if such Plant and Materials are in conformity with the Specifications and Standards.

c) Provided that in the event Termination occurs during the Maintenance Period, the Employer's Engineer shall only determine the value of Works associated with Maintenance.

22.8.4 If Termination is on account of a Political Event, the Employer shall make a Termination

Payment to the Contractor in an amount that would be payable under Clause 24.6.2 as if it were an Employer Default.

## 22.9 Dispute Resolution.

22.9.1 In the event that the Parties are unable to agree in good faith about the occurrence or existence of a Force Majeure Event, such Dispute shall be finally settled in accordance with the Dispute Resolution Procedure, provided that the burden of proof as to the occurrence or existence of such Force Majeure Event shall be upon the Party claiming relief and/or excuse on account of such Force Majeure Event.

## 22.10 Excuse from Performance of Obligations

22.10.1 If the Affected Party is rendered wholly or partially unable to perform its obligations under this Agreement because of a Force Majeure Event, it shall be excused from performance of such of its obligations to the extent it is unable to perform on account of such Force Majeure Event; provided that:

a) The Suspension of performance shall be of no greater scope and of no longer duration than is reasonably required by the Force Majeure Event.

b) The Affected Party shall make all reasonable efforts to mitigate or limit damage to the other Party arising out of or as a result of the existence or occurrence of such Force Majeure Event and to cure the same with due diligence; and

c) When the Affected Party is able to resume the performance of its obligations under this Agreement, it shall give to the other Party notice to that effect and shall promptly resume the performance of its obligations hereunder.

# 23 Suspension of Contractor's Rights

## 23.1 Suspension upon Contractor Default

23.1.1 Upon occurrence of a Contractor Default, the Employer shall be entitled, without prejudice to its other rights and remedies under this Agreement including its rights of Termination hereunder, to (i) suspend carrying out of the Works or Maintenance or any part thereof, and (ii) carry out such Works or Maintenance itself or authorize any other person to exercise or perform the same on its behalf during such Suspension (the "Suspension"). Suspension hereunder shall be effective forthwith upon issue of notice by the Employer to the Contractor and may extend up to a period not exceeding 90 (Ninety) days from the date of issue of such notice.

## 23.2 Employer to act on behalf of Contractor.

23.2.1 During the period of Suspension hereunder, all rights and liabilities vested in the Contractor in accordance with the provisions of this Agreement shall continue to vest therein and all things done or actions taken, including expenditure incurred by the Employer for discharging the obligations of the Contractor under and in accordance with this Agreement shall be deemed to have been done or taken for and on behalf of the Contractor and the Contractor undertakes to indemnify the Employer for all costs incurred during such period. The Contractor hereby licenses and sub-licenses respectively, the Employer or any other person authorized by it under Clause 23.1 to use during Suspension, all Intellectual Property belonging to or licensed to the Contractor with respect to the Project Works and its design, engineering, construction and maintenance, and which is used or created by the Contractor in performing its obligations under the Agreement.

## 23.3 Revocation of Suspension

23.3.1 In the event that the Employer shall have rectified or removed the cause of Suspension within a period not exceeding 60 (Sixty) days from the date of Suspension, it shall revoke the Suspension forthwith and restore all rights of the Contractor under this Agreement. For the avoidance of doubt, the Parties expressly agree that the Employer may, at its discretion, revoke the Suspension at any time, whether or not the cause of Suspension has been rectified or removed hereunder.

23.3.2 Upon the Contractor having cured the Contractor Default within a period not exceeding 60 (Sixty) days from the date of Suspension, the Employer shall revoke the Suspension forthwith and restore all rights of the Contractor under this Agreement.

## 23.4 Termination

23.4.1 At any time during the period of Suspension under this Section, the Contractor may by notice require the Employer to revoke the Suspension and issue a Termination Notice. The Employer shall, within 15 (Fifteen) days of receipt of such notice, terminate this Agreement under and in accordance with Clause 24.

23.4.2 Notwithstanding anything to the contrary contained in this Agreement, in the event that Suspension is not revoked within 90 (Ninety) days from the date of Suspension hereunder, the Agreement shall, upon expiry of the aforesaid period, be deemed to have been terminated by mutual Agreement of the Parties and all the provisions of this Agreement

shall apply, mutatis mutandis, to such Termination as if a Termination Notice had been issued by the Employer upon occurrence of a Contractor Default.

# 24 Termination

## 24.1 Termination for Contractor Default

24.1.1 Save as otherwise provided in this Agreement, in the event that any of the defaults specified below shall have occurred, and the Contractor fails to cure the default within the Cure Period set forth below, or where no Cure Period is specified, then within a Cure Period of 60 (Sixty) days, the Contractor shall be deemed to be in default of this Agreement (the "Contractor Default"), unless the default has occurred solely as a result of any breach of this Agreement by the Employer or due to Force Majeure. The defaults referred to herein shall include:

a) The Contractor fails to provide, extend, or replenish, as the case may be, the Performance Security in accordance with this Agreement.

b) Subsequent to the replenishment or furnishing of fresh Performance Security in accordance with Clause 8.3, the Contractor fails to cure, within a Cure Period of 30 (Thirty) days, the Contractor Default for which the whole or part of the Performance Security was appropriated;

c) The Contractor does not achieve the latest outstanding Project Milestone due in accordance with the provisions of Schedule-E, subject to any Time Extension, and continues to be in default for 45 (Forty-five) days.

d) The Contractor abandons or manifests an intention to abandon the Construction or Maintenance of the Project Works without the prior written consent of the Employer.

e) The Contractor fails to proceed with the Works in accordance with the provisions of Clause 11.1 or stops Works and/or Maintenance for 30 (Thirty) days without reflecting the same in the current Programme, and such stoppage has not been authorised by the Employer's Engineer;

f) The Project Completion Date does not occur within the period specified in Schedule-E for the Scheduled Completion Date, or any extension thereof.

g) Failure to complete the Punch List items within the periods stipulated in Clause 13.2.1;

h) The Contractor fails to rectify any Defect, the non-rectification of which shall have a Material Adverse Effect on the Project, within the time specified in this Agreement or as directed by the Employer's Engineer.

i) The Contractor subcontracts the Works or any part thereof in violation of this Agreement or assigns any part of the Works or the Maintenance without the prior approval of the Employer.

j) The Contractor creates any Encumbrance in breach of this Agreement.

k) an execution levied on any of the assets of the Contractor has caused a Material Adverse Effect.

l) the Contractor is adjudged bankrupt or insolvent, or if a trustee or receiver is appointed for the Contractor or for the whole or Material part of its assets that has a Material bearing on the Project.

m) the Contractor has been, or is in the process of being liquidated, dissolved, wound-up, amalgamated or reconstituted in a manner that would cause, in the reasonable opinion of the Employer, a Material Adverse Effect.

n) a resolution for winding up of the Contractor is passed, or any petition for winding up of the Contractor is admitted by a court of competent jurisdiction and a provisional liquidator or receiver is appointed and such order has not been set aside within 90 (Ninety) days of the date thereof or the Contractor is ordered to be wound up by court except for the purpose of amalgamation or reconstruction; provided that, as part of such amalgamation or reconstruction, the entire property, assets and undertaking of the Contractor are transferred to the amalgamated or reconstructed entity and that the amalgamated or reconstructed entity has unconditionally assumed the obligations of the Contractor under this Agreement; and provided that:

   i. The amalgamated or reconstructed entity has the capability and experience necessary for the performance of its obligations under this Agreement; and

   ii. The amalgamated or reconstructed entity has the financial standing to perform its obligations under this Agreement and has a credit worthiness at least as good as that of the Contractor as at the Appointed Date.

o) Any representation or warranty of the Contractor herein contained which is, as of the date hereof, found to be materially false or the Contractor is at any time hereafter found to be in breach thereof.

p) The Contractor submits to the Employer any statement, notice or other document, in written or electronic form, which has a material effect on the Employer's rights, obligations or interests and which is false in material particulars.

q) The Contractor has failed to fulfil any obligation, for which failure Termination has been specified in this Agreement; or

r) The Contractor commits a default in complying with any other provision of this Agreement if such a default causes a Material Adverse Effect on the Project or on the Employer.

24.1.2 Without prejudice to any other rights or remedies which the Employer may have under this Agreement, upon the occurrence of a Contractor Default, the Employer shall be entitled to terminate this Agreement by issuing a Termination Notice to the Contractor; provided that before issuing the Termination Notice, the Employer shall by a notice inform the Contractor of its intention to issue such Termination Notice and grant 15 (Fifteen) days to the Contractor to make a representation, and may after the expiry of such 15 (Fifteen) days, whether or not it is in receipt of such representation, issue the Termination Notice.

24.1.3 After Termination of this Agreement for Contractor Default, the Employer may complete the Works and/or arrange for any other entities to do so. The Employer and these entities may then use any Materials, Plant and equipment, Contractor's documents and other design documents made by or on behalf of the Contractor.

## 24.2 Termination for Employer's Default

24.2.1 In the event that any of the defaults specified below shall have occurred, and the Employer

fails to cure such default within a Cure Period of 90 (Ninety) days or such longer period as has been expressly provided in this Agreement, the Employer shall be deemed to be in default of this Agreement (the "Employer Default") unless the default has occurred as a result of any breach of this Agreement by the Contractor or due to Force Majeure. The defaults referred to herein shall include:

a) The Employer commits a Material default in complying with any of the provisions of this Agreement and such default has a Material Adverse Effect on the Contractor.

b) The Employer has failed to make payment of any amount due and payable to the Contractor within the period specified in this Agreement.

c) The Employer repudiates this Agreement or otherwise takes any action that amounts to or manifests an irrevocable intention not to be bound by this Agreement; or

d) The Employer's Engineer fails to issue the relevant Interim Payment Certificate within 60 (Sixty) days after receiving a statement and supporting documents.

24.2.2 Without prejudice to any other right or remedy which the Contractor may have under this Agreement, upon occurrence of an Employer Default, the Contractor shall be entitled to terminate this Agreement by issuing a Termination Notice to the Employer; provided that before issuing the Termination Notice, the Contractor shall by a notice inform the Employer of its intention to issue the Termination Notice and grant 15 (Fifteen) days to the Employer to make a representation, and may after the expiry of such 15 (Fifteen) days, whether or not it is in receipt of such representation, issue the Termination Notice.

## 24.3 Termination for Employer's Convenience

24.3.1 Notwithstanding anything stated herein above, the Employer may terminate this Agreement for convenience. The Termination shall take effect 30 (Thirty) days from the date of notice hereunder.

## 24.4 Requirements after Termination

Upon Termination of this Agreement in accordance with the terms of this Section, the Contractor shall comply with and conform to the following:

a) Deliver to the Employer all Plant and Materials which shall have become the property of the Employer under this Section.

b) Deliver all relevant records, reports, intellectual property, and other licenses pertaining to the Works, Maintenance, other design documents and in case of Termination occurring after the Substantial Completion Certificate has been issued, the "as built' Drawings for the Works.

c) Transfer and/or deliver all Applicable Permits to the extent permissible under Applicable Laws; and

d) Vacate the Site within 15 (Fifteen) days.

## 24.5 Valuation of Unpaid Works

24.5.1 Within a period of 45 (Forty-five) days after Termination under Clause 24.1, 24.2 or 24.3, as the case may be, has taken effect, the Employer's Engineer shall proceed in

accordance with Clause 19.5 to determine as follows the valuation of unpaid Works (the "Valuation of Unpaid Works"):

a) Value of the completed stage of the Works, less payments already made.

b) Reasonable value of the partially completed stages of Works as on the date of Termination, only if such Works conform with the Specifications and Standards; and

c) Value of Maintenance, if any, for completed months, less payments already made,

d) And shall adjust from the sum thereof (i) any other amounts payable or recoverable, as the case may be, in accordance with the provisions of this Agreement; and (ii) all Taxes due to be deducted at source.

24.5.2 The Valuation of Unpaid Works shall be communicated to the Employer, with a copy to the Contractor, within a period of 30 (Thirty) days from the date of Termination.

## 24.6 Termination Payment

24.6.1 Upon Termination on account of Contractor's Default under Clause 24.1, the Employer shall:

a) Encash and appropriate the Performance Security and Retention Money, or in the event the Contractor has failed to replenish or extend the Performance Security, claim the amount stipulated in Clause 8.1.1, as agreed pre-determined compensation to the Employer for any losses, delays and cost of completing the Works and Maintenance, if any;

b) Encash and appropriate the Bank guarantee, if any, for and in respect of the outstanding Advance Payment and interest thereon; and

c) Pay to the Contractor, by way of Termination Payment, an amount equivalent to the Valuation of Unpaid Works after adjusting any other sums payable or recoverable, as the case may be, in accordance with the provisions of this Agreement.

24.6.2 Upon Termination on account of an Employer's Default under Clause 24.2 or for the Employer's convenience under Clause 24.3, the Employer shall:

a) Return the Performance Security and Retention Money forthwith.

b) Encash and appropriate the Bank guarantee, if any, for and in respect of the outstanding Advance Payment; and

c) Pay to the Contractor, by way of Termination Payment, an amount equal to:

i. Valuation of Unpaid Works.

ii. The reasonable cost, as determined by the Employer's Engineer, of the Plant and Materials procured by the Contractor and transferred to the Employer for its use, only if such Plant and Materials are in conformity with the Specifications and Standards.

iii. The reasonable cost of temporary Works, as determined by the Employer's Engineer; and

iv. 10 (Ten per cent) of the cost of the Works and Maintenance that are not commenced or not completed, and shall adjust from the sum thereof (i) any other amounts payable or recoverable, as the case may be, in accordance with the provisions of this Agreement, and (ii) all Taxes due to be deducted at source.

24.6.3 Termination Payment shall become due and payable to the Contractor within 30 (Thirty) days of a demand being made by the Contractor to the Employer with the necessary particulars, and in the event of any delay, the Employer shall pay interest at the Bank Rate, calculated at quarterly rests, on the amount of Termination Payment remaining unpaid; provided that such delay shall not exceed 90 (Ninety) days. For the avoidance of doubt, it is expressly agreed that Termination Payment shall constitute full discharge by the Employer of its payment obligations in respect thereof hereunder.

24.6.4 The Contractor expressly agrees that Termination Payment under this Section shall constitute a full and final settlement of all claims of the Contractor on account of Termination of this Agreement and that it shall not have any further right or claim under any law, treaty, convention, contract or otherwise.

## 24.7 Other Rights and Obligations of the Parties

Upon Termination for any reason whatsoever:

a) Property and ownership in all Materials, Plant and Works and the Project Works shall, as between the Contractor and the Employer, vest in the Employer in whole, provided that the foregoing shall be without prejudice to Clause 24.6;

b) Risk of loss or damage to any Materials, Plant or Works and the care and custody thereof shall pass from the Contractor to the Employer; and

c) The Employer shall be entitled to restrain the Contractor and any person claiming through or under the Agreement from entering upon the Site or any part of the Project except for taking possession of Materials, stores, implements, Construction plants and equipment of the Contractor, which have not been vested in the Employer in accordance with the provisions of this Agreement.

## 24.8 Survival of Rights

24.8.1 Notwithstanding anything to the contrary contained in this Agreement any Termination pursuant to the provisions of this Agreement shall be without prejudice to the accrued rights of either Party including its right to claim and recover money damages, insurance proceeds, security deposits, and other rights and remedies, which it may have in law or Agreement. All rights and obligations of either Party under this Agreement, including Termination Payments, shall survive the Termination to the extent such survival is necessary for giving effect to such rights and obligations.

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# Part D: EPC Agreement
# Section F- Other Provisions

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# 25 Assignment and Charges

## 25.1 Restrictions on assignment and charges

25.1.1 This Agreement shall not be assigned by the Contractor to any person, save and except with the prior consent in writing of the Employer, which consent the Employer shall be entitled to decline without assigning any reason.

## 25.2 Hypothecation of Materials or Plant

25.2.1 The Contractor cannot pledge or hypothecate to its lenders any Materials or Plant prior to their incorporation in the Works. Further, the Contractor in no case can assign its right to receive payments under this Agreement either absolutely or by way of charge to any person/institution/company providing financing to the Contractor in connection with the performance of the Contractor's obligations under this Agreement. All payments shall only be made to the contractor.

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# 26 Liability and Indemnity

## 26.1 General Indemnity

26.1.1 The Contractor will indemnify, defend, save and hold harmless the Employer and its officers, servants, agents, Government Instrumentality and Government owned and/or controlled entities/enterprises, Employer's Engineer, (the "Employer Indemnified Persons") against any and all suits, proceedings, actions, demands and third party claims for any loss, damage, cost and expense of whatever kind and nature, whether arising out of any breach by the Contractor of any of its obligations under this Agreement or from any negligence under the Agreement, including any errors or deficiencies in the design documents, or tort or on any other ground whatsoever, except to the extent that any such suits, proceedings, actions, demands and claims have arisen due to any negligent act or omission, or breach or default of this Agreement on the part of the Employer Indemnified Persons.

## 26.2 Indemnity by the Contractor

26.2.1 Without limiting the generality of Clause 26.1, the Contractor shall fully indemnify, hold harmless and defend the Employer and the Employer Indemnified Persons (It is Employer, its staff and staff of Employer's Engineer) from and against any and all loss and/or damages arising out of or with respect to:

a) Failure of the Contractor to comply with Applicable Laws and Applicable Permits.

b) Payment of Taxes required to be made by the Contractor in respect of the income or other Taxes of the Subcontractors, suppliers, and representatives; or

c) Non-payment of amounts due as a result of Materials or services furnished to the Contractor or any of its Sub-contractors, which are payable by the Contractor or any of its Sub-contractors.

26.2.2 Without limiting the generality of the provisions of this Section, the Contractor shall fully indemnify, hold harmless and defend the Employer Indemnified Persons from and against any and all suits, proceedings, actions, claims, demands, liabilities and damages which the Employer Indemnified Persons may hereafter suffer, or pay by reason of any demands, claims, suits or proceedings arising out of claims of infringement of any domestic or foreign patent rights, copyrights or other Intellectual Property, proprietary or confidentiality rights with respect to any materials, information, design or process used by the Contractor or by the Sub-contractors in performing the Contractor's obligations or in any way incorporated in or related to the Project. If in any such suit, action, claim or proceedings, a temporary restraint order or preliminary injunction is granted, the Contractor shall make every reasonable effort, by giving a satisfactory bond or otherwise, to secure the revocation or Suspension of the injunction or restraint order. If, in any such suit, action, claim or proceedings, the Project Works, or any part thereof or comprised therein, is held to constitute an infringement and its use is permanently enjoined, the Contractor shall promptly make every reasonable effort to secure for the Employer a license, at no cost to the Employer, authorizing continued use of the infringing work. If the Contractor is unable to secure such license within a reasonable time, the Contractor shall, at its own expense, and without impairing the Specifications and Standards, either replace

the affected work, or part, or process thereof with non-infringing work or part or process or modify the same so that it becomes non- infringing.

## 26.3 Notice and Contest of Claims

26.3.1 In the event that either Party receives a claim or demand from a third party in respect of which it is entitled to the benefit of an indemnity under this Section (the "Indemnified Party") it shall notify the other Party (the "Indemnifying Party") within 15 (Fifteen) days of receipt of the claim or demand and shall not settle or pay the claim without the prior approval of the Indemnifying Party, which approval shall not be unreasonably withheld or delayed. In the event that the Indemnifying Party wishes to contest or dispute the claim or demand, it may conduct the proceedings in the name of the Indemnified Party, subject to the Indemnified Party being secured against any costs involved, to its reasonable satisfaction.

## 26.4 Defense of Claims

26.4.1 The Indemnified Party shall have the right, but not the obligation, to contest, defend and litigate any claim, action, suit or proceeding by any third party alleged or asserted against such Party in respect of, resulting from, related to or arising out of any matter for which it is entitled to be indemnified hereunder, and reasonable costs and expenses thereof shall be indemnified by the Indemnifying Party. If the Indemnifying Party acknowledges in writing its obligation to indemnify the Indemnified Party in respect of loss to the full extent provided by this Section, the Indemnifying Party shall be entitled, at its option, to assume and control the defense of such claim, action, suit or proceeding, liabilities, payments and obligations at its expense and through the counsel of its choice; provided it gives prompt notice of its intention to do so to the Indemnified Party and reimburses the Indemnified Party for the reasonable cost and expenses incurred by the Indemnified Party prior to the assumption by the Indemnifying Party of such defense. The Indemnifying Party shall not be entitled to settle or compromise any claim, demand, action, suit or proceeding without the prior written consent of the Indemnified Party, unless the Indemnifying Party provides such security to the Indemnified Party as shall be reasonably required by the Indemnified Party to secure the loss to be indemnified hereunder to the extent so compromised or settled.

26.4.2 If the Indemnifying Party has exercised its rights under Clause 26.3, the Indemnified Party shall not be entitled to settle or compromise any claim, action, suit or proceeding without the prior written consent of the Indemnifying Party (which consent shall not be unreasonably withheld or delayed).

26.4.3 If the Indemnifying Party exercises its rights under Clause 26.3, the Indemnified Party shall nevertheless have the right to employ its own counsel, and such counsel may participate in such action, but the fees and expenses of such counsel shall be at the expense of the Indemnified Party, when and as incurred, unless:

a) The employment of counsel by such party has been authorized in writing by the Indemnifying Party; or

b) The Indemnified Party shall have reasonably concluded that there may be a conflict of interest between the Indemnifying Party and the Indemnified Party in the conduct of the defence of such action; or

c) The Indemnifying Party shall not, in fact, have employed independent counsel reasonably satisfactory to the Indemnified Party to assume the defence of such action and shall have been so notified by the Indemnified Party; or

d) The Indemnified Party shall have reasonably concluded and specifically notified the Indemnifying Party either:

   i. That there may be specific defenses available to it which are different from or additional to those available to the Indemnifying Party; or

   ii. That such claim, action, suit or proceeding involves or could have a Material adverse effect upon it beyond the scope of this Agreement:

Provided that if Sub-clauses (b), (c) or (d) of this Clause 26.4.3 shall be applicable, the counsel for the Indemnified Party shall have the right to direct the defense of such claim, demand, action, suit or proceeding on behalf of the Indemnified Party, and the reasonable fees and disbursements of such counsel shall constitute legal or other expenses hereunder.

## 26.5 No Consequential Claims

26.5.1 Notwithstanding anything to the contrary contained in this Section, the indemnities herein provided shall not include any claim or recovery in respect of any cost, expense, loss, or damage of an indirect, incidental, or consequential nature, including loss of profit, except as expressly provided in this Agreement.

## 26.6 Survival on Termination

The provisions of this Section shall survive Termination.

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# 27 Dispute Resolution

## 27.1 Dispute Resolution

27.1.1 Any Dispute, difference or controversy of whatever nature howsoever arising under or out of or in relation to this Agreement (including its interpretation) between the Parties, and so notified in writing by either Party to the other Party (the "Dispute") shall, in the first instance, be attempted to be resolved amicably in accordance with the conciliation procedure set forth in Clause 27.2.

27.1.2 The Parties agree to use their best efforts for resolving all Disputes arising under or in respect of this Agreement promptly, equitably and in good faith and further agree to provide each other with reasonable access during normal business hours to all non-privileged records, information and data pertaining to any Dispute.

## 27.2 Conciliation

27.2.1 In the event of any Dispute between the Parties, either Party may call upon the Employer's Engineer or such other person as the Parties may mutually agree upon (the "Conciliator") to mediate and assist the Parties in arriving at an amicable settlement thereof. Failing mediation by the Conciliator or without the intervention of the Conciliator, either Party may require such Dispute to be referred to the Managing Director (MD) of the Employer and the Chairman of the Board of Directors of the Contractor for amicable settlement, and upon such reference, the said persons shall meet no later than 7 (Seven) business days from the date of reference to discuss and attempt to amicably resolve the Dispute. If such meeting does not take place within the 7 (Seven) business day period or the Dispute is not amicably settled within 15 (Fifteen) days of the meeting or the Dispute is not resolved as evidenced by the signing of written terms of settlement within 30 (Thirty) days of the notice in writing referred to in Clause 27.1.1 or such longer period as may be mutually agreed by the Parties, either Party may refer the Dispute to arbitration in accordance with the provisions of Clause 27.3.

## 27.3 Arbitration

27.3.1 The arbitral tribunal shall consist of a sole arbitrator appointed by mutual agreement of the Parties; {provided that in case the Consultant is a joint venture consortium, the arbitrator agreed between the Member in Charge and the Client shall be deemed to have been appointed by the Member in Charge on behalf of all the Members}. In case of failure of the Parties to mutually agree on a sole arbitrator, the arbitral tribunal shall consist of three arbitrators. Each of the Client and the Consultant shall appoint one arbitrator {(in case the Consultant is a joint venture consortium, the arbitrator designated by the Member in Charge shall be deemed to have been jointly appointed by all Members)} and the two arbitrators so appointed shall jointly appoint the third arbitrator. The seat of arbitration shall be Mumbai and the arbitration shall be conducted in the English language. The Arbitration and Conciliation Act, 1996 in conjunction with Arbitration and Conciliation Act (Amendment), 2015 and amendment made thereof shall govern the arbitral proceedings.

27.3.2 The Parties shall use their reasonable efforts to facilitate the conduct of the arbitration proceedings in an expeditious manner and the award rendered by the arbitral tribunal shall be final and binding on the Parties. In case of a sole arbitrator, the costs and expenses of

the sole arbitrator shall be shared equally between the Parties and in case the arbitral panel consists of three arbitrators, each Party shall bear the cost of the arbitrator appointed by it and the costs of the third/presiding arbitrator shall be shared equally between the Parties, provided that the arbitral tribunal shall have the power to make an order in respect of costs. The Parties agree that nothing contained herein shall restrict or impair the power of the arbitral panel to make an award in respect of the costs and expenses of the arbitral proceedings and the apportionment thereof.

27.3.3 The arbitrators shall make a reasoned award (the "Award"). Any Award made in any arbitration held pursuant to this Section shall be final and binding on the Parties as from the date it is made, and the Contractor and the Employer agree and undertake to carry out such Award without delay.

27.3.4 The Contractor and the Employer agree that an Award may be enforced against the Contractor and/or the Employer, as the case may be, and their respective assets wherever situated.

27.3.5 This Agreement and the rights and obligations of the Parties shall remain in full force and effect, pending the Award in any arbitration proceedings hereunder.

27.3.6 In the event the Party against whom the Award has been granted challenges the Award for any reason in a court of law, it shall make an interim payment to the other Party for an amount equal to 75% (seventy-five per cent) of the Award, pending final settlement of the Dispute. The aforesaid amount shall be paid forthwith upon furnishing an irrevocable Bank Guarantee for a sum equal to 120% (one hundred and twenty per cent) of the aforesaid amount. Upon final settlement of the Dispute, the aforesaid interim payment shall be adjusted and any balance amount due to be paid or returned, as the case may be, shall be paid or returned with interest calculated at the rate of 10% (Ten per cent) per annum from the date of interim payment to the date of final settlement of such balance.

## 27.4 Adjudication by Regulatory Employer, Tribunal or Commission

27.4.1 In the event of constitution of a statutory regulatory Employer, tribunal or commission, as the case may be, with powers to adjudicate upon Disputes between the Contractor and the Employer, all Disputes arising after such constitution shall, instead of reference to arbitration under Clause 27.3, be adjudicated upon by such regulatory authority, tribunal or commission in accordance with the Applicable Law and all references to Dispute Resolution Procedure shall be construed accordingly. For the avoidance of doubt, the Parties hereto agree that the adjudication hereunder shall not be final and binding until an appeal against such adjudication has been decided by an appellate tribunal or court of competent jurisdiction, as the case may be, or no such appeal has been preferred within the time specified in the Applicable Law.

## 27.5 Mediation Clause

27.5.1 In the event of any dispute or difference arising out of or in connection with this Agreement, including any question regarding its existence, validity, or termination, the Parties shall first attempt to resolve such dispute through mediation in accordance with the Mediation Rules of the Indian Dispute Resolution Centre (IDRC) and procedures of the Indian Institute of Arbitration and Mediation (IIAM) or as per procedure specified in office memorandum

issued by Procurement Policy Division, Department of Expenditure, Ministry of Finance, Govt. of India vide no. F.1/2/2024-PPD dated 3rd June, 2024 or any other institution agreed upon by the Parties.

27.5.2 The mediation shall be conducted by a sole mediator appointed by the Parties or by the institution agreed upon. The mediator's decision shall not be binding on the Parties.

27.5.3 The mediation shall be conducted in Mumbai, India. If the dispute is not resolved through mediation within 180 days, either Party may initiate arbitration in accordance with Clause 27.3 or seek relief through other dispute resolution mechanisms available under Indian law.

27.5.4 By agreeing to this clause, the Parties undertake to keep the mediation proceedings confidential and not disclose any information relating to the mediation to any third party without the prior written consent of the other Party.

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# 28 Miscellaneous

## 28.1 Governing Law and Jurisdiction

This Agreement shall be construed and interpreted in accordance with and governed by the laws of India, and the courts at Mumbai shall have exclusive jurisdiction over matters arising out of or relating to this Agreement.

## 28.2 Waiver of Immunity

Each Party unconditionally and irrevocably:

a) Agrees that the execution, delivery, and performance by it of this Agreement constitute commercial acts done and performed for commercial purposes.

b) Agrees that, should any proceedings be brought against it or its assets, property, or revenues in any jurisdiction in relation to this Agreement or any transaction contemplated by this Agreement, no immunity (whether by reason of sovereignty or otherwise) from such proceedings shall be claimed by or on behalf of the Party with respect to its assets.

c) Waives any right of immunity which it or its assets, property or revenues now has, may acquire in the future or which may be attributed to it in any jurisdiction; and

d) Consents generally in respect of the enforcement of any judgement or award against it in any such proceedings to the giving of any relief or the issue of any process in any jurisdiction in connection with such proceedings (including the making, enforcement or execution against it or in respect of any assets, property or revenues whatsoever irrespective of their use or intended use of any order or judgement that may be made or given in connection therewith).

## 28.3 Delayed Payments

28.3.1 The Parties hereto agree that payments due from one Party to the other Party under the provisions of this Agreement shall be made within the period set forth therein, and if no such period is specified, within 30 (Thirty) days of receiving a demand along with the necessary particulars. In the event of delay beyond such period, the defaulting Party shall pay interest for the period of delay calculated at a rate equal to Bank Rate plus 1 (one) percent, calculated at quarterly rests, and recovery thereof shall be without prejudice to the rights of the Parties under this Agreement including Termination thereof. In the event of the failure of the Employer Clause 20.9.2 will prevail.

## 28.4 Waiver

28.4.1 Waiver, including partial or conditional waiver, by either Party of any default by the other Party in the observance and performance of any provision of or obligations under this Agreement: -

a) Shall not operate or be construed as a waiver of any other or subsequent default hereof or of other provisions of or obligations under this Agreement.

b) Shall not be effective unless it is in writing and executed by a duly authorized representative of the Party; and

c) Shall not affect the validity or enforceability of this Agreement in any manner.

28.4.2 Neither the failure by either Party to insist on any occasion upon the performance of the terms, conditions and provisions of this Agreement or any obligation thereunder nor time or other indulgence granted by a Party to the other Party shall be treated or deemed as waiver of such breach or acceptance of any variation or the relinquishment of any such right hereunder.

## 28.5 Liability for Review of Documents and Drawings

Except to the extent expressly provided in this Agreement:

a) No review, comment or approval by the Employer or the Employer's Engineer of any Document or Drawing submitted by the Contractor nor any observation or inspection of the Construction, or Maintenance of the Project Works nor the failure to review, approve, comment, observe or inspect hereunder shall relieve or absolve the Contractor from its obligations, duties and liabilities under this Agreement, the Applicable Laws, and Applicable Permits; and

b) The Employer shall not be liable to the Contractor by reason of any review, comment, approval, observation, or inspection referred to in Sub-Clause (a) above.

## 28.6 Exclusion of Implied Warranties etc.

28.6.1 This Agreement expressly excludes any warranty, condition or other undertaking implied at law or by custom or otherwise arising out of any other Agreement between the Parties or any representation by either Party not contained in a binding legal Agreement executed by both Parties.

## 28.7 Survival

28.7.1 Termination shall:

a) Not relieve the Contractor or the Employer, as the case may be, of any obligations hereunder which expressly or by implication survive Termination hereof; and

b) Except as otherwise provided in any provision of this Agreement expressly limiting the liability of either Party, not relieve either Party of any obligations or liabilities for loss or damage to the other Party arising out of, or caused by, acts or omissions of such Party prior to the effectiveness of such Termination or arising out of such Termination.

28.7.2 All obligations surviving Termination shall only survive for a period of 3 (Three) years following the date of such Termination.

## 28.8 Entire Agreement

28.8.1 This Agreement and the Schedules, corrigendum or any addendum to the bid issued by the Employer together constitute a complete and exclusive statement of the terms of the Agreement between the Parties on the subject hereof, and no amendment or modification hereto shall be valid and effective unless such modification or amendment is agreed to in writing by the Parties and duly executed by persons especially empowered in this behalf by the respective Parties. All prior written or oral understandings offers or other communications of every kind pertaining to this Agreement are abrogated and withdrawn. For the avoidance of doubt, the Parties hereto agree that any obligations of the Contractor

arising from the Request for Qualification or Request for Proposals, as the case may be, shall be deemed to form part of this Agreement and treated as such.

## 28.9 Severability

28.9.1 If for any reason whatever, any provision of this Agreement is or becomes invalid, illegal or unenforceable or is declared by any court of competent jurisdiction or any other instrumentality to be invalid, illegal or unenforceable, the validity, legality or enforceability of the remaining provisions shall not be affected in any manner, and the Parties will negotiate in good faith with a view to agreeing to one or more provisions which may be substituted for such invalid, unenforceable or illegal provisions, as nearly as is practicable to such invalid, illegal or unenforceable provision. Failure to agree upon any such provisions shall not be subject to the Dispute Resolution Procedure set forth under this Agreement or otherwise.

## 28.10 No Partnership

28.10.1 This Agreement shall not be interpreted or construed to create an association, joint venture or partnership between the Parties, or to impose any partnership obligation or liability upon either Party, and neither Party shall have any right, power or Employer to enter into any Agreement or undertaking for, or act on behalf of, or to act as or be an agent or representative of, or to otherwise bind, the other Party.

## 28.11 Third Parties

28.11.1 This Agreement is intended solely for the benefit of the Parties, and their respective successors and permitted assigns, and nothing in this Agreement shall be construed to create any duty to, standard of care with reference to, or any liability to, any person not a Party to this Agreement.

## 28.12 Successors and Assigns

28.12.1 This Agreement shall be binding upon and inure to the benefit of the Parties and their respective successors and permitted assigns.

## 28.13 Notices

Any notice or other communication to be given by any Party to the other Party under or in connection with the matters contemplated by this Agreement shall be in writing and shall:

a) In the case of the Contractor, be given by facsimile or e-mail and by letter delivered by hand to the address given and marked for attention of the person set out below or to such other person as the Contractor may from time to time designate by notice to the Employer; provided that notices or other communications to be given to an address outside [Mumbai] may, if they are subsequently confirmed by sending a copy thereof by registered acknowledgement due, air mail or by courier, be sent by facsimile or e-mail to the person as the Contractor may from time to time designate by notice to the Employer;

b) In the case of the Employer, be given by facsimile or e-mail and by letter delivered by hand and be addressed to the [Managing Director (MD)] of the Employer with a copy delivered to the Employer's Engineer or such other person as the Employer may from

time to time designate by notice to the Contractor; provided that if the Contractor does not have an office in [Mumbai] it may send such notice by facsimile or email and by registered acknowledgement due, air mail or by courier; and

c) Any notice or communication by a Party to the other Party, given in accordance herewith, shall be deemed to have been delivered when in the normal course of post it ought to have been delivered and in all other cases, it shall be deemed to have been delivered on the actual date and time of delivery; provided that in the case of facsimile or email, it shall be deemed to have been delivered on the working day following the date of its delivery.

## 28.14 Language

28.14.1 All notices required to be given by one Party to the other Party and all other communications, Documentation and proceedings which are in any way relevant to this Agreement shall be in writing and in English language.

## 28.15 Counterparts

28.15.1 This Agreement may be executed in two counterparts, each of which, when executed and delivered, shall constitute an original of this Agreement.

## 28.16 Confidentiality

28.16.1 The Parties shall treat the details of this Agreement as private and confidential, except to the extent necessary to carry out obligations under it or to comply with Applicable Laws. The Contractor shall not publish, permit to be published, or disclose any particulars of the Works in any trade or technical paper or elsewhere without the previous Agreement of the Employer.

## 28.17 Copyright and Intellectual Property Rights

28.17.1 As between the Parties, the Contractor shall retain the copyright and other Intellectual Property rights in the Contractor's Documents and other design documents made by (or on behalf of) the Contractor. The Contractor shall be deemed (by signing this Agreement) to give to the Employer a nonterminal transferable non-exclusive royalty-free license to copy, use and communicate the Contractor's Documents, including making and using modifications of them. This license shall:

a) Apply 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 this Agreement, including replacements of any computers supplied by the Contractor:

28.17.2 The Contractor's Documents and other design documents made by (or on behalf of) the Contractor shall not, without the Contractor's consent, be used, copied or communicated

to a third party by (or on behalf of) the Employer for purposes other than those permitted under this Clause 28.17.

28.17.3 As between the Parties, the Employer shall retain the copyright and other Intellectual Property rights in this Agreement and other documents made by (or on behalf of) the Employer. The Contractor may, at its cost, copy, use, and obtain communication of these documents for the purposes of this Agreement. They shall not, without the Employer's consent, be copied, used, or communicated to a third party by the Contractor, except as necessary for the purposes of the contract.

## 28.18 Limitation of Liability

28.18.1 Neither Party shall be liable to the other Party for loss of use of any Works, loss of profit, loss of any contract or for any indirect or consequential loss or damage which may be suffered by the other Party in connection with this Agreement, save and except as provided under Section 24 and 26.

28.18.2 The total liability of one Party to the other Party under and in accordance with the provisions of this Agreement, save and except as provided in Section 24 and 26, shall not exceed the Contract Price. For the avoidance of doubt, this Clause shall not limit the liability in any case of fraud, deliberate default, or reckless misconduct by the defaulting Party.

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# 29 Definitions

## 29.1 Definitions

In this Agreement, the following words and expressions shall, unless repugnant to the context or meaning thereof, have the meaning hereinafter respectively assigned to them:

- "Accounting Year" means the financial year commencing from the first day of April of any calendar year and ending on the thirty-first day of March of the next calendar year;
- "Advance Payment" shall have the meaning set forth in Clause 20.2;
- "Affected Party" shall have the meaning set forth in Clause 22.1;
- "Affiliate" means, in relation to either Party {and/or Members}, a person who controls, is controlled by, or is under the common control with such Party {or Member} (as used in this definition, the expression "control" means, with respect to a person which is a company or corporation, the ownership, directly or indirectly, of more than 50% (Fifty per cent) of the voting shares of such person, and with respect to a person which is not a company or corporation, the power to direct the management and policies of such person, whether by operation of law or by contract or otherwise);
- "Agreement" means this Agreement, its Recitals, the Schedules hereto and any amendments thereto made in accordance with the provisions contained in this Agreement.
- "Applicable Laws" means all laws, brought into force and effect by GOI or the State Government including rules, regulations and notifications made there under, and judgments, decrees, injunctions, writs and orders of any court of record, applicable to this Agreement and the exercise, performance and discharge of the respective rights and obligations of the Parties hereunder, as may be in force and effect during the subsistence of this Agreement.
- "Applicable Permits" means all clearances, licenses, permits, authorizations, no objection certificates, consents, approvals and exemptions required to be obtained or maintained under Applicable Laws in connection with the Construction, Operation and Maintenance of the Project Works during the subsistence of this Agreement.
- "Appointed Date" means the date of signing of the contract, and wherever the appointment date is mentioned in the contract shall have the same meaning.
- "Arbitration Act" means the Arbitration and Conciliation Act, 1996 and shall include modifications to or any re-enactment thereof, as in force from time to time.
- "Bank" means a Scheduled Indian Bank (incorporated in India and approved by RBI ).
- "Bank Rate" means the State Bank of India's Marginal Cost of the Fund-Based Lending Rate (MCLR) announced by the Reserve Bank of India for all its lending operations on the Base Date.
- "Base Date" means the last date of that calendar month, which date precedes the Bid Due Date by at least 28 (twenty-eight) days.
- "Bid" means the documents in their entirety comprised in the Bid submitted by the [selected bidder/Consortium] in response to the Request for Proposals in accordance with the provisions thereof.

- "Bid Security" means the Bid security provided by the Contractor to the Employer in accordance with the Request for Proposal, and which is to remain in force until substituted by the Performance Security.
- "Change in Law" means the occurrence of any of the following after the Base Date:

a) The enactment of any new Indian law.

b) The repeal, modification, or re-enactment of any existing Indian law.

c) The commencement of any Indian law which has not entered effect until the Base Date.

d) A change in the interpretation or application of any Indian law by a judgement of a court of record which has become final, conclusive and binding, as compared to such interpretation or application by a court of record prior to the Base Date; or

e) Any change in the rates of any of the Taxes or royalties that have a direct effect on the Project.

- "Change of Scope" shall have the meaning set forth in Section 14;
- "Change of Scope Notice" shall have the meaning set forth in Clause 14.2.1;
- "Change of Scope Order" shall have the meaning set forth in Clause 14.2.4;
- "Completion Certificate for Construction works" shall have the meaning set forth in Clause 13.4;
- "Consortium" means the consortium of entities which have formed a joint venture for implementation of this Project.
- "Construction Period" means the period commencing from the Appointed Date and ending on the date of the Completion Certificate.
- "Contract Price" means the amount specified in Clause 20.1.1;
- "Contractor" shall have the meaning attributed thereto in the array of Parties herein above as set forth in the Recitals.
- "Contractor Default" shall have the meaning set forth in Clause 24.1;
- "Cure Period" means the period specified in this Agreement for curing any breach or default of any provision of this Agreement by the Party responsible for such breach or default and shall:

a) Commence from the date on which a notice is delivered by one Party to the other Party asking the latter to cure the breach or default specified in such notice.

b) Not relieve any Party from liability to pay damages or compensation under the provisions of this Agreement; and

c) Not in any way be extended by any period of Suspension under this Agreement; provided that if the cure of any breach by the Contractor requires any reasonable action by the Contractor that must be approved by the Employer or the Employer's Engineer hereunder, the applicable Cure Period shall be extended by the period taken by the Employer or the Employer's Engineer to accord their approval.

- "Damages" shall have the meaning set forth in paragraph (w) of Clause 2.2.1;
- "Defect" means any Defect or deficiency in the Construction of the Works or any part thereof, which does not conform with the Specifications and Standards, and in the case of Maintenance, means any Defect or deficiency which is specified in Schedule Q.
- "Defect Liability Period" shall have the meaning set forth in Clause 18.1;
- "Dispute" shall have the meaning set forth in Clause 27.1.1;
- "Dispute Resolution Procedure" means the procedure for resolution of Disputes set forth in Section 27;
- "Drawings" means all of the Drawings, calculations and documents pertaining to the Project Works as set forth in Schedule-D and shall include 'as built' Drawings of the Project Works.
- "Document" or "Documentation" means Documentation in printed or written form, or in tapes, discs, Drawings, computer programs, writings, reports, photographs, films, cassettes, or expressed in any other written, electronic, audio or visual form.
- "Emergency" means a condition or situation that is likely to endanger the safety or security of the individuals on or about the Project Works, including Users thereof, or which poses an immediate threat of Material damage to any of the Project Assets.
- "Employer" shall be "Managing Director, Maharashtra Industrial Township Limited (MITL)";
- "Employer Default" shall have the meaning set forth in Clause 24.2;
- "Employer's Engineer" shall have the meaning set forth in Clause 19.1;
- Engineer wherever mentioned has the same meaning as Employer's Engineer.
- "Employer Representative" means such person or persons as may be authorized in writing by the Employer to act on its behalf under this Agreement and shall include any person or persons having Employer to exercise any rights or perform and fulfil any obligations of the Employer under this Agreement.
- "Encumbrances" means, in relation to the Project Works, any encumbrances such as mortgage, charge, pledge, lien, hypothecation, security interest, assignment, privilege or priority of any kind having the effect of security or other such obligations, and shall include any designation of loss payees or beneficiaries or any similar arrangement under any insurance policy pertaining to the Project Works, where applicable herein but excluding utilities referred to in Clause 10.1;
- "EPC" means Engineering, Procurement and Construction.
- "Final Payment Certificate" shall have the meaning set forth in Clause 20.15.
- "Final Payment Statement" shall have the meaning set forth in Clause 20.13.1;
- "Force Majeure" or "Force Majeure Event" shall have the meaning ascribed to it in Clause 22.1;
- "GAD" or "General Arrangement Drawings" shall have the meaning set forth in Volume II.
- "GOI" or "Government" means the Government of India.

- "Good Industry Practice" means the practices, methods, techniques, designs, standards, skills, diligence, efficiency, reliability, and prudence which is generally and reasonably expected from a reasonably skilled and experienced contractor engaged in the same type of undertaking as envisaged under this Agreement.
- "Government Instrumentality" means any department, division or subdivision of the Government or the State Government and includes any commission, board, employer, agency or municipal and other local employer or statutory body including panchayat under the control of the Government or the State Government, as the case may be, and having jurisdiction over all or any part of the Project Works or the performance of all or any of the services or obligations of the Contractor under or pursuant to this Agreement;
- "IRC" means the Indian Roads Congress.
- "Indemnified Party" means the Party entitled to the benefit of an indemnity pursuant to Section 26;
- "Indemnifying Party" means the Party is obligated to indemnify the other Party pursuant to Section 26;
- "Indirect Political Event" shall have the meaning set forth in Clause 22.3;
- "Insurance Cover" means the aggregate of the maximum sums insured under the insurances taken out by the Contractor pursuant to Section 21, and includes all insurances required to be taken out by the Contractor under Clauses 21.1 and 21.9 but not actually taken, and when used in the context of any act or event, it shall mean the aggregate of the maximum sums insured and payable or deemed to be insured and payable in relation to such act or event;
- "Intellectual Property" or "IP" means all patents, trademarks, service marks, logos, get- up, trade names, internet domain names, rights in designs, blue prints, programmes and manuals, Drawings, copyright (including rights in computer software), database rights, semi-conductor, topography rights, utility models, rights in know-how and other Intellectual Property rights, in each case whether registered or unregistered and including applications for registration, and all rights or forms of protection having equivalent or similar effect anywhere in the world;
- "Interim Payment Certificate" or "IPC" means the interim payment certificate issued by the Employer's Engineer for payment to the Contractor in respect of the Contractor's claims for payment raised in accordance with the provisions of this Agreement.
- "Lead Member" shall, in the case of a consortium, mean the member of such consortium who shall have the Employer to bind the contractor and each member of the Consortium; and shall be deemed to be the Contractor for the purposes of this Agreement.
- "Lowest Bidder" shall mean the Bidder who is quoting the lowest BID price.
- "LOA" or "Letter of Award" means the letter of award referred to in Recital (E);
- "Maintenance" means the Maintenance of the Project Works as set forth in Section 15 for the period specified therein.
- "Maintenance Inspection Report" shall have the meaning set forth in Clause 16.2.1;
- "Maintenance Manual" shall have the meaning ascribed to it in Clause 11.6;

- "Maintenance Programme" shall have the meaning set forth in Clause 15.3;
- "Maintenance Period" shall have the meaning set forth in Clause 15.1.1;
- "Maintenance Requirements" shall have the meaning set forth in Clause 15.2;
- "Material Adverse Effect" means a Material adverse effect of any act or event on the ability of either Party to perform any of its obligations under and in accordance with the provisions of this Agreement and which act or event causes a Material financial burden or loss to either Party.
- "Materials" are all the supplies used by the Contractor for incorporation in the Works or for the Maintenance of the Project Works.
- "MORTH" means the Ministry of Road Transport and Highways or any substitute thereof dealing with Highways.
- "Non-Political Event" shall have the meaning set forth in Clause 22.2;
- "Net Worth" shall mean the aggregate value of the paid-up share capital and all reserves created out of the profits and securities premium account, after deducting the aggregate value of the accumulated losses, deferred expenditure and miscellaneous expenditure not written off, as per the audited balance sheet, but does not include reserves created out of revaluation of assets, write-back of depreciation and amalgamation.
- "Parties" means the parties to this Agreement collectively and "Party" shall mean any of the parties to this Agreement individually.
- "Performance Security" shall have the meaning set forth in Clause 8.1;
- "Plant" means the apparatus and machinery intended to form or forming part of the Works.
- "PMNC" shall have the meaning set forth in Clause 19;
- "Political Event" shall have the meaning set forth in Clause 22.4;
- "Programme" shall have the meaning set forth in Clause 11.1.2.
- "Project" means the Construction and Maintenance of the Project Works in accordance with the provisions of this Agreement, and includes all Works, services and equipment relating to or in respect of the Scope of the Project.
- "Project Assets" means all physical and other assets relating to

a) tangible assets such as civil Works and equipment including foundations, embankments, pavements, road surfaces, interchanges, bridges, culverts, road over-bridges, drainage Works, traffic signals, sign boards, kilometre-stones, [toll plaza(s)], electrical systems, communication systems, rest areas, relief centres, Maintenance depots and administrative offices; and

b) Project Facilities situated on the Site.

- "Project Completion Date" means the date on which the Project Completion cum Taking Over Certificate is issued.
- "Project Completion cum Taking Over Certificate" shall have the meaning set forth in Clause

13.5;

- "Project Completion Schedule" means the progressive Project Milestones set forth in Schedule-E for completion of the Project Works on or before the Scheduled Completion Date.
- "Project Facilities" means all the amenities and facilities situated on the Site, as described in Volume II.
- "Project Site" shall have the meaning set forth in Clause 9.1;
- "Project Works" means the Site comprising the existing road forming part of the Design and Build the Infrastructure Works for Roads, Cycle tracks, Footpath, Avenue plantations, Drains, Culverts, Bridges, Water Supply networks, Sewerage networks, Stormwater drain network, Power distribution systems including street lighting, ICT infrastructure components for BIA Sector B & C on EPC Basis Project and all Project Assets, and its subsequent development and augmentation in accordance with this Agreement;
- "Project Milestone" means the Project milestone set forth in Schedule E;
- "Proof Consultant" shall have the meaning set forth in Clause 11.2.4;
- "Substantial Completion Certificate" shall have the meaning set forth in Clause 13.2;
- "Punch List" shall have the meaning set forth in Clause 13.2.1;
- "Quality Assurance Plan" or "QAP" shall have the meaning set forth in Clause 12.2;
- "Quarterly Maintenance Statement" shall have the meaning set forth in Clause 20.6.1;
- "Re.", "Rs." or "Rupees" or "Indian Rupees" means the lawful currency of the Republic of India.
- "Request for Proposals" or "RFP" shall have the meaning set forth in Recital 'D'.
- "Request for Qualification" or "RFQ" shall have the meaning set forth in Recital 'C'.
- "Retention Money" shall have the meaning set forth in Clause 8.5.1;
- "Safety Consultant" shall have the meaning set forth in Clause 11.1.5;
- "Scheduled Completion Date" shall be the date set forth in Clause Schedule E.
- "Scope of the Project" shall have the meaning set forth in Clause 3.
- "Section" means a part of the Project Works.
- "Site" shall have the meaning set forth in Clause 9.1;
- "Specifications and Standards" means the specifications and standards relating to the quality, quantity, capacity and other requirements for the Project Works, as set forth in Volume II, and any modifications thereof, or additions thereto, as included in the design and engineering for the Project Works submitted by the Contractor to, and expressly approved by, the Employer.
- "Stage Payment Statement" shall have the meaning set forth in Clause 20.4;
- "Structures" means an elevated road or a flyover, as the case may be.
- "Sub-contractor" means any person or persons to whom a part of the Works or the Maintenance has been subcontracted by the Contractor and the permitted legal successors

in title to such person, but not an assignee to such person;

- "Substantial Completion Certificate" shall have the meaning set forth in Clause 13.2;
- "Suspension" shall have the meaning set forth in Section 23;
- "Taxes" means any Indian Taxes including Central Goods and Services Tax (CGST), State Goods and Services Tax (SGST), excise duties, customs duties, value added tax, sales tax, local Taxes, cess and any impost or surcharge of like nature (whether Central, State or local) on the goods, Materials, equipment and services incorporated in and forming part of the Project Works charged, levied or imposed by any Government Instrumentality, but excluding any interest, penalties and other sums in relation thereto imposed on any account whatsoever. For the avoidance of doubt, Taxes shall not include Taxes on corporate income.
- "Termination" means the expiry or termination of this Agreement.
- "Termination Notice" means the communication issued in accordance with this Agreement by one Party to the other Party terminating this Agreement.
- "Termination Payment" means the amount payable by either Party to the other upon Termination in accordance with Section 24;
- "Terms of Reference" or "TOR" shall have the meaning set forth in Clause 19.2.1;
- "Tests" means the Tests set forth in Schedule F to determine the completion of Works in accordance with the provisions of this Agreement.
- "Time Extension" shall have the meaning set forth in Clause 11.4.1;
- "User" means a person who uses or intends to use the Project Works or any part thereof.
- "Valuation of Unpaid Works" shall have the meaning set forth in Clause 24.5.1;
- "Works" means all Works including survey and investigation, design, engineering, procurement, Construction, Plant, Materials, Maintenance, Temporary Works, and other things necessary to complete the Project Works as per scope in accordance with this Agreement; and
- "WPI" means the wholesale price index for various commodities as published by the Ministry of Commerce and Industry, GOI and shall include any index which substitutes the WPI, and any reference to WPI shall, unless the context otherwise requires, be construed as a reference to the WPI published for the period ending with the preceding billing cycle.

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# Part E: Schedules

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# 30 Schedule A: Applicable Permits

The Contractor shall obtain, as required under the Applicable Laws, the following Applicable Permits:

a) Consent to establish from the State Pollution Control Board / Gram Panchayat.

b) NOC of Gram Panchayat for setting up of Stone Crushers, Hot Mix Plant, Batching Plant, WMM Plant & DG sets.

c) Consent to Establish (CTE) & Consent to Operate (CTO) from the State Pollution Control Board for setting up of Stone Crushers, Hot Mix Plant, Batching Plant, WMM Plant & DG sets.

d) Permission of Gram Panchayat / State Government /Concerned Authority for excavation & utilisation of Borrow Pits / Ordinary earth.

e) Permission of Gram Panchayat / State Government / Concerned Authority for the extraction of boulders from the Stone quarry.

f) Permission of Gram Panchayat / State Government / Concerned Authority for the extraction of Sand.

g) Permission of Gram Panchayat / Local body / Concerned Authority for abstraction/utilisation of Water for construction activities during the construction stage.

h) Explosive License for storage and use of explosives.

i) Permission from the State Pollution Control Board / Local body / Concerned Authority for handling, storage, and disposal of Hazardous Waste.

j) Permission from the State Pollution Control Board / Local body / Concerned Authority for handling, storage, and disposal of Construction & Demolition Waste.

k) Permission from the State Pollution Control Board / Local body / Concerned Authority for handling, storage and disposal of Electronic Waste, Plastic Waste.

l) License from the Inspector of Factories.

m) Labour License including all compliances such as BOCWA registration, ESIC registration, PF, Gratuity, Bonus & Medical facilities as applicable on EPC contractor.

n) Tree cutting.

o) Insurance Policies such as CAR Policy, Personal & Accident Policy etc.

p) Local body permits & NOC if any.

q) Any other permits, clearances or approvals required for the execution of the scope as per the tender.

r) Any other permits, clearances or approvals required under Applicable Laws.

Applicable permits, as required, relating to environmental protection and conservation shall have been procured by the Employer in accordance with the provisions of this Agreement.

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# 31 Schedule B: Form of Bank Guarantee

## 31.1 Performance Security

…… Employer……

WHEREAS:

a) [name and address of contractor] (“hereinafter called as Contractor”) and [name and address of the Employer ], (“the Employer ”) have entered into an Agreement (the “Agreement”) for Design, Construction, Testing, Commissioning and Operation & Maintenance of Infrastructure Works at AURIC – Bidkin Industrial Area (BIA)- Sector B & C under Delhi Mumbai Industrial Corridor (DMIC) on EPC Basis, subject to and in accordance with the provisions of the Agreement.

b) The Agreement requires the Contractor to furnish a Performance Security for due and faithful performance of its obligations, under and in accordance with the Agreement, during the Construction Period and Defect Liability Period (as defined in the Agreement) in a sum of Rs. ….. Crore (Rupees ……. Crores) (the “Guarantee Amount”).

c) We, ……. through our branch at …… (the “Bank”) have agreed to furnish this Bank guarantee (hereinafter called the “Guarantee”) by way of Performance Security.

Now, Therefore, the Bank hereby, unconditionally, and irrevocably, guarantees and affirms as follows:

1) The Bank hereby unconditionally and irrevocably guarantees the due and faithful performance of the Contractor’s obligations during and under and in accordance with the Agreement, and agrees and undertakes to pay to the Employer, upon its mere first written demand, and without any demur, reservation, recourse, contest or protest, and without any reference to the Contractor, such sum or sums up to an aggregate sum of the guarantee amount as the Employer shall claim, without the Employer being required to prove or to show grounds or reasons for its demand and/or for the sum specified therein.

2) A letter from the Employer, under the hand of an officer not below the rank of [……..……. of Employer], that the Contractor has committed default in the due and faithful performance of all or any of its obligations under and in accordance with the Agreement shall be conclusive, final, and binding on the Bank. The Bank further agrees that the Employer shall be the sole judge as to whether the Contractor is in default in due and faithful performance of its obligations during and under the Agreement and its decision that the Contractor is in default shall be final, and binding on the Bank, notwithstanding any difference between the Employer and the Contractor, or any Dispute between them pending before any court, tribunal, arbitrators or any other authority or body, or by the discharge of the Contractor for any reason whatsoever.

3) In order to give effect to this Guarantee, the Employer shall be entitled to act as if the Bank were the principal debtor and any change in the constitution of the Contractor and/or the Bank, whether by their absorption with any other body or corporation or otherwise, shall not in any way or manner affect the liability or obligation of the Bank under this Guarantee.

4) It shall not be necessary, and the Bank hereby waives any necessity, for the Employer to proceed against the Contractor before presenting to the Bank its demand under this Guarantee.

5) The Employer shall have the liberty, without affecting in any manner the liability of the Bank under this Guarantee, to vary at any time, the terms and conditions of the Agreement or to extend the time or period for the compliance with, fulfillment and/or performance of all or any of the obligations of the Contractor contained in the Agreement or to postpone for any time, and from time to time, any of the rights and powers exercisable by the Employer against the Contractor, and either to enforce or forbear from enforcing any of the terms and conditions contained in the Agreement and/or the securities available to the Employer , and the Bank shall not be released from its liability and obligation under these presents by any exercise by the Employer of the liberty with reference to the matters aforesaid or by reason of time being given to the Contractor or any other forbearance, indulgence, act or omission on the part of the Employer or of any other matter or thing whatsoever which under any law relating to sureties and guarantors would but for this provision have the effect of releasing the Bank from its liability and obligation under this Guarantee and the Bank hereby waives all of its rights under any such law.

6) This Guarantee is in addition to and not in substitution of any other guarantee or security now or which may hereafter be held by the Employer in respect of or relating to the Agreement or for the fulfillment, compliance and/or performance of all or any of the obligations of the Contractor under the Agreement.

7) Notwithstanding anything contained herein before, the liability of the Bank under this Guarantee is restricted to the Guarantee amount and this Guarantee will remain in force for the period specified in paragraph 8 below and unless a demand or claim in writing is made by the Employer on the Bank under this Guarantee all rights of the Employer under this Guarantee shall be forfeited and the Bank shall be relieved from its liabilities hereunder.

8) The Performance Security shall cease to be in force and effect 90 (Ninety) days after the end of the Defect Liability Period as set forth in Clauses 8.1.

9) The Bank undertakes not to revoke this Guarantee during its currency, except with the previous express consent of the Employer in writing and declares and warrants that it has the power to issue this Guarantee, and the undersigned has full powers to do so on behalf of the Bank.

10) Any demand for payment under this Guarantee shall be made on the Guarantor by the Purchaser in writing at ……(The Bank), and shall be deemed to have been sufficiently made by the Purchaser if the writing containing the demand is sent to the Guarantor by registered post (Courier)to the address as aforesaid or sent to the Guarantor by hand delivery at such address and written acknowledgement obtained of such delivery.

11) This Guarantee shall come into force with immediate effect and shall remain in force and effect for up to the …… or until it is released earlier by the Employer pursuant to the provisions of the Agreement, whichever is earlier.

12) Notwithstanding anything contrary contained in any law for the time being in force or banking

practice, this guarantee shall not be assignable or transferable by the beneficiary. Notice or invocation by any person such as assignee, transferee or agent of beneficiary shall not be entertained by the Bank. Any invocation of guarantee can be made only by the beneficiary directly.

NOTWITHSTANDING ANYTHING CONTAINED HEREIN:

i. Our liability under this guarantee shall not exceed Rs……. (Rupees).

ii. This Bank Guarantee shall be valid up to ……

iii. We are liable to pay the guaranteed amount or any part thereof under this Bank Guarantee only and only if you serve upon us a written claim or demand on or before …….(claim period should be further one year after the expiry date). All your rights as well as our liability under this Bank Guarantee shall stand extinguished unless a written claim or demand is made under this guarantee on …….(Bank address in Mumbai, Maharashtra) not later than the claim period should be further one year after the expiry date.

Signed and sealed this ……. day of ……. 20……. at ……

SIGNED, SEALED AND DELIVERED

For and on behalf of the Bank by: (Signature)

(Name) (Designation) (Code Number) (Address)

Notes:

i. The Bank guarantee should contain the name, designation and code number of the officer(s) signing the guarantee.

ii. The address, telephone number and other details of the head office of the Bank as well as of issuing branch should be mentioned on the covering letter of issuing branch.

(c) OR

FORMAT FOR INSURANCE SURETY BOND FOR PERFORMANCE GUARANTEE

(To be execute on Non-Judicial Stamp paper of appropriate value)

(Insurance Surety Bond

No……)

Date.....

To

……. (name of the authority)

…….. [addressof Authority]

WHEREAS ……..……[name and address of Contractor] (hereafter called the "Contractor") has undertaken, in pursuance of letter of Acceptance (LOA) No……Dated……. for construction of …… [name of the Project] (hereinafter called the "contract").

AND WHEREAS the Contract requires the Contractor to furnish an {Performance Security/ Additional Performance Security} for due and faithful performance of its obligations, under and in accordance with the Contract, during the {Construction Period/ Defects liability Period and Operation and Maintenance Period) in a sum of Rs ….(Rupees…… crore) (the "Surety Bond amount").

AND WHEREAS we, ..... through our Mumbai branch at…… (the "Surety Insurer") have agreed to furnish this Surety Bond by way of Performance security.

NOW, THEREFORE, the Surety Insurer hereby, unconditionally and irrevocably, guarantees and affirms as follows:

1. The Surety Insurer herby unconditionally and irrevocably guarantees the due and faithful performance of the Contractor's obligations during the Construction Period/ Defects liability Period and Operation & Maintenance Period' under and in accordance with the Contract, and agrees and undertakes to pay to the Authority, upon its mere first written demand, and without any demur, reservation, recourse, contest or protest, and without any reference to the Contractor, Such sum or sums up to an aggregate sum of the Surety Bond Amount as the Authority shall claim, without the Authority being required to prove or to show grounds or reasons for Its demand and/or for the sum specified therein.

2. A letter from the Authority, under the hand of an Officer of Maharashtra Industrial Township Limited, that the Contractor has committed default in the due and faithful performance of all or any of its obligations under and in accordance with the Contract shall be conclusive, final and binding on the Surety Insurer. The Surety Insurer further agrees that the Authority Shall be the sole Judge as to whether the Contractor is in default in due and faithful performance of its obligations during and under the Contract and its decision that the Contractor is in default shall be final and binding on the Surety Insurer, notwithstanding any differences between the Authority and the Contractor, or any dispute between them pending before any court, tribunal, arbitrators or any other authority or body, or by the discharge of the Contractor for any reason whatsoever.

3. In order to give effect to this Surety Bond, the Authority shall be entitled to act as if the Surety

Insurer were the principal debtor and any/Change in the constitution of the Contractor and/or the Surety Insurer, whether by their absorption with any other body or corporation or otherwise, shall not in any way or manner affect the liability or obligation of the Surety Insurer under this Surety Bond.

4. It shall not be necessary, and the Surety Insurer hereby waives any necessity for the Authority to proceed against the Contractor before presenting to the Surety Insurer its demand under this Surety Bond.

5. The Authority shall have the liberty, without affecting in any manner the liability of the Surety Insurer under this Surety Bond, to vary at any time, the terms and conditions of the Contract or to extend the time or period for the compliance with, fulfillment and/ or performance of all or any of the obligations of the Contractor contained in the Contract or to postpone for any time, and from time to time, any of the rights and powers exercisable by the Authority against the Contractor, and either to enforce or forbear from enforcing any of the terms and conditions contained in the Contract and/or the securities available to the Authority, and the Surety Insurer shall not be released from its liability and obligation under these presents by any exercise by the Authority of the liberty with reference to the matters aforesaid or by reason of time being given to the Contractor or any other forbearance, indulgence, act or omission on the part of the Authority or of any other matter or thing whatsoever which under any law relating to sureties and guarantors would but for lhis provision have the effect of releasing the Surety Insurer from its liability and obligation under this Surety Bond and the Surety Insurer hereby waives all of its rights under any such law.

6. This Surety Bond is in addition to and not in substitution of any other Surety Bond or security now or which may hereafter be held by the Authority in respect of or relating to the Contract or for the fulfilment, compliance and/or performance of all or any of the obligations of the Contractor under the Contract.

7. Notwithstanding anything contained hereinbefore, the liability of the Surety Insurer under this Surety Bond is restricted to the Surety Bond Amount and this Surety Bond wilt remain in force for the period specified in paragraph 8 below and unless a demand or claim in writing is made by the Authority on the Surety Insurer under this Surety Bond all rights of the Authority under this Surety Bond shall be forfeited and the Surety Insurer shall be relieved from its liabilities hereunder.

8. The Surety Bond shall cease to be in force and effect on…… Unless a demand or claim under this Surety Bond is made in writing with the Surety Insurance Branch in Mumbai as state above within further one year from the date of expiry of the Surety Bond, the Surety Insurer shall be discharged from its liabilities hereunder.

9. The Surety Insurer undertakes not to revoke this Surety Bond during its currency, except with the previous express consent of the Authority in writing, and declares and warrants that it has the power to issue this Surety Bond and the undersigned has full powers to do so on behalf of the Surety Insurer.

10. Any notice by way of request, demand or otherwise hereunder may be sent by post or submitted personally addressed to the Surety Insurer at its above referred branch or by email to the official email id of the Mumbai branch or authorised official of the Surety Insurer, which shall be deemed to have been duly authorized to receive such notice and to effect payment thereof forthwith, and if sent by post it shall be deemed to have been given at the time when it ought to have been delivered In due course of post and in proving such notice, When given by post, it shall

be sufficient to prove that the envelope containing the notice was posted and a certificate signed by an officer of the Authority that the envelope was so posted shall be conclusive.

11. The Surety Bond shall come into force with immediate effect and shall remain In force and effect for up to the date specified In paragraph 8 above or until it is released earlier by the Authority pursuant to the provisions of the Contract.

Signed and sealed this..... Day of ....., 25 .....at .....

SIGNED, SEALED AND DELIVERED

For and on behalf of the Insurance Company by:

(Signature)

(Name)

(Designation)

(Code Number)

(Address)

## 31.2 Deleted

## 31.3 Form for Guarantee for Advance Payment

……..,

…….. Employer,

WHEREAS:

i. [name and address of contractor] (hereinafter called "the Contractor") has executed an Agreement (hereinafter called the "Agreement") with the [name and address of the Employer ], (hereinafter called "the Employer ") for the Design, Construction, Testing, Commissioning and Operation & Maintenance of Infrastructure Works at AURIC – Bidkin Industrial Area (BIA) - Sector B & C under Delhi Mumbai Industrial Corridor (DMIC) on EPC Basis", subject to and in accordance with the provisions of the Agreement.

ii. in accordance with the Clause 20.2 of the Agreement the Employer shall make to the Contractor an interest bearing Advance Payment (hereinafter called "Advance Payment") equal to 10% (Ten per cent) of the contract price for mobilization expenses and acquisition of equipment; and that the Advance Payment shall be made in three instalments subject to the Contractor furnishing an irrevocable and unconditional guarantee by a Scheduled India Bank (incorporated in India and approved by RBI) for an amount equal to the 110% amount of each instalment to remain effective till the complete and full repayment of the instalment of the Advance Payment as security for compliance with its obligations in accordance with the Agreement; and the amount of (first/second/third) instalment of the Advance Payment is Rs. _____ Cr. (Rupees _____ Crores) (the "Guarantee Amount").

iii. We, ……. through our branch at ……. (the "Bank") have agreed to furnish this Bank guarantee (hereinafter called the "Guarantee") for the Guarantee Amount.

Now, Therefore, the Bank hereby, unconditionally, and irrevocably, guarantees and affirms as follows:

1) The Bank hereby unconditionally and irrevocably guarantees the due and faithful repayment on time of the aforesaid installment of the Advance Payment under and in accordance with the Agreement, and agrees and undertakes to pay to the Employer , upon its mere first written demand, and without any demur, reservation, recourse, contest or protest, and without any reference to the Contractor, such sum or sums up to an aggregate sum of the guarantee amount as the Employer shall claim, without the Employer being required to prove or to show grounds or reasons for its demand and/or for the sum specified therein.

2) A letter from the Employer, under the hand of an officer not below the rank of […… of Employer], that the Contractor has committed default in the due and faithful performance of all or any of its obligations for the repayment of the installment of the Advance Payment under and in accordance with the Agreement shall be conclusive, final, and binding on the Bank. The Bank further agrees that the Employer shall be the sole judge as to whether the Contractor is in default in due and faithful performance of its obligations during and under the Agreement and its decision that the Contractor is in default shall be final, and binding on the Bank, notwithstanding any difference between the Employer and the Contractor, or any Dispute between them pending before any court, tribunal, arbitrators or any other authority or body, or by the discharge of the Contractor for any reason whatsoever.

3) In order to give effect to this Guarantee, the Employer shall be entitled to act as if the Bank were the principal debtor and any change in the constitution of the Contractor and/or the Bank, whether by their absorption with any other body or corporation or otherwise, shall not in any way or manner affect the liability or obligation of the Bank under this Guarantee.

4) It shall not be necessary, and the Bank hereby waives any necessity, for the Employer to proceed against the Contractor before presenting to the Bank its demand under this Guarantee.

5) The Employer shall have the liberty, without affecting in any manner the liability of the Bank under this Guarantee, to vary at any time, the terms and conditions of the Advance Payment or to extend the time or period of its repayment or to postpone for any time, and from time to time, any of the rights and powers exercisable by the Employer against the Contractor, and either to enforce or forbear from enforcing any of the terms and conditions contained in the Agreement and/or the securities available to the Employer , and the Bank shall not be released from its liability and obligation under these presents by any exercise by the Employer of the liberty with reference to the matters aforesaid or by reason of time being given to the Contractor or any other forbearance, indulgence, act or omission on the part of the Employer or of any other matter or thing whatsoever which under any law relating to sureties and guarantors would but for this provision have the effect of releasing the Bank from its liability and obligation under this Guarantee and the Bank hereby waives all of its rights under any such law.

6) This Guarantee is in addition to and not in substitution of any other guarantee or security now or which may hereafter be held by the Employer in respect of or relating to the Advance Payment.

7) Notwithstanding anything contained hereinbefore, the liability of the Bank under this Guarantee is restricted to the Guarantee amount and this Guarantee will remain in force for the period specified in paragraph 8 below and unless a demand or claim in writing is made by the Employer on the Bank under this Guarantee all rights of the Employer under this Guarantee shall be forfeited and the Bank shall be relieved from its liabilities hereunder.

8) The guarantee shall cease to be in force and effect 90 (Ninety) days after the end of the one year from the date of payment of the installment of the Advance Payment, as set forth in Clause 20.2 of the Agreement.

9) The Bank undertakes not to revoke this Guarantee during its currency, except with the previous express consent of the Employer in writing and declares and warrants that it has the power to issue this Guarantee and the undersigned has full powers to do so on behalf of the Bank.

10) Any notice by way of request, demand or otherwise hereunder may be sent by post addressed to the Bank at its above referred branch, which shall be deemed to have been duly authorized to receive such notice and to effect payment thereof forthwith, and if sent by post it shall be deemed to have been given at the time when it ought to have been delivered in due course of post and in proving such notice, when given by post, it shall be sufficient to prove that the envelope containing the notice was posted and a certificate signed by an officer of the Employer that the envelope was so posted shall be conclusive.

11) This Guarantee shall come into force with immediate effect and shall remain in force and effect for up to the end _____month in the year_____ or until it is released earlier by the Employer pursuant to the provisions of the Agreement.

NOTWITHSTANDING ANYTHING CONTAINED HEREIN:

i. Our liability under this guarantee shall not exceed Rs……. (Rupees).

ii. This Bank Guarantee shall be valid up to ……

iii. We are liable to pay the guaranteed amount or any part thereof under this Bank Guarantee only and only if you serve upon us a written claim or demand on or before …….(claim period should be further one year after the expiry date). All your rights as well as our liability under this Bank Guarantee shall stand extinguished unless a written claim or demand is made under this guarantee on …….(Bank address in Mumbai, Maharashtra) not later than the claim period should be further one year after the expiry date.

Signed and sealed this ……. day of ……. 20……. at ……

SIGNED, SEALED AND DELIVERED

For and on behalf of the Bank by: (Signature)

(Name) (Designation) (Code Number) (Address)

Notes:

i. The Bank guarantee should contain the name, designation and code number of the officer(s) signing the guarantee.

ii. The address, telephone number and other details of the head office of the Bank as well as of issuing branch should be mentioned on the covering letter of issuing branch.

OR

Form for Insurance Surety Bond for Advance Payment

[Name and address of the Authority

……]

WHEREAS:

(A) [Name and address of contractor] (hereinafter called the "Contractor") has executed an agreement (hereinafter called the "Agreement") with the [name and address of the authority], (hereinafter called the "Authority") for the project of the ***** [name of project ] on Engineering, Procurement and Construction (the "EPC") basis, subject to and in accordance with the provisions of the Agreement

(B) In accordance with Clause 20.2 of the Agreement, the Authority shall make to the Contractor an interest bearing @Bank Rate advance payment (herein after called "Advance Payment") equal to 10% (ten per cent) of the Contract Price; and that the Advance Payment shall be made in two instalments subject to the Contractor furnishing an irrevocable and unconditional Insurance Surety Bond by Insurance Company for an amount equivalent to 110% (one hundred and ten percent) of such instalment to remain effective till the complete and full repayment of the installment of the Advance Payment as security for compliance with its obligations in accordance with the Agreement. The amount of {first/second} installment of the Advance Payment is Rs. ------ er. (Rupees------ crore) and the amount of this Insurance Surety Bond is Rs. ------- er. (Rupees------ crore) (the "Guarantee Amount")$.

(C) We,..... through our Mumbai branch at ..... (the "Insurance Company" have agreed to furnish this Insurance Surety Bond (hereinafter called the "Guarantee") for the Guarantee Amount.

NOW, THEREFORE, the Insurance Company hereby, unconditionally and irrevocably, guarantees and affirms as follows:

(1) The Insurance Company hereby unconditionally and irrevocably guarantees the due and faithful repayment on time of the aforesaid instalment of the Advance Payment under and in accordance with the Agreement, and agrees and undertakes to pay to the authority, upon its mere first written demand, and without any demur, reservation, recourse, contest or protest, and without any reference to the Contractor, such sum or sums up to an aggregate sum of the Guarantee Amount as the Authority shall claim, without the Authority being required to prove or to show grounds or reasons for its demand and/or for the sum specified therein.

A letter from the Authority, under the hand of an officer from Maharashtra Industrial Township Limited, that the Contractor has committed default in the due and faithful performance of all or any of its obligations for the repayment of the instalment of the Advance Payment under and in accordance with the Agreement shall be conclusive, final and binding on the Insurance Company.

The Insurance Company further agrees that the Authority shall be the sole judge as to whether the Contractor is in default in due and faithful performance of its obligations during and under the Agreement and its decision that the Contractor is in default shall be final and binding on the Insurance Company, notwithstanding any differences between the Authority and the Contractor, or any dispute between them pending before any court, tribunal, arbitrators or any other authority or body, or by the discharge of the Contractor for any reason whatsoever.

(2) In order to give effect to this Insurance Surety Bond, the Authority shall be entitled to act as if the Insurance Company were the principal debtor and any change in the constitution of the Contractor and/or the Insurance company, whether by their absorption with any other body or corporation or otherwise, shall not in any way or manner affect the liability or obligation of the Insurance Company under this Guarantee.

(3) It shall not be necessary, and the Insurance Company hereby waives any necessity, for the Authority to proceed against the Contractor before presenting to the Insurance Company its demand under this Guarantee.

(4) The Authority shall have the liberty, without affecting in any manner the liability of the Insurance Company under this Guarantee, to vary at any time, the terms and conditions of the Advance Payment or to extend the time or period of its repayment or to postpone for any time, and from time to time, any of the rights and powers exercisable by the Authority against the Contractor, and either to enforce or forbear from enforcing any of the terms and conditions contained in the Agreement and/ or the securities available to the Authority, and the Insurance Company shall not be released from its liability and obligation under these presents by any exercise by the Authority of the liberty with reference to the matters aforesaid or by reason of time being given to the Contractor or any other forbearance, indulgence, act or omission on the part of the Authority or of any other matter or thing whatsoever which under any law relating to sureties and guarantors would but for this provision have the effect of releasing the Insurance Surety Bond from its liability and obligation under this Guarantee and the Insurance Company hereby waives all of its rights under any such law.

(5) This Insurance Surety Bond is in addition to and not in substitution of any other guarantee or security now or which may hereafter be held by the Authority in respect of or relating to the Advance Payment.

(6) Notwithstanding anything contained herein before, the liability of Insurance Company under this Guarantee is restricted to the Guarantee Amount and this Guarantee will remain in force for the period specified in paragraph 8 below and unless a demand or claim in writing is made by the Authority on the Insurance Company under this Guarantee all rights of the Authority under this Insurance Surety Bond shall be forfeited and the Insurance Company shall be relieved from its liabilities hereunder.

(7) The Insurance Surety Bond shall cease to be in force and effect on****.$ Unless a demand or claim under this Guarantee is made in writing on or before the aforesaid date, the Insurance Company shall be discharged from its liabilities hereunder.

(8) The Insurance Company undertakes not to revoke this Guarantee during its currency, except with the previous express consent of the Authority in writing, and declares and

warrants that it has the power to issue this Guarantee and the undersigned has full powers to do so on behalf of the Insurance Company.

(9) Any notice by way of request, demand or otherwise hereunder may be sent by post or submitted personally addressed to the Surety Insurer at its above referred branch or by email to the official email id of the Mumbai branch or authorised official of the Surety Insurer, which shall be deemed to have been duly authorized to receive such notice and to effect payment thereof forthwith, and if sent by post it shall be deemed to have been given at the time when it ought to have been delivered In due course of post and in proving such notice, When given by post, it shall be sufficient to prove that the envelope containing the notice was posted and a certificate signed by an officer of the Authority that the envelope was so posted shall be conclusive.

(10) This Insurance Surety Bond shall come into force with immediate effect and shall remain in force and effect up to the date specified in paragraph 7 above or until it is released earlier by the Authority pursuant to the provisions of the Agreement.

Signed and sealed this ..... day of ..... 20..... at .....

SIGNED, SEALED AND DELIVERED

For and on behalf of the Insurance Company by:

(Signature)

(Name)

(Designation)

(Code Number)

(Address)

NOTES:

(i) The Insurance Surety Bond should contain the name, designation and code number of the officer(s) signing the Insurance Surety bond.

(ii) The Address, telephone number and other details of the head of the Insurance Company as well as the issuing branch should be mentioned on the covering letter of the issuing branch.

$ Insert a date being 6 (Six) months after the end of two years from the date of payment of the Advance payment to the Contractor (in accordance with Clause 20.2 of the Agreement).

# 32 Schedule C: Contract Price Weightages

## 32.1 Weightages (percentages to be finalised)

32.1.1 The Contract Price for This Agreement is Rs…….. (Rs. ……) as per the Price Bid Letter.

32.1.2 The Contractor shall submit the further sub-billing breakup to Schedule C for the purpose of making Payment after the award of the contract and get it approved by the employer.

32.1.3 Proportions of the Contract Price for different stages of Construction of the Road and Utilities/Services, Water Treatment Plant, shall be as specified below.

| S. No. | Item | % of weightage in the contract price | Stage for Payment | % of weightage |
|---|---|---|---|---|
| 1) | Design, Drawings, 3D BIM model | 3% | Approval of GFC drawings | 70% |
| | | | Integrated 3-D BIM model of all the project components | 30% |
| 2) | Road Works | 55% | Site clearance and initial activities, including Earthwork up to the top of the sub-grade | 30% |
| | | | GSB & WMM | 20% |
| | | | Bituminous Works & Kerb | 20% |
| | | | Electrical & Utility Duct along with Cable Trays | 20% |
| | | | Minor Bridges & Balancing Culverts | 5% |
| | | | Pathway & Cycle track | 2% |
| | | | Junctions & Miscellaneous Items | 1% |
| | | | Avenue Plantation | 1% |
| | | | Traffic signs, markings, and appurtenances, , & Street Lighting. | 1% |
| 3) | Potable Water Network, including firefighting | 3% | Supply & Laying of DI/HDPE Pipes along with Specials, Flow Meters & valve Chamber | 75% |
| | | | Service Connection | 5% |
| | | | Storage Reservoir and associated works with Compound Wall | 15% |
| | | | Hydrotesting and commissioning of the complete system | 5% |
| 4) | Recycled Water Network | 3% | Supply & Laying of DI/HDPE Pipes along with Specials, Flow Meters & valve Chamber | 75% |
| | | | Service Connection | 5% |
| | | | Storage Reservoir and associated works | 15% |
| | | | Hydrotesting and commissioning of the complete system | 5% |
| 5) | | 7% | Supply & Laying of RCC Box Drain/Pipe Drain | 80% |

| S. No. | Item | % of weightage in the contract price | Stage for Payment | % of weightage |
|---|---|---|---|---|
| | Stormwater Drainage Network | | Gratings and Allied works, Weep Holes, outfall structures, road crossings, complete in all respects. | 10% |
| | | | Service Connection | 5% |
| | | | Construction of Outfall Structures | 5% |
| 6) | Industrial Wastewater and Domestic Sewage Collection System | 7% | Supply & Laying of DI/HDPE/DWC Pipes along with Manholes | 80% |
| | | | Service Connection | 5% |
| | | | | |
| | | | Hydrotesting and commissioning of the complete system | 15% |
| | | | | |
| 7) | Electrical Substations & Power Distribution Network | 20.% | Construction of Substation Civil, Supply & Installation of Electrical & Other allied Work | 30% |
| | | | Supply & Installation of RMU, CSS | 30% |
| | | | Supply & Laying of 33KV, 11 KV, LT Cables | 25% |
| | | | Illumination System | 5% |
| | | | Testing and commissioning of the complete system | 7% |
| | | | Successful Performance Test | 3% |
| 9) | ICT /SCADA Infrastructure | 2% | ICT Property Connection Manhole, POP | 15% |
| | | | Power Connection for all ICT Components | 10% |
| | | | SCADA for Potable Water System in complete | 15% |
| | | | SCADA for Recycle Water System in complete | 15% |
| | | | SCADA for Industrial/ Domestic Water Systems in complete | 15% |
| | | | SCADA for Electrical Systems & Other Systems in complete | 30% |
| | | | | |

## 32.2 Procedure of Estimating the Value of Work Done

32.2.1 Procedure for Estimating the value of Road work done.

The procedure for estimating the value of road work done shall be as follows;

| Stage of Payment | % of Weightage | Payment procedure |
|---|---|---|
| Road Works | | |
| Site clearance and initial activities, | 30% | Payment shall be made on |

| Stage of Payment | % of Weightage | Payment procedure |
|---|---|---|
| including Earthwork up to the top of the sub-grade | | completion of a stage on pro rata basis. |
| GSB & WMM | 20% | |
| Bituminous Works & Kerb | 20% | |
| Electrical & Utility Precast Duct along with Cable Trays | 20% | |
| Minor Bridges & Balancing Culverts | 5% | |
| Pathway & Cycletrack | 2% | |
| Junctions & Miscellaneous Items | 1% | |
| Avenue Plantation | 1% | |
| Traffic signs, markings and appurtenances, traffic signals & Street Lighting. | 1% | |

Payment shall be made on completion of a stage on pro-rata basis.

For example, if the total length of bituminous work to be done is L km, the cost per km of bituminous work shall be determined as follows.

Cost per km of Bituminous work = P x weightage for road work x weightage for bituminous work x (1/L)

= P x (__%) x (__%) x (1/L)

Where,

P= Contract Price

L = Total length of Bituminous work in km

32.2.2 Payment for the **Storm Water Drain Works** including outfall Works done shall be made on completion of a stage on pro-rata basis except for 'Testing & Commissioning of complete system including pipes, connections etc.' which will be paid upon full completion of the works.

| Stage of Payment | % of Weightage | Payment procedure |
|---|---|---|
| Stormwater Drain Works | | |
| Supply & Laying of Precast RCC Box Drain | 80% | Payment shall be made on completion of a stage on a pro |

| | | |
|---|---|---|
| Laying of HDPE pipes, Gratings and Allied works, Weep Holes, outfall structures, road crossings, complete in all respects. | 10% | rata basis. |
| Service Connection | 5% | |
| Construction of Outfall Structures | 5% | |

32.2.3 Payment for the **Potable Water Supply Network & Elevated Service Reservoirs Works** including firefighting works shall be made on completion of a stage, on pro-rata basis except for 'Hydrotesting and commissioning of complete system including pipes, valves, UGR/ESR, meters, connection, fire hydrants etc.' which will be paid upon full completion of the works.

| Stage of Payment | % of Weightage | Payment procedure |
|---|---|---|
| Potable water supply & Elevated service Reservoirs Works | | |
| Supply & Laying of DI/HDPE Pipes along with Specials, Flow Meters & valve Chamber | 75% | Payment shall be made on completion of a stage on pro rata basis. |
| Service Connection | 5% | |
| Storage Reservoir and associated works with Compound Wall | 15% | |
| Hydrotesting and commissioning of complete system | 5% | Payment shall be made on full completion. No stage payment. |

32.2.4 Payment for the **Recycled Water Supply Network & Elevated Service Reservoirs Works** shall be made on completion of a stage, on pro-rata basis except for 'Hydrotesting and commissioning of complete system including pipes, valves, UGR/ESR, meters, connection, fire hydrants etc.' which will be paid upon full completion of the works.

| Stage of Payment | % of Weightage | Payment procedure |
|---|---|---|
| | | |
| Supply & Laying of DI/HDPE Pipes along with Specials, Flow Meters & valve Chamber | 75% | Payment shall be made on completion of a stage on pro rata basis. |
| Service Connection | 5% | |

| | | |
|---|---|---|
| Storage Reservoir and associated works | 15% | |
| Hydrotesting and commissioning of complete system | 5% | Payment shall be made on full completion. No stage payment. |

32.2.5 Payment for the **Industrial Wastewater and Domestic Sewage Collection System Works** shall be made on completion of a stage, on pro-rata basis except for 'Hydrotesting and commissioning of complete system including pipes, valves, UGR/ESR, meters, connection, fire hydrants etc.' which will be paid upon full completion of the works.

| Stage of Payment | % of Weightage | Payment procedure |
|---|---|---|
| Supply & Laying of DI/HDPE/DWC Pipes along with Manholes | 80% | Payment shall be made on completion of a stage on pro rata basis. |
| Service Connection | 5% | |
| Intermediate Pumping Station | 10% | |
| Hydrotesting and commissioning of the complete system | 5% | Payment shall be made on full completion. No stage payment. |

32.2.6 Payment for the **Electrical Substations & Power Distribution Network Works** shall be made on completion of a stage, on a pro-rata basis except for 'Testing and Commissioning of Electrical equipment' which will be paid upon full completion of the works.

| Stage of Payment | % of Weightage | Payment procedure |
|---|---|---|
| Construction of Substation Civil, Supply & Installation of Electrical & Other allied Work | 30% | Payment shall be made on completion of a stage on a pro rata basis. |
| Supply & Installation of RMU, CSS | 30% | |
| Supply & Laying of 33KV, 11 KV, LT Cables | 25% | |
| Illumination System | 5% | |
| Testing and commissioning of the complete system | 7% | Payment shall be made on full completion. No stage payment. |
| Successful Performance Test | 3% | |

32.2.7 Payment for the **ICT Works** shall be made on completion of a stage, on a pro-rata basis, except for 'Testing and Commissioning of Electrical equipment', which will be paid upon

full completion of the works.

| Stage of Payment | % of Weightage | Payment procedure |
|---|---|---|
| ICT Infrastructure | | |
| Cross ducts, ICT Manhole, ICT Property Connection Manhole, POP | 25% | Payment shall be made on completion of a stage on a pro rata basis. |
| Power Connection for all ICT Components | 10% | Payment shall be made on completion of a stage on a pro rata basis. |
| SCADA for Potable Water System | 10% | Payment shall be made on full completion. No stage payment. |
| SCADA for Recycle Water System | 10% | |
| SCADA for Industrial/ Domestic Water Systems | 5% | |
| SCADA for Electrical Systems & Other Systems | 20% | |
| Integration of all SCADA systems with ICCC | 10% | |
| Software & Hardware | 10% | Payment shall be made on completion of a stage on a pro rata basis. |

## 32.3 Procedure for Payment for Operation and Maintenance

32.3.1 The cost for Operation and Maintenance shall be as stated in Clause 15.1.1 of the EPC agreement.

32.3.2 Payment for Operation and Maintenance shall be made in quarterly instalments in accordance with the provisions of Clause 20.7 of the EPC agreement.

# 33 Schedule D: Drawings

## 33.1 Drawings

The contractor shall submit the list of drawings, calculations, 3D BIM models proposed for the project, along with the timeline, within 30 days from the date of agreement for review and approval by the Engineer-in-charge.

In compliance with the obligations set forth in Clause 11.2 of this Agreement, Volume 2 and Volume 3 of the tender document, the Contractor shall furnish to the Employer's Engineer, free of cost, all the drawings, calculations and 3D BIM models for review and approval.

The Contractor's submission of individual design drawings and models shall not be deemed complete until the approval of the fully integrated Building Information Modelling (BIM) model by the Engineer-in-charge. This integrated BIM model, as set forth in Clause 41, must consolidate and coordinate all individual components, including architectural, structural, MEP, and other relevant disciplines, ensuring consistency, clash resolution, and alignment with the overall project design intent. Approval of the integrated BIM model shall be a prerequisite for final acceptance of the design documentation.

Notwithstanding any prior approvals granted for individual designs, drawings, or models, the Contractor shall be responsible for incorporating all modifications, adjustments, or corrections identified during the development and coordination of the integrated 3D BIM model. Any such changes necessary to resolve conflicts, ensure consistency, or achieve full integration across disciplines shall be deemed part of the Contractor's scope of work. These changes shall be implemented in the final design and executed at the site without any additional cost or time implications to the Employer.

## 33.2 Additional Drawings

If the Employer's Engineer determines that, for discharging its duties and functions under this Agreement, it requires any Drawings other than those listed in Schedule D and Volume 2 – Technical Specifications, it may, by notice, require the Contractor to prepare and furnish such Drawings forthwith. Upon receiving a requisition to this effect, the Contractor shall promptly prepare and furnish such Drawings to the Employer's Engineer, as if such Drawings formed part of this Schedule-D.

All the Drawings that the Contractor is required to furnish under Clause 11.2 and relevant clauses in Volume 2 – Technical Specifications for the Construction of Roads, Water Supply transmission and distribution, recycled water transmission and distribution, fire hydrants, domestic sewerage system, industrial sewerage systems, storm water drains, power systems, Water Treatment Plant, but not limited to, are given in the table below ;

| S. No. | Description |
|---|---|
| 1 | Road Works |
| i | Drawings of horizontal alignment, vertical profile and cross sections |
| ii | Drawings for all bridges, retaining walls, etc |
| ii | Drawings of all culverts, cross-drainage Works |
| iii | Drawings of all major junctions & minor junctions |
| iv | Drawings of road furniture items, including traffic signage, markings, safety barriers, etc. |
| v | Drawings for the avenue plantation, the irrigation network |

| S. No. | Description |
|---|---|
| vi | Any other relevant Drawings for the execution of works under the scope of this agreement |
| 2 | Network Drawings |
| i | Layout of water supply network with valves |
| ii | Layout plan for recycled water |
| iii | Schematic plan for water supply scheme |
| iv | Site plan of water supply |
| v | Any other relevant Drawings for the execution of works under the scope of this agreement |
| 3 | Standard Drawings |
| i | Valve chambers |
| ii | House service connection |
| iii | Thrust blocks |
| iv | Trench Excavation details |
| v | Raw water reservoir with intake upto WTP |
| vi | Underground reservoir - Potable |
| vii | Underground reservoir -Recycled |
| viii | Overhead tank- Potable |
| ix | Overhead tank- Recycled |
| x | Any other relevant Drawings for execution of works under the scope of this agreement |
| 4 | Domestic and Industrial sewer |
| i | RCC Manhole and Drop hole |
| ii | Plot connection chambers |
| iii | Pipe bedding details |
| iv | Typical section of sewer trench |
| v | GA property connections chamber for sewers |
| vi | Sewage pumping station |
| vii | Industrial sewerage network Drawing |
| viii | Domestic sewerage network Drawing |
| ix | Any other relevant Drawings for execution of works under the scope of this agreement |
| 5 | Storm water drainage network |
| i | Storm water drainage layout plan |
| ii | Details of Storm water drainage network |
| iii | Primary Drainage network |
| iv | Collection chamber |
| vii | RCC storm water channels |
| viii | Outfall structures |
| ix | Any other relevant Drawings for execution of works under the scope of this agreement |
| 6 | Power network |
| i | General Notes, Legends, Abbreviations |
| ii | Overall, Power Distribution Scheme |
| iii | Single Line Diagrams |
| iv | Substation location and cable routing Drawing |
| v | Substation-wise plan identification, Layout plan |
| vi | Cable trench sections |
| vii | Sections showing cable trench |
| viii | Ring Formation Drawing for RMUs & CSS |

| S. No. | Description |
|---|---|
| ix | Indoor & Outdoor Lighting Layouts |
| x | Earthing Layouts |
| xi | Any other relevant Drawings for the execution of works under the scope of this agreement |
| 8 | Miscellaneous |
| i | Rerouting of existing roads and existing utilities, including power lines within the project boundary. |

## 33.3 Documentation to be Supplied by the Contractor

33.3.1 Submission of Documentation and Drawings

Unless otherwise specified, all documentation and drawing submittals required by the Contract shall be in accordance with the following clauses.

33.3.2 Formats and Quantities

Documentation and drawings shall be submitted in English in both paper and electronic versions. Three copies of paper versions shall be provided for all documents. For drawings, this shall include two copies at the original sheet size (e.g. A1), unless agreed otherwise with the Employer's Engineer. The format of the electronic copies shall be agreed upon with the Employer's Engineer.

33.3.3 Delivery of Submittals

All submittals shall be made by delivery to the Employer's Engineer's site office during the Employer's Engineer's normal working hours between 10 am to 4 pm. Any submittal received beyond 4 pm will be logged and considered to be submitted on the next working day. Apart from the hard copy submissions, the Contractor shall upload the documents on the Employer's PMIS document system (once operational). In any case, the date of submission on the Engineer in charge's 'Received' stamp shall be considered for all contractual purposes.

All revised submittals should be accompanied by the Compliance Sheet which will summarise all the previous comments and their respective compliances. In the case of drawings, all the changes/compliance shall be duly clouded with the revision number.

33.3.4 Contractor's Approval

Documents and drawings submitted for approval shall be signed as approved by the Contractor. In the case of sub-contractor documents and drawings, these shall also be checked and corrected by the Contractor's Technical Manager prior to issue for approval. The Contractor shall date stamp, and sign each of the sub-contractor's documents and drawings. Any documents or drawings submitted to the Employer's Engineer for approval that have not been signed as checked and approved by the Contractor's Technical Manager will be returned for re-submission. Each submittal shall be accompanied by a submittal checklist as agreed with the Employer's Engineer prior to the start of the design/engineering works.

33.3.4.1 Deviations

Submissions by the Contractor shall be accompanied by details of any proposed deviations from the requirements of the Contract or failing which it shall be deemed that the Contractor's proposal is fully compliant vide the requirements of the Contract.

33.3.4.2 Approval by the Employer's Engineer

A response will be given by the Employer's Engineer within twenty-one days of receipt of the drawings or documents. The Employer's Engineer will inform the Contractor by letter or by return of a copy of the document, marked with one of the following remarks:

| Type of Code | Description |
|---|---|
| Code A | Approved |
| Code B | Approved Subject to Comments |
| Code C | Not Approved. Resubmit. |
| Code D | For information only. |

"Code A – Approved for Construction" authorises the contractor to proceed with the manufacturing or construction at the site.

"Code B - Approved Subject to Comments" authorises the Contractor to proceed with the appropriate section of the Works subject to the corrections or Employer Engineer's comments noted on the document and/or accompanying letter or approval sheet. The Contractor shall resubmit the revised document to the Employer's Engineer for approval, incorporating all required corrections. All revisions shall be clearly marked using revision clouds indicating the changes made in the drawings and accompanied by a separate compliance sheet.

Successive submissions of drawings or documents by the Contractor that do not fully address and/or comply with the comments provided by the Employer's Engineer shall be deemed void and non-responsive. Such submissions shall not be considered valid for review or approval purposes. The Employer shall bear no responsibility for any resulting delays, loss of time, or any direct or indirect losses incurred by the Contractor, including those affecting the timely construction and completion of the project. All such consequences shall be solely at the Contractor's risk and cost.

Any failure to achieve project milestones or the Completion Date due to non-compliant submissions shall not relieve the Contractor from liability for liquidated damages or other contractual remedies available to the Employer.

Approval of drawings or documents marked as "Approved with Comments" shall not relieve the Contractor of his obligation to ensure full compliance with the contract specifications, the engineer-in-charge's comments, applicable codes, and standards. Any construction work executed based on such drawings is subsequently found to be non-compliant, the Contractor shall, at their own cost and risk, dismantle and reconstruct the affected works to achieve full compliance. The Employer or Employer's Engineer shall not bear any responsibility or liability for such non-compliant work, regardless of prior conditional approvals. Furthermore, the Employer reserves the right to withhold payment for any such non-compliant work until it is rectified to the satisfaction of the Engineer/Employer's Engineer.

"Code C - Not Approved. Resubmit" indicates that the document must be revised and resubmitted for approval before proceeding with the manufacturer or construction at the site

"Code D - For information only" indicates that the details on the document are not considered to require approval by the Employer's Engineer due to such details being standard, typical, etc., or not relevant to the acceptability of the proposed works/method.

The approval shall not be taken as constituting an expression of opinion on the part of the Employer's Engineer as to the strength or efficiency of the plant and equipment or to its

correctness or in any way relieving the Contractor from his responsibilities or obligations under the Contract.

33.3.4.3 Delayed Employer's Engineer Response

The Contractor shall not proceed with any Works that require approval until such approval is given by the Employer's Engineer In the event that the twenty-one-day review period elapses and no response is received from the Employer's Engineer, the Contractor may proceed at his own risk with the affected element of the works subject to the fulfilment of his contractual obligations.

33.3.4.4 Late Submittals

Submissions for the Approval of the Employer's Engineer shall be made at times to suit the Contractor's program and as detailed in the Contractor's program. Should the drawings and documents not be submitted in accordance with the Contractor's program the periods for review by the Employer's Engineer shall be extended as necessary without the Contractor having any entitlement to any associated Extension of Time for Completion.

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# 34 Schedule E: Project Completion Schedule

## 34.1 Project Completion Schedule for all works

During the Construction period, the Contractor shall comply with the requirements set forth in this Schedule E for each of the Project Milestones and the Scheduled Completion Date. Within 15 (Fifteen) days of the date of each Project Milestone, the Contractor shall notify the Employer of such compliance along with necessary particulars thereof.

34.1.1 Project Milestone-I

Project Milestone-I shall occur on the date falling on the 180$^{th}$ (one hundred and eightieth) day from the Appointed Date (the “Project Milestone-I”).

Prior to the occurrence of Project Milestone-I, the Contractor shall complete all the designs, drawings for the entire project work also the 3D BIM model with clash resolution and shall have commenced Construction of the Project components (roads and utilities/services) and submitted to the Employer duly and validly prepared Stage Payment Statements for a cumulative amount not less than 5% (five per cent) of the Contract Price.

34.1.2 Project Milestone-II

Project Milestone-II shall occur on the date falling on the 365$^{th}$ (three hundred and sixty-fifth) day from the Appointed Date (the “Project Milestone-II”).

Prior to the occurrence of Project Milestone-II, the Contractor shall have completed the the design, drawings, models, including GFC drawings and an integrated and coordinated BIM model, as per the agreed schedule and continued with the Construction of the Project components (roads and utilities/services) and submitted to the Employer duly and validly prepared Stage Payment Statements for a cumulative amount not less than 20% (Twenty per cent) of the Contract Price.

34.1.3 Project Milestone-III

Project Milestone-III shall occur on the date falling on the 545th (Five hundred and forty-five) day from the Appointed Date (the “Project Milestone-III”).

Prior to the occurrence of Project Milestone-III, the Contractor shall have continued with the construction of the project components (roads and utilities/services) and submitted to the Employer’s Engineer, duly and validly prepared Stage Payment Statements for a cumulative amount not less than 40% (Fourty percent) of the Contract Price.

34.1.4 Project Milestone -IV

Project Milestone-IV shall occur on the date falling on the 730$^{th}$ (Seven hundred Thirty) day from the Appointed Date (the “Project Milestone-IV”).

Prior to the occurrence of Project Milestone-IV, the Contractor shall have continued with the Construction of the Project components (roads and utilities/services) and submitted to the Employer duly and validly prepared Stage Payment Statements for a cumulative amount not less than 65% (Sixty Five per cent) of the Contract Price.

34.1.5 Project Milestone - V

Project Milestone - V shall occur on the date falling on the 910th (Nine hundred Tenth) day from

the Appointed Date (the “Project Milestone-V”).

Prior to the occurrence of Project Milestone-V, the Contractor shall have continued with the Construction of the Project components (roads and utilities/services) and submitted to the Employer duly and validly prepared Stage Payment Statements for a cumulative amount not less than 90% (Ninty per cent) of the Contract Price.

34.1.6 Schedule Completion Date

The Scheduled Completion Date shall occur on the 1095$^{th}$ day from the Appointed Date.

On or before the Scheduled Completion Date, the Contractor shall have completed Construction along with the Punch list and as-built drawings, along with the updated coordinated BIM model, in accordance with this Agreement.

34.1.7 Extension of Time

Upon extension of any or all of the aforesaid Project Milestones or the Scheduled Completion Date, as the case may be, under and in accordance with the provisions of this Agreement, the Project Completion Schedule, including the Project milestones, shall be deemed to have been amended accordingly.

# 35 Schedule F: Tests on Completion

## 35.1 Schedule for Tests

35.1.1 The Contractor shall, no later than 30 (Thirty) days prior to the likely completion of Construction, notify the Employer's Engineer and the Employer of its intent to subject the Project components (roads and utilities/services) to Tests, and no later than 10 (Ten) days prior to the actual date of Tests, furnish to the Employer's Engineer and the Employer detailed inventory and particulars of all Works and equipment forming part of Works.

35.1.2 The Contractor shall notify the Employer's Engineer of its readiness to subject the Project components (roads and utilities/ services) to Tests at any time after 10 (Ten) days from the date of such notice, and upon receipt of such notice, the Employer's Engineer shall, in consultation with the Contractor, determine the date and time for each Test and notify the same to the Employer who may designate its representative to witness the Tests. The Employer's Engineer shall thereupon conduct the Tests itself or cause any of the Tests to be conducted in accordance with Clause 13.1 and this Schedule.

## 35.2 Tests

35.2.1 Visual and physical test: The Employer's Engineer shall conduct a visual and physical check of the construction to determine that all Works and equipment forming part thereof conform to the provisions of this Agreement.

35.2.2 Riding quality test: Riding quality of each lane of the carriageway shall be checked with the help of a calibrated bump integrator, and the maximum permissible roughness for purposes of this Test shall be 1800 (eighteen hundred) mm for each kilometre or as specified in Volume II.

35.2.3 Tests for bridges: All major and minor bridges shall be subjected to the rebound hammer and ultrasonic pulse velocity Tests, to be conducted in accordance with the procedure described in Special Report No. 17: 1996 of the IRC Highway Research Board on Non-destructive Testing Techniques, at two spots in every span, to be chosen at random by the Employer's Engineer. Bridges with a span of 15 (fifteen) meters or more shall also be subjected to load testing.

35.2.4 Water Tightness test: All hydraulic components, such as water supply network, recycled water network, industrial sewer network, joints, etc., or any other liquid containers shall have to be tested for water tightness. The water-tightness test shall be conducted as specified in IS: 4127-1967 and other applicable standards.

35.2.5 Water Tightness test for Manhole: The entire height of the manhole shall be tested for water tightness as per the CPHEEO Manual, by closing both the incoming and outgoing ends of the sewer and filling the manhole with water and the drop in water level not more than 50 mm per 24 hours shall be permitted.

35.2.6 Hydraulic Test: Fill the pipeline with water after it has been laid; bleed off any trapped air. Subject the lowest element in the system to a test pressure that is 1.5 times the design pressure and check for any leakage. When, in the opinion of the engineer, local conditions require that the trenches be backfilled immediately after the pipe has been laid, apply the pressure test after backfilling has been completed but not sooner than a time which will

allow sufficient curing of any concrete that may have been used. Typical minimum concrete curing times are 36 hours for early strengths and 7 days for normal strengths.

35.2.7 Water Tightness test for SR/ESR/OHT/CWR: The contractor shall be fully responsible for the water tightness of the tank; the tank shall be taken as watertight of the depression in water level after filling the tank of full supply level not more than 12.20 mm in 24 Hrs. and no leakages are observed.

35.2.8 Other Tests: The Employer's Engineer may require the Contractor to carry out or cause to be carried out additional Tests, in accordance with Good Industry Practice, for determining the compliance of the Project components (roads and utilities/services) with Standards and Specifications.

35.2.9 Environmental audit: The Employer's Engineer shall carry out a check to determine the conformity of the Project components (roads and utilities/services) with the environmental requirements set forth in Applicable Laws and Applicable Permits.

35.2.10 Safety Audit: The Employer's Engineer shall carry out, or cause to be carried out, a safety audit to determine conformity of the Project components (roads and utilities/services) with the safety requirements and Good Industry Practice.

35.2.11 Visual and physical test for Street lighting covering pole, luminaire, power supply, grounding, communication between luminaire to control panel and central control system.

35.2.12 Installation testing, including lighting performance verification.

35.2.13 All of the electrical equipment covered by this report shall be tested in accordance with all relevant design and installation standards and codes of practice. Routine and Type test reports shall be required as a minimum. The contractor shall notify the engineer, in writing, when each Section of work is complete and whole of the work is completed. Each Section of the work and the whole of the work shall be tested in accordance with all relevant design and installation standards and codes of practice.

## 35.3 Testing

35.3.1 This Sub-Clause shall apply to all tests on Plant, Materials and workmanship specified in the Contract.

35.3.2 The Contractor shall provide all apparatus, assistance, documents and other information, electricity, equipment, fuel, consumables, instruments, labour, materials, and suitably qualified and experienced staff, as are necessary to carry out the specified tests efficiently. The Contractor shall agree with the Employer's Engineer, the time and place for the specified testing of any Plant, Materials, and other parts of the Works.

35.3.3 The Employer's Engineer may vary the location or details of specified tests or instruct the Contractor to carry out additional tests. If these varied or additional tests show that the tested Plant, Materials, or Workmanship is not in accordance with the Contract, the cost of carrying out this Variation shall be borne by the Contractor, notwithstanding other provisions of the Contract. Any additional tests as described by the Employer's engineer shall be done by the contractor at no extra cost to the Employer.

35.3.4 The Employer's Engineer shall give Notice to the Contractor not less than 24 hours prior to the tests of the Employer's Engineer's intention to attend the tests. If the Employer's

Engineer does not attend at the time and place agreed, the Contractor may proceed with the tests, unless otherwise instructed by the Employer's Engineer, and the tests shall then be deemed to have been made in the Employer's Engineer's presence.

35.3.5 The Contractor shall promptly forward to the Employer's Engineer duly certified reports of the tests. When the specified tests have been passed, the Employer's Engineer shall endorse the Contractor's test certificate or issue a certificate to him, to that effect. If the Employer's Engineer has not attended the tests, he shall be deemed to have accepted the readings as accurate.

35.3.6 The Contractor shall carry out the Tests on Completion of the Construction period in accordance with this Clause.

35.3.7 The Contractor shall give Notice to the Employer's Engineer not less than 21 days prior to the date after which the Contractor will be ready to carry out each of the Tests on Completion of the Construction period. Unless otherwise agreed, Tests on Completion of the Construction period shall be carried out within 14 days after this date, on such day or days as the Employer's Engineer shall instruct.

35.3.8 Unless otherwise stated, the Tests on Completion of the Construction period shall be carried out in the following sequence and are further detailed in the Employer's Requirements:

35.3.9 Pre-commissioning tests, which shall include the appropriate inspections and ("dry" or "wet") functional tests to demonstrate that each item of Plant can safely undertake the next stage, (b); commissioning tests, which shall include the specified operational tests to demonstrate that the Works or Section can be operated safely and as specified, under all available operating conditions; and trial operation, which shall demonstrate that the Works or Section perform reliably and in accordance with the Contract.

35.3.10 The Employer shall be the sole beneficiary of any revenue or benefit resulting from the Tests on Completion of the Construction period.

35.3.11 During trial operation, when the Works are operating under stable conditions, the Contractor shall give Notice to the Employer's Engineer that the Works are ready for any other Tests on Completion of Construction period, including performance tests to demonstrate whether the Works conform with criteria specified in the Employer's Requirements and with the Schedule of Guarantees.

35.3.12 Trial operation shall not constitute a commencement of the Operation Service. The O&M shall only start after the issue of the Completion Certificate.

35.3.13 In considering the results of the Tests on Completion of the Construction period, the Employer's Engineer shall make allowances for the effect of any use of the Works by the Employer on the performance or other characteristics of the Works. As soon as the Works, or a Section, have passed each of the Tests on Completion of the Construction period described in the above sub-paragraph, the Contractor shall submit a report certified by the Contractor of the results of these Tests to the Employer's Engineer.

35.3.14 If the Tests on Completion of the Construction period are being unduly delayed by the Contractor, the Employer's Engineer may, by Notice, require the Contractor to carry out such Tests within 21 days after receiving the Notice. The Contractor shall carry out such

Tests on the day or days within that period as the Contractor may fix and of which he shall give Notice to the Employer's Engineer.

35.3.15 If the Contractor fails to carry out the Tests on Completion of the Construction period within the period of 21 days, the Employer's Personnel may proceed with the Tests at the risk and cost of the Contractor. The Tests on Completion shall then be deemed to have been carried out in the presence of the Contractor, and the results of the Tests shall be accepted as accurate.

35.3.16 If the Tests on Completion of the Construction period are being unduly delayed by the Employer, an extension of time shall be provided by the employer for such delay, if the completion is or will be delayed.

## 35.4 Retesting of the Works

35.4.1 If the Works, or a Section, fail to pass the Tests on Completion of Construction period, and the Employer's Engineer or the Contractor may require the failed Tests, and Tests on Completion of Construction period on any related work, to be repeated under the same terms and conditions.

35.4.2 Failure to Pass Tests on Completion of Construction Period.

35.4.3 If the Works, or a Section, fail to pass the Tests on Completion of Construction period repeated under above Sub-Clause (Retesting of the Works) the Employers Engineer shall be entitled to: order further repetition of tests on Completion of Construction period under Sub-Clause (Retesting of the Works]; or If the Contractor fails to carry out any obligation under the Contract, the Employer's Engineer shall by Notice require the Contractor to make good the failure and to remedy it within the time specified in the said Notice.

## 35.5 Completion Certificate

35.5.1 Upon successful completion of the Tests, the Employer's Engineer shall issue the Completion Certificate in accordance with the provisions of Section13.

# 36 Schedule G: Substantial Completion Certificate and Completion Certificate for Construction Works

## 36.1 Substantial Completion Certificate

I, (Name of the Employer's Engineer), acting as Employer's Engineer, under and in accordance with the Agreement dated ……. (the "Agreement"), for Design, Construction, Testing, Commissioning and Operation & Maintenance of Infrastructure Works at AURIC – Bidkin Industrial Area (BIA) Sector B & C, under Delhi Mumbai Industrial Corridor (DMIC) "On EPC Basis" Contract through (Name of Contractor), hereby certify that the Tests in accordance with Section 13 of the Agreement have been undertaken to determine compliance of the Project with the provisions of the Agreement.

1) Construction Works that are incomplete on account of Time Extension have been specified in the Punch List appended hereto, and the Contractor has agreed and accepted that it shall complete all such Works in the time and manner set forth in the Agreement. In addition, certain minor Works are incomplete, and these are not likely to cause Material inconvenience to the users of the Project ..... or other their safety. The contractor has agreed and accepted that as a condition of this Substantial Completion Certificate, it shall complete such minor Works within 30 (Thirty) days hereof. These minor Works have also been specified in the aforesaid Punch List.

2) In view of the foregoing, I am satisfied that that Project can be safely and reliably placed in service of the users thereof, and in terms of the Agreement, the Project ..... is hereby provisionally declared fit for entry into operation on this the ……day of ……..20 …….

| | |
|---|---|
| Accepted, Signed, Sealed | Signed, Sealed And Delivered And Delivered |
| For and on behalf of | For and on behalf of |
| Contractor By | Employer's Engineer by: |
| (Signature) | (Signature) |

## 36.2 Completion Certificate for Construction Works

I, ……. (Name of the Employer's Engineer), acting as Employer's Engineer, under and in accordance with the Agreement dated ……. (the "Agreement") for the Design, Construction, Testing, Commissioning and Operation & Maintenance of Infrastructure Works at AURIC – Bidkin Industrial Area (BIA)- Sector B & C under Delhi Mumbai Industrial Corridor (DMIC) on EPC Basis through ……. (Name of Contractor), hereby certify that the Tests in accordance with Clause 13 of the Agreement have been successfully undertaken to determine compliance of the Project ..... with the provisions of the Agreement, and I am satisfied that the Project ..... can be safely and reliably placed in service of the users thereof.

It is certified that, in terms of the aforesaid Agreement, all Works forming part of Project Works have been completed, and the Project Works is hereby declared fit for entry into operation on this the ……. day of ……...20 …...

Signed, Sealed And Delivered For And On Behalf Of

Employer's Engineer by:

(Signature) (Name) (Designation)

(Address)

# 37 Schedule H: Payment Reduction for Non-Compliance

## 37.1 Payment reduction for non-compliance with the Operation and Maintenance Requirements

37.1.1 Quarterly lump sum payments for Maintenance shall be reduced in the case of non-compliance with the Maintenance Requirements set forth in Schedule Q.

37.1.2 Any deduction made on account of non-compliance with the Maintenance Requirements shall not be paid even after compliance is subsequently made. The deduction shall continue to be made every month until compliance is achieved.

37.1.3 The Employer's Engineer shall calculate the amount of payment reduction on the basis of the weightage in percentage assigned to non-conforming items as given in Clause 37.2.

## 37.2 Percentage reductions in lump sum payments

The following percentages shall govern the payment reduction.

37.2.1 Percentage reductions for Road Works, Bridge Works, Other Road Works

| S. No. | Item/Defect/Deficiency | Distribution Percentage | Breakup%-Level 1 | Breakup%-Level 2 |
|---|---|---|---|---|
| 1 | Road Works (a) + (b) + (c) (of the applicable Quarterly Maintenance amount) | 48% | | |
| (a) | Road Works (Carriageway/Pavement, Road, Embankment, Cuttings, Shoulders etc.) | | 45% | |
| (i) | Potholes, cracks, Repairs of Edges, Rutting and other surface defects, Repairs/replacement of kerbs and/or bollards<br>Edge drop, inadequate cross fall, undulations, settlement, ponding, obstructions<br>Deficient slopes, rain cuts, and disturbed pitching | | | 50% |
| (ii) | Sweeping of roads/cycle track/pathway, unwanted vegetation/weed growth in median/roads/cycle track/pathway, pruning of trees | | | 50% |
| (b) | Bridge Works (Bridges and Culverts) | | 15% | |
| (i) | De-silting, cleaning, vegetation growth, damaged pitching, flooring, parapets, wearing course, footpaths, and any damage to | | | 35% |
| (ii) | Any Defects in superstructures, bearings, and substructures | | | 35% |

| S. No. | Item/Defect/Deficiency | Distribution Percentage | Breakup%-Level 1 | Breakup%-Level 2 |
|---|---|---|---|---|
| (iii) | Repair and/or replacement of railings, parapets, guideposts/crash barriers | | | 30% |
| (c) | Other Road Works (Road Furniture, Miscellaneous Items) | | 40% | |
| (i) | Cleaning, painting, replacement of road signs, delineators, road markings, kerbs | | | 25% |
| (ii) | Removal of dead animals, broken down/accidental vehicles, fallen trees, road blockades or malfunctioning of mobile cranes | | | 25% |
| (iii) | Maintenance of multi-purpose corridors, drainage, and protective Works | | | 25% |
| (v) | Defects in Other Project Facilities related to road works | | | 25% |

37.2.2 Percentage reductions for Storm Water Drain Works, Potable water supply network & elevated service reservoir Works, Recycled water supply network & elevated service reservoirs Works, Industrial Wastewater and Domestic Sewage Collection System Works.

| S. No. | Item | Percentage | Breakup % |
|---|---|---|---|
| 1 | Storm Water Drain Works (of the applicable Quarterly Maintenance amount) | 13% | |
| (i) | De-silting, Channel cleaning, and overflows in the surrounding areas | | 50% |
| (ii) | De-silting at outfall, outfall Maintenance & hygiene conditions | | 50% |
| 2 | Potable water supply network & elevated service reservoirs Works (of the applicable Quarterly Maintenance amount) | 3% | |
| (i) | Rising and distribution network repairs, valve, and flow meter repairs and calibrations, refilling of trenches | | 75% |
| (ii) | Elevated service reservoirs leakages, valves & flow meters repairs and calibrations | | 25% |
| 3 | Recycled water supply network & elevated service reservoirs Works (of the applicable Quarterly Maintenance amount) | 3% | |
| (i) | Rising and distribution network repairs, valve, and flow meter repairs and calibrations, refilling of trenches | | 75% |
| (ii) | Elevated service reservoirs leakages, valves & flow meters repairs and calibrations | | 25% |
| 4 | Industrial Wastewater and Domestic Sewage Collection System (of the applicable Quarterly Maintenance amount) | 5% | |

| S. No. | Item | Percentage | Breakup % |
|---|---|---|---|
| (i) | De-silting, overflows in surrounding areas, and manholes. | | 100% |

37.2.3 Percentage reductions for Power systems

| S. No. | Item | Percentage | Breakup% |
|---|---|---|---|
| 1 | Electrical Substations & Power Distribution Network | 20.5% | |
| (i) | Non-compliance with the power factor | | 50% |
| (ii) | Tripping of the Transformer/power failure for a continuous period of 2 hours | | 30% |
| (iii) | Cable faults not repaired within 24 hours | | 20% |

37.2.4 Percentage reductions for ICT systems

| S. No. | Item | Percentage | Breakup% |
|---|---|---|---|
| 1 | ICT systems | 2% | |
| (i) | Cable tray not repaired | | 20% |
| (ii) | Cross duct not repaired | | 10% |
| (iii) | SCADA feed not available at ICCC | | 40% |
| (iv) | Feeder Pillar not repaired within 2 hours | | 15% |
| (v) | Power supply in the POP room not restored within 30 minutes | | 15% |

37.2.5 Percentage reductions for Water Treatment Plant

| S. No. | Item | Percentage | Breakup% |
|---|---|---|---|
| 1 | Water Treatment Plant | 2.5% | |
| (i) | Requisite head for Raw Water not available for more than 2 hours | | 20% |
| (ii) | Power supply to WTP not restored within 2 hours | | 20% |
| (iii) | Pumps in WTP not repaired/replaced within 2 hours | | 30% |
| (iv) | Preventive maintenance as per the checklist delayed for more than 2 days | | 10% |
| (v) | Required manpower for WTP operations not available for more than 1 shift | | 20% |

37.2.6 Penalty due to Power Factor

In the event during operation in any operating month the Contractor maintains a power factor which is lower than a power factor of 0.95, penalty @ 1.25 times the penalty as charged by Maharashtra Electricity Board to the Employer during the said month shall be charged to the Contractor.

This shall be in addition to the above penalty as mentioned in Clause 37.2.3.

37.2.7 The amount to be deducted from Quarterly lump-sum payment for non-compliance of particular item mentioned in Clause 37.2.1 and 37.2.2 shall be calculated on a pro-rata basis for each of the above items as under

R = P/100 * Q*L1/L

Where

P= Percentage of particular item/non- non-compliance/Defect/deficiency for deduction.

For example, in Road Works, if a pothole is not repaired within 24 hours in one kilometre, the percentage of non-compliance item P is 70% x 20% = 14.0%

Q= Quarterly lump-sum payment for Maintenance in accordance with the Contract Agreement.

L1= Length of the entire road (as per road nomenclature) on which the non-complying item is located

L= Total length of the particular item

R= Reduction (the amount to be deducted for noncompliance for a particular item /Defect /deficiency

The total amount of reduction shall be arrived at by the summation of reductions for such items/ Defects/ deficiency, or noncompliance.

37.2.8 For any Defect in a part of one kilometre, the non-conforming length shall be taken as one kilometre.

## 37.3 Penalty for Non-Compliance with HSE Plan and Conditions

In the event of any failure by the Contractor to comply with the approved Health, Safety, and Environment (HSE) Plan or any HSE-related obligations stipulated in the Contract, the Employer reserves the right to impose penalties. Each instance of non-compliance shall attract a penalty of Rs 10,000/- per occurrence. Repeated or serious violations, including those that result in injury, environmental damage, or pose significant risk, may lead to suspension of work, withholding of payments, or termination of the Contract at the sole discretion of the Employer. The Contractor shall not be entitled to any extension of time or additional compensation arising from such enforcement actions.

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# 38 Schedule I: Selection of Employer's Engineer

## 38.1 Selection of Employer's Engineer

38.1.1 The provisions of the Model Request for Proposal for Selection of Technical Consultants, issued by the Ministry of Finance in May 2009, or any substitute thereof, shall apply for selection of an experienced firm to discharge the functions and duties of an Employer's Engineer. PMNC has been entrusted with the role of an independent employer's engineer.

38.1.2 In the event of the Termination of the Technical Consultants appointed in accordance with the provisions of Paragraph 38.1.1, the Employer shall appoint another firm of Technical Consultants forthwith and may engage a Government-owned entity in accordance with the provisions of Section 38.3 of this Schedule I.

## 38.2 Terms of Reference

The Terms of Reference for the Employer's Engineer (the "TOR") shall substantially conform to the conditions as below:

1) Scope

i. These Terms of Reference (the "TOR") for the Employer's Engineer are being specified pursuant to the EPC Agreement dated..... (the "Agreement), which has been entered into between the Maharashtra Industrial Township Limited (the "Employer") and …… (the "Contractor") for Design, Construction, Testing, Commissioning and Operation & Maintenance of Infrastructure Works at AURIC – Bidkin Industrial Area (BIA) Sector B & C under Delhi Mumbai Industrial Corridor (DMIC)"On EPC Basis" and a copy of which is annexed hereto and to form part of this TOR.

ii. The TOR shall apply to the design, Construction and Operation & Maintenance of the Project Roads and Services

2) Definitions and interpretation

i. The words and expressions beginning with or in capital letters and not defined herein but defined in the Agreement shall have, unless repugnant to the context, the meaning respectively assigned to them in the Agreement.

ii. References to Articles, Clauses and Schedules in this TOR shall, except where the context otherwise requires, be deemed to be references to the Articles, Clauses and Schedules of the Agreement, and references to Paragraphs shall be deemed to be references to Paragraphs of this TOR.

iii. The rules of interpretation stated in Clauses 1.2, 1.3 and 1.4 of the Agreement shall apply, mutatis mutandis, to this TOR.

3) General

i. The Employer's Engineer shall discharge its duties in a fair, impartial, and efficient manner, consistent with the highest standards of professional integrity and Good Industry Practice.

ii. The Employer's Engineer shall perform the duties and exercise the authority in accordance with the provisions of this Agreement, but subject to obtaining prior written approval of The Employer /PMC before determining:

a) Any Time extension.

b) Any additional cost to be paid by the Employer to the Contractor.

c) The Termination Payment.

iii. The Employer's Engineer shall submit regular periodic reports, at least once every month, to the Employer in respect of its duties and functions under this Agreement. Such reports shall be submitted by the Employer's Engineer within 10 (Ten) days of the beginning of every month.

iv. The Employer's Engineer shall inform the Contractor of any delegation of its duties and responsibilities to its suitably qualified and experienced personnel provided, however, that it shall not delegate the authority to refer any matter for the Employer's prior approval in accordance with the provisions of Clause 19.2.

v. The Employer's Engineer shall aid and advise the Employer on any proposal for Change of Scope under Section 14.

vi. In the event of any disagreement between the Parties regarding the meaning, scope, and nature of Good Industry Practice, as set forth in any provision of the Agreement, the Employer's Engineer shall specify such meaning, scope, and nature by issuing a reasoned written statement relying on good industry practice and authentic literature.

4) Construction Period

i. During the Construction Period, the Employer's Engineer shall review the Reports, Designs and Drawings furnished by the Contractor along with supporting data, including the geo-technical and hydrological investigations, characteristics of Materials from borrow areas and quarry sites, topographical surveys, and the recommendations of the Safety Consultant in accordance with the provisions of Clause 11.1.6. The Employer's Engineer shall complete such review and send its observations to the Employer and the Contractor within 21 (Twenty-one) days of receipt of such Reports, Designs and Drawings. In particular, such comments shall specify the conformity or otherwise of such Drawings with the Scope of the Project and Specifications and Standards.

ii. The Employer's Engineer shall review any revised Reports, Designs and Drawings sent to it by the Contractor and furnish its comments within 10 (Ten) days of receiving such Reports, Designs and Drawings.

iii. The Employer's Engineer shall review the (a) Quality Assurance Plan (b) Health, Safety and Environmental Management Plan submitted by the Contractor and shall convey its comments to the Contractor within a period of 21 (Twenty-one) days stating the modifications, if any, required thereto. The Employer's Engineer shall ensure the Contractor's Project Management requirements, BIM, and CAD requirements regularly on a monthly basis to the Employer.

iv. The Employer's Engineer shall complete the review of the methodology proposed to be adopted by the Contractor for executing the Works and convey its comments to the Contractor within a period of 21 (Twenty-one) days from the date of receipt of the proposed methodology from the Contractor.

v. The Employer's Engineer shall review the monthly progress report furnished by the Contractor and send its comments thereon to the Employer and the Contractor within 7

(Seven) days of receipt of such report.

vi. The Employer's Engineer shall inspect the Construction Works and the Project Roads and shall submit a monthly Inspection Report bringing out the results of inspections and the remedial action taken by the Contractor in respect of Defects or deficiencies. In particular, the Employer's Engineer shall include in its Inspection Report, the compliance of the recommendations made by the Safety Consultant.

vii. The Employer's Engineer shall conduct the pre-construction review of manufacturer's test reports and standard samples of manufactured Materials, and such other Materials as the Employer's Engineer may require.

viii. For determining that the Works conform to Specifications and Standards, the Employer's Engineer shall require the Contractor to carry out, or cause to be carried out, Tests at such time and frequency and in such manner as specified in the Agreement and in accordance with Good Industry Practice for quality assurance. For purposes of this Paragraph, the Tests specified in the relevant Codes or any modification/substitution thereof and standards for shall be deemed to be Tests conforming to Good Industry Practice for quality assurance.

ix. The Employer's Engineer shall test check at least 20 (Twenty) percent of the quantity or number of Tests prescribed for each category or type of test for quality control by the Contractor.

x. The timing of Tests referred to in bullet vii, and the criteria for acceptance/ rejection of their results shall be determined by the Employer's Engineer in accordance with the Quality Control Manuals and/or the relevant Codes and Standards. The Tests shall be undertaken on a random sample basis and shall be in addition to, and independent of, the Tests that may be carried out by the Contractor for its own quality assurance in accordance with Good Industry Practice.

xi. In the event that results of any Tests conducted under Clause 12.10 establish any Defects or deficiencies in the Works, the Employer's Engineer shall require the Contractor to carry out remedial measures.

xii. The Employer's Engineer may instruct the Contractor to execute any work which is urgently required for the safety of the Project Works, whether because of an accident, unforeseen event or otherwise; provided that incase of any work required on account of a Force Majeure Event, the provisions of Clause 22.6 shall apply.

xiii. In the event that the Contractor fails to achieve any of the Project Milestones, the Employer's Engineer shall undertake a review of the progress of Construction and identify potential delays, if any. If the Employer's Engineer shall determine that completion of the Project Works is not feasible within the time specified in the Agreement, it shall require the Contractor to indicate within 15 (Fifteen) days the steps proposed to be taken to expedite progress, and the period within which the Project Completion Date shall be achieved. Upon receipt of a report from the Contractor, the Employer's Engineer shall review the same and send its comments to the Employer and the Contractor forthwith.

xiv. The Employer's Engineer shall obtain from the Contractor two copies of all the Contractor's quality control records and documents before the Completion Certificate is issued pursuant to Clause 13.4.

xv. Employer's Engineer may recommend to the Employer Suspension of the whole or part of the Works if the work threatens the safety of the Users and pedestrians. After the Contractor has carried out remedial measure, the Employer's Engineer shall inspect such remedial measures forthwith and make a report to the Employer recommending whether or not the Suspension hereunder may be revoked.

xvi. In the event that the Contractor carries out any remedial measures to secure the safety of suspended Works and Users, and requires the Employer's Engineer to inspect such Works, the Employer's Engineer shall inspect the suspended Works within 3 (Three) business days of receiving such notice, and make a report to the Employer forthwith, recommending whether or not such Suspension may be revoked by the Employer.

xvii. The Employer's Engineer shall carry out, or cause to be carried out, all the Tests specified in Schedule-F and issue a Completion Certificate or Substantial Completion Certificate, as the case may be. For carrying out its functions under this Paragraph and all matters incidental thereto, the Employer's Engineer shall act under and in accordance with the provisions of Clause 13 and Schedule-F.

5) Operation and Maintenance Period

i. The Employer's Engineer shall aid and advise the Contractor in the preparation of its monthly Operation & Maintenance Programme and for this purpose carry out a joint monthly inspection with the Contractor.

ii. The Employer's Engineer shall undertake regular inspections, at least once every month, to evaluate compliance with the Operation & Maintenance Requirements and submit a Operation & Maintenance Inspection Report to the Employer and the Contractor.

iii. The Employer's Engineer shall specify the Tests, if any, that the Contractor shall carry out, or cause to be carried out, for the purpose of determining that the Project Works is in conformity with the Operation & Maintenance Requirements. It shall monitor and review the results of such Tests and the remedial measures, if any, taken by the Contractor in this behalf.

iv. In respect of any Defect or deficiency referred to in Schedule-Q Clause 47.3, the Employer's Engineer shall, in conformity with Good Industry Practice, specify the permissible limit of deviation or deterioration with reference to the Specifications and Standards and shall also specify the time limit for repair or rectification of any deviation or deterioration beyond the permissible limit.

v. The Employer's Engineer shall examine the request of the Contractor for closure of any lane(s)/utilities lines of the Project Roads and/or Services for undertaking Operation & Maintenance/repair thereof, and shall grant permission with such modifications, as it may deem necessary, within 5 (Five) days of receiving a request from the Contractor. Upon expiry of the permitted period of closure, the Employer's Engineer shall monitor the reopening of such lane(s), and in case of delay, determine the Damages payable by the Contractor to the Employer under Clause 15.5.

6) Determination of costs and time

i. The Employer's Engineer shall determine the costs, and/or their reasonableness, that are required to be determined by it under the Agreement.

ii. The Employer's Engineer shall determine the period of Time Extension that is required to be determined by it under the Agreement.

iii. The Employer's Engineer shall consult each Party in every case of determination in accordance with the provisions of Clause 19.5.

7) Payments

i. The Employer's Engineer shall withhold payments for the affected Works for which the Contractor fails to revise and resubmit the Drawings to the Employer's Engineer in accordance with the provisions of Clause 11.2.7(d).

ii. Employer's Engineer shall -

a) within 15 (Fifteen) days of receipt of the Stage Payment Statement from the Contractor pursuant to Clause 20.4, determine the amount due to the Contractor and recommend the release of the amount so determined as a stage payment, pending issue of the Interim Payment Certificate; and

b) within 15 (fifteen) days of the receipt of the Stage Payment Statement referred to in Clause 20.4, deliver to the Employer and the Contractor an Interim Payment Certificate certifying the amount due and payable to the Contractor, after adjustments in accordance with the provisions of Clause 20.10.

iii. The Employer's Engineer shall, within 15 (Fifteen) days of receipt of the Quarterly Operation & Maintenance Statement from the Contractor pursuant to Clause 20.6, verify the Contractor's statement and certify the amount to be paid to the Contractor in accordance with the provisions of the Agreement.

iv. The Employer's Engineer shall certify final payment within 30 (Thirty) days of the receipt of the final payment statement of Operation & Maintenance in accordance with the provisions of Clause 20.13.

8) Other duties and functions

The Employer's Engineer shall perform all other duties and functions as specified in the Agreement.

9) Miscellaneous

i. A copy of all communications, comments, instructions, Drawings or Documents sent by the Employer's Engineer to the Contractor pursuant to this TOR, and a copy of all the test results with comments of the Employer's Engineer thereon, shall be furnished by the Employer's Engineer to the Employer forthwith.

ii. The Employer's Engineer shall retain at least one copy each of all Drawings and Documents received by it, including 'As-Built' Drawings, and keep them in its safe custody.

iii. Within 30 (Thirty) days of the Project Completion Date for construction works, the Employer's Engineer shall obtain a complete set of as-built Drawings, in 5 (Five) hard copies and in micro film form or in such other medium as may be acceptable to the Employer , reflecting the Project ..... as actually designed, engineered and constructed, including an as-built survey illustrating the layout of the Project Works and setback lines, if any, of the buildings and Structures forming part of Project Facilities; and shall hand them

over to the Employer against receipt thereof.

iv. The Employer's Engineer, if called upon by the Employer or the Contractor or both, shall mediate and assist the Parties in arriving at an amicable settlement of any Dispute between the Parties.

v. The Employer's Engineer shall inform the Employer and the Contractor of any event of Contractor's Default within one week of its occurrence.

vi. The Employer's Engineer, if called upon by the Employer, shall attend the meetings on Project reviews, discussions to be held at the Employer's office with required reports and presentations.

## 38.3 Appointment of Government Entity as Employer's Engineer

Notwithstanding anything to the contrary contained in this Schedule, the Employer may in its discretion appoint a Government-owned entity as the Employer's Engineer; provided that such entity shall be a body corporate having as one of its primary functions the provision of consulting, advisory and supervisory services for engineering Projects; provided further that a Government-owned entity which is owned or controlled by the Employer shall not be eligible for appointment as Employer's Engineer.

# 39 Schedule J: Forms of Payment Statements

## 39.1 Stage Payment Statement for Works

The Stage Payment Statement for Works shall state:

a) The estimated amount for the Works executed in accordance with Clause 20.3.1 subsequent to the last claim; The payment for connection for all utilities, including water supply, industrial sewerage, domestic sewerage, recycled water supply, power distribution and storm water network shall be paid on actual number of connections, as executed.

b) Amounts reflecting adjustments in price for the aforesaid claim.

c) The estimated amount of each Change of Scope Order executed subsequent to the last claim.

d) Amounts reflecting adjustment in price, if any, for (c) above in accordance with the provisions of Clause 14.2.3 (a);

e) Total of (a), (b), (c) and (d) above.

f) Deductions:

i. Any amount to be deducted in accordance with the provisions of the Agreement except Taxes.

ii. Any amount towards deduction of Taxes; and

iii. Total of (i) and (ii) above.

g) Net claim: (e) – (f) (iii).

h) The amounts received by the Contractor up to the last claim:

i. For the Works executed (excluding Change of Scope orders);

ii. For Change of Scope Orders, and

iii. Any deductions

iv. Taxes deducted.

## 39.2 Quarterly Operation & Maintenance Payment Statement

The Quarterly Statement for Operation & Maintenance Payment shall state:

a) The Quarterly payment admissible in accordance with the provisions of the Agreement.

b) The deductions for Operation & Maintenance work not done.

c) Net payment for Operation & Maintenance due, (a) minus (b).

d) Amounts reflecting adjustments in price under Clause 15.1.1; and

e) Amount towards deduction of Taxes.

## 39.3 Contractor's claim for Damages

**Note:** The Contractor shall submit its claims in a form acceptable to the Employer/ Employer's Engineer.

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# 40 Schedule K: Insurance

## 40.1 Insurance during the Construction Period

40.1.1 The Contractor shall affect and maintain at its own cost, from the Appointed Date till the date of issue of the Project Completion cum Taking Over Certificate or last as specified, the following insurances shall be procured from the Directorate of Insurance, Government of Maharashtra for any loss or damage occurring on account of Non-Political Event of Force Majeure, malicious act, accidental damage, explosion, fire, and terrorism:

a) Insurance of Works, Plant and Materials and an additional sum of [15 (Fifteen)] per cent of such replacement cost to cover any additional costs of and incidental to the rectification of loss or damage including professional fees and the cost of demolishing and removing any part of the Works and of removing debris of whatsoever nature; and

b) Insurance for the Contractor's equipment and Documents brought onto the Site by the Contractor, for a sum sufficient to provide for their replacement at the Site.

c) The Contractor shall affect and maintain at its own cost, from the Appointed Date till the date of issue of the last Completion Certificate and during the full O&M period as per Contract Data Sheet from the issue of the completion certificate, the following insurances for any loss or damage occurring on account of Non-Political Event of Force Majeure, malicious act, accidental damage, explosion, fire, terrorism and War and Riots Protection Insurance.

d) The contractor shall maintain Third Party Motor Vehicle Liability Insurance for all the vehicles deployed on-site for the use of the Contractor/Employer/Employer's Engineer.

40.1.2 The insurance under Clause 40.1.1 (a) and (b) above shall cover the Employer and the Contractor against all loss or damage from whatsoever cause arising under Clause 40.1.1 other than risks which are not insurable at commercial terms.

40.1.3 "All risks of loss including theft of or damage to physical property and of personal injury and death which arise during and in consequence of the performance of the Contract other than the Exceptional Risks, are the responsibility of the Contractor. Any loss not insured or not recovered (including policy excesses etc.) from insurers shall be borne by the Contractor. All insurances shall be in the joint name of the contractor and the Employer (wherever applicable). The contract shall maintain a Contractors All Risk Policy (CAR) for the entire duration of the contract including the O&M period for the entire facility". The Contractor shall also take additional covers (Add-On covers) insurance like Third Party Liability, surrounding properties, Clearance and Removal of debris, Cross Liability, Express Freight, Extended Maintenance Cover up to Final Takeover, etc. The sum insured for such Add-On covers shall be decided by the Contractor based on his assessment and the risk involved in the contract. Risks to be covered by insurance shall not be limited merely to the items mentioned above. The Contractor shall arrange for insurance of any other risks he may deem prudent, but the expenses thereof shall be to the account of the contractor only. If necessary, Plant and Machinery, Transit, and storage (all risks) insurance coverage for additional transit involved for sending equipment/material to the Subcontractor/Fabricator's shop for fabrication/ reprocessing and receiving back at the site

shall be taken.

## 40.2 Insurance for Contractor's Defect Liability

40.2.1 The Contractor shall affect and maintain Insurance Cover for the Works from the date of issue of the Completion Certificate for construction works until the end of the Defect Liability Period or O&M period whichever is greater for any loss or damage for which the Contractor is liable and arises from a cause occurring prior to the issue of Project Completion cum taking Over Certificate. The Contractor shall maintain an insurance of value not less than 25% of the Contract Value for the entire period of the Defect Liability Period or O&M.

## 40.3 Insurance against injury to persons and damage to property

40.3.1 The Contractor shall insure against each Party's liability for any loss, damage, death or bodily injury which may occur to any physical property (except things insured under Paragraph 1 and 2 of this Schedule or to any person (except persons insured under Clause 21.9), which may arise out of the Contractor's performance of this Agreement and occurring before the issue of the Performance Certificate. This insurance shall be for a limit per occurrence of not less than the amount stated below with no limit on the number of occurrences. The Insurance Cover shall be not less than: Rs. 20 Lakhs.

40.3.2 The insurance shall be extended to cover liability for all loss and damage to the Employer's property arising out of the Contractor's performance of this Agreement excluding:

a) the Employer's right to have the Construction Works executed on, over, under, in or through any land, and to occupy this land for the Works; and

b) Damage which is and unavoidable result of the Contractor's obligations to execute the Works.

## 40.4 Insurance to be in joint names.

The insurance under this Section 40 shall be in the joint names of the Contractor and the Employer (wherever applicable).

# 41 Schedule L: BIM and CAD Requirements

## 41.1 General

### 41.1.1 Purpose

1) The purpose of the 3D Building Information Modelling (BIM) requirements describes the use of computer-aided design (CAD), geographical information systems (GIS) and building information modelling (BIM) for the work under the Contract.

2) These requirements shall be used as a reference for the Design & Build Contractor to develop a component-wise BIM Execution Plan (BEP).

3) BEPs shall establish the methodology for managing the production, distribution and quality of the design information generated by CAD, GIS, and BIM systems, using a disciplined process for collaboration and a specified file and model naming policy.

### 41.1.2 Scope

1) The Employer mandates the use of an advanced computer-based dynamic 3D BIM-model-driven approach for the detailed planning, design, engineering, Construction, and operation of the BIA to allow simulation, visualisation and engineering analysis of all transportation, utility, building, civil works, and geospatial infrastructures.

2) This includes an aggregate dynamic coordinated 3D Building Information Model (BIM) for the city infrastructure systems with 3D building models. The 3D model shall include 3D models for roads and underground utilities including electrical ducts, electrical and ICT cables, potable water and recycle water lines, gas lines, ROW components, property connections for each utility, culverts, stormwater drains, sewers etc and above ground utility systems including substation, RMUs, CSS, electrical poles, ICT equipment, service reservoirs, pumping stations, outfalls, bridges, retaining walls etc.

3) 3D BIM modelling tools for infrastructure shall be used to develop and produce project models and simulations (e.g. in case of natural calamity etc.) as required for submittals.

4) The 3D BIM infrastructure Information Models are to be used throughout the design, construction, and operational life cycle of the asset, including but not limited to system collision detections, Materials quantification, construction sequencing and carbon impact analysis.

5) 3D BIM Model use shall be maximized for Project reviews, decision support, design analysis, and quality assurance during all phases of this program. Development of 3D BIM Model should be simultaneous to design. The final design and 3D BIM Model should be submitted together always.

6) The Contractor shall provide a minimum of one separate handheld electronic tablet of a minimum of 12 inches in size for the Contractor's utility engineer and Employer's engineer as required for seamless execution and monitoring. The electronic tablet shall have adequate hardware and software configuration for displaying the BIM model during the site visit using the applicable viewer software. The electronic tablet shall be of reputed make such as Apple, Samsung as approved by Employer's Engineer.

41.1.3 The Contractor shall design the BIM workflow with constructional logic, fabrication and

program as required by the Employer's Engineer. Engagement modalities for project management functions including 4D/5D BIM requirements, are as below:

1) The Contractor shall allocate a Project Coordinator who would be a single point of contact for the Employer's Engineer or his representative for monitoring and resolving concerns of the Client for the day-to-day progression of the project.

2) Ensure that the BIM model follows guidelines mentioned in the BIM Execution Plan (BEP) for smooth implementation and execution and that the quality of the BIM Model is up to the mark by checking the attributes, clashes etc. and providing a platform of BCF for communication between the project stakeholders.

3) The BIM platform should allow the federation of BIM models from multiple sources and support colour-coding features on the BIM Model as per the conditions to evaluate.

4) The Contractor shall create a Work Breakdown Structure (WBS) for its scope of work in the master project plan schedule period of completion for the project. A colour-coded view of the scheduled activities also shall be presented as per the conditions for evaluation.

5) The Contractor shall create all the relationships between various activities to generate the Model-based critical path for the execution of the project within the stipulated time frame. This must be integrated with the BIM model for 4D/5D BIM.

6) The Contractor must adopt an organized approach to divide the project into work packages and work locations. Location-based planning and management shall ensure that trade crews flow smoothly from prerequisite to successor tasks without interference and quantities by location for scheduling and procurement. Should submit the Line of Balance chart along with the Gannt charts for review.

7) The contractor shall add attributes to the BIM model as and when needed during the construction phase as per the project requirements and submit for review on the BIM model.

8) Ensure that the BIM model is accurate enough so that it can be used for quantification and scheduling purposes.

9) The Contractor shall develop a Baseline Construction Schedule along with resources (material, manpower & machinery) integrated with the BIM model for 4D simulation.

10) The contractor must present schedule comparison reports (eg; baseline vs actual) for review. Contractor shall monitor and report the progress on the BIM model using the handheld device at the site for reporting progress on the BIM model in real time.

11) Delay analysis based on baseline vs actual schedule shall be represented on the BIM model. Color-coded element breakdowns must be presented for visual analysis.

12) BIM model-based monthly task look-ahead, contractor look-ahead, and critical path analysis shall be submitted for visual review along with the schedule reports.

13) 3D/4D/5D BIM workflows should be carried out following integrated OpenBIM work flow and solution like BEXEL Manager, Tilos, Primavera, MS Project should be used and integrated.

14) The Contractor shall be required to furnish key budget/ planned milestone billing details along with resources (manpower & machinery) planned to be deployed to the baseline program & being deployed on the project site from time to time 5D BIM.

15) Contractor shall submit Billing Quantities from the developed BIM model updated as per actual execution along with the invoice.

16) Contractor shall update in required frequencies the measurements or percentages of the work, works milestone status, any deviations in the quality or quantity (which will impact the bill book) and geo-located snapshot pictures of the actual construction progress and these documents must be uploaded to the respective elements in the BIM model.

17) The Contractor shall update and revise their works schedule on the integrated master schedule, subject to directions & approval from the Employer's Engineer. Also, the BIM model along with the updated progress and quantity reports should be submitted along with every RA Bill submission.

18) Should ensure that integration of BIM with other systems must be facilitated depending on the Employer's requirements if required.

19) The contractor should also do a digital handover of the project, ensuring all the documents such as equipment warranty, guarantees, quality documents, inspection documents, specifications, etc. are attached to the BIM Model at the elemental level.

20) The schedule data (baseline start, baseline finish, actual start, actual finish etc), quantity data, and cost data (Man, Material, Machinery) data must be available in the BIM model at the elemental level on digital handover.

21) Contractor should have an integrated open BIM Management platform instead of using multiple silo applications for delivering projects on BIM

22) Contractor should link FM plans and entries for BIM elements. Also, manage FM contracts, activities and entries by adding information of Assignments, calendars, costs, FM plan range, recurrence patterns.

23) Contractors should send notifications for FM plans and link FM contracts, plans and entries to Documents management system.

## 41.2 BIM Modelling

41.2.1 Design Authoring Requirements

i. Model Accuracy and Tolerances: Models will include all appropriate dimensioning as needed for design intent and assessment with the Level of Detail (LoD) and included model elements as approved by Employer's Engineer.

ii. Modelling Units: The following units shall be used for developing modelling content. The relevant scale factors and adjustments shall be incorporated when federating models with dissimilar units:

## 41.3 BIM Functionalities

The contractor shall propose the BIM Execution Plan incorporating the below-mentioned functionalities for 4D/5D BIM Project management and Digital handover for review and approval by the Employer's Engineer.

| Sl | Description |
|---|---|
| 1 | Interoperability (Share, exchange, gather, and process the same data in different environments) |

| Sl | Description |
|---|---|
| | IFC file format supported (import, export and update IFC 2x3, IFC 4) &Bx3<br>IFC MVD import/export for Quantity take off and Schedule<br>Sub-model IFC export by various rules<br>Export custom properties to IFC<br>BCF support<br>IDS support<br>bSDD service support<br>Power BI integration (Reporting with BEXEL Viewer visuals)<br>Collaboration management system<br>Custom integration with ERP and other systems<br>Custom database integration<br>Support for a custom classification system<br>Cobie support<br>API and Add-in system<br>Federated BIM models from multiple sources<br>Custom report templates<br>Knowledge base templates<br>Access to advanced tutorials, free cost databases and demo models in different languages<br>Autodesk Revit integration<br>Autodesk Navisworks integration<br>Export attribute sets back to authoring tools<br>Unreal schedule exporter |
| 2 | Visualization (A dynamic and immersive experience for exploring and understanding complex project details with clarity and precision.)<br>Real-time model navigation<br>Walk-mode<br>Google Map integration<br>Scenes and animations<br>Level map<br>Textures and mapping<br>Measure distance tool |
| 3 | Model DATA Management (Systematically identify and address any inconsistencies to ensure a well-planned and controlled design process)<br>Advanced data and meta-data management<br>Automated data enrichment<br>Property checker (IDS support)<br>Colour coded element breakdowns<br>Advanced element search and filtering<br>Auto distribute elements<br>Selection sets management<br>Smart selection set<br>Advanced reporting engine |
| 4 | Clash detection<br>Clash detection and interference checking<br>Containment analysis and relation enrichment<br>Single or multiple clash grouping<br>Import and set custom clash matrix and rules<br>Clash detection reports |

| Sl | Description |
|---|---|
| | Export reports to xlsx/pdf/html/pbix<br>Create, import and export BCF issues |
| 5 | Quantity take-off<br>(Smart BIM-based QTO creation with automatic assignment of cost items and unit costs to model elements according to the specified rules.)<br>Rapid model-based QTO<br>Manage, generate and export custom QTO<br>Instantly create BIM-based visual QTO reports<br>Area Analysis |
| 6 | Document management (Integrated as-built project documentation provides a comprehensive overview of the project, preparing it for the Facility management phase.)<br>Intelligent Document linking<br>Link to BIM elements or group of elements<br>Version control and document history<br>Document management<br>Add, replace, update, delete, search, preview, and download documents<br>Organize documents by folder and subfolder structure<br>Filter Documents by element selection<br>Manage access rights on documents, folders and subfolders<br>Document linking |
| 7 | Scheduling and planning (Use the advantages of software automation with a fully integrated intelligent planning process)<br>Construction methodologies<br>Intelligent LOB and flowline scheduling<br>Smart automated scheduling<br>Critical path method (CPM) and analysis (CPA)<br>Smart mapping of model elements to schedule task<br>Import/export schedules from various sources (e.g. Primavera, Microsoft Project)<br>Gantt export to .pdf and .xlsx<br>Schedule colouring by various rules<br>Schedule Comparison |
| 8 | Construction simulation (Visualize construction schedule for clear and detailed project insights)<br>Create and export 4D simulation<br>Real-time construction simulation review<br>Custom colour schemes for elements, tasks and resources<br>Animation management (e.g. camera path, time interval, frame rate)<br>Schedule task categorization (demolition/temporary/construction/neutral) |
| 9 | Schedule optimization (Fine-tune your construction schedule to achieve optimal results)<br>Advanced analysis & optimization<br>Resource allocation and levelling<br>LOB and flowline analysis<br>Smart task duration adjustment |
| 10 | BIM Based Cost estimation (Effective BIM cost management provides a comprehensive understanding of project costs, empowering project teams to make informed decisions and optimize project outcomes)<br>Automated cost database creation<br>Automated cost data mapping<br>Create and export detailed budgets |

| Sl | Description |
|---|---|
| | Create and export cost and resource database<br>Integration of custom cost database<br>Company cost databases<br>Smart rules of measurement enrichment<br>Custom Cost Properties<br>Variable costs properties<br>Group cost classification by various rules<br>Preparation of tendering packages<br>Non-BIM cost items integration |
| 11 | 5D Project planning (By integrating time and cost information, visualising the construction sequence, optimising resource allocation and identifying impacts on the total project cost)<br>Smart linking of model elements to cost items<br>Element-based cost analysis<br>Budgeting and Bill of quantities<br>Smart automated 5D scheduling<br>Productivity rates and resource planning<br>Critical path method (CPM) and analysis (CPA)<br>Import/export schedules from various sources (e.g. Primavera, Microsoft Project)<br>Gantt export to .pdf and .xlsx<br>5D Schedule colouring by various rules<br>5D Schedule comparison |
| 12 | 5D construction simulation (A comprehensive visual view, including both time and cost data, clearly visualizes how design and schedule decisions impact the overall project cost)<br>Real-time construction simulation review<br>Custom colour schemes for elements, tasks and resources<br>Animation management (e.g. camera path, time interval, frame rate)<br>5D Schedule task categorization (demolition/temporary/construction/neutral) |
| 13 | Progress monitoring (A clear overview of the 4D/5D schedule, possible delays and cash flows during the project implementation ensures proactive decision-making and effective management)<br>BCF/ CDE progress entry<br>Selection sets progress entry<br>Traditional quantity-based and element-based progress entry<br>Import progress entry<br>Automated schedule update according to progress input<br>Look-ahead plans creation and analysis<br>Monitor construction progress<br>Resource monitoring<br>Customizable monthly payment certificate |
| 14 | Integrated Reporting with Analytical platform like BEXEL Viewer or equivalent<br>Detailed cost and schedule reports<br>What-If analysis<br>Planned vs actual analysis<br>Earned value analysis<br>Cash-flow monitoring<br>Work breakdown structure reporting<br>Executive reporting<br>KPI tracking<br>Look-ahead analysis |

| Sl | Description |
|---|---|
| | Resource monitoring<br>Schedule Comparison<br>Cost Comparison<br>Connect Data |
| 15 | AI Assistant<br>Implementation of the AI Assistant empowers users with intelligent support throughout their BIM projects. Users should be able to use natural language prompts in the English language. |
| 16 | BCF Server<br>Document Approval workflow<br>Real-time communication through Chat like interface<br>Add users as read-only observers, allowing them to comment but not modify issues or document approval<br>Receive email notifications for every change sent to relevant Users<br>Organize your issue repository with custom tags, defined by the administrator for any project stage or issue type<br>Filter your issues by Type, Priority, Status, Deadline, Responsible Person or Pre- or Custom-defined Tag<br>BCF clients for BEXEL Manager, Revit, Navisworks, ArchiCAD, and Civil 3D |

## 41.4 Recommended Software Requirement (OpenBIM):

The following software shall be based on the latest available operating system

| Function | Software | Version |
|---|---|---|
| x 3D BIM Modelling (for infrastructure) | Autodesk Civil 3D | Latest Compatible Version |
| | Bentley MX Road/ In Roads | Latest Compatible Version |
| x 3D Rail Infrastructure Modelling | Bentley Rail Track | Latest Compatible Version |
| x 3D BIM modelling for Buildings | Autodesk Revit | Latest Compatible Version |
| | AECOsim Building Designer | Latest Compatible Version |
| x Project Review and coordination 5D Schedule Simulation | Autodesk Navis Works Manage/BEXEL Build Collection/Equivalent | Latest Compatible Version |
| | Bentley Navigator | Latest Compatible Version |
| x 3D BIM and GIS integration/ coordination | Autodesk Infra Works | Latest Compatible Version |
| | Bentley Micro Station | Latest Compatible Version |
| Clash Detection | BEXEL Build Collection/Navisworks/Equivalent | Latest Compatible Version |
| Water Network Modelling | Bentley Water GEMS | Latest Compatible Version |
| Sewer Network Modelling | Bentley Sewer GEMS | Latest Compatible Version |

| Function | Software | Version |
|---|---|---|
| Storm Network Modelling | Bentley Sewer GEMS/ Storm CAD | Latest Compatible Version |
| Structural Analysis | STAAD Pro | Latest Compatible Version |
| Drafting | AutoCAD | Latest Compatible Version |
| GIS | Bentley Micro Station | Latest Compatible Version |
| | ArcMap | Latest Compatible Version |
| Publishing Publish read only single file containing graphical and non-graphical attribute information for multi discipline BIM models | I model Plug-in's.<br>For Revit<br>For Adobe (Reader) | Latest Compatible Version |
| 3D/2D Models, Drawings and Maps | Autodesk DWG True View | Latest Compatible Version |
| Office | Microsoft Office and PowerBI | Latest Compatible Version |
| Construction Management 4D BIM | BEXEL Build Collection/ Equivalent | Latest Compatible Version |
| Construction simulation | BEXEL Build Collection/ Equivalent | Latest Compatible Version |
| 3D BIM Model Auditing | BEXEL Build Collection/ Equivalent | Latest Compatible Version |
| Location-based planning | BEXEL Build Collection/ Equivalent | Latest Compatible Version |
| 4D BIM modelling | BEXEL Build Collection/ Equivalent | Latest Compatible Version |
| 5D modelling at the elemental level | BEXEL Build Collection | Latest Compatible Version |
| Generate BIM-based look-ahead plan | BEXEL Build Collection/ Equivalent | Latest Compatible Version |
| Progress Monitoring | BEXEL Build Collection/ Equivalent | Latest Compatible Version |
| Planned Vs Actual | BEXEL Build Collection/ Equivalent | Latest Compatible Version |
| BIM-Based Document Management | BEXEL Build Collection/ Equivalent | Latest Compatible Version |

# 42 Schedule M: Guideline for Health, Safety and Environment Plan

The Contractor shall provide General and Administrative HSE Procedures that will engage the welfare of labour, staff and others abiding by the rules and regulations and provide records to the Employer's Engineer.

## 42.1 Environmental Conditions

42.1.1 Climatic Conditions

The following typical climatic conditions prevail in the area of the works.

a) Peak ambient temperature - 50°C

b) Minimum ambient temperature - 4°C

c) Average Relative humidity - 99.6%

d) Special hazards include thunderstorms.

## 42.2 Health and Safety Conditions

42.2.1.1 Health and Safety Plan Submission

Within 21 days of the Appointed date, the Contractor shall submit a Health and Safety Plan. The Health and Safety Plan shall contain, but not be limited to:

a) Construction risk assessment and control measures.

b) Organization and management arrangements for the implementation of the plan

c) Safety procedures and emergency response protocols

d) Hazard communication program

e) PPE compliance

f) Training and induction programs

g) Occupational health monitoring and safety audit schedules.

h) Lifting schedule and lifting equipment certification.

i) Scaffolding and temporary access controls.

j) Provisions for First Aid, Welfare and Fire Fighting.

k) Temporary Power Supplies.

l) Access Control.

The Health and Safety Plan shall be updated as appropriate throughout the duration of the Contract. The Contractor is responsible for strict implementation of the approved HSE Plan throughout the duration of the project.

42.2.1.2 HSE Manager

The Contractor shall appoint a competent HSE Manager (should have a minimum 5 years of experience in similar kinds of work and should have a relevant degree or diploma in construction safety) and shall take all reasonable precautions to prevent accidents to the Contractor's workforce and to the public by providing, inter alia, proper ladders for access,

adequate temporary covers to manholes, fencing around excavations, hard hats for use in designated areas and notices clearly indicating "hard hat" areas, warning lights and general illumination of hazardous areas.

42.2.1.3 Cease Works

In the event that the Contractor's safety arrangements and precautions are not to the satisfaction of the Employer's Engineer, he shall be instructed to cease work on the Works or a particular section of the Works until such time as he improves such arrangements and precautions to satisfy the Employer's Engineer.

42.2.1.4 Work near Live Sewers

Care must be exercised when working in or near live sewers, and tests must be made to verify that no low oxygen atmospheres, hydrogen sulphide or other poisonous gases are present before anyone enters an existing manhole or confined space.

Particular attention is drawn to the dangers of poisoning, asphyxiation or explosion while working in or near, or inspecting, sewers, manholes, chambers, treatment units, pumping stations or any confined space. In this connection, the Contractor shall obtain appropriate safety equipment and acquaint all personnel with the dangers involved and precautions to be taken and shall regularly discuss with the Employer's Engineer's Representative the sufficiency of safety precautions on the site.

42.2.1.5 Safety of the Public

The need for adequate protection for the general public in the vicinity of all excavations and other potentially dangerous areas of the Works is stressed.

42.2.1.6 First-Aid

The Contractor shall arrange for the treatment of casualties on the Site in first aid units and for the removal by ambulance of injured or sick employees to hospitals or to their homes.

42.2.1.7 First-aid boxes

The Contractor shall ensure that at a construction site, one First-aid box for 100 workers is provided and maintained for providing First-aid to the building workers. Every First-aid box is distinctly marked "First-aid" and is equipped with the articles specified in Schedule III of BOCWR.

42.2.1.8 Occupational Health Centre

The Contractor shall ensure that at a construction site that an occupational health centre, mobile or static, is provided and maintained in good order. Services and facilities shall be provided as per the scale laid down in Schedule X of BOCWR. A construction medical officer appointed in an occupational health centre will possess the qualification as laid down in Schedule XI of BOCWR.

42.2.1.9 Ambulance van

The Contractor shall ensure at a construction site of a building or other construction work that an ambulance van and room are provided at such construction site or an arrangement is made with a nearby hospital for providing such ambulance van for transportation of serious cases of accident or sickness of workers to hospital promptly and such ambulance van and room are

maintained in good repair and is equipped with standard facilities specified in Schedule IV and Schedule V of BOCWR.

42.2.1.10 Fire Protection

The Contractor shall construct, equip and administer at his cost fire points in such positions and of such size as will provide an adequate service for the protection against fire on the Site. He shall install and maintain a proper warning system to ensure that firefighting equipment can be concentrated on fire before it has had time to spread.

42.2.1.11 Motivational Program an Award To Employees/ Labors/ Sub contractors

The Contractor should arrange motivational Program at site in which HSE in charge along with his counterparts and project in charge should motivate and encourage the labors for good safety practices at site and recognize them by providing gifts/ safety badges and certificates. The best safety person should come from labors, staffs and subcontractors. It should be done monthly during Monthly HSE committee meeting.

42.2.1.12 Monthly Safety Committee Meeting

The Contractor shall form a safety committee with Project In charge being the Head of the committee. The committee should call a monthly meeting and include representatives from Client, Contractor and Subcontractor to discuss on the safety issues pertaining to the site with sole objective and intent to keep site safe from any kind of expected or unaccepted hazards, The MOM shall be recorded and kept and shared among all.

42.2.1.13 Safety Trainings

The HSE In charge must regularly conduct safety trainings among the workers and staffs to impart site practical knowledge and threats associated with specific tasks like height work, electrical work, Mechanical lifting work, Hot work etc. in order to mitigate the risk due to any accident which can happen due to lack of knowledge. The trainings should also discuss industry safety standards and root cause analysis or case studies of previous incidents.

42.2.1.14 Assembly Point

The contractor shall allocate and declare one specific area as an “Assembly Point” where in case of emergency the workers and staffs should gather.

42.2.1.15 Safety Mock Drills

The Contractor should conduct mock drills at site among the workers and staffs to know how to response in case of emergencies like fire, earthquake, electrical shocks etc.

42.2.1.16 Celebration of Key Days

The Contractor shall actively participate in and facilitate the celebration of national and international safety and awareness events at the project site. This includes but is not limited to:

National Safety Week

Road Safety Week

Electrical Safety Week

Fire Safety Week

Earth Day

World Environment Day

World Water Day

World No Tobacco Day

World AIDS Day

42.2.1.17 Tool Box Talk (TBT)

As per the standard site HSE practice, The Contractor's HSE In charge shall ensure that the job specific TBT is given to the worker daily at site before commencing the work and proper documentation is maintained for better record.

42.2.1.18 Safety Induction of New Labourers and Staffs

The Contractor shall ensure that all new workers/labors staffs and visitors whether unskilled, skilled or semi-skilled must go through the safety induction before visiting the site.

42.2.1.19 Screening of Labours

The HSE in charge in coordination with the respective department must ensure the screening of labourers before assigning the site specific task to check and ensure the competency of the person to avoid any risk of mishap at the time of job due to lack of experience or work competency.

42.2.1.20 Third Party Inspection

The Contractor shall ensure that third party inspection (TPI) is carried out for any large equipment's and their parts to ensure their workability like sling, ropes, crane, batching plants etc.

42.2.1.21 Tie up with local hospital and ambulances.

The Contractor shall arrange and maintain tie-ups with the nearest fully equipped hospital for emergency medical services during the construction period.

A minimum of one ambulance (with stretcher and basic life support equipment) shall be stationed at site or made available within a 15-minute response time throughout working hours.

Contact details of the hospital and ambulance service shall be visibly displayed at the site and communicated to all workers and staff.

A basic first-aid center must be established at the site with trained first-aiders available at all times

42.2.1.22 Hazardous Waste Management

The Contractor shall be fully responsible for the identification, handling, segregation, storage, transportation, and disposal of hazardous waste generated at the site, in full compliance with applicable local, state, and national environmental regulations.

A detailed Hazardous Waste Management Plan shall be submitted and approved prior to commencement of works.

All hazardous materials shall be clearly labeled and stored in designated, ventilated, and secure areas.

Contractor shall maintain a log of all hazardous waste generated and disposed, including manifest copies of disposal by authorized vendors.

All personnel involved in handling hazardous materials shall be trained and provided with proper PPE.

## 42.3 HSE Plan Requirements

The Contractor shall prepare specific HSE plans based on the specific Construction procedures to be adopted specifically for this Project to address complexity, safety, and welfare of labor/staff/equipment as per the details given below.

a) HSE Standards

1 The contractor shall ensure that all personnel engaged (including sub-contractors) with the project shall be conversant with and at all times comply with the HSE standards for the project. The HSE standards for the project shall include the relevant Contract Documents; India HSE legislation, Relevant IS standards (Bureau of Indian Standards) & Project HSE documents (prepared by Safety Consultant of contractor approved by Employer's Engineer.).

b) Legislation

1 For the purposes of the project, relevant Indian HSE legislations shall apply to the project as dictated by the various Ministries, including but not least – the Ministry of Labour & Employment, Department of Labour – Government of Maharashtra; the Ministry of Environment, Forest, and Climate Change. Contractor shall develop a thorough understanding of the Building and Other Construction Workers (Regulation of Employment and Conditions of Service) Act 1996, Central Rules 1998, Maharashtra Govt. Rules, Building and Other Construction Workers' Welfare Cess Act, 1996 and Central Rules, 1998 and Maharashtra Building Construction Workers' Welfare Board Rules and Environmental Protection Act 1986 and Rules 1986 not only to satisfy the Inspectors' perspective but the use of legislation as the strong tool for effective HSE management at construction worksites. Contractor is strongly advised to practice the principle of voluntary compliance.

c) HSE Management System

1 The contractor shall ensure that they will have an HSE policy and an HSE Management system (including safe work procedures) that is documented, visibly endorsed by the company's top management, and implemented & maintained at the project. The contractor shall ensure that the safe working procedures meet the requirements of the relevant IS standards and are relevant to the works being undertaken by the contractor.

2 The contractor shall also ensure that the scope of their HSE Management system (including safe work procedures) shall cover not only all areas & tasks being undertaken by the contractor on the project but also cover the areas & tasks being undertaken by any of their sub-contractor, interfaces with the Employer's Engineer & Employer.

3 Any omissions, inconsistencies and errors in the OH&S and Environmental Plan or the Employer's acceptance or rejection of the OH&S and Environmental Plan and/or

supplements thereto shall be without prejudice to the Contractor's obligations with respect to site safety, industrial health and environment and shall not excuse any failure by the contractor to adopt proper and recognized safety practices throughout the execution of the Work

d) HSE Risk Management

1 The contractor shall ensure that they employ best practice methods and meet all legal requirements in identifying, assessing, and controlling HSE hazards. They shall document these methods and the outcomes.

e) Hazard identification and control

1 The contractor shall identify hazards and their control measures through a formal hazard identification process. The contractor shall also ensure that they have a written safe work procedure for all the works to be undertaken on the project. Any works that do not have a written work procedure shall have a detailed method statement & job safety analysis (JSA)/risk assessment in place. No work shall be undertaken without an approved method statement & risk assessment in place.

2 The contractor shall submit written summaries of upcoming work (Two week look ahead) tasks and associated risk control measures to the Employer’s Engineer to discuss the risks of upcoming work tasks and the planned mitigation measures in the weekly progress/HSE meetings.

f) HSE Enforcement

1 The Employer’s Engineer or its representatives shall have the right at any time to audit or inspect Contractor facilities, procedures, and safety management systems. The Contractor shall fully co-operate in such reviews and shall implement recommendations at its own cost where Project HSE Standards or statutory rules and regulations are contravened. Contractor shall ensure the timely closing out of issues raised via these HSE assessments.

2 The Employer’s Engineer will bring to the attention of Contractor any situation where the Employer’s Engineer observes, or is informed of, a contravention of the HSE rules and procedures or unsafe acts; or a situation where those contraventions or unsafe acts identified are not considered likely to present an immediate risk, but are likely to lead to injury, ill health, or damage to the environment.

3 If the Employer’s Engineer observes, or is informed of, a contravention of the safety rules and procedures or unsafe acts, and if those contraventions or unsafe acts identified are considered likely to present an immediate risk to personnel, then they shall have the authority to stop such work until remedial actions have been addressed to prevent such unsafe acts from recurring.

4 If contraventions or unsafe acts persist or present an imminent risk of serious injury or ill health to the persons involved, Employer’s Engineer will have the right to stop work being performed and to order a suspension of the execution of any new work in that part or parts of the Works affected by Contractor’s HSE violation or negligence.

5 Suspension of work shall be measured from the date of issue of an instruction from Employer’s Engineer to Contractor to suspend work on that particular part of the Works until

the unacceptable safety violation has been fully rectified. In such an instance, Contractor shall have no right to claim for any extension of time or to claim for compensation for the suspension of the work or for the waiving of the liquidated damages.

6 Contractor shall not resume provision of the Works affected until the Employer's Engineer is satisfied that the non-compliance has been rectified.

7 In addition to enforcement requirements stated in HSE legislations, Contract Requirements and Project HSE standards, the Employer's Engineer may require the removal any person from the site, who in the opinion of Employer's Engineer, fails to observe HSE procedures. That person shall not be employed again on the project or any of the sites without the written approval of the Employer's Engineer.

8 The Contractor shall be responsible for enforcing the Site HSE Rules and Regulations upon its Subcontractors and all other persons entitled to be on any work sites.

g) Environmental Management

1 The contractor shall specify in their HSE plan measures applied to avoid harm to the environment. These measures shall meet the requirements of the HSE standards as described in the document.

h) HSE Personnel

1 The contractor shall ensure that an adequate number of HSE personnel are appointed on the project. No HSE personnel on the project shall be appointed without prior written permission from the Employer's Engineer. The Contractor shall ensure that all HSE personnel meet the requirements as indicated in the project HSE standards.

2 The name, address, educational qualification, work experience and health condition of each personnel deployed for HSE role shall be submitted to the Employer in the format prescribed for the purpose for comments and approval well before the start of the work. These personnel shall be authorised to work only upon approval from Employer's Engineer.

3 In case any of the HSE personnel leaves the Contractor the same shall be intimated to the Employer. The Contractor shall recruit new personnel and fill up the vacancy within 60 days.

4 It shall be the responsibility of the Contractor/ lead JV member to provide required HSE manpower for all the works executed by the JV members/sub-contractors. Necessary conditions shall be included in all sub-contract documents executed by the main Contractor.

i) Competence and Training

1 The contractor shall ensure that that all personnel are competent, capable and qualified to a level that allows them to work without creating unnecessary risk for themselves and others. All personnel shall have and maintain the necessary HSE competencies to perform work on the project to the required HSE standards.

2 The contractor shall ensure that all supervisory personnel have formal training in supervisory activities and specialist HSE training to conduct their duties.

3 The contractor shall ensure that a project HSE training matrix is produced. The training matrix shall include the various positions on the project and detail the HSE training that is required for each position.

4 The refresher-training programme including HSE induction to all employees shall be conducted once in twelve months

j) HSE Orientation Training

1 The Contractor shall ensure that all personnel working at the project receive an induction HSE training explaining the nature of the work, the hazards that may be encountered during the site work and the particular hazards attached to their own function within the operation on the first day of work on the project. The training shall cover the contents as detailed within the Project HSE standards.

2 The contractor shall ensure that any new personnel are informed in an equal manner.

k) ID card & Booklet

1 The contractor shall ensure that all personnel working on the project (including sub-contractors) be issued with a photo identity card duly signed by the authorized representative of the contractor before they are engaged for any work.

2 The contractor shall also issue a personal HSE handbook in a language known to the workers, which provides information on HSE and emergency procedures that all working personnel are required to know and need to follow. Contractor shall ensure that this is distributed, and its content introduced to all personnel working at the site.

l) Intervention

1 The contractor shall have implemented a system that assures competence (including HSE) of personnel. For those roles where no suitable recognized competence standards exist, the contractor shall provide, upon the Employer's Engineer's request, information on the selection criteria and/or method used to provide assurance of individual competence.

2 The contractor shall establish and agree with the Employer's Engineer a key list of personnel undertaking taking HSE critical roles. The list shall identify these key individuals by name and by (key) role. For every role on this list, the contractor shall define minimum requirements for HSE competences and qualifications relevant to the work.

3 The contractor shall minimize turn-over of HSE personnel, where possible, to ensure established competence levels and to minimize role discontinuity. The contractor shall obtain the Employer's Engineer's written approval prior to replacing any personnel on the list.

4 The contractor shall have implemented a system that records the training of personnel. The contractor shall keep training records up-to-date and shall furnish information about the system and/or records of training upon request by Employer Engineer/ PMC.

m) Medical fitness to work.

1 The contractor shall ensure that all personnel engaged on the project are medically fit for the job to be undertaken. Where required, the contractor shall be able to demonstrate that personnel selected for key positions are evaluated for their fitness to work on the project.

2 The contractor shall arrange a medical examination of all his employees including his subcontractor employees employed as drivers, operators of lifting appliances and transport equipment before employing, after illness or injury, if it appears that the illness or injury might

have affected his fitness and, thereafter, once in every two years up to the age of 40 and once in a year,

n) HSE Communications and Meetings

1 The contractor shall ensure efficient and effective HSE communication and consultation with all personnel involved on the project. This includes but is not limited to toolbox meetings prior to the start of work, regular worksite HSE meetings with all parties involved (including subcontractors).

2 The contractor shall participate in any HSE meetings as organized by the Employer's Engineer.

o) HSE Performance Reporting

The contractor shall submit monthly an HSE performance report to the Employer's Engineer. This report shall contain as a minimum the following data, as related to the project:

1 A list, including a brief description, of all incidents (including near misses and potential incidents);

2 Number of Fatalities (FAT).

3 Number of Lost Workday Cases (LWC).

4 Number of Restricted Workday Cases (RWC).

5 Number of Medical Treatment Cases (MTC).

6 Number of First Aid Cases (FAC).

7 Number of Environmental Non-conformances.

8 Number of Environmental Spills.

9 Leading performance indicators as agreed with the Employer's Engineer .

10 Additional project specific HSE performance data, as to be agreed with the Employer's Engineer.

The format & content for the HSE performance report shall be agreed with the Employer's Engineer prior to the commencement of the project.

p) Target and Objective setting

1 The contractors' HSE goal shall be "Target Zero" to reflect the project's commitment to an accident-free workplace. The contractor's targets and objectives shall be focused on leading indicators and proactive efforts to reduce the likelihood and severity of incidents.

q) HSE Incident Management

1 The contractor shall report any HSE incident and/or accident, related to contractor activities or personnel, to the Employer's Engineer within 1 hour & to the National or Local authorities as required by relevant legislation. It shall be the responsibility of the contractor to ensure the timely reporting of such accidents/incidents. The Contractor shall report to the Government Authorities (Regional Labour Commissioner) as per Rule 210 of BOCWR, notice of any accident to a worker at the building or construction.

2 The contractor shall also notify the Employer's Engineer immediately of any near misses and significant potential incidents arising from the contractor's or sub-subcontractor's activities associated with the project, related to:

a) Harm to contractor and/or subcontractor personnel and/or Third Party.

b) Harm to the environment,

c) Damage to, or loss of, contractor or subcontractor/Third party assets.

d) Harm to Client/PMC/Contractor reputation.

The contractor shall fully investigate any incidents on the project and cooperate with the Employer's Engineer and participate as necessary in any investigation of HSE incidents as required by the project HSE standards.

r) Emergency Preparedness and Response

1 The contractor shall maintain a documented, robust fit-for-purpose Emergency Response Plan for the project. The contractor shall also provide fit-for-purpose survival equipment, first-aid equipment, life-saving equipment, fire-fighting equipment, and oil/chemical spill equipment. The contractor shall ensure that the involved personnel are trained and competent in its use.

2 The contractor shall develop and maintain a programme of training and exercises to ensure the competency of all individuals and teams involved in the emergency response teams in accordance with the project HSE standards.

s) HSE Audits, Reviews, and Inspections

1 The contractor shall perform audits, reviews and inspections on the project as required by project HSE standards. During these audits, reviews and inspections, the contractor shall verify that they have fulfilled any and all legal obligations, including conditions and stipulations in all relevant licenses, consents and permits and that the work on the project is performed in accordance.

2 The contractor shall develop a detailed HSE inspection & audit schedule for the project and submit copies of the reports to the Employer's Engineer.

3 Contractors' Site HSE Manager will ensure that a system of routine inspections of all plants, equipment, powered tools and any other temporary structures that may pose a hazard to operators and workmen is carried out periodically.

t) HSE Records

1 The contractor shall retain all relevant HSE records resulting from work on the project in line with relevant legislation & project HSE standards. Copies of these records shall be maintained by the contractor on the project site and shall be made available to the Employer Engineer /PMC on demand.

u) Sub-Contractor Management

1 The contractor shall ensure that all sub-contractors comply with all the HSE standards relevant to the project (including these conditions).

2 The contractor shall be accountable for the sub-contractors HSE performance.

v) Project HSE plan

1 The contractor shall prepare and submit to the Employer's Engineer a project HSE plan which covers all work under the project. This project HSE plan shall be reviewed by the contractor at regular intervals of not less than 6 months.

w) Substance abuse

1 The contractor shall ensure that that all personnel working on the project do not at any time partake of, be under the influence of drugs, alcohol, sedatives, or other similar intoxicating substances, other than for bona fide medical reasons.

x) Any personnel found contravening with the above will be removed from the project with immediate effect and Contractor HSE Plan Template

## 42.4 Template for Contractor's HSE Plan

This plan is provided as a guidance template for the Contractor to include in their HSE plan. The sections mentioned in this HSE plan template will be the minimum standards that the Contractors HSE plan will be assessed against.

| Section No. | Titles of sections | Details of what is required in each section |
|---|---|---|
| **Contractor must ensure that these sections are included in their Construction HSE plan. The details in the sections are provided as guidance.** | | |
| 1.0 Section 1 - Project Details | | |
| 1.1 | Project Specific Details | Contractor to provide contact information for Key Contractor personnel. Contact information to include Name, Mobile number, email id. Key personnel include:<br>Contractor Project Director<br>Contractor Project manager<br>Contractor Construction manager<br>Contractor HSE Manager<br>Contractor General Foremen. |
| 1.2 | Details of other Consultants | Details as above of any consultants that the contractor may employ on the Project. |
| 1.3 | Project Security | Contractor to detail the Site security arrangements that will be in place on the Project. Suggestions as below:<br>Site entrance control points<br>Identity card system<br>Vehicle barrier types<br>Visitors to Site procedures<br>Delivery vehicle procedures<br>Vehicle parking restrictions<br>Need for 24hr cover etc. |
| 1.4 | Welfare Arrangements | Contractor to detail what arrangements will be made on Site to ensure that appropriate welfare facilities are provided and maintained according to the size of the workforce and nature of the work.<br>As a minimum, an assessment must be carried out to determine specific welfare requirements and arrangements throughout the Project, from day one to the last day persons are on site. Consideration must be |

| Section No. | Titles of sections | Details of what is required in each section |
|---|---|---|
| | | given to any requirements for male / female changing, showers or disabled facilities, etc. Details to be included:<br>What type and size of facilities are required?<br>When they will be operational,<br>State what the initial set up is and what the subsequent set up will be where they are located.<br>Produce clear layout Drawing.<br>Who provides and maintains each facility?<br>Expected standards and monitoring requirements. |
| 1.5 | Project Organization Chart | Contractor to include a detailed organization chart with names, designations & contact numbers for the Project. |
| 1.6 | Arrangements for communication | Contractor to detail how they plan to communicate HSE with the different Parties on the Project. For example, what kinds of HSE meetings will be held on the Project, how often, who will attend etc. Suggestions HSE Communication include:<br>Regular team meeting.<br>Early morning meetings with key personnel.<br>Formal correspondence (e.g. Appointment Letters).<br>Management Walks<br>Toolbox talks<br>Trainings |
| 1.7 | Project Goals | Contractor to detail what are the Project HSE goals. |
| 1.8 | HSE Compliance monitoring | Contractor to detail how HSE compliance monitoring will be conducted, who will conduct how often this will be conducted. |
| 1.9 | Senior Management HSE monitoring | Contractor to detail how Senior management on the Project will be involved in HSE monitoring, how often will they be involved, what is the process. |
| 2.0 Section 2 - Information and Training for People on Site | | |
| 2.1 | Inductions & Trainings | Contractor to detail the methods by which they will check that people on Site have been satisfactorily inducted & trained. Suggestions include: -<br>Arrangements for delivery – i.e. who does the induction?<br>Who does the training?<br>Arrangements by which management are informed of new starters.<br>Arrangements for recording of inductions/trainings?<br>Any passes, or other identification issued after induction.<br>Arrangements for re-induction or safety updating as the contract enters a new phase or persons are transferred to a different section.<br>What are the training arrangements for the Project? |
| 2.2 | Site Safety Rules | Contractor to detail what Site safety rules will be developed or is available for the Project. |
| 3.0 Section 3 - Contractor Management | | |
| 3.1 | Selection of Contractors | Contractor to detail how they will select sub-contractors on the Project. |

| Section No. | Titles of sections | Details of what is required in each section |
|---|---|---|
| | | How will they ensure that only competent HSE contractors are on site?<br>How do they plan to communicate HSE issues with the sub-contractors?<br>How do they plan to coordinate the Works with the sub-contractors? |
| 3.2 | Selection of Plant | Contractor to detail how they will ensure that only safe Plant & equipment is bought to the Project.<br>How will they check the Plant & equipment?<br>How often?<br>Who will check? |
| 4.0 Section 4 - Emergency Procedures | | |
| 4.1 | First Aid | Contractor to detail what are the first aid arrangements that will be made on site. For example:<br>Locations of first aid boxes<br>Names of First aid personnel and their locations<br>Location of First Aid room<br>Numbers of First Aider's required.<br>Location of accident book |
| 4.2 | Fire and Emergency Procedures | Contractor to detail what are the fire safety arrangements that will be available on site. For example:<br>Fire points – How many, where will they be located.<br>What kind of extinguishers will be available?<br>What kind of training will be available?<br>What will the emergency actions be for the Project |
| 4.3 | Accident & Incident reporting | Contractor to detail what are the accident & incident reporting procedures for the Project. For example:<br>How will accidents be reported?<br>To whom?<br>Who will coordinate?<br>How will they be recorded? |
| 5.0 Section 5 - Arrangements for Controlling Significant Site Risks | | |
| 5.1 | Production of Method Statements | Contractor to detail how method statements will be checked for HSE hazards & risks? |
| 5.2 | Risk Assessments | Contractor to detail how risk assessments will be produced?<br>Who will produce these?<br>How will they be reviewed?<br>Methods of communicating to the workforce on the content of the risk assessments.<br>How will sub-contractor risk assessments be checked for the above? |
| 6.0 Section 6 - Environmental Management | | |
| 6.1 | Environmental Management Strategy | The contractor to detail how they plan to manage the environmental aspects of the Project. Suggestions include:<br>Environmental management plan.<br>Project specific Environmental processes<br>Environmental aspects & impact register |

| Section No. | Titles of sections | Details of what is required in each section |
|---|---|---|
| 6.2 | Waste Management Planning | Contractor to detail how they plan to manage waste (Construction, hazardous & non-hazardous). Suggestion includes:<br>How will waste be collected on site?<br>How do they plan to dispose the waste?<br>Who will dispose it, where? |
| 6.3 | Environmental Emergency plans | Contractor to detail what are the environmental emergency plans for the Project. Suggestion includes:<br>Who will initiate action?<br>Who will report? To whom?<br>What are the foreseen emergencies? |

# 43 Schedule N: Project Management Requirements

The Contractor shall perform all the Project Management activities necessary for proper planning, management, and control of the work. Below are the Project management requirements which Contractors needs to comply at different stage of the Projects:

1) Participate in the Project kick-off Workshop with Project stakeholders designated by Employer/ Employer's Engineer. The kick-off Workshop shall accomplish the following objectives:

i. Common understanding of the Project goals and objectives

- Define respective roles and responsibilities and
- Agree on the methods of communication and reporting throughout the Project duration.

2) Participate in monthly Project status review meetings and present the Project progress update in the meeting. The frequency of Project status review meetings may change based on actual requirements.

3) Schedule: The Contractor shall submit detailed schedule with narration in soft and hard copies that cover's the full scope of Contractor's work within 30 calendar days of date of appointment. This will be reviewed within 15 calendar days by Employer's Engineer. The Contractor shall incorporate the comments and resubmit the schedule no later than 15 calendar days after receiving the comments from Employer's Engineer. Upon approval the above schedule will become the baseline schedule for all the future monitoring and tracking.

4) The Contractor should keep to the following guidelines:

i. Develop and incorporate a detailed Work Breakdown Structure (WBS) for all Project schedules that are submitted.

ii. All schedules shall be created, maintained, and submitted to Employer/ Employer's Engineer in Oracle Primavera P6 or higher version of Primavera P6 in an electronic format.

iii. All schedules shall follow the Critical Path Method (CPM) of scheduling and shall have meaningful and realistic logical ties and relationships between activities.

iv. The use of negative lags is not permitted in the baseline and all other versions of the schedule.

v. The schedule must contain all the long lead procurement items identified.

vi. Shall exercise reasonableness while assigning constraints in schedule and milestones.

vii. The Contractor shall allocate the Contract amount in detail to all the activities. It shall be used as guide for progress (S-Curve) monitoring only. Progress S-Curve to be updated each month and Progress Measurement will be on the basis of Earned Value Management.

viii. The Contractor shall provide narration with all the calculations, reports, forecast, supporting documents and detailed list of assumptions made on the development of the project schedule.

ix. Activities shall comprise of specific and measurable elements of work. Durations for each activity shall be calculated using productivity rates.

x. All schedules shall be resource loaded, and Resource Histogram shall be submitted along with schedule.

xi. Upon approval, the copy of the Baseline schedule will become the first Current Schedule. The Contractor shall not change the approved schedule unless instructed in writing by the Employer/ Employer's Engineer. It shall be used as basis for measuring progress performance.

xii. The Current schedule shall be actively updated and maintained by the Contractor every month.

xiii. The updated Primavera P6 schedule file should be submitted every month along with Monthly progress report in electronic format. A pdf copy of the updated schedule with all activities also needs to be submitted.

xiv. A schedule narrative document shall accompany the updated electronic schedule describing the work performed in the reporting period.

xv. Two months look ahead schedule should be submitted along with the Monthly Progress Report.

5) Cash Flow: Cash Flow shall be extracted from Baseline Schedule and Updated Schedule every month. Cash Flow shall be submitted along with Monthly Progress Report to show the actual versus plan and updated on monthly basis.

6) Lessons Learned Database: The Contractor shall develop and actively maintain a "lessons learned" database on a monthly basis (to be included in the monthly Project report) and submit it to Employer's Engineer/ Employer at the end of the Project during closeout.

7) Risk Register: Maintain an active risk register addressing the risks and mitigation measures (could be in excel format) that lists the Project risks related to their Scope of Work. Risk Register shall be updated every month and to be submitted every month along with Monthly Progress Report.

8) Inter-Project Links: Identify potential inter-Project links, inter-dependencies, or conflicts/ interference to work or work areas and narrate them in the monthly progress report.

9) Monthly Progress Report: Prepare and submit a monthly progress report no later than 7th of each month (standard format and template will be provided by Employer's Engineer at a later date). Items 3 to 7 mentioned above shall be the minimum information that will need to be included in the monthly progress report.

10) For better collaboration, Contractor shall use the Programme and Document Management system that will be provided by Employer/Employer's Engineer at a later date and pay for the cost of procuring licenses to use the system.

11) Payments are subject to timely submission of monthly progress report and the monthly updated electronic schedule file in the required and acceptable format.

12) Non – Compliance.

If the Contractor fails to submit Baseline Schedule within Thirty (30) days after appointed date or the Baseline Schedule is not approved by the Employer's Engineer within Three (3) months after the first submission, or the Updated Schedule within time prescribed, then the Employer's

Engineer shall deduct retention of Five Percent (5%) of the Contractor's Progress Payment over and above the 5% Retention amount until such time that the Contractor has provided submissions that are acceptable to the Engineer. The sum retained will not earn interest and shall only be released to the Contractor upon due certification by the Employer's Engineer that the amount retained may be released to the Contractor.

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# 44 Programme and Progress

## 44.1 Management Plan

Within 21 days of the Appointed date, the Contractor shall submit a Management Plan. The Management Plan shall be in accordance with the Contractor's Quality Assurance Accreditation and the contents shall include but not be limited to:

a) Site Management Structure.

b) Contact Details for Key Staff.

c) Programme.

d) Document Numbering and Document Control Procedures.

e) Pro-forma for Requests for Information, Requests for Inspection etc.

f) Checking and Approval Procedures for Design elements under the Control of the Contractor.

g) Change Control.

h) Control Procedures for key activities, including survey, placement of concrete, pipe laying, testing, and preparation of as-built records.

The Management Plan shall be updated as appropriate throughout the duration of the Contract.

## 44.2 Programme and Progress

a) Within the period stipulated in the Contract the Contractor shall submit for approval, a programme or programmes for the execution of the Works. The programme(s) shall be presented in Gantt chart format, to the approval of the Employer's Engineer, with the critical path and float periods clearly shown. The Schedule will be a Level 4 schedule. The Schedule should be prepared using P6.

b) All construction activities including those by sub-contractors shall be shown, together with any temporary works construction, services diversions, traffic diversions and the like.

c) Critical interface dates for the issue of information for construction and for design and materials or equipment ordering by the Contractor shall be included.

d) If instructed by the Employer's Engineer, the Contractor shall provide additional detailed tables, bar charts and critical path(s) networks of the whole or parts of the Works.

e) The programme(s) shall be updated and/or expanded at such times as the Employer's Engineer shall direct. Updated programming data in the form of Networks, Tables and Gantt charts showing actual progress in comparison with the Contract programme shall be submitted to the Employer's Engineer at monthly intervals.

f) Any delay claims have to be supported by a time-impact analysis submitted along with the delay claim submission.

### 44.2.1 Betterment of Existing Services

The Contractor shall, by his own representations to the relevant controlling authorities, determine

the likelihood and extent of betterment works initiated by and executed concurrently with the new Works and shall make allowance for such work in programming his own work.

### 44.2.2 Photographs

When required, the Contractor shall provide a set of photographs comprising digital copies and four A4 size colour prints of each of five photographs, suitably inscribed in English as directed, of such portions of the Works in progress or completed as may be directed. The negatives of the photographs shall remain the copyright property of the Employer. The photographs will be submitted along with the monthly report.

Short videos of the work been done will be submitted on a monthly basis.

# 45 Schedule O: Aerial Photography

## 45.1 Aerial photography

45.1.1 Aerial images need to be taken maintaining a GSD (Ground Sample Distance) GSD of ~3cm to ~5cm per pixel or better. Necessary pre-marking or post marking of ground control points are required for precise geo-referencing of the images. It is required that each GCP (Ground Control Point) is clearly identifiable in the aerial image after processing.

45.1.2 Followings are the steps for image processing:

1 Identification and marking of GCP on the Site before processing the aerial imageries. Minimum number of GCP should not be less than 20-25 for any village settlement.

2 Perform aerial photography at an approximate photo scale of 1:500, using high resolution daylight camera (16MP or more) with geo-tagging (RTK GPS), high precision, and photogrammetric aerial camera.

3 Pre-processing of acquired images with on board GPS data in the UAV (Unmanned Aerial Vehicles)/INS (Inertial Navigation System)/IMU (Inertial Measurement Unit) system, base station GPS and GCP (Ground Control Points).

4 Existing fine resolution DEM data can be use or create the new DEM using break lines and mass points is used along with camera the same data can be used for undertaking ortho rectification of image data.

5 Ensure uniform pixel resolution across RGB and panchromatic bands if all the bands are used in the data acquisition.

6 Identification of GCP locations earlier associated with the aerial imageries and performs geo reference images overlapping 60% forward and 30% side.

7 Perform precisely geo-referencing of image with 20-25 GCP in a village and 7-12 GCP outside village parcels.

8 Hardcopy of the ortho images is to be used for field verification of land parcel and for further correction process as and when required by the Employer within the contract period.

9 Record Visible and identifiable features like but not limited to Buildings, other structures, including fence, building corners of the enclosed stack flare station, former power Plant building, fence lines, tanks, major pieces of stationary equipment, utility poles and visible utilities (manholes, etc.), stockpiles, edge of roads, trails, paved areas, and gravel areas, grade breaks/tops and bottoms of slopes and other major Site features.

45.1.3 Flight Frequency

Areial photography or Aerial videography shall be performed every 3 months in a staggered manner.

Aerial photography (as described above) shall be performed every 6 (Six) months or as directed by the Employer/Employer's Engineer till the issuance of the Project Completion Certificate.

Aerial Videography for progress monitoring shall be performed every 6 (Six) months or as directed by the Employer/ Employer's Engineer the completion of the Operation and Maintenance period.

45.1.4 Imagery Acquisition:

| Components | Description |
|---|---|
| Coverage Area | SBIA |
| Pixel Size | ~3cm to ~5cm, 24-bit true colour |
| Flight Height | Not more than 4000 ft. (Shall be consider as per the Site conditions*) |
| Accuracy | National Map Accuracy Standard (NMAS) suitable scale 1 : 500 mapping. |
| Camera | High resolution camera (16MP or more) |
| Photographic Conditions | Ground must be free of fog, snow, haze, dust, and smoke |
| Image Quality | Clear and sharp in detail.<br>Less than 5% cloud cover and/or shadow shall not appear in any of the image.<br>No “warped” bridges, underpasses, or roads.<br>No “image smear” or “stretched” area on images.<br>No inconsistencies in tone and density between adjacent image tiles.<br>Must be radio metrically & geometrically corrected to enable adjacent image tiles to be displayed simultaneously without obvious distinctions between them.<br>Seasonal and temporal differences should not show differences across image join lines.<br>The solar angle must be 30-degrees or more above the horizon at the time of exposure. |
| Overlapping | 60% forward and 30% side |

**Height should be considered appropriately (for best result) as per best practices.*

45.1.5 Delivery Schedule:

1 Flight Plans – Within 10 days of contract

2 Orthophotos – Within 30 days of Contract

3 All Remaining Deliverables – Within 60 days of Contract

45.1.6 Deliverables:

1 Part I - Ground Control Point (GCP) in ESRI GIS format.

2 Part II - Raw & processed Ariel imagery in GeoTIFF format.

3 Part III - Geo referencing images in GeoTIFF format.

4 Part IV - Contour Map, Metadata of all details in ESRI GIS format.

5 Part V - DTM / DEM, Contours

6 Digital map has to be in *.shp format (in CD/DVD)

45.1.7 Recording Objections:

1 A register shall be maintained by the contractor to record and track the objections. The objections should also be flagged in the Digital Topographic Data Base (DTDB) for better control and monitoring.

2 The contractor shall assist the Government officers in resolving the objections.

3 Contractors shall finalize the necessary recording of objection format between Ministry of

Defense, DGCA, Ministry of Environment and Forest District Magistrate, Local Police Authority or any other Government department whichever is applicable before the commencement of work.

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# 46 Schedule P: Reports

## 46.1 Site Investigation Report

Secondary Site Investigation Report/ Data is available with the Employer. Bidders can obtain the same from the Employer.

Bidder should note that the above data is for reference only. Preliminary investigations fall within the scope of the contractor, and it is the bidder's (contractor's) responsibility to conduct its own investigations and not rely on any previous work. The contractor should also acknowledge and represent that "he has carried out his own investigations and analysis and has checked the accuracy, adequacy, correctness, reliability, and completeness of the assumptions, assessments, statements, and information contained in the tender or otherwise provided by the Employer or its Consultants and has obtained independent advice from appropriate sources".

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# 47 Schedule Q: Operation & Maintenance Requirements

## 47.1 Operation and Maintenance Requirements

1) The Contractor shall, at all times, operate and maintain the Project Components (Roads & Utilities/Services) in accordance with the provisions of this Agreement, Applicable Laws and Applicable Permits and the Operation and Maintenance manual submitted at the time of completion of works.

2) The Contractor shall repair or rectify the works/part of works set forth in Clause 47.11 Repair/Rectification of Defects and Deficiencies in this Schedule-Q within the time limit specified therein, and any failure in this regard shall constitute non-fulfilment of the Maintenance obligations by the Contractor. Upon occurrence of any breach hereunder, the Employer shall be entitled to effect a reduction in the quarterly lump sum payment as set forth in Clause 15.6 of this Agreement, without prejudice to the rights of the Employer under this Agreement, including Termination thereof.

3) All Materials, Works and Construction operations shall conform to the Specifications for Road and Bridge Works (Fifth Revision, April 2013) or its amendment(s), if any, issued by the Ministry of Road Transport & Highways (MoRT&H) and the relevant IRC publications as amended from time to time. Where the Standards and Specifications for a work are not given, Good Industry Practice shall be adopted to the satisfaction of the Employer's Engineer.

4) All relevant Materials, Works and Construction operations shall confirm to CPHEEO Manual on Water Supply and Treatment Systems (Drink From Tap), Part B: Operation and Maintenance, March 2024 or its amendment(s), if any, issued by MoUD, GOI and Good Industry Practice to the satisfaction of Employer's Engineer for Potable water supply rising mains and distribution networks, recycle rising mains and distribution networks including valves, specials, flow meters etc.

5) All relevant Materials, Works and Construction operations shall conform to CPHEEO Manual on Sewerage and Sewage Treatment Systems 2013 Part-B: Operation and Maintenance or its amendment(s), if any, issued by MoUD, GOI and Good Industry Practice to the satisfaction of Employer's Engineer for Industrial effluent pumping mains and networks, Sewer pumping mains and networks including manholes, flow meters etc.

6) All relevant Materials, Works and Construction operations shall conform to CPHEEO Manual on Water Supply and Treatment Systems (Drink From Tap), Part B: Operation and Maintenance, March 2024 or its amendment(s), if any, issued by MoUD, GOI and Good Industry Practice to the satisfaction of Employer's Engineer for Potable Storage Reservoir (SR) and Recycle Storage Reservoirs (Re-SR).

7) All relevant Materials, Works and Construction operations shall conform to CPHEEO Manual on Storm Water Drainage Systems Part B: Operation and Maintenance May 2019 or its amendment(s), if any, issued by MoUD, GOI and Good Industry Practice to the satisfaction of the Employer's Engineer for storm water drain networks and outfalls.

8) Maintenance of street lighting is inclusive of all roadway illumination equipment. The equipment consists of poles, luminaries, brackets, photocells, lamps, relays, conductors, ducts, hand wells, vaults, and associated hardware.

9) The Contractor shall submit to the Employer the methodology for the operation and maintenance of facility/works with the Schedule of 'Manpower' and 'Organization Chart showing the structure of the organization for his administration and operation of the Contract. The contractor shall depute a project manager for execution and operation and maintenance contract.

10) Access to Facility/ Site - The Employer, its representatives and the Beneficiaries shall have the right to bring visitors to the site/facility. The visitors shall be received by the Representative assigned by the Employer and the Contractor shall not be in charge of such visits. The Employer's representative shall give notice to the Contractor at least 24 hours in advance for visits. The facility shall be accessible to beneficiaries' staff for sampling/review of site.

11) Contractor has to incur all the cost, taxes & duties, cess or another tax or cess levied for Operations and maintenance of the said facility, including but not limited to transportation, labors repairing & replacing making good any part or all part of equipment's, consumable, motors, pumps, gear unit, Capacitor, HT/LT Switchgear, Control Panel, roads, road side furniture etc. in totality as per scope of works of the said agreement.

12) The Contractor shall at his own cost provide and maintain at the Site of Works standard first aid boxes at minimum six locations as directed and approved by the Employer for the use of his own as well as the Employer's staff on Site as stipulated by local regulations. Contractor shall arrange to train all their staff in first aid treatment within 3 months.

13) Maintenance covers all the techniques and systems which by means of regular monitoring of equipment and scheduled maintenance procedures, prevent failures and, in the event of problems, enable repairs to be carried out with the minimum disruption of the process. Maintenance is therefore a combination of technical, administrative, and management activities. Maintenance consists of preventive and corrective procedures.

14) Administrative operation and maintenance policies shall be prepared and implemented by the Contractor, based on the developed operation and maintenance programme. The policies shall be approved by the Employer's Engineer and shall include, but not be limited to:

i. Standard Operating Procedures

ii. Daily/Scheduled and Preventive maintenance,

- Overhauls and half-overhauls plan,
- Failures and unexpected repair work plan.

15) A basic maintenance management system shall be implemented after approval by the Employer's Engineer. It shall include, but not be limited to:

i. Planning and Scheduling,

ii. Maintenance Personnel,

iii. Maintenance Instructions,

iv. Inventory Control of Items,

v. Equipment Records,

vi. Forms for Costs and Budgets.

16) The Contractor shall periodically carry out maintenance. It shall include, but not be limited to the provision of all required spare parts, material, and personnel. All items of equipment shall be inspected and maintained in accordance with the manufacturer's specifications and to the local conditions. Replacements, repairs, and painting shall be carried out immediately and when necessary. Maintenance records showing all maintenance work carried out on each item of equipment shall be updated daily and shall be made available at any time for examination by the Employers Engineer. The installed equipment/unit shall be checked and serviced daily during working days.

17) The operating conditions of any instrument shall be maintained by function checks and services. Calibration shall be checked and corrected whenever necessary. After submission of the calibration data for approval, the instruments shall be calibrated as required and directed by the Employers Engineer. The electrical and sanitary installations shall be kept clean and continuously maintained in a proper and orderly manner. All interior and exterior structures, structural elements, equipment, installations, infrastructural elements, and others shall be maintained, repaired, painted, and replaced if necessary and/or as directed by the Employer’s Engineer.

18) The maintenance of site works shall include, but not be limited to the repair, painting, and the replacement of defective items due to wear and tear for traffic areas, pipes, and fittings (including protection), cables, channels, roads, lighting poles, power equipment’s and fences etc.

19) The Management of Maintenance shall include, but not be limited to:

i. Implementation and Operation of a Separate Maintenance Budget System Comparing the Budget with the General Budget of Operation and Maintenance, Planning and Controlling the Work of Subcontractors, If Applicable.

- Establishing of Requirements for Equipment Manuals, for Each Item of Equipment, Setting out Procedures for Installation and Commissioning, Instructions for Operation and Maintenance and Listings of Component Parts.

20) Planning and Schedule - The performance of maintenance shall be administered using a maintenance work package system in which the job priorities, the work assignment and the available personnel are listed. The required daily work shall be scheduled in charts by the hour or more detailed. The maintenance work package system shall consider the manufacturers' maintenance manuals and also conditions like topography, climate and operation of the project units. The maintenance work package system shall include a chart for periodic maintenance of any equipment and Plant on Site. The chart of every equipment and Plant shall indicate any necessary step of preventive maintenance. The maintenance work package system shall be submitted to the Employer’s Engineer for approval.

21) Work Control and Failure Management Planning - Work control shall be established by preparing and implementing procedures of Corrective and protective maintenance, of tool control and of spare parts issues. Failures of maintenance shall be bridged or repaired as soon as possible so as to minimize negative effects on the environment. Therefore, the Contractor shall use a standard procedure such as the critical plan method (CPM), or

equivalent, to sufficiently schedule for maintenance failures. Resource planning shall be carried out in order to find out the requirements for special materials, special tools and/or special equipment for bridging or repairing any failure as soon as possible.

22) Disposal of residuals - The Contractor shall arrange for the disposal of any, grit, sand, other wastes, debris, and residuals to an identified disposal landfill. The location of the landfill identification shall be Contractors scope at his own cost. Toxic wastes shall be disposed of at a site to be agreed with the concerned local body. Unless a public sanitary landfill site can be used for the disposal of non-toxic residuals, the disposal site has to be approved by the local bodies responsible for public health. The disposal costs as such outside the boundaries of the facility shall be borne by the Contractor.

23) Contractor has to keep the entire capacitor panel in working condition to maintain the power factor more than 0.95. In any condition the power factor should not be less than 0.95. Any spares required to keep capacitor panel in working condition is in the scope of the contractor. Any Penalty levied due to the low power factor by the power utility/ any other authorized agency then it will recover from the contractor from his quarterly payments.

24) Emergency Conditions - The Contractor shall establish requirements for dealing with potentially hazardous conditions. All possible situations of emergency shall be scheduled within an emergency plan. Herein, the required services, additional required structures, equipment, staff and other resources shall be planned and recorded for the possible situations of emergency. The emergency action plan shall be submitted for approval to the Employers Engineer. Every effort shall be made to ensure that any emergency situation at the treatment shall be limited to the shortest possible period to minimize any negative effects on the environment. Any necessary shutdown of the facility for operational adjustments shall be restricted to the possibly shortest period with minimum flow at the inlet works and shall be approved by the Employer's Engineer.

25) The Contractor shall follow the manufacturers' recommendations with respect to equipment maintenance, consumables, the types and grades of lubricants to be used, frequency of lubrication, adjustments to be made regularly and recommended spares to be held in store.

26) The contractor should plan & procure all spares and consumables including grease, lubricating oil, cleaning agents, laboratory reagents etc. Further the contractor will plan about the requirement well in advance and procure the material from the market and having sufficient storage of above.

27) The Contractor shall provide a Notice Boards/Display Boards at appropriate locations detailing precautions to be taken by operation and maintenance personnel in work in conformity with Industries and Labour Regulations and Department of Explosives.

28) All Central / State Government / Semi-Government / Local Body's rules and regulation pertaining to this contract, all legal formalities pertaining to provident fund, factory act, and all legal formalities shall be followed and observed by the Contractor without any extra cost to the Employer. Please note that failure in complying so, all liabilities arising as per laws will be to the Contractor's account and no payments shall be released against the quarterly O&M payments. For the payments for O&M contractor need to submit the required documents pertaining to above.

29) The Contractor will comply with all safety rules and regulations and all inter- disciplinary measures as followed by the Employer. The Employer will not be responsible for any accident / injury to the staff or any person of the Contractor or loss or damage to any property. Further, the Employer will not provide any insurance or free medical facility to the staff of Contractor. Providing necessary security arrangement for safety of the plant and contractor's personnel will be the responsibility of contractor.

## 47.2 Repair/Rectification during O&M

The obligations of the Contractor in respect of Maintenance Requirements shall include repair and rectification of the works as specified in this Schedule-Q within the time limit set forth therein.

## 47.3 Other Defects and Deficiencies

In respect of any Defect or deficiency not specified in this Schedule-Q, the Employer's Engineer may, in conformity with Good Industry Practice, specify the permissible limit of deviation or deterioration with reference to the Standards and Specifications, and any deviation or deterioration beyond the permissible limit shall be repaired or rectified by the Contractor within the time limit specified by the Employer's Engineer.

## 47.4 Extension of Time Limit

Notwithstanding anything to the contrary specified in this Schedule-Q, if the nature and extent of any Defect or deficiency justifies more time for its repair or rectification than the time specified herein, the Contractor shall be entitled to additional time in conformity with Good Industry Practice. Such additional time shall be determined by the Employer's Engineer and conveyed to the Employer with reasons thereof for approval of Employer.

## 47.5 Emergency Repairs/Restoration

Notwithstanding anything to the contrary contained in this Schedule-Q, if any Defect, deficiency, or deterioration in the Project Components (Roads & Utilities/Services) poses a hazard to safety or risk of damage to property, the Contractor shall promptly take all reasonable measures for eliminating or minimizing such danger.

## 47.6 Daily Inspection by the Contractor

The Contractor shall, through its engineer, undertake a daily visual inspection of the Project Components (Roads & Utilities/Services) and maintain a record thereof in a register to be kept in such form and manner as the Employer's Engineer may specify. Such record shall be kept in safe custody of the Contractor and shall be open to inspection by the Employer and the Employer's Engineer at any time during normal working hours.

## 47.7 Pre-Monsoon Inspection / Post-Monsoon Inspection

The Contractor shall carry out a detailed pre-monsoon inspection of all bridges, culverts, and drainage system before [1st May] every year in accordance with the guidelines contained in IRC: SP35. Report of this inspection together with details of proposed Operation and Maintenance Works as required on the basis of this inspection shall be sent to the Employer's Engineer before the [10th May] every year. The Contractor shall complete the required repairs before the onset of the monsoon and send to the Employer's Engineer a compliance report. Post monsoon inspection shall be done by the [30th September] and the inspection report together with details of any

damages observed and proposed action to remedy the same shall be sent to the Employer's Engineer.

## 47.8 Repairs On Account of Natural Calamities

All damages occurring to the Project Components (Roads & Utilities/Services) on account of a Force Majeure Event shall be repaired by Contactor at no additional cost.

However, any damage due to neglect of the Employer or its representative shall be undertaken by the Employer at its own cost. The Employer may instruct the Contractor to undertake the repairs at the rates agreed between the Parties.

## 47.9 Minor Operational Responsibilities:

During the course of the Operation and Maintenance period, there are some minor operational responsibilities that are required to be conducted by the Contractor. These may be performed by the Operation and Maintenance team itself, given due training and understanding of equipment and performance requirements of the systems.

For all roadways, ensure operational performance criteria are being met with obstruction-free travel in safety per norms prescribed by the International Road Federation (IRF). Ensure that defects, repairs, and Maintenance requirements are identified, shared with the Employer, and implemented through the Maintenance team.

For all Illumination systems, ensure auto on/off and such are in place and operational based on daylight dusk/dawn periods of the various seasons. Ensure operational inspections of the system are conducted to identify defects and repairs to be performed by the Maintenance team. Lux level recordings of the implemented system are to be conducted, and performance levels maintained.

For all Power systems, ensure appropriate controls and reporting systems are in place. Ensure accurate reporting and controls on outages, faults and such defects are maintained to a minimum, operating this system at a 99.99% performance level.

For all pressurised hydraulic systems, such as water, recycled water, ensure all pumps, reservoirs and tanks are kept at optimum levels of storage meeting the requirements of performance from design intent. Daily operations of these systems are to be performed to ensure capacities are kept at the assured levels. Defects/repairs identified here are to be rectified by the Maintenance teams.

| S. No | Designation | Qualification | Experience | Shift-1 | Shift-2 | Shift-3 | Nos. |
|---|---|---|---|---|---|---|---|
| Roads and Utilities | | | | | | | |
| 1. | O&M Manager | Graduate Engineer (Civil) | 15 years | General shift 1 | | | 1 |
| 2. | O&M Engineer | Graduate Engineer-Civil | 10 years | General shift 1 | | | 5 |
| 3 | O&M Engineer | Graduate Engineer-Mechanical | 10 years | General shift 1 | | | 1 |
| 4 | O&M Engineer | Graduate Engineer-Electrical | 10 years | General shift 1 | | | 1 |
| 5 | O&M Engineer | Graduate Engineer-Instrumentation | 10 years | General shift 1 | | | 1 |

| S. No | Designation | Qualification | Experience | Shift-1 | Shift-2 | Shift-3 | Nos. |
|---|---|---|---|---|---|---|---|
| 6. | Supervisor - Electrical | Diploma Engineer (Electrical) | 5 years | 1 | 1 | 1 | 3 |
| 7 | Supervisor – Wet Utilities | Diploma Engineer (Mechanical/Civil) | 5 years | 3 | 3 | 3 | 9 |
| 8 | Supervisor - Roads | Diploma Engineers (Civil) | 5 years | General shift 3 | | | 3 |
| 9 | Fault Detection Technician | ITI (Electrical) | 5 years | 2 | 2 | 2 | 6 |
| 10 | Fault Detection Helper | 10 pass | 2 years | 2 | 2 | 2 | 6 |
| 11 | Mechanical Fitter | ITI (Mechanical) | 5 years | 2 | 2 | 2 | 6 |
| 12 | Utility Maintenance | | - | 4 | 4 | 4 | 12 |
| 13 | Cleaning & Upkeep | | - | 20 | | | 20 |
| 14 | Gardeners | | | 4 | | | 4 |
| 15 | Gardener's Helper | | | 8 | | | 8 |
| Electrical Substations | | | | | | | |
| 16 | Operator | | 5 years | 10 | 10 | 10 | 30 |
| 17 | Technician | | 5 years | 10 | 10 | 10 | 30 |
| General | | | | | | | |
| 19 | Security | | | As per site requirement | | | |
| 20 | Patrolling teams (with Vehicle) | | | As per site requirement | | | |

For all gravity-based systems such as effluents and sewage, ensure Maintenance inspections and sump pumping activities are carried out regularly to ensure effluent/sewage flows are consistent and as required by the STP/CETP. Defects/repairs are to be identified and rectified by Operation and Maintenance teams. The drains shall be cleaned regularly to prevent its clogging and back flow for efficient operations during the time of requirement.

Spare parts lists to be maintained by Operation and Maintenance teams are to be inspected, verified, and reported.

Develop and maintain a reporting, documentation, and inspections process during the course of operations in collaboration with Employer teams.

## 47.10 Staff during Operation & Maintenance

For all operation and maintenance works, the Contractor shall provide skilled staff which has adequate qualifications and sufficient experience in similar works. CVs of the O&M Manager, Shift-in-charge, and Plant/ Site Supervisors will have to be approved by the Employer. The above table, as per clause 47 describes the minimum levels of staffing, and their minimum qualifications and experience in similar work, that the Contractor will be required to deploy for carrying out the O&M functions in addition to the staff required for the operation and maintenance of WTP as indicated in the relevant Schedule in Volume 2 of the RFP document:

*Note:*

1. *The above requirement is the minimum only. The Contractor will arrange extra workforce, as and when required, to smoothly run the operation and maintenance, including preventive maintenance, repairs, etc. and general cleanliness of the installations.*
2. *The above staff strength is exclusive of leave reserve required for different categories of staff. The Contractor shall ensure the availability of the personnel given in the above table for all seven days of the week.*
3. *The Contractor shall make appropriate arrangements for maintenance of items like road work, patrolling and maintenance of civil structures, vehicle operations and other activities defined to fulfil its obligations under the O&M Contract.*
4. *In the event of the absence of staff during the O&M, a deduction of 0.25% of the payment on per per-week basis shall be made from the Quarterly payments, considering 30 calendar days in a month.*

## 47.11 Repair/Rectification of Defects and Deficiencies

The Contractor shall repair and rectify the Defects and deficiencies specified in this Schedule-Q within the time limit set forth in the table below.

47.11.1 Time limit of Defects and Deficiencies

| Nature of Defect or Deficiency | | Time Limit for Repair/Rectification |
|---|---|---|
| Roads | | |
| (a) | Carriageway and Paved Shoulders | |
| (i) | Breach or blockade | Temporary restoration of traffic within 24 hours; permanent restoration within 15 (fifteen) days |
| (ii) | Roughness value exceeding 1,800 mm in a stretch of 1 km (as measured by a calibrated bump integrator) | 120 (one hundred and twenty) days |
| (iii) | Potholes | 24 hours |
| (iv) | Any cracks in the road surface | 15 (fifteen) days |
| (v) | Any depressions, rutting exceeding 10 mm in the road surface | 30 (thirty) days |
| (vi) | Bleeding/skidding | 7 (seven) days |
| (vii) | Any other defect/distress on the road | 15 (fifteen) days |
| (viii) | Damage to pavement edges | 15 (fifteen) days |
| (ix) | Removal of debris, dead animals | 6 hours |
| (b) | Granular Earth Shoulders, Side Slopes, Drains and Culverts | |
| (i) | Variation by more than 1 % in the prescribed slope of camber/cross fall (shall not be less than the camber on the main carriageway) | 7 (seven) days |
| (ii) | Edge drop at shoulders exceeding 40 mm | 7 (seven) days |
| (iii) | Variation by more than 15% in the prescribed side (embankment) slopes | 30 (thirty) days |
| (iv) | Rain cuts/gullies in slope | 7 (seven) days |
| (v) | Damage to or silting of culverts and side drains | 7 (seven) days |

| Nature of Defect or Deficiency | | Time Limit for Repair/Rectification |
|---|---|---|
| (vi) | De-silting of drains | 24 hours |
| (vii) | Railing, parapets, crash barriers | 7 (seven) days (Restore immediately if causing safety hazard) |
| (c) | Roadside Furniture Including Road Sign and Pavement Marking | |
| (i) | Damage to shape or position, poor visibility, or loss of retro-reflectivity | 48 hours |
| (ii) | Painting of km stone, railing, parapets, crash barriers | As and when required/Once every year |
| (iii) | Damaged/missing road signs requiring replacement | 7 (seven) days |
| (iv) | Damage to road mark ups | 7 (seven) days |
| (d) | Road Lighting | |
| (i) | Any major failure of the system | 24 hours |
| (ii) | Faults and minor failures | 8 hours |
| (e) | Other Project Facilities and Approach Roads | |
| (i) | Damage in approach roads, pedestrian facilities, truck lay-byes, bus-bays, bus-shelters, electrical, water, | 15 (fifteen) days |
| (ii) | Damaged vehicles or debris on the road | 4 (four) hours |
| (iii) | Malfunctioning of the mobile crane | 4 (four) hours |
| MINOR | | |
| | Superstructure | |
| (i) | Any damage, cracks, spalling/ scaling<br>Temporary measures<br>Permanent measures | <br>within 48 hours<br>within 15 (Fifteen) days or as specified |
| (b) | Foundations | |
| (i) | Scouring and/or cavitation | 15 (Fifteen) days |
| (c) | Piers, Abutments, Return Walls, and Wing Walls | |
| (i) | Cracks and damages including settlement and tilting, | 30 (Thirty) days |
| (d) | Bearings (Metallic) of Bridges | |
| (i) | Deformation, bearings damages, tilting or shifting of | Greasing of metallic bearings once in 15 (Fifteen) days |
| (e) | Joints | |
| (i) | Malfunctioning of joints | 15 (Fifteen) days |
| (f) | Other Items | |
| (i) | Deforming of pads in elastomeric bearings | 7 (seven) days |
| (ii) | Gathering of dirt in bearings and joints; or clogging of | 3 (three) days |
| (iii) | Damage or deterioration in kerbs, parapets, handrails, and crash barriers | 3 (three) days<br>(Immediately within 24 hours if posing a threat |
| (iv) | Rain-cuts or erosion of the banks of the side slopes | 7 (seven) days |
| (v) | Damage to wearing coat | 15 (fifteen) days |
| (vi) | Damage or deterioration in approach slabs, pitching | 30 (thirty) days |

| Nature of Defect or Deficiency | | Time Limit for Repair/Rectification |
|---|---|---|
| (vii) | Growth of vegetation affecting the structure or obstructing the waterway | 15 (fifteen) days |
| Potable Water, Wastewater, Recycle Water and Fire Fighting system | | |
| (a) | Transmission mains | |
| (i) | Bursts/Breakage in the pipelines. | Within 6 hrs. of the occurrence |
| (b) | Network pipelines | |
| (i) | Bursts/Breakage in the distribution network pipelines | Within 4 hrs. of the occurrence |
| (ii) | Flushing of the distribution main | Once in 6 months |
| (iii) | SCADA System for all services | Within 2 hrs. of the occurrence |
| (d) | Control & Protection | |
| i) | Photoelectric controller | 8 hrs. |
| ii) | Communication failure | 8 hrs. |
| (e) | Power | |
| i) | Supply including SCADA | 2 hrs. |
| ii) | Fault | 2 hrs. |

47.11.2 General Preventive Maintenance Checks

| General Preventive Operation and Maintenance Checks | |
|---|---|
| (a) | The following checks are to be performed daily by the Contractor's personnel as a minimum requirement |
| 1. | Whether there is a change in the sound of a running pump, abrupt changes in bearing temperature and seal leakage? |
| 2. | The pump capacity, pressure, power consumption and vibration level to check if outage is required to address the deterioration of specified performance values. |
| 3. | Rise in temperature of bearings in motor, in moving parts and other units, etc. |
| 4. | Working of gauges, sensors and other flow-measuring devices |
| 5. | Average power factor, KWH consumed |
| 6. | Pipeline and valve leakage |
| 7. | Functioning of non-return valve |
| 8. | Tightness of all electrical connections of all unit panels etc. |
| 9. | Tightness of all cable connections |
| 10. | Temperature rises due to loose connections |
| 11. | Operation of valves and sluice gates |
| 12. | Current and voltages in all electrical equipment |
| 13. | Average power factor, KWH consumed |
| 14. | Lights on/off |
| 15. | Leakage current for all power distribution |
| 16. | Battery voltage, battery charger, topping of distilled water, tightness of terminations etc. |
| 17. | Gland packing |
| 18. | Wear and tear of moving parts |
| 19. | Adoption of Electrical energy conservation methods and energy consumption |
| 20. | Electrical contacts |
| 21. | Motors windings etc. |
| 22. | Meggering of electrical equipment |
| 23. | Watering of earthen pits |
| 24. | Relay testing and calibration, if possible, of meters, gauges, instruments |

| General Preventive Operation and Maintenance Checks | |
|---|---|
| 25. | Speed of motors |
| 26. | Level gauges and flow meters signals |
| 27. | Cleaning, checking/tightening of L.T. Circuit / Panel |
| 28. | Auxiliary DB, Capacitor bank |
| 29. | Battery and Battery charger |
| 30. | Free movement of stuffing box glands, gland bolts to be cleaned & lubricated and packing to be Inspected to determine whether it requires replacement. |
| 31. | Pump and motor alignment should be checked and corrected if necessary. |
| 32. | Grease lubricated bearings should be checked to see that they contain the correct amount of grease and that it is still of suitable consistency |
| 33. | Vibration should be reviewed. If the pump is tending towards unacceptable vibration levels:<br>¾ the bearing should be removed, cleaned, and examined for flaws and wear<br>¾ the bearing housing should be carefully cleaned<br>¾ rolling element bearings should be examined for scratches and wear<br>¾ immediately after cleaning, rolling element bearings that are considered acceptable for reinstallation should be coated with grease. |
| 34. | The shaft sleeve and shaft should be examined for wear. |
| 35. | When coupling halves are disconnected for an alignment check, the vertical shaft movement of a pump with sleeve (journal) bearing should be checked at both ends with packing or seals removed. Any movement exceeding the original design clearance should be investigated to determine the cause. The endplay allowed by bearings should also be checked. If it exceeds that recommended by the manufacturer, the cause should be determined and corrected. |
| 36. | Stuffing boxes should be repacked, and the pump & motor should be realigned and reconnected |
| 37. | Overhauling requirements of all equipment |
| 38. | Improvement required if any in the operation of a plant |
| 39. | Testing and Calibration of all instruments |
| 40. | Transformer cleaning, checking silica gel, oil checking filtering/replacing |

### 47.11.3 Operation and Maintenance of Water Treatment Plant

#### 47.11.3.1 Scope of Work

The contract includes operation and maintenance for a period of 4 Years (48 Months) after successful completion of the trial run, commissioning and demonstration of performance guarantee. The Commercial Operations and the O&M period shall only begin on the issue of the Completion **Certificate for construction works.**

Additional information is given in the following sections to facilitate the monitoring works. Contractor shall note that the preparation of the Operation and Maintenance Manual and set-up by them is included in the Scope of Work. This manual shall be duly approved by the Employer's Engineer prior to the commissioning of the facility.

The Bidder shall provide a comprehensive O&M concept comprising measures, strategies and guidelines for Plant protection against pollution with regard to the O&M manual:

All Facilities in the Plant, which make it possible within defined limits to adapt the operation of the Plant to fluctuations in wastewater quality;

Facilities in the Plant structure, which make it possible within defined limits to adapt the operation

of the Plant to fluctuations in wastewater quality;

Facilities, which protect the Plant in case the normal range of fluctuations in wastewater quality exceeds the reference point operating conditions;

Organisational measures which, in the event of a major reduction in treated water quality or in the event of an extreme mishap, lay down the procedure, measures and responsibilities for the operation and maintenance of the Plant.

Payments and all general conditions for O&M shall be as detailed in the respective clauses of Section 26. However, in the event after successful commissioning, if the Employer wants can start payment of O&M, however the commercial operations shall only start after the issue of the Completion certificate, after release of final payments and fulfilment of the punch list.

The Operation and Maintenance Service shall not commence until the Construction of the Works or any Section has been completed. The Contractor shall thereafter provide the Operation and Maintenance Service in compliance with the requirements of the Operation, Maintenance and Safety Manuals.

The Contractor shall operate and maintain all units and equipment of the plant as per the requirements of the process to meet the desired quality of treated water as described in the specifications, continuously and consistently.

The plant shall be operated 24 hours/day throughout the year. Contractor shall be responsible for providing all consumables, lubricants, parts or components, and labour. transportation and other charges, chemicals, taxes and duties, etc., including all cesses as applicable from time to time by the statutory bodies for efficient operations of the facility except Power, which shall be provided by the Employer.

Lubricants shall be supplied in accordance with the recommendations of the various equipment and Plant manufacturers. The Contractor shall limit the various types of lubricants by consolidating these, with the manufacturer's approval, into the least number.

Contractor shall operate and maintain the plant, all instruments and mechanical, electrical equipment in accordance with the aim and purpose of treatment. The plant & equipment covered under the above contract will be totally attended to by the contractor, including any “Troubleshooting” to ensure smooth and trouble-free operation.

Contractor has to incur all the cost, taxes & duties, cess or another tax or cess levied for Operations of the said facility, transportation, labors repairing & replacing making good any part or all part of equipment’s, consumable, motors, pumps, gear unit, Capacitor, HT/LT Switchgear, Control Panel, valves chemical and laboratory equipment’s, Pressure vessel, Membrane or any other part in the System etc.

The maintenance service provided by the Contractor for the period specified in the Contract shall ensure the continuous operation of the Plant and that the breakdown or deterioration in performance, under normal operating conditions, of any items of Plant and equipment and component parts thereof is kept to a minimum. The Contractor shall carry out the Maintenance of the plant installations in accordance with the requirements of the O & M Manual and also to the approved Maintenance Plan as mutually agreed.

The Contractor shall provide the facilities and equipment required for the proper functioning of the

Operation Service before starting the Operation Service.

The Contractor shall hand over the facilities and equipment complete and in good condition at the end of the Operation and Maintenance Service period.

During the Operation Service, the Contractor shall acquire and make use of the vehicles and trucks necessary under the Contract to operate and maintain the Works. Such vehicles and trucks are the property of the Contractor and will not be handed over to the Employer.

The Contractor shall submit with his tender to the Employer the methodology for the operation and maintenance of the plant, with the Schedule of 'Manpower' and 'Organisation Chart' showing the structure of the organisation for his administration and operation of the Contract. The contractor shall depute a project manager for the execution and operation and maintenance of the plant

Only highly skilled and trained personnel shall be assigned to perform inspections, repairs and preventive maintenance tasks. Specific skills are required for the maintenance of mechanical, electrical and instrumentation machinery and equipment. All the electrical equipment shall be handled and operated by a trained and authorised person only. All the equipment shall be checked for its proper earthing and loose connections prior to starting the equipment. Naked wire, loose connections and faulty connections shall be repaired immediately prior to start for operation.

Contractor shall employ appropriate and skilled manpower, provide all tools, tackles, equipment, laboratory instruments, glassware and chemicals, reagents, etc. required for effective implementation of the Services detailed above. The contractor shall have to issue identity cards with photographs to all the staff employed for Operation and Maintenance. The list of the same shall be submitted to the Employer, mentioning qualification & experience.

The Contractor shall submit a Health and Safety Plan as required by International standards and conforming to Indian Legislation.

The Contractor shall provide a safety specialist who is responsible for the preparation, implementation and maintenance of a comprehensive safety programme, which shall be approved by the Employer's Engineer, and which shall be evaluated whenever appropriate and at least at the conclusion of the Operation Service. The specialist shall develop the safety and health policies, standards and procedures. The responsibility of the safety specialist includes performing safety training and conducting safety inspections, sessions and practice. He will also be responsible for the investigation of accidents. A safety committee shall be formed, and regular safety meetings shall be organised. All safety equipment and tools shall be provided and maintained by the Contractor at its own cost, and the price shall be deemed included in its price bid. The safety specialist shall prepare, implement and maintain a comprehensive fire protection and prevention programme, which shall be approved by the Employer's Engineer. The safety specialist will also be responsible for the inspection and maintenance of the fixed and portable fire protection equipment and for the investigation of fire incidents. During Operation Service, the safety specialist shall develop and implement a project emergency action plan and fire hazard inspection procedure.

In order to protect property, materials and facilities against unauthorised entry and trespass, pilferage and theft, destruction, damage, sabotage, embezzlement, fraud and other dishonest, illegal or criminal acts during the Operation Service, a security programme shall be prepared by the contractor, implemented and maintained at no extra cost. The Employer's representative shall

approve the security programme.

The Contractor shall develop and maintain a chemical treatment programme to minimise corrosion, extend system life and maintain efficiency of the facility. The project systems shall be reviewed and recommended in relation to the chemical treatment programme. Required improvements of the systems shall be carried out after approval by the Employer's Engineer. The Contractor shall provide the staff necessary for the implementation of the chemical treatment programme.

Access to the Facility

The Employer, its representatives, the Employer's Engineer and the Beneficiaries shall have the right to bring visitors to the treatment plant/facility. The visitors shall be received by the Representative assigned by the Employer, and the Contractor shall not be in charge of such visits. The Employer's representative shall give notice to the Contractor at least 24 hours in advance for visits. The facility shall be accessible to the beneficiaries' staff for water sampling.

The contractor has to keep the entire capacitor panel in working condition to maintain the power factor more than 0.95. In any condition, the power factor should not be less than 0.95. Any spares required to keep the capacitor panel in working condition are in the scope of the contractor. Any Penalty levied due to the low power factor then it will be recovered from the contractor.

Maintenance

Maintenance covers all the techniques and systems which, by means of regular monitoring of equipment and scheduled maintenance procedures, prevent failures and, in the event of problems, enable repairs to be carried out with the minimum disruption of the process. Maintenance is therefore a combination of technical, administrative, and management activities. Maintenance consists of preventive and corrective procedures.

Administrative maintenance policies shall be prepared and implemented by the Contractor, based on the developed maintenance programme. The policies shall be approved by the Employer's Engineer and shall include, but not be limited to:

- Preventive maintenance,
- Overhauls and half-overhauls plan,
- Failures and unexpected repair works plan.

A basic maintenance management system shall be implemented after approval by the Employer's Engineer. It shall include, but not be limited to

- Planning and Scheduling,
- Maintenance Personnel
- Maintenance Instructions,
- Inventory Control of Items,
- Equipment Records,
- Forms for Costs and Budgets.

The Contractor shall periodically carry out maintenance. It shall include, but not be limited to, the

provision of all required spare parts, materials and personnel. All items of equipment shall be inspected and maintained in accordance with the manufacturer's specifications and local conditions. Replacements, repairs and painting shall be carried out immediately and when necessary. Maintenance records showing all maintenance work carried out on each item of equipment shall be updated daily and shall be made available at any time for examination by the Employer's Engineer. The installed equipment shall be checked and serviced daily during working days.

The operating conditions of any instrument shall be maintained by function checks and services. Calibration shall be checked and corrected whenever necessary. After submission of the calibration data for approval, the instruments shall be calibrated as required and directed by the Engineer. The buildings, HVAC, electrical and sanitary installations shall be kept clean and continuously maintained in a proper and orderly manner. All interior and exterior structures, structural elements, equipment, installations, infrastructural elements and others shall be maintained, repaired, painted and replaced if necessary and/or as directed by the Employer's Engineer.

The maintenance of site works shall include, but not be limited to the repair, painting and the replacement of defective items for traffic areas, pipes and fittings (including protection), cables, channels, roads, lighting poles and fences and shall also include the maintenance of lawn areas, plants, shrubs, bushes and trees.

The Contractor shall at his own cost provide and maintain at the Site of Works standard first aid boxes at a minimum six locations as directed and approved by the Employer for the use of his own as well as the Employer's staff on Site as stipulated by local regulations. Contractor shall arrange to train all their staff in first aid treatment within 3 months.

- The Management of Maintenance shall include, but not be limited to:
- Implementation and Operation of a Separate Maintenance Budget System Comparing
- The Budget with the General Budget of Operation and Maintenance,
- Planning and Controlling the Work of Subcontractors, If Applicable.
- Establishing of Requirements for Equipment Manuals, For Each Item of Equipment,
- Setting Out Procedures for Installation and Commissioning, Instructions for Operation
- And Maintenance and Listings of Component Parts.
- Planning and Schedule

The performance of maintenance shall be administered using a maintenance work package system in which the job priorities, the work assignment and the available personnel are listed. The required daily work shall be scheduled in charts by the hour or more detailed. The maintenance work package system shall consider the manufacturers' maintenance manuals and also conditions like topography, climate and operation of the treatment plant. The maintenance work package system shall include a chart for periodic maintenance of any equipment and Plant on Site. The chart of every equipment and Plant shall indicate any necessary step of preventive maintenance. The maintenance work package system shall be submitted to the Employer's Engineer for approval.

Inventory Control of items

A central storeroom for spare parts, equipment and supplies shall be maintained. All parts shall be assigned with item identification codes, each of them possibly being an extension of the design and construction documents. The Contractor in the operation and maintenance manuals, shall furnish a complete schedule of recommended oils and other lubricants.

A computerised system shall be implemented using the item identification code to record all necessary information of any item, to place the items in the storeroom and to re-order the items in case of requirement. This system shall keep a record of the quantity of each item remaining in stock, shall allow a direct comparison with the recommended stock level, and well indicate the replacement lead-time.

The performance and the future requirements of maintenance shall be recorded daily and updated in the equipment records. All maintenance of equipment, identification of problems and actions taken to avoid failure shall be recorded. The records shall be made available at any time for examination by the Employer's Engineer.

Work Control and Failure Management Planning

Work control shall be established by preparing and implementing procedures of Corrective and protective maintenance, of tool control and of spare parts issues. Failures of maintenance shall be bridged or repaired as soon as possible so as to minimise negative effects on the environment. Therefore, the Contractor shall use a standard procedure such as the critical plan method (CPM), or equivalent to sufficiently schedule for maintenance failures. Resource planning shall be carried out in order to find out the requirements for special materials, special tools and/or special equipment for bridging or repairing any failure as soon as possible.

Disposal of sludge and residuals

The Contractor shall arrange for the disposal of any screenings, grit, sand, other wastes, debris and residuals, including Sludge, generated at the treatment plant to an identified disposal landfill. Toxic wastes shall be disposed of at a site to be agreed upon with the concerned local body. Unless a public sanitary landfill site can be used for the disposal of non-toxic residuals, the disposal site has to be approved by the local bodies responsible for public health.

The disposal costs as such outside the boundaries of the facility SHALL be borne by the Contractor.

Reporting

The contractor shall monitor the performance of the Plant, conduct the analysis of various parameters as indicated in Technical Specifications for the sewage/wastewater, after aeration, filtered Water and treated water. Contractor shall initiate and take adequate actions to ensure smooth and satisfactory performance/ running of the plants on a 24 hours/ round the clock basis.

The contractor shall prepare and implement an effective plant maintenance program in consultation with the Employer/ Employer’s Engineer. It is an absolutely contractor’s responsibility to look after all sorts of maintenance, whether preventive, Minor, Major, or breakdown. The Contractor will be responsible for carrying out day-to-day as well as periodic maintenance necessary to ensure smooth and efficient performance/running of all equipment. Contractor shall attend to all breakdowns of civil, mechanical, electrical, piping and instrumentation works and

maintain the plant and equipment throughout the Contract Period.

Quality Control

A quality control management system shall be developed and maintained, based on the prepared quality control manual. All employed staff shall be trained in the application of the quality control management system. All programmes and systems prepared for Operation and Maintenance, as well as for Staff Training, shall be integrated into the quality control management system. The quality control management system shall be approved by the Employer's Engineer and shall be in accordance with this document.

Emergency Conditions

The Contractor shall establish requirements for dealing with potentially hazardous conditions. All possible situations of emergency shall be scheduled within an emergency plan. Herein, the required services, additional required structures, equipment, staff and other resources shall be planned and recorded for the possible situations of emergency. The emergency action plan shall be submitted for approval to the Employer Engineer. Every effort shall be made to ensure that any emergency situation at the treatment shall be limited to the shortest possible period to minimise any negative effects on the environment. Any necessary shutdown of the plant for operational adjustments shall be restricted to the shortest period with minimum flow at the inlet works and shall be approved by the Employer's Representative/ Employer's Engineer.

The Contractor shall follow the manufacturer's recommendations with respect to equipment maintenance, consumables, the types and grades of lubricants to be used, frequency of lubrication, adjustments to be made regularly and recommended spares to be held in store.

The contractor should plan & procure all spares, chemicals and all consumables, including chemicals, grease, lubricating oil, cleaning agents, laboratory reagents, etc. Further, the contractor will plan the requirements well in advance and procure the material from the market and have a minimum storage of 60 days for all chemicals, including but not limited to coagulant, lime, chlorine, hypo, polymer, etc.

The contractor will prepare and submit daily, fortnightly and monthly reports of plant performance and will assist the Employer in preparing the necessary documents for their purpose and records.

Carry out regular and frequent sampling, analysis and result recording of raw and treated wastewater as per the procedures laid out by the Employer and in conformity with standard methods.

The contractor shall be responsible for maintaining the lighting and other equipment. The premises of various works shall be provided with sodium vapour lamps, fluorescent tubes and also ceiling fans/exhaust fans inside the various structures.

Daily on/off operation and routine cleaning of all types of electric fixtures. Replacement of lamps / Tubes / Fans in case of failure at the contractor's cost.

Contractor shall be responsible for the maintenance of the Garden, lawn, green belt, etc. work shall include the watering, grass cutting, removal of shrubs, weed cutting of branches of tree/ plant, growth of garden, Plantation, etc. The contractor shall be responsible for the maintenance of all buildings in the plant. Work All buildings, bathrooms, toilet to be kept, swept, cleaned and washed daily. Consumable requirement for cleaning such as acid, harpic, phenyl, air freshener, washing

powder, brooms, wire brushes, duster, bamboos, toilet shop, lotion waste, broom shall be provided and used as required. All windows, doors to be cleaned and to keep in good aesthetic condition.

Contractor shall be responsible to keep watch on overflowing of sump. If such overflow takes place the contractor shall have to bear the damages caused to surrounding properties.

On the expiry date of his contract operation and maintenance, the contractor shall hand over the plant back to employer in fully working condition satisfying the requirement of treated water as per specification. All the electrical, mechanical and instrumentation including standby shall be in perfect working condition.

The Contractor shall provide a Notice Boards/Display Boards at appropriate locations detailing precautions to be taken by operation and maintenance personnel in work in conformity with Industries and Labour Regulations and Department of Explosives.

The Contractor shall at its cost take out and maintain an all risk insurance covering loss of and damage to the e Plant including product water main and intermediately pumping station if any. The employer shall be added as additional insured under such coverage. The Contractor and his insurers shall waive their right of subrogation against Employer.

Except where otherwise expressly provided herein, neither Party shall be liable to the other Party for any loss of profit, loss of use, loss of contract or for any indirect or consequential damage whatsoever which may be suffered by the other Party.

The contractor shall grant the Employer a royalty-free, non-exclusive license to use and reproduce its IP rights contained in its O&M documents furnished to the Employer in accordance with the provisions of the Contract, for the sole purposes of the operation and maintenance of the Plant. There shall be no transfer of legal title to any IP rights, which shall remain vested with the Contractor. The Employer shall grant the Contractor a royalty-free license to use and reproduce all IP rights held by the Employer, which are necessary to enable the Contractor to lawfully perform its obligations under the O&M Contract.

The Contractor will comply with all safety rules and regulations and all inter-disciplinary measures as followed by the Employer. The Employer will not be responsible for any accident/injury to the staff or any person of the Contractor or loss or damage to any property. Further, the Employer will not provide any insurance or free medical facility to the staff of Contractor. Providing necessary security arrangement for safety of the plant and contractor’s personnel will be the responsibility of contractor.

All Central / State Government / Semi-Government / Local Body’s rules and regulation pertaining to this contract, all legal formalities pertaining to provident fund, factory act, and all legal formalities shall be followed and observed by the Contractor without any extra cost to the Employer. Please note that failure in complying so, all liabilities arising as per laws will be to the Contractor’s account.