

## **REQUEST FOR PROPOSAL**

**“Selection of an agency for “Creation of 3D city model using UAV survey techniques including creation, updation and integration of property tax records through household survey” for Jabalpur**

**(Second Call), 30<sup>th</sup> June 2021**



Jabalpur Smart City Limited (JSCL)  
MANAS BHAWAN, HOTEL SATYA ASHOKA ROAD,  
WRIGHT TOWN,  
JABALPUR, MADHYA PRADESH 482002

Selection of an agency for “Creation of 3D city model using UAV survey techniques including creation, updation and integration of property tax records through household survey” for Jabalpur

**JABALPUR SMART CITY LIMITED**

Ref NO: JSCL/2021/661/ADM/23

Date 29-06-2021

**Request for Proposal**

Jabalpur smart city limited (SPV), invites online proposal for Selection of an agency for “**Creation of 3D city model using UAV survey techniques including creation, updation and integration of property tax records through household survey**” for **Jabalpur** from eligible firms having experience of similar type of work. Interested bidders may obtain detail RFP Document, from [www.mptenders.gov.in](http://www.mptenders.gov.in).

<b>Particulars:</b>	
Tender reference Number	JSCL/2021/661/ADM/23
Online Pre-Bid Meeting	09-07-2021, 12.30 pm
Last date to receive pre-bid queries	10-07-2021, 5.30 pm
Last date for purchase and online submission the Tender	30-07-2021, 5.30 pm
Date of opening of Technical Bids	31-07-2021
Tender Document Cost to be submit online (non-refundable)	INR 20,000
Earnest Money Deposit	INR 4,00,000 /- online

Note: Bidders are requested to well plan and submit their bids on or before the time and dates as mentioned above, on [www.mptenders.gov.in](http://www.mptenders.gov.in) to avoid any last minute delay or non-submission of bid due to technical reasons. JSCL shall not be liable for any technical issue on the portal.

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### **DISCLAIMER**

The information contained in this REQUEST FOR PROPOSAL document (“RFP”) or subsequently provided to Bidder(s), whether verbally or in documentary or any other form by or on behalf of the Jabalpur Smart City Limited (“JSCL”) or any of its employees or advisors, is provided to Bidder(s) on the terms and conditions set out in this RFP and such other terms and conditions subject to which such information is provided.

This RFP is not an agreement and is neither an offer nor invitation by JSCL to the prospective Bidders or any other person. The purpose of this RFP is to provide interested parties with information that may be useful to them in making their Bids pursuant to this RFP. This RFP includes statements, which reflect various assumptions and assessments arrived at by JSCL in relation to the Project. Such assumptions, assessments and statements do not purport to contain all the information that each Bidder may require. This RFP may not be appropriate for all persons, and it is not possible for JSCL, its employees or advisors to consider the investment objectives, financial situation and needs of each party who reads or uses this RFP. The assumptions, assessments, statements and information contained in the Bidding Documents may not be complete, accurate, adequate or correct. Each Bidder should, therefore, conduct its own investigations and analysis and should check the accuracy, adequacy, correctness, reliability and completeness of the assumptions, assessments, statements and information contained in this RFP and obtain independent advice from appropriate sources.

Information provided in this RFP to the Bidder(s) is on a wide range of matters, some of which may depend upon interpretation of law. The information given is not intended to be an exhaustive account of statutory requirements and should not be regarded as a complete or authoritative statement of law. JSCL accepts no responsibility for the accuracy or otherwise for any interpretation or opinion on law expressed herein.

JSCL, its employees and advisors make no representation or warranty and shall have no liability to any person, including any applicant or Bidder under any law, statute, rules or regulations or tort, principles of restitution or unjust enrichment or otherwise for any loss, damages, cost or expense which may arise from or be incurred or suffered on account of anything contained in this RFP or otherwise, including the accuracy, adequacy, correctness, completeness or reliability of the RFP and any assessment, assumption, statement or information contained therein or deemed to form part of this RFP or arising in any way for participation in this bid stage.

JSCL also accepts no liability of any nature whether resulting from negligence or otherwise howsoever caused arising from reliance of any Bidder upon the statements contained in this RFP.

JSCL may in its absolute discretion, but without being under any obligation to do so, update, amend or supplement the information, assessment or assumptions contained in this RFP.

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The issue of this RFP does not imply that JSCL is bound to select a Bidder or to appoint the Preferred Bidder or Successful Bidder, as the case may be, for the Project and JSCL reserves the right to reject all or any of the Bidders or Bids without assigning any reason whatsoever.

The Bidder shall bear all its costs associated with or relating to the preparation and submission of its Bid including but not limited to preparation, copying, postage, delivery fees, expenses associated with any demonstrations or presentations which may be required by JSCL or any other costs incurred in connection with or relating to its Bid. All such costs and expenses will remain with the Bidder and JSCL shall not be liable in any manner whatsoever for the same or for any other costs or other expenses incurred by a Bidder in preparation or submission of the Bid, regardless of the conduct or outcome of the Bidding Process.

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**ABBREVIATIONS & DEFINITIONS**

<b>AOI</b>	Area of Interest
<b>API</b>	Application Programming Interface
<b>Authorized Signatory</b>	The bidder’s representative/ officer vested (explicitly, implicitly, or through conduct) with the powers to commit the authorizing organization to a binding agreement. Also called signing officer/ authority having the Power of Attorney (PoA) from the competent authority of the respective Bidding firm.
<b>BG</b>	Bank Guarantee
<b>Bid/ e-Bid</b>	A formal offer made in pursuance of an invitation by a procuring entity and includes any tender, proposal or quotation in electronic format
<b>Bidder / Service Provider / Supplier</b>	Any person/ firm/ agency/ company/ contractor/ supplier/ vendor participating in the procurement/ bidding process with the procurement entity
<b>Bidding Document</b>	Documents issued by the procuring entity, including any amendments thereto, that set out the terms and conditions of the given procurement and includes the invitation to bid
<b>BIM</b>	Building Information Modeling
<b>BoM</b>	Bill of Material
<b>CMM/ CMMI</b>	Capability Maturity Model / Capability Maturity Model Integration
<b>Contract/ Procurement Contract</b>	A contract entered between the procuring entity and a successful bidder concerning the subject matter of procurement
<b>Contract/ Project Period</b>	The Contract/ Project Period shall commence from the date of issue of Work order
<b>COTS</b>	Commercial Off the Shelf
<b>Day</b>	A calendar day as per GoR/GoI.
<b>DEM/ DSM/nDSM/DTM</b>	Digital Elevation Model / Digital Surface Model / Normalized Digital Surface Model /Digital

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	Terrain Model
<b>DGCA</b>	Director general of Civil aviation
<b>DGPS</b>	Differential Global Positioning System
<b>DMI</b>	Distance Measurement Instrument
<b>GCP / GCN</b>	Ground Control Point / Ground Control Network
<b>GIS</b>	Geographic Information System
<b>GNSS</b>	Global Navigation Satellite System
<b>Goods</b>	All articles, material, commodities software, and any other category of goods purchased or otherwise acquired for the use of a procuring entity as well as services or works incidental to the supply of the goods if the value of services or works or both does not exceed that of the goods themselves
<b>GPS/ DGPS</b>	Global Positioning System/ Differential Global Positioning System
<b>GPR</b>	Ground Penetrating Radar
<b>GSD</b>	Ground Sample Distance
<b>GST</b>	Goods & Services Tax
<b>IFC</b>	Industry Foundation Classes
<b>ICCC</b>	Integrated Control Command Center
<b>IMU</b>	Inertial Measurement Unit
<b>INR</b>	Indian Rupee
<b>ISI</b>	Indian Standards Institution
<b>ISO</b>	International Organization for Standardization
<b>IT</b>	Information Technology
<b>ITB</b>	Instruction to Bidders
<b>JMC</b>	Jabalpur Municipal Corporation
<b>JSCL</b>	Jabalpur Smart City Limited

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<b>LD</b>	Liquidated Damages
<b>LiDAR</b>	Light Detection and Ranging
<b>LOD</b>	Levels of Details
<b>LoI</b>	Letter of Intent
<b>LULC</b>	Land Use Land Cover
<b>MLS</b>	Mobile Laser Scanning
<b>MSL</b>	Mean Sea Level
<b>Notification</b>	A notification published in the Official Gazette
<b>OEM</b>	Original Equipment Manufacturer
<b>PAN</b>	Permanent Account Number
<b>SLA</b>	Service Level Agreement is a negotiated agreement between two parties wherein one is the customer and the other is the service provider. It is a service contract where the level of service is formally defined. In practice, the term SLA is sometimes used to refer to the contracted delivery time (of the service) or performance.
<b>TIN</b>	Tax Identification Number
<b>TPA</b>	Third Party Auditors

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### 1. Key Information

<b>Tender Number</b>	JSCL/2021/661/ADM/23
Name of Work	Selection of an agency for “Creation of 3D city model using UAV survey techniques including creation, updation and integration of property tax records through household survey” for Jabalpur
Name of Issuer of Tender	Executive Director, Jabalpur Smart City Limited
Last date and time to submit Pre-bid queries	10/07/2021, 05:30 PM
Date and time of online Pre-Bid Meeting	09/07/2021, 12.30 PM
Last date of Purchase Tender	30/07/2021
Date of Online Bid Submission	30/07/2021
Date of Opening of Technical Bid	31/07/2021, 06:00 PM
Place of Bid Opening	Jabalpur Smart City Limited
Address for Pre-Bid Meeting and other communication	Jabalpur Smart City Limited (JSCL), MANAS BHAWAN, HOTEL SATYA ASHOKA ROAD, WRIGHT TOWN, JABALPUR, MADHYA PRADESH 482002
EMD amount	INR 4,00,000
Availability of Tender	<a href="http://www.mpeproc.gov.in">www.mpeproc.gov.in</a> and <a href="http://www.jscljabalpur.org">www.jscljabalpur.org</a> .
Validity of Proposal	Proposals must remain valid 180 days after the Submission date.
Consortium	Consortium is allowed with only three members at the maximum (1 lead bidder + 2 Consortium member)
Bid Evaluation	The selection will be done through Quality cum least cost-based Selection process. Technically qualified bidder with least

**Note:**

JSCL reserves the right to change any schedule of bidding process.

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## **1. Introduction**

### **1.1 Background**

Jabalpur is among the first 20 cities selected in first round of smart cities challenge under Government of India’s (GoI) Smart Cities Mission (SCM) to implement the smart city proposal (SCP). In this context, Jabalpur has incorporated a special purpose vehicle (SPV) – Jabalpur Smart City Limited (JSCL) to plan, design, implement, coordinate and monitor the smart city projects in Jabalpur. JSCL is a company incorporated under Indian Companies Act 2013 with equal shareholding from Madhya Pradesh Urban Development Company Limited (MPUDCL) on behalf of Government of Madhya Pradesh (GoMP) and Jabalpur Municipal Corporation (JMC).

Jabalpur's Area Based Development (ABD) relies on a financially robust and sustainable, retrofit cum Redevelopment 'Hub and Spoke' model in Wright and Napier Town (743 Acres). It smartly interlinks existing strategic urban spaces to regenerate its Central Business District (CBD) and create plug-and-play infrastructure. It focuses on creating dense, compact, mixed use parcels with vibrant streets and safe public spaces for enhanced social interactions. The transformation attempts to unlock a new growth axis and series of cultural (Gol Bazar, Bhanvartal), economic (Civic Centre) and environmental hubs (Ranital lake) to serve as community destinations for the entire city. The area's existing British town planning will be invigorated with a layer of improved infrastructure (roads, signage, lighting, smart metering for water services and RFIDs for waste collection points). It will also incorporate context-sensitive regulations like zoning restrictions, building heights, reconfiguration of marginal spaces and guidance for parking, facades and transit methods.

#### *GIS Survey Background for Jabalpur*

The first household GIS survey of the city was conducted in the year 2008 to 2011. The survey enabled us to identify 1, 70,000 parcels, which have accounted for around 2,10,000 properties. The survey was conducted for an area of approx. 125 sq. km covering all the 60 wards of the city. However, Ward boundaries were revised in 2011 and the number of wards increased from 60 to 70 wards. During the linking of data in 2011 all the data of property tax register comprising of 2, 20,000 properties were linked to survey data and duplicate data of register were identified, During the process 1,10,000 properties were matched to existing MIS property data.

In 2014, ward boundary and city boundary were again revised and subsequently area increased from 125 sq. km to 264 sq. km and the number of wards also increased to 79. To access the increase in property count, fresh GIS survey was conducted in new wards, which accounted for around 43,500 property. However, these properties were not matched completely after the registration of the property.

At present Jabalpur is having 2, 57, 000 properties registered in e-nagarpalika, however, the count of property in MIS is low and the purpose of conducting drone-based survey is to

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identify all such new properties, which were not linked to E-nagarpalika and to verify and validate the existing properties already linked to e-nagarpalika.

## **1.2. Brief description of Bidding Process**

1.2.1 The Bidder shall submit its EMD, Technical Proposals, financial proposal through online at [www.mptenders.gov.in](http://www.mptenders.gov.in)

1.2.2 The Proposals super scribing the name RFP FOR – “Creation of 3D city model using UAV survey techniques including creation, updation and integration of property tax records through household survey”

1.2.3 The Bid shall be valid for a period of not less than 180 (one hundred eighty) days from the Bid Due Date.

1.2.4 In terms of the RFP, a Bidder is required to deposit, along with its Bid, a bid security as the Earnest Money Deposit (“EMD”) of INR 4,00,000/- (“Bid Security”) through online submission and the validity period shall not be less than 180 (one hundred and eighty) days from the Bid due date and may be extended as may be mutually agreed between JSCL and the Bidder from time to time. The Bid shall be summarily rejected if it is not accompanied by the Bid Security/ EMD. EMD and Tender fee shall not be applicable for MSME, provided The Certificate of MSME incorporation to be attached along with the bid document.

1.2.5. Financial bid will not be opened for those bidders, who don't qualify the technical evaluation. Bid Security amount shall be returned for those who don't qualify the financial evaluation stage and after PBG is submitted by successful bidder.

1.2.6 This RFP document can be downloaded from <https://www.mptenders.gov.in/> and purchased only from the above-mentioned website. Bidding document is downloaded from the website, then the Bidder will pay a sum of INR 20,000/- (Rupees Twenty thousand only) as non-refundable cost of the bidding document on or before submission of Bid. The payment shall be made through online only. The Bidder shall be required to submit the Bid in hard bound cover

## **1.3 Performance Bank Guarantee**

1.3.1 The successful bidder, shall submit the 3% PBG of the total contract value at the time of agreement (PBG Format shared in annexure-13).

We do hereby undertake, that until a contract is prepared and executed, this bid together with your written acceptance thereof, the RFP and placement of letter of intent awarding the contract, shall constitute a binding contract between us.

1.3.2 The PBG shall be from a Nationalized Bank or a Scheduled Commercial Bank in the format prescribed in Annexure 12, payable on demand, for the due performance and fulfilment of the contract by the bidder.

1.3.3 The PBG shall be valid till satisfactory completion of Post Implementation Support. The PBG may be discharged/returned by JSCL upon being satisfied that there has been due performance of the obligations of the bidder under the contract. However, no interest shall be payable on the PBG. The PBG shall be valid only up to the completion of project.

1.3.4 In case the project is extended after the project schedule as mentioned in the RFP, the PBG shall be accordingly extended by the Successful Bidder till the extended period

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1.3.5 In the event of the Bidder being unable to service the contract for whatever reason JSCL would invoke the PBG. Notwithstanding and without prejudice to any rights whatsoever of JSCL under the contract in the matter, the proceeds of the PBG shall be payable to JSCL as compensation for any loss resulting from the bidder’s failure to complete its obligations under the Contract. JSCL shall notify the Bidder in writing of the exercise of its right to receive such compensation within 14 days, indicating the contractual obligation(s) for which the Bidder is in default

1.3.6 JSCL shall also be entitled to make recoveries from the bidder’s bills, PBG, or from any other amount due to him under this Agreement, the equivalent value of any payment made to him due to inadvertence, error, collusion, misconstruction or misstatement.

1.3.7 On satisfactory performance and completion of the order in all respects and duly certified to this effect by JSCL, Contract Completion Certificate shall be issued and the PBG would be returned to the Successful Bidder

**1.4 Bid Evaluation**

To be eligible for pre-qualification and short-listing, a bidder shall fulfil the below mentioned eligibility criteria:

- a. JSCL will constitute a Bid Evaluation Committee (BEC) to evaluate the responses of the bidders
- b. The BEC constituted by JSCL shall evaluate the responses to the RFP and all supporting documents / documentary evidence. Inability to submit requisite supporting documents / documentary evidence, may lead to rejection.
- c. Bidders who qualify in pre-qualification shall only be evaluated for technical qualification.
- d. The decision of the BEC in the evaluation of responses to the RFP shall be final. No correspondence shall be entertained outside the process of negotiation/ discussion with the Committee.
- e. The BEC may seek clarifications from any bidder, as necessary proposals and may visit Bidder’s client site to validate the credentials/ citations claimed by the bidder.
- f. Each of the responses shall be evaluated as per the criteria and requirements specified in this RFP

**1.5 Pre-Qualification**

The minimum eligibility criteria that should be satisfied by the Bidders are mentioned below. The formats for the Pre-qualification documents are given in this RFP, unless specified otherwise

#	Criteria	Supporting Documents
PQ-1	<p><b>Legal Entity:</b>                      The Lead bidder &amp; consortium should be a company registered under Indian Companies Act, 1956 /2013 or a Partnership Firm registered under Indian Partnership Act, 1932 or Limited Liability Partnership Firm under Limited Liability Partnership Firm Act 2008  <b>Maximum 3 members are allowed in consortium including the lead bidder</b>                      The Lead Bidder or members of the consortium member, in case of a Consortium,</p>	<p>Copy of Certificate of Incorporation signed by Authorized Signatory of the Bidder / Lead Bidder or A copy of the partnership deed/ instrument of partnership or a Copy of LLP agreement or any other relevant document</p>

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	shall not be under a declaration of ineligibility for corrupt or fraudulent practices with any of the State government/ Central Government / semi government / PSU / Municipal agencies in India at the time of submission.	
PQ -2	The Lead bidder & consortium should have PAN (Permanent Account Number) with Income Tax authority in India.	Copy of the PAN Card signed by Authorized Signatory of the Bidder / Lead Bidder
PQ-3	The lead bidder & consortium should have in its name GST Registration number in India.	Copy of GST Registration Certificate signed by Authorized Signatory of the Bidder / Lead Bidder.
PQ-4	<p><b>Financial: Turnover</b> The lead bidder’s average annual Turnover on the GIS based works shall not be less than INR 4 Crore during the last 3 financial years. GIS based works specifically include 2D/3D GIS based mapping/surveying/GIS application development/ UAV based Survey/Remote sensing/Photogrammetry/GPR/Lidar survey.</p> <p>Other consortium member should have minimum average annual turnover of INR 50 lacs, from the specific business area limited to GIS based mapping/surveying, UAV Survey, /-GPR/Lidar survey for last 3 audited financial years (2017-18, 2018-19 &amp; 2019-20.)</p>	Required CA Certificate with CA’s Registration Number/ Seal clearing mentioning the Turnover or Audited Balance Sheet
PQ-5	<p><b>Financial: Net Worth</b> The Lead bidder should have a positive net worth as on 31-03-2020</p>	CA Certificate with CA’s Registration Number/ Seal
PQ-6	<p><b>Project Experience:</b> The Lead Bidder/ Consortium partner should have been engaged in at least Two of the following categories for any State/ Central Government Organization / PSU / Semi-Govt./ULB in <b>last 7 years</b></p> <ol style="list-style-type: none"> <li>UAV / Aerial Survey with Image processing, and 2D/3D mapping &amp; modelling of the city minimum area covered 50 Sq. Km.</li> <li>Mobile LIDAR survey for at least 5 Sq. Km/20-line km/500 buildings</li> <li>2D/3D GIS mapping of utility (water/</li> </ol>	<p>Work Orders / Service Agreement and Completion Certificate from the client</p> <p>Or</p> <p>Work order/ Service Agreement and Phase Completion certificate from the client</p>

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	telecom/Gas/ electricity asset/ sewerage, etc. 20 + line km d. Bidder should have either single work order of 100000+ household property survey or two similar work orders of minimum 50000+ each	
PQ-7	The Lead Bidder or Consortium member should maintain a support office in Jabalpur for maximum two years (Note: If the bidder, at the time of bidding, does not have a local support office then an undertaking needs to be submitted on the bidder’s letter head that an office of desired sitting space of 10 persons will be setup including all office amenities for meetings, presentations etc. within two months from the date of signing the contract.)	Rent/Lease agreement of ownership details of office/Undertaking on the bidder’s letter head
PQ-8	<b>Quality Certificate:</b> The Lead bidder must possess a valid: ISO certificate 9001:2015 /ISO 27001:2013 specific to GIS based activity if any	Copies of relevant certificates valid as on date of bid submission particularly GIS specific metadata as per respective ISO standards
PQ-9	<b>Undertaking:</b> Bidder (In case of Consortium, all participating Agencies/ Companies / Firms) should not be blacklisted and/or barred by any government agency/undertaking and/or by any of the competent courts for any default at time of submission of bid.	Self-Attested Letter by each Company / Firm / Agency
PQ-10	Bidder (Lead Bidder in case of consortium) should have minimum 20 Professionals working on the company’s payroll on GIS based Projects	HR Executives undertaking to Be submitted in the company letter head

### 1.6 Technical Evaluation Criteria

S. NO.	Criteria	Basis of Valuation	Maximum Marks	Supporting documents
A	<b>Commercial &amp; Professional Strength of the Bidder</b>		<b>20</b>	
A1.	Turnover of Lead Bidder during the last 3 financial years. (FY 2017-18, FY 2018-19 and FY 2019-20)	a) $\geq$ INR 4 Cr. and $<$ INR 6 Cr. - 10 marks b) $\geq$ INR 6 Cr. And $<$ INR 8 Cr. - 15 marks c) $\geq$ INR 8 Cr - 20 marks	20	CA Certificate with CA’s Registration Number/ Seal clearly mentioning the overall Turnover or Audited Balance Sheet

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S. NO.	Criteria	Basis of Valuation	Maximum Marks	Supporting documents
<b>B</b>	<b>Experience of the Bidder</b>		<b>55</b>	
<b>B1</b>	The Lead Bidder/ Consortium Partner should have experience in development / customization and implementation of the following projects for State/ Central Government Organization / PSU / Semi Govt. in India in last 7 years;	<ol style="list-style-type: none"> <li>1. 2D/3D city mapping &amp; modelling using UAV / Aerial Survey with Image processing, (minimum 1 project of 50 sq.km each.) 1 projects-10 marks 2 projects-15 marks ≥ 3 Projects-20 marks</li> <li>2. 2D/3D GIS mapping of underground utility (water/telecom/ electricity/ Gas/ sewer using GPR Methods– minimum 1 project of 100-line kms. each. 1 projects-3 marks 2 Projects - 6 marks 3 or more Projects-10 marks</li> <li>3. GIS based Property survey and mapping for minimum of 50,000 or more households in one single work project 1 project - 3 marks 2 projects -6 marks 3 projects-10 marks 4 or more projects-15 marks</li> <li>4. Terrestrial LIDAR Mapping of minimum 5 sq. km/20-line kms or 500 building in one project 1 project- 3 marks 2 projects- 6 marks 3 or more projects-10 marks</li> </ol>	55	Work Orders/ CA Certificate / Service Agreement or Completion Certificate from the client. Maximum weightage of the any project will be one whether it covers multiple objectives of this section.
<b>C</b>	<b>Technical Presentation</b>		<b>25</b>	
C1	Solution Proposed	Qualitative assessment based on Demonstration of understanding of the Project requirements	10	Marks would be allotted based on the Technical Presentation Assessment.

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S. NO.	Criteria	Basis of Valuation	Maximum Marks	Supporting documents
		<p>- <u>Solution proposed and its components</u>, -1 mark</p> <p>- <u>Technologies adopted</u>  a) Proposed Drone for survey (Technical specifications and capabilities along with product brochure required )-3 Marks</p> <p>- <u>Major Challenges and Mitigation proposed</u> – 2 Mark</p> <p>-<u>Approach &amp; Methodology and Implementation Roadmap</u>-4 Marks</p>		The presentation would be considered as part of the Technical Proposal for further Reference
D	Team to be deployed on site / offsite in respect to the Project Timeline and Work Plan	Qualitative assessment based on the Team Proposed by bidders and Experience of Project Leader / Team Members (as per Annex 3.3). Resource qualification and education should be proposed with technical presentation	15	Details to be provided in Technical Proposal in the form of CVs of the proposed team (Annexure 7)
	<b>Total Marks</b>		<b>100</b>	

Note: -

1. CVs needs to be provided in the format provided as Annexure 7 in the RFP at the time of first milestone. Post approval from JSCL the resources would be deployed at the project site as per the proposed timeline of the solution.

2. All CVs should be duly attested by HR and Authorized Signatory of the Bidder

3. Academic Qualification and experience would be with respect to proposed post in solution document. JSCL shall interview/approve the resources suggested by Selected Bidder before their deployment on board. It is expected from the bidder that proposed resource educational qualification will be as per skill required for the project activities.

4. SI should submit profiles of only those resources who shall be deployed on the project. Any change of senior level resources/project manager/team leader (as proposed as part of bidder’s proposal in response to this RFP) will only be consider after approval received from JSCL. Without the consent of JSCL if resources are being replaced then it will first lead to suitable penalty being deducted from due invoice payments of the bidders @ INR 1,00,000 for each senior level resource or equivalent. (Every time such a resource is being replaced) Also the replacement, CV should be approved by JSCL having equivalent or more academic

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qualification and experience. With the consent and approval of JSCL a resource could be replaced by the bidder not more than two times during the project period. Replacement of a resource more than two times shall attract penalty @ 100000 INR each time for every resource being replaced

5. Project Manager should share Weekly/monthly progress report; shall attend all the weekly/monthly review meetings with JSCL and, should also represent the solution provider in all the important meetings

6. The selection(s) will be made from the Qualified Bidders found to be eligible on the basis of the Technical Proposal (including presentation, if any) in accordance to the procedure as described in 1.7 Bid evaluation.

7. The Total Technical Score will be calculated out of 100 marks. The Applicant has to score the minimum Qualifying Marks to qualify in the Technical Evaluation Criteria which is Seventy (70) marks out of total 100 marks of Technical Evaluation criteria.

8. The Applicants scoring marks less than the minimum qualifying marks as mentioned above shall be disqualified for Financial Bid Opening. The Applicants scoring marks equal to or more than the minimum qualifying marks as mentioned above shall be declared as Technically Qualified Applicants.

9. Bidder who are qualified in PQ and are absent in technical presentation will not be evaluated

### **1.7 Bid Evaluation (Quality cum Least cost-based system)**

Technical Proposal will carry 100 Marks and the bidder should secure 70 or greater than 70 Marks to get qualified and become eligible for the financial evaluation.

Only the Technical Proposals will be opened first.

The Financial Bid of those Bidders who have found to be technically eligible will be opened. The Financial bids of ineligible bidders will not be opened.

The Financial Bids shall be opened in the presence of representative of technically eligible Bidders, who may like to be present Jabalpur Smart City Ltd. shall inform the date, place and time for opening of the Financial Bid.

The Technical Proposals will be evaluated as per the criteria mentioned above.

#### **1.7.1 Evaluation Methodology**

Quality cum least cost-based Selection method will be followed for selecting the Bidder/ Agency:

1.7.2 After selection, a Letter of Appointment (“LOA”) shall be issued in the format prescribed under Annexure-4 here to or in the format as may be modified by JSCL for time to time, in duplicate, by JSCL to the Preferred Bidder and the Preferred Bidder shall, within 7 (seven) days of the receipt of the LOA, sign and return the duplicate copy of the LOA in acknowledgement thereof.

In the event the duplicate copy of the LOA duly signed by the Preferred Bidder is not received by the stipulated date, JSCL may, unless it consents to extension of time for submission thereof, appropriate the Bid Security of such Bidder as Damages on account of

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failure of the Preferred Bidder to acknowledge the LOA, and the next eligible Bidder may be considered.

1.7.3 After acknowledgement of the LOA as aforesaid by the selected bidder, the selected bidder shall execute through its authorised signatory the Consultancy Agreement with JSCL, in the draft format prescribed under Annexure-5 hereto or in the format as may be modified by JSCL for time to time. The selected bidder shall not be entitled to seek any deviation in the Consultancy Agreement.

1.7.4 This RFP includes the required Annexures for reference and the bidders are invited to submit their proposal for “Creation of 3D city model using UAV survey techniques including creation, updation and integration of property tax records through household survey” for Jabalpur in accordance with the annexed proposal documents.

1.7.5 Any queries or request for additional information concerning this RFP shall be submitted in writing or e-mail to the officer designated below.

Address: Executive Director, Jabalpur Smart City Limited, Jabalpur  
Manas Bhawan Wright Town, Jabalpur 482001  
Tel: 9039294264

Contact person – Balendra shukla

Email: [ceojscl@mpurban.gov.in](mailto:ceojscl@mpurban.gov.in), [balendra.shukla@jscljabalpur.org](mailto:balendra.shukla@jscljabalpur.org)

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## **2. INSTRUCTION TO BIDDERS**

### **2.1. Conflict of Interest**

2.1.1 JSCL requires that the Bidders provide professional, objective, and impartial service and at all times hold the Client’s interest’s paramount, strictly avoid conflicts with other assignments or their own corporate interests and act without any consideration for future work.

2.1.2 Bidder shall not have a conflict of interest that may affect the selection process or the Service pursuant to this document. The bidders have an obligation to disclose any situation of actual or potential conflict that impacts their capacity to serve the best interest of the Client and the Assignment, or that may reasonably be perceived as having this effect. Failure to disclose said situations may lead to the disqualification of the Bidders or the termination of its Contract. Any Bidder found to have a Conflict of Interest shall be disqualified.

2.1.3 The Agency shall not accept or engage in any assignment that would be in conflict with its prior or current obligations under any other agreements/ contracts or any such understanding which may place it in a position of not being able to carry out the assignment in the best interests of JSCL.

2.1.4 Without limiting the generality of the above, a Bidder shall be deemed to have a Conflict of Interest that affects the selection process, if:

A. Such Bidder has a relationship with another Bidder, directly or through common third parties, that puts them in a position to have access to each other’s information about, or to influence the Proposal of either or each of the other Bidder; or

B. There is a conflict among this and other consulting assignments of the Bidder (including its personnel and Sub-Agency) and any subsidiaries or entities controlled by such Bidder or having common controlling shareholders. The duties of the Agency depend on the circumstances of each case. While providing services to JSCL for this particular assignment, the Agency shall not take up any assignment that by its nature will result in conflict with the present assignment; or

### **2.2. Submission, Receipt and opening of Proposals**

2.2.1 The original Proposal (Technical Proposal) shall contain no interlineations or overwriting, except as necessary to correct errors made by the Bidders themselves. The person who signed the Proposal must initial such corrections. Submission for both Technical and Financial Proposals should respectively be in the formats given in Annexure-2 and Annexure-3 of the RFP. The proposal shall be submitted in English Language only.

2.2.2 No conditional tender/ bid/ proposal will be accepted.

2.2.3 All the pages of the proposals (Technical Proposal and Financial Proposal) shall contain Bidder’s stamp along with initials. Each page of the RFP document duly signed by the authorized signatory is to be returned acknowledging the terms and condition thereof.

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An authorized signatory of the Bidders shall initial all pages of the original Proposals. The signed Proposals shall be marked “Original”.

2.2.4 Technical and Financial Proposal would only be submitted online. However, in case required for any clarity of submitted documents, JSCL may ask for hard copy of the same/original copy.

**Technical Proposal: Clear copy of documents to be submitted online**

1. Letter of Proposal Annexure-1
2. Technical Proposal Format -Annexure 2
3. Payment Receipt of INR 20,000/- towards cost of purchase.
4. Bid Security / EMD of INR 4,00,000/- (4 Lakhs) in the form of online transaction
5. Signed Copy of tender document
6. Details of the bidder and its technical capability Annexure 2.1
7. Format for Project Citations -Annexure 2.2
8. Proposed Work Plan, Approach and Methodology -Annexure 2.3
9. Financial Proposal Cover Letter -Annexure 3.1
10. Financial Proposal Format & Instructions -Annexure 3.2
11. Project Resource Manpower List-Annexure 3.3
12. Letter of Appointment-Annexure 4
13. Contract Agreement between JSCL and Bidder -Annexure 5
14. Consortium Agreement -Annexure 6
15. Format for CV of Key Personnel-Annexure 7
16. Format for Declaration by the bidder for not being Blacklisted / Debarred-Annexure 8
17. Format of sending pre bid queries-Annexure 9
18. Power of Attorney- Annexure 10
19. Format for Annual Turnover Annexure 11
20. Format for Performance Bank Guarantee Annexure-12
21. Input parameters for field property survey Annexure 13.1 & Annexure 13.2
22. LoD-Level of Detail Interpretation- Annexure 14
23. Data Sheet -Annexure 15

**Financial Proposal (Submit Online only)**

2.2.5 Only enclosed formats as provided in this RFP should be used. All sheets need to be submitted after affixing seal of the entity/ company and signature of the authorised signatory. Additional sheets, duly authenticated, may be attached to elucidate specifications or clarify the specific issues.

2.2.6 Consortium/JV is permitted to bid.

2.2.7 This RFP documents should be signed and stamped by the Bidder on each page accepting terms and conditions of the RFP documents.

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### **2.3. Confidentiality**

2.3.1 The Selected Agency shall keep all the information pertaining to the assignment CONFIDENTIAL and shall not provide/disclose any information of the assignment to anybody except on specific instructions in writing from JSCL.

### **2.4 Right to reject any or all Proposals**

2.4.1 Notwithstanding anything contained in this RFP, JSCL reserves the right to accept or reject any Proposal and to annul the selection process and reject all Proposals, at any time without any liability or any obligation for such acceptance, rejection or annulment, and without assigning any reasons thereof.

2.4.2 JSCL reserves the right to reject any Proposal if:

(a) At any time, a material misrepresentation is made or discovered, or

(b) The Bidder does not provide, within the time specified by JSCL, the supplemental information sought by JSCL for evaluation of the Proposal

2.4.3 Misrepresentation/ improper response by the Bidder may lead to the disqualification of the Bidder. If such disqualification / rejection occurs after the Proposals have been opened and the highest ranking Bidder gets disqualified / rejected, then JSCL reserves the right to consider the next preferred Bidder, or take any other measure as may be deemed fit in the sole discretion of JSCL, including annulment of the selection process.

2.4.4 JSCL reserves the right to forfeit the Bid Security/ EMD amount on non- acceptance/ non-compliance of offer in full or part or if JSCL feels that the Bidder has misguided in any way.

2.4.5 The Bidder shall quote the Financial Proposal including all taxes, duties, levies or other transportation charges, excluding GST. No price revision/ alteration will be allowed after the receipt of the Bid.

### **2.5 Property Rights of Assignment Outputs**

2.5.1 Agency shall hand over all the related data, pictures, visuals, images, sound, script and any other workings and outputs generated for executing the assignment as and when requested by JSCL and on successful completion of the assignment in editable soft and hard copies.

**2.5.2 Such database and outputs as developed for the assignment shall be the Sole Property of JSCL and the Agency shall treat all this information Confidential and shall not share with anybody else except on specific written instructions.**

### **2.6 Award of Contract**

2.6.1 The Letter of Appointment will be issued separately to the selected bidder.

2.6.2 A Consultancy Agreement will be executed with the selected bidder for the Services as described in this RFP.

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2.6.3 The period for completion of this project is 17 months from the date of the work order issued or permission received from DGCA whichever is later. Any delay due to the clearance or approval pending from JSCL end will be considered appropriately. JSCL may extend the period based on the request of implementing agency if the delay reason is authentic/considerable.

### **2.7 Rights reserved with JSCL**

The JSCL reserves the following rights: -

2.7.1 Reject the proposals received in response to the RFP containing any deviation from the payment terms stipulated in the RFP;

2.7.2 Waive or change any formalities, irregularities, or inconsistencies in proposal format delivery;

2.7.3 Extend the time for submission of proposal;

2.7.4 Modify the RFP document, by an amendment that would be informed to the short-listed bidders;

2.7.5 Independently ascertain information from other organizations to which bidder has already extended services for similar assignments;

2.7.6 To terminate the services if the assignment is not proceeding in accordance with the terms of contract;

2.7.7 Modify the time period for completion of assignment during the execution of assignment if it deems fit;

2.7.8 JSCL has right to de-scope any line item (scope of work) partially or completely at any time if required. Bidder has to bind to accept the final decision of JSCL.

### **2.8. Contacts during Bid Evaluation**

The Bids shall be deemed to be under consideration immediately after they are opened and until such time JSCL makes official intimation of award rejection to the Bidders. While the Bids are under consideration, the Bidders and or their representatives or other interested parties are advised to refrain from contacting by any means, JSCL and or their employees' representatives on matters related to the Bids under consideration.

### **2.9 Fraud and Corrupt Practices**

2.9.1 The Bidder and their respective officers, employees, agents and advisers shall observe the highest standard of ethics during the Bidding Process and subsequent to the issue of the LOA and during the subsistence of the Consultancy Agreement. Notwithstanding anything to the contrary contained herein, or in the LOA or the Consultancy Agreement, JSCL shall reject a Bid, withdraw the LOA, or terminate the Consultancy Agreement, as the case may be, without being liable in any manner whatsoever to the Bidder or Successful Bidder, as the case may be, if it determines that the Bidder or Successful Bidder, as the case may be, has, directly or indirectly or through an agent, engaged in corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practice in the Bidding Process. In such an event, JSCL shall forfeit and appropriate the Bid Security, as the case may be, as Damages without prejudice to any other right or remedy that may be available to JSCL hereunder or otherwise.

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2.9.2 Without prejudice to the rights of JSCL under Clause 3.1 hereinabove and the rights and remedies which JSCL may have under the LOA or the Consultancy Agreement, if a Bidder or Successful Bidder, as the case may be, is found by JSCL to have directly or indirectly or through an agent, engaged or indulged in any corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practice during the Bidding Process, or after the issue of the LOA or the execution of the Consultancy Agreement, such Bidder or Successful Bidder shall not be eligible to participate in any tender or RFP issued by JSCL during a period of 2 (two) years from the date such Bidder or Successful Bidder, as the case may be, is found by JSCL to have directly or indirectly or through an agent, engaged or indulged in any corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practices, as the case may be.

2.9.3 For the purposes of this Clause 3, the following terms shall have the meaning hereinafter respectively assigned to them:

(a) “Corrupt practice” means the offering, giving, receiving, or soliciting, directly or indirectly, of anything of value to influence the actions of any person connected with the Bidding Process (for avoidance of doubt, offering of employment to or employing or engaging in any manner whatsoever, directly or indirectly, any official of JSCL who is or has been associated in any manner, directly or indirectly with the Bidding Process or the LOA or has dealt with matters concerning the Consultancy Agreement or arising there from, before or after the execution thereof, at any time prior to the expiry of 1 (one) year from the date such official resigns or retires from or otherwise ceases to be in the service of JSCL, shall be deemed to constitute influencing the actions of a person connected with the Bidding Process);

(b) “Fraudulent practice” means a misrepresentation or omission of facts or suppression of facts or disclosure of incomplete facts, in order to influence the Bidding Process;

(c) “Coercive practice” means impairing or harming, or threatening to impair or harm, directly or indirectly, any person or property to influence any person’s participation or action in the Bidding Process;

(d) “undesirable practice” means (i) establishing contact with any person connected with or employed or engaged by JSCL with the objective of canvassing, lobbying or in any manner influencing or attempting to influence the Bidding Process; or (ii) having a Conflict of Interest; and

(e) “Restrictive practice” means forming a cartel or arriving at any understanding or arrangement among Bidders with the objective of restricting or manipulating a full and fair competition in the Bidding Process.

## **2.10 Pre-Bid Conference**

2.10.1 Pre-Bid conferences of the Bidders shall be convened at the designated date, time and place as per data sheet. Two people from one bidder shall be allowed to attend the meeting at their own cost and seek clarification regarding any aspect and understand the requirement of the department. Since during the ongoing Covid-19 phase provisions shall also be in place for

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attending the pre bid meeting and seek clarification through virtual platform of video conferencing etc.

All bidder shall send their queries to [ceojiscl@mpurban.gov.in](mailto:ceojiscl@mpurban.gov.in) and [balendra.shukla@jscljabalpur.org](mailto:balendra.shukla@jscljabalpur.org), till the pre bid meeting date in a respective format given in

Annexure-10, JSCL has right to not accept any queries received after mentioned date.

2.10.2 During the course of Pre-Bid conferences, the Bidders shall be free to seek clarifications and make suggestions for consideration of JSCL. JSCL shall endeavour to provide clarifications and such further information as it may, at its sole discretion, consider appropriate for facilitating a fair, transparent and competitive Bidding Process.

### **2.11 Miscellaneous**

2.11.1 The Bidding Process shall be governed by, and construed in accordance with, the laws of India and the Courts at Bhopal shall have exclusive jurisdiction over all disputes arising under, pursuant to and/ or in connection with the Bidding Process.

2.11.2 JSCL, in its sole discretion and without incurring any obligation or liability, reserves the right, at any time, to;

(a) Suspend and/ or cancel the Bidding Process and/ or amend and/ or supplement the Bidding Process or modify the dates or other terms and conditions relating thereto;

(b) Consult with any Bidder in order to receive clarification or further information;

(c) Retain any information and/ or evidence submitted to JSCL by, on behalf of, and/ or in relation to any Bidder; or

(d) Independently verify, disqualify, reject and/ or accept any and all submissions or other information and/ or evidence submitted by or on behalf of any Bidder.

e) Bidder shall analyse and assess the complete scope of work as per RFP and check for the line items mentioned in the BoQ (Annexure 3.2). If bidder feels any such line item is being missed in BoQ for some/any specific scope of work as mentioned in the RFP the same must be put up in queries and for further clarification during pre-bid meeting.

2.11.3 It shall be deemed that by submitting the Bid, the Bidder agrees and releases JSCL, its employees, agents and advisers, irrevocably, unconditionally, fully and finally from any and all liability for claims, losses, damages, costs, expenses or liabilities in any way related to or arising from the exercise of any rights and/ or performance of any obligations hereunder, pursuant hereto and/ or in connection herewith and waives any and all rights and/ or claims it may have in this respect, whether actual or contingent, whether present or future.

### **2.12 The Bidder**

The Bidder for participation in the Selection Process, may be a single entity or a group of entities (the “Consortium”), coming together to execute the project. The term 'Bidder' used herein would apply to both a single Entity and a Consortium.

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- b) No Member at any given point of time, may assign or delegate its rights, duties or obligations under the Agreement/Contract except with prior written consent of JSCL.
- c) No bidder applying individually, or as a member of a Consortium can be member of another consortia bidding for the project
- d) In the event the Bidder is a Consortium, it shall, comply with the following additional requirements:
- (1). Number of members in a consortium shall not exceed two including the lead member
  - (2). The proposal is submitted in the name of the Lead Bidder,
  - (3). The Members of the Consortium shall be responsible for successful implementation of the project throughout the terms of the contract
  - (4). The Lead Member shall be authorized and shall be fully responsible for the accuracy and veracity of the representations and information submitted by the Members respectively from time to time in the response to this RFP.
- e. The Members of the Consortium shall submit a declaration as set out in Annexure 6 inter alia consisting of the following:
1. Undertake that each of the members of the Consortium shall have an independent. Definite and separate scope of work which was allocated as per each member’s field of expertise
  2. Commit to the profit and loss sharing ratio of each member
  3. Commit to the scope of work, rights, obligations and liabilities to be held by each member; specifically commit that the Lead Member shall be answerable on behalf of other members for the performance of obligations under this Agreement,
  4. Provide a brief description of the roles and responsibilities of individual members; and clearly define the proposed administrative arrangements (organization chart) for the management and execution.
- f. The lead bidder shall be jointly & severally responsible for complete scope, whereas partner/s shall be severally responsible only for its/their respective scope Any change of a Consortium Member other than the Lead Member can be done only under extreme circumstances such as non-performance of the Consortium member, insolvency or bankruptcy of the Consortium member, which shall be done only with the prior written approval of JSCL. Provided that in the event of any such approved change of Consortium member, the new member (company) replacing outgoing Consortium member shall have same or higher financial, technical and legal qualifications as the outgoing member, and to the satisfaction of JSCL In the event JSCL does not grant approval for the change of the Consortium member other than the Lead Member or suitably qualified replacement member (companies) are not available/ found, the exit of such Consortium member shall constitute a breach of the Contract.
- g. All members of the consortium are required to follow the highest level of work ethics, if any member of the consortium has a Conflict of Interest or indulges in Prohibited Practices; the whole Consortium is liable to be disqualified. Further, in the event any entity has been barred by the Central Government, any State Government, a statutory authority or a public sector undertaking, as the case may be, from participating in any project or bid, and the bar subsists as on the date of Last Date of Submission, it would not be eligible to submit a Proposal either by itself or as part of a Consortium

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### **2.13 Sub-Contracting**

The bidder would not be allowed to sub-contract work, except for the following:

Field Survey Work

Note: Sub-contracting shall be allowed only with prior written approval of JSCL. However, even if the work is sub-contracted, the sole responsibility of the work shall lie with the lead bidder. The lead bidder shall be held responsible for any delay/error/non-compliance etc. of its sub-contracted vendor. The details of the sub-contracting agreements (if any) between both the parties would be required to be submitted to JSCL.

### **2.14 Right to Vary Quantity**

- a) After the award of contract, overall cost of quantity of goods, works or services originally specified in the bidding documents may be either increased or decreased up to  $\pm 20$  percent as per requirement or as necessary. It shall be without any change in the unit prices or other terms and conditions of the Bid and the bidding documents.
- b) If JSCL does not undertake any activity or reduce its volume/scope compared to the quantity specified in the bidding documents due to change in circumstances, the bidder shall not be entitled for any claim or compensation except otherwise provided in the bidding document.
- c) Repeat orders for additional quantities/service may be placed, if it is provided in the bidding document, on the rates and conditions given in the contract if the original order was given after inviting open competitive bids. Delivery or completion period may also be proportionally increased

### **2.15 Non-disclosure Agreement**

Successful bidder shall require signing the Non- Disclosure Agreement with the JSCL.

## **3. Scope of Work**

Requirements mentioned in this RFP are indicative only and written purely for the purpose of making the Bidders able to estimate its efforts and costs required to achieve project objectives successfully.

**Successful Bidder/System Integrator is supposed to undertake the following broad activities:**

- a) Getting necessary permission from DGCA to fly the drone for survey over project area shall be liable to bidder, JSCL only facilitate in this process and provide the required request letter for facilitation.
- b) Establishing and Creation of 3D City maps and models as per open standard of City GML with LOD 1 models with realistic façade with facet for entire city

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- in 3d compatible formats and LOD 2 models (3d Models with realistic façade including each floors which can be selected separately) for specific buildings with base maps, including mapping and capturing all necessary attributes for all the key point of interests (hospitals, Police Station, Malls, Parks, Bus Station, Railway Station, Road Network, Secretariat Buildings, utilities and all features present on Ortho images etc.,). Detailed list of structures/Data layers to be mapped have also been shared with this document.
- c) Acquisition of Stereo images from vertical, Nadir, using UAV (3-5)cm Ground Sampling Distance (GSD) or better resolution)
  - d) Performing complete Image processing includes DTM, DSM, Contour and True Ortho generate, seam line editing, colour balancing for images acquired from UAV Technology etc.
  - e) The bidder shall interpret, update and digitize all physical features such as - Roads, building footprints, railway lines, road dividers, footpaths, compound walls, water bodies, with the existing maps/field surveys/aerial imagery using stereo extraction method in suitable mapping scale as per requirement (Under heading 3.3.1). Every feature shall have their elevation information with attributes. Objective is to achieve the desired accuracy level of the features collected utilising the resources and methods available.
  - f) Undertaking Mobile/terrestrial LiDAR survey for ABD area in the city for approx. 45-line kms with 360-degree panoramic view (horizontal accuracy of 5 cm or better and vertical accuracy 10 cm or better)- using single instrument with multiple sensors.
  - g) Undertaking GPR survey for underground utilities like water, sewerage, telecom and electric as per scope
  - h) Bidders has to do the ground truthing for those properties and asset whose accurate mapping is not possible either through true ortho or drone images with Mobile lidar data.
  - i) Verify the digitized features during field survey and collect non spatial information, bidder may use existing Property surveyed data available with the JSCL for reference. For updation or collection of property data bidders would Conduct geo-enabled field survey/ using mobile / handheld device with developed mobile app for faster, transparent and better survey of Buildings Footprints / Property details, and other asset mapped using aerial photographs
  - j) Bidder has to do the complete survey of new property or any updation in old GIS map including, no of floor, uses of buildings, owner information, built up area, garden area, porch, balcony area needs to be demarcated along with other attributes (i.e. all taxable and non-taxable area). Survey form will be provided to bidder and bidder has to capture these data via mobile / tablet using property tax survey application.
  - f) Capacity Building and Training Programs on data management or its usage to JSCL Officials as per requirement
  - g) Provide handholding support to the identified users if required
  - q) Bidders has to follow the Guideline issued from DGCA for this survey and will use DGCA registered Drone only.
  - r) Bidder should consider existing data of GIS as base data and should overlap it on the field data captured through drone survey, such that the base image of city are of drone survey resolution and the parcels of old survey

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data is revised based on the images captured through drone survey. Quality constraints if any arises due to overlapping of these two image data having different resolution would be duly considered

- s) Bidder should check the parcel of old GIS data with new drone-survey data and the Parcel with deviation (difference in parcel area and difference in attribute data) should be verified by bidder through ground trothing by updating attribute of handheld device i.e. using mobile application.
- t) Bidder should mark new parcel of drone survey and collect attribute data after field verification. The list of newly marked parcel should be provided to JMC. Bidder will be provided by e-nagarpalika id of all such parcels by JMC, then Bidder should link the GIS id with e-nagarpalika id of all such parcel.  
Fulfil the requirement for any integration with other systems through API
- u) All the un-linked properties should be matched with e-nagarpalika by bidder.
- v) All the Link properties of old survey data will be verified by handheld device i.e. Using mobile application
- w) Bidder should also provide list of property which does not have e-nagarpalika id to JMC and JMC will revert bidder with e-nagarpalka id of all such property then bidder will be responsible to match the GIS id with e-nagarpalika id.
- x) Bidder should provide digital address of all Parcel id by dividing cities into grids and digital address should be a unique address.

### **3.1 Creation of 3D City Models using UAV Stereo Imagery & Photogrammetric Techniques**

JSCL intends to acquire a 3D City model to allow the city stakeholders to get near real-time 3D representation of the city and facilitate the administration stakeholders to plan, simulate, visualize & monitor various city development initiatives and foster decision making. This will help city’s project analysis efforts across disciplines.

- a) The successful bidder shall generate high-resolution 3D city models from UAV Stereoscopic imagery for Jabalpur City covering 264 Sq. Km area.
- b) The resolution of the stereo imagery should be in the range of 5 cm or better.
- d) The bidder would carry out the drone survey and produce the output with airborne lidar sensors
- e) UAV imagery should be capture freshly and free from all distortion and features should be clear on images
- f) The Successful bidder shall develop photorealistic 3D City models by using stereoscopic imageries and Photogrammetric techniques and shall provide the output of detail photo realistic LOD 1 with facet model for entire city area (264 sq. Km.) photo realistic textured and LOD 2 model of special buildings (3d Models with realistic façade including Each Floors which can be selected separately) (Approx. for 1000 buildings the list of the same shall be shared by

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JSCL before the survey activity)

- g) The output comes from 3d mapping/modelling should be engineered data. Measurement details are equals are better with respect to total station data. every feature created in 3d map/model should be highly precise with respect to horizontal and vertical directions
- h) All assets covered in the photorealistic 3D City Model shall be clearly visible and identifiable and should match with the existing texture and should map all visible sides of the buildings.
- i) The output of the photorealistic 3D model should be clean, light geometries with incredible details where users can select/click on a building or part of the building having popup automated attribute table.
- j) Every 3D building model should have valuable geometric data such as Unique ID Number, building height, roof slope, volume, Geo locations etc. Other surveyed data should be linked with the model using Unique ID.
- k) Textured Buildings LOD 2 - All landmark monuments, heritage, govt. building, schools, and structures shall be represented in 3D City Model as photorealistic textured (3d Models with realistic façade including Each Floors which can be selected separately) model with Unique ID Nos. as per quantity mentioned in BoQ.
- l) The 3D Model deliverable output shall be OGC complied and compatible across industry standard formats like multi-patch shape files, GDB, 3DS, Collada, GLTF, FBX and OBJ etc.
- m) The 3D Model should run seamlessly on desktop solution as well as the web-Browser based access on any device.
- n) 3D City models accuracy should be between 10 cm horizontally and 15 cm vertically
- o) 3D Models should be realistic and having accurate exterior 3D representation for LOD2 and general outer exterior in LOD level 1 (outer façade).
- p) Below layers shall be covered in creation of 3D City Map and depicted by 3D realistic texture but not limited to these;
  - Roads  
Road shall be further classified in National highway, State highway, roads, streets, etc.
  - Road, divider and footpath information shall be captured and depicted in 3D in actual shape and size
  - Water Bodies (Lake, Pond, River, Canal, Reservoir, Water tanks, drainage (both manmade and natural)
  - Important Landmarks
  - Building Structures (Government Office/ Educational Institute / Hospital / Entertainment / Hotel etc.
  - Forest
  - Trees
  - Electrical Assets-Distribution Transforms, HT-LT poles
  - Signage's
  - Manholes
  - Any other static features (Permanent or temporary visible in ortho photo)

Major

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The Successful Bidder shall study the existing GIS data model having more than (25 -30) 2D GIS layers and normalize it as per the proposed system requirements. Bidder shall refer concerned department about the attributes details to be captures. A Comprehensive Data model with well-defined schema for each identified GIS layers should be as per department details.

### 3.2 UAV Based Survey Methodology

#### 3.2.1 Stereo image acquisition using UAV Technology (5cm GSD or better resolution)

- a) Establishing of Ground Control Network for UAV Survey: Identification and marking of Ground Control Points (GCP) on the area of Interest. Minimum number of GCP should be 250 (permanent) for the Area of interest, at least one permanent GCP should be placed within every 1 sq. km. area. It should be taken with double frequency DGPS (Digital Global Positioning System) and observation time for calibration would be kept at minimum 6 hours. Monumentation of the GCPs to be done for primary GCPs.
- b) The Successful Bidder shall establish required number of ground control points on the ground using DGPS method at regular/random interval throughout the project area (~264 Sq. Km) and preferably DGPS points should be placed inside the Govt. building/premises through embossed metallic plates having thickness of 4 mm (250 points, preferably of steel or reliable material of 1.5X1.5 feet ( ). Control chart shall be prepared choosing Ground Control Points (reference should be taken from existing SOI points) with easy access as well as easy identification on aerial image. Control points shall be established on ground based on the control chart preferably on permanent structure, culvert corner, Road barrier, bridge corner, rock-in-situ, field bunds and other definable points like tri junctions, road-junctions (preferably to be done under limits of public structures). A detailed survey report shall be prepared consisting of GCPs parameters and pictures. All Control Point to be marked permanently on field so that can be identified later.
- c) Aerial Imagery acquisition using UAV technology: The Successful Bidder shall be responsible for obtaining necessary clearances/permissions from Local authority and other applicable agencies as needed for flying Unmanned Aerial Vehicle (UAV) over the project area to acquire Aerial Imagery. Necessary administrative support will be provided by JSCL. Also, for the desired permission near cantonment area JSCL shall facilitate in obtaining the clearances outside 500 mts of the buffer area of the board. The Successful bidder is required meet following minimum criteria for acquisition of Imagery using UAV.

Components	Description
Drone set up	UAV with photogrammetry payload
Coverage area	Proportionate with the flying height (less than or equal to 200 feet's ) fulfilling the desired accuracy
Pixel size /Resolution	5 cm or better

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Flight Height	Not more than 200 feet from ground or as per Drone guidelines issued by DGCA for specific area
Camera Sensor	20 megapixels and above
Photography condition	Ground must be free of fog, haze, dust, brightness and sharpness should be in photographs
Overlapping	80 % forward overlap and 60 % side overlap so the stereo pair of each object can be made through the captured images

**Note: UAV make, and model should be registered with DGCA as well as may be equipped with lidar sensors (optional).**

**e) The Successful bidder shall perform following Image processing and Ortho-rectification activities to process the aerial imagery acquired using UAV; the entire activity of post processing of data should be done in a secure environment/premises where data theft or any manual modification by the operator is not permitted.**

**1. Pre-processing and Ortho rectification of imagery:**

- Pre-processing of acquired images
- Digital surface models, digital terrain models generation
- Ortho-rectification of Satellite Images
- True Ortho generation

**2. The Ground Control Points Established and the DEM created should be used for Ortho-rectification of imagery**

- Mosaicking and Creating Tiles
- Image strips shall be mosaicked for contiguity during the Ortho-rectification process
- Colour balancing, seamless editing shall be done for the images to achieve homogeneity across stripe boundaries
- Generation of Image Tiles

**3.3 Preparation of 2D & 3D base map using UAV Images**

Creation of data layers with necessary attributes which are listed below. Field verification of features to ensure complete accuracy. The Successful Bidder must follow all (but not limited to) below mentioned guidelines and standards issued by Central Government Departments/Ministries related to spatial data collection, Data formats, their storage and dissemination

1. Remote Sensing Image Standards
2. Spatial Reference Standards as per National Spatial
3. Geo-spatial Data Content and GIS Database Standards

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4. Quality Assurance/Quality Check
5. GIS database dissemination to ULBs for Master Plan formulation
6. Metadata standards
7. Design and Standards - Formulation of GIS based Master Plan for AMRUT Cities (MoUD)

### 3.3.1 Indicative GIS Data Layer for collection & mapping from Image:

Indicative list of GIS layers with attributes in WGS 84 / UTM zone 44N projection that need to be collected and mapped for the preparation of base map.

GIS Layer	GIS Sub Layer	Type of Data	What is required
Administrative	District	Polygon	<ul style="list-style-type: none"> <li>• Unique ID</li> <li>• Name</li> <li>• Area</li> </ul>
	Tehsil	Polygon	<ul style="list-style-type: none"> <li>• Unique ID</li> <li>• Name</li> <li>• Area</li> </ul>
	City Boundary	Polygon	<ul style="list-style-type: none"> <li>• Unique ID</li> <li>• Name</li> <li>• Area</li> </ul>
	Municipal Boundary	Polygon	<ul style="list-style-type: none"> <li>• Unique ID</li> <li>• Name</li> <li>• Area</li> </ul>
	Zonal Boundaries	Polygon	<ul style="list-style-type: none"> <li>• Unique ID</li> <li>• Name/Number</li> <li>• Area,</li> <li>• Mohalla Names</li> <li>• Zonal Officers</li> </ul>

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	Ward Boundaries	Polygon	<ul style="list-style-type: none"> <li>• Unique ID</li> <li>• Name of Ward</li> <li>• Ward Number</li> <li>• Ward Corporator: Name, Photo, Mobile number</li> <li>• Ward Officers: Name: Phone numbers</li> <li>• Population: Demographic Data: Population, Male, Female, Household, Literacy, Sex Ratio, Population growth, projected population</li> <li>• Ward Revenue</li> <li>• Ward Expenditure</li> <li>• Area</li> </ul>
	Village Boundaries	Polygon	<ul style="list-style-type: none"> <li>• Unique ID</li> <li>• Village Name</li> <li>• Population</li> </ul>
	Plot Boundary	Polygon	<ul style="list-style-type: none"> <li>• Unique ID</li> <li>• Parcels</li> <li>• RoR</li> <li>• Area</li> </ul>
	Parliamentary Constituencies	Polygon	<ul style="list-style-type: none"> <li>• Unique ID</li> <li>• Name</li> <li>• Area</li> <li>• Elected Member</li> <li>• District name</li> </ul>
	Assembly Constituencies	Polygon	<ul style="list-style-type: none"> <li>• Unique ID</li> <li>• Name</li> <li>• Area</li> <li>• Elected Member</li> <li>• District name</li> </ul>
	ABD	Polygon	<ul style="list-style-type: none"> <li>• Unique ID</li> <li>• Name</li> <li>• Area</li> </ul>
Planning Boundaries	Master Plan Layers	Polygon, Line, Point	<ul style="list-style-type: none"> <li>• Unique ID</li> <li>• Land use Type</li> <li>• Land use Subtype</li> <li>• Area \length \Lat-long</li> </ul>

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	City Development plans	Polygon, Line, Points	<ul style="list-style-type: none"> <li>• Unique ID</li> <li>• Land use Type</li> <li>• Land use Subtype</li> <li>• Area \length \Lat-long</li> </ul>
	Land use Existing	Polygon Line points	<ul style="list-style-type: none"> <li>• Unique ID</li> <li>• Land use Type</li> <li>• Land use Subtype</li> </ul> <p>Area \length \Lat-long</p>
	Airport Authority Areas	Polygons	<ul style="list-style-type: none"> <li>• Unique ID</li> <li>• Number</li> <li>• Height Clearance</li> <li>• Area</li> </ul>
	Eco-Sensitive Zones	Polygons	<ul style="list-style-type: none"> <li>• Unique ID</li> <li>• Sensitivity Type</li> <li>• Area</li> </ul>
	Archaeological protected areas	Polygons	<ul style="list-style-type: none"> <li>• Unique ID</li> <li>• Type</li> <li>• Area</li> </ul>
	Health Districts	Polygons	<ul style="list-style-type: none"> <li>• Unique ID</li> <li>• Area</li> <li>• Health Officer</li> <li>• Number of Facilities</li> <li>• Contact details</li> </ul>
	Police Beats	Polygons	<ul style="list-style-type: none"> <li>• Unique ID</li> <li>• Area</li> <li>• Beat Number</li> <li>• number of Police Stations and Chowkis</li> <li>• Number of resources.</li> <li>• Type of resources</li> </ul>

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Building Property	Property Parcel	Polygon	<ul style="list-style-type: none"> <li>• Unique ID</li> <li>• Type</li> <li>• Use</li> <li>• Address</li> <li>• Category</li> <li>• Year of Construction</li> <li>• Use of Property</li> <li>• Number of Floors</li> <li>• Owners name and address</li> <li>• Photograph of Property</li> <li>• Coverage Area</li> <li>• Use of Property</li> <li>• Occupancy Type</li> <li>• Source of water</li> <li>• Fire safety measures</li> <li>• Toilet</li> <li>• Solid waste management status</li> <li>• Tax assessed</li> <li>• Payment status</li> <li>• Last Paid</li> <li>• CESS Assessed</li> <li>• CESS paid</li> <li>• Last Paid date</li> <li>• Total Area</li> <li>• Electricity bill no.</li> <li>• Water id.</li> <li>• Commercial licence number.</li> <li>• SBM door-to-door collection id</li> </ul>
Transport	Road with all Hierarchies	Line	<ul style="list-style-type: none"> <li>• Unique ID</li> <li>• Name</li> <li>• Hierarchy (NH, SH, Expressway, ODR, DR,V8, BRTS corridor)</li> <li>• From and to</li> <li>• Length</li> <li>• Width</li> <li>• Lanes</li> <li>• Medians</li> <li>• Condition</li> <li>• ROW</li> <li>• Footpaths</li> <li>• Footpath Width</li> </ul>
	Cycle Tracks	Line	<ul style="list-style-type: none"> <li>• Unique ID</li> <li>• Status (Proposed/Existing)</li> <li>• Width</li> <li>• Length</li> <li>• From-To</li> </ul>

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	Junctions	Polygon	<ul style="list-style-type: none"> <li>• Unique ID</li> <li>• Name</li> <li>• Types</li> <li>• Signalled</li> <li>• Area</li> </ul>
	Bridges Flyovers Culverts Causeways	Points Points Lines Polygons	<ul style="list-style-type: none"> <li>• Unique ID</li> <li>• Name</li> <li>• Year of Construction</li> <li>• Scheme</li> <li>• Condition</li> <li>• Area \ Length</li> <li>• Lat - long</li> </ul>
	Metro Lines if applicable	Line	<ul style="list-style-type: none"> <li>• Unique ID</li> <li>• Status (existing/proposed)</li> <li>• Route ID</li> <li>• From-to</li> </ul>
	Metro Station if applicable	Point	<ul style="list-style-type: none"> <li>• Unique ID</li> <li>• Route No.</li> <li>• Station name</li> <li>• Lat-long</li> </ul>
	Railways	Line	<ul style="list-style-type: none"> <li>• Unique ID</li> <li>• From and to</li> <li>• Under Zone</li> <li>• Length</li> </ul>
	Railways Station	Polygons	<ul style="list-style-type: none"> <li>• Unique ID</li> <li>• Name</li> <li>• Platforms</li> <li>• Area</li> </ul>
	Airport	Polygons	<ul style="list-style-type: none"> <li>• Unique ID</li> <li>• Name</li> <li>• Area</li> <li>• Flights to</li> </ul>

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	Parking Lots	Polygons	<ul style="list-style-type: none"> <li>• Unique ID</li> <li>• Location</li> <li>• Occupancy</li> <li>• Type (Paid or Unpaid)</li> <li>• Location (Open, enclosed)</li> <li>• Ownership (MC/ Pvt)</li> <li>• CCTV Location in Parking</li> <li>• Area</li> </ul>
	Bus Stops	Points	<ul style="list-style-type: none"> <li>• Unique ID</li> <li>• Name</li> <li>• Route</li> <li>• Lat-long</li> </ul>
	Bus Routes	Lines	<ul style="list-style-type: none"> <li>• Unique ID</li> <li>• From and to</li> <li>• Length</li> <li>• Number of Buses Plying</li> </ul>
	Traffic Signals	Points	<ul style="list-style-type: none"> <li>• Unique ID</li> <li>• Number</li> <li>• Existing or proposed</li> <li>• Existing since</li> <li>• Working or Not working</li> <li>• Source of Power</li> <li>• Lat-long</li> </ul>
	CCTV Location	Point	<ul style="list-style-type: none"> <li>• Unique ID</li> <li>• Location</li> <li>• Status (Existing/planned)</li> <li>• Year of Installation</li> <li>• Camera Specifications</li> <li>• Lat-long</li> </ul>
Utility	Storm Water Drainages	Lines	<ul style="list-style-type: none"> <li>• Unique ID</li> <li>• Name</li> <li>• From and to</li> <li>• Length</li> <li>• Width</li> <li>• Capacity</li> <li>• Type of Drain</li> <li>• Elevation</li> </ul>

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	Inlets	Points	<ul style="list-style-type: none"> <li>• Unique ID</li> <li>• No.</li> <li>• Width</li> <li>• Lat-long</li> </ul>
	Sewage Network	Line	<ul style="list-style-type: none"> <li>• Unique ID</li> <li>• No.</li> <li>• Location on RoW (Left Right middle)</li> <li>• From- to</li> <li>• Length</li> <li>• Width</li> <li>• Diameter</li> <li>• Type</li> <li>• Commissioned on</li> <li>• Depth</li> </ul>
	Manholes and Culverts	Point	<ul style="list-style-type: none"> <li>• Unique ID</li> <li>• No.</li> <li>• Position</li> <li>• Lat-long</li> <li>• Diameter</li> </ul>
	Elevation	line	<ul style="list-style-type: none"> <li>• Unique ID</li> <li>• length</li> <li>• Contour height</li> <li>• Interval information</li> </ul>
	Treatment Plants	Points	<ul style="list-style-type: none"> <li>• Unique ID</li> <li>• Lat-long</li> <li>• Name</li> <li>• Capacity</li> <li>• Installed Year</li> <li>• Condition (working, not working)</li> </ul>
	Public Conveniences	Points	<ul style="list-style-type: none"> <li>• Unique ID</li> <li>• Lat-long</li> <li>• Operated by</li> <li>• Type</li> <li>• User Type (Male, female, Both)</li> <li>• Year commissioned</li> <li>• Water availability</li> </ul>

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	Recycled Water	Line	<ul style="list-style-type: none"> <li>• Unique ID</li> <li>• Type</li> <li>• Use</li> <li>• Length</li> </ul>
	Water Supply System	Lines	<ul style="list-style-type: none"> <li>• Unique ID</li> <li>• No.</li> <li>• Location on RoW (Left Right middle)</li> <li>• From- to</li> <li>• Length</li> <li>• Diameter</li> <li>• Type (Main/lateral)</li> <li>• Commissioned on</li> <li>• Depth</li> <li>• Flow direction</li> <li>• Pressure (designed)</li> </ul>
	Valves	Points	<ul style="list-style-type: none"> <li>• Unique ID</li> <li>• No.</li> <li>• Use</li> <li>• Location</li> <li>• Type</li> <li>• Commissioned on</li> <li>• Lat-long</li> <li>• Depth</li> </ul>
	Pump station	Point	<ul style="list-style-type: none"> <li>• Unique ID</li> <li>• No.</li> <li>• Lat-long</li> <li>• Capacity</li> </ul>
	Over Head Tank	Point	<ul style="list-style-type: none"> <li>• Unique ID</li> <li>• No.</li> <li>• Address</li> <li>• Lat - Long</li> <li>• Capacity</li> <li>• Height</li> <li>•</li> </ul>
	Underground Reservoir	Point	<ul style="list-style-type: none"> <li>• Unique ID</li> <li>• No.</li> <li>• Address</li> <li>• Depth</li> <li>• Lat-long</li> <li>• Capacity</li> </ul>

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	Well	Point	<ul style="list-style-type: none"> <li>• Unique ID</li> <li>• No.</li> <li>• Address</li> <li>• Lat-long</li> <li>• Depth</li> <li>• Perineal status</li> </ul>
	Public Taps	Point	<ul style="list-style-type: none"> <li>• Unique ID</li> <li>• No.</li> <li>• Address</li> <li>• Lat-long</li> </ul>
	Smart Meter	Point	<ul style="list-style-type: none"> <li>• Unique ID</li> <li>• No.</li> <li>• Location \Address</li> <li>• CIN</li> <li>• Lat-Long</li> <li>• Owner</li> </ul>
	Bulk Meter and Flow Meter	Point	<ul style="list-style-type: none"> <li>• Unique ID</li> <li>• No.</li> <li>• Location\Address</li> <li>• Lat-Long</li> </ul>
	Electric Substations	Points	<ul style="list-style-type: none"> <li>• Unique ID</li> <li>• No.</li> <li>• Lat-Long</li> <li>• KVA</li> </ul>
	Electric Network	Line	<ul style="list-style-type: none"> <li>• Unique ID</li> <li>• Line No.</li> <li>• From -To</li> <li>• Underground/Overground</li> <li>• Length</li> </ul>
	Street Light Poles	Points	<ul style="list-style-type: none"> <li>• Unique ID</li> <li>• Pole No.</li> <li>• Smart Pole Sensors</li> <li>• Lat-long</li> <li>• Number of Connections</li> </ul>

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Commercial	Name	Points	<ul style="list-style-type: none"> <li>• Unique ID</li> <li>• Type</li> <li>• Subtype</li> <li>• Name</li> <li>• Lat-Long</li> <li>• Number of establishments/shops</li> </ul>
Emergency and Disaster	Earthquake Prone Areas	Polygon	<ul style="list-style-type: none"> <li>• Unique ID</li> <li>• Classification</li> <li>• Area</li> <li>• Land use type</li> </ul>
	Flood Prone Area	Polygon	<ul style="list-style-type: none"> <li>• Unique ID</li> <li>• Classification</li> <li>• Area</li> <li>• Land use type</li> </ul>
	Fire Stations	Points	<ul style="list-style-type: none"> <li>• Unique ID</li> <li>• Location \Address</li> <li>• Phone number</li> <li>• Station head</li> <li>• Number of Fire Brigades</li> <li>• Lat-long</li> </ul>
	Police Stations	Points	<ul style="list-style-type: none"> <li>• Unique ID</li> <li>• Location \Address</li> <li>• Type (Thana, Chowki, Police station)</li> <li>• Phone number</li> <li>• Lat-Long</li> <li>• Station head</li> </ul>
Education	University	Points	<ul style="list-style-type: none"> <li>• Unique ID</li> <li>• Lat-long</li> <li>• Name</li> <li>• Area</li> <li>• Facilities</li> <li>• Location</li> <li>• Ownership (Govt. Pvt)</li> <li>• Levels- (Primary, Secondary, Senior Secondary, Intercollege)</li> <li>• Courses</li> </ul>
	Colleges	Points	
	Intercollege	Points	
	Schools	Points	
	Skill Development Centres	Points	
	Vocational Training Institutes	Points	

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Health Centres	Health Centres	Points	<ul style="list-style-type: none"> <li>• Unique ID</li> <li>• Lat-Long</li> <li>• Name</li> <li>• Type</li> <li>• Ownership (Govt. or Pvt. Location)</li> <li>• Level</li> <li>• Beds</li> <li>• Resources</li> <li>• Facilities</li> </ul>
	Blood Banks	Points	<ul style="list-style-type: none"> <li>• Unique ID</li> <li>• Name</li> <li>• Lat-long</li> <li>• Capacity</li> </ul>
	Veterinary Hospital / Clinic	Points	<ul style="list-style-type: none"> <li>• Unique ID</li> <li>• Lat-long</li> <li>• Name</li> <li>• Location \Address</li> </ul>
Financial Services	ATM	Points	<ul style="list-style-type: none"> <li>• Unique ID</li> <li>• Location \ Address</li> <li>• Lat-Long</li> <li>• Bank name</li> <li>• Opening Time</li> </ul>
	Banks	Points	<ul style="list-style-type: none"> <li>• Unique ID</li> <li>• Lat-Long</li> <li>• Location\Address</li> <li>• Bank Name</li> <li>• Opening Time</li> </ul>
	Financial Institutes	Points	<ul style="list-style-type: none"> <li>• Unique ID</li> <li>• Lat-Long</li> <li>• Address \Location</li> <li>• Name</li> </ul>
	Insurance companies	Points	<ul style="list-style-type: none"> <li>• Unique ID</li> <li>• Address\Location</li> <li>• Type of Insurances</li> <li>• Lat-long</li> <li>• Name</li> </ul>
Solid waste Management	Zones	Polygon	<ul style="list-style-type: none"> <li>• Unique ID</li> <li>• Area</li> <li>• No.</li> </ul>

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	Community Bins	Point	<ul style="list-style-type: none"> <li>• Unique ID</li> <li>• Lat-Long</li> <li>• No.</li> <li>• Type</li> <li>• Address \ Location</li> <li>• Capacity</li> <li>• Type of Bin</li> </ul>
	Collection points	Point	<ul style="list-style-type: none"> <li>• Unique ID</li> <li>• Lat-Long</li> <li>• Location \ Address</li> <li>• Name</li> <li>•</li> </ul>
	Dumping Ground	Area	<ul style="list-style-type: none"> <li>• Unique ID</li> <li>• Lat-long</li> <li>• Address \ Location</li> <li>• Area</li> <li>• Life</li> </ul>
	Processing Units	Point	<ul style="list-style-type: none"> <li>• Unique ID</li> <li>• Type (Processing Plants, Incinerator and Bio-methanation Plant)</li> <li>• Lat-long</li> </ul>
	Weighing Bridge	Point	<ul style="list-style-type: none"> <li>• Unique ID</li> <li>• Location \ Address</li> <li>• Lat-Long</li> </ul>
	Routes of waste collection	Line	<ul style="list-style-type: none"> <li>• Unique ID</li> <li>• Length</li> <li>• Route No.</li> <li>• No. of vehicle Plying</li> </ul>
Fuel Stations	Petrol Pumps	Point	<ul style="list-style-type: none"> <li>• Unique ID</li> <li>• Lat-Long</li> <li>• Location \ Address</li> <li>• Owned by</li> </ul>
Market Places	Whole sale	Point	<ul style="list-style-type: none"> <li>• Unique ID</li> <li>• Location \ Address</li> <li>• Lat-long</li> <li>• Specialty</li> <li>• No. of establishments</li> </ul>
	Shopping centres	Point	
	Shop	Point	
	Hat Bazar	Point	

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	Malls	Point	
Public Services	Cremation ground	Point	<ul style="list-style-type: none"> <li>• Unique ID</li> <li>• Location</li> <li>• Lat-long</li> <li>• Type of Facilities Available</li> <li>• Capacity</li> </ul>
	Post Office	Point	<ul style="list-style-type: none"> <li>• Unique ID</li> <li>• Address \ Location</li> <li>• Lat-long</li> </ul>
	Community Hall	Point	<ul style="list-style-type: none"> <li>• Unique ID</li> <li>• Location</li> <li>• Lat-long</li> <li>• Booking Details</li> <li>• Capacity</li> <li>• Facilities</li> </ul>
	Kiosks	Point	<ul style="list-style-type: none"> <li>• Unique ID</li> <li>• Address \ Location</li> <li>• Lat-long</li> <li>• Owner</li> </ul>
Government office/Buildings		Points	<ul style="list-style-type: none"> <li>• Unique ID</li> <li>• Lat-long</li> <li>• Name</li> <li>• Central/State/Local</li> <li>• Offices List</li> </ul>
Religious Places	Temples / Mosques / Gurudwaras / Churches / others	Point	<ul style="list-style-type: none"> <li>• Unique ID</li> <li>• Lat-long</li> <li>• Location \Address</li> <li>• Name</li> <li>• Type</li> </ul>
Residential	Hotels	Point	<ul style="list-style-type: none"> <li>• Unique ID</li> <li>• Lat-Long</li> <li>• Location \Address</li> <li>• Name</li> <li>• Category</li> </ul>

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	Others	Point	<ul style="list-style-type: none"> <li>• Unique ID</li> <li>• Lat-long</li> <li>• Address \Location</li> <li>• Name</li> <li>• Type</li> </ul>
Tourism and Recreation	Spiritual	Polygon	<ul style="list-style-type: none"> <li>• Unique ID</li> <li>• Lat – long</li> <li>• Area</li> <li>• Type</li> <li>• Name</li> <li>• Details</li> </ul>
	Historical	Polygon	
	Recreation Centres	Polygon	
Hoarding and unipoles	All commercial Hoarding	Polygon	<ul style="list-style-type: none"> <li>• Unique ID</li> <li>• Lat – long</li> <li>• Area</li> <li>• Type</li> <li>• Name</li> <li>• Details</li> </ul>
Colony boundary	All authorised colony	Polygon	<ul style="list-style-type: none"> <li>• Unique ID</li> <li>• Lat – long</li> <li>• Area</li> <li>• Type</li> <li>• Name</li> <li>• Details</li> </ul>
Parks and Gardens	Green spaces	Polygon	<ul style="list-style-type: none"> <li>• Unique ID</li> <li>• Lat-long</li> <li>• Type</li> <li>• Name</li> <li>• Area</li> <li>• Available facilities</li> </ul>
Restricted areas	Defence	Polygon	<ul style="list-style-type: none"> <li>• Unique ID</li> <li>• Lat-long</li> <li>• Name</li> <li>• Area</li> <li>• Facility</li> </ul>
	others	Polygon	<ul style="list-style-type: none"> <li>• Unique ID</li> <li>• Lat-long</li> <li>• Type</li> <li>• Name</li> <li>• Area</li> </ul>

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Smart Integrations	Proposed Smart Traffic light points	Point	<ul style="list-style-type: none"> <li>• Unique ID</li> <li>• Lat-long</li> <li>• Location \ Address</li> </ul>
	Smart Pole	Points	<ul style="list-style-type: none"> <li>• Unique ID</li> <li>• Address \ Location</li> <li>• Sensors</li> <li>• Lighted</li> <li>• Type of light</li> <li>• Working Status</li> <li>• Lat-long</li> </ul>
	Bike Sharing	Point	<ul style="list-style-type: none"> <li>• Unique ID</li> <li>• Name</li> <li>• Lat-long</li> <li>• Location \ Address</li> </ul>
	VMS	Point	<ul style="list-style-type: none"> <li>• Unique ID</li> <li>• Lat-long</li> <li>• Location \Address</li> </ul>
	Emergency Boxes	Points	<ul style="list-style-type: none"> <li>• Unique ID</li> <li>• Location \Address</li> <li>• Lat-long</li> </ul>
	Cameras	Points	<ul style="list-style-type: none"> <li>• Unique ID</li> <li>• Lat-long</li> <li>• Location \Address</li> <li>• Camera Number</li> </ul>
Sports	Stadiums	Polygons	<ul style="list-style-type: none"> <li>• Unique ID</li> <li>• Type</li> <li>• Address \Location</li> <li>• Name</li> <li>• Capacity</li> <li>• Lat-Long</li> <li>• Facilities</li> <li>• Area</li> </ul>
	Playgrounds	Polygons	<ul style="list-style-type: none"> <li>• Unique ID</li> <li>• Lat-long</li> <li>• Type</li> <li>• Facilities</li> <li>• Location</li> <li>• Name</li> <li>• Area</li> <li>• Capacity</li> </ul>

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Urban Poor	Slums	Polygons	<ul style="list-style-type: none"> <li>• Unique ID</li> <li>• Name</li> <li>• Population</li> <li>• Households No</li> <li>• Household with LPG</li> <li>• Household Within Premise Water Supply</li> <li>• Household within Premise Toilets</li> <li>• Household with Electricity</li> <li>• Demographics</li> <li>• Household having waste management Facility</li> <li>• Location \ Address</li> <li>• Lat-long</li> <li>• Area</li> </ul>
	Services for Urban Poor	Points	<ul style="list-style-type: none"> <li>• Unique ID</li> <li>• Lat-long</li> <li>• Name</li> <li>• Type (Education, Health, and Shops etc.)</li> <li>• Maintained by</li> <li>• Condition</li> </ul>

The Data Models shall have defined Schemas and Taxonomies, which are spatially connected & follow topological rules and also Attributes & Relationship Rules. It shall have a version management & archiving facility. The Rules are to be defined for Polygon, Networks and Points defining Spatial Joins & relationships. The data model shall have validation Rules with domains and subtypes, design workflows and map properties, Label and Annotations classes, network dataset design & rules and tools for Enterprise wide base map creation & updation. It shall be directly used in the Applications.

Above list is for reference of designing of data model. Also, applicable attribute has to be collected and be added in the associated layer. Moreover, bidder could take necessary reference from design and standards of GIS data as defined for Amrut cities for symbolises etc. It may be possible that entire layers may not be present for capture, however design should be such that which would allow to fulfil any such requirement in future.

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It is to be noted that base map data so created would be consumed on 3D GIS Platform later, hence data so created must be compatible to be ingested into any 3D GIS platform.

All Objects should be captured in both 2D and 3D.

**3.3.1 Field survey data: -**

1) Bidder should conduct the field survey for collection of property attributes as per the details listed in Annexure 14 for new property or for updation of existing property. This survey is envisaged to capture the details of the property within the JMC jurisdiction. The data will be captured using the handheld devices with the data capture app supplied by JSCL.

2) Data so captured during the onsite survey will be sent directly to the central database to avoid any manipulation of the captured data. The handheld device must have a capability to capture the Latitude and Longitude of the surveyed property to ensure that the data is captured at the actual location

3) The SI's team leaders, data analysts, etc. shall process collected Data, undertake necessary Quality Assurance (QA) and Quality Checking (QC) activities and remove errors, if any. After the QA/QC the data should be pushed into the database and integrated with GIS map.

4. JMC will provide the authority letter to surveyors for smooth survey, wherever the property Owner refuses to co-operate with the Service provider(SP) for data collection, the SP team shall flag the same in the data collection form indicating the specific reason like “Non- co-operation by Occupier” with date(s) of visit.

5. If such cases occur in large numbers, the JSCL shall depute its staff along with SP survey team to ensure that the data is collected. The SP will have to bear the cost of this survey.

6. The land/ building property attributes to be collected as per details mentioned in Annexure 14 are applicable for all buildings / land assets. However, all the details may not be applicable to all the government own properties. It is envisaged that a different attribute table will be created for each type of government own properties. e.g. if the government run property is a primary health center or Govt. Office, a unique attribute data table will be defined after discussion with JSCL. JSCL may collect data from available resources as per the define attributes and provide it to the SP for importing the data into the system

7. Complete surveyed data including property attribute data and underground utility data shall be accepted and approved by the competent authority. The system generated report on the work accomplished should be submitted along with commercial invoices.

### **3.4 Survey of Underground Utilities through GPR: -**

Under Ground Utility Mapping for the City is intended to capture information about following sub surface utilities:

- Water Networks – Including all Pipelines, Valves, Underground storage tanks, Storm network etc.
- Sewerage Networks – Including main holes treatment plants and booster pumps
- Underground electric Cables (both HT & LT network) etc.

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- Underground Telecom Cables

Note: Bidder shall undertake GPR survey of approx. 40-line kms from the ABD area including the length covered under proposed PWD over bridge of approx. 5 kms. as per requirements specified within the defined timelines.

Further, bidder may be asked to carry out the survey for the remaining area of the project (264 sq. km) only on the sole discretion of JSCL and prevailing need at that time based on the mutual discussion with the bidder.

If the bidders fail to demonstrate and achieve the desired output data quality defined in the scope within the defined timeline for the sample data, JSCL may partly or fully de scope the entire work related to underground utility survey without any admissible cost whatsoever for the work completed.

### **Detailed scope and activities to be undertaken are given below**

- A) The Successful Bidder shall locate and identify all underground services using Ground Penetration Radar (GPR) Technology within JMC Jurisdiction as per direction of engineer in-charge upto the depth of 5 mts from the ground surface.
- B) All the connections, bends, sudden change in depth /direction shall be captured and shown.
- C) All Underground utilities, associated surface features, change of direction and bifurcation shall be located and X, and Y and depth need to be recorded at intervals not exceeding 100 meters. The following sub-surface assets to be mapped;
- D) The estimated length of the GPR survey of ABD area for utilities shall be around 40-line kms length with approx... 5 km length of under construction bridge of PWD. However, length of the survey could be increased or decreased during the survey activities. Overall, length of the line survey shall be considered on actual length of the length surveyed. Overlapped utilities shall be considered as single line length.
- E) Wherever bands of utilities are identified, the upper and lower utility shall be placed in such a way that it provides a cross section of the utility bands
- F) At any significant change (more than 0.10m) of depth below the ground, an annotation shall be provided. This annotation shall be placed at the same Z –value (depth level) as recorded at that very point. Each service shall be annotated with the type of utility, depth and diameter of pipe at appropriate intervals
- G) The Successful bidder shall be responsible for co-ordination with various city agencies and State Government Departments & utilities whenever and wherever necessary on the behalf of JSCL for the purpose of survey. This includes taking permission, clearance after restoring back the works & handing over. The Successful Bidder shall have to incur all cost/charges related to Right of Way, Reinstatement etc. (If any). JSCL shall provide necessary Administrative support as and when required.
- H) Utilities visible on surface, such as drains, manholes, chambers and draw pits shall be located and mapped to the accuracy as specified mapping accuracy.
- I) Underground utilities shall be mapped continuously and recorded in three dimensions ensuring that sub surface features are captured at each change of direction and bifurcation
- J) Positions and levels shall be related to the specified grid and datum and shall normally be related to the center of metallic pipes or cables, crown of ducts and inverts of sewers and drains
- K) Any known underground utilities or information which cannot be mapped to the accuracies stated under mapping accuracy other than by excavation, shall be entered

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in a unique layer defined as “uncharted”, as shall be approved by JMC/JSCL. The Vendor shall itemize in his Reports the types of utilities which have been classified as “uncharted” and other circumstances, such as local areas of interference, where the specified accuracies cannot be achieved.

- L) Undulations in land surface during utility survey to be taken care off
- M) As part of input data/material to conduct survey, shall provide following to the Successful Bidder (if available);  
Utility drawings (hardcopy) of utilities to be mapped.  
Available GIS data / base maps already generated, if any
- N) The Successful Bidder shall take the all possible precautions while carrying out such survey and shall ensure not to create any traffic inconvenience, as well inconvenience to the Public at large and avoid any survey to be carried out in restricted areas, if any.
- O) The validation of the survey data shall be carried out in presence of Engineer in-charge at one or more location in each line. The locations shall be provided by engineer in-charge randomly and joint report shall be prepared. For such locations, any work such as digging of earth as required shall be done by contractor without any extra cost to JSCL. In case during validation of the location of pipeline/cable, it is found that position of pipeline/cable is at distances more than given tolerance band, entire survey shall be carried out again by the contractor until desired accuracy is achieved.
- P) The survey and record making shall be carried out as per guidelines and technology mentioned above. In case of any other methodology / technology is proposed by the successful bidder, the same may be agreed by JSCL provided that end results are same. However, for any such changes approval of Engineer in-charge shall be obtained by the successful bidder after giving all technical details of the methodology / technology proposed to be adopted.

#### **3.4.1. Water Networks**

- 1. Pipe routes including fire mains with levels
- 2. Valve and meter pits.
- 3. Diameter specifications.
- 4. Depth below ground shall be annotated at each surface feature and at significant changes of depth.

#### **3.4.2 Sewerage Networks**

- 1. All sewers and sewer connections with invert levels.
- 2. All manholes within the survey area with locations
- 3. Depth and diameter of pipe work.
- 4. Connections to foul/storm and combined water sewers.
- 5. Depth below ground shall be annotated at each surface feature and at significant changes of depth.

#### **3.4.3 Other Utilities:**

Other utilities which are located during GPR survey shall be mapped with available information regarding the identity or type of utility, wherever bands of utilities are identified, the upper and lower utility shall be placed in such a way that it provides a cross section of the utility bands

#### **3.4.4 Each Utility should have minimum following attribute data attached with it:-**

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1. Type of Utility (Water, sewerage, Power Telecommunication etc)
2. Depth of Utility in mts.
3. Size (Diameter and length) of utility in mts.
4. Type of material
5. Coordinates of start and end point and other attributes find on fields

### **3.5 Generation of Intermediate Product**

The successful bidder shall generate the below mentioned intermediate products which may be used along with the 3D City Models or independently:

#### **a) Ortho-Mosaic**

The successful bidder shall generate True-Ortho Mosaic of the identified Area of Interest (AoI.) using the below inputs:

- i. Digital imagery (raw High-Resolution Images) received from UAV imagery & Terrestrial Lidar survey sources as applicable;
- ii. Digital Elevation Model (DEM)
- iii. Exterior orientation parameters from aerial triangulation or Inertial Measurement Unit (IMU)

Specifications of the final output Ortho-Mosaic Data shall be as under:

- Ortho-Mosaic shall be delivered in an industry-standard, GIS-compatible, 16-bit raster format.
- Ortho-Mosaic image shall be seamless in nature.
- Geo-reference information shall be in or accompanying each raster file.
- Ortho-Mosaic shall be delivered in Tiles, without overlap.
- Ortho Image shall cover the complete AOI with no omissions i.e. there shall not be any Cloud cover, smoke/haze, corrupt data, and void areas.
- Whole image shall be covered by DEM.
- There shall not be any wiped area in the image.
- There shall not be any feature/image duplicity in the image.
- There shall not be any feature cut/clip, tilt in the image.
- There shall not be any missing data in the image.
- Extreme tonal or colour variation shall be proper across seam lines.
- There shall not be any NO DATA in Ortho image. NO DATA include items such as photographic frame borders, fiducial marks, artefacts, and titling.

#### **b) 3D Mesh Model**

As an intermediate product before creating the actual 3D City models as per the details mentioned in the RFP, the successful bidder shall create 3D Mesh Model from the freshly acquired data. The specifications/ features of same shall be:

- i. Shall be geo-referenced with the available GCN.
- ii. Shall be seamless in nature.
- iii. Shall depict all visible structure, asset, road, vegetation, etc.

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- iv. Shall be corrected to the values derived from DSM.
- v. Shall have realistic view \ textures.

**c) 3D Base Map**

The Successful bidder shall also create 3D Base Map of the city area (264 sq km). The required 3D

Base Map shall be used as a map layer providing the functionality to enhance rendering performance in the city GIS platform. The function of the base map is to provide background detail necessary to orient the location of the map.

The specifications of same shall be as under:

- i. 3D Base Map shall be created, and it shall have basic representation of mapping like North Arrow, Grid, and Scale bar etc.
- ii. Below layers shall be covered in creation of 3D Base Map and depicted by 3D realistic texture but not limited to these;
  - Transport Layers (Rail, Road etc.)
  - Road shall be further classified in National highway, State highway, Major roads, streets, etc.
  - Road, divider and footpath information shall be captured and depicted in 3D in actual shape and size
  - Water Bodies (Lake, Pond, River, Canal, Reservoir, Water tanks) - Important Landmarks
  - Building Structures (Government Office/ Educational Institute / Hospital / Entertainment / Hotel etc.
  - Forest
  - Trees
  - Electrical Poles
  - Manholes
  - Utilities and other features present above or under the surface
- iii. All features shall be labelled properly, and labels shall not be overlapped with each other
- iv. Other than the final deliverables listed below, all raw/ intermediate data and reports shall also be part of deliverables:

**3.6 Deliverables-3D Products**

S. No	Product / Deliverable	Format
<b>Ortho-Mosaic Data</b>		
1	Ortho-Mosaic Image	GEOTIFF & JPEG
2	Tiled Ortho-Mosaic Image	GEOTIFF & JPEG

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3	Seam lines	GIS File Format
4	QA/QC Assessment Report	PDF / Excel File
<b>3D Mesh Model</b>		
	3D Model	3DS, OBJ, City GML, etc.
	3d Mesh	3DS, OBJ, City GML, etc.
	DSM/nDSM	.dsm/Other compatible formats
	DTM	.dtm/Other Compatible formats
	DEM	TIF and GeoTIF
<b>3D Base Map</b>		
1	Mapping Layers	Geodatabase, 3DS, OBJ, City GML, etc.
2	Map	PDF/ 3D PDF
<b>3D LULC - Level-1 (I) as per standards.</b>		
1	Mapping Layers	Geodatabase 3DS, OBJ, City GML, etc.
2	Map	PDF/ 3D PDF

In addition, Bidder shall provide/design a large set of 3D library for symbols representing all GIS layer assets having minimum 50 nos. for each type of assets categorized through their various attributes. Further, all intermediate products would also be deliverable through which 3D deliverable will be made.

### 3.6 Terrestrial/Mobile LiDAR Survey with 360-degree Panoramic view

- a) The Successful Bidder shall capture and conduct and submit the LiDAR data survey and its final output including 360 degree panoramic view for ABD area (approx. 40-line kms) including length of 5 kms on an under construction PWD overbridge which run across the ABD area

**Note: If required by JSCL, Bidder may be asked to undertake the survey for the remaining project area of approx. 264 sq. km (1000-line kms) based on the output and its further usage assessed. The sole discretion in this regard lies with JSCL and will be based on mutual understanding and agreement arrived with the bidder at that time.**

- a) Lidar survey is performed to achieve the elevation and edge accuracy. The MLS activity is being conducted for capturing desired street assets, road conditions,

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capturing detailed building façade etc.

b) Absolute positional accuracy of acquired shall need to be  $\pm 0.05$  meters for X and Y Coordinates

c) The Following output shall be generated and submitted to JSCL using 3D point cloud data acquired from UAV survey and or multi-ray Terrestrial LiDAR Survey (TLS);

- 3D Surface Model
- Digital Elevation Model
- Digital Surface Model
- Contours 0.5 m interval Etc.

d) The Successful Bidder shall ensure that the surroundings captured include the boundaries of structures, adjoining walls, location of traffic lights / signals, etc. This shall assist to accurately locate building structures to be developed using images.

e) During scanning, all possible attempts shall be made to capture images of the properties with least obstructions from parked vehicles or traffic, or roadside trees. All such congested locations shall be preferably imaged during early morning hours, when traffic is less.

f) The Successful bidder is required to ensure that all possible solutions are available at its disposal to perform such activities.

g) The Successful Bidder shall ensure the following specifications for LiDAR survey

- i. TLS shall have one or more on board (roving) Global Navigation Satellite System (GNSS) dual frequency receivers capable of real-time kinematic (RTK) data, and kinematic data that can be post processed.
- ii. Base Station shall have one or more Static GNSS dual frequency receivers, capable of simultaneous collection and storage of real-time kinematic (RTK) data, and kinematic data that can be post processed.
- iii. MLS shall have inbuilt IMU (Inertial measurement unit) and distance measurement instrument (DMI).
- iv. MLS shall be certified for safety issues (Laser class-1, eye safe)
- v. There shall be minimum 20% overlap along the sides of the scan, more overlap shall be used to cover critical areas where high accuracy surfaces are needed
- vi. Data shall be collected in the time periods with minimum obstacles/traffic present such as early mornings.
- viii. There shall be a minimum of 5 satellites required for data collection. However, wherever this is not possible, the successful bidder shall establish temporary GCPs.
- ix. Intensity values normalized to unsigned 16 bit shall be recorded and delivered for

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each multiple discrete return.

- x. Data void shall consider to be any area greater than or equal to 4 ANPS2 (Aggregate nominal pulse spacing), which is measured using first returns only.
  - xi. Data shall be collected in weather free from cloud/fog.
  - xii. GPS Time stamp shall be recorded and delivered for each point
  - xiii. Reference measurement unit shall be in meters.
  - xiv. MLS shall be capable of 300 or better points per Square Metres.
  - xv. It shall be capable to cover greater than or equal to 80-meter range on both sides.
  - xvi. Data voids within a single swath shall not be acceptable, except in the below mentioned cases;
    - Water bodies
    - Areas of low near infrared (NIR) reflectivity, such as asphalt
    - Object shadowing (e.g., buildings, towers, vertical cliffs)
  - xvii. No point shall be deleted or added in the processing of the data.
  - xviii. No point shall be classified as raw/ default/ never.
  - xix. MLS shall be capable of data capturing in 360° panoramic coverage angle. Bidder thus shall also provide 360 deg street view having measurement capability for length, perimeter and area.
  - xx. All LAS files header should include geo-referenced information as WKT (well-known text).
  - xxi. The Successful Bidder shall submit the following reports along with the acquired raw data;
    - Mission planning report
    - Log report
    - Registration report including GCP used in the processing of the data
    - QA/QC report
  - xxii. Bidder will also process the raw data and generate the output as per industry standards, The LiDAR point cloud data shall be integrated with the GIS database and also be displayed on the Web GIS Application (if required)
- h) The Successful Bidder shall study & collate the GIS data and integrate it on the proposed GIS Data model.
  - i) The Successful Bidder shall also check from the available data with JSCL, whether the data (spatial or non-spatial) is recent or accurate enough to be used and not obsolete.
  - j) The Successful Bidder shall be responsible to design a detailed structured questionnaire to capture required attributes / data. Based on the approval received from JSCL, the Successful Bidder shall initiate the data creation/ update process.
  - k) The Successful Bidder shall suggest on ways to improve JSCL’s operations to populating the GIS data base easier and more accurate.

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- l) The proposed GIS data model should be designed considering the requirements of entire organization to support integration with existing software applications of the JSCL.
- m) In case of paper maps, the successful bidder shall prepare the GIS layers by performing two steps, i.e., geo-referencing and digitisation.
- n) The Successful Bidder shall perform all related tasks to make sure that legacy data is successfully migrated to standardized data models. The successful bidder must perform the analysis of the data that needs to be converted / migrated, prepare and submit a plan for the conversion/migration, and also deliver utilities and programs to achieve the conversion/migration.

**These tasks shall include;**

- i. **Data scrubbing:** Flag & notify JSCL of any errors detected in legacy data, assist with corrective actions as required, add any necessary information in the attribute fields not found in legacy data
- ii. **Data conversion:** Convert data to the standard format to be used in the new data model
- iii. **Data migration:** Migrate data to the new data model
- iv. **Data operability:** Ensure migrated data is bug free and fully operable
- v. **Meta data:** Formulating a comprehensive and consistent metadata standard which complies with industry standards and central/state government guidelines. Identify and flag gaps and inconsistencies within metadata and complete the same.

Note 1:

The legacy data would be provided but not limited to 2D City Base Map, Property Map and Data, Hard Copy Maps of Town and Country Planning and other departments, Lease Area Maps with associated attribute/tabular data if any, PWD Maps and MIS data of Water, Electrical, garden and other department data available with JMC.

Note 2:

1. Overall, estimated 1000 maps in A0/A1 size in. dwf/dwg or other formats will be provided that shall to be Georeferenced and vectorised for identified features by the bidder. Scope of map scanning as required shall be under the scope of JSCL.
2. Regarding Hard copy maps, it is estimated that a total of 164 maps (2 maps from each ward) shall need to be submitted to JSCL by the bidder.

The above scope shall be part of the BoQ (line item 7, Annexure-3.2) & Hence, Bidder is liable to cover this scope without any extra cost to JSCL.

- o) Quality Assurance/Quality Control (QA/QC) - Where new dataset is being created or geometry is being manipulated/digitized in legacy datasets; all data development processes shall conform to industry standard map accuracy standard guidelines for the type of feature being created.

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### **3.7 Data Dictionary / Data Model:**

- a. The Successful Bidder shall create GIS data model for storing the spatial & Non-Spatial data with the help of detailed round of discussion with each of the concerned JSCL department officials.
- b. The Successful Bidder shall use data modelling tools to create the desired data model.
- c. The final data model shall be approved by the JSCL and before proceeding further the data model needs to be finalized. Once the data model is finalized, the Successful Bidder shall give the details of the data model diagram (ER Diagram) to JSCL for future references or for any modifications in future.
- d. The data model shall be created in such a way that all the layers that are already available with JSCL have been considered in addition to other required data layers as defined in section 3.3 while finalizing the data model. The data model may also include few layers that may not contain any data. Also designing of the data model shall be made taking required reference from as per defined for AMRUT cities (design and standards)
- e. The Successful Bidder shall take care of the changes in the Data Model as per the requirements from the JSCL users and shall maintain version control for the entire period.

### **3.8 Data Output & Deliverables**

The desired outputs & deliverables under this project are as shown below.

#### **1. UAV Imagery data along with GCP files.**

- a) Soft copies of images in .img and Geo tiff/JPEG formats, raw, mosaicked, and tiled
- b) The raw and processed data (in suitable format) of the DGPS survey with a photograph of each GCP with monument.
- c) A sketch of each DGPS point showing the location on A4 size drawing.
- d) Raw and processed photogrammetry & LAS data as received from photogrammetry payload

#### **2. Base Map of entire city**

Digital data of base map inclusive of all assets/features and utilities captured from drone images in proposed formats/ Shape file, Geodatabase etc.

- a) Hard copies of Ward wise Maps, depicting all entities to be delivered.
- b) Geo-PDFs of the base map of each ward depicting all layers.
- c) Data models for each layer.

#### **3. 3D Data for city:**

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- a) 3D Data for every features/asset captured/ created from various sources i.e. Ortho photos, LiDAR, GPR (including raw data captured during survey)
- b) 3d features / models / database etc.
- c) DEM
- d) DSM
- e) nDSM
- f) DTM
- g) Contour
- h) 3D Mesh

## **5. Other Deliverables**

- a) Bidder has to do underground utility survey for sewer, water pipelines, telecom lines and other service lines available under the ground.
- b) LiDAR Survey raw & processed data: -
- c) Surveyed Data in an excel / spreadsheet formats
- d) Any other files prepared for integration with GIS.
- e) 360deg panoramic view (to be integrated later with the GIS platform)

### **3.9 System Documents & User documents**

The Successful Selected Bidder will provide documentation, which should follow the ITIL (Information Technology Infrastructure Library) standards. This documentation should be submitted as the project undergoes various stages of implementation. Indicative list of documents includes:

- a. Project Commencement Documentation: Project Plan in giving out micro level activities with milestones & deadlines.
- b. Resource and team plans
- c. Details of ward wise division of work
- d. Template for project tracking and review. Any other document(s) deemed necessary for implementation of the overall project scope.
- e. The Selected Bidder shall prepare a process document in accordance with the ISO 9001 standard; Containing all the process being carried out during the entire tenure of the project and share the same with JSCL.
- f. Periodic reviews (at least once every month) shall be carried out for measurement of effectiveness for each of the process implemented and the same shall be shared by the System Integrator with JSCL
- g. Escalation Mechanism
- h. Exit Management Plan- Within 60 days of the signing of contract.

**Note:** 1.The successful Selected Bidder will ensure Upkeep & Updating of all documentation and manuals.

3.9.1 Testing of Data output: Bidder shall also provide access to the environment including the software to JSCL for testing the data output delivered on quality parameters as per SLA defined in 6.22.

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### 3.10 Project completion

1. The bidder shall prepare and agree with JSCL, for project completion (in-line with JSCL’s implementation plan as mentioned in this document).
2. Bidder shall submit signed-off UAT report (issue closure report) ensuring all issues raised during UAT are being resolved prior to project completion.

### 3.11 Documentation

The project team shall provide the following documents in hard as well as in soft copies:

- a. Detail Project Plan
- b. Weekly and Fortnightly progress reports
- c. Complete Set of GIS Database, Data Model, 3d models / database.
- d. GIS & 3D Database Administration Manuals if any
- e. User manuals/Installation Manuals if any
- f. Operational Manuals if any
- g. Maintenance Manuals if any

In addition, Bidder would have to prepare and submit the required documentation if assessed for any relevant activities as per scope of the work.

### 3.12 Adherence to Standards

The successful bidder shall ensure that the system/service complies with relevant defined industry standards (their latest versions as on date) wherever applicable. This will apply to all the aspects of solution including but not limited to its design, development, security, installation, and testing. The suggested architecture must be scalable and flexible for modular expansion.

It should ensure ease of integration with software / applications developed using common industry standards since the solution/data may be linked and connected to other sources (websites, contents, portals, systems of other user departments etc.) A reference list of the minimum industry standards for which the components should adhere to (whichever is applicable) is mentioned below:

S No	Components	Standards
1.	Information Access/ Transfer protocols	SOAP, HTTP/HTTPS
2.	Interoperability	Web Services, Open Standards
3.	Document encryption	PKCS Specification
4.	Information Security	ISO 27001 Certified System
5.	Operational Integrity & Security Management	ISO 17799 Certified System
6.	Operation	ISO 9001 Certified
7.	Service Management	ISO 20000 Specifications or latest
8. 9.	Project Documentation	IEEE/ISO Specifications for documentation

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### 3.13 JSCL Responsibilities

JSCL will support and facilitate to arrange the necessary permissions for Aerial Survey through UAV, Lidar and GPR survey activities. Further, JSCL also facilitate in enabling coordination with concern departments for collation of necessary data and information.

### 4. Project Milestone & Timelines

JSCL envisages the completion of the 3D mapping and survey of Household through UAV technology (the Scope of Work has been given in Section 3) within a timeframe given below from the date of work order. An Indicative Project Timeline has been given below; signing of Contract Agreement and permission from DGCA (whichever is later) would be considered the Project Start Date (T1). Many activities mentioned in the milestones shall run simultaneously and will be overlapping and it is expected that the bidder will schedule its activities as per milestones however, bidder may also adopt its own schedule and implementation activities as may be feasible considering it should adhere to the milestones.

S.no	Deliverables	Timeline	Payment Milestone	Completion Time
1	Required Permission for drone flying	Within one months from LOA=T1	NA	T1 (1 month)
2	Submission and Approval of Project Inception report and Implement Plan, Submission of report for data capture and output with Requirement gathering, GAP analysis if any and way forward, Scope, Project Deliverables, Data model, Report on Department-wise existing data source	4 weeks after LOA= T2	NA	T2 (1 months)
3	DGPS Survey and control points (Primary and secondary)	50 control points within 4 weeks from T2 = T3	Post approval 70 % of cost of the completed part of the DGPS Survey	T3= 6 months (2 months, 3 months, 4 months, 5 months, 6 months)

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<b>S.no</b>	<b>Deliverables</b>	<b>Timeline</b>	<b>Payment Milestone</b>	<b>Completion Time</b>
4	Submission of Pilot Project (of defined area of 500 Sq. meter within ABD area/or as per JSCL requirement, having complete scope including but limited to Aerial UAV Survey, Lidar survey & post processing outputs, (3 line kms.), 2d/3d base map with necessary attribute with GIS id and e-nagarpalika id (for properties) and prepare demand register for surveyed properties. 3d models of all properties, approx. 500 households, 5 line km length GPR survey with processed output as per scope as well as presentation on any 3D GIS platform for validation of the deliverable output	6 weeks from (T2+2 weeks)= T4	Post Approval, 5% Cost of Project	T4 (3 months)
5	Under Ground Utility Survey for ABD area up to 5 m depth with required data processing (metal and nonmetallic utility detection and mapping in 2d and 3d)	Within 12 weeks form T4=T5	Post Approval, 70 % of the service cost of the covered area/length	T5 (6 months)

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<b>S.no</b>	<b>Deliverables</b>	<b>Timeline</b>	<b>Payment Milestone</b>	<b>Completion Time</b>
6	MLS (Mobile LiDAR survey) for ABD AREA and processed 3 D output data with Continuous 360-degree panoramic view (Street View)	within 12 weeks from T4=T6	Post Approval, 70 % of the service cost of the covered area/locations	T6 (6 months)
5	UAV survey-image processing (Seam line editing, color balancing ortho mosaicking, True ortho photo generation, Tiled Images, DEM, DSM, DTM, 3D Mesh, Point Cloud data for Lidar, 0.5 m contour generation)	50 Sq. km. or more within 6 weeks from T4 =T7	Post Approval, 70 % of the service cost of the covered area	T7=10.5 months (4.5 months, 6 months, 7.5 months, 9 months, 10.5 months)
6	Updating and creation of 2d/3d GIS base map (digitize all features with respective category including properties)	50 sq. km or more within two weeks after T7=T8	Post Approval, 70 % of the service cost of the covered area	T8=11 months (5 months, 6.5 months, 8 months, 9.5 months, 11 months)
7	3D mapping and modelling of all properties in photo realistic (geometrically corrected with draped Ortho image) LOD level 1 as per defined scope	50000 or more properties within four weeks from T8=T9	Post Approval, 70 % of the service cost of the covered properties	T9=12 months (6 months, 7.5 months, 9 months, 10.5 months, 12 months)

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<b>S.no</b>	<b>Deliverables</b>	<b>Timeline</b>	<b>Payment Milestone</b>	<b>Completion Time</b>
8	3D mapping and modelling of specific identified properties in photo realistic LOD level 2 as per defined scope i.e. hotel, hospital, govt. buildings schools, and other public places or major landmarks)	200 building within four weeks from T9=T10	Post Approval, 70 % of the service cost of the covered properties	T10=13 months (7 months, 8.5 months, 10 months, 11.5 months, 13 months)
9	Door to Door Household Survey for each properties via app (as per the forms provided by JSCL), Photographs of properties, data entry, linking With e-nagarpalika and properties models with data validation of earlier linked properties along with Preparing Ward wise Demand Register based on difference in Area, Uses, number of floors etc. using existing MIS datasets (E-nagarpalika) and data collected from fields	50000 Household or 16 wards in every 3 months (12 Weeks) from T8=T11	Post Approval, 70 % of the service cost of the covered households	T11=14 months (8 months, 9.5 months, 11 months, 12.5 months, 14 months)
14	Final verification & delivery of error free complete dataset of the processed output/services	Within 3 Month from T11=T12	Post Approval, 25 % of the remaining service cost of each of the covered area/services as per BoQ.	T12 = 17 months

#### 4.1 Payment Terms

1. No advance payment shall be made.

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2. The Successful Bidder’s request(s) for payment shall be made to the JSCL in writing, accompanied by an invoice describing, as appropriate, the Goods/Products/Services delivered and the Services performed, and upon fulfilment of other obligations stipulated in the contract.

3. Bidder shall raise the invoice only after the positive satisfactory verification report by the technical advisor/JSCL at every stage that is

- Pre-Dispatch testing of Goods/Products/Data/services/solution at the JSCL’s premises
- User Acceptance Testing after successful verification of the data deliverables

4. Payments shall be made promptly by the JSCL within thirty (30) days after submission of the invoice or claim by the Bidder, only after quality inspection, verification & approval by the JSCL/JMC concern officer of the conformity of the Goods/Products/Services/Solutions supplied as per the agreed specifications.

5. Payment shall be made in Indian Rupees by online NEFT transfer / through cheque.

6. The price quoted by the Bidder shall be fixed during the Bidder’s performance of the contract and shall not be subjected to variation on any account, including changes in taxes, duties, levies etc.

#### **4.2 Penalties for Delay in execution**

If the bidder fails to achieve the milestones, and the delay in execution and completion of work is attributable to the bidder, JSCL shall retain an amount from the sums payable for each milestones under following terms –

- a) Slippage of up to 25% of work for each milestone— Retain of 2.5% of the amount of work remained uncompleted in the specified time span of the milestone
- b) Slippage exceeding 25% but up to 50% of work for each milestone— Retain of 5% of the amount of work remained uncompleted in the specified time span of the milestone
- c) Slippage exceeding 50% but up to 75% of work for each milestone— Retain of 7.5% of the amount of work remained uncompleted in the specified time span of the milestone
- d) Slippage exceeding 75% of work for each milestone— Retain of 10% of the amount of work remained uncompleted in the specified time span of the milestone

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Note: For arriving at the dates of completion of time span related to different milestones, delays which are not attributable to the bidders shall be considered. The slippage on any milestone is if made good in subsequent milestones or at the time of stipulated period of completion, the amount retained as above shall be refunded. In case the work is not completed within the stipulated period of completion along with all such extensions if any which are granted to the bidder for either Employer’s default or Force Majeure, the compensation/penalty shall be levied on the bidder at the rate of 0.05% for each delayed milestone per day of delay limited to a maximum of 10% of contract price. The decision of concerned officer from JSCL shall be final and binding upon both the parties.

***Note: Maximum Penalty applicable to the bidder shall not exceed 10% of the Total Work Order value till the completion of Implementation support. If the total Penalty exceeds beyond 10%, it would be considered as non-conformance to the Quality of Services and may lead to termination of the Contract and blacklisting of the successful bidder. JSCL may on their sole discretion cancel the order.***

Note: If the delay is solely caused by any other unavoidable reasons or circumstances arise due to dependency from other stakeholder departments the above penalty shall not be applicable.

Default Charges for a month shall be capped at ten percent (10%) of the total Service Charges for the given months. Further, bidder need to ensure the error free data output as well as it should meet the parameters as defined in RFP for quality to be able to receive the desired approval from JSCL.

## **7. Fee for Additional Services**

Fee for Additional Services, if required by the Client, shall be determined keeping in view the fee as indicated by the Bidder in the RFP Document and wherever specific rates are not provided, applicable market rates as mutually arrived and agreed upon, may be considered.

## **8. Terms and Conditions of Payment**

Payments will be made to the account of the Bidder according to the payment terms as determined under the RFP Document and Letter of Appointment issued by the Client to the Bidder. The payment will be made only after satisfactorily approval by the Client.

- a) The penalty shall be calculated and deducted from the immediate payment due.
- b) In case of disputed items, the disputed amount shall be withheld and shall be paid only after settlement of the dispute.
- c) Any additional cost in achieving the Milestones shall be bear by the successful bidder / Implementation agency.

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#### **4.2 Sample data verification**

Based on the quantity and quality of the data captured/work undertaken for the specified area, JSCL also verify 10% to 30 % of the surveyed data on to the field by random sample method. JSCL may engage an independent authorized independent agency for the same if applicable, if JSCL found that data quality, is not as per RFP standard or surveyed data is mismatched with the actual both for surface and subsurface feature (for GPR), JSCL shall give another chance to bidders to resurvey the work in a different or same area (within a limited time limit) and again re verify for the quality of the data as per RFP standard. If in second attempt too, bidder failed to supply the data as per RFP standard, JSCL has right to terminate the contract and forfeit the PBG and blacklist the vendor.

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## **5. Annexure**

### **Annexure 1 Letter of Proposal**

*(On Bidder’s letter head)*

**To,  
Executive Director  
Jabalpur Smart City Limited  
Jabalpur**

**Sub:       *Selection of an agency for “Creation of 3D city model using UAV survey techniques including creation, updation and integration of property tax records through household survey” for Jabalpur***

Dear Sir,

With reference to your RFP dated \_\_\_\_\_, I/we, having examined all relevant documents and understood their contents, hereby submit our Proposal for “Selection of an agency for “Creation of 3D city model using UAV survey techniques including creation, updation and integration of property tax records through household survey” for Jabalpur ”. The proposal is unconditional and unqualified.

1. All information provided in the Proposal and in the Appendices is true and correct and all documents accompanying such Proposal are true copies of their respective originals.
2. I/We shall make available to JSCL any additional information it may deem necessary or require for supplementing or authenticating the Proposal.
3. I/We acknowledge the right of JSCL to reject our application without assigning any reason or otherwise and hereby waive our right to challenge the same on any account whatsoever.
4. I/We certify that in the last three years, we have neither failed to perform on any contract, as evidenced by imposition of a penalty by an arbitral or judicial authority or a judicial pronouncement or arbitration award against us, nor been expelled from any project/assignment or contract by any public authority nor have had any contract terminated by any public authority for breach on our part.
5. I/We declare that:
  - a) I/We have examined and have no reservations to the RFP, including any Addendum which may be issued by JSCL;
  - b) I/We do not have any conflict of interest in accordance with the terms set forth in this Proposal;

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c) I/We have not directly or indirectly or through an agent engaged or indulged in any corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practice, as defined or mentioned in your RFP, in respect of any tender or request for proposal issued by or any agreement entered into with JSCL or any other public sector enterprise or any government, Central or State; and

d) I/We hereby certify that we have taken steps to ensure that in conformity with the provisions of your RFP and this Proposal, no person acting for us or on our behalf will engage in any corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practice.

6. I/We understand that you may cancel the selection Process at any time and that you are neither bound to accept any Proposal that you may receive nor to select the Agency, without incurring any liability to the Bidders in accordance with your RFP and this Proposal.

7. I/We certify that in regard to matters other than security and integrity of the country, we or any of our Associates have not been convicted by a Court of Law or indicted or adverse orders passed by a regulatory authority which would cast a doubt on our ability to undertake the Assignment or which relates to a grave offence that outrages the moral sense of the community.

8. I/We further certify that in regard to matters relating to security and integrity of the country, we have not been charge-sheeted by any agency of the Government or convicted by a Court of Law for any offence committed by us or by any of our Associates.

9. I/We further certify that no investigation by a regulatory authority is pending either against us or against our Associates or against our CEO or any of our Directors/Managers/employees.

10. I/We hereby irrevocably waive any right or remedy which we may have at any stage at law or howsoever otherwise arising to challenge or question any decision taken by JSCL [and/ or the Government of India/Madhya Pradesh] in connection with the selection of Agency or in connection with the selection process itself in respect of the above mentioned Assignment.

11. I/We agree and understand that the proposal is subject to the provisions of the RFP document. In no case, shall I/we have any claim or right of whatsoever nature if the for the Assignment is not awarded to me/us or our proposal is not opened or rejected.

12. I/We agree to keep this offer valid for 180 (one hundred and eighty) days from the Proposal Due Date specified in your RFP.

13. I/We have studied RFP and all other documents carefully and also surveyed the Assignment site. We understand that except to the extent as expressly set forth in the Agreement, we shall have no claim, right or title arising out of any documents or information provided to us by JSCL or in respect of any matter arising out of or concerning or relating to the selection process including the award of Assignment.

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14. This Technical Proposal as submitted by us in Appendix-A hereto read with the Financial Proposal as submitted by us in Appendix-B hereto shall constitute the Application made in response to the RFP and shall be binding on us.

15. I/We agree and undertake to abide by all the terms and conditions of your RFP including all their annexure. In witness thereof, I/we submit this Proposal under and in accordance with the terms of your RFP.

16. We hereby declare that all the information and statements made in this Proposal are true and accept that any misinterpretation contained in it would lead to our disqualification.

Yours faithfully,

(Signature, name and designation of the authorized signatory) (Name and seal of the Bidder)

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## Annexure 2 – Technical Proposal Format

### Annexure 2.1 Details of the bidder and its technical capability

DETAILS OF THE BIDDER		
1.1	Title of Assignment: Selection of an agency for “ <b>Creation of 3D city model using UAV survey techniques including creation, updation and integration of property tax records through household survey</b> ”	
1.2	Details of Bidders: 1. (Details of incorporation) 2. (Registered/ Corporate/ Principal office address) 3. (Contact person, Designation, Email, Mobile) 4. (Other details as may be necessary)	
TECHNICAL CAPABILITY OF THE BIDDER		
Sr. No.	Projects	Year
1.		
2.		
3.		
4.		
5.		

### Annexure 2.2 – Format for Project Citations

	Details	Attachment Ref. Number
<b>Name of the project</b>		
Client for which the project was executed		
Name and contact details of the client		
<b>Project Details</b>		
Description of the project		
Scope of services		
Outcomes of the project		
<b>Other Details</b>		
Total cost of the project		
Total cost of the services provided by the Bidder		
Duration of the project (no. of months, start date, completion date, current status)		
<b>Other Relevant Information</b>		
Letter from the client to indicate the successful completion of the projects (if any)		
Copy of Work Order/Agreement		

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**Annexure 2.3: Proposed Work Plan, Approach and Methodology**

It shall be described as follows:

1. Understanding of Scope of Work (not more than four pages)

The Bidder shall clearly state its understanding of the Scope of Work and also highlight its important aspects. The Bidder may supplement various requirements of the Scope of Work and also make precise suggestions if it considers this would bring more clarity and assist in achieving the Objectives laid down in the Scope of Work.

2. Work Plan, Approach & Methodology (not more than four pages)

The Bidder shall submit Proposal Concept, Work Plan, approach & methodology for carrying out this assignment, outlining its approach toward achieving the Objectives laid down in the Scope of Work. The Bidder should specify how the key personnel and expertise is proposed to be utilized for this assignment through the respective tasks, roles and responsibilities.

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### **Annexure 3 – Financial Bid**

#### **Annexure 3.1 Financial Proposal Cover Letter**

(To be submitted on the Letterhead of the Bidder)

Date: dd/mm/yyyy

To

**Executive Director**

**Jabalpur Smart City Limited Jabalpur, Madhya Pradesh**

**Subject:** Bid for the \_\_\_\_\_

**NIT No:** -----

Dear Sir,

We, the undersigned bidder, Having read & examined in detail, the Bidding Document, the receipt of which is hereby duly acknowledged, I/ we, the undersigned, offer to supply/ work as mentioned in the Scope of the work, Bill of Material, Technical Specifications, Service Level Agreement & in conformity with the said bidding document for the same.

- I. I / We undertake that the prices are in conformity with the specifications prescribed. The quote/ price are inclusive of all cost likely to be incurred for executing this work. The prices are inclusive of all type of taxes/duties/levies (excluding GST) as mentioned in the financial bid format.
- II. I / We undertake, if our bid is accepted, to deliver the goods & services in accordance with the delivery schedule specified in the RFP.
- III. I/We undertake to successfully operationalize the entire solution as per scope of work mentioned in the RFP document.
- IV. I/ We have examined and have no reservations to the Bidding Documents, including any corrigendum/addendums issued by JSCL;
- V. I/ We hereby declare that in case the contract is awarded to us, we shall submit the contract performance bank guarantee as prescribed in the RFP.
- VI. I / We agree to abide by this bid for a period of 180 days from the date of bid submission and it shall remain binding upon us and may be accepted at any time before the expiry of that period.
- VII. Until a formal contract is prepared and executed, this bid, together with your written acceptance thereof and your notification of award shall constitute a binding Contract between us.
- VIII. I/ We hereby declare that our bid is made in good faith, without collusion or fraud and the information contained in the bid is true and correct to the best of our knowledge and belief.

We understand that you are not bound to accept the lowest or any bid you may receive. We agree to all the terms & conditions as mentioned in the RFP document and submit that we have not submitted any deviations in this regard.

In witness thereof, I/we submit this Bid under and in accordance with the terms of the RFP document.

Yours faithfully,

(Signature of the Authorized signatory)

(Name and designation of the of the Authorized signatory)

Date:

Place:

Name and seal of Bidder/Lead Member

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**Annexure 3.2 - Financial Proposal Format (BoQ) & Instructions**

S.no	Item Deliverables	Rates Per Unit Cost inclusive of all taxes, charges etc. (excluding GST)	Quantity	units	Total Cost in (INR)
1	DGPS Survey for control points (Primary and secondary) as per requirement		250	Per point	
2	UAV survey- image processing (seam line editing, color balancing ortho mosaic, True Ortho, Tiled Images, DEM, DSM, DTM, 3D Mesh, Point Cloud data, 0.5 m contour (using professional 3D stereo photogrammetry system))		264	Per sq. km	
3	Creation and Updating of 2d and 3d GIS base map (digitize all visible features using photogrammetric hardware i.e. 3D Mouse, 3d Monitor and 3D Glasses and using software such as Datum summit Evolution Erdas or similar)		264	Per sq. km	
4	3D mapping and modeling of all properties in photo realistic LOD level 1 with facet model with accuracy mentioned in RFP (3D city with realistic façade for buildings and features using photogrammetric hardware i.e. 3D Mouse, 3d Monitor and 3D Glasses and software such as Datum summit Evolution Erdas Or Similar)		264	Per sq. km	
5	3D mapping and modeling of specific identified properties in photo realistic LOD level 2 textured with facet model (3d models with floor wise selections and tagging i.e. hotels, hospital, govt. buildings, schools, and other public places)		1000	Per property model	

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6	Door to Door Household Survey (as per the forms provided by JSCL) including photographs of properties, data entry, linking with properties models and further linking with e-nagar palika and prepare demand register based on difference in Area, Uses, No of Floors etc. for entire city using existing MIS datasets and data collected from fields. Also Assigning a Digital Property address for each property		275000	Per property	
7	Under Ground Utility Survey up to 5 m depth (GPR including metal and nonmetallic utility detection and mapping in 2d and 3d i.e. sewer, water, telecom etc.) using dual frequency GPR device.		40	Per line km	
8	MLS (Mobile LiDAR survey) and 360-degree panoramic view with measurement capability for specific area with processed 3d output data		40	Per line km	
	<b>Total Cost for the Financial Evaluation</b>				

**Note:**

- The Total Cost cumulative of all deliverables would be considered for the Financial Evaluation.
- Financial Bid needs to be submitted online as per the instructions given in the RFP in the format prescribed in this section.
- Bidder should provide all prices as per the prescribed format under this Section.
- All the prices are to be entered in Indian Rupees (INR) only.
- Financial bid evaluation will be done based on Total Project Price of financial bid formats.
- Values quoted against each item should be inclusive of all taxes but exclusive of GST. GST will be paid as per the rule defined of Government of India (GoI) at the time of actual payment.
- It is mandatory to provide breakup of all Taxes, Duties and Levies wherever asked for.
- JSCL reserves the right to ask the IA to submit proof of payment against any of the taxes, duties, levies indicated.
- The IA needs to account for all Out of Pocket expenses due to Boarding, Lodging and other related items.

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- The Unit Rate as mentioned in the following formats may be used for the purpose of ‘Change Order’ for respective items, if any. However, based on the market trends, JSCL retains the right to negotiate this rate for future requirement
- The overall project cost could vary +/- 20%. (As per clause 2.14 (a) of the RFP). Individual line item quantity could vary within the overall project cost +/-20%. The successful bidder shall not object to the upward or downward variation in quantities of any item if it lies within the variation limits (as per clause 2.14 a).
- JSCL has right to de scope any line item completely or partially if required, bidder would have to accept the decision of JSCL without any condition.
- Payment for additional quantities within the variation limit shall be made at tender rates and the tender rates shall be valid for entire duration of the contract.
- No claim shall be entertained or become payable for price variation of additional quantities
- Bidder shall be bound to give same or more % discount on the list price of the OEMs on the future purchases if any (additional purchases within the contract period) by JSCL. Bidder shall ensure that the future products supplied are of latest specifications as per the OEM roadmap.
- For the purpose of evaluation of Financial Bids, JSCL shall make appropriate assumptions to arrive at a common Bid price for all the bidders. This however shall have no co-relation with the Contract value or actual payment to be made to the Bidder.
- JSCL also intends to utilize various rates obtained through this tender for requirements across various departments. Bidders are requested to factor this larger demand and give the best possible rate to JSCL.
- IA should refer to the Tender for details on the technical/functional requirements of the system and the benchmark specifications for the items mentioned in the Financial Formats.
- Line items mentioned in the Financial Formats are for representation purpose and IA may propose alternate technology / solution (with proper justification). Bidders are required to suitably add line items / merge the cost components depending upon their proposed solution.
- No escalations of prices will be considered under any circumstances.
- Bidders must carefully read the Scope mentioned in this RFP and accordingly propose the software, hardware, accessories and services and their respective quantities required to completely meet the requirements of this RFP.

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### Annexure 3.3 Project Resource Manpower list

S.no	Details of the Personnel/ Profile	Qualification	Max. Marks	Requirement
1	Project Manager with greater than or equal to 10 years' minimum experience	<p>Education:</p> <ul style="list-style-type: none"> <li>BE/B. Tech. in Engineering with MBA or MS/M. Tech in Engineering- 2 mark else 1 mark</li> </ul> <p>Certification:</p> <ul style="list-style-type: none"> <li>PMP/Prince 2 certification-1 marks else-no mark</li> </ul> <p>Experience:</p> <ul style="list-style-type: none"> <li>equal to 10 years-1 mark</li> <li>&gt;10 years but less than 12 years-1.5 marks</li> <li>&gt;=12 years-2 marks</li> </ul>	5 marks	Full Time
2	Database/MIS Expert having minimum 5 years of experience	<p>BE/B Tech/Master in IT/Computer Science/MCA -2 mark else 1 mark</p> <p>Years of Experience in GIS based Database management</p> <ul style="list-style-type: none"> <li>&gt;=5 years &amp; less than 7 years-0.5 mark</li> <li>&gt;=7 years-1 mark</li> </ul>	3 marks	Full Time
3	GIS Analyst having minimum 5 years experience	<p>Education:</p> <ul style="list-style-type: none"> <li>Post Graduate/PG diploma in GIS/Geo informatics/Remote Sensing or Photogrammetry -2 marks</li> <li>Any Degree with Diploma in GIS/ Geo informatics/Remote Sensing or Photogrammetry -1 mark</li> </ul>	3 marks	Full Time

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		<p>Experience:</p> <ul style="list-style-type: none"> <li>• <math>\geq 5</math> years &amp; less than 7 years - 0.5 mark</li> <li>• <math>\geq 7</math> years - 1 mark</li> </ul>		
4	Survey Manager having minimum 5 years experience	<p>Education:</p> <p>B.E. Civil / Surveying / Post Graduate Degree in Geography/Remote sensing/GIS/Photogrammetry = 2 Mark</p> <p>Graduate/Diploma in civil/surveying/GIS/Remote sensing discipline-1 mark</p> <p>Experience:</p> <ul style="list-style-type: none"> <li>• <math>\geq 5</math> years &amp; less than 7 years - 0.5 mark</li> <li>• <math>\geq 7</math> years - 1 mark</li> </ul>	3 marks	Full Time
5	LIDAR Survey and Interpretation Expert having minimum 2 years experience	<p>Graduate degree in GIS/Remote sensing/Photogrammetry or any Graduate with PG diploma in GIS/Geo informatics/Remote Sensing/Photogrammetry – 0.5 marks</p> <p>Else-0 mark</p> <p><b>Experience:</b></p> <p>(Airborne/terrestrial Lidar based 3D surveys) <math>\geq 2</math> year - 0.5 mark</p> <p>Else 0 mark</p>	1 mark	

Selection of an agency for “Creation of 3D city model using UAV survey techniques including creation, updation and integration of property tax records through household survey” for Jabalpur

**Instructions:**

- a) It is mandatory to provide breakup of all Taxes, Duties and Levies wherever asked for.
- b) JSCL reserves the right to ask the MSI to submit proof of payment against any of the taxes, duties, levies indicated.
- c) Bidder should provide all prices as per the prescribed format.
- d) All the prices are to be entered in Indian Rupees and in the Indian Numerical format only.
- e) The Unit Rate as mentioned in the following formats may be used for the purpose of ‘Change
- f) Order’ for respective items, if any. However, based on the market trends, JSCL retains the right to negotiate this rate for future requirement
- g) Payment for additional quantities within the variation limit shall be made at tender rates and the tender rates shall be valid for entire duration of the contract.
- h) No claim shall be entertained or become payable for price variation of additional quantities
- i) JSCL also intends to utilize various rates obtained through this tender for requirements across various departments. Bidders are requested to factor this larger demand and give the best possible rate to JSCL.
- j) Line items mentioned in the Commercial Formats are for representation purpose and MSI may propose Higher or better technology / solution (with proper justification). Bidders are required to suitably add line items / merge the cost components depending upon their proposed solution.
- k) No escalations of prices will be considered under any circumstances.
- l) Bidders must carefully read the Scope, Technical & Functional Requirements mentioned in this RFP and accordingly propose the software, hardware, accessories and services and their respective quantities required to completely meet the requirements of this RFP. To meet the requirements of this RFP, no request for Change Order shall be entertained.
- m) JSCL may ask bidder to provide breakup of estimation sheet of each component.
- n) The Bidder needs to account for all Out of Pocket expenses, no additional payment shall be made by JSCL whatsoever.
- o) Any component/fixtures/ancillary/adjunct to the specified item shall be deemed to have been included in the unit rates quoted above.

Selection of an agency for “Creation of 3D city model using UAV survey techniques including creation, updation and integration of property tax records through household survey” for Jabalpur

#### **Annexure 4 - Letter of Appointment**

To,

**Kind Attn: Mr.**

**Sub: - Letter of Appointment (LOA) for Selection of an agency for “Creation of 3D city model using UAV survey techniques including creation, updation and integration of property tax records through household survey” (Contract No.: ).**

Dear Sir,

(1) We refer to your Bid, dated \_\_\_\_\_, 2020 submitted in response to the invitation for Bids for Selection of an agency for “Creation of 3D city model using UAV survey techniques including creation, updation and integration of property tax records through household survey” (Contract No.: \_\_\_\_\_).

(2) Jabalpur Smart City Limited (JSCL) is pleased to inform you that your Bid dated \_\_\_\_\_, 2020 for “Appointment of Public Relation (PR) Agency for Jabalpur Smart City Limited” has accepted by JSCL. You have been selected as the Preferred Bidder for the Contract Price of Rs. \_\_\_\_\_/-

( )<sup>1</sup> (hereinafter referred to as the “**Contract Price**”) subject to fulfilment of all terms and conditions specified in the bid document. The Contract Price mentioned above will be inclusive of all applicable taxes, duties, statutory charges levies and any other charges as applicable from time to time save and including the Service Tax. The payment under the contract will be as per the terms given in the tender and accepted rate.

(3) We request that, within 15 (fifteen) days of the receipt of this Letter of Appointment, you shall sign the Agreement, in duplicate, prepared by JSCL / Client as per the terms mentioned in the Instruction to Bidders of the bid documents. In the event you fail to comply with the same within the prescribed time limit, JSCL shall be entitled to forfeit the Bid Security and annul the award of Contract.

<sup>1</sup> Rupees in words

Kindly convey your acceptance of this “Letter of Appointment” by signing duplicate copy by your authorized representative and deliver the same to us.

**Agreed and Accepted**

Selection of an agency for “Creation of 3D city model using UAV survey techniques including creation, updation and integration of property tax records through household survey” for Jabalpur

<p>Signature of the Authorized Representative of the Client (i.e. JSCL)</p> <p>Name:</p> <p>Address:</p> <p>Date:</p> <p>Place:</p> <p>Company Seal:</p>	<p>Signature of the Authorized Representative of the Bidder</p> <p>Name:</p> <p>Address:</p> <p>Date:</p> <p>Place:</p> <p>Company Seal:</p>
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Selection of an agency for “Creation of 3D city model using UAV survey techniques including creation, updation and integration of property tax records through household survey” for Jabalpur

### **Annexure-5 Contract Agreement between JSCL & the Bidder**

Format of the contract to be entered between successful bidder and Jabalpur Smart City Limited is given below:

This CONTRACT is made and entered into on this day of \_\_\_\_\_ by and between

Jabalpur Smart City Limited, (Hereinafter referred to as “JSCL” which expression shall include its successors, and assignees) on the one part and M/s, \_\_\_\_\_ company registered under the companies Act with its registered office at

.....

(hereinafter after referred to as “Implementation Agency” for “**Creation of 3D city model using UAV survey techniques including creation, updation and integration of property tax records through household survey**” which expression shall include its successors and permitted assignees) on the other part.

Each of the parties mentioned above are collectively referred to as the “Parties” and individually as “Party”.

WHEREAS:

- i. JSCL had invited bids vide its RFP No. .... (hereinafter referred to as ‘RFP’, which term shall include all corrigendum, addendums, modifications issued with reference to the RFP) for appointment of agency/IA.... (hereinafter referred to as “” Proposal)” for Design, Implement and Management of Smart School Solution in Jabalpur.
- ii. IA in its Proposal has represented that it has the necessary capabilities to carry out the required solution as per the scope of work defined in the RFP and in accordance with the clarifications issued by JSCL in relation to the implementation of the scope of work.
- iii. JSCL has accepted the Proposal of the IA and has issued a Letter of Award /Notification of Award notifying the IA of its selection as a successful bidder vide its letter Dated.....

Now it is hereby agreed to by and between the parties as covered in general terms of contract (section 6).

Selection of an agency for “Creation of 3D city model using UAV survey techniques including creation, updation and integration of property tax records through household survey” for Jabalpur

## **Annexure 6 – Consortium Agreement**

### **DRAFT MEMORANDUM OF UNDERSTANDING EXECUTED BY MEMBERS OF THE CONSORTIUM**

*[On Non-judicial stamp paper duly attested by notary public]*

This Memorandum of Understanding (MoU) entered into this day of [Date] [Month] 2020 at [Place] among \_\_\_\_\_, \_\_\_\_\_ (hereinafter referred to as "\_\_\_\_\_") and having office at [Address], India, as Party of the First Part and \_\_\_\_\_ (hereinafter referred to as "\_\_\_\_\_") and having office at [Address], as Party of the Second Part.

The parties are individually referred to as Party and collectively as Parties. WHEREAS JSCL, has issued a Request for Proposal dated [Date] (RFP) from the Applicants interested in “**Creation of 3D city model using UAV survey techniques including creation, updation and integration of property tax records through household survey**” for Jabalpur

AND WHEREAS the Parties have had discussions for formation of a Consortium for bidding for the said Project and have reached an understanding on the following points with respect to the Parties' rights and obligations towards each other and their working relationship. AS MUTUAL UNDERSTANDING OF THE PARTIES, IT IS HEREBY AGREED AND DECLARED AS FOLLOWS:

I. The purpose of this Agreement is to define the principles of collaboration among the Parties to:

1. Submit a response jointly to Bid for “**Creation of 3D city model using UAV survey techniques including creation, updation and integration of property tax records through household survey**” for Jabalpur as a Consortium.
2. Sign Contract in case of award.
3. Provide and perform the supplies and services which would be ordered by the Authority pursuant to the Contract.

ii. This Agreement shall not be construed as establishing or giving effect to any legal entity such as, but not limited to, a company, a partnership, etc. It shall relate solely towards the Authority for “**Creation of 3D city model using UAV survey techniques including creation, updation and integration of property tax records through household survey**” for Jabalpur to be performed pursuant to the Contract and shall not extend to any other activities.

iii. The Parties shall be jointly and severally responsible and bound towards the Authority for the performance of the works in accordance with the terms and conditions of the RFP document, and Contract.

iv. ----- (Name of Party) shall act as Lead Member of the Consortium. As such, it shall act as the coordinator of the Party’s combined activities and shall carry out the following functions:

1. To ensure the technical, commercial and administrative co-ordination of the work package
2. To lead the contract negotiations of the work package with the Authority.
3. The Lead Member is authorized to receive instructions and incur liabilities for and on behalf of all Parties.
4. In case of an award, act as channel of communication between the Authority and the Parties to execute the Contract
5. That the Parties shall carry out all responsibilities as Developer in terms of the Project Agreement.

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6. That the broad roles and the responsibilities of each Party at each stage of the Bidding shall be as below:

Party A: \_\_\_\_\_

Party B: \_\_\_\_\_

vii. That the Parties affirm that they shall implement the Project in good faith and shall take all necessary steps to see the Project through expeditiously.

viii. That this MoU shall be governed in accordance with the laws of India and courts in Madhya Pradesh shall have exclusive jurisdiction to adjudicate disputes arising from the terms herein.

In witness whereof the Parties affirm that the information provided is accurate and true and have caused this MoU duly executed on the date and year above mentioned.

(Party of the first part) (Party of the second part)

Witness:

I. \_\_\_\_\_

ii. \_\_\_\_\_

Selection of an agency for “Creation of 3D city model using UAV survey techniques including creation, update and integration of property tax records through household survey” for Jabalpur

### Annexure 7 – Format for CV of Key Personnel

Name and Photograph of the Staff				
Current Designation in the Organization				
Proposed Role in the Project				
Proposed Responsibilities in the Project				
Date of Birth	Degree	Institution	From (Year)	To (Year)
Education				
Summary of Key Training and Certifications				
Countries of Work Experience				
Language Proficiency	Language	Reading	Writing	Speaking
Employment Record (For the total relevant experience)	From	To	Employer	Position held

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Total No. of Years of Work Experience				
Total No. of Years of Experience for the Role proposed				
<p>Highlights of relevant assignments handled and significant accomplishments (Use following format for each project)</p> <p>Name of assignment or project:</p> <p>Duration (From Month and Year – To Month and Year):</p> <p>Location:</p> <p>Client:</p> <p>Positions held:</p> <p>Main project features:</p> <p>Work Undertaken</p> <p>Certifications</p> <p>I, the undersigned certify that:          To the best of my knowledge and belief, this CV correctly describes the proposed candidate, his/her qualifications and his/her experience.          I understand that misstatement described herein may lead to disqualification of the firm.          Name &amp; Signature (HR of the Bidding Entity)</p>				

Selection of an agency for “Creation of 3D city model using UAV survey techniques including creation, updation and integration of property tax records through household survey” for Jabalpur

**Annexure 8 - Format for Declaration by the bidder for not being Blacklisted / Debarred**

(To be submitted on the Letterhead of the Bidder)

Date: dd/mm/yyyy

To

**Executive Director  
Jabalpur Smart City Development Corporation Limited Jabalpur, Madhya Pradesh**

**Subject:** Declaration for not being debarred / black-listed by Central / any State Government department in India as on the date of submission of the bid

**NIT No:** -----

Dear Sir,

I, authorized representative of \_\_\_\_\_, hereby solemnly confirm that the Company \_\_\_\_\_ is not debarred / black-listed by any Central/State Government/ PSU entity in India or similar agencies globally for unsatisfactory past performance, corrupt, fraudulent or any other unethical business practices or for any other reason as on last date of submission of the Bid. In the event of any deviation from the information/ declaration, JSCL reserves the right to reject the Bid or terminate the Contract without any compensation to the successful bidder.

Thanking you,  
Yours faithfully,

Signature of Authorized Signatory (with official seal)

Date:

Name:

Designation:

Address:

Telephone & Fax:

E-mail address:

Selection of an agency for “Creation of 3D city model using UAV survey techniques including creation, updation and integration of property tax records through household survey” for Jabalpur

**Annexure 9 - Format of sending pre-bid queries**

**NIT No:** -----

**Bidder’s Request for Clarification**

Name and complete official address of Organization submitting query / request for clarification

Telephone, Fax and E-mail of the organization  
Tel:  
Fax:  
Email:

S.no	Clause No.	Page No.	Content of RFP Requiring Clarification	Change Requested/ Clarification required
------	------------	----------	--	--

1

2

Signature:  
Name of the Authorized signatory:  
Company seal:  
Date and Stamped

Note: Bidder(s) are requested to send the queries in PDF with Sign and Company Seal and in MS Excel for making consolidation process easy.

Selection of an agency for “Creation of 3D city model using UAV survey techniques including creation, updation and integration of property tax records through household survey” for Jabalpur

**Annexure 10 - Power of Attorney for authorized signatory (sole bidder/ sole bidder with consortium member)**

*[To be executed on non-judicial stamp paper of the appropriate value in accordance with relevant Stamp Act. The stamp paper to be in the name of the company who is issuing the power of attorney]*

Know by all men by these presents, We \_\_\_\_\_ (Name of the Bidder and address of their registered office) do hereby constitute, appoint and authorize Mr. / Ms \_\_\_\_\_ (name and residential address of Power of attorney holder) who is presently employed with us and holding the position of \_\_\_\_\_

as our Attorney, to do in our name and on our behalf, all such acts, deeds and things necessary in connection with or incidental to our Proposal for the **“Creation of 3D city model using UAV survey techniques including creation, updation and integration of property tax records through household survey” for Jabalpur**, including signing and submission of all documents and providing information / responses to the JSCL, representing us in all matters before JSCL and generally dealing with the JSCL in all matters in connection with our Proposal for the said Project.

We hereby agree to ratify all acts, deeds and things lawfully done by our said Attorney pursuant to this Power of Attorney and that all acts, deeds and things done by our aforesaid Attorney shall and shall always be deemed to have been done by us.

For \_\_\_\_\_

Name:

Designation:

Date:

Time:

Seal:

Business Address:

Accepted,

\_\_\_\_\_ (Signature)

(Name, Title and Address of the Attorney)

Note:

1. The mode of execution of the Power of Attorney should be in accordance with the procedure, if any, laid down by the applicable law and the charter documents of the executant(s) and when it is so required the same should be under common seal affixed in accordance with the required procedure.
2. The Power of Attorney shall be provided on Rs.100/- stamp paper.
3. The Power of Attorney should be supported by a duly authorized resolution of the Board of Directors of the Bidder authorizing the person who is issuing this power of attorney on behalf of the Bidder.
- 4.

Note: Lead Member has to submit the Power of Attorney in favour of Authorized signatory in below given format in case of Consortium.

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**POWER OF ATTORNEY FOR LEAD MEMBER BY CONSORTIUM MEMBER**

*[To be executed on non-judicial stamp paper of the appropriate value in accordance with relevant Stamp Act. The stamp paper to be in the name of the company who is issuing the power of attorney]*

JSCL has invited Bids from interested companies for “**Creation of 3D city model using UAV survey techniques including creation, updation and integration of property tax records through household survey” for Jabalpur** ("Project").

Whereas, -----, and ..... (collectively the "Consortium") being members of the Consortium are interested in offering for the services in accordance with the terms and conditions of the Request for Proposal document (RFP) and other connected documents in respect of the Project, and;

Whereas, it is necessary under the RFP document for the members of the Consortium to designate one of them as the Lead Member with all necessary power and authority to do for and on behalf of the Consortium, all acts, deeds and things as may be necessary in connection with the Consortium's Bid for the Project.

Whereas, we have decided that M/s ..... shall be Lead Member of this Consortium.  
NOW THEREFORE KNOW ALL MEN BY THESE PRESENTS

We, ----- having our registered office at....., (hereinafter referred to as the "Member") do hereby designate, nominate, constitute, appoint and authorize ----- having its registered office at ..... being one of the members of the Consortium, as the Lead Member and true and lawful attorney of the Consortium (hereinafter referred to as the "Attorney"). We hereby irrevocably authorize the Attorney (with power to sub-delegate) to conduct all business for and on behalf the Consortium and any one of us during the Bid process and, in the event the Consortium is awarded the Contract, during the execution of the project, and in this regard, to do on our behalf and on behalf of the Consortium, all or any of such acts, deeds or things as are not limited to signing and submission of all Applications, Proposals and other Documents and writings, participate in pre-proposal and other conferences, respond to queries, submit information/ documents, sign and execute contracts and undertakings consequent to acceptance of Bid of the Consortium and generally to represent the Consortium in all its dealings with the JSCL and/or any other Government Agency or any person, in all matters in connection with or relating to or arising out of the Consortium's Bid for the above Project and/or upon award thereof till the Contract Agreement is entered into with the JSCL.

AND hereby agree to ratify and confirm and do hereby ratify and confirm all acts, deeds and things lawfully done or caused to be done by our said Attorney pursuant to and in exercise of the powers conferred by this Power of Attorney and that all acts, deeds and things done by our said Attorney in exercise of the powers hereby conferred shall and shall always be deemed to have been done by us/Consortium.

IN WITNESS WHEREOF WE THE MEMBER ABOVE NAMED HAVE  
EXECUTED THIS POWER OF ATTORNEY ON THIS ..... DAY OF  
.....2021

For .....  
(Name & Title)

Witnesses:

- 1.
2. ....

Selection of an agency for “Creation of 3D city model using UAV survey techniques including creation, updation and integration of property tax records through household survey” for Jabalpur

(To be executed by the Member of the Consortium)

**Note:**

- The mode of execution of the Power of Attorney should be in accordance with the procedure, if any, laid down by the applicable law and the charter documents of the executant(s) and when it is so required the same should be under common seal affixed in accordance with the required procedure.
- Also, wherever required, the Bidder should submit for verification the extract of the charter documents and documents such as a resolution/power of attorney in favour of the person executing this Power of Attorney for the delegation of power hereunder on behalf of the Bidder:

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**Appendix 11 – Format for Annual Turnover for Lead bidder and consortium member**

**ANNUAL TURNOVER**

**Requirements:** The Average Annual Turnover to be provided in the following format for the last 3 Audited Financial Years (2017-18, 2018-19, 2019-20).

<b>Financial Information</b>			
<b>Financial Year</b>	<b>2017-18</b>	<b>2018-19</b>	<b>2019-20</b>
Annual Turnover (in INR)			
Average annual Turnover			
Annual Turnover from GIS based work (in INR)			
Average annual Turnover from GIS based work			
Net worth			
GIS based works include 2D/3D GIS based mapping/surveying/GIS application development/ UAV based Survey/Remote sensing/Photogrammetry/GPR/Lidar survey			
Note: Overall Annual turnover should be supported by Audited Balance Sheet and certified by Statutory Auditors			

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## **Annexure 12 – Format for Performance Bank Guarantee**

RFP Ref : < --- >

Date:

Bank Guarantee No.:

To  
**Executive Director**  
**Jabalpur Smart City Development Corporation Limited Jabalpur, Madhya Pradesh**

Dear Sir,  
PERFORMANCE BANK GUARANTEE – For “<Name of the Project>” WHEREAS

M/s. “<Name of the Successful bidder>” a <company/firm/partnership/or as applicable> registered under the < appropriate registration authority as applicable> having its registered office at < Address of the Successful Bidder> (hereinafter referred to as “our constituent”, which expression, unless excluded or repugnant to the context or meaning thereof, includes its successors and assigns), agreed to enter into a Contract for “**GIS mapping of Properties and Utilities**” (Hereinafter, referred to as “Contract”) with you.

We are aware of the fact that as per the terms of the Contract, M/s. “<Name of the Successful Bidder>” is required to furnish an unconditional and irrevocable Bank Guarantee in your favour for an amount of <INR \_\_\_\_\_/- > < (Rs. (in word)s only) >, to guarantee the due performance by our constituent as per the Contract and do hereby agree and undertake to pay any and all amount due and payable under this bank guarantee, as security against breach/ default of the said Contract by our Constituent.

In consideration of the fact that our constituent is our valued customer and the fact that he has entered into the said Contract with you, we <name of the bank>, <address of the bank>, have agreed to issue this Performance Bank Guarantee.

Therefore, we <name of the bank>, <address of the bank> hereby unconditionally and irrevocably guarantee you as under:

1. In the event of our constituent committing any breach / default of the said

Contract, and which has not been rectified by him, we hereby agree to pay you forthwith on demand such sum(s) not exceeding the sum of <INR > < Rupees (in words) only> without any demur.

2. Notwithstanding anything to the contrary, as contained in the said Contract, we agree that your decision as to whether our constituent has made any such default(s) / breach(es), as aforesaid and the amount or amounts to which you are entitled by reasons thereof, subject to the terms and conditions of the said Contract, will be binding on us and we shall not be entitled to ask you to establish your claim or claims under this Performance Bank Guarantee, but will pay the same forthwith on your demand without any protest or demur.

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3. This Performance Bank Guarantee shall continue and hold good till entire period of contract <mention the period of contract> subject to the terms and conditions in the said Contract.

4. We bind ourselves to pay the above said amount at any point of time commencing from the date of the said Contract until.

5. We further agree that the termination of the said Agreement, for reasons solely attributable to our constituent, virtually empowers you to demand for the payment of the above said amount under this guarantee and we would honour the same without demur.

6. We hereby expressly waive all our rights: Requiring pursuing legal remedies against **JSCL**; and for notice of acceptance hereof any action taken or omitted in reliance hereon, of any defaults under the Contract and any resentment, demand, protest or any notice of any kind.

7. We the Guarantor, as primary obligor and not merely Surety or Guarantor of collection, do hereby irrevocably and unconditionally give our guarantee and undertake to pay any amount you may claim (by one or more claims) up to but not exceeding the amount mentioned aforesaid during the period from and including the date of issue of this guarantee through the period.

8. We specifically confirm that no proof of any amount due to you under the Contract is required to be provided to us in connection with any demand by you for payment under this guarantee other than your written demand.

9. Any notice by way of demand or otherwise hereunder may be sent by special courier, telex, fax, registered post or other electronic media to our address, as aforesaid and if sent by post, it shall be deemed to have been given to us after the expiry of 48 hours when the same has been posted. If it is necessary to extend this guarantee on account of any reason whatsoever, we undertake to extend the period of this guarantee on the request of our constituent under intimation to you.

10. This Performance Bank Guarantee shall not be affected by any change in the constitution of our constituent nor shall it be affected by any change in our constitution or by any amalgamation or absorption thereof or therewith or reconstruction or winding up, but will ensure to the benefit of you and be available to and be enforceable by you during the period from and including the date of issue of this guarantee through the period.

Notwithstanding anything contained hereinabove, our liability under this Performance Guarantee is restricted to <INR \_\_\_\_\_>/- < **Rs. (in words) only**>, and shall continue to exist, subject to the terms and conditions contained herein, unless a written claim is lodged on us on or before the aforesaid date of expiry of this guarantee.

We hereby confirm that we have the power/s to issue this Guarantee in your favour under the Memorandum and Articles of Association / Constitution of our bank and the undersigned is / are the recipient of authority by express delegation of power/s and has / have full power/s to execute this guarantee under the Power of Attorney issued by the bank in your favour.

We further agree that the exercise of any of your rights against our constituent to enforce or forbear to enforce or any other indulgence or facility, extended to our constituent to carry out the contractual obligations as per the said Contract, would not release our liability under this guarantee and that your right against us shall remain in full force and effect, notwithstanding

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any arrangement that may be entered into between you and our constituent, during the entire currency of this guarantee.

Notwithstanding anything contained herein:

We are liable to pay the guaranteed amount or part thereof under this Performance Bank Guarantee only and only if we receive a written claim or demand on or before end of contract period from the date of the said Contract.

Any payment made hereunder shall be free and clear of and without deduction for or on account of taxes, levies, imports, charges, duties, fees, deductions or withholding of any nature imposts.

This Performance Bank Guarantee must be returned to the bank upon its expiry. If the bank does not receive the Performance Bank Guarantee within the above-mentioned period, subject to the terms and conditions contained herein, it shall be deemed to be automatically cancelled.

This guarantee shall be governed by and construed in accordance with the Indian Laws and we hereby submit to the exclusive jurisdiction of courts of Justice in India for the purpose of any suit or action or other proceedings arising out of this guarantee or the subject matter hereof brought by you may not be enforced in or by such court.

Dated ..... this ..... day ..... 2021.

Yours faithfully,

For and on behalf of the **<name of the bank>**,

(Signature with Stamp & Seal)  
Designation

<Name of the bank> <address of the bank>

This guarantee will attract stamp duty as a security bond.

A duly certified copy of the requisite Authority conferred on the official/s to execute the guarantee on behalf of the bank should be annexed to this guarantee for verification and retention thereof as documentary evidence in the matter.

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### **Annexure 13- Input Parameters for Field Property Survey**

#### **Annexure 13.1 Data Input attributes for property assets**

Following is the indicative list of the fields to be collected for Asset Property Survey, however, may liable to change during the commencement of survey in the number of fields/features as per JSCL discretion:

<b>Sr. No</b>	<b>Field Details</b>	<b>Unit of Measurement</b>	<b>Details</b>	<b>Mandatory (M) for the bidder at the time of Survey/ Support</b>	<b>Methodology for Capturing Response</b>
1.	Old Property Number	-		U	Earlier Database of Properties available with ULB
2.	Assessment year	-		U	Earlier Database of Properties available with ULB
3.	Old Assessment Value	-		U	Earlier Database of Properties available with ULB
4.	Old Assessment Year	-		U	Earlier Database of Properties available with ULB
5.	City Survey Number	-		Optional	ULB / Revenue Dept.
6.	Name of the Property Owner	-		M	Aadhaar Integration

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<b>Sr. No</b>	<b>Field Details</b>	<b>Unit of Measurement</b>	<b>Details</b>	<b>Mandatory (M) for the bidder at the time of Survey/ Support</b>	<b>Methodology for Capturing Response</b>
7.	UID number of Property Owner	-		Optional. If owner can provide the same, it shall be captured	Survey
8.	Type of Owner i. Private ii. Public iii. Government iv. Municipality v. Co-op Society (CHS) vi. Other	-		M	Survey
9.	Name of Occupier	-		M	Survey
10.	UID number of Occupier	-		Optional. If occupier can provide the same, it shall be captured	Survey
11.	Address of Property	-		M	Survey
12.	Name of the Property			M	Survey
13.	Postal Pin code of Property	-		M	Survey
14.	Latitude	-		M	GPS on mobile
15.	Longitude	-		M	GPS on mobile

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<b>Sr. No</b>	<b>Field Details</b>	<b>Unit of Measurement</b>	<b>Details</b>	<b>Mandatory (M) for the bidder at the time of Survey/ Support</b>	<b>Methodology for Capturing Response</b>
16.	Category of Property 01 – Owner 02 – Occupier 2A – Lease or Rent 2B – Encroacher	-		M	Survey
17.	Copy of rental agreement if available	-		M	Survey
18.	Nature of Property i. Open Plot ii. Individual Bungalow iii. Twin/Duplex Bungalows iv. Apartments v. Row House vi. Building	-		M	Survey
19.	Building Permission i. Yes ii. No	-		M / U	Survey / Earlier Database of Properties
20.	Year of Building Permission	-		M / U	Survey / Earlier Database of Properties
21.	Year of Building Construction	-		M	Survey
22.	Approximate age of Building	-		M	Survey

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<b>Sr. No</b>	<b>Field Details</b>	<b>Unit of Measurement</b>	<b>Details</b>	<b>Mandatory (M) for the bidder at the time of Survey/ Support</b>	<b>Methodology for Capturing Response</b>
23.	Telephone Number	-		Optional. If owner/occupier can provide the same, it shall be captured	Survey
24.	Email ID	-		Optional. If owner/occupier can provide the same, it shall be captured	Survey
25.	Usage of Property i. Residential ii. Commercial iii. Institutional iv. Religious v. Government	-		M	Survey
26.	If Commercial, name of shop, Industry Items they are trading/manufacturing	-		M	Survey
27.	Width of road on which plot is located	Mts.		M	Tape
28.	Total Plot area	Sq. Mts.		M	Tape
29.	Total Plinth area	Sq. Mts.		M	Tape
30.	If group housing, then whether sewage treatment facility available	-		M	Survey

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<b>Sr. No</b>	<b>Field Details</b>	<b>Unit of Measurement</b>	<b>Details</b>	<b>Mandatory (M) for the bidder at the time of Survey/ Support</b>	<b>Methodology for Capturing Response</b>
<b>Floor-wise details</b>					
31.	Floor Number	-		M	Survey
32.	Floor wise type of construction a) Kuccha b) Load Bearing c) RCC d) High RCC	-		M	Survey
33.	Floor wise type of use a) Residential b) Commercial c) Institution d) Religious e) Government	-		M	Survey
34.	Self-Occupied/Rented	-		M	Survey
35.	Year of Floor Construction	-		M	Survey
36.	Rental value	Rs.		M	Survey
37.	Room No	-		M	Survey
38.	Rainwater harvesting	-		M	Survey
39.	Solar Unit	-		M	Survey
40.	Number of Toilets	-		M	Survey
41.	Water connection i. Mun	-		M	Survey

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<b>Sr. No</b>	<b>Field Details</b>	<b>Unit of Measurement</b>	<b>Details</b>	<b>Mandatory (M) for the bidder at the time of Survey/ Support</b>	<b>Methodology for Capturing Response</b>
	ii. Bore iii. Mun + Bore iv. Well				
42.	Water pipe size	Mm		M	Survey
43.	Water Meter (Y/N)	-		M	Survey
44.	Electricity Connection	-		M	Survey
45.	Stair/Lift	-		M	Survey
46.	Drain (O1)/ Septic tank (O2)	-		M	Survey
47.	If septic tank, please provide dimensions				Survey
48.	Advertisement of Building Yes/No	-		M	Survey
49.	Type of advertisement	-		M	Survey
50.	Photograph of Building property at least from 2 visible locations				Mobile

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### **Annexure 13.2 Input Parameters for Land Property Survey**

Following is the indicative list of the fields to be collected for Land Property Survey, however, may liable to change during the commencement of survey in the number of fields/features as per JSCL discretion:

<b>Sr. No</b>	<b>Field Details</b>	<b>Unit of Measurement</b>	<b>Details</b>	<b>Mandatory (M) for the bidder at the time of survey/ Support from ULB (U)</b>	<b>Methodology for Capturing Response</b>
1.	Old Land ID	-		U	Earlier Database of Properties available with ULB
2.	Assessment year	-		U	Earlier Database of Properties available with ULB
3.	Old Assessment Value	-		U	Earlier Database of Properties available with ULB
4.	Old Assessment Year	-		U	Earlier Database of Properties available with ULB
5.	Name of the Assessed/ Lessor / Lessee / Sub Lessee			M	Survey
6.	Name of the Present owner			M	Aadhar Integration
7.	UID number of Landowner	-		Optional. If owner can provide the	Survey

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Sr. No	Field Details	Unit of Measurement	Details	Mandatory (M) for the bidder at the time of survey/ Support from ULB (U)	Methodology for Capturing Response
				same, it shall be captured	
8.	E-mail and Telephone Details				Survey
9.	Type of Owner i. Private ii. Public iii. Government iv. Municipality v. Co-op Society (CHS) vi. Other	-		M	Survey
10.	Address of Land	-		M	Survey
11.	Postal Pin code of Land	-		M	Survey
12.	Latitude	-		M	GPS on mobile
13.	Longitude	-		M	GPS on mobile
14.	Nature of Land Property i. Open Plot ii. Individual Bungalow iii. Twin/Duplex Bungalows iv. Apartments v. Row House vi. Building			M	Survey

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<b>Sr. No</b>	<b>Field Details</b>	<b>Unit of Measurement</b>	<b>Details</b>	<b>Mandatory (M) for the bidder at the time of survey/ Support from ULB (U)</b>	<b>Methodology for Capturing Response</b>
15.	Boundaries of the Land				
	North	Mts.		M	Survey
	West	Mts.		M	Survey
	South	Mts.		M	Survey
	East	Mts.		M	Survey
16.	Description of Land Property i. Residential ii. Commercial iii. Institutional iv. Religious v. Government			M	Survey
17.	Width of road on which plot is located	Mts.		M	Survey
18.	Photograph of land property at least from 2 visible locations				Mobile

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#### **Annexure 14- Lod-Level of Detail Interpretation**

3D city models are constructed at various Levels of Details (LOD) to provide notions of multiple resolutions at different levels of abstraction.

LoD standards have already been defined in City GML (an open standard data model and exchange format to store digital 3D models of cities and landscapes) and are most used. In context to proposed 3D city model of Jabalpur our interpretation with Level of Detail should be considered in following terms:

Level of Detail	City GML Interpretation	JSCL Interpretation as per requirement
LoD 0	LoD0 is essentially a 2.5D Digital Terrain Model (DTM) over which an aerial image or a map may be draped. Buildings may be represented in LoD0 by footprint and/or roof edge polygons (2D shape in 3D space). If a building is represented by both its footprint and the roof edge polygon, the polygons are stored separately, which means that models in LoD0 do not contain volume and are not 3D objects. LoD0 is used for regional and landscape applications	LoD 0 is not applicable as per scope
LoD 1	<b>LoD 1 = Block Model</b> LoD1 is well-known blocks model comprising prismatic buildings with proper roof structures. This level is used for city and region coverage.	In addition to City GML definition, realistic façade (real textures shall be mapped on to the visible sides) with facet will be the part of the Level of detail
LoD 2	<b>LoD 2 = Coarse Exterior</b> LoD2 has differentiated roof structures and thematically differentiated boundary surfaces. LoD2 is most suitable for city districts and projects.	3d Models with realistic façade including each floor that can be selected separately

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### **Annexure 15 - Data Sheet**

**1.1 Name of the Assignment:**

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1.2 Technical Proposal and EMD Earnest money shall be submitted online only.

**1.3 Schedule of Bidding Process:**

Last date of Submission of RFP:	Last date of online Submission 30-07-2021 at 5:30 PM
Bid Validity	180 Days
Date and Time of opening of Technical Proposal	31-07-2021
Online Pre bid meeting	09-07-2021; 12.30 pm

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## **6. GENERAL CONDITIONS OF CONTRACT (GCC)**

### **6.1 Definitions**

Unless the context otherwise requires, the expressions wherever used in the Contract shall have the following meanings:

**a) “Additional Services”** means the services other than the normal Scope of Services mentioned under RFP Document of the Contract to be carried out by the bidder only after receiving a written communication from the Client.

**b) “Applicable Law(s)”** shall mean and include all applicable Indian statutes, enactments, Acts passed by the State Legislature or by the Parliament, ordinances, rules, bye-laws, regulations, notifications, guidelines, policies, directions, directives and orders of any Government (Central or State), statutory authority, tribunal, board or court as may be applicable from time to time.

**c) “Assignment”** shall mean the Services to be provided, carried out and/or performed by the Bidder under the terms of the Contract for JSCL Project.

**d) “Affiliate” or “Associate”** shall mean a body corporate or any other legal entity which is under the control of the Bidder or does have control over the Bidder, directly or indirectly.

**e) “Business Day”** means a Day, other than Saturday and Sunday, on which banks in Jabalpur are open for normal banking business.

**f) “Competent Authority” means** the agency or the person authorized by Government of Madhya Pradesh, to exercise the powers and discharge the functions of the Competent Authority under appropriate Regulations. Different persons or authorities may be authorized to perform different functions.

**g) “Contract Price” or** means the Fee payable/ paid by the Client, under the terms of the Contract, to the bidder.

**h) “Bidder”** means the person or entity contracted with the Client to provide the Services as specified in the Contract.

**I) “Contract” or “Agreement” means** the contract Agreement entered between the Client and the bidder together with all the Appendices, Annexure and schedules mentioned and enclosed hereto.

**j) “Client’s Representative”** means any individual or any agency appointed by the Client to act on its behalf for the Assignment.

**k) “Days”** refer to calendar days, unless otherwise stated.

**D) “GCC”** mean the General Conditions of Contract.

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**n) “JSCL” means** Jabalpur Smart City Limited incorporated under the provisions of the Companies Act, 2013.

**o) “JSCL Area”** means the area as denoted in the Jabalpur Smart City Proposal, as amended from time to time.

**s) “Government” means** the Government of Madhya Pradesh (GoMP) and the Government of India (GoI) and shall include any department, authority and/or body within their respective or joint control discharging governmental and administrative functions.

**t) “Letter of Appointment” or “LOA” means** the letter No. \_\_\_\_\_ dated \_\_\_\_\_, issued by JSCL to the Bidder including all other letters as may be issued by the Client or any one of them incidental and in relation thereto in respect of the Assignment.

**u) “Party”** means the Client or the bidder, as the case may be, and “Parties” means both collectively.

**v) “Personnel”** means persons engaged by the bidder to the performance of the Services or any part thereof.

**w) “Project”** means the Provide the services to JSCL.

**x) “RFP” or “RFP Document”** means Request for Proposal documents issued by the Client to the shortlisted parties for the Services including any amendments thereof made from time to time.

**z) “SCC”** means the “Special Conditions of Contract” of the Contract Supplementing the General Conditions of Contract.

**aa) “Services”** means and includes the Scope of Services to be provided or carry out or performed by the bidder pursuant to the terms of the Contract and as described in RFP Document.

**bb) “Technical Advisory Committee”** means the Committee that may be appointed by the Client to review the Services rendered by the Bidder as per the scope of Services.

**cc) “Third Party”** means any person or entity other than the Client and the Bidder.

## **6.2 Notices**

6.2.1 Any notices or other communications required to be given to any Party pursuant to the Contract shall be in writing and in the English language and delivered in person or sent by registered A/D mail, courier or facsimile to the address of the Party set forth in the SCC, or to such other addresses as may from time to time be designated by the Party through notification to the other Party.

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6.2.2 However, notices delivered by facsimile shall be deemed as being effectively given on the first Business Day following the date of transmission, as indicated on the transmission confirmation slip of the document in question

### **6.3 Location**

6.3.1 The Scope of Services shall be performed by the Bidder as per the terms specified in the RFP Document and the Contract;

6.3.2 The Bidder shall in normal course attend meetings in Jabalpur/ Bhopal or at any other place mutually agreed between the Parties for the purpose of explanations to and interactions with Client, GoMP and Technical Advisory Committee as may be considered necessary by the Client.

### **6.4 Authorized Representatives**

Any action required or permitted to be taken, and any document required or permitted to be executed, under the Contract by the Client or by the Bidder may be taken or executed only by the officials designated and authorized by the Parties as specified in the SCC unless changed subsequently by either of them in writing.

### **6.5 Taxes and Duties**

Unless otherwise specified in the SCC or any subsequent communication, the bidder shall pay such taxes, duties, fees and other impositions as may be levied under the Applicable Laws of India, the amount of which shall be deemed to have been included in the contract Fees.

### **6.6 Scope of Services, Commencement, Completion, Modification of the Contract**

#### **6.6.1 Scope of Services**

The bidder shall provide the Services in terms of the scope of Services, as mentioned and in the manner provided in RFP Document and the Contract. The delivery schedule for rendering the Services shall be strictly adhered to by the Bidder. The Bidder shall provide, carry out and/or perform the Services/ Assignment as per the terms of RFP Document and the Contract. However, any change carried out in the scope of the Services after the issuance of the Letter of Commencement shall be considered under Clause 6.6.5.

#### **6.6.2 Effectiveness of Contract**

The Contract shall come into effect on the date the Contract is signed by both the Parties unless otherwise stated in the SCC.

#### **6.6.3 Commencement of Services**

Notwithstanding the provision contained under clause 8.2 of the Contract, the Bidder shall commence the Services after execution of the Contract as mentioned in the Letter of Appointment issued by the Client.

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#### **6.6.4 Term and Expiration of Contract**

Unless terminated earlier, the Term of the contract shall commence from the date of effective date of the Contract up to the period given in the Document.

#### **6.6.5 Modification**

6.6.5.1 Modification of the terms and conditions of the Contract, including any modification of scope of Services or of the Contract Fees, may be made only by expressly written agreement between the Parties on mutually agreed terms.

6.6.5.2 Any change, modifications or re-work carried out owing to the errors or omissions based on technical due-diligence of data and information collected by the Bidder and any incidental service necessary for completeness of such work shall not be deemed as Additional Services no matter how material or substantial the revisions or additions are or no matter whether the report has been approved by the Client or not. The entire responsibility of technical due diligence of data and information for carrying out the Services shall rest with the Bidder.

6.6.5.3 For any Additional Services provided by the Bidder at the request of the Client, the Client shall pay the Bidder additional fees as may be mutually agreed in writing. This will be in addition to the Contract Fees agreed in the Contract.

6.6.5.4 Any modifications suggested by the Technical Advisory Committee as per the scope of Services before the approval of any of the deliverables shall be considered and incorporated by the Bidder in carrying out the Services. The same shall not be considered as Additional Services and shall be provided within the Contract fees provided under the contract.

#### **6.7 Termination**

##### **6.7.1 by the Client**

The Client shall have the right to terminate the Contract, by giving not less than 30 (thirty) days’ written notice of termination to the Bidder; to be given after the occurrence of any of the events specified in paragraphs (a) through (i).

- a. If the Bidder does not remedy or cure a default / failure in the performance of the Services under the Contract, within a period of 30 (thirty) days after being notified by the Client or within such further period as the Client may have subsequently approved in writing.
- b. If, as the result of Force Majeure, the Bidder is unable to perform a material portion of the Services for a continuous period of not less than 60 (sixty) days.
- c. If the Bidder becomes insolvent or bankrupt or its entire net worth becomes negative or goes into insolvency or receivership whether compulsory or voluntary;
- d. If the Bidder fails to comply with any final decision reached as a result of

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arbitration proceeding;

- e. If the Bidder submits to the Client a statement which has a material effect on the rights, obligations or interests of the Client and which the Bidder knows to be false;
- f. If the Bidder, in the reasonable judgment of the Client has engaged in corrupt or fraudulent practices in competing for or in executing the Contract.
- g. For the purpose of this Clause:

**“Corrupt practice”** means the offering, giving, receiving or soliciting of anything of value to influence the action of a Client and public official in the selection process or in Contract execution.

**“Fraudulent practice”** means a misrepresentation of facts in order to influence a selection process or the execution of a Contract to the detriment of the Client, and includes collusive practice among Bidder (prior to or after submission of proposals) designed to establish prices at artificial non-competitive levels and to deprive the Client of the benefits of free and open competition.

h. If the Client, in its sole discretion and for any reason whatsoever, decides to terminate the Contract.

i. In case the Bidder does not perform the Services as per the Contract.

#### **6.7.2 Cessation of Rights and Obligations.**

Upon termination or upon expiration of the Contract, all rights and obligations of the Parties hereunder shall cease, except (i) such rights and obligations as may have accrued up to the date of termination or expiration, (ii) the obligation of confidentiality, (iii) any right which a Party may have under the Applicable Law, (iv) obligation of liability/warranty for the Services on part of the Bidder, (v) the indemnities contained hereunder, (vi) Notices and (vii) Dispute Settlement.

#### **6.7.3 Cessation of Services**

Upon termination of the Contract by notice of the Client, the Bidder shall, immediately upon receipt of such notice, take all reasonably practicable and necessary steps to bring the Services to a close in a prompt and orderly manner without causing inconvenience to the Client and shall make reasonable efforts to keep expenditures for this purpose to a minimum. With respect to documents prepared by the Bidder and equipment and materials furnished by the Client for the use of the Bidder which are the property of the Client, the Bidder shall proceed to deliver the same to the Client, the delivery of documents prepared by the Bidder being subject always to the payment by the Client of all fees and costs becoming properly due under this Agreement.

In case the Bidder does not perform as per the conditions of the Contract, the Client may after giving notice to the Bidder, engage external Bidder at reasonable

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market rates to perform the Services not so performed, at the risk and cost of the Bidder.

#### **6.7.4 Payment upon Termination**

Upon earlier termination of the Contract the Client shall make the payments to the Bidder on proportionate basis for the Services satisfactorily rendered and/or performed by the Bidder up to the date of notice of termination. The Client shall not make any direct payments to any sub-Bidder appointed by the Bidder and shall not be responsible for any liabilities thereof.

#### **6.8 Obligations of the Bidder**

10.1 The Bidder shall provide the Services and carry out and perform its obligations hereunder with all due diligence, professional prudence, efficiency and economy, in accordance with generally accepted professional techniques and practices, and shall observe sound management practices, and employ appropriate advanced technology and safe methods. The Bidder shall always act, in respect of any matter relating to the Contract or to the Services, as faithful advisers to the Client, and shall at all times support and safeguard the Client's legitimate interests in any dealings with the Sub-Bidder or any Third Party.

10.2 In addition to the above, the Bidder shall also comply with the provisions as mentioned in SCC.

#### **6.9 Conflict of Interests**

##### **6.9.1 Bidder Not to Benefit from Commissions Discounts, etc.**

The fees of the Bidder shall constitute the Bidder's sole fees in connection with the Contract or the Services, and the Bidder shall not accept for their own benefit any trade commission, discount or similar payment in connection with activities pursuant to the Contract or to the Services or in the discharge of their obligations under the Contract, and the Bidder shall use their best efforts to ensure that the Personnel, any Sub-Bidder, and agents of either of them, similarly shall not receive any such additional fees from any third party.

##### **6.9.2 Confidentiality**

6.9.2.1 The Bidder shall keep all the information pertaining to the assignment CONFIDENTIAL and shall not provide/discard any information of the assignment to anybody except on specific instructions in writing from the Client.

6.9.2.2 The Bidder, their Sub Bidder and the Personnel of either of them shall not utilise & disclose any proprietary or confidential information relating to the Services, the Contract or the business or operations of the Client without the prior written consent of the Client. This obligation shall not apply to information:

(a) which is or becomes available to the public other than by breach of the Contract; or

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(b) which is in or comes into the possession of the receiving Party prior to the date of execution hereof and which was not or is not obtained under any obligation of confidentiality; or

(c) which is required by law or appropriate regulatory authorities to be disclosed, provided that the Party supplying the information is notified of any such requirement at least fifteen (15) days prior to such disclosure and the disclosure is limited to the minimum extent possible;

#### **6.10 Insurance**

The Bidder shall obtain and maintain at their own cost insurance as mentioned below

- i. Professional liability insurance with a minimum coverage of twice the Project Fees. Such insurances shall be on an each and every claims basis.
- ii. It may be noted that the insurance policy shall start from/before the date of commencement of the Services and remain effective as per relevant requirement of the Contract/Agreement; and
- iii. The Bidder shall take the insurance and shall provide evidence to the Client, showing that such insurance has been obtained and maintained and that the current premiums have been paid.

#### **6.11 Indemnity**

6.11.1 The Bidder shall indemnify, protect and defend for each Stage, the Client at the Bidder's own expense, from and against all actions, claims, losses or damages arising out of Bidder's failure to perform its obligation.

6.11.2 The Bidder shall indemnify the Client and shall hold the Client harmless from any claims by any Third Party against the Client for adopting the Bidder's reports, certification and recommendation and use of other intellectual property supplied by the Bidder under the Contract.

#### **6.12 Bidder's Actions Requiring Client's Prior Approval**

The Bidder shall obtain the Client's prior approval in writing before taking any of the following actions:

- a) Appointing such members or the Personnel not listed by name in RFP Document; and
- b) Any other action that may be specified in the SCC.

#### **6.13 Reporting Obligations**

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6.13.1 The Bidder shall submit to the Client, the reports and documents specified in RFP Document and number in the form and within the periods set forth in RFP Document.

6.13.2 The Client will appoint Engineer/ representative as Client’s Representative to undertake review of the Bidder’s work as per the Contract. The Services as per RFP Document may be reviewed by the Technical Advisory Committee. The Bidder shall submit all reports and documents as specified in RFP Document to the Client. The Bidder would also be required to make presentation on the progress of works before Client’s Representative and incorporate the comments/suggestions.

6.13.3 In furtherance of the obligations undertaken by the Bidder under the Contract, the Bidder agree that the Client shall have the right to seek a review, whether on-site or offsite of the activities and records of the Bidder in relation to and/or connected to the Assignment and the Services to be performed by them hereunder. Such review may be conducted by the Client through its personnel, agents or representatives and the Bidder shall offer all reasonable and practicable co-operations in such reviews.

#### **6.14 Documents supplied by the Bidder to be the Property of the Client**

All data and information collected for the purpose of the Assignment (collectively called as “Data”) and plans, specifications, maps, images, photographs, designs, reports and other documents (collectively called as “Documents”) as may be submitted by the Bidder shall become and remain the property of the Client, and the Bidder shall upon termination or expiration of the Contract, deliver all such documents to the Client. The Bidder may retain a copy of such documents but shall not use the same for any other purposes.

#### **6.15 Intellectual Property Rights of Assignment**

6.15.1 Bidder shall hand over all the working papers, Workable and editable Models with all linkages as developed for the assignment, Business Plans and all related workings and outputs of the assignment generated for executing the assignment on successful completion of the assignment in editable soft and hard copies.

6.15.2 Such documents, working papers, analysis, workable and editable Models as developed for the assignment and all related workings and outputs are the Sole Property of the Client and the Bidder shall treat all these information Confidential and shall not share the same with anybody else except on specific written instructions of the Client.

6.15.3 The certification and other documentation provided to the Client by the Bidder are solely for the purpose of the Assignment under the Contract, and intellectual property therein to the extent and for the purpose of the Assignment remain vested with the Client and the Bidder shall not use the same or any part thereof for any other client.

#### **6.16 Obligations of the Bidder**

6.16.1 The main objective of the Assignment is to provide, carry out and/or perform the Services as per the terms of RFP Document and the Contract.

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6.16.2 The Bidder shall study carefully the technical information provided by the Client and shall visit the site as and when required. In the event that the Bidder becomes aware of any errors or doubts about the information and data provided, the Bidder shall notify in time in writing.

6.16.3 The Bidder shall rely upon and be responsible for the accuracy and completeness of the Services, information and reports provided by any of their Sub-Bidder at their own risk and responsibility. The prime responsibility rests with the Bidder for any of the tasks and activities that are performed by their Sub-Bidder(s). The Bidder shall have the responsibility to inform in writing to the Client of information that has obvious defects in data, information and reports provided.

6.16.4 The Bidder shall designate at their cost a representative authorized to render decisions on the Bidder behalf and to exercise the duties and obligations of the Bidder and to deal with matters in relation to the Assignment.

6.16.5 The Bidder shall be complied with all the procedures, rules, regulations and compliances applicable in India for the Services.

6.16.6 The Bidder at all Stages shall coordinate with the other parties associated or appointed by the Client for this Assignment.

6.16.7 The Bidder would assist the Client in obtaining approval from GoMP i.e. Any technical inputs/presentation required to be undertaken for such approval as per good industry practice.

### **6.17 Bidder’s Personnel**

The Bidder guarantees that the proposed Key Professionals of the Bidder as mentioned in RFP Document for this Assignment will be available throughout the duration of the Assignment. The Client will not consider substitutions during the contract unless both parties agree in writing to any substitution. If the Client is not satisfied with performance of any of the Key Professionals, the Bidder shall at the Client’s request specifying the grounds, therefore, forthwith provide as a replacement a Professional with qualifications and experience acceptable to the Clients. Any proposed substitute shall have equivalent or better qualifications and experience than the original Professional.

### **6.18 Bidder’s Liability**

Subject to additional provisions, if any, set forth in the SCC, the Bidder’s liability under the Contract shall be the liability of the Bidder under or in connection with this assignment whether in contract for breach of statutory duty, tort, negligence or otherwise howsoever arising, shall not exceed 100 percent of the amount of the total Project Fee.

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## **6.19 Bidder’s Representations and Warranties**

Bidder represents and warrants to the Client that:

### **6.19.1 Corporate Existence and Power**

The Bidder (a) is duly formed legal entity, validly existing and in good standing under the laws of their incorporation; (b) have all requisite approvals, power and authority to enter and execute the Contract.

### **6.19.2 Authorization, No Contravention**

The execution, delivery and performance by the Bidder of the Contract and the transactions contemplated therein (a) have been duly and validly authorized by all necessary corporate action of the Bidder (b) do not violate, conflict with or result in any breach, default or contravention of any law applicable to the Bidder, including Applicable Law. The Contract constitutes the legal, valid and binding obligations of the Bidder, enforceable against the Bidder in accordance with its terms.

### **6.19.3 Litigation**

There are no contractual or tortuous or any other claims pending against the Bidder or that have been threatened in arbitration or before any judicial authority against the Bidder which could have an adverse effect on their ability to perform their Services under the Contract.

### **6.19.4 Corrupt Practices**

The Bidder have not made, directly or indirectly, any material payment or promise to pay, or material gift or promise to give, or authorized such a promise or gift, of any money or anything of material value, directly or indirectly, to any official of any Government or the Client or its shareholders or any political party or official thereof or any of their Affiliates and Associates for the purpose of influencing any such official or inducing him or her to use his or her influence to affect any act or decision in relation to the Contract or the Assignment, including the appointment of the Bidder.

### **6.19.5 Expertise of the Bidder**

The Bidder have and shall apply the reasonable professional skills and expertise to undertake the Services required under the Contract expeditiously and consistent with reasonable professional skill and care, good industry practices. Each of the representations made and warranties given above are and shall be true and correct as of the date of the execution of the Contract and any the Bidder alone shall be responsible and liable for any consequences arising from their incorrectness.

## **6.20 Obligations of the Client**

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#### **6.20.1 Change in the Applicable Law**

If, after the date of the Contract, there is any change in the Applicable Law with respect to (increase/ decrease) of taxes and duties, the bidder has to bear all the taxes, duties, levies or transportation charges etc. excluding GST. Please refer clause 2.4.5

#### **6.20.2 Services and Facilities**

The Client shall, on best effort basis, make available to the Bidder the information, documents and facilities required for satisfactory completion of this Assignment as may be available with it.

#### **6.20.3 Obligations of the Client**

6.20.3.1 The Client shall facilitate the Bidder by providing all the necessary support and arrangements to procure data and information.

6.20.3.2 The Client shall designate an Engineer/ representative to render decisions on behalf of the Client and to exercise duties and obligations of the Client as, may be delegated to him and to deal with matters in relation to the Assignment.

6.20.3.3 The Client shall render written decisions as early as reasonably possible, but not exceeding 15 (fifteen) Business Days at the maximum after receiving written documents submitted by the Bidder that require the decision of the Client in order to avoid delay in the progress of the Bidder’s Services.

6.20.3.4 The Client shall review the documents provided by the Bidder as early as possible and provide decisions and replies to avoid any delay in the progress of the Services. The Client shall immediately notify the Bidder in writing in the event it becomes aware of any non-conformance of the documents with provisions of the Contract.

6.20.3.5 The Client shall consult with the Bidder before issuing interpretations of documents prepared by the Bidder.

6.20.3.6 The Client shall provide to the Bidder and/or its agents access to the Site for execution of Services under the Contract.

#### **6.22 Service Level Standards**

- a) The service levels to be established for the Services offered by the Successful Bidder to the JSCL. The Successful Bidder shall monitor and maintain the stated service levels to provide quality service to the JSCL.
- b) The Selected Bidders should adhere to the following Service Level Standards for data Accuracy of the GIS Base Maps/Survey Data during implementation.

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Deliverable	Desired Quality / Resolution	Absolute Accuracy		Relative Accuracy	
		Horizontal Accuracy	Vertical Accuracy	Horizontal Accuracy	Vertical Accuracy
<b>Data Acquisition</b>					
GCP for Aerial Images	+ / - 30 mm or better	+ / - 30 mm or better	+ / - 50 mm or better		
GCP for Street /Mobile LiDAR	+ / - 30 mm or better	+ / - 30 mm or better	+ / - 50 mm or better		
Aerial Drone Imagery	+ / - 3 cm GSD or better	10 cm or better	-		
Stereo Model Using Satellite Imagery	+ / - 30 cm to 40 cm better	-	-		
Street /Mobile LiDAR	300+ points/m2 or better	+ / - 10 cm or better	+ / - 20 cm or better		
GRP Survey		+ / - 10 or better	+ / - 10 or better		
<b>Data Generation /Development</b>					
Stereo Model Using Drone Imagery	-	+ / - 15 cm or better	+ / - 20 cm or better		
Digital Elevation Model (DSM / DTM)	+ / - 20 cm or better	+ / - 15 cm or better	+ / - 20 cm or better	+ / - 20 cm or better	+ / - 20 cm or better
Ortho Image Mosaic seam line maximum allowed mismatch	+ / - 15 cm or better	+ / - 20 cm or better	-		
Mesh Model / 3D Base Map / 3D LULC Map	Scale for Mapping is 1:400	+ / - 25 cm or better	-	+ / - 20 cm or better	+ / - 20 cm or better
Building Footprint		+ / - 20 cm or better	+ / - 25 cm or better	+ / - 20 cm or better	
Contours	+ / - 20 cm or better		+ / - 20 cm or better	+ / - 20 cm or better	

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**Note:** Multiple sample areas of desired size (**max. up to 20 percent**) may be randomly checked to evaluate compliance of data quality standards/ specification of acquired and processed data and accordingly penalty shall be levied for the non-compliance data if the successful bidder failed to undertake the work/survey to resolve the same at required level. The penalty would be charged at INR 5000 per identified non-compliance accuracy error. However, the Successful Bidders have to be responsible to undertake re-survey/rework of all the non-compliance data and rectify the error without having any financial impact on JSCL.

Further, in order to achieve quality benchmark, JSCL may validate the data output generated through drone or any other survey through an authenticated authorized independent agency. The validation of the data shall be on sample basis as applicable.

**c) Penalty for Non-Availability of resources and / or support services during Implementation:** There will be no penalty for any resource for his / her non-availability of 3 days per quarter as per approval from JSCL. However, penalty would be charged in the following below conditions subject to leave disapproval from JSCL.

Resource Type	Per Day Penalty Amount for Non-Availability of resource (InR)		
	>3 Days and <=5 Days	>5 Days and <=8 Days	>8 Days
Project Manager (Full time During Implementation)	10,000	20,000	50,000
Team Leader (Full Time During Implementation Phase)	5,000	10,000	20,000
GIS Analyst (GIS Cell Resources)	2,000	5,000	10,000
Database Administrator (GIS Cell Resources)	2,000	5,000	10,000

*Note: If the resource not available has been granted leave for any major reason such as sickness of self/ parents / spouse / children; marriage etc., the firm should seek permission for the same along with reasons certified by HR and provide suitable replacement during the days of leave. Such permitted leaves shall not be treated as absence of manpower.*

**Note: Maximum Penalty applicable to the bidder shall not exceed 10% of the Total Work Order value till the completion of Implementation support. If the total Penalty exceeds beyond 10%, it would be considered as non-conformance to the Quality of Services and may lead to termination of the Contract and blacklisting of the successful bidder. JSCL may on their sole discretion cancel the order.**

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## **6.23 Contract Fee**

6.21.1 The Lump sum Fee for the Services shall be paid in Indian Rupees which shall be firm and shall not be subject to any escalation, whatsoever. The Contract Fee will be inclusive of all applicable taxes, duties and levies but will not include GST which will be reimbursed by the Client. The Client or any one of them shall not be liable for any additional cost as may be incurred by the Bidder in addition to the Contract Fee.

## **6.24 Force Majeure**

### **6.24.1 Definition**

For the purposes of the Contract, “**Force Majeure**” means any event occurring due to Act of God, war, war like conditions, blockades, embargoes, insurrection, Governmental directions and intervention of agencies of government, fire, flood, earthquake, riot, strikes, storm, volcanic eruptions, typhoons, hurricanes, tidal waves, landslides, lightning explosions, whirlwind, Acts of war, prolonged failure of energy, revocation of approvals granted by the government, action and / or order by statutory and/or government authority, acquisition, requisition or dispossession of the land or any part thereof, third party action or governmental or other authority or any other act of commission or omission or cause beyond the control of the party affected thereby.

### **6.24.2 No Breach of Contract**

The failure of a Party to fulfil any of its obligations under the Contract shall not be considered to be a breach of, or default under the Contract insofar as such inability or failure arises from an event of Force Majeure, provided that the Party affected by such an event (a) has taken all reasonable precautions, due care and reasonable alternative measures in order to carry out the terms and conditions of the Contract, and (b) has informed the other Party as soon as possible about the occurrence of such an event.

### **6.24.3 Extension of Time due to Force Majeure**

If performance of obligations hereunder is affected by a Force Majeure incident, the affected Party shall notify the other Party in writing within fourteen (14) days from the occurrence of the incident with sufficient proof thereof. Any period within which a Party is prevented from completing any action or task, shall be extended for a period equal to the time during which such Party was unable to perform such action as a result of Force Majeure.

### **6.24.4 Payments**

Parties shall discuss the impact degree of the Force Majeure incident upon the performance of the Contract, to decide whether to terminate the Contract or to partially exempt the performance of the obligations hereof or to postpone the performance hereof. Upon the occurrence of a Force Majeure incident, neither Party shall be deemed in default or failing to perform the obligations hereunder, and the payments which have accrued before the occurrence of the Force Majeure incident shall not be

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affected, and Client shall pay, after issuing or receiving the written notice, the Bidder for Services performed prior/ up to notice of such Force Majeure incident including, the works in progress, mutually agreed by both the parties.

#### **6.24.5 Suspension of Assignment by the Client due to Force Majeure or otherwise**

If the Client suspends this Assignment through no fault of itself or due to factors beyond the control of the Client (including Force Majeure), the Client shall notify the Bidder in writing within thirty (30) days. When the Assignment is resumed within six (6) months and there are no modifications, the Contract shall continue to be in vogue, and the Consultancy Fees shall not be changed. The Client shall provide for the Bidder a reasonable period for the resumption of the Services. In case the suspension is beyond six months period, the parties would mutually decide on the time for remobilization. The compensation to the Bidder would be mutually decided and agreed upon.

#### **6.25 The Governing Law**

The law governing the Contract shall be Laws of India and courts at Jabalpur shall have exclusive jurisdiction.

#### **6.26 Settlement of Disputes**

6.24.1 Any difference or dispute arising out of or in relation to this contract or any breach thereof shall first be attempted to be resolved amicably through mutual discussion and negotiation between the Employer and the Bidder. After notifying the difference by either Party, the authorized representative of the Parties shall meet for negotiation at a mutually agreed date, time and place, and make their best endeavour to resolve the difference in most equitable and justifiable manner.

6.24.2 In case of dispute is not resolved amicably within 30 (days) or in case of failure of amicable settlement, then the matter will be referred to Arbitration. The law governing Arbitration shall be Arbitration and Conciliation Act, 1996 and venue of the arbitration shall be at Jabalpur. Each Party shall appoint one arbitrator and the two arbitrator's appoint by the parties will appoint a presiding arbitrator (third). The decision of the Arbitration panel shall be final and binding on the parties.

6.24.3 The arbitration shall be conducted in accordance with the provisions of the Arbitration and Conciliation Act, 1996. The Award made by the sole Arbitrator shall be final and binding on the Parties.

6.24.4 The law governing Arbitration shall be Arbitration and Conciliation Act, 1996 and venue of the arbitration shall be at Jabalpur. The courts at Jabalpur shall have the exclusive jurisdiction to decide the matter arising out of the Arbitration. The language of arbitration proceedings and pleadings by the Parties shall be in English.

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