MUMBAI METROPOLITAN REGION DEVELOPMENT AUTHORITY

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CORRIGENDUM - 2
STANDARD SET OF DEVIATIONS
(To be an Integral Part of RFP)

Tender No   :   CA NO.03/MMRDA/IT CELL/SM/2024-25
Name of Tender   :   RFP for Selection of System Integrator (SI) for Monitoring Infrastructure Projects using IDDP for MMRDA

Sr No	Clause Number	Content of RFP Requiring Clarification	Change/ Clarification Requested	Response
1.	2.2	RFP Summary Tender Fees: INR. 5,900 only (Indian Rs. Five Thousand Nine Hundred including GST) by way of electronic transfer through MahaTender portal. Earnest Money Deposit INR. 1,00,00,000/- (Indian Rs. One Crore only) – · INR 1,00,000/- (Indian Rupees. One Lakh only) by electronic transfer through MahaTender portal and · INR 99,00,000/- (Indian Rupees. Ninety-Nine Lakhs only) by Bank Guarantee (Scanned copy to be uploaded).	Our Firm / Company are an organization registered with National Small-Scale Industries Corporation Limited (NSIC) under single point registration scheme, Ref no: NSIC/KOL/GP/RS/REGN/WB/C-419/12. The unit registered under Single Point Registration Scheme of NSIC are eligible to get benefits under Public Procurement Policy for Micro & Small Enterprises (MSEs) order 2012 as notified by the Government of India, Ministry of Micro Small & Medium Enterprises, New Delhi vide Gazette Notification dated 23.03.2012: • Issue of the Tender Sets free of Cost • Exemption from payment of Earnest Money Deposit Could be please be kind enough to consider the above clause for this tender. Govt. of India providing	As per the RFP.

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			additional befit to MSMEs or Micro, Small and Medium Enterprises	
2.	17.1.1	Pre-Qualification Criteria: ENVELOPE 'A' A. ELIGIBILITY CRITERIA 3. Turnover- Average Annual Turnover of bidder should be INR 70 Crores (Rupees Seventy Crore only) for the last 3 (three) financial years 2020-21,2021-22, 2022-23 from IT/ITES. Audited Financial Statement for Financial years 2020-21, 2021-22, 2022-23. Statutory auditor's /Chartered Accountant's certificate of the Bidder clearly specifying the Annual Turnover for the specified years.	Based on the scope, we understand that the application estimate will be somewhere between 8 crore and 12 crore. The turnover requested and all other criteria mentioned in the tender are seeing a substantial increase. We would appreciate it if you could change the annual average turnover to Rs. 15 crore.	As per the RFP. Refer Annexure 3.
3.	17.1.1	A. ELIGIBILITY CRITERIA 4. Technical Capability (IT/ITES)- The Bidder should have experience of completed or substantially completed a project that includes IT application / Enterprise GIS /DPMS and Project / Program Management in the last 7 years implemented in any Central & State Govt. / Semi-Govt. / Urban Development agencies / PSU organization as on date of	We would like to request you to kindly change the value of IT application / Enterprise GIS /DPMS and Project / Program Management project to minimum 3 crores over the last 7 years implemented in any Central & State Govt. / Semi-Govt. / Urban Development agencies / PSU organization in India or Globally. One project of IT Application with a project value <= 6 INR CR OR At least two projects of IT Application with value of <= INR 4 CR	As per the RFP. Refer Annexure 3.

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		submission of bid. One project of IT Application with a project value of 50 crores, OR At least two projects of IT Application with value of 42 crores, OR At least three projects of IT Application with value of 35 crores. Work Order and Client Experience Certificate/ Golive Certificate /Other Supporting documents to justify completion of at least 80% overall project cost shall be submitted by the Bidder. Note: Unpaid pilot or Proof of Concept will not be acceptable.	each OR At least three projects of IT Application with value of <= INR 2 CR each Before requesting such a clause, I would appreciate it if you could check how many government organizations in India have provided this highly valued service. If you truly identify there will be very limited organization and these criteria can restrict other capable oraganizations of india from participation. The goal of government organizations and their officials is always to increase participation in competitive bidding.	
4.	17.1.1	A. ELIGIBILITY CRITERIA 6. GIS Experience- The Bidder should have experience of designing / developing /integrating / maintaining COTS based Enterprise GIS Solution/ WebGIS Solution/ GIS Web Portal with minimum value of INR 10 Crores in the last 7 years in any Central & State Govt. / Semi-Govt./ Urban Development agencies /PSU organization as on date of submission of bid.	We would like to request you to kindly change, GIS Experience- The Bidder should have experience of designing / developing /integrating / maintaining COTS based Enterprise GIS Solution/ WebGIS Solution/ GIS Web Portal with minimum value of INR 10 Crores in the last 7 years in any Central & State Govt. / Semi-Govt./ Urban Development agencies /PSU organization as on date of submission of bid. Any government department may not ask for such strict criteria to prevent other capable bidders from	As per the RFP. Refer Annexure 3.

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		Work Order and Client Experience Certificate/ Golive Certificate /Other Supporting documents to justify completion of at least 80% overall project cost shall be submitted by the Bidder. Note: Unpaid pilot or Proof of Concept will not be acceptable.	participating. There are certain organizations that can benefit from it. I request that you evaluate the capacity based on expertise, rather than on high project value or turnover.	
5.	17.1.1	A. ELIGIBILITY CRITERIA 5. Technical Capability (BIM)-The Bidder shall have experience of 5D BIM Implementation of value 15 crores for an infrastructure Development Sector including Rail & Metro/Road/ Water/ City Development/ Utilities project for any Central & state Govt./ Semi Govt./ PSUs in India or Globally in last 7 years as on Bid submission date. Work Order and Client Experience Certificate/ Golive Certificate /Other Supporting documents to justify completion of at least 80% overall project cost shall be submitted by the Bidder. Note: Unpaid pilot or Proof of Concept will not be acceptable.	We would like to request you to kindly change the experience of 5D BIM Implementation to 5D BIM/GIS / Google API Implementation for an infrastructure Development Sector including Road / Bridges/ Building/ Water resource/ Public works/ Irrigation/ Railway / Metro Rail/ City Development/ utilities worth INR 2 crore value for any Central & state Govt./ Semi Govt./ PSUs in India in last 7 years as on Bid submission date. Any particular reason, you are asking this particular experience in india or Globally? Please Clearify.	As per the RFP. Refer Annexure 3.
6.	17.1.1	A. ELIGIBILITY CRITERIA 7. Data Acquisition Experience-	Kinldy allow joint venture or Consortium.	As per the RFP. Refer Annexure 3.

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		The Bidder should have experience of at least 1 (one) project of minimum value 10 Crores with data acquisition using Drone / LiDAR system along with associated data processing in the last 7 years in any Central & State Govt. / Semi-Govt. / Urban Development agencies / PSU organization as on date of submission of bid. Work Order and Client Experience Certificate/ Golive Certificate /Other Supporting documents to justify completion of at least 80% overall project cost shall be submitted by the Bidder. Note: Unpaid pilot or Proof of Concept will not be acceptable.		
7.	17.1.1	A. ELIGIBILITY CRITERIA 8. Integration Experience- The Bidder should have experience of implementing a single project having integration of Engineering data with at least 3 (three) of the following applications: a) BIM Implementation b) Business Analytics c) GIS Systems d) ERP In the last 7 Years in for any	We would like to request you to kindly change the experience of integration of engineering data to experience of integration of engineering data with ERP/BIM/Business Analytics/GIS Systems for infrastructure Development Sector including Road / Bridges/ Building/ Water resource/ Public works/ Irrigation/ Railway / Metro Rail/ City Development/ utilities for any Central & State Govt./ Semi Govt./ PSUs in India or Globally in the last 7 years as on Bid submission date	As per the RFP. Refer Annexure 3.

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		Central & State Govt./ Semi Govt./PSU organization as on date of submission of bid. Work Order and Client Experience Certificate/ Golive Certificate /Other Supporting documents to justify completion of at least 80% overall project cost shall be submitted by the Bidder. Note: Unpaid pilot or Proof of Concept will not be acceptable.		
8.	17.1.1	A. ELIGIBILITY CRITERIA 9. Certification- The Bidder shall have an active CMMI- Level 5 or its higher version certification, as on date of submission of Bid. Copy of the Valid Certificate(s) signed and stamped by the Authorized Signatory of the Bidder.	We would like to request you to kindly change the certification of CMMI Level 5 to CMMI-Level 3	As per the RFP. Refer Annexure 3.
9.	17.1.1	A. ELIGIBILITY CRITERIA 11. Manpower Strength- The bidder must have at least 100 full time technical resources on its full-time payroll in the domain of IT Self-Certification by the authorized signatory with clear declaration of staff –year wise, level /designation wise.	We would like to request you to kindly change the technical resources to minimum 50 person. Also Ask for EPF statement. As Self-certification can not be a perfect document for such a huge value tender.	As per the RFP. Refer Annexure 3.

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10.	17.1.1	A. ELIGIBILITY CRITERIA 12. MAF Compliance- The Bidder shall submit MAF from respective OEMs. Copy of original(signed) Manufacturer's Authorization Forms (MAF) for all OEMs	This criteria is to prevent other capable bidders from participating. Kinldy eliminate this clause.	As per the RFP. The MAF submitted must be on the letter head of the Manufacturer. Bidder may choose to follow the MAF format in the Appendix F-18 or submit in the format of Manufacturer. Refer Annexure 3.
11.	17.1.1	A. ELIGIBILITY CRITERIA 13. OEM Compliance- The bidder must comply with all the checklist items mentioned under 'Annexure F-15: OEM Mandatory Compliance Criteria' for all the deliverables and functionalities mentioned. Self-Certification by the authorized signatory confirming delivery compliance and any relevant documents as prescribed in Annexure F-15.	This criteria is to prevent other capable bidders from participating. Kinldy eliminate this clause.	As per the RFP. Refer Annexure 3.
12.	17.1.2	Bidder's Experience 1. The Bidder should have experience of completed or substantially completed a project that includes IT application / Enterprise GIS / DPMS and Project / Program Management with minimum value of INR 35 crores in the last 7 years implemented in	We would like to request you to kindly change the IT application project value to I. One IT Application Project value <= INR 6 Crore - OR II. At least Two IT Application Project value <= INR 4 Crore – OR III. At least Three IT Application Project value <= INR 2 Crore.	As per the RFP. Refer Annexure 4.

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		any Central & State Govt. /Semi-Govt. / Urban Development agencies /PSU organization as on date of submission of bid. Marks will be allocated to the Bidder as per the below criteria: i. One project of IT Application with a project value of 50 crores- 5marks ii. At least two projects of IT Application with value of 42 crores- 5marks iii. At least three projects of IT Application with value of 35 crores- 5marks iv. Any of the abovementioned project in infrastructure development sector (Metro Rail/ Railway/ Road/ Bridges/ Flyover/ City Development/Utilities) will be given additional- 5 marks.	This will increase more participation and compititive bidding.	
13.	17.1.2	Bidder's Experience 2. The Bidder should have implemented/substantially implementing proposed project consisting of 5D BIM Solution including CDE with minimum project value of INR 15 crores in the last 7 years in any Central & State Govt. / Semi-Govt. /Urban Development agencies / PSU	We would like to request you to kindly change ro 5D BIM /GIS project value to I. One GIS Application Project value <= INR 6 Crore - OR II. At least Two GIS Application Project value <= INR 4 Crore – OR III. At least Three GIS Application Project value <= INR 2 Crore. This will increase more participation and compititive bidding.	**Revised Clause: Annexure 4**

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		organization as on date of submission of bid. i. Project value>=INR 15 Cr- 4marks ii. Project value> INR 20 Crore- 7marks iii. Project in Infrastructure development sector (Metro Rail / Railway Road/Bridges/Flyover/ City Development/ Utilities) will be given additional 3 marks.- 3marks		
14.	17.1.2	Bidder's Experience 3. The Bidder should have experience of designing /developing / integrating /maintaining COTS based Enterprise GIS Solution/ Web GIS Solution/ GIS Web Portal with minimum project value of INR 10 Crores in the last 7 years in any Central & State Govt. / Semi-Govt./ Urban Development agencies / PSU organization as on date of submission of bid. i. 1 (one) Project- 5marks ii. 2 (two) to 4 (four) Projects- 8marks iii. More than 4 (Four) projects- 12marks iv. At least 1 Project in Infrastructure development sector (Metro Rail / Railway/Road/		**Revised Clause: Annexure 4**

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		Bridges/Flyover / City Development/Utilities) will be given additional 3 marks- 3marks		
15.	17.1.2	Bidder's Experience 4. The Bidder should have experience of implementing a single project having integration of Engineering data with at least 3 (three) of the following applications: a) BIM Implementation b) Business Analytics c) GIS Systems d) ERP In the last 7 Years in for any Central & State Govt./ Semi Govt./ PSU organization as on date of submission of bid. i. Project value>= INR 30 Cr- 5marks ii. Project value> INR 35 Crore- 10 marks iii. At least 1 Project in Infrastructure development sector (Metro Rail / Railway/Road/Bridges/Flyover / City Development/Utilities) will be given additional 3 marks- 3marks iv. If the project as described in iii above is Go-Live for more than 1 year then additional 2 marks- 2marks	We would like to request you to kindly change as mentioned below: I. One GIS Application Project value <= INR 6 Crore - OR II. At least Two GIS Application Project value <= INR 4 Crore – OR III. At least Three GIS Application Project value <= INR 2 Crore. This will increase more participation and compititive bidding.	**Revised Clause: Annexure 4**

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16.	17.1.2	Bidder's Experience 5. The Bidder should have experience of at least 1 (one) project of minimum value 10 Cr with data acquisition using Drone /LiDAR system along with associated data processing in the last 7 years in any Central & State Govt. / Semi-Govt./ Urban Development agencies / PSU organization as on date of submission of bid. i. 1(one) Project- 4marks ii. >= 3(Three) Project- 7marks iii. Bidder having ownership of Drone/LiDAR system- 3marks	Kinldy allow joint venture or Consortium.	**Revised Clause: Annexure 4**
17.	16.2 Earnest Money Deposit (EMD)	EMD : INR. 1,00,00,000/- (Indian Rupees. One Crore only) – · INR 1,00,000/- (Indian Rupees. One Lakh only) by electronic transfer through MahaTender portal and · INR 99,00,000/- (Indian Rupees. Ninety-Nine Lakhs only) by Bank Guarantee (Scanned copy to be uploaded)	Request to provide MMRDA Bank Details along with IFSC No. For Bank Guarantee Preparation	As per the RFP. Refer Chapter 25 Annexure 1 of RFP for bank details.
18.	16.26 - Performanc e Security	The Successful Bidder shall provide a Performance Bank Guarantee (PBG) for **10% of the Contract Value within 15 days from the date of issue of a LOA**	Please confirm Performance Bank Guarantee for 5% of the Contract Value needs to be submitted within 25 days from the date of issue of letter of award.	**Revised Clause:** The Successful Bidder shall provide a Performance Bank Guarantee (PBG) for **5%** of the Contract Value within **25 days** from the date of issue of a LOA by

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		by MMRDA for the assignment. RFP Performance Security Form included in Appendix F 21. The PBG is to be valid beyond six months from end date of contract date. i.e., for 54 months from Work Order date.		MMRDA for the assignment. RFP Performance Security Form included in **Appendix F 20**. The PBG is to be valid beyond six months from end date of contract date. i.e., for 54 months from Work Order date.
19.	26.1.3 - Performance Bnak Guarantee	The Bidder shall at his own expense deposit with MMRDA within 15 (fifteen) days of the date of letter of acceptance or prior to signing of the contract whichever is earlier, an unconditional and irrevocable Performance Bank Guarantee (PBG) from a Nationalized or Scheduled Bank, payable on demand, for the due performance and fulfilment of the contract by the Bidder. **An amount equal to 10% of the Grand total bid price** as per the financial offer as Performance Bank Guarantee and the same shall be renewed every year.	Please confirm Performance Bank Guarantee for 5% of the Contract Value needs to be submitted within 25 days from the date of issue of letter of award.	**Revised Clause**: The Bidder shall at his own expense deposit with MMRDA within **25 (twenty-five) days** of the date of letter of acceptance or prior to signing of the contract whichever is earlier, an unconditional and irrevocable Performance Bank Guarantee (PBG) from a Nationalized or Scheduled Bank, payable on demand, for the due performance and fulfilment of the contract by the Bidder. An amount equal to **5%** of the Grand total bid price as per the financial offer as Performance Bank Guarantee and the same shall be renewed every year.
20.	26.1.2 - The Contract Agreement	The Bidder whose bid has been accepted shall within **30 15** days from the date of acceptance letter (work order) enter into a written agreement with MMRDA for the proper fulfilment of the contract on lines similar to the terms provided herein, failing which it shall be construed as if the Bidder has	Please confirm that the Selected Bidder shall enter into a written agreement with MMRDA within 15 days of issuance of award of Contract.	**Revised Clause**: The Bidder whose bid has been accepted shall within **15 days** from the date of acceptance letter (work order) enter into a written agreement with MMRDA for the proper fulfilment of the contract on lines similar to the terms provided herein, failing which it shall be construed as if the

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		entered into binding agreement with the Authority. The Bidder, at their own cost, shall also get the contract Agreement duly adjudicated from the stamp office at Mumbai. In the event of the bid of a Partnership Firm/ company being accepted, the contract agreement shall be signed by all the partners of the Firm/Company or by the competent persons on behalf of the Firm/Company, subject to production of the necessary resolution or any other documents in support thereof.		Bidder has entered into binding agreement with the Authority. The Bidder, at their own cost, shall also get the contract Agreement duly adjudicated from the stamp office at Mumbai. In the event of the bid of a Partnership Firm/ company being accepted, the contract agreement shall be signed by all the partners of the Firm/Company or by the competent persons on behalf of the Firm/Company, subject to production of the necessary resolution or any other documents in support thereof.
21.	26.1.12	Any dispute between the Parties as to matters arising pursuant to this Contract that cannot be settled amicably within thirty (30) days after receipt by one Party of the other Party's request for such amicable settlement may be submitted by either Party for settlement in accordance with the provisions specified in the SC. Any Dispute or differences whatsoever arising between the parties out of or relating to the implementation, meaning and operation or effect of this agreement or its execution or the breach thereof shall be	The Indian Arbitration and Conciliation Act, 1996 needs to be mentioned herein.	**Revised Clause**: Any dispute between the Parties as to matters arising pursuant to this Contract that cannot be settled amicably within thirty (30) days after receipt by one Party of the other Party's request for such amicable settlement may be submitted by either Party for settlement in accordance with the provisions specified in the SC. Any Dispute or differences whatsoever arising between the parties out of or relating to the implementation, meaning and operation or effect of this agreement or its execution

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		settled by arbitration in Mumbai. The parties agree that sole arbitrator shall be appointed by mutual consent of the Parties within 21 days of the dispute arising. If Parties fail to agree on the sole arbitrator to be appointed within such period, then a panel of three Arbitrators shall be appointed,one to be appointed by each party to the Dispute and the third Arbitrator to be jointly appointed by the first two Arbitrators. The arbitration shall be governed by the provisions of the Indian Arbitration and Conciliation Act, 1960 and any modification thereon. The contract and the arbitration shall be governed by Indian Law only. The Award made in pursuance thereof shall be binding on the parties. The Civil Courts in Mumbai alone shall have jurisdiction to entertain any suit or matter arising out of this Agreement.		or the breach thereof shall be settled by arbitration in Mumbai. The parties agree that sole arbitrator shall be appointed by mutual consent of the Parties within 21 days of the dispute arising. If Parties fail to agree on the sole arbitrator to be appointed within such period, then a panel of three Arbitrators shall be appointed,one to be appointed by each party to the Dispute and the third Arbitrator to be jointly appointed by the first two Arbitrators. The arbitration shall be governed by the provisions of the Indian Arbitration and Conciliation Act, **1966** and any modification thereon. The contract and the arbitration shall be governed by Indian Law only. The Award made in pursuance thereof shall be binding on the parties. The Civil Courts in Mumbai alone shall have jurisdiction to entertain any suit or matter arising out of this Agreement.
22.	4.3-point e	Successful bidder should deploy a team of 15 personnel at MMRDA office in full time capacity for support and maintenance.	We request the Authority to rephrase the deployment of manpower as per the following statement for a better and clear understanding: Successful bidder should deploy	As per the RFP. Agency to deploy manpower as per RFP Chapter 5, clause 5.5 sub clause (h).

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			manpower as per the approved Manpower Deployment plan in Project Charter at MMRDA HO during implementation and Operation & Maintainence.	
23.	24 Financial Bid Schedule A Owner's Support Office point No 9	Schedule A- Owners Support Office (OSO)	Considering the number of Projects and scope mentioned in the RFP under section 4.2, Please provide the clarity in terms of number of Manpower	**Revised Clause: Annexure 1**
24.	4.3 Scope of the Services Point No b)	Integration with third party project management application for ingesting project data such as schedule, cost, quality, risks	Request the Authority to consider: SI shall provide inputs for 3rd party integration. Integration with third party project management application for ingesting project data such as schedule, cost, quality, risks shall lie with individual application vendors.	As per the RFP. The integration will be third party responsibility. However, both parties will be mutually responsible for successful integration.
25.	5; 5.1 Roles of General Consultant; Point b)	Ensure that project data input is done by contractor through IDD system only.	Since the inputs of Project Schedule and project progress via third party application. Hence we request to change the statement as below: Ensure that project data input is done by contractor through IDD system and Third Party Application only.	**Revised Clause:** The contractor will provide the project data through the Third-Party Application provided by MMRDA.
26.	5.5 Role of System Integrator	Integrating with third party application to fetch project related and showcase on dashboards and other IDDP related applications.	Integration has to be managed by the implementing agency of third party project management application	As per the RFP. The integration will be third party responsibility. However, both parties will be mutually responsible for successful integration.

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27.	5.5 Role of System Integrator	Note: (Applicable for all) MMRDA has defined the detailed roles and responsibilities. However, if there is anything not defined, same may be considered by the bidder for successful implementation of the project. No additional cost will be applicable. Successful bidder should take the necessary permissions wherever it is applicable, MMRDA will assist if required.	Any such occurance which is not defined, will be mutually discussed and resolved in consulation with MMRDA. Kindly read the statement as: Note: (Applicable for all) MMRDA has defined the detailed roles and responsibilities. However, if there is anything not defined, same may be considered for a mututal discussion by the bidder with MMRDA for successful implementation of the project. Successful bidder should take the necessary permissions wherever it is applicable.	As per the RFP. No change request during implementation/go-live. Note: No change request will be accepted for 6 months post Go Live.
28.	Chapter 7; Objectives of 5D BIM	Note: MMRDA is in process to implement various IT applications. The successful bidder should develop and integrate their application with third party applications. No additional cost will be paid for these integrations. All the SIs should mutually cooperate and ensure success of the project.	Note: MMRDA is in process to implement various IT applications. The successful bidder shall facilitate the requisite APIs to third party applications venodrs. Integration has to be managed by the implementing agency of third applications. No additional cost will be paid for these integrations. All the SIs should mutually cooperate and ensure success of the project.	As per the RFP. The integration will be third party responsibility. However, both parties will be mutually responsible for successful integration.
29.	8.1.2 5D BIM Solution Features	The 5D BIM System must offer out of box integration with BIM, ERP, and Scheduling System. These must be tested and proven integrations that are offered readily and out of box to ensure integrity	Integration has to be managed by the implementing agency of third party Applications such as ERP and Scheduling System	**Revised Clause:** The 5D BIM System must offer out of box integration with ERP and Scheduling System. These must be tested and proven integrations that are offered readily and out of

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		of single source of truth across entire landscape.		box to ensure integrity of single source of truth across entire landscape.
30.	8.2 Geographical Information System	MMRDA will provide all the concerned information related to project progress, land acquisition, property utilities etc. **Pre-requisites for GIS Application Development** · Land Acquisition details include all the revenue data (Spatial revenue data, Textual data) along with their attribute details in soft copy format. · Spatial revenue data - Revenue maps, Land base, Vector layers (.shp, .dwg). · Textual data in excel, MS access data, .dbf or similar formats. · Inputs for Development of Web GIS Application · Inputs for development of Web based GIS.	Our understanding Land acquisition details geometry and attribute data like details of owner, acquisition deals, legal disputes to land parcels will be provided by authority and shared data should open ESRI SHP or GDB format with having projection systems.	As per the RFP. MMRDA will provide the necessary inputs. Bidder to develop Web GIS applications to meet MMRDA requirements, as specified during detailed requirement analysis, using these inputs. Bidder has to convert it into the acceptable format from the data available with MMRDA.
31.	8.4 Integration with other system in MMRDA	SI should develop a functionality to integrate with other available public existing systems at MMRDA. For this MMRDA should provide the access to requisite application database and its architecture for seamless integration.	The successful bidder shall facilitate the requisite APIs to third party applications venodrs. Integration has to be managed by the implementing agency of third applications. No additional cost will be paid for these integrations. All the SIs should mutually cooperate and ensure success of the project.	As per the RFP. The integration will be third party responsibility. However, both parties will be mutually responsible for successful integration.

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32.	9.1 Project Timeline 9.2 Terms of Payment 4A	Supply of Software License for Geographical Information System (GIS)	As mentioned in the RFP Clause No 11.3 Page No 91 "*The GIS (ESRI) licenses will be provided by MMRDA wherever it is applicable.*" Hence, project timeline and payment milestone need to be changed or revised.	**Revised Clause:** Annexure 2
33.	9.1 Project Timeline	However, Bidder needs to ensure that the go-live of the complete IT landscape is carried out within 12 (Twelve) Months from the start of the project. If there is delay in the Go- Live of the project, the SI will not be viable for any additional payment. The O&M period will also shift as per the delay caused in the Go-Live.	Since the System Integrator has a limited scope in the whole IT landscape of MMRDA. Thereby the SI shall be responsible for delayas per his scope of work. Request to reframe the clause as: However, Bidder needs to ensure that the go-live of the complete IT landscape is carried out within 12 (Twelve) Months from the start of the project. If there is delay by the System Integrator in providing their scope of services for the Go- Live of the project, the SI will not be viable for any additional payment. The O&M period will also shift as per the delay caused in the Go-Live.	As per the RFP. For delays beyond the control of SI. SI may refer Force Majure clause mentioned in Clause 26.1.7
34.	9.2 Terms of Payment	Time period mentioned in O&M Phase is T+13 to T+24	Request the Authority to amend the same as per the project timeline: T+13 to T+48	**Revised Clause:** The O&M Period (Pg 74 9.2 Payment Terms 7. OSO – O&M Period) may be read a T+13 to T+**48**. Refer Annexure 2.
35.	9.2 - Terms of Payment	The proposed payment schedule has been determined based on specific milestones, their achievement, deployment of resources, and cash-flow for	Please confirm that payments shall be released by MMRDA within 30 days of submission of invoice along with supporting documents by Selected Bidder.	**Revised Clause:** Payments will be made as per MMRDA's rules/norms.

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		procurement of hardware, software licenses/subscription and other expenses on the project. All payments will be made within **30 days of submission of specific invoices** along with supporting signed documents by MMRDA. In case there is a dispute on any line item in the invoice, MMRDA shall withhold the disputed amount and pay the rest of the monies due to the SI.		
36.	9.2 - Terms of Payment	All the milestone payments that are due to SI after requisite approvals / acceptance as prescribed shall be made within **45 working days** by MMRDA after receipt of valid invoice in this regard from the SI, subject to correctness and validation of the invoice and no objections / observations by MMRDA.	Please confirm that payments shall be released by MMRDA within 30 days of submission of invoice along with supporting documents by Selected Bidder.	**Revised Clause:** Payments will be made as per MMRDA's rules/norms.
37.	9.2 - Terms of Payment	The penalty for delay in completion of deliveries or submission of deliverables against each milestone shall be @ 0.5% per week of the unfinished deliverable / milestone value, and subject to maximum of 10% of contract value.	Please confirm rate of penalty is 0.5% per week of the unfinished deliverable/milestone value subject to maximum of 10% of Contract Value.	**Revised Clause:** "The penalty for delay attributable to SI in completion of deliveries or submission of deliverables against each milestone as per SI scope of work shall be @ 0.5% per week of the unfinished deliverable / milestone value, and subject to maximum of 10% of implementation value of balance deliverables.

Sr No	Clause Number	Content of RFP Requiring Clarification	Change/ Clarification Requested	Response
38.	9.3 Project Deliverables ; Sl.No. 7.1.II	ATS of Software License for Geographical Information System (GIS)	Since the supply of GIS licenses lie with MMRDA. Hence we request the Authority to remove the deliverables related to ATS of Software license for GIS.	**DELETED**
39.	11.3 Application Licenses	The SI will be responsible for supplying licenses of 4D/5D BIM, GIS, CDE, Helpdesk Software and installation for the Integrated Digital Delivery System.	Since GIS License supply is not in the scope of SI, request you to delete and amend the clause as: The SI will be responsible for supplying licenses of 4D/5D BIM, CDE, Helpdesk Software and installation for the Integrated Digital Delivery System.	**Revised Clause:** The SI will be responsible for supplying licenses of 4D/5D BIM, CDE, Helpdesk Software and installation for the Integrated Digital Delivery System.
40.	11.4 Solution Design	b) The integrated application shall provide wide range of security features such as authentication, Single Sign-On (SSO), authorization (at various authorization levels) and Integrated User Management.	Kindly confirm is it authority having any third-party solutions for Single Sign-On (SSO)? Or SI need to developed for SSO solution to integrated all module.	As per the RFP. SI need to develop SSO for IDD platform.
41.	11.3 Application Licenses	e) The validity of the subscribed licenses price(s) & all add-on engines shall be for a minimum support period of three (3) years from the date of installation.	e) The validity of the subscribed licenses price(s) & all add-on engines shall be for a minimum support period of four (4) years from the date of installation.	**Revised Clause:** e) The validity of the subscribed licenses price(s) & all add-on engines shall be for a minimum support period of **four (4)** years from the date of installation.
42.	11.5 Details of Application Licenses	The validity of the contracted Licenses price(s) of all third- party software shall be for a minimum period of three (3) years from the date of deployment of first lot of licenses. All third-Party software licenses shall be in the name of the MMRDA.	The validity of the contracted Licenses price(s) of all third-party software shall be for a minimum period of Four (4) years from the date of deployment of first lot of licenses. All third-Party software licenses shall be in the name of the MMRDA.	**Revised Clause:** The validity of the contracted Licenses price(s) of all third- party software shall be for a minimum period of **four (4)** years from the date of deployment of first lot of licenses. All third-Party software licenses shall be in the name of the MMRDA.

Sr No	Clause Number	Content of RFP Requiring Clarification	Change/ Clarification Requested	Response
43.	12.1 Cloud Requirement & Hosting Services	ii. Reliability: The Cloud shall be reliable to comply with the SLA requirements provided in Chapter 14 and there shall not be any outages. Cloud platform shall always run in redundancy/High Availability so that in case of any outage system shall automatically switch to the available servers.	Our understanding is that, the GIS (ESRI) licenses will be provided by MMRDA, we need the licenses quantity of ArcGIS Enterprise Server details for Architecture design, High Availability and as well as DC-DR planning .	As per the RFP. Details will be shared with the successful bidder
44.	12.1 Cloud Requirement & Hosting Services	e) At Disaster Recovery site 50% of total environment (100% of Production environment) is required. The application environment shall be installed and ready for use without any additional software and Database license cost implication on MMRDA h) The specification of the servers shall be designed to ensure high availability of servers. All the major servers shall be configured in such a way that there is no single point of failure. In case there is any requirement of application specific server at any point of time, the SI shall be required to provide the same also without any additional cost to MMRDA.	Our understanding is that, the GIS (ESRI) licenses will be provided by MMRDA, we need the licenses quantity of ArcGIS Enterprise Server details for Architecture design, High Availability and as well as DC-DR planning.	As per the RFP. Details will be shared with the successful bidder
45.	ii. Network Services:	Easily integrate with existing authentication services: LDAP,	We understand that the GIS (ESRI) licenses will be provided by MMRDA and during project execution and	As per the RFP.

Sr No	Clause Number	Content of RFP Requiring Clarification	Change/ Clarification Requested	Response
		Active Directory for user authentication and authorization.	support period MMRDA will coordinate with OEM for support on product installation and bug fixing if any. Please confirm. If any product upgrade patch and hot fixes will be release and same will be delivered to us for the testing of patches and hot fixes in test and environment once verified and calculate the impact on existing application then move to production. Please confirm. Our understanding is that GIS (ESRI) licenses provided by MMRDA should have extension or product in built capability to compatible with 4D/5D BIM please confirm. Please confirm MMRDA provide the required GIS software desktop and server licenses with its extension for all environments i.e. Development, & Production including DC & DR?	
46.	24-Financial Bid; Schedule A-OSO Cost	Additional of Manpower as per Technical Evaluation criteria	The key positions mentioned for evaluation and scope of work are not mentioned in the BOQ. We request the Authority to consider: 1. Program Manager to be read as	**Revised Clause:** Annexure 1

Sr No	Clause Number	Content of RFP Requiring Clarification	Change/ Clarification Requested	Response
			Program Manager cum Team Leader. 2. Cloud Expert profile to be added as supply, install and maintain Cloud Systems is under the scope of the SI. 3. Additional resources as per eligibility criteria to be added: a) Subject Matter Expert-1 b) Digital project Implementation Specialist c) 5D BIM Specialist d) GIS & Imagery Expert	
47.	27.2 Geographical Information System	GIS and Mapping Software	As mentioned in the RFP Clause No 11.3 Page No 91 "The GIS (ESRI) licenses will be provided by MMRDA wherever it is applicable." Hence the FRS points for the software should not be applicabe to SI and hence need to be removed from Sl.No. 32 to 72.	**Revised Clause:** FRS clauses for "GIS and Mapping software" from **Sl. No. 32 to 72 stands deleted.** Refer Annexure 5**.**
48.	27.4.2 Cloud Portal, Point no. 39	The Cloud System solution shall be able to dynamically allocate and balance computing capacity across collections of hardware resources of one physical box aggregated into one unified resource pool.	Yes but evidence cant be shared for physical box	As per the RFP. SI should consider for Virtual solution only.
49.	27.4.5 Vulnerability Assessment and Monitoring Service, Point no. 18	Should be able to perform On demand Application Audit for all types of websites including AJAX, WEB2.0, and obfuscated Java Script etc. and identifies vulnerabilities throughout the entire application, scanning the browser and server-side components.	Request client to confirm if separate tool is required, as it will incur additional cost	As per the RFP.

Sr No	Clause Number	Content of RFP Requiring Clarification	Change/ Clarification Requested	Response
50.	27.2 Geographical Information System (GIS) Point no 27	• Web GIS application's ability to integrate with CAD desktop software like Q-GIS, AutoCAD, Arc GIS	This needs to be removed	**DELETED.** Refer Annexure 5
51.	27.1	13 Ability to set deadline for mails and Site correspondence	Please clarify the FRS on 5D BIM context	**DELETED.** Refer Annexure 5
52.	27.1	20 Ability to select the option to acknowledge/reply mails and manage conversations	Please clarify the FRS on 5D BIM context	**DELETED.** Refer Annexure 5
53.	4.3 Scope of the Services Point No a)	Deployment of OSO team at Authority's central office, regional office & package locations of the Project for construction as well as Maintenance period of the Project	For a better clarity on Implementation & O&M, we request the Authority to define the type and number of resources required at each location HO & RO.	As per the RFP. Details will be shared with the successful bidder
54.	4.3 point e	Successful bidder should deploy a team of 15 personnel at MMRDA office in full time capacity for support and maintenance.	We request you to provide more clarity on mapower deployment schedule.	**Revised Clause:** Annexure 1
55.	5; 5.1 Roles of MMRDA; Point a)	Providing office space for seating of the deployed staff. All other arrangements need to be done by the bidder.	Request The Authority to consider: Providing office space for seating capacity of minimum 20 deployed staff. All other arrangements need to be done by the bidder.	As per RFP. SI to provide MMRDA a detailed resource deployment plan. MMRDA to make necessary arrangement for seating capacity, electricity, and internet.
56.	5; 5.1 Roles of MMRDA; Point b)	Data will be fed in third-party application for project schedule, project progress, project modelling, etc.	Request the Authority to confirm what is defined as inputs for Project modelling from Third Party Application.	**Revised Clause:** Data will be fed in third-party application for project schedule, project progress, etc.
57.	5.1; Roles of MMRDA	Providing office space for seating of the deployed staff. All other	This conflicts the statement mentioned in Point 6.12 pg-54 that identified key personnel will operate out of MMRDA's	As per RFP. SI to provide MMRDA a detailed resource deployment plan. MMRDA to make necessary

Sr No	Clause Number	Content of RFP Requiring Clarification	Change/ Clarification Requested	Response
		arrangements need to be done by the bidder.	office. Request the Authority to confirm on this statement.	arrangement for seating capacity, electricity, and internet.
58.	6.12; Staffing	Please note that MMRDA shall require that all project related discussion should be done in consultation with MMRDA officials. While the identified key personnel will operate out of MMRDA's office, other key members of the development team may need to travel to MMRDA office for critical Project/Steering Committee meetings at their own expenses.	Request the Authority to confirm the deployment method of the identified key personnel. Will the team be deployed at MMRDA premises or work at System Integrator's office ?	As per RFP. SI to provide MMRDA a detailed resource deployment plan. MMRDA to make necessary arrangement for seating capacity, electricity, and internet.
59.	8.1.2 5D BIM Solution Features	The 5D BIM System must offer out of box integration with BIM, ERP, and Scheduling System. These must be tested and proven integrations that are offered readily and out of box to ensure integrity of single source of truth across entire landscape.	Being an external integration, it has to be in the scope of third-party vendor	As per the RFP. The integration will be third party responsibility. However, both parties will be mutually responsible for successful integration.
60.	SCC - Delay Damages and Liquidated Damages	In case of any delay in the execution and/or completion of the Work that is attributable to the SI, unless the Time for Completion has been expressly extended by the Employer, the SI shall pay liquidated damages in terms of money as described below In the event that the SI fails to achieve any of the milestones prescribed in deliverables and	Please confirm thw ambiguity on the rate of penalty.	**Revised Clause**: In case of any delay in the execution and/or completion of the Work that is attributable to the SI, unless the Time for Completion has been expressly extended by the Employer, the SI shall pay liquidated damages in terms of money as described below In the event that the SI fails to achieve any of the milestones

Sr No	Clause Number	Content of RFP Requiring Clarification	Change/ Clarification Requested	Response
		payment Schedule, the SI shall pay liquidated damages in terms of money equivalent to zero point 1% (one percent) of the Contract Price per day of delay, subject to a maximum of 10% (ten percent) of the total Contract Price for each milestone not achieved.		prescribed in deliverables and payment Schedule, the SI shall pay liquidated damages in terms of money equivalent to **0.1% (zero point one percent)** of the Contract Price per day of delay, subject to a maximum of 10% (ten percent) of the total Contract Price for each milestone not achieved.
61.	10.2 Training and Capacity Building Stratagy	Business Analytics program shall be provided to MMRDA end user team to improve the adoption of the analytics solution over the period. This should be provided in two phases, Phase 1- during the implementation of business analytics. Phase -2 at the end of the support contract	Since Business Analytics implementation is not in scope of this RFP. We request to tweak the clause as the following for a better understanding: Dashboard Training program shall be provided to MMRDA end user team to improve the adoption of the KPIs over the period. This shall be during the Go Live of the 5D BIM SYSTEM.	**Revised Clause: Dashboard** program shall be provided to MMRDA end user team to improve the adoption of the analytics solution over the period. This should be provided in two phases, Phase 1 during the implementation of **Dashboard** module. Phase 2 at the end of the support contract.
62.	11.7 Data Migration	The SI also need to scan the files which are currently in hard copy format and store them in the content management system, with all their attributes and metadata.	We understand that Data Migration shall be a critical task in bringing the legacy data into the system. However the System Integrator shall only be liable to migrate electronic data only. Hence request the Authority to remove this clause.	As per the RFP.
63.	11.7 Data Migration	General	Request the Authority to confirm on the size and type of data availble with MMRDA to migrate.	As per the RFP. Details will be shared with the successful bidder
64.	11.9 Facility Management Staff	Facilities management will include but is not limited to maintenance of hardware, network, laptop/printer etc. that is supplied by the Bidder.	Please specify number of Regional offices to deploy the manpower	As per the RFP. Details will be shared with the successful bidder

Sr No	Clause Number	Content of RFP Requiring Clarification	Change/ Clarification Requested	Response
		Facility management staff shall work in a shift-based system to provide service 6 days per week 9:30 AM to 6:30 PM. The SI should also submit a detailed list of deployment during the support and maintenance. These staff will be required at central office as well as regional offices.		
65.	13 Testing and Acceptance Criteria Point No 4	During O&M phase, penetration testing to be conducted on yearly basis and vulnerability assessment to be conducted on half-yearly basis MMRDA will also involve third party auditors to perform the audit/review/monitor the security testing carried out by SI. Cost for such auditors to be paid by successful SI	During O&M phase, incase any development or enhancement made in the software application in such scenario VAPT will be conducted by Cert In Empanelled agency and SI has to submit the certificate and report of successful completion to MMRDA. Cost for Audit will be borne by MMRDA.	As per the RFP.
66.	13 Testing and Acceptance Criteria Note Point No d)	d) All the Third-Party Auditors (TPA) as mentioned above will be appointed by MMRDA. TPA has to be CERT-IN empaneled. All tools/ environment required for testing shall be provided by the SI. The payment to third Party Auditor to be paid by SI.	d) All the Third-Party Auditors (TPA) as mentioned above will be appointed by MMRDA. TPA has to be CERT-IN empaneled. All tools/environment required for testing shall be provided by the SI. The payment to third Party Auditor Post Go Live or deployment of application on production server will be paid by SI. Any development or enhancement made in the software application during O&M phase security audit will be conducted by CertIn Empanelled agency appointed by department and	As per the RFP.

Sr No	Clause Number	Content of RFP Requiring Clarification	Change/ Clarification Requested	Response
			SI has to submit the certificate and report of successful completion to MMRDA. Cost of such security audit will be borne by MMRDA.	
67.	15.3 Handholding Support: Application Support	Severity of Violation: 1. Application Support Performance- High 2. Application Support Performance- High 3. Application Support Performance- High	There is a misprint mentioned in the table of severity. We request the Authority to change the severity of Violation as per the following: Severity of Violation: 1. Application Support Performance- High 2. Application Support Performance- Medium 3. Application Support Performance- Low	**Revised Clause**: Severity of Violation: 1. Application Support Performance- **High** 2. Application Support Performance- **Medium** 3. Application Support Performance- **Low**
68.	16.26 Performance Security	RFP Performance Security Form included in Appendix F 21.	RFP Performance Security Form included in Appendix F 20.	**Revised Clause**: RFP Performance Security Form included in **Appendix F 20.**
69.	22.18 Appendix F-18: Manufacture Authorization Form (MAF)	Photo	Please clarify on the photo mentioned in the MAF format.	As per the RFP. The MAF submitted must be on the letter head of the Manufacturer. Bidder may choose to follow the MAF format in the Appendix F-18 or submit in the format of Manufacturer. Photo here refers to Logo of Manufacturer.
70.	23.4 Appendix TP-4: CV for Key Professionals	Note: Each page of the CV shall be signed in blue ink by both the Staff Member and the Authorized Representative of the firm. Photocopies will not be considered for evaluation.	Note: The CV shall be signed by the Authorized Representative of the firm.	**Revised Clause:** Each page of the CV shall be signed by the Authorized Representative of the firm.

Sr No	Clause Number	Content of RFP Requiring Clarification	Change/ Clarification Requested	Response
71.	23.5 Appendix TP-5: Resource Deployment Schedule	Y2 to Y4 (13 to 36 months)	Y2 to Y4 (13 to 48 months)	**Revised Clause: Y2 to Y4 (13 to 48 months)**
72.	24.2 Annexure-A Bid Price Summary; Point No.2 License and AMC/ ATS Cost	5D BIM Software Helpdesk CDE Any other relevant software	Request the Client to consider this summary as per the Schedule B of the BOQ As the following line item CDE, 3D and 5D System Helpdesk and any other relevant software	**Revised Clause: Annexure 1**
73.	24-Financial Bid; Schedule C-Implementation & Support Cost	Totalling on top of the clolumn as per the nomenclature g=b+c+d	In the last column - Total (INR); Kindly confirm g=b+c+d+e	**Revised Clause: g=b+c+d+e**
74.	26.2.1 Termination by MMRDA	ix. In the event MMRDA terminates the Contract in whole or in part, pursuant to GCC Clause 11.2.12.1,	ix. In the event MMRDA terminates the Contract in whole or in part, pursuant to GCC Clause 26.2.1,	**Revised Clause:** ix. In the event MMRDA terminates the Contract in whole or in part, pursuant to GCC **Clause 26.2.1**,
75.	26.2.2 Termination by Bidder	ii. If MMRDA fails to comply with any final decision reached as a result of arbitration pursuant to GCC Clause 11.2.12.2 hereof.	ii. If MMRDA fails to comply with any final decision reached as a result of arbitration pursuant to GCC Clause 26.2.2 hereof.	**Revised Clause:** ii. If MMRDA fails to comply with any final decision reached as a result of arbitration pursuant to GCC **Clause 26.2.2** hereof.
76.	26.2.4 Payment	Upon termination of this Contract pursuant to GCC clauses 11.2.12.1	Upon termination of this Contract pursuant to GCC clauses 26.2.1 or	**Revised Clause**: Upon termination of this Contract pursuant to GCC

Sr No	Clause Number	Content of RFP Requiring Clarification	Change/ Clarification Requested	Response
	upon Termination	or 11.2.12.2, Bidder shall make the following payments to MMRDA: i. If the Contract is terminated pursuant to GCC Clause 11.2.12.1 (10) or 11.2.12.2, the performance bank guarantee submitted for the entire tenure shall not be refunded to the Bidder. ii. If the agreement is terminated pursuant of GCC Clause 11.2.12.1. (1), (2), (3), (4), (5), (6), (7), (8), (9) and (10), the Bidder shall not be entitled to receive any agreed payments upon termination of the contract. Upon termination, MMRDA may also impose liquidated damages. The Bidder shall be required to pay any such liquidated damages to MMRDA within 30 days of termination date.	26.2.2, Bidder shall make the following payments to MMRDA: i. If the Contract is terminated pursuant to GCC Clause 26.2.1 (ix) or 26.2.2, the performance bank guarantee submitted for the entire tenure shall not be refunded to the Bidder. ii. If the agreement is terminated pursuant of GCC Clause 26.2.1. (i - ix), the Bidder shall not be entitled to receive any agreed payments upon termination of the contract. Upon termination, MMRDA may also impose liquidated damages. The Bidder shall be required to pay any such liquidated damages to MMRDA within 30 days of termination date.	**clauses 26.2.1** or **26.2.2**, Bidder shall make the following payments to MMRDA: i. If the Contract is terminated pursuant to GCC **Clause 26.2.1 (ix)** or **26.2.2**, the performance bank guarantee submitted for the entire tenure shall not be refunded to the Bidder. ii. If the agreement is terminated pursuant of GCC **Clause 26.2.1. (i - viii)**, the Bidder shall not be entitled to receive any agreed payments upon termination of the contract. Upon termination, MMRDA may also impose liquidated damages. The Bidder shall be required to pay any such liquidated damages to MMRDA within 30 days of termination date.
77.	27- FRS; 27.1 5D BIM & CDE	13- Ability to set deadline for mails and Site correspondence 14- Ability to select the option to acknowledge/ reply mails and manage conversations. 28- Ability to overlay 2D PDF files on 3D BIM Models 40- Ability to create simple geometry and workspaces.	Request the Authority to delete.	**DELETED.** Refer Annexure 5
78.	27.4.2 Cloud	The Solution should provide Unified Infrastructure management with complete inventory	Request the authority to consider: The Solution should provide Unified Infrastructure management with	**Revised Clause:** The Solution should provide Unified Infrastructure management with

Sr No	Clause Number	Content of RFP Requiring Clarification	Change/ Clarification Requested	Response
	Portal, Point no. 17	management of virtual machines & physical resources.	complete inventory management of virtual machines.	complete inventory management of **virtual machines only**.
79.	27.4.2 Cloud Portal, Point no. 39	The Cloud System solution shall be able to dynamically allocate and balance computing capacity across collections of hardware resources of one physical box aggregated into one unified resource pool.	Kindly confirm whether a separate tool has to be given for this functionality.	As per the RFP. SI should consider for Virtual solution only
80.	27.4.8 Backup Solution, Point no. 23	The backup solution must have option to perform complete VM recovery using Virtual Standby option providing instance recovery in DC and DR site. Virtual Standby to be used for DR replication in another region of AWS/Azure/GCP. Virtual Standby should allow to perform failover and failback without restricting for private or public cloud.	CSP will be provide the DC & DR ,The both will in defferent region with defferent Geo Location.	As per the RFP. DC & DR should be provided on different regions by the same CSP on public cloud.
81.	27.4.8 Backup Solution, Point no. 24	The backup solution should be architected with cloud-native capabilities and should be integrated with both on-site and offsite disaster recovery with built-in cloud DR and backup to private and public clouds including Amazon AWS, Microsoft Azure and other 3rd party compatible clouds.	CSP will be provide the DC & DR ,The both will in defferent region with defferent Geo Location.	As per the RFP. DC & DR should be provided on different regions by the same CSP on public cloud.
82.	4.2 Organizational Coverage	Below are the metro lines that should be considered (in addition to other MMRDA projects) for the implementation & support:	The number and name of projects in the scope needs to be finalized. No. of licenses of various products, efforts for implementation and support would	As per the RFP. Details will be shared with the successful bidder

Sr No	Clause Number	Content of RFP Requiring Clarification	Change/ Clarification Requested	Response
			depend on the number and kind of infra projects kept in scope. And hence please do not keep this scope open ended.	
83.	4.2 Organizational Coverage	Note: An indicative list has been mentioned above. However, any addition to the project list will be directed by MMRDA shall be included in the platform during the contract period. For the project scope of work, MMRDA has planned to consider all projects to carry out the implementation and support of Integrated Digital Delivery Platform. The project in scope will be proposed by MMRDA within stipulated time at start of the project. All ongoing and upcoming project related to all divisions under MMRDA will be covered under the scope of this System.	The number and name of projects in the scope needs to be finalized. No. of licenses of various products, efforts for implementation and support would depend on the number and kind of infra projects kept in scope. And hence please do not keep this scope open ended. If there is any additional project then listed above, the same should be taken as Change Request	As per the RFP. Bidder to supply its system as per the number of users defined in Chapter 11 clause 11.3 Application Licenses. However the system should be scalable. Change request will be applicable after 6 months after go-live wherever the effort of manmonths is more than 5 days.
84.	5.5 Role of System Integrator (SI)	Note: (Applicable for all) MMRDA has defined the detailed roles and responsibilities. However, if there is anything not defined, same may be considered by the bidder for successful implementation of the project. No additional cost will be applicable. Successful bidder should take the	This is very open ended statement. It needs to be qualified such that only those actions that directly fall under the scope of work of the SI is expected to be done by the SI	As per the RFP.

Sr No	Clause Number	Content of RFP Requiring Clarification	Change/ Clarification Requested	Response
		necessary permissions wherever it is applicable, MMRDA will assist if required.		
85.	14 CHAPTER 14: HELPDESK SETUP AND OPERATIO NS	This track includes running centralized helpdesk setup and operations for all the Systems for a period of 36 months from the date of Go Live. The help desk will primarily handle technical queries of MMRDA and contractors & others relating to integrated digital delivery system. The following is included in the scope of work of SI:	The helpdesk would operate as per the official working days/ hours of MMRDA. Please confirm	As per the RFP.
86.	15.1.3 Measureme nts & Targets 15.1.3.1 Overall Project Level SLAs, sr. no. 1	Team mobilization and Commencement of work including deployment of key personnel on site target < 7 working days	Please revise this to 30 days from contract sign-off	**Revised Clause:** Team mobilization and Commencement of work including deployment of key personnel on site **on or before 30 days from the date of acceptance of the work order**
87.	15.1.3 Measureme nts & Targets 15.1.3.1 Overall Project Level SLAs, Sr. no. 2	Change in named key personnel, target No Deviation.	Post pandemic the scenario is different and hence there may be a need to replace some of the key personnel. Please keep it 'as mutually agreed with MMRDA"	**Revised Clause: Any deviation which will be mutually agreed by the MMRDA.**

Sr No	Clause Number	Content of RFP Requiring Clarification	Change/ Clarification Requested	Response
88.	15.1.3.2 Operations Phase SLAs, Sr. No. 1	Availability/Uptime of cloud services and Resources for Bidder's Cloud Infrastructure Penalty Clause - 5 % Monthly payment	Penalty is too high. Please change this to 1% of the monthly payment and further 0.5 % for every 0.5% drop	**Revised Clause:** **1%** of Monthly Payment **Additional 0.5%** of Monthly Payment till event of default and termination.
89.	15.1.3.2 Operations Phase SLAs, Sr. No. 4	Data Security, Data Privacy Incident or Data Breach, Data Mining and Management Reporting - Percentage of timely incident report	Penalty is too high. Please change this to 1% of the monthly payment and further 2% of the monthly payment	**Revised Clause:** **1%** of Monthly Payment **2%** of Monthly Payment **Additional 0.5%** of Monthly Payment till event of default and termination.
90.	15.1.3.2 Operations Phase SLAs, Sr. No. 5	Data Security, Data Privacy Incident or Data Breach, Data Mining and Management Reporting –Percentage of timely incident resolutions	Penalty is too high. Please change this to 1% of the monthly payment and further 2% of the monthly payment	**Revised Clause:** **1%** of Monthly Payment **2%** of Monthly Payment **Additional 0.5%** of Monthly Payment till event of default and termination.
91.	15.1.3.2 Operations Phase SLAs, Sr. No. 6	Percentage of timely vulnerability corrections	Penalty is too high. Please change this to 1% of the monthly payment and further 2% of the monthly payment	**Revised Clause:** **1%** of Monthly Payment **2%** of Monthly Payment **Additional 0.5%** of Monthly Payment till event of default and termination.
92.	15.1.3.2 Operations Phase SLAs, Sr. No. 7	Percentage of timely vulnerability reports	Penalty is too high. Please change this to 1% of the monthly payment and further 2% of the monthly payment	**Revised Clause:** **1%** of Monthly Payment **2%** of Monthly Payment **Additional 0.5%** of Monthly Payment till event of default and termination.
93.	15.1.3.2 Operations Phase	Security and Privacy breach including Data Theft / Loss/ Corruption/ Mining	Please change this to 1 Lakh from 10 Lakhs	**Revised Clause:** For each breach/data theft/data corruption /data mining issue /privacy breach, penalty will be

Sr No	Clause Number	Content of RFP Requiring Clarification	Change/ Clarification Requested	Response
	SLAs, Sr. No. 8			levied as per following criteria. Any security incident detected will lead to penalty of **INR 01 Lakhs**. This penalty is applicable per incident. These penalties will not be part of overall SLA penalties cap per quarter. **In case of 3 breach of security** wherein the data is stolen, mined, privacy breached or corrupted, Client reserves the right to terminate the contract.
94.	15.1.4 Helpdesk/Issue Resolution Related SLAs, Sr. No.2	High	The resolution time for Help desk incident is kept too idealistic. Please consider as below: For High - Resolution time should be < 1 working day instead of <1.5 hours > 1 working day <= 2 working days >2 working days <= 3 working days >3 working days	**Revised Clause:** **<4 Hrs:** No Penalty **>4 Hrs <= 1 day: 1%** of monthly payment for every unresolved call. **>1 day <=2 Days: 1.5%** of Monthly Payment for every unresolved call till event of default and termination. **> 2 days: 2%** of Monthly Payment till event of default and termination.
95.	15.1.4 Helpdesk/Issue Resolution Related SLAs, Sr. No.3	Medium	The resolution time for Help desk incident is kept too idealistic. Please consider as below: For Medium - Resolution time should be < 3 working day instead of <4 hours > 3 working day <= 5 working days >5 working days <= 7 working days >7 working days	**Revised Clause:** **<12Hrs:** No Penalty **>12 Hrs <= 1 day: 0.5%** of monthly payment for every unresolved call. **> 1 days: 1%** of Monthly Payment till event of default and termination.
96.	15.1.4 Helpdesk/Is	Low	The resolution time for Help desk incident is kept too idealistic. Please	**Revised Clause:** **< 2 Days:** No Penalty

Sr No	Clause Number	Content of RFP Requiring Clarification	Change/ Clarification Requested	Response
	sue Resolution Related SLAs, Sr. No.4		consider as below: For Low - Resolution time should be < 7 working day instead of <1 day > 7 working day <= 10 working days >10 working days <= 15 working days >15 working days	**>2 Days <= 3 days: 0.5%** of monthly payment for every unresolved call. **> 3 days: 1%** of Monthly Payment till event of default and termination.
97.	15.2 Handholding Support: Client Site Support, Sr. No. 4	HANDHOLDING SUPPORT	Please change from 15 days to 30 days	**Revised Clause**: Replacement of hardware equipment shall be done within **30 days** of notification by the Authority
98.	15.4 Helpdesk Operations: Service Level Agreement	Helpdesk Operations: Service Level Agreement	These seems to be repetition. SLAs for Helpdesk are give above	As per the RFP.
99.	15.7.1 Response/Resolution Matrix, Sr.No. 1	Response Time 15 Min	Please change this to 30 Mins	**Revised Clause: Response Time: 30 Min.**
100.	15.7.1 Response/Resolution Matrix, Sr.No. 2	Resolution Time (Max) 16 business hrs.	Please change this to 4 business days	**Revised Clause: Resolution Time (Max) 48 business hrs.**
101.	15.7.1 Response/Resolution	Resolution Time (Max) Within 1 week	Please change this to 15 business days	**Revised Clause: Resolution Time (Max) 15 days.**

Sr No	Clause Number	Content of RFP Requiring Clarification	Change/ Clarification Requested	Response
	Matrix, Sr. No. 3			
102.	8.2	Please note that all GIS Licenses will be procured by MMRDA,	Please clarify if MMRDA will accept Open source GIS solution implementation where no licenses will be needed from MMRDA Alternately can SI propose solution based on COTS other than ESRI as long as OEM criteria in RFP are met	As per the RFP. MMRDA will provide license.
103.	8.2	Please note that all GIS Licenses will be procured by MMRDA,	If the answer to above query is No, then will MMRDA be providing ESRI product licenses	As per the RFP. MMRDA will provide license.
104.	8.2	Please note that all GIS Licenses will be procured by MMRDA,	If the answer to above query is Yes, then will MMRDA provide Archv GIS Enterprise and desktop licenses with extensions for 3D analysis ,Spatial analysis, image analysis and network analysis	As per the RFP. This will be provided to successful bidder based on solution requirement.
105.	11.3	Below is the estimate user count of the IT GIS-25-50 users	Will MMRDA provide up to 5o Desktop GIS licenses	As per the RFP. Details will be shared with the successful bidder
106.	27.1	50: Capable to integration of Multiple BIM Design Software (e.g. Revit, Tekla, Bentley, ArchiCad? as well as interoperable open IFC format.	Please clarify if the integration is expected to be compatible file transfers or built in Application program interfaces	As per the RFP. IDDP platform should have capabilities to access the data seamlessly from IFC format
107.	27.1	Common data Environment 4 Upload documents in any format	Please specify the file formats envisaged in this project	As per the RFP. Successful bidder should convert as per the required format.
108.	27.1	Common data Environment 90 open APIs available or developed on request, for integration with legacy	Please provide details of legacy system referred under these APIs	As per the RFP. Details will be shared with the successful bidder

Sr No	Clause Number	Content of RFP Requiring Clarification	Change/ Clarification Requested	Response
		systems like ERP, Facility Management or Vendor Management Systems		
109.	27.2	52:Ability to have 3D storage capability in Oracle spatial 55:. Ability to adhere to native Oracle Spatial feature and topology models	Please clarify if it is expected that GIS Application will work on Oracle Spatial DB	**DELETED.** Refer Annexure 5
110.	27.4.6	Application transaction monitoring	Please clarify if this will cover virtual users to monitor application performance	As per the RFP.
111.	17.1.1 Pre-Qualification Criteria: ENVELOPE 'A' , Sr. No. 4	Technical Capability (IT /ITES) - Documents Required - Work Order and Client Experience Certificate/ Go live Certificate /Other Supporting documents to justify completion of at least 80% overall project cost shall be submitted by the Bidder	It has been specified that the project value for tender eligibility is either Rs. 50 Cr for 1 order OR Rs. 42 Cr for 2 orders OR Rs. 35 Cr for 3 orders. Therefore, we understand that when the RFP condition expects 80% completion of the respective eligible purchase orders—i.e., completed work of Rs. 40 Cr for 1 order, Rs. 33.6 Cr for 2 orders, or Rs. 28 Cr for 3 orders—will fulfil the requirement and meet the tender criteria. If the project being quoted is say for 100 Cr, achieved Go-Live and work completed is of say 60Cr, then it would be considered as complied. Please confirm our understanding. The same understanding is applicable for rest criteria for Eligibility requirement no. 5,6,7 and 8 and entire Technical Evaluation Criteria as well.	**Revised Clause: Annexure 3**

Sr No	Clause Number	Content of RFP Requiring Clarification	Change/ Clarification Requested	Response
112.	17.1.1 Pre-Qualification Criteria: ENVELOPE 'A' , Sr. No. 5	Technical Capability (BIM) - Rail & Metro/Road/ Water/ City Development/ Utilities project for any Central & state Govt./ Semi Govt./ PSUs in India or Globally in last 7 years as on Bid submission date.	Please change this to: Rail & Metro/Road/ Bridges/ Water/ City Development/ Utilities project for any Central & state Govt./ Semi Govt./ PSUs in India or Globally This would apply for corresponding evaluation criteria as-well.	**Revised Clause: Annexure 3**
113.	17.1.2 Technical Evaluation Criteria: ENVELOPE 'B' Sr. No. 3	The Bidder should have experience of designing / developing / integrating / maintaining COTS based Enterprise GIS Solution/ Web GIS Solution/ GIS Web Portal with minimum project value of INR 10 Crores in the last 7 years in any Central & State Govt. / Semi-Govt. / Urban Development agencies / PSU organization as on date of submission of bid.	Please change the marking as below: 1 (one) Project 5 Marks ii. 2 (two) or more Projects 10 Marks iv. At least 1 Project from above in Infrastructure development sector (Metro Rail / Railway/ Road/ Bridges/ Flyover / City Development/ Utilities) will be given additional 5 marks	**Revised Clause: Annexure 4**
114.	17.1.1 Pre-Qualification Criteria: ENVELOPE 'A' , Sr. No. 6	Bidder having ownership of Drone/LiDAR system	This clause does not support competitive bidding, especially given the 80:20 technical evaluation criteria, as most Systems Integrators (SIs) providing similar drone services do not have ownership of Drone/LiDar. Therefore, we request that this clause be removed from the RFP. Instead, please consider adding a scoring criterion on value projects. 1 Project = 5 Marks.	**Revised Clause: Annexure 3**

Sr No	Clause Number	Content of RFP Requiring Clarification	Change/ Clarification Requested	Response
			If the project value is more than 10 Cr then additional 5 marks	
115.	17.1.1 Pre-Qualification Criteria: ENVELOPE 'A',	Note: Key resources should be on payroll of the bidder. Bidder should submit the professional tax certificate duly certified from the HR.	Condition of Key resources on payroll of the bidder at the bidding stage should be removed. Bidder will have to ensure that these resources are on its payroll before actual deployment on the project.	**Revised Clause:** Note: **Atleast 50% of the proposed** key resources should be on payroll of the bidder. Bidder should submit the professional tax certificate duly certified from the HR.
116.	17.1.2 Technical Evaluation Criteria: ENVELOPE 'B', Sr. no.3	Basis for evaluation - i. 1 (one) Project 5 Marks, ii. 2 (two) to 4 (four) Projects - 8 Marks iii. More than 4 (Four) projects - 12 Marks iv. At least 1 Project in Infrastructure development sector (Metro Rail / Railway/ Road/ Bridges/ Flyover / City Development/ Utilities) will be given additional 3 marks	1 (one) Project 5 Marks ii. 2 (two) or more Projects 10 Marks iv. At least 1 Project from above in Infrastructure development sector (Metro Rail / Railway/ Road/ Bridges/ Flyover / City Development/ Utilities) will be given additional 5 marks	**Revised Clause: Annexure 4**
117.	26.3.9 Special Conditions of Contract	Suspension of Work : The Employer may at any time instruct the SI to suspend progress of part or all of the Works. During such suspension, the SI shall protect, store and secure such part or all the Works against any deterioration, loss or damage. The Employer may also notify the cause for the suspension. If and to the extent that the cause is notified and is the responsibility of the SI or is	We understand that such an occurrence should not happen if the bidder is not at fault or due to their responsibility. Additionally, the bidder will receive a 90-day notice before this situation arises. Please confirm.	As per the RFP.

Sr No	Clause Number	Content of RFP Requiring Clarification	Change/ Clarification Requested	Response
		otherwise attributable to the Contractor's Personnel.		
118.			Kindly share the existing hypervisor details.	As per the RFP. Details will be shared with the successful bidder
119.			Kindly share the details of the physical servers & virtual servers.	As per the RFP. Details will be shared with the successful bidder
120.			Kindly confirm the count of total VMs to be migrated. Also, kindly confirm the nature of each VM.	As per the RFP. Details will be shared with the successful bidder
121.	11.7 Data Migration	The SI needs to prepare and share data migration plan for the data available in the databases of the existing IT systems proposed solution components.	Kindly confirm the exact data size to be migrated on new servers in MB/GB/TB.	As per the RFP. Details will be shared with the successful bidder
122.			Kindly mention if any additional data is to be migrated.	As per the RFP. Details will be shared with the successful bidder
123.			Kindly mention the current Software Details. (for e.g. Operating System, database)	As per the RFP. Details will be shared with the successful bidder
124.			Kindly confirm the Data migration will be done by Client or expected from bidder.	As per the RFP. Details will be shared with the successful bidder
125.	CHAPTER 12: CLOUD INFRASTRUCTURE REQUIREMENTS 12.1 Cloud Requirement & Hosting Services	The SI shall formulate an effective Back-up Strategy and Disaster Recovery Plan and take sign-off from MMRDA. SI shall be responsible for the implementation of approved Back-up and Disaster Recovery plan	As per the requirements for the DR site, could you please confirm the number of DR drills required per year (e.g., annually once or twice)?	As per the RFP. DR Drills are expected at half yearly intervals.
126.	22.13 Appendix F-13: Compliance	The Cloud-based solution of the product should have ISO 19650 certification for BIM/CAD software.	Please amend this clause as follows: "The cloud-based solution of the product should be certified with either	As per RFP.

Sr No	Clause Number	Content of RFP Requiring Clarification	Change/ Clarification Requested	Response
	to OEM Qualification Criteria OEM Criteria: CDE		ISO 19650 or ISO 27001 for BIM/CAD software."	
127.		BIM will use third party application which will act as the electronic document management system (EDMS) for contract administration, work orders, transmittals, submittals document management, asset data, etc. It will be the main repository of information for MMRDA and will meet the Asset Information Management System requirements for tagging assets, creating hierarchies based on location, function, and class; and relating assets to each other.	It is understood by this statement that MMRDA already has an EDMS system as its main repository. Is this assumption correct? Is this system required to be integrated with IDDP ? If yes, Please provide details of this EDMS system along with any APIs or available integration protocols.	As per the RFP. Details will be shared with the successful bidder
128.	89	CDE - Technical Specifications :Possibility to Integrate solution with BMS/CAFM/CMMS platforms	what does CAFM mean? Are there any use cases on what needs to be integrated? Which Bridge management system is being deployed ? Please provide details of integration protocol with all the 3 systems. Do they have exposed APIs to integrate?	CAFM: Computer Aided Facility Management As per the RFP. Details will be shared with the successful bidder.
129.	g	g) The 5D BIM must have ability to host the data on secure and dedicated private cloud compliant by Ministry of Electronics	Is it possible for Vendor to provide the IDDP solution on its own cloud platform and found compliant by MeitY ? The reason being the vendor can provide full end to end managed	As per the RFP.

Sr No	Clause Number	Content of RFP Requiring Clarification	Change/ Clarification Requested	Response
		and Information Technology (MeitY).	services to drive the application though periodic version updates and provide an enriched experience in visualisation of data in form of a digital twin and construction management. The IDDP solution hosted in this vendors environment can interact and interface with other applications like SAP/ GIS etc. based on MMRDA hosted cloud	
130.	d	d) MMRDA shall determine the list of items that need to be included with in the asset register/future asset register, and the data object fields that are to be completed.	It is understood that CDE system will be used as Asset Register ? Specification requirements for the same need to be included in functional requirements list for CDE instead of 5DBIM section	As per the RFP. Details will be shared with the successful bidder
131.	8.1.12 (n)	The 5D BIM System must offer out of box integration with BIM, ERP, and Scheduling System. These must be tested and proven integrations that are offered readily and out of box to ensure integrity of single source of truth across entire landscape.	Please provide details of ERP and Scheduling systems systems. Will it be deployed before 5D BIM system is in place? This will have a direct impact on SI's ability to test the integration as per the timelines.	As per the RFP. Details will be shared with the successful bidder
132.	27.1 (24)	Ability to have data connectors to external Business Intelligence tools	Is there a BI tool in place? Is MMRDA expecting the SI to procure a BI tool? Is the SI expected to create dashboards on the BI tool?	As per RFP.
133.	1	CDE - Technical Specifications : Capture E-signature while changing statuses of the file in a review.	Does audit trail of the system with unquie identity for user comply as E-Signature? The OOTB feature of the solution	As per RFP.

Sr No	Clause Number	Content of RFP Requiring Clarification	Change/ Clarification Requested	Response
			allows to quickly see the audit trail of file, which specifies details on each change. Please confirm if this method can be considered as compliant.	
134.	18	CDE - Technical Specifications : Reviewers to digitally sign off documents and correspondence on completion of review, as defined in the workflow process.	Usage of digital signatures should be limited only to very contractual high sensitive documents. System shall provide options to digitally sign documents using common tools in the market as if the document is sitting locally on the PC. Who is going to provide all the digital certification services ? The digital certificates can only be applied on Pdfs Does it mean that the system to work with pdfs only ?	As per the RFP. Digital Signature verification capability to be available in proposed CDE
135.	43	CDE - Technical Specifications : Capability to provide WhatsApp Notifications for approval workflows and mails sent through cloud on client request	Can we limit to only to mail notifications. Who will be owning the WhatsApp Business services for notification ? Email notifications anyway pop up on most mobile devices.	As per the RFP. Bidder to manage the notification system and associated costs.
136.	88	CDE - Technical Specifications : Provision of Integrating with ERP Systems	Do we have any specifics in mind like what ERP system and to what extend?	As per the RFP. Details will be shared with the successful bidder
137.	22.13.6	OEM Criteria: CDE : ISO-19650 certification	Instead of self certification; can we provide case studies of users who achieved ISO 19650 certification using our CDE.	As per the RFP.
138.	22.13.7	OEM Criteria: CDE : Authentication	Can we limit the requirement to 2Factor authentication by federation with Azure AD and not involve Aadhar based authentication.	As per the RFP.

Sr No	Clause Number	Content of RFP Requiring Clarification	Change/ Clarification Requested	Response
139.	22.13.9	OEM Criteria: Perpetual licenses	Is perpetual licenses requirements mandatory?	As per the RFP.
140.	90	CDE - Technical Specifications : Open APIs available or developed on request, for integration with legacy systems like ERP, Facility Management or Vendor Management Systems.	Which legacy systems software are deployed for ERP, Facility Management or Vendor Management Systems ? Please provide details of integration protocol with all the 3 systems. Do they have exposed APIs to integrate?	As per the RFP. Details will be shared with the successful bidder
141.	82	CDE - Technical Specifications : Create Customizable forms for Health & Safety checklists, Quality Checklists, RFIs, etc.

Creating forms for capturing details of contractors/subcontractors progress, <u>resources consumed and time taken to produce Progress Reports, Non-conformance reports, Labour reports, etc.</u> | What type of Progress Reports, Non-conformance reports, Labour reports, etc are required please specify ? | As per the RFP. Details will be shared with the successful bidder and as mutually agreed by the Department. |
142.	12	Chapter 15 - Service Level Agreements (SLA)	Can Bidder propose OEM's standard global level SLA to MMRDA for review and acceptance?	As per RFP.
143.	44	2 Factor Authentication, login verification through Indian digital signatures i.e. DSC and Aadhar based authentication to prevent misuse of critical project information.	Will you allow pinged or Microsoft authenticator(MFA) ? which are robust and protects user privacy and misuse.	As per RFP.
144.	29	Create and add signatures, stamps, digital signature	Can you elaborate which file formats should support this requirement ?	As per the RFP. Details will be shared with the successful bidder

Sr No	Clause Number	Content of RFP Requiring Clarification	Change/ Clarification Requested	Response
		certificates, shapes, etc. for reviews.		
145.	7	Diagram Note: MMRDA is in process to implement various IT applications. The successful bidder should develop and integrate their application with third party applications. No additional cost will be paid for these integrations. All the SIs should mutually cooperate and ensure success of the project.	Diagram image is not clear, please provide a clearer picture.	Not Applicable
146.	27.1 (20)	Ability to select the option to acknowledge/reply mails and manage conversations	Is MMRDA expecting the 5D BIM system to have any integration with MMRDA's email client? Will collaboration through Issues/Forms suffice the requirement?	As per the RFP. Details will be shared with the successful bidder
147.		Important Date - Last date for Online Submission (13-08-2024 17:oo hrs IST)	Requesting to extend the date for online submission of tender for 1 month i.e., to 13-09-2024 17:00 hrs (IST).	Not Applicable
148.		Important Date - Last date of receipt of queries/clarification (30-07-2024 17:oo hrs IST)	Requesting to extend the date of receipt of queries/clarification for 2 weeks i.e., to 12-08-2024 17:00 hrs (IST) as the given time was not sufficient to evaluate the complete document.	Not Applicable
149.	22.13 (I)	Sr No 9 - Perpetual Licenses	Some OEMS do not provide any perpetual licenses for CDE. These are subscription and cloud base. Requesting you to remove this clause.	As per RFP.

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150.	9.2 Terms of Payment 1B	10 % of the total Project value	Request for 15 % of the total Project value	As per RFP.
151.		BIM will use third party application which will act as the electronic document management system (EDMS) for contract administration, work orders, transmittals, submittals document management, asset data, etc. It will be the main repository of information for MMRDA and will meet the Asset Information Management System requirements for tagging assets, creating hierarchies based on location, function, and class; and relating assets to each other.	It is understood by this statement that MMRDA already has an EDMS system as its main repository. Is this assumption correct? Is this system required to be integrated with IDDP ? If yes, Please provide details of this EDMS system along with any APIs or available integration protocols.	As per RFP.
152.	17.1.2; Technical Evaluation Criteria; Sl.No.1	The Bidder should have experience of completed or substantially completed a project that includes IT application / Enterprise GIS / DPMS and Project / Program Management with minimum value of INR 35 crores in the last 7 years implemented in any Central & State Govt. / Semi-Govt. / Urban Development agencies / PSU organization as on date of submission of bid.	Since the scoring is considered for a project value of minimum INR 50 Cr. We request the Authority to consider minimum project value of INR 50 Cr for a single project and to revise the clause as: The Bidder should have experience of completed or substantially completed a project that includes IT application / Enterprise GIS / DPMS and Project / Program Management with minimum value of INR 50 crores in the last 7 years implemented in any Central & State Govt. / Semi-Govt. / Urban Development agencies / PSU	**Revised Clause: Annexure 4**

Sr No	Clause Number	Content of RFP Requiring Clarification	Change/ Clarification Requested	Response
			organization as on date of submission of bid.	
153.	27.4.7 SIEM Service	5) The solution should be able to assign risk scores to your most valuable asset. The risk value could be assigned to a service, application, specific servers, a user or a group. The solution should be able to assign and consider the asset criticality score before assigning the risk score.	This is a feature of an Asset mangement solution. Hence requesting to remove the specifications from SIEM.	**DELETED.** Refer Annexure 5
154.	27.4.7 SIEM Service	6) The relative risk of each activity should be calculated based on values assigned by the Asset Administrator.	This is a feature of an Asset mangement solution. Hence requesting to remove the specifications from SIEM.	**DELETED.** Refer Annexure 5
155.	27.4.7 SIEM Service	28) The solution should support hierarchical structures for distributed environments. The solution should have capability for correlation of events generated from multiple SIEM(s) at different location in single management console.	Kindly provide us with the details regarding make and model of the SIEM solution present in different locations.	As per the RFP. Details will be shared with the successful bidder
156.	27.4.7 SIEM Service	37) The solution should support configurable data retention policy based on organization requirement.	Kindly requesting you to provide the details of the online and offline log retention. Kindly confirm whether the data retention policy is as per the CERT-IN mandate or if the organization has any other policies on the data retention.	As per the RFP. Details will be shared with the successful bidder
157.	27.4.7 SIEM Service	1) The solution should be able to handle events equal to the events handled by current system	Kindly provide us with the number of sustained as well as peak EPS to	As per RFP.

Sr No	Clause Number	Content of RFP Requiring Clarification	Change/ Clarification Requested	Response
			efficiently calculate the license requirements.	
158.	27.4.7 SIEM Service	73) The central management console/ Enterprise Security managers/receivers should be in high availability.	The current architecture relies on a specific layer focuses on a specific OEM that limits participation of other OEM's. Proposing an open architecture would allow for greater participation from a wider range of OEM's. Kindly requesting you to remove this clause.	As per RFP.
159.	27.4.7 SIEM Service	23) Solution should be able to specify the response procedure (by choosing from the SOPs) to be used in incident analysis/remediation.	Response and remediation to security incidents comes under the scope of of Security Automation and Orchastration response (SOAR). Kindly clarify if there is a requirement of SOAR solution to be proposed along with SIEM.	As per RFP.
160.	27.4.7 SIEM Service		Kindly provide us with the number of locations where the SIEM needs to be monitored.	As per the RFP. Details will be shared with the successful bidder
161.	8.2	Implementing the GIS Web Application i.e. Development of GIS Web Application Modules such as Land Acquisition Module Project Progress	Please provide detailed requirements and functionalities expected for each of the GIS Web Application Modules mentioned.	As per the RFP. Details will be shared with the successful bidder
162.	8.2	User Authentication and Authorization: Establish secure user authentication and authorization mechanisms	Can you specify the security standards and protocols to be followed for user authentication and authorization?	As per RFP.
163.	8.2	Visualize and monitor the project progress using GIS applications. GIS Based project monitoring.	Please explain features expected in this	As per the RFP. Details will be shared with the successful bidder
164.	8.2	Monitor various package locations and its varied activities performed	Please explain features expected in this	As per the RFP. Details will be shared with the successful bidder

Sr No	Clause Number	Content of RFP Requiring Clarification	Change/ Clarification Requested	Response
		by the contractors		
165.	8.2	During the operation and maintenance phase, System shall enable creation of polygon shapes within the GIS system and pull out all associated documents to that area.	What kind of Polygon will be created? What documents will be associated and how are expected to be available in System? Please clarify the workflow for this	As per the RFP. Details will be shared with the successful bidder
166.	5.3	Develop GIS Spatial Database with Level of Details, extraction of vectors data from CAD and Design Model of each component	The spatial database level of details will be based on the data provided by EPC Contractor in GIS ready format.	Revised Clause: The spatial databases levels of details will be based on the data provided by EPC contractor in GIS ready format.
167.	5.5	k) Conducting training programs / workshops for the department personnel as well as EPC Contractors, GC and any other project stakeholders.	What is the expected duration and frequency of the training sessions, and who are the target attendees?	As per the RFP. There will be 2 levels of training for application end users and application administrator on top of end users training. This will be conducted on Go-Live stage and post Go-Live respectively. However, bidder has to provide their training plan for smooth onboarding of users.
168.	4.2 Organizational Coverage; Note	Note: An indicative list has been mentioned above. However, any addition to the project list will be directed by MMRDA shall be included in the platform during the contract period. For the project scope of work, MMRDA has planned to consider all projects to carry out the implementation and support of	We acknowledge that MMRDA plans to consider all projects for the implementation and support of the Integrated Digital Delivery Platform. However we would like to highlight that in case of number of increase in users impacting to number of increase in licenses, there shall be an impact on the commercials and would like to request the Authority to reframe as:	As per the RFP.

Sr No	Clause Number	Content of RFP Requiring Clarification	Change/ Clarification Requested	Response
		Integrated Digital Delivery Platform. The project in scope will be proposed by MMRDA within stipulated time at start of the project. All ongoing and upcoming project related to all divisions under MMRDA will be covered under the scope of this System. The detailed scope of work will be worked out during the business blueprint process and signed off by department.	Note: An indicative list has been mentioned above. However, any addition to the project list will be directed by MMRDA shall be included in the platform during the contract period till the number of users are not changed. For the project scope of work, MMRDA has planned to consider all projects to carry out the implementation and support of Integrated Digital Delivery Platform. The project in scope will be proposed by MMRDA within stipulated time at start of the project. All ongoing and upcoming project related to all divisions under MMRDA will be covered under the scope of this System. The detailed scope of work will be worked out during the business blueprint process and signed off by department. **In case of increase in number of users/ licenses, the same shall be discussed and agreed mututally.**	
169.	27.4.3 General Cloud Requiremen t	6. The IT infrastructure should be hosted on Government Community Cloud.	The requirement mentioned on Page 100 says "SI shall be responsible for hosting the entire application and all ancillary in-scope applications on Virtual Private Cloud (VPC) or Government Community Cloud (GCC) from MeitY empaneled Cloud Service Providers (CSPs) only" but on page 321	As per the RFP.

Sr No	Clause Number	Content of RFP Requiring Clarification	Change/ Clarification Requested	Response
			GCC is mentioned as a compliance requirement. Please let us know whether CSPs with just VPC can qualify for the RFP. If just GCC is allowed all the hyperscalars won't be able to participate and hance limiting the department to be able to gain access to advanced servcies in domain of Big Data, AI/ML, IoT, DevOps, etc. Requesting clarification on this point	
170.	Clause 16.27,	Joint Venture/ consortium is not allowed for this RFP.	A consortium of up to three agencies shall be permitted to participate in this RFP.

Given the scope of the project, involving diverse technologies like 5D BIM, GIS, and LiDAR with their corresponding eligibility criteria, specialized expertise is essential. Allowing a consortium ensures the project benefits from the required skills and knowledge across these technologies | As per the RFP. |
| 171. | Clause 16.2, | Earnest Money Deposit (EMD) of INR 1,00,00,000/- (Indian Rupees One Crore only):

INR 1,00,000/- (Indian Rupees One Lakh only) by electronic transfer through MahaTender portal and . INR 99,00,000/- (Indian Rupees Ninety-Nine Lakhs only) by Bank Guarantee (Scanned copy to be uploaded) | The Earnest Money Deposit (EMD) shall be waived for MSME organizations participating in this tender.

As a specialized agency with vast experience in 5D BIM, VDC, CDE & and Digital Project Management operating successfully for the last 18 years and as an MSME, we request this adjustment to facilitate broader participation and | As per the RFP. |

Sr No	Clause Number	Content of RFP Requiring Clarification	Change/ Clarification Requested	Response
			ensuring fair competition. Many government tenders offer similar waivers for MSME organizations.	
172.	Clause 17.1.1 (5),	The Bidder shall have experience of 5D BIM Implementation of value 15 crores for an infrastructure Development Sector including Rail & Metro/ Road/ Water/ City Development/ Utilities project for any Central & state Govt./ Semi Govt./ PSUs in India or Globally in last 7 years as on Bid submission date.	The Bidder shall have experience in successfully completing a minimum of five nos. of 5D BIM implementation projects in infrastructure and construction sectors for each of the projects valuing more than Rs 500 crores, with certification of successful completion of the assignment issued by the client.

Most 5D BIM assignments in India have not yet reached this scale, as 5D BIM is a nascent technology in the country. The initial few notable implementations of 5D BIM large size projects were: 1. Nagpur Metro Rail project, and 2. The 3 projects of MSRDC, Mumbai. In these projects, the general industry perception has been that the overall 5D BIM implementation appeared to be extremely limited. As a result, there are very few vendors with actual experience in 5D BIM implementation for projects of this ticket size.

Focusing on the number of completed 5D BIM project assignment in | As per the RFP. |

Sr No	Clause Number	Content of RFP Requiring Clarification	Change/ Clarification Requested	Response
			sufficiently large size project assignments in diverse sectors provides a better & more accurate measure of a bidder's 5D BIM experience and capability.	
173.	22.13	Appendix F-13: Compliance to OEM Qualification Criteria III. OEM Criteria for Geographical Information System (GIS)		**DELETED**
174.	24.2	Annexure A Bid Price (Financial) Summary		**Revised Clause: Annexure 1**
175.	9.2	Terms of Payment		**Revised Clause: Annexure 2**
176.	17.1.1	Pre-Qualification Criteria: ENVELOPE 'A'		**Revised Clause: Annexure 3**
177.	17.1.2	Technical Evaluation Criteria: ENVELOPE 'A'		**Revised Clause: Annexure 4**
178.	27.4.3	General Cloud Requirement		**Revised Clause: Annexure 5**
179.	27	Functional Requirement	Addition of Design Functional Requirements	**Revised Clause: Annexure 5**

Annexures

Sr. No	Annexure	Topic
1	Annexure 1	Bid Price Financials
2	Annexure 2	Terms of Payment
3	Annexure 3	Pre-Qualification Criteria: ENVELOPE 'A'
4	Annexure 4	Technical Evaluation Criteria: ENVELOPE 'B'
5	Annexure 5	Functional Requirement (Changed Tables Only)

Annexure 1: Bid Price (Financial)

24.2 Annexure-A Bid Price (Financial): Summary

Sr. No.	Cost Component	Stage Cost				Total	Schedule
		Implementation	Operation & Maintenance			(in INR)	
		Y1	Y2	Y3	Y4	*(Excluding all taxes)	
	a.	b	c	d	e	g=b+c+d+e	h
1	**Owners Support Office (OSO)**						**Schedule A**
2	**License and ATS / AMC Cost:**						**Schedule B**
	CDE, 3D & 5D BIM system						
	Helpdesk system and any other relevant software						
3	**Implementation & Support Cost:**						**Schedule C**
	GIS based web application						
	Common Data Environment						
	Helpdesk & Facility Management						
	Any Other Item.						
4	**Cloud Hosting for 4 years**						**Schedule D**
5	Hardware						**Schedule E**
	Grand Total (Excluding Tax) (GT=A+B+C+D+E)						

Schedule A – Owner Support Office (OSO)

Sr. No.	Description *(to be quoted as per the defined scope of work mentioned)*	No of Resources	Year 1			Year 2			Year 3			Year 4			Total (in INR)
			Rate	Manmonth	Amount	Rate	Manmonth	Amount	Rate	Manmonth	Amount	Rate	Manmonth	Amount	
	a	b	c	d	e = b x c x d	f	g	h = b x f x g	i	j	k = b x l x j	l	m	n = b x l x m	r = e+ h+k+n
A	**OSO Cost**														
1	Engagement Director	1													
2	Program Manager	1													
3	Manager MIS Reporting	2													
4	OSO Lead	1													
5	Manager - Integration (across internal & external systems)	1													
6	Consultant - Risk, Governance, Compilance & Reporting	1													
7	Manager Project Controls	1													
8	Manager – Time & Program scheduling	1													
9	Project Co-ordinator	6													
10	Manager Change Management	1													

Sr. No.	Description *(to be quoted as per the defined scope of work mentioned)*	No of Resources	Year 1			Year 2			Year 3			Year 4			Total (in INR)
			Rate	Manmonth	Amount	Rate	Manmonth	Amount	Rate	Manmonth	Amount	Rate	Manmonth	Amount	
11	Remote Sensing / Aerial Survey Expert	1													
12	Customer Care Executive	4													
13	Support Engineer	1													
14	IT Support Executive	2													
15	Subject Matter Expert	1													
16	Digital Project Implementation Specialist	1													
17	5D BIM Specialist	1													
18	GIS & Imagery Expert	1													
19	Cloud Expert	1													
	Grand Total-A (Excluding Tax)														

Annexure 2: Terms of Payment

Sr	Project Stage / Payment Milestone	Timeline (Months)	Percentage Payment Stage
1	**Project Preparation**		
A	Finalisation of Project plan	T + 0.5	5 % of the total Project value
B	On submission and approval of Project Charter (Definition of Process and procedure, standards, Reporting structure, workflows, Detailed Project plan, Roles & Responsibilities etc.)	T + 1	10 % of the total Project value
2	**Establishment of OSO**		
A	On establishment of OSO & submission of monthly progress report of OSO activities and acceptance by MMRDA	T up to T+ 12	12 Monthly Equalled Instalment of the OSO Implementation cost for the year.
3	**Supply of Cloud Infrastructure**		
A	Delivery of cloud infrastructure.	T+2.5	50% of Cloud Hosting in CAPEX
B	Handover of cloud infrastructure with all configurations.	T+3	25% of Cloud Hosting in CAPEX
C	User Acceptance Testing (UAT) of cloud infrastructure and its related configurations.	T + 3.5	10% of Cloud Hosting in CAPEX
4	**Supply of Licenses**		
A	Supply of Software License of CDE Platform	T + 3	75% of license cost on submission of license activation proof in the name of MMRDA
			10% on User Acceptance Testing by Authority

Sr	Project Stage / Payment Milestone	Timeline (Months)	Percentage Payment Stage
B	Supply of Software License of 5D BIM	T + 3	75% of license cost on submission of license activation proof in the name of MMRDA
			10% on User Acceptance Testing by Authority
C	Supply of Software Licenses for Help Desk and any other relevant software license	T + 3	75% of license cost on submission of license activation proof in the name of MMRDA
			10% on User Acceptance Testing by Authority
5	**Supply of Hardware such as laptop, Printer, scanner. Supply of hardware for the Regional Office**		
A	Approval of hardware procurement Plan as per agreed specification	T + 1	35% of the Hardware cost of item
B	Supply of Hardware	T + 2	35% of the Hardware cost of item
C	Installation and commissioning of Hardware	T + 3	15% of the Hardware cost of item
6	**Implementation of Integrated Digital Delivery System (IDDP)**		
A	**Implementation of GIS Software**		
i	Requirement gathering as-is documentation, SRS finalization	T + 2	10% of GIS Implementation cost
ii	To-be solution mapping & sign-off	T + 4	20% of GIS Implementation cost
iii	GIS application development	T + 6	10% of GIS Implementation cost
iv	Integration of spatial data with Integrated Digital Delivery System (IDDP) Platform	T + 7	10% of GIS Implementation cost
v	Go-Live of GIS System	T + 8	25% of GIS Implementation cost

Sr	Project Stage / Payment Milestone	Timeline (Months)	Percentage Payment Stage
vi	After the Project Stabilization Stage	T + 12	10% of GIS Implementation cost
B	**Implementation of Common Data Environment (CDE)**		
i	Submission of Requirement Gathering (FRS) and System Requirement Specification (SRS)	T + 2	10% of the cost of the implementation of CDE
ii	Configuration of CDE Platform	T + 3	20% of the cost of the implementation of CDE
iii	Unit Testing, User Acceptance Testing, Core Team training	T + 4	20% of the cost of the implementation of CDE
iv	User Training and Go Live of CDE system	T + 7	15% of the cost of the implementation of CDE
v	Integration of CDE with the other IDDP application system	T + 8	5% of the cost of the implementation of CDE
vi	Integration Testing of CDE with the other IDDP application system and Go-Live	T + 9	5% of the cost of the implementation of CDE
vii	After the Project Stabilization Stage	T + 12	10% of the cost of the implementation of CDE
D	**Implementation of 5D BIM application**		
i	Finalization of business requirements of 5D BIM and definition of application landscape	T + 2	10% of the cost of the implementation of 5D BIM Platform
ii	Establishment of 5D BIM system	T + 3	20% of the cost of the implementation of 5D BIM Platform
iii	System configuration of 5D BIM	T + 4	10% of the cost of the implementation of 5D BIM Platform

Sr	Project Stage / Payment Milestone	Timeline (Months)	Percentage Payment Stage
iv	Integration of 5D BIM with ERP & other systems	T + 7	10% of the cost of the implementation of 5D BIM Platform
v	Use case & test case, Team training, UAT.	T + 8	20% of the cost of the implementation of 5D BIM Platform
vi	Go-Live of the 5D BIM system	T + 9	5% of the cost of the implementation of 5D BIM Platform
vii	After the Project Stabilization Stage	T + 12	10% of the cost of the implementation of 5D BIM Platform
E	**Implementation of Helpdesk system**		
i	Finalization of the business process, procedure, workflow and reporting for Helpdesk management	T + 4	20 % of Helpdesk management system implementation cost
ii	Implementation & Testing of the Helpdesk Management system	T + 7	40 % of Helpdesk management system implementation cost
iii	Go-live of helpdesk management system	T + 11	25 % of Helpdesk management system implementation cost
7	**OSO – O&M period**		
A	**On submission of monthly progress report of OSO activities and acceptance by MMRDA**	T + 13 up to T + 48	Equal monthly instalment for 3 Years of O & M Period
B	**ATS of Software Licenses – O&M Period**		
i	Common Data Environment (CDE) Platform		Yearly advance for 3 Years of O & M Period
ii	5D BIM		

Sr	Project Stage / Payment Milestone	Timeline (Months)	Percentage Payment Stage
iii	Help Desk and Any other relevant software		
C	**Cloud Infrastructure**		
D	**Integrated Digital Delivery System (IDDP) – O&M (Onsite & Off-site deployment)**		Equal monthly instalment for 3 Years of O & M Period
i	Geographical Information System (GIS)		
ii	Common Data Environment (CDE) Platform		
iii	5D BIM		
iv	Help Desk and Any other relevant software		
E	**Hardware warranty – O&M period**		Equal monthly instalment for 3 Years of O & M Period

Annexure 3: Pre-Qualification Criteria: ENVELOPE 'A'

A	ELIGIBILITY CRITERIA		
S. No	Basic Requirement	Specific Requirement	Documents Required
1	Legal Entity	Registered under Companies Act, 1956/2013, a limited company, a private limited company or a partnership firm registered under LLP Act, 2008 or a Public Service Unit. Registered with the Tax Authorities Shall have been in existence for the past 15 years.	Certificate of Incorporation/ Registration under Companies Act 1956 or 2013 or as amended from time to time. Partnership Firm registered under Partnership Act or Proprietorship Firm or LLP Act PAN Card, GST Registration Certificate Memorandum and Articles of Association
2	Net Worth	The Bidder shall have a positive Net Worth (the "Financial Capacity") in the last 3 (three) financial years 2020-21, 2021-22, 2022-23	Statutory auditor / Chartered Accountant's certificate of Bidder specifying the Net Worth for the specified period.
3	Turnover	Average Annual Turnover of bidder should be INR 70 Crores (Rupees Seventy Crore only) for the last 3 (three) financial years 2020-21, 2021-22, 2022-23 from IT/ITES.	Audited Financial Statement for Financial years 2020-21, 2021-22, 2022-23. Statutory auditor's / Chartered Accountant's certificate of the Bidder clearly specifying the Annual Turnover for the specified years.
4	Technical Capability (IT /ITES)	The Bidder should have experience of completed or substantially completed a project that **includes IT application / Enterprise GIS / DPMS and Project / Program Management** in the last 7 years implemented in any Central & State Govt. / Semi-Govt. / Urban Development agencies / PSU organization as on date of submission of bid. One project of IT Application with a project value of 50 crores, OR	Work Order and Client Experience Certificate/ Go-live Certificate /Other Supporting documents to justify completion of at least 60% overall project cost shall be submitted by the Bidder. Note: Unpaid pilot or Proof of Concept will not be acceptable.

A	ELIGIBILITY CRITERIA		
S. No	Basic Requirement	Specific Requirement	Documents Required
		At least two projects of IT Application with value of 42 crores, OR At least three projects of IT Application with value of 35 crores.	
5	Technical Capability (BIM)	The Bidder shall have experience of 5D BIM Implementation of value **15 crores** for an infrastructure Development Sector including Rail & Metro/Road/ Bridges/ Water/ City Development/ Utilities project for any Central & state Govt./ Semi Govt./ PSUs in India or Globally in last 7 years as on Bid submission date.	Work Order and Client Experience Certificate/ Go-live Certificate /Other Supporting documents to justify completion of at least 60% overall project cost shall be submitted by the Bidder. Note: Unpaid pilot or Proof of Concept will not be acceptable.
6	GIS Experience	The Bidder should have experience of designing / developing / maintaining COTS based Enterprise GIS Solution/ WebGIS Solution/ GIS Web Portal with minimum value of **INR 10 Crores** in the last 7 years in any Central & State Govt. / Semi-Govt. / Urban Development agencies / PSU organization as on date of submission of bid.	Work Order and Client Experience Certificate/ Go-live Certificate /Other Supporting documents to justify completion of at least 60% overall project cost shall be submitted by the Bidder. Note: Unpaid pilot or Proof of Concept will not be acceptable.
7	Data Acquisition Experience	The Bidder should have experience of at least 1 (one) project of minimum value **10 Crores** with data acquisition using Drone / LiDAR system along with associated data processing in the last 7 years in any Central & State Govt. / Semi-Govt. / Urban Development agencies / PSU organization as on date of submission of bid.	Work Order and Client Experience Certificate/ Go-live Certificate /Other Supporting documents to justify completion of at least 60% overall project cost shall be submitted by the Bidder. Note: Unpaid pilot or Proof of Concept will not be acceptable.
8	Integration Experience	The Bidder should have experience of implementing a single project having integration of Engineering data with at least 3 (three) of the following applications: a) BIM Implementation b) Business Analytics	Work Order and Client Experience Certificate/ Go-live Certificate /Other Supporting documents to justify completion of at least 60% overall project cost shall be submitted by the Bidder. Note: Unpaid pilot or Proof of Concept will not be acceptable.

A	ELIGIBILITY CRITERIA		
S. No	**Basic Requirement**	**Specific Requirement**	**Documents Required**
		c) GIS Systems d) ERP In the last 7 Years in for any Central & State Govt./ Semi Govt./ PSU organization as on date of submission of bid.	
9	Certification	The Bidder shall have an active CMMI- Level 5 or its higher version certification, as on date of submission of Bid.	Copy of the Valid Certificate(s) signed and stamped by the Authorized Signatory of the Bidder.
10	Debarment	The Bidder shall not be debarred/ Blacklisted by any Government body/ PSU in India or in their respective country of origin/incorporation as on date of submission of the Bid.	A Self Certified letter that the bidder (or any of its successor) is not in the active debarred list.
11	Manpower Strength	The bidder must have at least 100 full time technical resources on its full-time payroll in the domain of IT	Self-Certification by the authorized signatory with clear declaration of staff–year wise, level / designation wise.
12	MAF Compliance	The Bidder shall submit MAF from respective OEMs.	Copy of original (signed) Manufacturer's Authorization Forms (MAF) for all OEMs
13	OEM Compliance	The bidder must comply with all the checklist items mentioned under 'Annexure F-13: OEM Mandatory Compliance Criteria' for all the deliverables and functionalities mentioned.	Self-Certification by the authorized signatory confirming delivery compliance and any relevant documents as prescribed in Annexure F-13.

Annexure 4: Technical Evaluation Criteria: ENVELOPE 'B'

S. No.	Criteria	Basis for Evaluation	Max Marks	Supporting Documents
	BIDDER'S EXPERIENCE		60	
1	The Bidder should have experience of completed or substantially completed a project that includes IT application / Enterprise GIS / DPMS and Project / Program Management in the last 7 years implemented in any Central & State Govt. / Semi-Govt. / Urban Development agencies / PSU organization as on date of submission of bid.	Marks will be allocated to the Bidder as per the below criteria: 	Criteria	Marks
---	---
i. One project of IT Application with a project value of 50 crores,	5
ii. At least two projects of IT Application with value of 42 crores,	5
iii. At least three projects of IT Application with value of 35 crores.	5
iv. Any of the above-mentioned project in infrastructure development sector (Metro Rail/ Railway/ Road/ Bridges/ Flyover/ City Development/ Utilities) will be given additional 5 marks.	5	 **Note:** The Project shall be deemed substantial for Project Evaluation upon successful overall completion of the value mentioned or wherein the projects are deemed to have achieved completion till the Go-Live stage.	10	Work Order and Client Experience Certificate/ Go live Certificate /Other Supporting documents to justify completion of at least 60% overall project cost shall be submitted by the Bidder. **Note**: Unpaid pilot or Proof of Concept will not be acceptable.
2	The Bidder should have implemented/ substantially implementing proposed project consisting of 5D BIM Solution including CDE with minimum project value of INR 15 crores for any Central & state Govt./ Semi Govt./ PSUs in India in last 7 years as on Bid submission date.	Marks will be allocated to the Bidder as per the below criteria: 	Criteria	Marks
---	---
i. If the Project value>=INR 15 Cr	2
ii. If the Project value > INR 20 Crore	7
iii. If the above Project is in Infrastructure development sector (Metro Rail / Railway/ Road/ Bridges/ Flyover/ City Development/ Utilities), additional 3 marks will be given .	3		10	Work Order and Client Experience Certificate/ Go live Certificate /Other Supporting documents to justify completion of at least 60% overall project cost shall be submitted by the Bidder. **Note**: Unpaid pilot or Proof of Concept will not be acceptable.

		iii. Project in Infrastructure development sector (Metro Rail / Railway/ Road/ Bridges/ Flyover/ City Development/ Utilities) will be given additional 3 marks.			
3	The Bidder should have experience of designing, developing and maintaining COTS based Enterprise GIS Solution with minimum project executed value of INR 15 Crores for any Central & state Govt./ Semi Govt./ PSUs in India in last 7 years as on Bid submission date.	Marks will be allocated to the Bidder as per the below criteria: **Criteria** — **Marks** i. 1 (one) Project — 2 ii. 2 (two) to 4 (four) Projects — 6 iii. More than 4 (Four) projects — 12 iv. At least 1 Project in Infrastructure development sector (Metro Rail / Railway/ Road/ Bridges/ Flyover / City Development/ Utilities) will be given additional 3 marks — 3 **Note:** The Project shall be deemed substantial for Project Evaluation upon successful overall completion of the value mentioned or wherein the projects are deemed to have achieved completion till the Go-Live stage.		15	Work Order and Client Experience Certificate/ Golive Certificate /Other Supporting documents to justify completion of at least 60% overall project cost shall be submitted by the Bidder. **Note**: Unpaid pilot or Proof of Concept will not be acceptable.
4	The Bidder should have experience of implementing a single project having integration of Engineering data with at least 3 (three) of the following applications: a) BIM Implementation b) Business Analytics c) GIS Systems d) ERP For any Central & state Govt./ Semi Govt./ PSUs in India in last 7 years as on Bid submission date.	Marks will be allocated to the Bidder as per the below criteria: **Criteria** — **Marks** i. 1(one) Project executed value >= INR 30 Cr — 2 ii. 1(one) Project executed value > INR 35 Crore — 10 iii. At least 1 Project executed in Infrastructure development sector (Metro Rail / Railway/ Road/ Bridges/ Flyover / City Development/ Utilities) will be given additional 3 marks — 3 iv. If the project as described in iii above is Go-Live for more than 1 year then additional 2 marks — 2		15	Work Order and Client Experience Certificate/ Golive Certificate /Other Supporting documents to justify completion of at least 60% overall project cost shall be submitted by the Bidder. **Note**: Unpaid pilot or Proof of Concept will not be acceptable.

		Note: The Project shall be deemed substantial for Project Evaluation upon successful overall completion of the value mentioned or wherein the projects are deemed to have achieved completion till the Go-Live stage.			
5	The Bidder should have experience of at least 1 (one) project of minimum executed value 10 Cr with data acquisition using Drone / LiDAR system along with associated data processing in any Rail & Metro/Bridges/ Road/ Water/ City Development/ Utilities project for any Central & state Govt./ Semi Govt./ PSUs in India in last 7 years as on Bid submission date.	Marks will be allocated to the Bidder as per the below criteria: **Criteria / Marks table below**		10	Work Order and Client Experience Certificate/ Golive Certificate /Other Supporting documents to justify completion of at least 60% overall project cost shall be submitted by the Bidder. **Note**: Unpaid pilot or Proof of Concept will not be acceptable.

Criteria	Marks
i. 1(one) Project	2
ii. >= 3(Three) Project	5
iii. Bidder having ownership of Drone/LiDAR system	5

Note: The Project shall be deemed substantial for Project Evaluation upon successful overall completion of the value mentioned

	APPROACH & METHODOLOGY			**30**	
6	Approach & Methodology	**A&M parameters** / **Marks** (see below)		15	

A&M parameters	Marks
Understanding of ToR & Scope of Work	10
Information about Organization and Past Experience	1
Key Manpower, Skill sets,	1
Preparation of detailed implementation plan	1
Implementation & Integration approach	1
Data Migration approach	1

7	Presentation & demonstration in detail	Presentation focused on above point (Sr. No. 6) and fitment of the proposed solution as per MMRDA requirements to be made before MMRDA by Eligible Bidders. Date and time shall be informed later.		15	
	KEY RESOURCES DEPLOYEMENT			**10**	
8	Program Manager cum Team Leader	**Requirement**		3	
		Minimum Qualification			

		Graduate BE/ B.Tech. in Computer Science / IT / Electronics / Civil / Mechanical Engineering with Post Graduation in Management or Equivalent 0.5 Marks			
		Minimum Experience			
		>=15 years of Professional Experience 0.5 Marks			
		Requirement	**Marks**		
		Executed at least Two Similar projects in infrastructure / GIS / BIM / IT managed services / Application Development	1		
		Experience of handling IT infrastructure / application related complex project of worth INR 10 Crore	0.5		
		Experience on Govt / Semi Govt. / PSU projects	0.5		
9	**Subject Matter Expert**	**Requirement**		2	
		Minimum Qualification			
		Graduate BE/ B.Tech. in Computer Science / IT / Electronics /Civil /Mechanical Engineering with Post Graduation in Management or Equivalent 0.5 Marks			
		Minimum Experience			
		>=10 years of Professional Experience after completion of minimum qualification as specified above 0.5 Marks			
		Requirement	**Marks**		
		Executed at least Two Similar projects	0.5		
		Experience on Govt / Semi Govt. / PSU projects	0.5		
10	**Digital Project Implementation specialist**	**Requirement**		2	
		Minimum Qualification			

		Graduate BE/ B.Tech. in Computer Science / IT / Electronics / Civil /Mechanical Engineering with Post Graduation in Management or equivalent 0.5 Marks			
		Minimum Experience			
		>=10 years of Professional Experience after completion of minimum qualification as specified above 0.5 Marks			
		Requirement	**Marks**		
		Executed at least One Similar projects in Infrastructure Projects with IT Exposure	0.5		
		Experience on Govt / Semi Govt. / PSU projects	0.5		
11	5D BIM Strategy Specialist	**Requirement**		1.5	
		Minimum Qualification			
		Graduate BE / B. Tech. in Computer Science / IT / Instrumentation / Electronics / Civil / Mechanical Engineering / MBA / Masters with Specialization in BIM 0.5 Marks			
		Minimum Experience			
		>=10 years of Professional Experience 0.5 Marks			
		Requirement	**Marks**		
		Executed at least one Similar project in Infrastructure Projects for any State or Central Government or PSU with IT Exposure	0.5		
12	**GIS and Imagery Expert**	**Requirement**		**1.5**	
		Minimum Qualification			

		Graduate BE/ B. Tech. In Computer Science / IT / Electronics / Civil / Mechanical Engineering OR Post Graduate in Geospatial / Geography / Geology etc 0.5 Marks			
		Minimum Experience			
		>=10 years of Professional Experience after completion of minimum qualification as specified above 0.5 Marks			

Requirement	Marks
Executed at least one projects in GIS implementation for any State or Central Government	0.5

	Total			**100**	

Note: At least 50% of the proposed key resources should be on payroll of the bidder. Bidder should submit the professional tax certificate duly certified from the HR.

Annexure 5: Functional Requirements

27.1 5D BIM and CDE

5D Building Information Modelling

SI No.	Visual Construction scheduling, Construction Project Management and Cost	Compliance (Y/N)
1.	System should be able to handle powerful CPM scheduling system	
2.	Ability to track Budgeted quantity, change orders, revised scope of work, remaining work, Inspected quantity, Billed quantity within contract	
3.	Ability to do BIM-based planning	
4.	System should be able to produce Gantt chart and WBS view.	
5.	Ability to save multiple baselines	
6.	Ability to import all 3D model formats and all types of geometry data	
7.	Ability to generate BIM based progress records for monthly progress review	
8.	Ability to manage prime and subcontracts with the option of linking contract to Estimates, Schedules.	
9.	Advanced and customizable task and resource status analysis	
10.	Ability to Compare real project progress with the original schedule, and be visualized in the BIM model.	
11.	Ability to have Interoperability through .xml, .csv, or related file formats with industry-standard project scheduling systems to generate seamless 4D simulations	
12.	System should be accessible to be used through Cloud.	
13.	Ability to define rates against the resources to calculate costs	

SI No.	Visual Construction scheduling, Construction Project Management and Cost	Compliance (Y/N)
14.	Ability to consume file and create references to ensure that files are updated across different working spaces with newer versions coming up	
15.	Ability to provide resource Quantity / Cost utilization graphs and tables	
16.	Ability to record budgeted tasks against activities	
17.	Ability to generate detailed BIM Based Cost Estimation with resource requirements	
18.	Ability to do Quantity Take-Off directly from multi-disciplinary 3D BIM model and 2D CAD drawings with approved quantity	
19.	Visualization of Material Resource quantities; planned vs. actual; can be model data driven (e.g. cubic metres of concrete poured, tons of steel erected, number of isometrics, number of equipment, etc.).	
20.	Custom digital forms for Daily progress reports, Request for Inspections, health and Safety checklists, non-conformance reports, and other related documents.	
21.	Ability to add and manage resources (with different resource types) to the activities in construction schedules.	
22.	Ability to have data connectors to external Business Intelligence tools.	
23.	Ability to update actual dates of construction schedules, from mobile applications, with different levels of approval	
24.	Simulation of temporary works, access requirements for specific equipment/material installation or operations	
25.	Start-up/commissioning – visualization of the systems tested/not tested	
26.	Visualization of erection status at any given date(s) / creation of 'storyboard' snapshots	

SI No.	Visual Construction scheduling, Construction Project Management and Cost	Compliance (Y/N)
27.	Ability to do dynamic filtering	
28.	Ability to do dynamic reporting	
29.	Ability to do Visual safety planning	
30.	Ability to provide advanced 3D/4D models for customizable work simulation	
31.	Ability to see resource status simulation	
32.	Ability to embed digital documents within the tool	
33.	Ability to link external documents	
34.	3D/4D viewpoints, including camera settings, focus time, cutting planes	
35.	Ability to markups on 3D model and 4D model and ability to save the markups and viewpoint.	
36.	Ability to generate issues and look into them in an issue tracker list.	
37.	Ability to create high-quality rendering	
38.	Should have Mobile applications in Android, iOS, for Stakeholders to fill forms from Construction sites for all site correspondence and communication.	
39.	Ability to edit animations	
40.	Ability to manage revision of quantities with revision to design/3D BIM model ensuring change management.	
41.	Ability to evolve and use the project performance measuring technique, EVM (Earned Value Management) to provide accurate forecasts of project performance problems and analyze CPI & SPI	
42.	Ability to generate BIM based project dashboards configurable for user requirements	

SI No.	Visual Construction scheduling, Construction Project Management and Cost	Compliance (Y/N)
43.	Ability to deliver data on mobility devices	
44.	Ability to do User configurable BI and BIM based reporting system	
45.	Ability to report actuals in graphical 3D and report-based	
46.	Capable to integration of Multiple BIM Design Software (e.g. Revit, Tekla, Bentley, ArchiCad? as well as interoperable open IFC format.	
47.	Ability to detect and qualify the BIM Model, information extension possibility, check necessary attributes and construction related information	
48.	Ability to have Multi-Project, Multi user access, Multi user authorization, Multi currency and taxation features	
49.	Ability to perform productivity analysis	
50.	Ability to visualize available workfronts	

27.2 Geographical Information System (GIS)

S. No	Functional Requirement Specifications	Compliance (Y/N)
A	**Geographical Information System**	
1.	Feature of Publishing of the Map online	
2.	Tooltip display features on parcels, Rails, utilities etc.	
3.	Features to allow end users to click on individual feature and return a selected set of attributes for features from any or the entire accessed database	

S. No	Functional Requirement Specifications	Compliance (Y/N)
4.	Spatial analysis (Buffer, shape creation on map)	
5.	Separate windows for map data and database reports.	
6.	Simple and easy-to-use built-in tool to customize the user-interface in terms of menu items etc.	
7.	Thematic Map & legends display	
8.	Dashboard for at a glance information retrieving	
9.	Graphical charts reports for quick understanding	
10.	MIS reports module to view information in just a click	
11.	Display of current status of the land like acquired, under acquisition and to be acquired	
12.	Functionality to view Raster data on the web GIS map	
13.	Open source base map layer in the map background(OSM Layer)	
14.	Pan, zoom rectangle, previous zoom, next zoom, initial zoom, zoom in and zoom out tools for map.	
15.	Advance search for the registered users with multiple parameters combinations	
16.	User registration module with role assigning option to users	
17.	Separate access to functionality for role based users like view, update, administration, basic search on map etc.	
18.	Feature to Provide facility for users to register online with user name & password.	
19.	Buffer Analysis Module	

S. No	Functional Requirement Specifications	Compliance (Y/N)
20.	Distance Calculation for spatial data on map	
21.	Area calculation for spatial data on map	
22.	Functionality to view images or picture attached with spatial feature.	
23.	Function to locate Assets, Utilities on map	
24.	Query as per land area, width etc. parameters	
25.	Distance from approach track etc.	
26.	Provide functionality for SMS and Email alerts	
27.	User friendly UI for users to operate smoothly	
28.	Web GIS application deployable on cloud service	
29.	Photo uploading facility to upload photos	
30.	Master entry forms for data updating to the system	

27.4 Cloud

27.4.3 General Cloud Requirements

Sr.No	Functional Requirement Specification	Compliance(Y/N)
1.	The datacenter shall be at least an Uptime/TIA 942 certified Tier III datacenter providing 99.7% services availability SLAs	
2.	The datacenter shall be well equipped with physical, logical, network and infrastructure security solutions, access protection systems including physical access control, and shall maintain the logs of	

Sr.No	Functional Requirement Specification	Compliance(Y/N)
	the access.	
3.	The datacenter shall be well equipped with intrusion detection & protection systems, firewalls, system management solutions & tools, back-up & restore solutions, monitoring tools, network load balancer for applicable servers and network layer security to isolate MMRDA Web, App and DB environment	
4.	The datacenter shall have ability to scale up or down the servers/compute resources on-demand/ as desired without significant down time.	
5.	The compute infrastructure shall include the physical / virtual machines, operating systems, application servers, database server, anti-virus solutions and system management & back-up agents	
6.	The IT infrastructure should be hosted on Government Community Cloud/ Virtual Private Cloud	
7.	All the virtual machines should be auto scalable in terms of RAM and CPU.	
8.	The cloud platform should be enough intelligent to predict incoming load and assign resources to virtual machines dynamically without rebooting system.	
9.	Cloud provider should give MMRDA a dashboard of all virtual machines to monitor allocated and used resources by APPLICATION and associated applications.	
10.	Cloud dashboard should allow to generate reports for trend analysis of system usage.	
11.	Cloud Service Provider must be empaneled under MeitY (Ministry of Electronics and Information Technology) for the last 5 years with at least 2 data center.	
12.	CSP should have native managed services for open source relational DB's like MySQL & PostGreSQL as well as NoSQL databases (for all four - documents, key-value, widecolumn, and graphs)	
13.	CSP must provide financially backed SLAs. CSP should have to an active link to their public website confirming the same SLA for each service specific to India location.	
14.	CSP should have a public calculator link for creating and validating CSP list prices for all services. CSP should have to an active link to their public website confirming the same each service specific to India location.	
15.	CSP should have a marketplace for procuring third-party services e.g. databases, NextGen Firewall, Disaster recovery management software.	
16.	CSP should provide native security, network, monitoring services (NOT third party) including but not limited to DDoS, WAF, Network Firewall, EDR, Identity Management including PIM/PAM, IpSec VPN, Load Balancer, NAT Gateway etc.	
17.	The proposed cloud should have the facilities of self-service portal for self provisioning of cloud services including but not limited to compute (Virtual, App Services, Docker, Containers, Database), file storage, object storage, caching (CDN, etc.), networking (API Gateway, Load Balancer, NAT Gateway), Backup, Disaster Recovery (Replication, RPO, etc.), Monitoring	
18.	CSP must have below certificates ISO27001, ISO 27017, ISO 27018, PCI DSS, SOC 1,2 and 3	
19.	Cloud provider should offer license portability and support for Microsoft Products like Windows and MS	

Sr.No	Functional Requirement Specification	Compliance(Y/N)
	SQL	
20.	Object storage should be replicated across multiple DC's for better resiliency and should be designed for 99.99999999999999% (16 9's) durability.	
21.	CSP should offer a native, fully managed service to create and manage encryption keys. The native, fully managed key management service should be FIPS 140-2 complaint.	
22.	CSP should have capabilities for providing native Disaster Recovery Services (not third party). CSP should able to provide both DC-DR setup, and the administration & management console should be a single dashboard and not through multiple third party solutions to ensure consistency of security guidelines as well as faster failover.	
23.	CSP should have a minimum average turnover of INR 500 Cr for the last three financial years. FY-21, FY22, FY23 and positive average net worth of 100 Cr for the same duration.	
24.	Provide visibility into service via a single dashboard including DC-DR, network, security, compute, storage and managed databases.	
25.	Native Services for compute, storage, managed databases for SQL Server, MYSql, PostGres and MariaDB, Kubernetes clusters, application gateway, API management, Layer 4 & 7 Firewalls, Layer 4 & 7 Load balancers, native backup and DR replication tools.	
26.	The CSP should support both monthly subscription based PAYG licensing charged along with cost of VM as well as BYOL licensing for Windows Server Standard, RedHat and SQL server Enterprise so that the organization may choose the most optimal cost-based solution including use of existing licenses. Bidder to submit confirmation from respective OEM and CSP both regarding the above licenses.	
27.	The CSP should provide CSP provided images for VMs based on Windows Server, SQL Server, RHEL and OSS Linux options like Ubuntu with options for per hour and per month billing both in Pay- As-You-Go and BYOL options. CSP needs to provide standard support for the above OS as a part of the CSP standard offering. Public reference from RHEL and Microsoft needs to be provided for the same.	
28.	Native security tools from the cloud CSP (no third party) for WAF, DDoS, Network Firewall, EDR, encryption at rest and transit using customer owned keys via cloud native service for managed HSM as a service and Layer 4 and 7 firewalls.	
29.	CSP must have Native tools for DC-DR replication, backup with a single dashboard to manage and monitor the entire infrastructure including DC-DR replication and backup status.	

27.4.7 SIEM Service

#	SIEM Description	Compliance (Y/N)
1.	The solution should be able to handle events equal to the events handled by current system	
2.	The solution should be scalable by adding additional receivers and still be managed through a single, unified security control panel.	
3.	The solution should be capable of real time analysis and reporting.	
4.	The platform should not require a separate RDBMS for log collection, web server or any kind of application software for its installation.	
5.	The activities should be separated by levels of risk for the company: very high, high, medium, low and very low.	
6.	The SIEM receiver/log collection appliance must be an appliance-based solution and not a software-based solution to store the data locally, if communication with centralized correlator is unavailable.	
7.	The solution should be able to collect logs via the following ways as inbuilt into the solution: Syslog, OPSec, agent-less WMI, RDEP, SDEE, FTP, SCP, External Agents such as Adiscon.	
8.	The solution should provide a data aggregation technique to summarize and reduce the number of events stored in the master database.	
9.	The solution should provide a data store which is compressed via flexible aggregation logic.	
10.	The data collected from the receiver should be forwarded in an encrypted manner to SIEM log storage.	
11.	The solution should provide pre-defined report templates. The reports should also provide reports out of the box such as ISO 27002.	
12.	The solution should provide reports that should be customizable to meet the regulatory, legal, audit, standards and management requirements.	
13.	The solution should also provide Audit and Operations based report, Native support for Incident management workflow.	
14.	The solution should have single integrated facility for log investigation, incident management etc. with a search facility to search the collected raw log data for specific events or data.	
15.	A well-defined architecture along with pre and post installation document need to be shared by the bidder.	
16.	The solution should have a scalable architecture, catering multi-tier support and distributed	

#	SIEM Description	Compliance (Y/N)
	deployment.	
17.	The solution should support collection of events/logs and network flows from distributed environment(s).	
18.	The solution should correlate security/network events to enable the SOC to quickly prioritize its response to help ensure effective incident handling	
19.	The solution should integrate asset information in SIEM such as categorization, criticality and business profiling and use the same attributes for correlation and incident management.	
20.	The solution should provide remediation guidance for identified security incident:	
21.	Solution should be able to specify the response procedure (by choosing from the SOPs) to be used in incident analysis/remediation.	
22.	The solution should facilitate best practices configuration to be effectively managed in a multi-vendor and heterogeneous information systems environment.	
23.	The solution should provide capability to discover similar patterns of access, communication etc. occurring from time to time, for example, slow and low attack.	
24.	The solution should perform regular (at least twice a year) health check and fine tuning of SIEM solution and should submit a report.	
25.	The solution should share the list of out of the box supported devices/log types.	
26.	The solution should support hierarchical structures for distributed environments. The solution should have capability for correlation of events generated from multiple SIEM(s) at different location in single management console.	
27.	The event correlation on SIEM should be in real time and any delay in the receiving of the events by SIEM is not acceptable.	
28.	The solution should support internal communication across SIEM- components via well-defined secured channel.	

#	SIEM Description	Compliance (Y/N)
	UDP (User Datagram protocol) or similar ports should not be used.	
29.	Event dropping/caching by SIEM solution is not acceptable and same should be reported and corrected immediately.	
30.	The solution should be able to facilitate customized dashboard creation, supporting dynamic display of events graphically.	
31.	The solution should be able to capture all the fields of the information in the raw logs.	
32.	The solution should support storage of raw logs for forensic analysis.	
33.	The solution should be able to integrate logs from new devices into existing collectors without affecting the existing SIEM processes.	
34.	The solution should have capability of displaying of filtered events based on event priority, event start time, end time, attacker address, target address etc.	
35.	The solution should support configurable data retention policy based on organization requirement.	
36.	The solution should provide tiered storage strategy comprising of online data, online archival, offline archival and restoration of data. Please elaborate on log management methodology proposed.	
37.	The solution should compress the logs by at least 70% or more at the time of archiving.	
38.	The solution should have capability for log purging and retrieval of logs from offline storage.	
39.	Solution should be capable of replicating logs in Synchronous as well as Asynchronous mode for replication from Primary site to DR site.	
40.	The solution should provide proactive alerting on log collection failures so that any potential loss of events and audit data can be minimized or mitigated.	

#	SIEM Description	Compliance (Y/N)
41.	The solution should provide a mechanism (in both graphic and table format) to show which devices and applications are being monitored and determine if a continuous set of collected logs exist for those devices and applications.	
42.	The solution should support automated scheduled archiving functionality into file system.	
43.	The solution should support normalization of real time events.	
44.	The solution should provide a facility for logging events with category information to enable device independent analysis.	
45.	The platform should be supplied on Hardened OS embedded in Hardware/ Virtual Appliance. The storage configuration should offer a RAID configuration to allow for protection from disk failure.	
46.	The platform should have High Availability Configuration of necessary. SIEM components to ensure there is no single point of failure. Please describe the architecture proposed to meet this requirement.	
47.	By default, at the time of storage, solution should not filter any events. However, solution should have the capability of filtering events during the course of correlation and report generation.	
48.	The solution should ensure the integrity of logs. Compliance to regulations should be there with tamper-proof log archival.	
49.	The solution should be able to continue to collect logs during backup, de- fragmentation and other management scenarios.	
50.	The solution should support collection of logs from all the devices quoted in RFP.	
51.	The collection devices should support collection of logs via the following but not limited methods:	
	1. Syslog over UDP / TCP	
	2. SNMP	
	3. ODBC (to pull events from a remote database)	

#	SIEM Description	Compliance (Y/N)
	4.　FTP (to pull a flat file of events from a remote device that can't directly write to the network)	
	5.　Windows Event Logging Protocol	
	6.　NetBIOS	
52.	The solution should support all standard IT infrastructure including Networking & Security systems, OS, RDBMS, Middleware, Web servers, Enterprise Management System, LDAP, Internet Gateway, Antivirus, and Enterprise Messaging System, Data loss prevention (DLP), etc.	
53.	The solution should have the ability to define various roles for SIEM administration, including but not limited to: Operator, Analyst, SOC Manager etc. for all SIEM components.	
54.	The solution should support SIEM management process using a web- based solution.	
55.	The solution should support the following co- relation: • Statistical Threat Analysis - To detect anomalies. • Susceptibility Correlation - Raises visibility of threats against susceptible hosts. • Vulnerability Correlation - Mapping of specific detected threats to specific / known vulnerabilities. • Rules based Correlation - The solution should allow creating rules that can take multiple scenarios like and create alert based on scenarios.	
56.	Solution should have capability to correlate based on the threat intelligence for malicious domains, proxy networks, known bad IP's and hosts.	
57.	The solution should provide ready to use rules for alerting on threats e.g., failed login attempts, account changes and expirations, port scans, suspicious file names, default usernames and passwords, High bandwidth usage by IP, privilege escalations, configuration changes, traffic to non-standard ports, URL blocked, accounts deleted and disabled, intrusions detected etc.	
58.	The solution should support the following types of correlation conditions on log data: a)　One event followed by another event b)　Grouping, aggregating, sorting, filtering, and merging of events. Average, count, minimum, maximum threshold etc.	
59.	Solution should provide threat scoring based on: a)　Host, network, priority for both source & Destination	

#	SIEM Description	Compliance (Y/N)
	Real-time threat, event frequency, attack level etc.	
60.	The solution should correlate and provide statistical anomaly detection with visual drill down data mining capabilities.	
61.	The solution should have the capability to send notification messages and alerts through email, SMS, etc.	
62.	The solution should support RADIUS and LDAP / Active Directory for Authentication.	
63.	The solution should provide highest level of enterprise support directly from OEM.	
64.	The solution should provide a single point of contact directly from OEM for all support reported OEM.	
65.	The solution should ensure continuous training and best practice updates for onsite team from its backend resources.	
66.	Solution should support log integration for IPv4 as well as for IPv6.	
67.	Solution should provide inbuilt dashboard for monitoring the health status of all the SIEM components, data insert / retrieval time, resource utilization details etc.	
68.	Solution should support at least 100 default correlation rules for detection of network threats and attacks. The performance of the solution should not be affected with all rules enabled.	
69.	The central management console/ Enterprise Security managers/receivers should be in high availability.	
70.	24/7 extensive monitoring of the cloud services and prompt responses to attacks and security incidents	
71.	Recording and analyzing data sources (e.g., system status, failed authentication attempts, etc.)	
72.	24/7 contactable security incident handling and troubleshooting team with the authority to act	

#	SIEM Description	Compliance (Y/N)
73.	Obligations to notify the customer about security incidents or provide information about security incidents potentially affecting the customer	
74.	Provision of relevant log data in a suitable form	
75.	Logging and monitoring of administrator activities	

27.5 Desktop Design

Sr. No	Functional Requirement Specification	Compliance (Yes/No)
1	**Design Track Geometry**	
2	**Place tracks**	
3	Follows rail standards; class, design speed, default curve radius, transition lengths	
4	Automatic cant application (cant equation)	
5	Best fit existing ground vertically or create a straight vertical alignment	
6	Template (typical cross-section) based approach	
7	Named tracks	
8	**Place multitracks**	
9	Select different templates	
10	Input offset between track	
11	Tracks work together, any edit done to main geometry updates the tracks	
12	Track geometries can also be individually modified	
13	**Editing of horizontal alignment**	
14	Insert PI, delete PI, move PI	
15	Edit curve radius graphically or precisely using heads-up text editing	

Sr. No	Functional Requirement Specification	Compliance (Yes/No)
16	**Editing of vertical alignment**	
17	Insert PVI, Delete PVI, Move PVI	
18	Edit vertical curve length and slope graphically or precisely using heads-up text editing	
19	**Template drop editing**	
20	Easy editing of template drops and stationing	
21	**Design Yard/Station Areas**	
22	Yard placement tool to create level ground elevations	
23	Select different templates with different widths	
24	Create offset geometries	
25	User defined offset values, follow vertical geometry	
26	Precise turnout definitions	
27	Extensive turnout library	
28	Crossing angles and defined turnout geometries	
29	Does not allow creation of arbitrary geometries	
30	Modify turnout locations	
31	Automatic snapping, horizontally and vertically	
32	Snapping to turnout geometries	
33	Snapping to end of track geometries	
34	Fit turnouts	
35	Fit turnouts to geometry intersections	
36	Creates precise turnouts, does not allow creation of arbitrary geometries	
37	Create crossovers	
38	Automatic placement of turnouts	
39	Separate start and end turnout definitions	
40	**Design Overhead Line Systems**	
41	**Place masts**	
42	Mast placement based on design standards	

Sr. No	Functional Requirement Specification	Compliance (Yes/No)
43	User-selected offset values	
44	Span lengths are based on horizontal curvature and design tables	
45	**Place portals**	
46	Portal placement based on design standards	
47	Tracks that will be electrified can be selected	
48	Automatic placement of cantilevers based on track geometries	
49	**Create cantilevers**	
50	Single and double cantilevers	
51	Automatic selection of push-pull configuration based on geometry and offset	
52	**Create Wires**	
53	Automatic wire creation	
54	Catenary, contact, and dropper wires	
55	Library-based encumbrance and stagger values	
56	**Overlaps**	
57	Maximum wire length input, automatic creation of wire overlaps	
58	Different overlap definitions for straight and curved sections	
59	Library based overlap definitions	
60	Manual overlap placement and removal	
61	**Edit overhead line items**	
62	Change offset and station of the masts and portals	
63	Change the selected mast and cantilever definition, push-pull configuration	
64	Automatic update of structures upon geometry modifications	
65	**Place Rail Signals**	
66	Place railway signals using provided library	
67	**Place Rail Signals**	

Sr. No	Functional Requirement Specification	Compliance (Yes/No)
68	Place railway signals using provided library	
69	**Assemble Context Data**	
70	**Import the following file types:**	
71	Terrain Models (.DTM, .TIN)	
72	Raster DEM (.IMG, .DEM)	
73	Images (Ingr. TIFF / GEOTIFF (*.tif; *.tiff), Internet TIFF and TIFF64 (*.Itiff; *.itiff64), JPEG (*.Jpg; *.jpeg; *.jpe; *.jfif), JPEG 2000 (*.jp2; *.j2k; *.jpm), MrSID (*.sid), ERMapper Compressed Wavelets (*.ecw))	
74	GIS (SHP, Esri File Geodatabase, OpenStreetMap) can be mapped to ConceptStation objects and attributes	
75	Filter based on project extent, view, all, fence »» DGN as read-only	
76	**Reference Reality Meshes (.3MX) from Bentley's ContextCapture**	
77	**Reality Data Services**	
78	3D data (Terrain, Imagery, Roads, Rail, Hydro, Buildings)	
79	**Design Bridges**	
80	**Place bridges**	
81	Simple two clicks bridge placement	
82	Number of supports automatically determined from the bridge length	
83	Can set girder type, support type, abutment type, wing walls	
84	Can set bridge deck template	
85	**Edit bridges**	
86	Simple editing of Horizontal and Vertical	
87	Change girder type, support type, abutment type, wing walls	
88	Change number of spans/supports, number of girder	
89	Rotate supports, move/skew abutment	

Sr. No	Functional Requirement Specification	Compliance (Yes/No)
90	**Design Tunnels**	
91	**Place tunnels**	
92	Simple two-clicks tunnel placement, using 3D or profile view	
93	Tunnel template automatically determined from the track template	
94	Creates entrance and exit portals	
95	**Edit tunnels**	
96	Simple editing of horizontal and vertical	
97	Buffer lengths	
98	Portal grading and offset	
99	**Railway Template**	
100	**Create new template**	
101	Easy component-based creation	
102	Ballast and rail components	
103	Component material determines quantities and cost	
104	**Manage template**	
105	Duplicate, delete, copy/paste, rename	
106	**Modify template**	
107	Save change as copy	
108	Modify the entire design	
109	**Estimate Cost and Quantities**	
110	**Project cost overview**	
111	High level overall design cost	
112	Includes allowance by default	
113	**Detailed quantities/cost, listing cost items, and associated quantities for rail track and overhead line equipment**	
114	Cut, fill, and ballast quantities	
115	Tunnel length, volume, and bridge	
116	Masts, portals based on types	

Sr. No	Functional Requirement Specification	Compliance (Yes/No)
117	Single and double cantilevers	
118	Wire quantities	
119	**Interoperability with Detailed Civil Design**	
120	**Export to OpenRail**	
121	Export ALG, IRD, ITL, TIN	
122	Supports geometry, template, template drop transition	
123	**Export CAD model**	
124	3D DGN model	
125	**Place City Furniture**	
126	**Place and edit guardrails**	
127	Ability to choose what symbol to use	
128	Ability to set offset from alignment	
129	Ability to set angle from alignment	
130	**Place and edit streetlights and other city furniture**	
131	Ability to choose what symbol to use	
132	Ability to set offset from alignment	
133	Ability to set angle from alignment	
134	**Aerial Imageries**	
135	Bing Map as images provider	
136	**Visualization**	
137	Real-time rendering	
138	Automatic train animation	
139	Adding cars, people, trees	
140	Changing atmospheric conditions, time (day, night), seasons	
141	Output high-end images, videos, and LiveCube (LumenRT)	
142	**Integrated CAD Capabilities**	
143	Integrate data with OpenRail ConceptStation, MicroStation, ProjectWise, OpenBridge Modeler, OpenBuildings Designer, and other Bentley applications	

Sr. No	Functional Requirement Specification	Compliance (Yes/No)
144	Support for managed workspaces	
145	Works across references files	
146	Include other engineering data (e.g. drainage) as referencing it to the DGN model	
147	Utilize an unlimited number of federated reference files	
148	Create and edit CAD elements	
149	Read and write to DGN and DWG files	
150	Supports design history	
151	Apply digital signatures using industry-standard encryption	
152	Secure digital rights definition for reviewing, printing, and editing	
153	Supports multiple raster formats	
154	Supports PostScript and HPGL2/RTL printing	
155	Use AccuDraw and AccuSnap navigation tools	
156	Track annotation	
157	Contour maps: • Import and analyze point-cloud data • Merge surfaces automatically • Update surface data dynamically	
158	**Terrain Modeling**	
159	Create intelligent, data-rich and lightweight terrain models	
160	No need for secondary terrain analysis to represent the terrain display. Includes context sensitive re-symbolization for triangles, contours, linear features, slope vectors, color code for slopes, elevation banding, and aspect	

Sr. No	Functional Requirement Specification	Compliance (Yes/No)
161	Create terrain models from a variety of import sources: • Reality models • 3D graphical data automatically using graphicalfilters • ASCII/text data • Legacy data formats of InRoads, GEOPAK, and MX • Point clouds • LandXML • LiDAR data: ASCII and LAS • USGS digital elevation model data • Aerial data • Raster files	
162	Ensure live, federated, and intelligent terrain models when stored as a DGN element	
163	Maintain terrain models through the preservation of relationships to source data	
164	Ensure correct entry with undo/redo capabilities	
165	Standardize displays via element templates	
166	Use across multiple disciplines via reference files in a comprehensive modeling environment	
167	Re-symbolization of display across multiple disciplines using a comprehensive modeling environment	
168	Control maximum length of triangles	
169	Control boundary conditions	
170	Create complex and clipped terrain models	
171	Interrogate the intelligent data rich 3D models	
172	Support for different features types including but not limited to boundaries, holes, voids, breaklines, inferred breaklines, and random points	

Sr. No	Functional Requirement Specification	Compliance (Yes/No)
173	Model intelligent 3D real-world civil features (ditches, curbs, trees, and culverts)	
174	Context-sensitive intelligent editing of features	
175	Dynamic editing for: • Extend, trim, and intersect features • Insert, move, and delete vertices • Delete, partially delete, break, or join features	
176	Manage large LiDAR datasets	
177	Exclude non-DTM features from triangulation	
178	Control density of points on linear features for optimal surface presentation	
179	Display cut and fill delineation	
180	View and edit feature properties	
181	Contour smoothing	
182	Major, minor, and depression contours	
183	Automatic and manual contour labelling	
184	**Core Modeling**	
185	Model multiple design scenarios	
186	Edit designs dynamically	
187	Automatic model updates driven by design intent	
188	Design time visualization with automatic material assignments	
189	Undo/redo capabilities	
190	Interactively interrogate federated 3D models with dynamic cross sections	
191	Manage 2D/3D models and display representation	
192	Rule-based superelevation control of the model	
193	Use enhanced clipping and point controls	
194	Integrate and utilize CAD graphical elements in the model	
195	Create model reports dynamically	

Sr. No	Functional Requirement Specification	Compliance (Yes/No)
196	Generate plan ready cross sections	
197	Utilize WYSIWYG features – control display of cross sections by simply turning on/off reference files	
198	Adheres to regional design standards	
199	**Corridor Modeling**	
200	Edit designs dynamically	
201	Blend horizontal and vertical geometry with 3D topography and typical sections	
202	Assign component control points to existing or designed features and geometry, controlling horizontal and/or vertical location	
203	Assign automatic overrides	
204	View plan, 3D model, profile, and cross section interactively	
205	Provides heads-up dynamic, interactive parametric design	
206	Level of detail user definable output	
207	Surface priority definable by target aliasing	
208	Transition among disparate templates	
209	Apply exceptions for bridges, voids, and special end conditions	
210	Clip model capability	
211	Edit stations dynamically	
212	Apply superelevation text tables, customizable calculations, or AASHTO standards	
213	Allows dynamic editing of superelevation	
214	Assists problem resolution through intelligent color coding of transitions, and super runout	
215	Component meshes provide direct volumetrics from the 3D model based on level of detail	
216	Reflect edits automatically in quantities and volumes	
217	Control component display via rules	

Sr. No	Functional Requirement Specification	Compliance (Yes/No)
218	**Subsurface Utilities**	
219	3D modeling	
220	Create 3D utility model relative to topography and alignments	
221	Support interconnected network of pipes, curved pipes, channels, culverts, manholes, pumps, catch basins, and inlets	
222	Create associative and dynamic model-based designs	
223	Create storm, sanitary, or combined hydraulic networks	
224	Build utility models directly from survey data	
225	Identify graphics as utilities and drape relative to DTM	
226	Display all network and utility objects in sections and profiles	
227	Display as realistic 3D models for effective collaboration	
228	Identify conflicts among utility elements as well as among utilities and other 3D data	
229	Label all attributions in any view or include in user-defined reports	
230	Create user-defined attributes for any required data	
231	Draw 3D models of utility structures as full 3D shapes for easy clash detection	
232	Hydraulic design and analysis	
233	Analyze and design using industry-standard theorems such as Mannings, Colebrook-White, Bernouli, and continuity equations	
234	Analyze and design based upon HEC 22, FHWA, HDS 5, 10, 13, Rational Method, Wallingford Procedure, and regression equations	
235	Analyze and design using steady state gradually varied flow, and run simulations using unsteady state time-varying flow	
236	Compute Tc using methods such as TR-55, HEC-22, and Kinematic Wave	

Sr. No	Functional Requirement Specification	Compliance (Yes/No)
237	Compute losses using methods such as SCS CN, Green and Ampt, Horton, Initial, and Constant Rate	
238	Compute runoff using methods such as Rational, Modified Rational, ILSAX, SCS, and Unit Hydrograph	
239	Use demand and demographic tables	
240	Supports infiltration, population, peaking factors, and land usage	
241	Compute or specify flows	
242	Define custom intensity-duration-frequency tables	
243	Generate drainage queries and customized reports	
244	Color code based upon queries or styles	
245	Calculate pond volumes	
246	Create input and output hydrographs	
247	Design inlet and outlet control structures	
248	Use PondMaker for inflow/ storage/outflow optimization	
249	**Plan, Profiles and Cross Sections**	
250	Create/generate plan, cross sections and profiles along alignments, graphics, or between points	
251	Create directly from 3D model and supports federated multidiscipline models	
252	Include vertical alignments and existing and proposed surfaces	
253	Automatic user-defined annotation of points and segments	
254	Additional annotation tools available for one-offs	
255	Cut cross sections orthogonally or at skew	
256	Create custom cross sections	
257	Dynamic update for cross sections and profiles via referencing	
258	**Quantity Management**	
259	Extraction of quantity take-offs for estimating	
260	Element pay item attribution	

Sr. No	Functional Requirement Specification	Compliance (Yes/No)
261	Report quantities by entire project or delineate by sheets, stations, area, or phase	
262	Generate linear, area, and volume quantities	
263	Modify sample reports or create custom reports through XML style sheets	
264	ODBC link capable for fully customizable reporting	
265	**Visualization**	
266	Walk/drive through interactively or along a defined path or corridor	
267	Visualize paths through the project relative to design control by offsets and vehicle speeds	
268	Predefined materials applied to components enabling realistic rendering	
269	Position sun for geographically defined locations to ensure realistic shadow patterns	
270	Animate vehicles in traffic lanes without additional software	
271	Populate 3D objects along linear paths and within designated areas	
272	Apply traffic paint striping plans to the 3D model	
273	Use sample vehicle library and plantings	
274	Image draping on DTM or 3D objects	
275	MicroStation®-based rendering	
276	Real-life textures	
277	Lighting effects	
278	Elevation and perspectives	
279	Creation of fly-throughs and animations	
280	Creation of 3D PDFs	
281	Support for engineering data, point cloud, reality meshes	

Sr. No	Functional Requirement Specification	Compliance (Yes/No)
282	Seamless integration with LumenRT for real-time, immersive presentations	
283	Solar and shading analysis	
284	**Reporting and Project Deliverables**	
285	Live documentation capable	
286	Automate project delivery process with drafting and drawing preparation tools	
287	User definable annotation tools for plan, profile, and section labeling	
288	Extract sections, drawings, and reports directly from completed 3D model	
289	Automate sheet generation for plans, profiles, and cross sections	
290	Select from more than 550 included report formats	
291	Modify included reports easily in any text or XML editor	
292	Provide standard reports for bridges, superelevation, clearances, data collection, geometry, sections, DTM, legal descriptions, design, visibility, and more	
293	Compute volumes by surface to surface (triangulated surface comparison)	
294	Compute volumes by 3D objects	
295	**Publishing**	
296	Export directly to machine guidance	
297	Supports iModel creation (includes 2D and 3D geometry and business data)	
298	Support industry standards, such as LandXML	
299	Export alignments, surfaces, and other pertinent design information to other systems via XML	
300	Generate PDFs and 3D PDFs	

Sr. No	Functional Requirement Specification	Compliance (Yes/No)
301	Direct plotting	
302	Integrate with Google Earth	
303	**Integration with Bentley Content Management and Publishing Solutions**	
304	Component-level integration with ProjectWise for collaborative design and engineering project management	
305	Integration with ProjectWise InterPlot for automated plot set generation and web-based access to plot archives	
306	Integration with Bentley® Navigator for design review, construction simulation, or automated clash resolution	
307	Geotechnical integration	
308	Directly interface with gINT database	
309	Visualize and annotate borings in 2D	
310	Visualize and annotate borings with separate strata in 3D	
311	Create subsurface terrains from boring data	
312	**Rail Modeling Specialist Rail Geometry**	
313	Support for rail geometry definitions: Clothoid, Cubic Parabola, Bi-quadratic Parabola, Bloss, Sinusoid, and Cosine	
314	Support for rail transitions defined transition length or the spiral constant	
315	**Turnouts**	
316	Single, Double, Diamond Crossings, Single Slip, Double Slip	
317	Built in Libraries; Austria, Germany (heavy and light rail), Holland, India, Italy, Russia, South Africa, Spain, Switzerland, United Kingdom,, United States, and Canada	
318	Custom libraries can be defined	
319	Turnout application on curves, turnout bending	
320	Rule based application, automatic healing of geometry and connections	

Sr. No	Functional Requirement Specification	Compliance (Yes/No)
321	Easy design of complex connections and geometries with civil geometry	
322	**Regression**	
323	Least squares method to calculate best-fit alignments	
324	Dynamic regression analysis	
325	Automatic sorting of point readings	
326	Horizontal and vertical regression	
327	Curvature diagram to help users identify curves, tangents, and spirals	
328	Convert rail readings to centreline, calculate existing vertical and cant	
329	Easy selection tools for regression points both on plan and curvature view	
330	Automatic placement of spirals	
331	**Speed Tables**	
332	Speed tables, speed assignment for different sections of the track	
333	Speed transitions	
334	Alternative speed selection; commuter rail, freight rail, express…	
335	Automatic or manual creation, based on geometry and design standards	
336	**Cant**	
337	Cant calculation; equilibrium cant, applied cant, cant deficiency, rate of change of applied cant, rate of change of cant deficiency, and cant gradient	
338	Cant diagram	
339	Automatic identification of design problems	
340	Virtual transitions	

Sr. No	Functional Requirement Specification	Compliance (Yes/No)
341	**Rail/Sleeper Calculation**	
342	Precise rail calculations based on curvature and cant	
343	Track widening application	
344	Rail joints	
345	Sleeper placement, long sleepers on turnout areas	
346	**Swept Envelope Analysis**	
347	Custom train definitions, with articulation and bogie definitions	
348	Swept envelope using curvature and cant values	
349	3D representation of envelope for clash detection	
350	2D projection of swept envelope	
351	**Overhead Line Electrification**	
352	Design rules and geometry based calculations to determine foundation locations	
353	Span equation and span lookup tables	
354	3, 4, 5 span overlap definitions. Insulated, uninsulated overlaps and natural sections	
355	Simple and stitched wire runs. Precise contact, catenary and dropper wire height and length calculations	
356	Cant and geometry based stagger calculations	
357	Return and feeder wire placement	
358	Parametric 3D cells for structure calculations	
359	Moment calculations for mast and foundation selection	
360	Foundations, masts, single or multiple cantilever sets, and portal definitions	
361	Automated placement of additional OLE equipment; end wire tensioning, mid wire tensioning, jumpers, anchorage…	
362	Full 3D model with structures and wires	
363	Schematic 2D representation of OLE system	

Sr. No	Functional Requirement Specification	Compliance (Yes/No)
364	Profile drawings and quantity reports	
365	Cross sections with dimension and quantity annotation for manufacturing	
366	**Rail Signals**	
367	Rail signal library with asset tags	
368	2D and 3D representation of signals	
369	Signal sighting analysis	
370		
371	**Process Data Module**	
372	Material data • Elasticity module • Maximum tensile strength	
373	Environmental data • Wind velocity • Ice loads • Assembly loads	
374	Operating conditions • System height • Stagger • Valid pantograph range • Maximum tensile force	
375	**Catenary Design Module**	
376	Pole positioning	
377	Drawing of catenaries	

Sr. No	Functional Requirement Specification	Compliance (Yes/No)
378	Functions for creating, editing, and deleting of overhead contact line elements • Catenary • Attachment points • Poles • Cantilevers, multiple track cantilevers • Tunnel supports • Cross spans and yokes • Switches, insulators, connectors, section insulators • Traction power lines	
379	Calculation and check of run of catenaries in dips	
380	Insertion of section insulations and tension assemblies from an extensive library	
381	Functions for automatic dimensioning and labeling	
382	Check of wind deflection	
383	Rule-based automatic and manual determination of material quantities	
384	Comfortable track layout-based copy-and-paste function of complex groups of overhead contact line objects	
385	**Plan, Profiles, and Cross Sections**	
386	Flexible, symbolic view of overhead contact line elements (symbol size, customer specific adaption of symbols)	
387	View of cross sections • Visualization for each pole position • Calculation of structure height and dimensioning • Visualization of structure gauges and standard sections	

Sr. No	Functional Requirement Specification	Compliance (Yes/No)
388	Longitudinal profiles • Graphical view of catenary dip • Graphical view of vertical run of feeder and reinforcement lines	
389	Create plans, profiles, and cross section directly from the 3D model and support federated multidiscipline models	
390	Automatic user-defined annotation of points and segments	
391	Additional annotation tools available for one-offs	
392	**Model Design Intent**	
393	Build associations and relationships among civil elements	
394	Ensure the design project is reflective of engineering intent to improve design efficiency	
395	Assure model consistency with rule-based association of overhead line elements	
396	Relationships between components are checked and updates of the affected parts take place automatically	
397	Create and group commonly used design elements including catenary block capabilities	
398	Save a detailed overhead line design for one section as a catenary block and applied to different segments of the track	
399	Use preconfigured commonly used 2D and 3D geometric layouts, such as siding or yard layouts	
400	**Integrate Multiple Disciplines**	
401	Integrate data from different disciplines to improve collaboration	
402	Ensure the latest model is used in all phases of the design	
403	Work in the live model to reduce risk by utilizing the data interactively	

Sr. No	Functional Requirement Specification	Compliance (Yes/No)
404	Work among rail, road, bridge, drainage, subsurface utilities, geotechnical, and other design teams	
405	Identify conflicts earlier and eliminates construction errors and delays	
406	Employ a comprehensive modeling environment	
407	Share data that is relevant to the project to enrich project understanding, identify potential risk, and make more-informed engineering decisions in the design phase	
408	**Adapt to Change**	
409	Produce models that provide information beyond documentation and construction, into operations, maintenance, and rehabilitation and back to design if necessary	
410	Use a model-centric approach, designs are dynamically updated throughout the model, guaranteeing that the current design is readily available for all team members	
411	Make more-informed decisions earlier in the design process with more complete conceptual designs, while eliminating errors and omissions in the documentation process by having fully synchronized documentation from the model	
412	Explore and analyze many options to maximize the performance of the asset in the real world, and reuse information to improve construction and operations of the asset	
413	Improve Project Deliverables	
414	Automate the production of a complete array of design deliverables	
415	Use flexible, symbolic representation of overhead contact line elements to provide detailed 2D layout plans with annotation	

Sr. No	Functional Requirement Specification	Compliance (Yes/No)
416	Create high-quality models for your BIM workflows using corresponding 3D representation of the structures	
417	Obtain directly from the modeled elements detailed cross-section drawings with material lists and dimensions together with material reports	
418	Get design, volume, and cross-section data in XML industry standard format for data exchange and reporting	
419	Use project data in multiple formats, including Excel spreadsheets, HTML or text files, PDFs, printable documents, and other output	
420	Utilize reporting capabilities to automate the production of a variety of standard reports, including horizontal and vertical alignments, quantity takeoffs, clearance reports, stakeout, legal descriptions, surfaces, and more	
421	**Visualizing Designs**	
422	Experience designs in real time with the software's constraint-driven templates, context sensitive, intuitive interface, and dynamic 3D modeling	
423	Drive through the 3D corridor model	
424	Visually evaluate overhead line structures, rail and sleeper placement, signal sighting, station designs as well as try out multiple aesthetic treatments to reach the desired result	
425	Seamlessly integrates with LumenRT to create models and high-impact visuals and animations to effectively communicate the project to stakeholders for project approvals	
426	**Ease of Use**	
427	Intelligent graphical user interface	
428	U.S. imperial and metric (SI) units	
429	Comprehensive 3D physical tunnel modeling	

Sr. No	Functional Requirement Specification	Compliance (Yes/No)
430	User customizable libraries	
431	Intuitive dialogue driven workflows	
432	**Modeling and Visualization**	
433	Conventional and mechanized tunnel types	
434	Full excavation shape, excavation tracks modeling	
435	Tunnel lining modeling	
436	Tunnel reinforcement	
437	Interior objects as extrusion or cells	
438	Parametric, intelligent tunnel components	
439	Intuitive, dialogue-driven workflows	
440	Rule-based and constraint-driven modeling	
441	Clash detection	
442	Solid and transparent views	
443	Lifelike rendering by loading the tunnel model in LumenRT	
444	Reference bridge, roadway, railway information and ground data	
445	**Reporting**	
446	Customized and dynamic reports	
447	Material quantities report	
448	Input reports	
449	Cost estimate report	
450	Formats: PDF, MS Word, MS Excel, HTML	
451	**Integration with other software**	
452	Direct data exchange with MicroStation, OpenRoads, OpenRail, OpenBridge, ProStructures and PLAXIS	
453	Import geomodeling data from Leapfrog	
454	File formats: DGN, XML, LandXML, IFC and PY	
455	**Automated Drawing Generation**	
456	Plan, profile and cross section drawings	

Sr. No	Functional Requirement Specification	Compliance (Yes/No)
457	**Automated Analytical Model Creation**	
458	Send soil layers geometry with analytical properties to PLAXIS	
459	Send tunnel and reinforcement geometry with analytical properties to PLAXIS	
460	Full 4D analysis in PLAXIS 2D/3D	

Note: For Design and Desktop Applications, Functional Requirement shall be proposed by respective bidders in their Technical proposal to meet the requirement of the RFP