



GOVERNMENT OF UTTARAKHAND

**REQUEST FOR PROPOSAL
FOR**

Digitization of Cadastral Maps (SAJRA)/Revenue Maps
And Integration with Revenue Records

AT THE LOCATIONS OF DISTRICT

ALMORA AND PAURI GARHWAL

IN

THE STATE OF UTTARAKHAND

Tender Document No. 3956/08-DILRMP/2016 Dated 20-10-2016



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The issue of this RFP does not imply that BOR is bound to select a Vendor or to appoint the Selected Vendor, as the case may be, for providing digitization services; and BOR reserves the right to reject all or any of the Vendors without assigning any reason whatsoever.

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

DILRMP BACKGROUND

The **Digital India Land Record Modernization Program (DILRMP)** sponsored by the Government of India has been created by merging the already existing centrally sponsored initiatives for Computerization of Land Records (CLR) and Strengthening of Revenue Administration & Updating of Land Records (SRA & ULR) in the Department of Land Resources (DoLR), Ministry of Rural Development. The integrated program would modernize management of land records, minimize scope of land/property disputes, enhance transparency in the land records maintenance system and facilitate movement towards guaranteed conclusive titles to immovable properties in the country.

The major components of the program are computerization of all land records including mutations, digitization of maps and integration of textual and spatial data, survey/re-survey and updating of all survey and settlement records including creation of original cadastral records wherever necessary, computerization of registration and its integration with the land records maintenance system, development of core Geographic Information System (GIS) and Capacity building etc. Further it aims to establish an Integrated Land Management system which would provide a single window for accessing all the components of DILRMP and interlink them.

State Administration of Uttarakhand desires to simultaneously implement all components of Digital India Land Records Modernization Program (DILRMP) initiated by Ministry of Rural Development, Government of India (GOI). To implement DILRMP, the department requires agencies specialized in the domain of survey technology, application development and further specializations as would be made clear by the scope of the project.

OBJECTIVES OF DILRMP

The objective of DILRMP project is to modernize and manage Land Records in a transparent and efficient manner leading to better, improved and faster service delivery. Key objectives of this project are as follows:

1. To provide a single window to handle land records including the maintenance and updating of textual records, maps, survey, settlement operations and registration of immovable property.
2. To ensure that the cadastral records available on paper with the Department of Revenue mirrors the ground reality and to ensure that the record titles reflects the true ownership.
3. To provide for guaranteed conclusive titling and to protect the title owner from losses arising due to existing defects and irregularities.
4. To implement an integrated land management system. This should provide an easy interface to various components of land record maintenance and registration process.
5. To enhance the efficiency and speed of service delivery to citizens by leveraging the use of ICT. This should simultaneously result in improved efficiency internally within the departments.
6. To give land administrators, planning authorities, and citizens better and easier access to land related information.
7. To provide secure system to handle confidential land records and to ensure self-sustainability of the systems and to achieve uniformity of data and coding scheme standardized for the entire country.
8. To equip department officials with the appropriate set of skills required for delivering services in a modern, efficient and client-service oriented manner.

SCOPE OF DILRMP

The following is an outline of the components and activities to be taken up under the DILRMP:

1. Computerization of land records
 - a) Data entry/re-entry/data conversion of all textual records including mutation records and other land attributes data
 - b) Digitization of cadastral maps
 - c) Integration of textual and spatial data
 - d) Tehsil, sub-division/district Computer centers
 - e) State-level data centers
 - f) Inter-connectivity among revenue offices
2. Survey/resurvey and updating of the survey & settlement records (including ground control network and ground truthing) using the following modern technology options:
 - a) Pure ground method using total station (TS) and differential global positioning system (DGPS)
 - b) Hybrid methodology using aerial photography and ground truthing by TS and DGPS
 - c) High Resolution Satellite Imagery (HRSI) and ground truthing by TS and DGPS.
3. Computerization of Registration
 - a) Computerization of the sub-registrar's offices (SROs)
 - b) Data entry of valuation details
 - c) Data entry of legacy encumbrance data
 - d) Scanning & preservation of old documents
 - e) Connectivity of SROs with revenue offices
4. Modern record rooms/land records management centers at Tehsil/Taluka/Circle/Block level
5. Training & capacity building. Strengthening of the Survey and Revenue training institutes
6. Core GIS
 - a) Village index base maps by geo-referencing cadastral maps with satellite imagery, for creating the core GIS.
 - b) Integration of three layers of data:
 - (i) Spatial data from aerial photography or high-resolution satellite imagery;
 - (ii) Survey of India and Forest Survey of India maps; and
 - (iii) GIS-ready digitized cadastral maps from revenue records.

Once the basic plot-wise data is created by the States, seamless integration would be possible for micro and macro-planning and other relevant applications.

7. Legal changes
 - a) Amendments to the Registration Act, 1908
 - b) Amendments to the Indian Stamp Act, 1899
 - c) Other legal changes
 - d) Model law for conclusive titling
8. Program management
 - a) Program Sanctioning & Monitoring Committee in the DoLR
 - b) Core Technical Advisory Group in the DoLR and the States
 - c) Programme Management Unit (PMU) in the DoLR and the States
 - d) Information, education and communication (IEC) activities
 - e) Evaluation

STAKEHOLDERS OF DILRMP

For the success of any project, it is important to identify right stakeholders and classify them correctly. Prioritization of these stakeholders on the basis of the impact of the project on them is an important activity at the beginning of the project. Stakeholders in this project are as follows:

- Government of Uttarakhand
- Board of Revenue Uttarakhand
- Project Management Unit, Digital India Land Records Modernization Programme (DILRMP)
- Core committees or various committees for the Project Implementation
 - High Power Committee
 - Project Implementation Committee
 - State Level monitoring and review Committee
 - District Level monitoring and review Committee
- Department of Information Technology, Government of Uttarakhand
- National Informatics Center, Dehradun
- State Informatics Officer, NIC, Dehradun
- District Informatics Officer, NIC at districts
- Government Officials
 - Divisional Commissioners
 - District Collectors

- Additional District Collectors
- Sub-Divisional officers
- Tehsildar
- External Project Management Consultants
- Scanning Vendors
- Citizens and Businesses
 - Farmers/Land holders/ Land owners
 - Industrialists/ Businessmen
 - Lawyers/ Advocates
 - Other government organizations

EXISTING LEGACY SYSTEMS

Currently the available applications to the revenue department are “DEVBHUMI” without GIS data maps.

However the applications are currently utilized partially due to modification requirements of few aspects which will integrate these applications together and bring about true computerization of the entire revenue department.

Digitization of cadastral maps

This section just provides a brief idea of Cadastral maps digitization process under project DILRMP as has been defined by Department of Land Resources, Government of India. It is NOT the scope of work for the vendor. The detailed scope of work for the vendor can be found under Section Detailed Scope of Work.

The spatial data are stored in the form of maps which are stored at the various places of District under Tehsildar at the office. It is essential to digitize the existing physical maps so that a completely computerized land record management system can be set up. Any changes in the ROR can accordingly be made to reflect on the digitized maps when the spatial and textual data is integrated in DILRMP.

Any changes arising in the cadastral maps due to plots being divided or amalgamated can be done automatically post the registration process. Currently the changes in the map are done manually on the existing maps.

The basic guidelines for digitization of maps are as follows:

1. The village map or its part is scanned to produce what is called a raster map.
2. This scanned map is fed into the computer to create a computer image.
3. The outline of the map boundaries are highlighted and outlines of each plot is made by Vectorization.
4. The revenue department compares this vectorized map with the original map to check the accuracy of the digitized maps.
5. The output of digitization must be in GIS compatible format which can be fed into GIS system. The geographic information linked to the attributes captured should be visible on the GIS system.

Integration of textual and spatial data

Each plot of land is represented as a polygon with a unique number that identifies the polygon. The numbering system may vary from state to state. Each plot must be linked to its attributes which can be recovered from the digitized ROR. The ROR will contain several chunks of information regarding the land such as ownership, classification, crop cultivation pattern etc.

This will help the maps to be up to date with the ROR updates if any. It also allows the department to identify various plots that have common attributes which can be used for planning and analysis purpose.

State Data Center

The State Data Center aims to act as a central data repository for the state which would host data from all the departments. All State wide e-governance applications will be running through the State Data Center which would make data from various departments easily retrievable. More importantly, it would make the job of linking various departments easier.

Inter-connectivity between Revenue Office and Registration Office

Under the DILRMP, it is proposed that all the revenue offices in the state must be connected to one another and this connectivity may be achieved via Local Area Network (LAN) or Wide Area Network (WAN). Each location would be provided with last mile connectivity from the Point of Presence of the State Wide Area Network (SWAN).

Until the S-WAN is not fully functional, interim measures may be used, which will be designed keeping in mind the protocols or security policies laid down by the Department of IT, Government of India. This type of connectivity would bring about ease in data sharing and also ensure that land records throughout the network are updated real time. Any registration process at the SRO will automatically push the records being changed to the Revenue Office where it can be verified and authenticated in the system.

Survey/Re-survey

Resurvey is an essential step towards achieving a state of conclusive titling of land records. As per the guidelines laid down by Government of India, the survey may be carried out using any of the process, like Aerial Photography or High Resolution Satellite Imagery or with TS+GPS to ensure that cadastral maps reflect the ground realities. The cadastral survey of an area which has already been surveyed earlier is called as Resurvey which is generally required under the following conditions:

1. The plot boundaries shown in existing maps do not truly reflect the ground realities. This arises on accounts of sub-divisions or due to misplacement of large percentage of the local ground control point markers which makes it difficult to identify fields with reference to records.
2. Transfer of dry lands into wet lands
3. Sub division of land
4. Large scale transfer of holding

For Resurvey purpose, Ground Survey method using Total Station (TS) and Global Positioning System (GPS) may be used.

The selection of the technology can depend on several factors such as terrain conditions, vegetation cover, accuracy required, costs, timelines etc.

Establishment of Ground Control Network

The Survey of India has undertaken the task of establishment of a ground control point library for the entire country. The control points are being established in phases. 2500 GCPs have been established at a spacing of 200-300 Km apart. While these can be set up in coordination with Survey of India, it must not hold up the implementation of DILRMP. As a result, a ground control network comprising of primary, secondary, tertiary and auxiliary points must be set up.

COMPUTERIZATION OF REGISTRATION

Computerization of Sub Registrar's office

The registration process was not covered under the CLR or SRA & ULR initiative by Government of India. Computerization of registration process removes hassles which are faced in manual registration process. Moreover it helps in moving towards integration of registration office with the revenue office. Sub-Registrar's office carries out registration and recording of various types of documents related to transfer of immovable property.

The manual registration process involves dealing with paper documents and deeds and maintaining them for future reference. Moreover the changes in the ROR which result out of the registration process are manually notified to the Revenue Office where it goes through a complete process of approval, verification and authentication before the ROR is changed and the maps are changed (if required).

Computerization of registration process would help in mutations getting pushed to Revenue Office automatically from where the Revenue Office application can perform the authentication and verification. This removes the need to maintain paper documents which can get misclassified or lost in the long run. Each SRO must possess adequate software, hardware, process re-engineering and staff training to support a computerized office.

Complete computerization needs to be achieved by facilitating the following:

1. Prevalent rates of different types of properties in different localities must be uploaded and linked to the software used for computerization of SRO.
2. Wherever possible, re-engineer the process by fixing deed formats in 2-3 pages
3. E-Stamping facility should be made available along with computerization for depositing stamp duty. This facility is already available and in use in Dehradun.
4. A biometric module must be used to capture details (photograph, finger prints etc.) of the citizens at the registration office.
5. Scanning of legacy data for distribution of copies of registered deeds.

Data entry of valuation details

Valuation details are specific to the area and survey number which is being investigated. These valuation details are available at the SRO on the basis of the type of land the locality on which the land is present. These records are used for valuing the property before registration.

The stamp duty and the registration fees are decided on the basis of the land valuation.

These valuations details must be computerized as well as a part of DILRMP to ensure that any registration process automatically picks up the stamp duty and registration fees value when property details are fed into the application.

Data entry of legacy encumbrance data

Legacy encumbrance data basically comprises of data such as Doc No, Document Name, Registration Date, SRO details, Seller and Purchaser name, property description etc. This will basically show all historical transactions for every parcel of land in the district with all the above mentioned details.

MODERN RECORD ROOMS

DILRMP lays down guidelines for the establishment of a modern record room/land records management room which will support physical storage of land record documents and existing physical cadastral maps.

1. A storage area with Compactors/storage devices for physical storage of records of all types including maps.
2. An operational area for computers/networking hardware, printers etc.
3. A citizen service delivery area along with a waiting room for citizens who wish to procure old documents from the modern record room.

Apart from the above mentioned aspects towards physical improvement of record room, this component also comprises of scanning old textual records along with a Document Management System to view, retrieve and print the scanned records for citizen delivery.

TRAINING AND CAPACITY BUILDING

One of the core guidelines of DILRMP is to bring employees of the department up to date with the land record modernization program. The vendor is required to draw up a comprehensive training program to enhance the skills of the department's human resources.

The training should be provided to officials at all the levels of hierarchy. This will not only include a basic sensitization training for awareness on the modernization process but should also include a technical training for department officials (survey officials, revenue officials etc) who will actually be working on the applications being developed as a part of this project.

IMPLEMENTATION OF CORE GIS

Post digitization of maps in GIS ready format, the maps along with various attributes attached to the maps will be fed into the GIS application. Each attribute will form a layer and each layer corresponds to 3 files which basically represent geographic information, attributes information and the interlinking/relational component between the maps and the attributes.

The number of GIS layers would depend on the number of attributes which need to be showcased on the GIS application. Each GIS layer can be of three types i.e. Point Layers, Liner Layers or Area Layers depending on the type of attribute which is being captured.

Once completed, this application can be used for state wide micro and macro planning. This component aims to speed up the decision making capacity of the department as regional data would be readily and easily available from a single source.

LEGAL CHANGES

With the implementation of DILRMP in Uttarakhand, various land and registration related acts, statutes and policies will need to be revised. DILRMP guidelines also mention changes in such acts as per the requirement.

PROGRAMME MANAGEMENT

DILRMP also lays down guidelines for establishment of a Project Sanctioning and Project Monitoring Committee which will periodically review and the progress of the project and resolve issues faced by involving stakeholders from all departments.

The programme management committee at the State level would comprise of the following:

1. Members from Revenue Department
2. Members from NIC
3. Members from Department of Information Technology

Programme Management Unit (PMU) would be responsible for bringing about coordination between various state departments for DILRMP implementation.

PROJECT MANAGEMENT CONSULTANTS

The Project Management Consultants are working for assisting the revenue department to implement DILRMP in the State of Uttarakhand. They have understood the overall requirements and prepared documents/process/guidelines for implementation along with other stakeholders.

Their responsibilities are listed below:

1. Monitor progress of the project and assisting the department in removing bottlenecks to avoid delays.
2. Assist department in conducting weekly and monthly meetings along with other stakeholders to review the progress of the project
3. Monitor risks and issues in the project and assist department in designing mitigation plan
4. Assist vendor in getting better understanding of the department and its processes
5. Review project plan at regular intervals to ensure compliance and report any deviation to the department
6. Assist department in issue resolution, whenever required
7. Review deliverables submitted by vendor along with NIC
8. Assist vendor in organizing knowledge management sessions for various stakeholders

ISSUER OF RFP

The Commissioner cum Secretary

Board of Revenue Uttarakhand

Mussorie Ring Road Bypass, Ladpur, Dehradun – 248001



Board of Revenue, Uttarakhand

Notice of Inviting e-Tender

Project Management Unit (hereinafter called the **PMU-UK**) , DILRMP, Board of Revenue, Uttarakhand intends to invites offers in two bid system for the work **“Digitization of Cadastral Maps (SAJRA) and Integration with Revenue Records for the Districts of ALMORA and PAURI in the state UTTARAKHAND”** from vendors having capability of preparation of composite digitized cadastral maps (sajra) in GIS format, linked with an existing database and existing land records software “DEVBHUMI” along with related attributed data of land records. The assignment specifications, terms and conditions, and various performas for submitting the tender offer are described in this RFP document.

Part-I : Technical Bid

Part-II : Financial Bid (online)

The interested companies are requested to submit their Techno-Commercial offers. The BID for Digitization of Cadastral Maps in 2 districts Almora & Pauri.

Sl. No	Code	District	Area in SqKM				Map sheet's	Villages in the District
			Rural	Urban	Forest	Total		
1	AL	Almora	1742.1	5.18	585.9	2333.1	17054	2251
2	PG	Pauri Garhwal	2845.6	21.12	355.6	3222.3	8003	3471

The job involves Scanning of Revenue / Cadastral maps of the area and to be digitized and linked-up precisely with an existing database in GIS format.

The bidder will submit the technical response to this tender in a single packet super scribed as **“(Don't OPEN before 30th November 2016 / 11:00 AM) Digitization of Cadastral Maps (SAJRA) and Integration with Revenue Records for the Districts of ALMORA and PAURI in the state UTTARAKHAND”** which contains the envelopes of technical bid. Tender document number should be writing legibly on the packet.

(ENVELOPE) : Technical Offer – (1 original + 2 copies + 1Soft Copy in CD)

The bidder should also upload the scan copies of technical offer documents as an attachment at <https://uktenders.gov.in>. This RFP document should be attached with the technical bid document duly signed.

The proposals shall be submitted through Physical By hand/courier/ Speed Post to PMU, DILRMP, Dehradun, Uttarakhand and should be reached on or before **29rd November 2016 / 12:00 PM**. BOR will not responsible for any type of delays like currier/postal delay.

The financial bid should be submitted online at <https://uktenders.gov.in> only. Reference for the financial bid can be found on under clause **BOQ**.

The earnest money of Rs 8 lakhs (Rupees Eight Lakhs only) is to be paid along with the technical offer document in the form of bank draft in favour of Commissioner cum Secretary, Board of Revenue, Uttarakhand, Dehradun payable at Dehradun. Bidder should submit sealed envelopes containing technical bids on the prescribed tender document complete in all respect.

The bidding schedule is as follows:-

Nature of the Project	Preparation of composite digitized cadastral maps (sajra) in GIS format, linked with an existing database and existing land records software "DEVBHUMI" along with related attributed data of land records for the Districts of ALMORA and PAURI.
Tendering Authority	Commissioner cum Secretary, Board of Revenue Uttarakhand, Dehradun
Maximum Cost per Map sheet	Rs. 1,500/- (Rupees One Thousand Five Hundred only)
Total Estimated Cost for 2 Distracts#	Rs. Rs. 3,75,85,500/- (Rupees Three Crore Seventy Five Lakhs Eighty Five Thousand Five Hundred only)
Earnest Money Deposit (EMD)*	Rs. 8,00,000/- (Rupees Eight Lakhs only)
Date of Bid Publishing	24 th October 2016
Start Date of Bid Downloading	25 th October 2016 10:00 AM
Last Date of Bid Downloading	19 th November 2016 / 12:00 PM
Cost of BID Document	Rs.10,000/- (Rupees Ten Thousand only)
Date & Time of Pre-bid meeting	7 th November 2016 / 11:00 AM
Start Date of Bid submission	8 th November 2016 10:00 AM
Last Date & Time of Submission of Bid	29 th November 2016 / 12:00 PM
Date & Time of Opening of Technical Bid	30 th November 2016 / 11:00 AM
Date & Time of Opening of Financial Bid	5 th December 2016 / 11:00 AM
Pre-Bid Meeting/ Bid submission and Bid Opening Venue	PMU, DILRMP, Board of Revenue, Mussorie Bypass, Ring Road, Ladpur, Dehradun, Uttarakhand - 248008
Websites for downloading RFP/ Bidding	https://uktenders.gov.in
Proposal & EMD Validity	180 days from the date of proposal submission

**In case, a bidder fails to submit the Banker's cheque /DD/ Bank Guarantee for EMD the bid of the bidder shall not be accepted. # Total cost will be as per actual Map sheets.*

The copy of this document can be downloaded from <https://uktenders.gov.in> without any charges. However, after downloading the document from the website <https://uktenders.gov.in> the cost of document should be paid along with the submission of bid.

The company should pay the cost of bid documents of **Rs. 10,000/-** by way of Demand Draft favoring "Commissioner cum Secretary, Board of Revenue, Uttarakhand, Dehradun" payable at Dehradun. If any bidder failed to pay the cost of bid document along with the technical offer will reject outright.

Data Sheet

Should be filled by the bidder:-

Tender Document No	3956/08-DILRMP/2016/20-10-16
Name of the Bidding Company/ Firm:	
Contact Person (Authorized Bid Signatory):	
Correspondence Address:	
Mobile No	
Telephone	
Fax	
Website	
E-Mail	

Address for all communication

Bidder should have contact through e-mail / Phone / personal visit or by letter on below mentioned address only.

Please note this only address for all communication:-

The Commissioner cum Secretary

Board of Revenue Uttarakhand

Mussorrie Ring Road Bypass, Ladpur,

Dehradun – 248008

E-mail : staffofficer-bor-uk@gov.in

Phone : 0135-2669221

Mobile : +91 – 8826457344

Fax : 0135-2669384

Website for e-tender : <https://uktenders.gov.in>

OFFER

Offers are invited for Digitization of Cadastral Maps known as Sajra (Creation of Spatial Database) and to preserve the data available in the documents, facilitate its easy storage, retrieval and greater access to the public and functionaries of the Department and also to Integrate with Revenue Records of Uttarakhand.

The tender document consists of following four parts:

Part-I : Terms and Conditions

Part-II : Qualification Requirements

Part-III : Technical offer

Part-IV : Financial offer (online)

After completing the offer, each document should be sealed as per the instruction. The envelopes containing technical offers should be placed in an envelope, this envelop should be super scribed date for opening.

The sealed offers should reach PMU, DILRMP, Board of Revenue, Uttarakhand, Dehradun - 248008 on or before the due date for submission.

One representative of each bidder may participate at the time of opening the technical bid.

If representative of any bidder is not present at the time of opening the bid, the tender committee will open the bid and continue the process.

Objectives of Digitization of Cadastral Maps

Digitization of cadastral maps and its linkage with textual data i.e. ROR (Records of Rights) etc is envisaged to provide the services related to land records and monitor revenue administration across the state in order to improve the administrative processes.

The objective behind the Digitization of Cadastral Maps (Sajra) is to digitize cadastral maps in the State and linking of the same with textual data (ROR) and more services will be extended to the citizens. As of now, DEVBHOOMI MIS is being used in Uttarakhand for maintaining the ROR for registration of Land Deeds. The proposed system would create the database of cadastral maps in digitized form and the same would be linked into the existing land records software DEVBHOOMI. This would streamline the land revenue administration as the system would be temper proof with high availability of data in the Tehsil / Sub-Divisions / Districts / State / Common Service Centre (CSC).

1. For every village, there are cadastral maps having parcels of land (popularly known as Khasra numbers), which form the basic record of revenue administration.
2. After linking of the cadastral map with textual data, the citizen can be provided with the services e.g. ROR with plot map (parcel map), showing dimensions of each side, area and the adjoining plots and Textual ROR data updation in sync with spatial data updation.

The selected vendor has to comply with the scope of work and other instructions/conditions as given below for successful completion of digitization work.

Digitization requirements

The selected vendor must digitize the existing cadastral maps in 2 districts of Uttarakhand, Almora & Pauri Garhwal. Roughly 25,000 maps are available in Almora & Pauri Garhwal and they are available at the District Revenue Office.

The set of guidelines that need to be followed for map scanning and digitization is mentioned as scope of work in this RFP. The selected vendor is responsible for an individual quality check before the department can perform a quality review. The department will use the guidelines for digitization to perform a quality assessment and hence the vendor must strictly abide by these guidelines. During the requirement gathering phase, the selected vendor in consultation with the department must understand the map features and layout as per the trend followed in the department.

Following this, the vendor must lay down the map requirements on a weekly basis so that the department can keep them ready and prevent any delays.

The task of scanning shall be carried out within the District Collector Office itself. No documents should be taken out of this office at any time for any purpose.

Digitization Deliverables

The bidder should provide the outputs in various formats like:-

1. Scanned maps in *.tiff and *.pdf format.
2. Digitized maps along with symbol library on various layers in DVD media as *.dwg file, *.shp file & *.pdf file.
3. Scanned maps and digitized maps on DVD media as well as on storage in Server (if provided).
4. Database of digitized maps as database file. The format and structure should be as per department standards.

5. Attribute data in database with proper linkage to digitized maps.
6. DMS (Document Management Software) for easy retrieval and greater access to the preserve data i.e. scanned maps and vector data.
7. Two copies (2nos.) sample printouts of each digitized map for correction by department has to be provided in 1:4000 scale on a 60 GSM tracing paper.
8. One printout of each digitized map has to be provided in 1:4000 scale on a 90 GSM tracing paper to the department.

Note: - The vendor must note that the application for integration of spatial and textual data has already been developed by the NIC. This application "Bhunaksha" will also be storing the digitized cadastral maps. Hence the output of the digitization must be in a compatible format. The vendor should study each map sheet carefully and should follow the guidelines / method of BOR suitable for capturing all data available in the map.

About Board of Revenue (Govt. of Uttarakhand)

The Board of Revenue, Uttarakhand, Dehradun acts as an implementing agency of Digital India Land Record Modernization Programme in Uttarakhand State. BOR is also a controlling department for budget allotment and monitoring to the revenue offices of state.

BOR has also been entrusted with the responsibility of creation and maintenance of land records (Cadastral Maps, RORs, etc.). As part of its initiatives for converting the current activities of Revenue Administration into an e-System, BOR wishes to outsource the work of "Digitization of Cadastral Maps (SAJRA)/Revenue Maps and Integration with Revenue Records (ROR) of two Districts Almora & Pauri Garhwal".

TERMS AND CONDITIONS

Bidders are advised to go through the entire body of the RFP to understand the requirement as well as the tender evaluation procedures. It is assumed that the bidder is preparing the proposed solution after carefully going through every clause of the RFP in detail.

There are formats specified for most of the documentations expected from the bidder. Attach certificates or other documents to prove the claims, wherever mentioned.

1. The tender for Digitization of Cadastral Maps in 2 districts Almora & Pauri Garhwal is invited on the "two-bid system". There shall be separate technical and financial offers by the bidders.
2. Vendors are advised to study the RFP document carefully. Submission of Bid shall be deemed to have been done after careful study and examination of the RFP document with full understanding of its implications.
3. The Financial offers of only those bidders would be considered whose technical offer has been accepted.
4. This RFP document is not transferable.
5. BOR shall not be responsible for any delay in submission or non delivery of proposal due to any reasons.
6. The bidder shall bear all the cost incurred for preparing the proposal including expenses of travel and lodging that may be required including collecting information from the department and other communication required with the department regardless of the outcome of the bidding process.

7. The Bidder is required to submit one original and one copy of the Technical Bid enclosed in separate envelopes, clearly marking envelope as “Technical Bid – Original” and “Technical Bid – Copy”, as appropriate. The original and copy shall be enclosed in the “Envelope-I Technical Bid”.
8. The bidder is required to submit soft copy of the technical bid in “MS Word/ Adobe PDF” as applicable. The soft copy is to be burned in to CD/DVD media and shall be enclosed in Technical Bid Original.
9. In the event of any discrepancy between the hard copies and/or the softcopies, the original hard copy shall prevail.
10. The Bidder is required to submit Financial Bid online only.
11. The original and all copies of the Bid Document shall be typed / computer printouts and shall be signed by a person or persons duly authorized to bind the Bidder to the Contract.
12. A duly stamped Power-of-Authority accompanying the Bid Document shall support the letter of authorization.
13. The person or persons signing the Bid Document shall initial all pages of the Bid Document. However, the formats of Technical bid can be either typed / computer print or may be filled by hand legibly whenever necessary. There should not be any cutting / striking / overwriting on the Technical bid document.
14. No conditional offers would be accepted.
15. Board of Revenue reserves the right to cancel any or all the bids/ annul the bidding process without assigning any reason thereof.
16. **Board of Revenue may distribute the work among technically qualified bidders at the lowest quoted price.**

Pre-bid Meeting (PBM)

BOR shall make best efforts to respond to any request for clarification for the Tender Document to the prospective bidders. Such requests are to be made through e-mail and are to be received by BOR before 5:00 pm on 3rd November-2016. The Pre-Bid Meeting will be held as per the date and time mentioned in the data sheet. The clarification shall be made in writing to the extent possible.

The format for request for clarification is given below.

Bidder’s Name and Address			
Date:		Tender Reference No:	
Sr. No.	Section Reference	Description	Clarification Sought
1			
2			
3			
4			

Queries not adhering to the format above or queries not received within the mentioned deadline shall not be taken up at the Pre Bid Meeting. BOR shall not be responsible for any delay in receiving the clarification e-mail including but not limited to any delays.

Earnest Money Deposit

1. Bidders are required to give an Earnest Money Deposit (EMD) for Rs. Rs 8 lakhs /- (Rupees Eight lakhs only) in the form of Demand Draft or Pay Order of a Nationalized/ Scheduled Bank in favor of Commissioner cum Secretary, Board of Revenue, Uttarakhand payable at Dehradun valid for a period of 90 days from the due date of the tender will have to be attached with the Technical offer.
2. The EMD shall be refundable to unsuccessful bidders and shall be discharged after 30 days from the date of contract signing with successful bidder.
3. The successful bidder's EMD shall be adjusted in the Performance Guarantee the bidder shall be submitting in accordance with the "Performance Guarantee".
4. The EMD may be forfeited if a Bidder withdraws its bid during the period of bid validity specified in this bid document.
5. In case of a successful Bidder the EMD may be forfeited if the Bidder fails to sign the Contract as specified in this bid document and fails to furnish Performance Security as specified in this bid document.
6. No Interest would be paid on the Earnest Money.

SCOPE OF WORK

The digitization of cadastral maps will help to create database of revenue maps in digitized form and will get linked up with the existing database of land records BHULEKH. Creation of digitized maps will include the following activities:-

1. Scanning of village Maps.
2. Indexing/Bar-coding.
3. Vectorization of Raster Data (Digitization of scanned maps).
4. Linking of revenue database (ROR) with existing Devbhumi software.
5. The output of the whole process mentioned above should be GIS ready.
6. Training of staff at Board of Revenue and district level.

Creation of GIS ready digitized Cadastral Maps

Cadastral map sheets of revenue villages will be on paper/cloth bound, normally in A1/A2. This cadastral map sheets will be scanned at notified locations.

The BOR reserve the right to change the format as and when needed. This format will be assigned in job order.

One copy of scanned map on 60 GSM Paper will be printed and cross-checked with the original map given by officials as notified.

The vendor has to make sure that original document and printed document are 100% matching.

Output will be submitted as scanned image on CD and hardcopy as mentioned above.

Process/Work Type	Description
Original Map Scale	1:4000/1:3960
Indexing	All the maps needs to be indexed and list of inventory prepared. The codification should be used in District (2 digit) Tehsil (2 digit) Revenue Village (6 digit) and sheet number (2 digit). For e.g.; 010100000101 for 01-District, 01-Tehsil, 000001-Revenue Village and 01-1st sheet.
Scanning	400 DPI black/white for normal, 600 DPI for damaged/not clear maps, image storage in .tiff & .pdf format, orientation upright, image should be clear and free from noise. In .tiff format transparent mode should be on while scanning. It is suggested that scanned cadastral map data should be stored as a .tiff only and later on converted to .pdf format. Image should not be skewed or warped. Tiling scanned maps using grid/mesh. Measured length and width within the bounding box of map should be +/- 0.1% of the original maps. The scanning activity will need to be done in such a manner that all the contents of the original maps are clearly "legible" and "readable". Scanned image will be approved by officer/ official designated by the Uttarakhand Government.
Bar-coding	Each and every map should be Barcode and vendor will paste a Barcode sticker in a designated position on the maps. Before starting digitization, it is desired that, each of the cadastral map and scanned image should be tagged with the barcode as per the format given by BOR.
Editing/Clearing of Data	Brightness and Contrast Adjustment Color Balance Resize and Cut Flip/Rotate Image Compress Relocation of misplaced features Adding missing features
Digitization	Digitization of scanned cadastral maps in 3 layers – area, point and line. It should be in planner form i.e. all intersections of lines and significant features on a line should be marked by nodes, labels marking on the map, topological completeness.
Accuracy	Vector data and print should be exactly (1:1) matched with the original map.
Database standards	Standard RDBMS
Spatial Database	Grouping of various features in different classes/coverage, all control points.
Completion of Topology	Polygon closed properly, no undershoot/overshoot, polygon should have individual and unique label.
Quality, Inspection and Completeness	Printout of digitized maps shall be handed over on regular basis to the district authorities for 100% checking with the original cadastral map. Any deviation marked by the checking team would be returned to the vendor for necessary corrections.

Process/Work Type	Description
Output format	.dwg file and shape file (*.shp), none map feature sheet heading plot number, legends, conventional signs, village code match with Bhulekh code.
Attribute Data attachment	Matching vector data with ROR data and quality mismatch plot/ area.
Cadastral map of Village	Village-level cadastral map should be done by joining the individual map sheets of the village to form a complete village map. The cadastral map of village is available in several sheets (sub-maps) in many cases. The first sub-maps would be scanned to get a raster image and it would be vectorized to generate vector digital data. These digitized Sajra Maps will then be integrated to generate a map of the village using software tools. Thereafter, the digital maps of different villages of Tehsil will be merged (mosaiced) together through the software to construct the map of Tehsil. Similarly, the digital maps of Tehsil would be merged together to form a map of the district.
Layers to be computerized	All legends shown on map would be digitized layer wise like administrative boundaries of a revenue village with name of village, Tehsil and district. Plot boundaries with plot numbers. Government land like Gaon Sabha, Chak Road, Charagah etc. Road network along with type of road. Railway network. Major water bodies etc.
Linked with ROR	Digitized maps should be linked with ROR (attribute) which is already computerized and available in DEVBHUMI. The software for data and map updating due to transaction/mutation will be tested and used. The missing or extra Khasra numbers will be checked by PMU and will return to the Service Provider for correction.
Deliverables	Scanned map on Portable USB Hard drive and DVD, first & second printout on tracing paper/sheet 1:1 digitized map on USB Hard disk and DVD, databases of digitized maps, final printout on 90 micron polyester transparency, digital map connectivity with BHUNAKSHA (ROR Software)
Document Management Software	Document Management Software has to be prepared for accessing scanned map and vector data. This software should include the module to extract and print the maps having features like editing, updating, authentication and generating log files etc.
Technical document	Complete in two sets printed and on external hard drive and DVD.
User Manual	Bidders shall follow the rules, regulations, laws and policies / guidelines of Government related to Land Records and Settlements.

Note: - DILRMP guidelines / Technical manual of Department of Land Resource must be considered every steps of the project.

Availability of Cadastral Maps

1. Cadastral Maps can be on Cloth or butter paper or paper.
2. Bidders are advised to see the original cadastral maps available at district Revenue record Room situated in the office of concerned District Magistrate on any working day.
3. The cadastral maps to the selected vendor shall be provided by the District Magistrates of respective districts or their authorized representatives at the office premise allocated to vendor in divisional headquarter only.
4. If the maps for a village is not available or is mutilated beyond repair with district authorities, it will be the responsibility of the vendor to set up scanning facilities at the Board of Revenue office in Dehradun so that an appropriate scan of the map can be made with the copy of the map available with the Board.
5. It is specified that, BOR will provide space only at the divisional headquarters of respective district to carry out the map scanning & digitalization activities.
6. The arrangements of suitable/required furniture at the office premise will be the vendor responsibility.
7. The suitability & availability of the premise will be decided by the divisional Commissioners. Vendor is bound to carry out the map scanning & digitalization activities, on the allocated premise.

Roles and Responsibility

Roles and Responsibilities of the Vendor:-

1. Vendor will provide necessary Hardware (Laptop or PC, Scanner, Printing, Stationery) and Software Tools. All expenditure for operating the aforementioned equipment shall be borne by the Vendor.
2. Vendor will ensure that the digital vector data is accurate and complete, as per the requirement detailed out in the bid document.
3. Liaise with Land Record and Settlement offices at District/Tehsil levels to study the whole system related to cadastral maps and Jamabandies etc. and submit design document to BOR within 4 weeks from the date of award of contract.
4. Identification of requirements across Land Records at District/Tehsil levels to help to digitize the cadastral maps in generic manner so that the same can be used by all the concerned offices across the state.
5. Satisfactory training to users will be provided by Vendor after implementing the software. All necessary changes and suggestion during training and implementation will be incorporated in the project.
6. The essential training has to be provided to the selected working employees (05 employees of each district) so that in future they can work and use the digitized data through computer systems.
7. Vendor will prepare Technical Document as well as User Manual for digitization of cadastral maps and its linking with textual data i.e. Jamabandi.
8. After successful implementation of project, Vendor will handover Technical document as well as user manual for the scanned images and digitized maps and all their copyrights shall be the sole property of the BOR, Uttarakhand.

9. Project will be deemed to be completed after establishing the completeness of the work in all respects along with accuracy. Completion of the work is defined as accomplishment of all intended features and the logical grouping, as specified in the bid/ design document.
10. Accuracy is defined in terms of positional correctness, digital vector data and topological completeness, subject to various tolerance limits, as specified in design document.
11. Even, if an error is detected at later stage after the project period and during the maintenance period, the Vendor will carry out the correction in the digitized data.

Roles and Responsibilities of User Department:-

1. Project Management Unit, DILRMP, Board of Revenue, Uttarakhand will monitoring the project activity and its implementation.
2. A technical team will be established at the level of Deputy Commissioners' in the concerned Districts. The team will have Technical experts from District NIC and Domain Experts from Deputy Commissioner's office. The technical team will be headed by Project Management Unit, DILRMP, Board of Revenue, Uttarakhand.
3. An appropriate team of Experts will be formed by the BOR to carry out the Audit.
4. Vendor will interact with these teams during the entire project implementation cycle.
5. Facilitate liaison of vendor with identified offices of the State Government for identification of System Design Document and requirement which will have to be incorporated in the document during implementation of the project.
6. Approval of Software design document submitted by the service provider for digitization cadastral maps and linking of the same with textual data.
7. Regularly reviewing the progress of work carried out by vendor. Payment processing of the bills submitted by the vendor.

Eligibility Criteria of Bidders

The Service Provider (SP) should meet the following criteria as on the date of submission of the bid:

Sl. No.	Eligibility Criteria	Documents / Information to be Provided
1	The Company/ firm/ partnership must be well established and must have been rendering related services as mentioned in the bid document for at least last 5 years and should not have been blacklisted for Map Scanning and Digitization and ROR Linking. (Attach documentary proof) No Consortium is Allowed.	Certificate of Incorporation Annual Reports for last Five Years.
2	The company should be registered with Service Tax Authority.	Registration Certificate & Service Tax Number.
3	The bidder should have experience in supply, installation and support of digitization of cadastral maps and GIS oriented work in Government department.	Copy of Work Order along-with work completion certificate/ performance certificate should be enclosed.

Sl. No.	Eligibility Criteria	Documents / Information to be Provided
4	Average Annual Turnover of the firm must exceed Rs. 5 crores in each of the last 3 financial years (FY 13-14, FY 14-15 and FY 15-16).	Balance Sheet/CA Certificate. Income Tax returns Statement.
5	The bidders should have at least 100 GIS Professionals on their payroll for the activities related to Map Scanning and Digitization.	Attach HR certificate along-with the list of Employees with exposure to Projects and Technologies.
6	The bidder should have experience in system integration w.r.t. digitization, mosaicing and CAD projects of a comprehensive enterprise IT infrastructure comprising of supply, installation and maintenance of Hardware and Software, Operating System and RDBMS etc.	Copy of Work Order and Completion Certificate specifying the detailed scope of work.
7	The bidder should have ISO (9001:2000) or Minimum CMMI Level-3 certification.	Copy of valid certificates
8	The responding firm shall not be under a declaration of ineligibility for corrupt or fraudulent practices. And should not be blacklisted by any State Govt. / Central Govt. / PSU for any reason at the time of Bidding.	A self-certified letter by the designated official of the responding firm.

Note: 1. Project Manager should be available in the central location during the project period. 2. It is reiterated that BOR, Uttarakhand decision regarding Bidder's eligibility will be final and binding on all the Bidders.

Evaluation of proposal

The evaluation of technical proposals shall be done by a "Tender Evaluation Committee (TEC)" duly constituted by the BOR. The Tender Evaluation Committee may choose to request for clarification from the bidder related to their products / services offering, approach, methodology or any other information as part of the technical evaluation. Bidder should be ready to give the presentation on their proposed solution and the query raised in front of the TEC at a date, time and location determined by the BOR.

The decision of the TEC in the evaluation of the Technical bids shall be final and binding on all the parties. No correspondence will be entertained outside the process of negotiation/ discussion with the TEC. Any effort by a bidder to influence the TEC's processing of Bids or award decisions may result in the rejection of the Bid.

Technical Evaluation

Detailed evaluation of the technical offers shall be performed only after scrutinizing whether each bid is:

- Complete in all respects as per the format given in "Formats for Technical Bid"
- Accompanied by the EMD as mentioned under Clause "Earnest Money Deposit"

Those bids failing to clear the above criteria shall be rejected and will not be scrutinized further. Bidders adhering to the completeness of the technical proposal shall be given chance to give a technical presentation before the Evaluation Committee.

Evaluation Framework

The following framework shall be used as a guideline for the evaluation of bids. The department reserves the right to introduce any other evaluation method or make enhancements in the existing framework as per the requirement.

Sl. No.	Particulars / Total Score	Marks (Max.)
1	The Bidder having annual turnover for three consecutive financial years (FY: 2013-2014, FY: 2014-2015, FY: 2015-2016) will be awarded marks as below:	10
	15 crores = 10 marks	
	10 crores but < 15 crores = 9 marks	
	5 crores but <10 crores = 8 marks	
2	The Bidders percentage of turnover which is related to Map Scanning and Digitization (CAD & GIS Project) from total Turnover for three consecutive financial years (FY: 2013-2014, FY: 2014-2015, FY: 2015-2016):	10
	60% = 10 marks	
	50% but < 60% = 9 marks	
	40% but < 50% = 8 marks	
3	The Bidders Key personnel Experience & qualification related to Map Scanning and Digitization (CAD & GIS Project)	10
	Project Management	
	20 yrs + PG in Geography/Geo-Informatics = 10	
	15 yrs + PG in Geography/Geo-Informatics = 9	
4	The Bidder having GIS professionals (GISP) with prior experience of more than 10 years in GIS Mapping as on 31st March 2015	15
	20 + GISPs = 15 marks	
	15 + GISPs = 13 marks	
	10 + GISPs = 10 marks	
5	The Bidder having GIS professionals (GISP) with prior experience of more than 2 years in GIS Mapping as on 31st March 2015, will be awarded marks as below	15
	200 GISPs = 15 marks	
	150 GISPs but < 200 GISPs = 13 marks	
	100 GISPs but < 150 GISPs = 10 marks	
6	The Bidder with experience of having successfully completed similar work during the last 5 years ending 30th September 2016	20
	3 similar (Turnkey project including scanning, digitization, data-linking services) completed projects or more, Costing not less than Rs. 3 crores in any government/ PSUs in India/ Abroad	
	5 projects or more = 20 marks	
	4 projects = 18 marks	
	3 projects = 16 marks	
	OR	
	2 similar (Turnkey project including scanning, digitization, data-linking services) completed projects, costing not less than Rs. 2 crores in any government/ PSUs in India/ Abroad	
	7 projects or more = 20 marks	
	5 projects = 18 marks	
	4 projects = 16 marks	
7	CMMi Level 5 = 20 marks	20
	CMMi Level 4 = 18 marks	
	CMMi Level 3 = 15 marks	
Total =		100
Note	1) The bidder should submit copy of work order and completion certificate from the client/client certificates mentioning the progress of the project as a proof of the projects they mention in the bid response the bidder should provide certificates as mentioned in the Pre-Qualifications for the technical evaluation requirements.	
	2) The bidder must also submit all the documents in support of claim for technical bid evaluation.	
	3) All the bidders scoring 75% marks and above will be qualified for commercial bid opening.	

Financial Bid Criteria

The financial bids of only those bidders, who have scored at least 75% marks in the technical evaluation process, will be opened.

The Financial Bids will be opened, in the presence of Bidders' representatives who choose to attend the Financial Bid opening on date and time to be communicated to all the technically qualified Bidders.

The Bidder's representatives who are present shall sign a register evidencing their attendance. The name of Bidder and Bid Prices will be announced at the meeting.

Award of project

- The Financial Bids of technically qualified bidders will be opened on the prescribed date in the presence of bidder representatives.
- Financial Bids that are more than 40% in variance of the average bid price will be disqualified (the average bid price is computed by adding all Financial Bid values of ALL the qualified bidders and dividing the same by the number of bidders).
- PMU-UK will notify the selected vendor that its DPR has been accepted. The notification of award will constitute the formation of the contract.
- PMU-UK shall enter into a separate contract with the vendor. Terms and Conditions specified in the RFP document shall become the part of the contract/MOU document.
- The vendor should furnish a Performance Security to The Commissioner cum Secretary, Board of Revenue, Uttarakhand before signing the contract agreement/MOU.

Performance Bank Guarantee

The successful bidder shall furnish a performance guarantee at his own expense equal to 10% of the total contract value in Indian Rupees within 15 days of issue of Letter of Intent (LOI), before signing of the contract agreement. The performance guarantee shall be in the form of a Fixed Deposit/bank guarantee from a nationalized/schedule bank in favor of "Board of Revenue, Dehradun, Uttarakhand" valid for the entire contract period.

Failure of the successful bidder to comply with the requirements shall constitute sufficient grounds for the annulment of the award and forfeiture of the EMD. In such event the BOR may at his sole discretion make the award to the next lowest evaluated bid at L1 rate.

1. The Performance Bank Guarantee (hereinafter called PBG) should be unconditional and irrevocable from a Scheduled or Nationalized Bank, for the due performance and fulfillment of the contract by the vendor.
2. The PBG will be for an amount equivalent to 10 % of contract value. All charges whatsoever such as premium; commission etc. with respect to the PBG shall be borne by the vendor.
3. The PBG shall be valid until the end of 6 months after the complete project period. Subject to the terms and conditions in the PBG, 6 months after the complete project period completion, the PBG will lapse automatically.
4. The PBG may be discharged/returned by **PMU-UK** upon being satisfied that there has been due performance of the obligations of the vendor under the contract. However, no interest shall be payable on the PBG.

5. In the event of the vendor being unable to service the contract for whatever reason, **PMU-UK** would invoke the PBG.
6. Notwithstanding and without prejudice to any rights whatsoever of **PMU-UK** under the contract in the matter, the proceeds of the PBG shall be payable to **PMU-UK** as compensation for any loss resulting from the vendors failure to complete its obligations under the Contract.
7. **PMU-UK** shall notify the vendor in writing of the exercise of its right to receive such compensation within 14 days from the date of notification, indicating the contractual obligation(s) for which the vendor is in default.
8. **PMU-UK** shall also be entitled to make recoveries from the vendor's bills, performance bank guarantee or from any other amount due to him, the equivalent value of any payment made to him due to inadvertence, error, collusion, misconstruction or misstatement.
9. The performance guarantee shall be discharged to the bidder within 6 six months after successfully completing the Contract Period.
10. All bids shall remain valid for a period of three months (3 months) after the date of opening of the commercial bid by Board of Revenue. BOR reserves the right to reject a bid having the bid validity shorter than 3 months considering as non-responsive without any correspondence.
11. In special circumstances, BOR solicits extension of the period of validity from a bidder. The request and the response thereto shall be made in writing. Extension of validity period by the bidder shall be unconditional. The EMD provided shall also be sufficiently extended. However, a bidder may refuse the request without forfeiting the EMD. A Bidder granting extension of validity will not be permitted to modify its technical or commercial bid.

Document Management System

A web DMS is required for this project to easily retrieve and access the stored scanned documents and digitized files. The same DMS will also be used at the Modern Record Room for retrieve and accessing the digital cadastral maps. The DMS should be capable of handling approx one lacs scanned maps and approx one lacs digital maps.

The DMS being procured must have the following functionalities at least:

- Smart query and real time search options on the basis of keywords of the metadata to find documents
- Facility to add new documents in addition to auto generation of barcode for each new document
- Role based user creation and management facility is required. Software should support system privileges and provides facility for login/password
- Changes required in any document should be performed on a copy of the document to protect the original documents
- The DMS should not require a separate file reader application to be installed on the user's desk. It should provide its own digital document reading facility
- The software should have an audit trail facility to keep track of changes being made and the users who are making these changes
- Should be capable of handling file formats of .pdf / .tiff and .dwg.

General Instruction

1. The response to this RFP should be full and complete in all respects. Incomplete or Partial DPR shall be rejected.
2. The vendor shall bear all costs associated with the preparation and submission of the DPR, including cost of presentation for the purposes of clarification of the DPR, if so desired by PMU-UK who will in no case be responsible or liable for those costs, regardless of the conduct or outcome of the process.
3. All communications to PMU-UK including this RFP and the DPR documents shall be signed on each page by the authorized representative of the vendor along with the authority letter attached.
4. Kindly note that the Bidder should take care of the costs approved by the Government of India sufficiently covers all expenses that the vendor shall incur for the project's scope of work mentioned in above of this RFP.
5. **Govt. of India is decided Rs.1,500/- (One Thousand Five Hundred) for a one cadastral map as a maximum payable amount including scanning/Bar-coding/Digitization and linked with existing ROR. No additional payments will be done by PMU-UK, BOR, Uttarakhand for any purpose.**
6. This RFP is intended to give the vendors a brief idea about the nature and volume of work involved. However this is in no way exhaustive or guaranteed by PMU-UK.

Penalty

Penalty for delay in project execution

Each component of the project as mentioned in the Project Timelines must be completed within timelines. The delay in completion of any of the components will lead to a daily basis penalty charged against the vendor subject to a maximum of 10% of the project value.

Penalty for Damage of Physical Maps/Documents

The vendor should at all times maintain the condition of the physical documents. The quality of the maps before collection by the vendor will be evaluated by the department and the project in charge for the activity for which maps are required. Based on the evaluation, it would be decided if map has been damaged or not during any activity by the vendor.

If during the entire period of the contract it is found by department officials that documents have been damaged by the vendor, they will be penalized. If the vendor fails to perform as per the term and conditions, BOR may impose penalty on the vendor as per following:-

Sl.	Work Stage	Penalty Amount
1	If the scanning work is not completed-within stipulated time.	Rs 100/- (Rs One hundred only) per pending map sheet per week
2	If the digitization work is not completed-within stipulated time.	Rs 100/- (Rs One hundred only) per pending map sheet per week
3	Problems in Data Management software not resolved-within stipulated time.	Rs 500/- (Rs Five hundred only) per week till the problem is resolved.
4	Any damage to the cadastral map-handed over to the vendor.	Rs 10,000/- (Rs Ten thousand only) per damaged map sheet.
5	Any loss to the cadastral map-handed over to the vendor.	Rs 1, 00,000/- (Rs One lakhs only) per map sheet.

In case of any damage and loss of cadastral map by the vendor, apart from imposing penalties as mentioned above, Board of Revenue will have the right to proceed against the vendor under relevant provision of law.

Privacy & Confidentiality of data

The vendor will have to submit a Non-Disclosure Agreement (NDA) with the PMU-UK.

The vendor will have to maintain strict Privacy and confidentiality of all the data it/its staff gets access to. Adequate provisions should be made not to allow unrestricted access to the data. Vendors cannot sell/damage/destroy/part with data in any form. Legal Action along with penalty ranging from Rs. 1,00,000/- to Rs. 10, 00,000/- would be charged on default of this service condition. The exact amount of the penalty will be decided by PMU-UK based upon severity of the default.

General Conditions

1. The penalty shall be calculated and deducted from the immediate payment due and all above mentioned penalties are exclusive to each other. The maximum penalty at any point of time should not exceed 10% of project cost as per the contract/MOU. If the penalty exceeds this amount, department reserves the right to terminate the contract.
2. If any of the terms and conditions of this RFP are not adhered to on account of the proven negligence of the vendor or any default or misdemeanor on his part, the vendor will be liable to pay a penalty for such lapse as per the terms & conditions of RFP.
3. The vendor will be responsible to return data in any form/ records / spatial survey records intact and will be fully responsible to pay the penalty caused due to loss or damage as decided by **PMU-UK**.

Timeline

The work should be completed in all respect and output/deliverables need to be handed over to the BOR, Uttarakhand within 11 (eleven) months' time after the signing of agreement and date of issue of work order. The selected vendor must adhere to the Project Timelines that have been laid down.

Any delay in implementation of the project shall lead to a penalty as per the Service Level Agreement mentioned in this RFP.

The work of cadastral maps digitization has to be completed for following 2 districts Almora & Pauri Garhwal of Uttarakhand within the working days as follows:-

Sl. No.	Name of Districts	No. of Map Sheets	Time Line / No. of Days for			
			Necessary establishment	Map Scanning	Digitization	Finalization
1	Almora	As per actual	30 days	60 days	180 days	60 days
2	Pauri Garhwal					
Total Days for Completion of scope of work = 330 days						

Post the Implementation Phase, the vendor shall be responsible for Post Implementation Support (PIS) or Defect Liability Period (DLP) for 6 months. The total of the Implementation phase and the Post Implementation Support duration **(11 months + 6 months = 17months)** shall comprise the complete project period.

After the lapse of the designated timeline, on receiving and reviewing the justified reasons and requests mode by the vendor firm, the Authority in consultation with the Monitoring Agency may recommend grant of extension of maximum 4 weeks. However, the Authority reserves the right to extend this period with a penalty @1% of outstanding payment for every week and part thereof for first 3 weeks and @2% of outstanding payment for every week and part thereof for next 5 weeks.

Payment Terms

Payment schedule to the selected vendor will be as follows on the recommendation of PMU-UK / Consultant:-

Part No.	Description	% of Total Agreement Cost
1	Mobilization Advance* against bank guarantee of same amount by the vendor	10%
2	Submission of scanned cadastral maps (sajra) with all physical features and related attributes on the map in 2 formats (.tiff and .pdf). Properly Bar-coded and pasted/placed with Barcode Stickers. Upon approval by PMU-UK / consultant.	20%
3	Submission of vectorized/digitized cadastral maps (sajra) with all physical features and related attributes on the map topologically corrected and linked the Khasra number of the respective Khasra to the each Khasra/closed polygon. Upon approval by monitoring agency / consultant.	20%
4	Submission of Final composite cadastral maps (sajra) mosaic and linked in GIS format with the existing ROR data after incorporating the recommendations, if any, of "PMU-UK, Board of Revenue".	25%
5	Submission of deliverables as mentioned. Upon approval of correctness & completeness by monitoring agency / consultant.	25%

**The Mobilization advance shall be released only with an equal bank guarantee by the vendor in favors of "The Commissioner cum Secretary, Board of Revenue, Uttarakhand" with a valid period of minimum two years which will be returned on successful completion of assignment.*

Right To Accept or Reject Any DPR

PMU-UK reserves the right to accept or reject any DPR. **PMU-UK** shall be under no obligation to accept the lowest or any other offer received in response to this RFP and reject all DPR at any time prior to award of Contract, without thereby incurring any liability to the affected vendor(s) or any obligation to inform the affected vendor(s) of the grounds for **PMU-UK**'s action.

REJECTION CRITERIA

Besides other conditions and terms highlighted in the RFP, DPR may be rejected under following circumstances:

1. Conditional DPR.
2. If the information provided by the vendor is found to be incorrect/ misleading/ fraudulent at any stage / time before awarded the project.
3. Any effort on the part of a vendor to influence the DPR evaluation, DPR comparison or contract award decisions.
4. DPR without signature of person (s) duly authorized on required pages of the DPR

Failure to Agree With The Terms & Conditions Of The RFP

Failure of the vendor to agree with the Terms & Conditions of the RFP/Contract/MOU shall constitute sufficient grounds for the annulment of the proposal or the award, in which event PMU-UK may out rightly reject the proposal or make the award to the another vendor or call for new Bids.

Service Level Agreements

The purpose of Service Level Agreement (hereinafter referred to as SLA) is to clearly define the levels of service to be provided by the vendors to the department for the duration of this contract. SLA defines the terms of the vendor's responsibility in ensuring the timely delivery of the deliverables and the correctness of the same based on the agreed Performance Indicators as detailed in the Agreement.

This section defines various Service Level Indicators which will be considered by the department in the Service Level Agreement with vendor. The vendor has to comply with all Service Level Agreements (SLAs) defined below to ensure adherence to project timelines, quality and availability of services.

Note: Penalties shall not be levied on the vendors if there is a Force Majeure event affecting the SLA which is beyond the control of the vendor. Decision of an event being a Force Majeure event will be done by The Project Management Unit, DILRMP, Board of Revenue, Uttarakhand.

Termination of The Contract

PMU-UK reserves the right to cancel the contract at any time if it is not satisfied with the services of the vendor or there is breach of any of the conditions of this agreement by the vendor, provided a period of 15 days has lapsed from the date of serving notice on the vendor requiring it to remedy the breach and if the breach has continued up to the date of the termination. In this event, the work done till then by the vendor shall be taken over by **PMU-UK**.

PMU-UK reserves the right to appoint a new vendor and hand over to him all the documents to complete the assignment. In such an event, the vendor shall not be entitled to receive any payments upon termination of the contract.

In such case, upon termination, **PMU-UK** may also impose liquidated damages. Notwithstanding anything to the contrary contained in this agreement, vendor's collective liability arising out of this agreement shall be limited to the fees paid to the vendor for which decision of **PMU-UK** shall be final and binding on the vendor. The vendor will be required to pay any such liquidated damages to **PMU-UK** within 30 days of termination date.

INDEMNITY

Bidder shall indemnify, protect and save BOR & PMU-UK, against all claims, proceeding, liabilities, losses, costs (including legal costs), damages, expenses and action suits, resulting from brand new, including all components and accessories. All hardware and infringement of any patent, trademarks, copyrights, any other statutory infringements in respect of all the hardware / software supplied by him or expenses whatsoever arising out of or resulting from any loss or damage to the property or personnel of BOR relating to the performance of the Project whether or not such loss or damage is caused or contributed to by negligence or other default of Bidder or their Authorized User.

PERFORMANCE OBLIGATIONS

While providing services as per Scope of Services, the vendor shall ensure that there is no infringement of any patent or design rights or violation of any intellectual property or other right of any person or entity and shall comply with all applicable Laws, Statute, regulations and Governmental requirements and he/she shall be solely and fully responsible for consequences of such an infringement.

PUBLICITY

Any publicity by Vendor regarding the project in which the name of **PMU-UK** is to be used should be done only with the explicit written permission of **PMU-UK**.

Force Majeure

1. Notwithstanding the provisions of the tender, the bidder shall not be liable for forfeiture of his performance guarantee, liquidated damages or termination for default, if and to the extent that, it's delay in performance or other failure to perform its obligations under the contract is the result of an event of Force Majeure.
2. For purposes of the above Clause, "Force Majeure" means an event beyond the control of the bidder and not involving the bidder and not involving the bidder's fault or negligence and not foreseeable.
3. Such events may include, but are not restricted to, acts of Department of Revenue, either in its sovereign or contractual capacity, wars or revolutions, fires, floods, epidemics, quarantine restrictions and freight embargoes.
4. If a Force Majeure situation arises, the qualified bidder shall promptly notify Department of Revenue, in writing of such conditions and the cause thereof. Unless otherwise directed by Department of Revenue, in writing, the Bidder shall continue to perform its obligations under the contract as far as reasonably practical and shall seek all reasonable alternative means for performance not prevented by the Force Majeure event.

Signing of Contract Agreement

1. BOR shall notify the successful bidder(s) by issuing a Letter of Intent (LOI) that his/their bid has been considered for awarding the work subjected to his willingness to execute the work.
2. Upon issue of the notification by BOR the concerned bidder is required to sign the contract agreement with the BOR, Uttarakhand within 7 days from the date of issue of notification.
3. Any bidder failing to sign an agreement as mentioned above shall be disqualified and his bid shall be considered as invalid. He will also forfeit his EMD.

RESOLUTION OF DISPUTES

Any dispute arising out of or in connection with Agreement shall in the first instance be dealt by mutual negotiations. Any dispute or difference arising between the parties, which cannot be resolved through mutual negotiations, shall be referred to The District Court of Dehradun.

The decision made by The District Court of Dehradun shall be final and binding upon the parties, subject to legal remedies available under the law. The Arbitration proceedings will be held in Dehradun.

SUBJECT LAWS AND JURISDICTION

The Agreement shall be governed by Indian Law and the Court at Dehradun will have jurisdiction to entertain the dispute(s).

EXIT MANAGEMENT CLAUSE

This clause sets out the provisions, which will apply only on expiry or termination of the Agreement. The Parties shall ensure that their respective associated entities carry out their respective obligations set out in this Exit Management Clause.

Handover of Assets

Vendor shall be entitled to use the Assets for the duration of the exit management period of one month on termination of the Agreement. Post that, the vendor must handover all assets to the department or to any agency that the department may choose.

Confidential Information, Security and Data

The vendors will promptly on the commencement of the exit management period, supply to **PMU-UK** or his/her nominated agencies the following:

Information relating to the current services rendered and performance data relating to the performance of the services, documentation related to each component of DILRMP mentioned in this RFP. Project data as is reasonably required for purposes of the Project or for transitioning of the services to its replacing vendor in a readily available format.

All other information (including but not limited to documents, records and Agreements) relating to the services reasonably necessary to enable **PMU-UK** and its nominated agencies, or its replacing vendor to carry out due diligence in order to transition the provision of the services to **PMU-UK** or its nominated agencies, or its replacing Vendor (as the case may be). Project Documentation, including but not limited to the following:

1. Project Commencement Documentation
2. Training Plan / Training Material and User Manuals
3. Data/Software standards

Rights of Access to Information

At any time during the exit management period, vendor will be obliged to provide an access of information to **PMU-UK** and/or any replacing vendor to material related to DILRMP.

Exit Management Plan

Vendor shall provide **PMU-UK** with a recommended exit management plan ("Exit Management Plan") which shall deal with at least the following aspects:

1. A detailed program of the transfer process that could be used in conjunction with a Replacement Vendor including details of the means to be used to ensure continuing provision of the services throughout the transfer process or until the cessation of the services and of the management structure to be used during the transfer.
2. Plans for communication with staff, suppliers, customers and any related third party as are necessary to avoid any material detrimental impact on the project during the exit management period; vendor shall use its best efforts to deliver the services.
3. This Exit Management plan shall be furnished in writing by vendor within 7 days from the receipt of notice of termination or before the expiry of the Agreement for "Digital India Land Record Modernization Program, State of Uttarakhand".

General Instructions to be followed during scanning

1. Precautions should be taken in handling the maps as they may be very old and in a brittle condition.
2. Carry out the scanning and digitization activities as per scope of work given above.
3. The agency should strictly comply with the operational processes for implementation of the project.
4. The vendor shall add/replace poor quality scanned images/maps on its own, for which vendor shall not be entitled to get any extra payment.
5. It is the absolute responsibility of the vendor to ensure that the contents of the digitized maps shall be an exact replica of the original map maintained as part of the revenue records. This will be a mandatory condition for the vendor to authenticate the validity of the digitized map.
6. Board of Revenue may direct to get all the maps scanned and digitized afresh by any other vendor, if it is found that the vendor has not performed the task of scanning and digitization satisfactorily and the images are of poor quality and expenditure in doing so incurred by Board of Revenue shall be deducted from the vendor's bill.
7. Maps will not be allowed to be displaced from vendor's premise at divisional headquarter. Selected vendor should have to be established at the premises suitable hardware infrastructure/facilities, gen-set for power backup to perform the Digitization work.
8. Maps in any shape e.g. Hard copy/ Softcopy/ Data etc will not share or sale or trade etc in any manner whatsoever with any one, it will be the sole property of the Board of Revenue or of offices subordinate to it.
9. Under no circumstances the maps cannot be changed, mutilated, destroyed or replaced by some other document.
10. Maps are Government documents so tampering/ manipulations/ editing shall not be done in original Maps. Breach of this proviso will attract appropriate criminal proceedings.
11. After completion of the digitization process, the physical maps need to be rearranged according to village/ Tehsil/ district wise by the vendor in the similar condition in which the maps were received from district authorities.
12. As soon as the scanning of maps completed, the physical maps will be returned to the district authorities.
13. After the completion of digitization work of cadastral maps the vendors will be under an obligation to return to the concern district the following:
 - Hardcopy of the Maps
 - Softcopy of the maps
 - Data
 - Final deliverables
14. The vendors shall be required to give an undertaking that after the completion of the project they will not retain any data/maps etc. in any manner whatsoever with them.

Guidelines for Map Digitization

Guidelines

1. Collection of physical maps from the Revenue Office.

The vendor will collect all cadastral maps mentioned in the scope of work from the department. The vendor shall maintain Log Register for maps collected and returned along with department officials. While collection, the following details should be entered into the log register:

- a. Name of village
- b. Map type
- c. No. of maps collected
- d. Collected map numbers/name
- e. Date of collection
- f. Expected date of return
- g. Actual date of return
- h. Collected from
- i. Collected by and Signature
- j. Returned to & by and Signature
- k. Any other details will be decided with the vendor before start of project

Vendor should provide the department officials list of villages for which maps are required, after grouping them in sets. The vendor should also provide a rough time scale during which they will take the documents from the department. This will help the department in keeping the records ready.

The vendor should maintain order of the maps without disturbing the chronology and without mixing pages between different map types. Continuous assistance from the department will be given for availability of required records.

The vendor must handle each of the maps with utmost care and ensure that they are not damaged. Any damage to the map would result in penalty as explained in section **Penalty for Damage of Physical Maps/Documents.**

1. Quality check for Input data evaluation

The first Digitization Quality Check must be performed the moment the map is procured. The vendor must ensure that the maps are not in poor shape for scanning i.e. they should not be cloth mounted or torn or folded. The control marks (tics), if any, should be clearly visible. The features of the map should be clearly visible and the plot numbers should be visible too. All symbols on the map should be properly understandable. Once this check is completed and satisfactory, it can be used for scanning.

2. Tracing or re-production of the analog maps

In case the vendor finds the maps are not suitable for scanning, then it should be traced for reproduction of the map. The vendor should inform the department about all such maps after first level of scrutiny. The maps should be traced by vendor using the following specification:

- a. Tracing to be done on 75 micron polyester film
- b. Tracing should be done with 0.1 pens using black ink only
- c. All the features should be traced and the labels should be placed neatly in the center of the feature with free hand drawing
- d. In case the feature is too small to accommodate the label, it should be placed at a convenient location with a marker arrow
- e. The heading and legend data should also be traced along with scale, north arrow, sheet no., etc. along with map border.

The reproduced sheet should pass the quality norms as set by the department and accepted by the department officials before sending it for scanning.

3. Sheet indexing

All sheets need to be indexed with appropriate index numbers. The index number will be the unique key to identify a sheet. The format for the index number will ideally include village census code, village name, and type of map, year and other details. This number will act as the unique identifier.

The format for index number will be finalized with the vendor before starting the project.

4. Tic/Gridline highlighting

The tics on a map must be highlighted wherever present to try and identify scanning errors during digitization.

a. Gridlines and Tics are present

The tics on the maps may be faint or in the form of grid lines. Uniformly distributed tics should be highlighted with a cross (X) depicting the exact intersection of the gridlines or tic position. The distance between the tics/gridlines, based on the scale, has to be ascertained and measured. This will be useful in selecting the mathematical grid for grid correction.

b. Four corner Tics available

The tentative distance of the corner tics has to be measured, based on the scale, and highlighted with a cross (X) depicting the tics position.

c. No Gridlines or Tics available

Such maps will not have any reference points but to identify and remove errors due to scanning, transferred tics are used. The tics from standard mathematical grid have to be transferred on the analog sheets by overlay method. These transferred tics will help to rectify any distortion in scanning.

5. Quality check for Input data evaluation

The second quality check should be performed at this stage before it is sent for scanning. Once found acceptable on all the below-mentioned characteristics, the map is tagged suitable for scanning.

- a. Maps can be scanned. In case of non-scan able maps, they have been traced for scanning
- b. It should not be a cloth mounted, nor be torn or ragged, and not have too many folds and the features/textual information of the map should be clear and distinguishable

- d. All maps have been properly indexed
- e. All tics have been marked on the map to be scanned and Distance between all tic marks have been accurately captured
- g. All kind of dirt and possible noise creating entity has been removed

Note: - In some cases, vendor may find that an individual parcel have been captured in the map sheet more than once. The vendor should note all such parcels and take department's guidance on which of those parcels needs to be scanned. Payment for duplicate parcels will not be done, until and unless suggested by the department.

6. Scanning of the analog maps (converting analog to raster images)

Cadastral maps should be scanned using A0 size raster scanner or any other size scanner as found appropriate for the particular map type. The vendor should set the dpi very precisely during scanning. The following minimum specifications should be adopted while scanning the cadastral sheets:

- a. Maps should be ideally scanned at minimum 400 DPI on 24 bit color mode depending upon the density of the features. If all the details are not picked up during scanning, the DPI should be increased to capture all the details on the map.
- b. While scanning, the sheet should be fed in straight upright position
- c. In flat-bed scanner, the map should be laid flat on the glass, smoothed and scanned and bulging should be avoided

7. Quality check for dimensional accuracy of raster image

The following aspects should be checked immediately after scanning during this quality check:

- a. The raster image of scanned map should be stored in *.tiff format and pdf format
- b. The scanned map orientation should be upright (north oriented)
- c. The raster image should be clean and free from noise (i.e., unnecessary pixels or darkness in the image). To remove the noise, de-speckling should be applied
- d. The distance captured earlier between tic marks is compared with the distance of the scanned image for checking any discrepancy
- e. The measured distance between each marked tics on physical maps and scanned maps should be within +/-0.1%
- f. The dimensional accuracy of the raster image is checked i.e. there is total correspondence between raster image and original map
- g. Checking for expansion – raster image has not expanded compared to the original map
- h. Checking for contraction - raster image has not contracted compared to the original map
- i. Checking for rotation – raster image has been rotated at some angle compared to the original map
- j. The raster image has been given the right map index number

Note: - All scanning activities must be done in the presence of the revenue officials and in the premises authorized by revenue officials for scanning. No documents should be taken out of these premises at any cost without the prior approval of the department.

8. Grid correction of scanned cadastral maps

Even after quality checks, some errors can creep in due to machine specification and scanning techniques. There can be also some distortion in the input manuscript (analog cadastral map). The scanned map may carry forward the errors due to differential scanning, wear and tear or differential shrinkage/expansion. The net result may be non-uniform scale at parts of the map, deflection in north orientation, etc.

In such a case, a vector grid can be set up to verify the correctness of the map. The grids can be placed at equal distances on the map depending on the scale of the map. After selecting the appropriate grid, the cadastral scanned maps have to be registered with the grid.

9. Template creation

Before starting Vectorization, a standard template has to be created. The layer name, line type, color and thickness for each feature (e.g. parcel, roads, canals, river, etc.) present on the map is standardized using the template. This maintains uniformity in all the map outputs.

The template should hold various graphical scales and other map features like north arrow, boundary lines, headings and other permanent annotations. A symbol library should be created, which contains the various symbols available on the original maps. The symbol library gets depicted in the legend of the template.

The template should address the font type of the annotation in the maps. UNICODE system should be adopted with proper font for depicting Hindi language script. Detailed template and symbol library should be created prior to commencement of work after discussions between the vendor and department officials.

10. Vectorization/Digitization of the scanned maps

Digitization is the process of converting the raster image to vector image. The cadastral map sheet is displayed in the background, the required environment settings for digitization are set, and the required features are captured into different layers (based on the feature type)

The general specifications for Vectorization are given below:

- a. While digitizing, the scale should be maintained accurately, so that the output corresponds 1:1 with the original map
- b. The data is to be digitized using heads-up digitization
- c. The features are to be captured such that they can be shown in appropriate layer
- d. The lines are to be digitized as poly-lines only, coincident lines are to be digitized once and copied to appropriate layer
- e. The uniformity in layers, line type, color, annotation, etc. during digitization should be maintained by using the template, as described above, to capture all the features in their respective layers
- f. The final output of this process will be a digital map which will be a true copy of the paper map, along with necessary legends, scale bar, north arrow, borders, etc.
- g. Digital Quality Check is performed to ensure that features extracted from the physical map are accurate and rightly placed. Any errors found must be reported to the department and due course of action must be taken after that.

11. Attribute Data Creation/ Attachment

Attribute data for each parcel is attached in the text layer. The parcel number and the parcel land use are the two main attributes that are linked to the village polygons. Parcel number will be the primary key for linking with textual data.

12. Quality check for the accuracy of the type, location and attributes

- a. The vendor will superimpose the vectorized maps on the scanned maps and do 100% on screen validation of all output maps
- b. The vendor will also conduct 100% attribute checking.
- c. The vendor will assure that all features abstracted from the scanned map sheets are accurate
- d. The vendor should check that the vectorized maps are not incomplete or double
- e. The vendor should check that the vectorized maps are not at the wrong scale.
- f. The vendor should check that the vectorized maps are not distorted.
- g. The vendor should check that the vectorized maps are not linked to wrong attributes.

Note: - The vendor will submit their detailed quality plan explaining detailed checks that will be done by them like checking the line work, attribute details, template follow, legend details, sheet index, feature matching etc. The vendor will also assist department in conducting 100% on screen validation of the vectorized maps. The vendor shall provide the department with skilled personnel and infrastructure to perform this quality check

13. Layout and printing hard copy for evaluation by department officials

The vendor will submit printout of hard copy of digitized map sheets to the department for verification who will then check various map features for correctness.

14. Incorporation of the corrections suggested by the department

The vendor will incorporate all the changes suggested by the department after department's quality check process is over.

The output will be validated completely for accuracy of the vectorized maps, attributes captured, parcel size and shape, sheet indexing, feature location and coding, annotation, etc. The corrections will be handed over to the vendor for necessary actions.

15. Sheet mosaicing of a village

Individual maps sheets of a village are joint to form a complete village map. Edge matching is done by bringing two different map sheets of the same village into the same file and matching their edges with reference to the grid and the features on the maps.

- a. Continuity should be maintained for all the features at the edges and its attributes
- b. Care must be taken to eliminate all dangles (undershoot/overshoot) and label errors
- c. On-screen checking is done to check the common edge between the mosaicing maps. Vendor has to ensure the completeness of the polygon features such as parcels, continuity in line features such as rivers, roads, etc
- d. Duplicate features along the edge, especially symbols have to be removed

16. Conversion of digitized data into topologically correct GIS data format

Once mosaicing is complete the digital data is converted into topologically correct GIS features. The strength of the GIS features is the establishment of the spatial relationships within and between the various features with respect to position, containment, contiguity, proximity, adjacent and intersection.

After establishing the topology, the attribute data in the standard structure should be filled up. The unique primary key and the foreign key are generated.

Null and duplicate attributes 'lists are generated, both as text file and spatial data outputs. This forms part of the next digitization quality check procedure.

The error report is again evaluated and checked. Wherever possible, corrections are incorporated, or else tagged with appropriate error codes.

17. Metadata Preparation

The system and procedures of database generation should evolve a strong metadata, for which the metadata standard has to be designed. The objectives of the standard are to provide a common set of terminology and definitions for the documentation of digital geospatial data.

The standard establishes the names of data elements and compound elements (groups of data elements) to be used for these purposes, the definitions of these compound elements and data elements, and information about the values that are to be provided for the data elements.

The vendor must understand the metadata fields to be captured from NIC and department officials.

Database Standards

Vendor is responsible for a clean database which complies with standards laid down by NIC. Two main aspects need to be considered which are:

1. Geographic data which should be capable of defining where the parcel of land is or where a particular attribute is situated
2. Unique identification of land parcel which will enable the linkage of attributes linked to that parcel of land such as plot number/survey number/PTS number etc.

Database verification should be done at each stage to ensure that data being fed is free of any errors.

The following types of errors can be expected:

1. Spatial data is incomplete or duplicated
2. Spatial data is in the wrong place
3. Scale of spatial data is wrong
4. Spatial data is distorted
5. Spatial data is linked to wrong attribute
6. Non-spatial data is incomplete

For evaluating digital data in the database, following guidelines should be used:

1. Assuring that appropriate digitization methods with proper template, accuracy, precision and quality check procedures are followed
2. Verification of the co-ordinate system (in Auto CAD map); projection and datum (in geo -database)
3. Checks for digitization errors like silvers, dangles, and topology rules
4. Attribute verification providing the correctness of feature coding by listing it out and comparing with the manuscript maps. Randomly checking a few parcels for shape and form listing of polygons with null and duplicate attributes
5. Verification of edge-match with adjacent sheets and villages by displaying them side by side
6. Comparison of the total area of the village by aggregating the parcels, etc. vis-à-vis the area reported in census handbooks or available with the Land Records Department in the RORs
7. Verification of geo-referenced control points (GCPs) and RMS (Root Mean Square) error for the transformation model
8. Attachment of appropriate metadata at all stages of the database preparation

Quality Assurance

Apart from the quality checks mentioned above, an indicative list of some other quality criteria compliance has been given below:

- | | | |
|-------------------------------|---|------|
| 1. Directory/folder structure | : | 100% |
| 2. File naming convention | : | 100% |
| 3. Data readability | : | 100% |
| 4. Data structure | : | 100% |
| 5. Data format | : | 100% |
| 6. Attribute correctness | : | 100% |
| 7. Attribute completeness | : | 100% |
| 8. Meta data | : | 100% |

It is important for the vendor to notice here that as per the objective of the digitization project, the output obtained from this project may be utilized for two main purposes:-

1. Re-survey
2. Archival

These maps will be used by department officials for day to day operations also. For resurvey purpose the output required will be in *.dwg format.

But another important aspect of the output will be dissemination to the citizens using Bhunaksha. The format required for that will be *.shp format.

Quality check of data must preferably be performed after each step in the digitization process. This is because any imperfections at any step may get enlarged through the digitization process.

The accuracy requirement and specifications for each type of features which should be maintained for all three features is indicated below:

Polygon feature specifications

1. The parcel boundary should be digitized in such a manner that the resulting vector line falls in the center of the raster data image element being vectorized.
2. The parcel boundaries are generally straight, hence should be digitized using 2 nodes/vertices in keeping with the shape of the polygon.
3. The feature should be digitized in such a manner that there is no overshooting or undershooting of arcs, or duplicate arcs.
4. The feature should be captured with specked symbol.
5. The feature should be digitized with minimal number of vertices while, at the same time, maintaining the smoothness or angularly of the lines, as the case may be.
6. The feature should be a closed polygon without any dangles or sliver.
7. Each polygon should have a unique number as per the coding scheme.
8. All features like parcels, roads, rivers, etc., which form the polygons, are to be digitized and coded as per the coding scheme.
9. The label (parcel no.) should be placed in the center of the feature.
10. Nodes are to be added wherever symbols are depicted on the parcel boundaries.

Line feature specifications

The linear features shown as single line arcs on the map or linear double line features or symbols like rivers, roads etc. are to be digitized and compiled into the line layer for the parcel. The single line arc features, whether shown as continuous lines or broken lines, are to be captured from the map image. In addition to this, the double line roads, rivers etc. from the polygon coverage are also to be put into the line coverage.

The feature coding guidelines are given below:

1. The river/roads depicted on the image represent the outside edges in case of double line features and should be digitized as such. The resulting vector should not deviate from the pixels defining it. These features should be captured only once and copied into the appropriate layers.
2. The feature should be vectorized in such a manner that the shape is captured and retained as it is.
3. The feature should be vectorized using optimum member of nodes/vertices so that the shape is retained and does not appear jagged.
4. In case of single line features, they should be captured as a single continuous feature from one end of the feature to the other end in the parcel without break.
5. There should not be any gap between two connecting features, nor any overshoots; the features should be snapped to connecting features.
6. The features should be coded as per the template created at the beginning.

Point feature specifications

1. The features shown on maps as points, like wells, trees, etc., are to be digitized as point features
2. The feature should be digitized as a point placed at the center of the raster image defining it.
3. There should only be one point at one location.
4. Each feature should have a unique ID.

The list of features can be procured from the Survey of India office by the vendor.

For evaluating the digitized data in shape file format / CAD format, the following guidelines/parameters should be followed:

1. Assuring that appropriate digitization methods with proper template, accuracy, precision and quality check procedures are followed.
2. Verification of the co-ordinate system
3. Checks for digitization errors like silvers, dangles, and topology rules.
4. Attribute verification providing the correctness of feature coding.

Warranty, maintenance and technical support

The vendor shall be responsible for warranty support for vector data and document management software developed as per the requirements given on Scope of Work, for a period of six (6) months from the date of completion of project/performance obligations. This will cover for bugs, if any, coming out in the modules developed and handed over to the department for accessing digitized maps and attribute data, and for extraction and printing the plots with exact area and dimensions etc. in each districts.

The vendor has to resolve any problem pertaining to software within 07 working days. The vendor has to provide technical support at Board of Revenue for six months after completion of work.

Hardware, Scanners, Printers and System Software

The vendor shall deploy adequate hardware, software, manpower and other infrastructure to ensure the time bound completion of the project. The vendor will be required to set up the complete environment (i.e. power backup, furniture, IT hardware, paper & related supplies and manpower etc.) on vendor's premise at divisional head-quarter. The vendor shall deploy the things required for quality check at district level like light tables etc. in the beginning of the work/job.

The BOR or PMU reserves the right to conduct random checks for quality assessments of the scan.

Quality Check

The vendor after scanning and digitization of a particular village map sheet will provide draft map on tracing sheet and would handover it to the district authorities for quality check. District authorities will check draft digitized map with respect to the original map and will ensure that the draft map is exactly similar (1:1) to the original map. During the quality checking, if any discrepancy in the draft map is found the vendor shall correct it. The corrected draft digitized map will again be submitted to district authorities for quality checking.

If the draft digitized map is found to be exact match (1:1) of the original, PMU-UK will certify it and thereafter vendor will provide final output as mentioned above.

Handing/taking over of Physical Maps

The District Magistrates of respective districts or their authorized representatives (on specified locations/divisional headquarter) will provide the maps to the designated representative of the vendor, the technical team will supervising the Scanning/digitizing work, on day to day basis under proper receipt on handing/taking over registers, which will be maintained by the vendor. Standard format of issue registers shall be provided by BOR to the vendor. It will be the responsibility of the vendor to accomplish the task of scanning/digitization after following all the process.

It will be the responsibility of the vendor to return the maps to concerned official under acknowledgement on the same handing/taking over register in the same shape and condition in which they were taken. The vendor will ensure that the maps handed over to it are kept in proper condition and no map is soiled/lost/misplaced/damaged.

The vendor shall not be allowed to take away any map either in the shape of hard copy or soft copy and the work is to be carried out at the place as provided by district authorities.

Annexure-1: District Wise Project Cost (approx)			
Sl. No	District Name	Quantity of Cadastral Maps.(Approx)	Max rate per map Rs.1,500/-
1	Almora	17054	Rs. 2,55,81,000
2	Pauri Garhwal	8003	Rs. 1,20,04,500
Total =		25057	Rs. 3,75,85,500

Note: - The actual cadastral map count may vary either District wise or as a total. Interested bidder is advised to consider 5% buffer for the total map count as well as the total project cost. BOR will be not responsible for this.

Annexure-2: Technical Offer

Technical offer should include:-

1. Past performance (Annexure-I).
2. General information about the bidder on the format (Part-II Annexure-2) prescribed in the tender document.
3. An affidavit by the competent authority stating acceptance of the terms and conditions.
4. Earnest Money.

The technical offer should be in duplicate, sealed separately. The envelope containing original technical offer shall be super scribed as "original technical offer for Digitization of Cadastral Maps".

The envelope containing duplicate technical offer shall be super scribed as "Duplicate technical offer for Digitization of Cadastral Maps".

The two envelopes properly sealed separately should then be placed in a bigger envelope super scribed "Technical offer for Digitization of Cadastral Maps" and sealed.

While opening the technical offer only the envelope super scribed "Original technical offer" will be opened. The other envelope containing the duplicate offer will remain sealed.

Annexure-3: Capability Statement

1. Details of the Bidder

Sl.	Bidder	Details
1	Name of the Bidder:	
2	Mailing Address:	
3	Phone:	
4	Fax:	
5	E-mail:	
6	PAN No:	
7	TAN No:	
8	TIN No:	
9	Service Tax Registration No:	

2. Technical Manpower Details

Sl.	No. of Technical personnel	Roles	experience
1		GIS	
2		Remote Sensing	
3		Revenue	
4		IT	
5		Software Developer	
6		Other	

3. Turnover during each of last three financial year (In reverse chronological order)

Sl. No	Financial Year	Turnover (Rs. in Lacs)
1	2013-2014	
2	2014-2015	
3	2015-2016	

4. Strength of business/sales office

Sl.	Office Assets	Details/Quantity
1	No. of Administrative/ Supervisory personnel:	
2	No. of Marketing/ Other Support personnel:	
3	No. of Servers:	
4	No. of Desktops:	
5	No. of Laptops:	
6	No. of Scanners (Flat Bed and Rotary):	
7	No. of DeskJet/ Laser Jet Printers:	
8	No. of Plotter:	
9	Description of Software Tools:	
10	No. of Light Tables:	

5. Details of clients to whom similar services were offered in the past and to whom reference may be made regarding the bidder’s performance for timely completion of delivery and service support:

1	Complete address of the client :	
	Name of contact person:	
	Designation of contact person:	
	Mobile	
	Phone	
	Fax No	
	E-mail address	
2	Complete address of the client :	
	Name of contact person:	
	Designation of contact person:	
	Mobile	
	Phone	
	Fax No	
	E-mail address	
3	Complete address of the client :	
	Name of contact person:	
	Designation of contact person:	
	Mobile	
	Phone	
	Fax No	
	E-mail address	

6. Date of incorporation of the Company:

7. PAN/TAN/TIN Number of the Company:

8. Service Tax Registration Number:

9. ISO/CMM Certificate Number & Date of Validity:

Signature and seal of the Bidder

Annexure-4:
District Wise Volumes of Cadastral Maps

The figures provided in the below table are tentative and actual figures may vary. However, these figures may be used for computing the estimates and evaluation.

Payments will be released on actual work assigned to the selected agency and work completed by the agency.

Sl. No	District Name	Quantity of Cadastral Maps.(Approx)
1	Almora	17054
2	Pauri Garhwal	8003

ALMORA									
Code	District	HQ	SRO	Map sheet's	Sub-Division	Tehshil	Sub-Tehshil	Villages in the District	
AL	Almora	Almora	3	17054	Sult	Sult Khumar		2251	
						Machhod			
					Bhikyasain	Bhikyasain			
						Chaukhutia			
						Syalde			
					Ranikhet	Ranikhet			
						Dwarhat			
					Almora	Almora			
						Someshwar			
						Dhaulchhina			
									Lamgada
					Jaiti	Jaiti			
Bhanoli									
Total			3	17054	5	12	1	2251	

Pauri Garhwal								
Code	District	HQ	SRO	Map sheet's	Sub-Division	Tehshil	Villages in the District	
PG	Pauri Garhwal	Pauri	4	8003	Pauri	Pauri	3471	
					Chobbtakhal	Chobbtakhal		
					Lansdowne	Lansdowne		
						Satpuli		
					Kotdwar	Kotdwar		
						Yamkeshwar		
					Shrinagar	Shrinagar		
					Dhumakot	Dhumakot		
						Thalisain		Thalisain
	Chakisain							
Total			4	8003	7	10	3472	

Annexure-5:
Format for Performance Bank Guarantee

To,

Date:-

The Commissioner cum Secretary

Place:-

Board of Revenue Uttarakhand

Mussorrie Ring Road Bypass, Ladpur, Dehradun – 248008

1. Whereas M/s _____ (hereinafter called as "Vendor") has to undergo the Project implementation assignment of "Digitization of cadastral maps (Sajra) and its linkage to ROR data" as per agreement dated _____ signed between Commissioners cum Secretary on behalf of Board of Revenue Uttarakhand, Dehradun (hereinafter called as "BOR") and Vendor.
2. Now therefore know all the party presents that we _____ having its Head Office at _____ (hereinafter called "the Bank") are bound up to the "BOR" in the sum of Rs. _____ (in word _____) for which payment will and truly to be made to the "BOR", the Bank binds itself, its successors and assignees by these presents.
3. "The Bank" further undertakes to pay to the "BOR" up to the above amount on receipt of its first written demand, without the "BOR" having to substantiate its demand. The Client's decision in this regard shall be final and shall not be called upon to question under any circumstances.
4. The Bank Guarantee will remain in force up to _____. However, its validity can be got extended before _____ solely at the instance of the "BOR". This clause shall remain valid not withstanding anything else contained to the contrary in the document.
5. Our liability under this guarantee is restricted to _____ (in word _____) and it will remain enforce up to _____ unless a demand in writing is received by the bank on or before _____ all your rights under the said guarantee shall be forfeited and we shall be released and discharged from all the liabilities there under.
6. Sealed with the Common Seal of the said Bank this ____ day of ____ 2016. In witness whereof the Bank, through its authorized officer, has set its hand and stamp on this ____ day of _____ 2016.

For Bank _____

Witness

Signature

Name

M/s _____

Annexure-6: BOQ (Bill Of Quantity) *

Validate Print Help **Item Rate BoQ**

Tender Inviting Authority: Commissioner cum Secretary, Board of Revenue Uttarakhand

Name of Work: Digitization of Cadastral Maps (SAJRA)/Revenue Maps And Integration with Revenue Records at the district location of ALMORA and PAURI GARHWAL

Contract No: _____

Bidder Name :										
PRICE SCHEDULE										
(This BOQ template must not be modified/replaced by the bidder and the same should be uploaded after filling the relevant columns, else the bidder is liable to be rejected for this tender. Bidders are allowed to enter the Bidder Name and Values only)										
NUMBER	TEXT	NUMBER	TEXT	NUMBER	ESTIMATED RATE (max.) per Mapsheet in INR	NUMBER	BASIC RATE In Figures To be entered by the Bidder Rs.	NUMBER	TOTAL AMOUNT With Taxes	TEXT
1	Item Description	Quantity	Units	4	5	6	7	8	TOTAL AMOUNT In Words	
1	Digitization of Cadastral Maps (SAJRA)/Revenue Maps And Integration with Revenue Records at the district location of ALMORA and PAURI GARHWAL	3								
2	Digitization of Cadastral Map including indexing/ Scanning/ Bar-coding/ DMS/ Digitization/ Printing/ Linking with ROR/ Technical Document/ User Manual (as mentioned in RFP)	25057	Nos		1500.00				0.00	INR Zero Only
Total in Figures									0.00	INR Zero Only
Quoted Rate in Words									INR Zero Only	

*The financial bid should be submit online at <https://uktenders.gov.in> only. This BOQ is for reference purpose only.

Annexure-7:
Acceptance of Terms and Conditions Contained in the RFP

Tender Reference No.: _____

To,

The Commissioner cum Secretary
Board of Revenue Uttarakhand
Mussorrie Ring Road Bypass, Ladpur,
Dehradun – 248008

Date:-

Place:-

Subject: Acceptance of all the terms and Conditions contained in this document.

Sir,

I have carefully gone through all the Terms and Conditions contained in the RFP Document _____ regarding "Digitization of cadastral maps (Sajra) and its linkage to ROR data" in Uttarakhand.

I declare that all the provisions of this RFP Document are acceptable to my Company.

I further certify that I am an authorized signatory of my company and am, therefore, competent to make this declaration.

Yours Sincerely,

उत्तराखण्ड शासन

Name: _____

Designation: _____

Company: _____

Address: _____

Note: - Copy of authorization by competent authority in the bidders company pertaining to not only this form but entire bid should be enclosed.

--End--