SELECTION OF CONSULTANT

(QCBS Lump sum)

Terms of Reference for

CONTOUR SURVEY OF TANK COMMANDS UNDER OIIPCRA

FOR OIIPCRA PROJECT

TERMS OF REFERENCE

CONTOUR SURVEY OF TANK COMMANDS UNDER OIIPCRA DATA SHEET & TECHNICAL SPECIFICATION

(Terms of Reference)

1. Background & Introduction

Government of Odisha is implementing the World Bank supported Odisha Integrated Irrigation Project for Climate Resilient Agriculture (OIIPCRA) with an MoU with CAD Organization through the Department of Water Resources (DoWR). The period of implementation of the project is 2 Years from 2023-24 to 2024-25.

The project is being implemented through the "Additional Secretary cum Director-CAD-PIM, DoWR, Bhubaneswar", Government of Odisha. 324 Nos. of Minor Irrigation projects have been identified for rehabilitation in 08 Districts of Odisha for 29077.80 ha. These districts include Keonjhar, Bhadrak, Mayurbhanj, Ganjam, Kandhamal, Bargarh, Balangir and Kalahandi. The projects will be executed in 5 (Five) numbers of packages of 29077.80 ha. The list in annexure – 1.

The project envisages an initiative to increase Water Productivity. One of the methods to increase the water productivity is:

i. By reducing losses in conveyance of water enroute to the point of application and

ii. By providing timely supply of required quantity of irrigation water and reduce wastage.

To achieve these objectives, the project proposes to provide irrigation directly at the point of application considering the sub-chaka area limiting to 2.0 Ha to minimize the flooding method of application as currently done for the command area under a Chaka. The conveyance losses in the irrigation supply also need to be minimized.

Accordingly, it is proposed to align and lay the conveyance system through intensive CAD channels made in cement concrete of required discharge capacity which will run on the boundaries (common partition banks of plots generally found in the commands in Odisha) in a bed slope from 1 in 600 to 1000.

As such it is required to make a detailed survey of the project commands to obtain contours with intervals from 0.2 m to 0.5 m. The Chaka starting under the point of out-let to be divide to 2.0 Ha and align these CAD channels for gravity flow to make the irrigation water to reach each 2.0 Ha sub-command below the out-lets.

2. Definitions of words and phrases used in the document

2.1 The Work

Survey and planning for Command area development (CAD) and water management for the ayacut area as per the detailed list of tanks at Annexure-1.

2.2 Micro Distribution System

It consist of a main field channel and lateral field channels (earthen/ concrete) below the canal outlet for equitable distribution of water, including required structures like Division box, Delivery tank,

Turnout, Fall, Road crossing, drainage Crossing, borrow pit crossing etc.

2.3 Field Channel

The Channel (RCC/Earthen) Constructed below the canal outlet for carrying water to the farmer's field having design Discharge of 1 to 1.5 cusec.

2.4 Pani Panchayat (water users Association-WUA)

The Pani Panchayat is farmers' organization comprising of all farmers as members and all Chaka leaders as executive committee in a defined area. This area is a basic unit, in which the entire project command is sub divided for allocation of water and is confined to the limits of the command of one or more distribution system covering one or more than one village with its extent varying from preferably 300 Ha to 600 Ha. The size may differ if required according to irrigation or topographic conditions. However, if a service area is crossed by a major drain or a railway line or a branch canal or a distributary on either side, if large, may be considered as independent Pani Panchayat and, if small, is clubbed with adjoining Pani Panchayat

2.5 Culturable command area (CCA)

The area to be annually irrigated by any canal and established by the area as recorded in the Record of Rights (ROR) document maintained by Revenue authorities. This shall exclude areas above 0.5m from FSL which cannot be commanded even after land grading and areas under roads, tanks, forest (except plantation area) and homestead land, pasture, burial ground, fallow land and canal bank (except cultivable waste) etc.

2.6 Chaka

As sub-division which gets irrigation from a single outlet of any channel is termed as Chaka (Irrigation Block Boundary) and is usually 5 to 25 Ha in size.

2.7 Sub-Chaka

Sub Chaka is a sub-division of a Chaka which is commanded from a single turnout. Usual size of sub-Chaka is about 2.0 ha. A structure is provided to proportionately distribute flow in field channel.

2.8 Outlet (OL)

Outlet is a vent of any size provided in the canal of any categories, depending on the area to be irrigated to let out water through the conveyance channel to a Chaka for providing irrigation. The micro-distribution conveyance channel starts from outlet points.

2.9 Turn Out

A Small structure for distributing water from Water Course/Field Channel to fields with maximum capacity equal to water course capacity. It is an ON/ OFF gated structure installed along the Water Course to irrigate sub-Chaka through pipe or conduit.

2.10 Field Drainage System

Field Drainage system means the link/intermediate drains from Chaka boundaries/ water logging areas to Trunk drain/natural drains/Main drain.

2.11 Link/Outfall Drain

It is the drain on the D/S of the Chaka which collects irrigation water from farm drains within a Chaka and carries it into the natural drains/Trunk drains.

2.12 Division Box

Division boxes are used to divide or direct the flow of water between two or more field Channel**.** Its bed level is below ground level so as to act as siltation tank.

2.13 Delivery Tank

Delivery tank is a structure which receives water from the outlet & distributes water to the field channel.

2.14 Fall

It is a small drop structure having head wall, head wall extension side wall, Apron, Wing wall, Cut off etc. After maintaining the slope of Field channel 1:1000, the fall of 1′-0″ or 2′-0″ or more is provided along the Field channel basing upon the slope/ topographic condition of the plots.

2.15 Road crossing

The road crossing are provided across the field channel/field drain at existing Roads/ proposed Tractor crossing at an interval of maximum 500 m.

2.16 Drainage crossing

When the field channel crosses one drain, the drainage crossings are provided. This may be siphon type/aqueduct type.

2.17 Irrigation Constraint Area

Area within the command getting no irrigation or scanty irrigation not suitable for assured cropping.

2.18 Farm Drain:

Farm drains are graded channels that collect excess water from farms or holdings linking to outfall drain.

2.19 Water logged Area

Area within the command submerged by water for long duration affecting crop production which can be reclaimed & converted to a cultivable area.

If the Agency feels that any of the definitions are not clear, or if meaning of any of the terms used in contract document is not clear to him, he shall immediately seek clarification from the concerned Executive Engineer/ Engineer-in-Charge.

2.20 Other Abbreviations used in the document

CAD	**:**	Command Area Development/ Computer Aided Design
CD	**:**	Cross Drainage
CD/DVD	**:**	Compact Disc/ Digital Video Disc

D/S	:	Distribution System
DLM	:	Digital Land Map
DSR	:	Detailed Survey Report
DVM	:	Digitized Village Map
Ha	:	Hectare
HR	:	Head Regulator
LIS	:	Land Information System
PBM	:	Permanent Bench Marks
RCC	:	Reinforced Cement Concrete
ROR	:	Record of Rights
TBM	:	Temporary Bench Marks
VDB	:	Village Data Base
VRB	:	Village Road over Bridge
WUA	:	Water Users Association

INFORMATION AND INSTRUCTIONS

1. OBJECTIVES AND AIM OF THE CONTRACT:

a) The objective of the contract is to obtain optimum solution for providing an efficient micro distribution network system on digitized village map (DVM) showing WUA boundary, Chaka boundary, sub-chaka boundary consisting of water course field channels (CAD channels), and several small structures irrigation constraint area for efficient and equitable distribution of irrigation water so as to avoid to the extent possible the imbalanced distribution between beneficiaries at head reach and tail end and provide a fair share of irrigation water to the tail enders.

b) Plan a saturated network of intensive CAD channel running over the plot boundaries to make irrigation water to be available in each 2.0 Ha of the sub-command or sub-chaka. The plan of alignment of the CAD channels shall accommodate the location of cross drainage structures, cattle crossings; field tracks for cart/tractor movements along with turn-outs, division boxes to all 2.0 Ha sub-chaka.

c) Plan a drainage network to drain out excess water through the network of Field Drain from water logged area within the command submerged by water for long duration effecting crop production which can be reclaimed & converted to a cultivable area.

2. RESPONSIBILITIES OF THE AGENCY:

The Consultant while carrying out the above works shall abide by the following:

i. The Consultant may supplement his findings with actual site verification.

ii. The Consultant shall be responsible for all transportation and accommodation at the project sites and headquarters in order to carry out the assignment.

iii. The Consultant shall work in close contact with the Project Participants such as Joint Director S&P and its team, Field Engineers, Water Users Association and local administrative authorities.

2.1 Procurement:

The field survey is to be conducted with reference to and on the Cadastral survey map i.e. Village map of scale 1:2000 (32": 1 mile)/ 1:4000 (16":1mile). The village map serves as the base for preparing micro network layout plan. The village maps and ROR are available with the local Revenue authorities either locally or at Map Publication office at Cuttack on cost and are to be procured by the contracting agency at their own cost. The department however will render assistance in giving introductory reference to prove that the maps are required for official and bonafied purpose.

2.2 Verification and updating of Village Maps

i. The agency shall carry out reconnaissance survey in the field to verify if the layout of canal system shown (if plan is made available by the department) in the plan and position of O/L tally with ground condition. Other important features like village and plot boundary, Agricultural plots, household plots, water bodies like Tank, Stream, Nala, Roads, Cart tracks, Electric line, Temple, Existing Culvert, Canal Crossing. All canal Structure (fall, CD, VRB, HR) & other land marks should also tally with the village map.

ii. The important features listed above are to be marked on the village map, if these are not shown on the village map as per actual.

iii. If no plan is available with the department, then the agency has to prepare a canal plan with the existing canal system through a detailed survey and plot all such structures as discussed in para-2.2 (i) above.

2.3 Digital Village Map (DVM)

After the village maps are procured from the Revenue authority and verified with ground condition, the same shall be digitized with the use of electronics scanner and raster to vector conversion software or manually by use of electronic digitizer and stored in computer media (CD/DVD), later to be used for survey, planning and designing of micro irrigation and drainage system. While digitizing, following points are to be incorporated.

a) Each plot with its ownership boundary in the verified village map is to be stored as one separate entry in the graphical data base.

b) Coordinate of two diagonal corners of the plot and one central point are to be recorded as attributes along with the plot number in standard DBMS format compatible with dBase III.

c) The accuracy of digitization shall be such that for any plot deviation shall not be more than $\pm$ 5% in area and $\pm$ 2% in the perimeter.

d) The output of such digitization shall be in compatible format.

2.4 Digital Pani Panchayat Map

After all individual verified village maps are digitized as in para 2.1, the individual DVM of each Pani Panchayat area are joined together with the CAD software to form the Digital Pani Panchayat map.

2.5 Beneficiary List/ Land Information System (LIS)

Collect the ROR of all the plot of the village & make Village Data Base (VDB) by using suitable software. From VDB & ROR, the Chaka wise & Pani Panchayat wise beneficiary list shall be created.

Following features of each plot shall be recorded in the Village Data Base:

(a) Village Name
(b) Khata No.
(c) Plot No.
(d) Area
(e) Owner's Name
(f) Type of Land
(g) Outlet no.

3. ESTABLISHMENT OF THE BENCH MARKS

3.1 Availability of Bench Marks:

Some permanent Bench marks of Survey of India are available in the command area. Temporary Bench Marks (TBM) is left at the head reach of off-taking channel up to sub- minor by the department. The Agency has to carry levels from these points for fixing bench marks for the survey works.

3.2 Fixing Temporary Bench Marks by Agency:

New/Additional temporary bench marks (TBM) convenient during field survey, are to be established by the Agency. These TBMs are to be established by the double leveling and shall be located on permanent structures. (Minimum One TBM to be fixed for each 50 ha & Photograph of the TBM along with its geographical location with visibility of TBM Number & Level to be submitted to Engineer-in-Charge and indicated in the digital map)

The permissible error 'E' shall not exceed 50mm.

E= CvK mm where Cv=6 and K= distance of leveling done in Km. E= Error in mm.

3.3 Reference to other levels:

Any other levels of existing BMs or bed levels of existing distribution systems supplied by the Engineer-in-Charge to the agency shall be checked by the agency during course of their ground survey with reference to the PBMs. Any discrepancy noticed shall be immediately brought to the notice of Engineer-in-Charge and his decision communicated in writing shall be followed strictly.

4. SURVEY FOR CONTOURING AND PREPARATION OF DIGITAL LAND MAPS:

(Village maps showing Contours and field details)

4.1 Field survey shall be carried out by the Agency with the help of Total Station/ DGPS/ Drones/ any other survey instrument through its survey parties on the village maps by taking spot levels & co-ordinates in each and every survey number at two diagonal corners and at the centre of the field. The diagonal corner points chosen for adjacent survey numbers (plot) shall be opposite. In case of small and fairly level plots one level at the centre may serve the purpose. The level readings shall be taken up to 5 second accuracy. All the levels shall have a reference to the crest levels of Surplus

escape or the Diversion Weir and/or including the sill levels of Head Regulators (for the respective canals).

4.2 Additional spot levels shall be taken on Roads, Nalas, Drain, Railways etc. The leveling staff prism shall be placed in the field and not on the boundary bunds. It should represent the local topography. The levels of the highest point in the field shall also be marked. Additional spot levels shall be taken at points that appear abnormally higher or lower than the general elevations of the plot so that the ridge and valley lines can be marked and ascertained. For drawing valley lines, the levels of the bottom of the Nalla must be taken. The field maps shall be based on an average density of minimum 4 to 6 spot elevations per hectares. All kachha and pucca roads, ditches, wells, houses, railways lines, high tension lines, electric poles, telephone poles, nallas, irrigation pipe lines, large trees, orchards, forest and other prominent features etc. shall be shown on the map. Other tanks in the vicinity are to be carefully surveyed giving their FRL extreme area flooded contour, TBL and spillway elevations.

4.3 The leveling work shall commence from the permanent Bench Marks, whose value is known. The BMs shall be constructed as per para 3.2. All the BMs shall be connected by double leveling with sufficient accuracy as specified in this document. Each day's work shall be closed on any one of the bench mark mentioned above and the accuracy of the day's work checked. The field levels shall get test checked by the Engineer-in-Charge or his representative concurrently. The Levels/ observations are to be noted and recorded in the field book/ level book and shall be made available to the officers when demanded.

4.4 After the spot level survey as indicated above is completed, the reduced levels shall be transferred to the Village Data Base and marked on Digital Village Map (DVM) at two corners of each field and additional spot as taken using the digitized points/ coordinates (para 4.2). Thereafter contours may be marked on DVM by interpolation at 50 cm interval with use of either DTM software interactively. The decimal contours shall be marked in broken and the full meter contour shall be marked with continuous line.

4.5 Contour Map /Digital Land Map (DLM):

The contour map shall be prepared by joining the village map in 1:2000/ 1:4000 scale as per Instruction of Engineer-in–Charge. Care shall be taken to see that the levels and their horizontal co-ordinates are transferred to the partly completed LIS and the topographic database completed. Then with the use of suitable Customized software the contours shall be drawn and the DLM completed. Where the area is large instead of one Digital Land Map, two or more maps shall be utilized while planning chaka and sub-chaka, finalizing the alignments of canals, CAD network and drainage network and location and type of structure for final for preparation of Irrigation Information System (IIS). These shall be brought to the notice of Engineer-in-Charge and jointly sorted out.

4.6 The Contour map should contain Grid, Coordinates, spot Levels and contour values.

4.7 On completion of the above, the digital land maps should be marked with alignment survey and planning of micro distribution and drainage system.

5. PLANNING OF MICRO DISTRIBUTION OF FIELD CHANNEL AND FIELD DRAIN.

5.1 Chaka Planning:

The boundary of chaka shall be so defined that at least on one side there is a drainage line. The alignment of drains shall generally follow valley lines. If there is no existing drain, (valley line) suitable drain shall have to be proposed so that drainage from the Chaka can be collected in this drain and further lead to main drain either natural or man-made. The drainage network shall be connected to a suitable outfall. The area of each Chaka is to be found out and it's CCA calculated from ROR copies obtained from revenue authorities. In case this planning (Chaka level) has been completed by the department and outlet are in position the Agency shall verify the location and design particulars of the Chaka and outletand suggest if any change are required.

5.2 Sub-Chaka planning

The Chaka shall be sub-divided in to sub-Chaka of each measuring to about 2.0 Ha comprising one or more plots. While dividing Chaka into sub Chakas, general slope of the ground and alignment of drains leading water to link/ outfall drain at the end of the Chakashall be kept in view.

5.3 Field Drain:

Field Drains are provided to remove excess water from the waterlogged/ water affected area of the chaka. The field Drain shall be generally aligned along in valley line as far as practicable. The field Drain is to start from water logged area to be terminated to a natural river/ trunk drain or water body through a outfall structure. Any road crossing and other structures like guard wall, inlet chute, intermediate falls, if required, should be indicated properly.

5.4 Field (CAD) channels:

Field channel pass through the ridge line of that Chaka. The field channel shall be generally aligned along field boundaries & in ridge line as far as practicable so that not much cultivable land is wasted. On these field channels turnouts are to be provided at suitable location so that no turn out has to serve more than 2 Ha of CCA. The length of FC is minimum 50m/Ha & Structures like Delivery tank, division box, fall, road crossing and turnout should be demarcated prominently.

5.5 Irrigation Constraint Area:

Identify accurately where irrigation constraint is encountered in the field and suggest measures for micro- irrigation (sprinkler/ drip etc) to ensure total coverage of the command area in consultation with the Engineer-in-charge of the project.

5.6 Participatory-Walk-Through (Reconnaissance Survey)

After fixing the alignment of water courses, field channels and Field Drains, the Agency shall carry out the PWT in field with Engineer-in-Charge, Farmers, Pani Panchayat office bearer & other line department officials to verify the proposed alignment of WC, FC & FD that suits the ground condition & requirements of farmers. Structures such as tube wells, wells, houses etc. are not encountered along the alignment fixed. The location of the turnout, falls, Division box and crossing shall also be verified in the field of the suitability. The Proceeding & photographs of the PWT shall

be submitted to Engineer-in-Charge.

6. IRRIGATION INFORMATION SYSTEM (IIS).

This is combined graphic thematic information which has got all the information of the land as well as those of the micro Distribution and drainage system. This is prepared by digitization of the layout of the micro distribution & drainage system along with its all relevant features on DLM.

6.1 The Agency shall submit the above IIS showing the layout, LS of water courses and Field channels link and inter mediate drains including necessary structure with a summary report on planning to the Engineer-in-Charge for approval which will be treated as final map indicating Chaka wise length of CAD channels, Field drains etc.

7. SOIL SURVEY

The agency should collect data on engineering properties of soil such as Soil type (red or brown or black, clay/ silt/ sandy), porosity, alkalinity/ acidity etc.

7.1 The agency is to make a test pit of 0.5m x 0.5m x 0.5m in every 10 Ha area & collect information on soil type & texture, soil pH level, depth of productive soil, permeability (cm/hr) & the report attached in the final documentation and also submit the soil test report.

8. SCOPE OF WOK:

The scope of works under this contract consists of the following operations with the supply of all required equipment, personnel, materials and media. There are to be executed as per the detailed instruction and specifications.

8.1 Stage-I

- Preliminary data collection including collection of village (cadastral) maps, verification and updation of Maps.
- Ground survey and Fixation of the Bench marks.
- Plotting contours and other features like existing canals, roads, cart tracks, Temple etc. including natural drainage channels as per micro distribution work.
- ROR details from revenue Office showing, the plot No., khata No., name of the owner, area & type of Land of the plot in each outlet boundary.
- Preparation of Chaka and sub Chaka planning and submission of provision planning map for finalizing the alignment of Field channel/Field drain through PWT.
- Preparation of maps showing WUA (Pani Panchayat) boundary on village maps taking topographical, socio economic and technical aspect in to consideration.

8.2 Stage-II

i. The data such as salinity of soil, water logged area and any other data relating to OFD as required by the Engineer-in-Charge to be submitted.
ii. Preparation & submission of Longitudinal Section (L.S) and submission of various, reports, maps, plans, drawings and documents.
iii. Preparation of L.S of all Field Channel & Field Drain indicating fall.

9. REPORT AND DOCUMENTATION

On approval of Stage-I, the Agency shall submit the draft of the document of the work which shall comprise of in the following.

Report Vol-I Survey and Planning
Report Vol-II Beneficiary

Drawing Vol-III Drawings

The report on volumes I and II above shall contain details of Survey, Planning and shape along with soft copies based on the approved draft report of the Engineer-in-charge.

9.2 Report Vol-I Survey and Planning

- Introduction
- Report
- Salient features of Project
- Topographical survey (principles & practices)
- Soil Survey.
- Ayacut map of the project.
- Schematic diagram of the project.
- WUA at a glance.
- Boundary map of the WUA.
- Schematic diagram of WUA.
- Bench mark details.
- Break-up of CCA & Details of Planning (with GPS Co-ordinates)

(Canal wise, village wise & out let wise CCA details of each canal as per ROR)

- Beneficiary List.
- Photographs (Survey, TBM, PWT, Awareness meeting)
- Planning Maps.

9.2 Report Vol-II (ROR details)

Out let wise ROR details.

9.3 Drawing Vol-III (Drawings)

9.3.1. Alignment of Field channel & Field drain

Pani Panchayat in 1: 2000/1:4000 scale in A3, A4, A2, A1, A0 size in legible form showing thereon alignment of FC & FD type and location of structures FSLs at off take and structure location, Chaka and sub-Chaka layout, alignment of drainage network and type and details of structure provided thereon location of permanent bench marks. Kachha and Pucca roads ditches well etc.

9.3.2. Contour Map

A contour map of Pani Panchayat in 1: 2000/1:4000 scale (DLM) as detailed in para 4.5 in A3, A4, A2, A1, A0 in legible from showing thereon village survey, boundaries, level taken at field

corners, contours plotted at 0.2m/0.5m Interval with all field details viz: Kachha and Pucca roads, ditches, wells, houses, railway lines, high tension line, Electric Poles, telephone poles and other important and prominent features (soft copy to be submittedin **Geo-PDF format**).

9.3.3. Chaka wise Planning map

Chaka wise Planning map to be submitted in A4 or A3 paper in a suitable scale preferably in 1:4000 Scale along with the soft copy in **Geo-PDF format**.

9.3.4. Longitudinal Section

Longitudinal section of All Field Channel & Field drain indicating fall, road crossing, drainage crossing, turn out in proper scale.

The text of the Vol-I, II and III shall be stored in computer media (compact Disk/ DVD) in MS Word, Excel compatible formats, and drawing in PDF and Auto CAD compatible formats and given to the Engineer-in-Charge along with the final prints of the report and drawing volumes (Vol-I, II & III).

10.0 ADDITION/ MODIFICATION:

If any circumstances of addition/ modification arise which call for additions/ modification in the design/ Drawing/ planning criteria, the Engineer-in-charge will intimate the additions modifications to the Agency. These addition/ modification will have to be taken into account in the works undertaken under the contract after they are intimated.

11.0 SCHEDULE FOR COMPLETION

Period of completion of all work under the contract is **90 days** Time and quality of work being the essence of this offer information submitted in these schedules will be used to verify these two aspects. The Engineer-in-Charge will have the right to check at any time the deployment of personnel and equipment and proportionate progress of work as provided in the schedule.

12.0 MEASUREMENTS OF PAYMENT

Stage wise payment for the projects on the basis of the command area shall be made to the Agency on completion of each stage of work for each of the tanks. The Agency shall execute the work in a planned phased manner as per the programme of work schedule, so as to complete different stages of works. Interim payments can be made to Agency for each stage.

13.0 THE DETAILS OF INTERIM PAYMENTS

13.1 1st Interim Payment : 50% of the unit rate on completion of stage-I work.

1st Interim Payment may be made after successful completion of following works/ items and submission of reports in hard and soft copies. The soft copies of data to be submitted in MS Word/ Excel and drawings in **dwg** in AutoCAD format; and contour maps in **Geo- PDF format**.

1. Collection of village (cadastral) maps.
2. Verification, updating & Digitization and submission of Digitized Village Maps along with a print copy of each village.

(Village map showing prominent features like water body, roads, nallas, temple,canal, outlet, houses, railway lines, forest and TBM etc.)

3. Completion of Ground survey and fixation of the Bench marks.
4. WUA (PP) wise contour map with grid, spot level
5. Initial Planning Map with delineated PP hydraulic boundary maps for conducting PWT in field.
6. WUA wise Level Book.
7. Photographs of Survey, TBM, PWT.
8. Field verification report for finalization of alignment of each WUA witnessed by field engineers in charge of work, Pani Panchayat office bearers, farmers and other officials concerned for finalization of alignment.

13.2 Final Payment : 50% of the unit rate on completion of stage-I & Stage- II work.

Final Payment may be made after submission of following documents and submission of reports in hard and soft copies.

a) Collection of Data on soil characteristics, drain in Ayacut areaof each WUA.

b) PP wise (out let wise) ROR details as per official proforma showing details of khata No, Plot No, & Area, Name of land owner & type of land outlet wise and each plot is to be tally with the alignment map.

c) Awareness/PWT meeting to be conducted involving elected functionaries of Pani Panchayats/ Water User Association members and officials from Minor Irrigation for confirmation of FC/FD alignment and the minutes of proceeding to be attached in the Detailed Survey Report.

Following documents are to be submitted.

14.0 DELIVERABLES BY THE AGENCY

1. Detailed Survey Report (DSR) of 6 Sets shall be submitted containing Chaka wise (Outlet wise) planning of each CAD Channel & Field Drains in A3/A4 paper or suitable size Paper indicating the length of CAD channel for each chaka and ayacut area covered under the sub-command along with softcopy in dwg format in Autocad and pdf and;
2. Alignment planning of each CAD Channel & Field Drains along with ayacut map incorporating alignment of FC, Chaka/ Sub-Chaka boundary & structure positions etc with contour as in A0/A1 Size Paper as per direction of Engineer-in-charge. (6 sets along with soft copy in Autocad and pdf format) and;
3. Photographs of survey work & PWT in duplicate (Minimum 10 Photographs of tank structures)
4. Beneficiary list with details of khata No, Plot No, & Area showing outlet No. & source canal of each WUA Showing irrigation constraint. (6 sets along with soft copy in excel)
5. Longitudinal section of all Field Channel and Field Drain (2 sets along with soft copy in dwg format in Autocad and pdf).
6. Final payment will be made after approval of DSR.

15.0 Additional instruction if any made by the Engineer-in-charge shall be followed by the agency during the survey work and report preparation.

16.0 LOCATION OF THE WORK

About **324 Minor Irrigation projects** (Numbers may vary) as per district wise list below are proposed to be surveyed as described in the work description.

Package – 1

Abstract of Minor Irrigation Projects			
Sl No.	**Name of District**	**Total no. of MIP**	**Ayacut (Ha)**
1	Keonjhar	26	7695
	Total	**26**	**7695**

Package – 2

Abstract of Minor Irrigation Projects			
Sl No.	**Name of District**	**Total no. of MIP**	**Ayacut (Ha)**
1	Bhadrak	10	1014
2	Mayurbhanj	69	5607
	Total	**79**	**6621**

Package – 3

Abstract of Minor Irrigation Projects			
Sl No.	**Name of District**	**Total no. of MIP**	**Ayacut (Ha)**
1	Ganjam	89	5257
2	Kandhamal	01	109
	Total	**90**	**5366**

Package - 4

Abstract of Minor Irrigation Projects			
Sl No.	**Name of District**	**Total no. of MIP**	**Ayacut (Ha)**
1	Ganjam	77	4201.80
	Total	**77**	**4201.80**

Package - 5

Abstract of Minor Irrigation Projects			
Sl No.	**Name of District**	**Total no. of MIP**	**Ayacut (Ha)**
1	Bargarh	17	1574
2	Balangir	12	1981
3	Kalahandi	23	1639
	Total	**52**	**5194**

17.0 DATA, SERVICES, AND FACILITIES TO BE PROVIDED BY THE CLIENT

The OIIPCRA project through their designated representatives would:

a) Provide space for consultative meetings. It is expected that the agency will be in close and constant touch with the client and his designated team during the period of the assignment. The space will be provided to facilitate the interaction and review of this assignment.

b) Provide available data and information that would be relevant to carry out the assignment.

c) Help, identify, contact in the project areas, when required, and facilitate consultation with agencies potential project beneficiaries and others. Would help establish contacts in the project areas and facilitate consultation with agencies. The Agency would be responsible for contacting the concerned Construction Engineers and synthesize and analyze the information available.

d) Make available copy of World Bank Operational policies and guidelines relevant to the needs of the agency.

e) The Agency would get support of the Project Team throughout the assignment period. The Agency would be responsible for all transport and accommodation at project sites. All requirements regarding the Data Services and facilities will be informed to the OIIPCRA well in advance.

18.0 QUALIFICATIONS OF THE AGENCY/ FIRM:

a) The Agency/ firm should have prior experience in similar type of survey work i.e Contour survey in Command Area & Micro planning of Micro distribution network below the outlet in Major, Medium & Minor irrigation projects in wide geographical spread. Agency must have executed 3000ha in above nature of work in last three financial years (Copy of work order along with completion certificate from appropriate authority may be furnished for financial year **2020-21, 2021-2022 and 2022-2023**) & One work minimum 500 ha must have been executed. Innovative methods of survey work will be preferred.

b) The agency should be a registered legal entity in India with at least 3 (Three) years of institutional experience of working in India (should attach the incorporation/ registration certificate and list of Board of Directors, office address details etc.);

c) Should have an average Annual Financial Turnover of at least **Rs. 50 Lakh** (Fifty Lakh Rupees) in three preceding years (**2020-21, 2021-2022 and 2022-2023)** (should furnish three years audited statement of accounts).

d) Previous work experience in World Bank financed/ Externally Aided Projects will be preferred.

e) Agencies shall quote rates for the different packages i.e., 1 to 5 listed package-wise if want to participate any or all packages in single financial bid form. Each of the packages will be evaluated separately through a combined evaluation for the bids participated in the packages.

Joint Director,
Survey & Planning, Odisha, Bhubaneswar

****