



इस्कॉन इन्टरनेशनल लिमिटेड
(भारत सरकार का उपक्रम)
IRCON INTERNATIONAL LIMITED



(A Govt. of India Undertaking)

An integrated Engineering and Construction Company

Project Office : 5th Floor, OSHB Building, Sachivalaya Marg, Bhubaneswar - 751001

Ph. No. 0674-2392181, Fax No. : 0674-2393181, Email : ircon.2069@ircon.org

No. IRCON/R-1400028/MCL Siding/Tender/2022/02/ LOA/332 Dt.12.01.2023

M/s Bhaskram Jyotish Anusandhan Kendra,
Shop No. 31,32,33, Ariane Casa Society,
Near Shrinath Bungalows/DMC School, Adalaj,
Gandhinagar, Gujarat- 382421, India
Email: bhaskramjyotish1@gmail.com,
Mob.: 9867158937

LETTER OF ACCEPTANCE

Sub. : Conducting Survey, Geotechnical Investigations, preparation of GADs for bridges, preparation and submission of final reports, in connection with Development of Rail Infrastructure for proposed 02 Nos RLS (20 MTY) for Ananta OCP of Jagannath Area, MCL at modified route (i.e., through excavated de-coaled area of Ananta & Bharatpur OCP of MCL) at Talcher in the state of Odisha.

Ref. : (i) E-Procurement Notice No. IRCON/R-1400028/MCL Siding/ Tender/ 2022/ 02, Date: 18.11.2022
(ii) Technical bid opened on 08.12.2022.
(iii) Finance Bid opened on 26.12.2022.

Dear Sir,

We are pleased to inform you that finance bid opened on 26.12.2022 in respect to above cited work has been accepted by Ircon International Limited for a total cost of Rs. 24,94,548 (Rupees Twenty Four Lakh Ninty Four Thousand Five Hundred and Fourty Eight Only) including all taxes & GST, as per Bill of Quantities (BOQ) enclosed as Annexure-I with same terms and conditions contained in Tender Document.

1. The scheduled completion period for above work is '**Four Months**' from the date of issue of this LOA.
2. You need to arrange all necessary men and machineries for execution of above cited work as per the relevant Technical Specifications.
3. In terms of Tender condition, the date of issue of this Letter of Acceptance shall be the date of commencement of work.
4. The Rates/Cost are inclusive of all taxes and GST. You will have to submit necessary insurance policy as per the relevant Conditions of Tender. TDS (IT and GST) and other statutory deductions as applicable will be deducted from your bill.

Ranjana
12/01/2023



पंजीकृत कार्यालय : सी-4, डिस्ट्रिक्ट सेंटर, साकेत, नई दिल्ली - 110017, भारत

Regd. Office : C-4, District Centre, Saket, New Delhi - 110017, INDIA

Tel : +91-295655666, Fax : +91-11-26854000, 26522000

E-mail : info@ircon.org, Web : www.ircon.org

CIN : L45203DL1976GOI008171



5. In terms of tender document, PBG (Performance Bank Guarantee) in the form of irrevocable bank guarantee to be submitted on the Performa annexed as Annexure II from any Scheduled Bank for an amount equal to 3%(Three Percent) of the contract value i.e. of Rs. 74,900/- (Rupees Seventy Four Thousand Nine Hundred only) within 21 days from the date of issue of this LOA.
6. In terms of Clause no. 12.5 of General Condition of Contract(GCC), you will enter into and execute the contract agreement within 28 days from the date of issue of this LoA with Project Head, Ircon International Limited, 5th Floor, OSHB Building, Sachivalaya Marg, Bhubaneswar, Odisha, Pin- 751001. You are requested to arrange the stamp papers of requisite value as per the prevailing laws for signing of the agreement interms of General Conditions of Contract.
7. In terms of sub-clause 13.0 of Special Condition of Contract, you are advised to do required Updation of Labour data on 'Indian Railways Shramik Kalyan portal.
8. This letter will constitute a legal binding between Ircon International Limited and M/s Bhaskram Jyotish Anusandhan Kendra, Shop No. 31,32,33, Ariane Casa Society, Near Shrinath Bungalows/DMC School, Adalaj, Gandhinagar, Gujarat-382421, till such time untill the formal Contract Agreement is signed.
9. You are requested to contact Joint General Manager/Civil , Ircon International Limited, IRCON site office , Angul (Odisha) immediately, for the execution of works under this contract.
10. This letter is being issued to you in Duplicate, one copy of which may be retained and other copy should be returned duly stamped and signed as a token of your acceptance.

Encls. : Bill of Quantites (BOQ) (09 Pages).

Thanking You,

For & behalf of
IRCON International Limited

R Panigrahi

(R PANIGRAHI)
General Manager

12/01/2023



Copy to : 1. E.D/SW,IRCON, C.O, New Delhi : for kind information.
2. JGM/C, IRCON, Angul
3. Manager/F, IRCON, Bhubaneswar

ANNEXURE - I

Name of work : Conducting Survey, Geotechnical Investigations, preparation of GADs for bridges, preparation and submission of final reports, in connection with Development of Rail Infrastructure for proposed 02 Nos RLS (20 MTY) for Ananta OCP of Jagannath Area, MCL at modified route (i.e., through excavated de-coaled area of Ananta & Bharatpur OCP of MCL) at Talcher in the state of Odisha

e - Tender No:- IRCON/R-1400028/MCL Siding/Tender/2022/02, Date: 18.11.2022

ABSTRACT

Sl No	Items	Estimated cost inclusive of GST (in Rs.)	Quoted Rate (%) (%above/%below/ % at par	Accepted Amount inclusive of GST (in Rs.)
1	Schedule-A : Carrying out preliminary work, Survey, Levelling , Preparation of plan for Station Building, Station yard plan etc.	3,64,045.00	Below 18.50%	24,94,547.75
	Schedule-B: Geotechnical Investigation etc.	24,96,749.78		
	Schedule-C- Unforeseen& Miscellaneous items of works covered by USSOR-2019 Items	2,00,000.00		
	Total Estimated cost =	30,60,794.78		
	Total Quoted Amount of the Bidder=			Say 24,94,548

In words : (Rupees Twenty Four Lakh Ninty Four Thousand Five Hundred and Fourty Eight only) including all taxes & GST

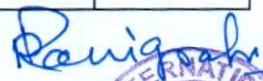


BILL OF QUANTITIES (BOQ)

Name of work : Conducting Survey, Geotechnical Investigations, preparation of GADs for bridges, preparation and submission of final reports, in connection with Development of Rail Infrastructure for proposed 02 Nos RLS (20 MTY) for Ananta OCP of Jagannath Area, MCL at modified route (i.e., through excavated de-coaled area of Ananta & Bharatpur OCP of MCL) at Talcher in the state of Odisha

e - Tender Number:- IRCON/R-1400028/MCL Siding/Tender/2022/02, Date: 18.11.2022

Item No.	Description of Items	Unit	Quantity	Rate including GST (Rs.)	Amount including GST (Rs.)
A	Schedule-A : Carrying out preliminary work, Survey, Levelling , Preparation of plan for Station Building, Station yard plan etc.				
1	Conducting preliminary work for collection and complication of existing field details of existing single line alignment (Straight & Curve portions) Minor & Major Bridges, Tunnels, station Buildings, yard details platforms Electrical Mast/ portal details, power line crossings, Telecom crossings, Railway colonies , all hydrances which are affecting the formation and bridge work etc. as well as along the proposed detour alignment as per the provision of Engineering Code and other details up to 100m on either side of the center line with latest survey Instruments (Total Station, Auto level, GPS etc.,) for preparation of various plans, Sections etc., and setting out the alignment of proposed lines in straight/curve for plain Ghat section with pegging the center line with wooden pegs of size 5cm x 5cm x 30cm of any hard wood at 20m intervals and with 10cm x 10cm x 40cm wooden pegs at every 100m intervals to the satisfaction of Engineer-In-Charge with all contractor's Engineers, labour, tools, plants, consumables, equipment, wooden pegs, conveyance, taxes etc. "Validation/Re confirmation of existing TBM pillars/Reference pillars provided by employer w.r.to GTS bench mark . Validation and re confirmation of RLs at take-off point of Ananta RLS line from spur 5&6 and at merging point at Bharatpur-Balaram existing line".complete and as directed by Engineer-In-Charge. Note - 50% payment shall be paid after submission of report and remaining 50% will be paid after acceptance of report by MCL/IRCON.	KM	5	4,443.00	22,215.00
2	Conducting levelling and supplying levels along the alignment at 20m intervals for preparation of longitudinal section of the ground & for computation of quantity including longitudinal section of the Rivers/streams for two kilometre on the upstream and one kilometre on the downstream etc., "Picking of UTM coordinates of Ground points including its RLs of ground points i.e (xyz) coordinates of existing ground at 20m interval in longitudinal direction and 5m interval at transverse direction up to ROW on both sides of proposed track for entire Project Corridor" with all contractor's Engineers, labour, equipment, tools, plants directed by Engineer-In-Charge.	KM	5	1,269.00	6,345.00




Item No.	Description of Items	Unit	Quantity	Rate including GST (Rs.)	Amount including GST (Rs.)
3	LONGITUDINAL SECTION & PLAN, CROSS SECTIONS, INDEX SECTION & PLANS : Design of best-fit alignment using Bentley Power Rail Track or equivalent software, preparation of drawings in Micro-station or AutoCAD and submission of the following in compliance to the design Criteria located within ROW as per Indian Railway Engineering Code of Practice to IR for approval: a) Longitudinal Section & Plan drawings showing km in each sheet at a scale of 1cm:50m longitudinal and 1cm:5m laterally/vertical. The profile to be prepared as per the direction of Engineer-In-Charge. It should have the proposed/Existing details of the permanent features such as Stations, Level Crossings, all types of Bridges, FOBs, ROBs, RUBs, Subways, complete details of curves, overhead crossings, existing/proposed Rail levels & Formation levels of BG line, existing ground levels, proposed depth of cutting and height of bank, existing/proposed gradients. The plan shall show the alignment of Railway line, curve, curve details, magnetic bearing, details of existing proposed BG bridges, Platforms at station, Railway land boundary, level crossings, all permanent/temporary/physical structures within the Railway boundary as required for L section, locations of tangent points of curve, turnouts, centre line of station and its name, overhead crossing, underground crossings, approach roads, Road corridor, configuration of Nallahs/River/water streams etc. Note - 50% payment shall be payable after submission of draft plan/ section to MCL/IRCON and remaining 50% will be payable after approval of GAD from East Coast Railway	KM	5	5,543.00	27,715.00
4	Preparation/ modification of Yard ESPs for all stations on Bentley Power Rail Track or equivalent as per directions of Engineer-In-Charge showing the details of proposed Yard arrangements with proposed grades including regrading of existing yard and showing details like CSL lengths of various lines, centre to centre distances of tracks, gradients, Curve details, type of turnouts, snag dead ends, derailling switches, platforms, Shelters, crossovers, Railway boundaries of entire yard with chainages and locations of station building, other service buildings, Electrical, OHE & S&T installations, FOB, Subway, RUB, ROBs etc., including details of infringing (condonation) grades & structures and preparing yard plans with the proposed additions & alterations to the existing stations duly suggesting improvements to existing alignment so as to ascertain the removal of infringements of structures & condoning grades in Yards (For details refer para 468-472 of Engineering Code 1999 or its latest ammendment / revision) duly making phase yard plans as per the requirement of the Railways with respect to approved master plan in separate plans duly incorporating complete detailed Modus operandi for execution of work both plans & Master plans. Any alterations proposed in the approved plan to be in cooperated in the Master plan in a separate table. The consultant shall submit advance copy of the ESPs on white paper for approval of Employer.	Each	3	6,081.00	18,243.00



Item No.	Description of Items	Unit	Quantity	Rate including GST (Rs.)	Amount including GST (Rs.)
	After the approval of Employer, the Consultant shall submit drawings in 3 (three) hard coloured copies on Polyster based tracing paper (100 to 150 Microns) and two soft copies on CD. The scope includes required corrections and modifications as suggested by approving authorities of Railways till its final approval. Required follow up with various approving authorities including required explanations on various provisions/facilities in the ESP shall be arranged by consultant. Note: (i) The Colour scheme to be followed in the drawing shall be as per stadard practice of IR. (II) Payment will be done as per Stages given below - (a)Submission of ESP and approval by Railways: 75% of accepted rate (b) Remaing 25% of accepted rate payable after submission 3 set of approved drawing along with two soft copy in pendrive."				
5	Design of high bank/deep cutting slope based on Slope Stability Analysis using SLIDE software of slope Stability Analysis theoretical guidelines for "Design of Formation (Embankment & Cutting) through excavated de-coaled areas and across Over burden dump (OB dump) fill soil. Final formation (Embankment & Cutting) layers shall meet RDSO/Railway Earthwork design specifications. Accordingly, Stabilization and compaction procedi re of Over burden dump soil shall also be submitted to IRCON" including collecting required number of soil samples and conducting required laboratory tests as per RDSO specifications so as to find out soil parameters required in slope stability analysis, soft-ground treatment, working out design slope based on manual method/computer software including furnishing detailed calculations in a report form contractor's men. material, machinery etc., and as directed by Engineer-In-Charge. NOTE: Recommended slopes designs shall be from reputed designers and shall include detailed calculations to be submitted in 3 copies (Unit: Each C/S).	Each	5	17,500.00	87,500.00
6	Major Bridges/ROB (girder bridge)/RUB (girder bridge): Preparation of the General Arrangement Drawing for all Major Bridges/ROB/RUBs for Railway Line Corridor through AutoCAD for railway standards/ formats as directed by Engineer-In-Charge based on finalized L- section for the proposed alignment, hydrological Investigation & detailed geotechnical investigation carried out by the consultant at proposed bridge locations, on good quality tracing paper and submitting the same to Railway administration for approval and carrying out the corrections as instructed by railway with all consultants own men. material, tools & plants, Computer systems etc., as directed by Engineer-In-Charge, Notes: (1) MAJOR BRIDGE GAD should incorporate (a) Sub structure details with type of construction, type of foundation (pile/open/well foundation), depth of foundations, footing details/pile found details, foundation pressure, abutments/pier details duly showing bore log details of sub soil along with SBC details of every soil strata at every abutments & piers locations (b) Span arrangements with details of Bed level, HFL, VC , Free board, scour depth, Rail Level, formation level, Clear Span, effective span, catchment area, Q50 discharge, (c) Super structure details like type of structure (Steel/PSC), type girder/slab details, depth of construction, bearing details, wearing coat, track structure with cushion details) . Approach details like trolley refuges, parapets/steel railings, inspection platforms with ladder arrangc nents, dirt walls, approach slab, backfill material as per RDSO specifications, protective works such as wing walls,	Each	3	20,000.00	60,000.00



Item No.	Description of Items	Unit	Quantity	Rate including GST (Rs.)	Amount including GST (Rs.)
	pitching, type of flooring/ drop wall / curtain wall details as per scour depth & silt factor criteria, Modus Operandi of entire bridge construction. d) The scope includes required corrections and modifications as suggested by approving authorities of Railways till its final approval. Required follow up with various approving authorities including required explanations on various provisions/facilities in the GAD shall be arranged by consultant. (i) The colour scheme to be followed in the draing shall be as per standard practice of IR. (ii) Payment will be done as per stages given below- (a) Submission of GAD and approval by Railways: 75% of accepted rate (b) Re naining 25% of accepted rate payable after submission 3 set of approved drawing along with two soft copy in pendrive.				
7	Minor Bridges/SUBWAYS/FOBs: Preparation of the General Arrangement Drawing for all Minor Bridges/SUBWAYS/FOBs for Railway Line Corridor through MX Rail/AutoCAD for railway standards/ formats as directed by Engineer-In-Charge based on finalized L- section for the proposed alignment, hydrological Investigation & detailed geotechnical investigation carried out by the consultant at proposed bridge locations, on good quality tracing paper and submitting the same to Railway administration for approval and carrying out the cot=rections as instructed by railway with all consultants own men. material, tools & plants, Computer systems etc., as directed by Engineer-In-Charge, Notes: (1) MINOR BRIDGE GAD should incorporate (a) Sub structure details with type of construction, type of foundation (pile/open/well foundation), depth of foundations, footing details/pile found details, foundation pressure, abutments/pier details duly showing bore log details of sub soil along with SBC details of every soil strata at every abutments & piers/Box locations (b) Span arrangements with details of Bed level, HFL, VC , Free board, scour depth, Rail Level, formation level, Clear Span, effective span, catchment area, Q50 discharge, (c) Super structure details like type of structure (Steel/PSC), type girder/slab details, depth of construction, bearing details, wearing coat, track structure with cushion details. d) The scope includes required corrections and modifications as suggested by approving authorities of Railways till its final approval. Required follow up with various approving authorities including required explanations on various provisions/facilities in the GAD shall be arranged by consultant. Note :- (i) The colour scheme to be followed in the drawing shall be as per standar l practice of IR. (ii) Payment will be done as per stages given below- (a) Submission of GAD and approval by Railways: 75% of accepted rate (b) Remaining 25% of accepted rate payable after submission 3 set of approved drawing along with two soft copy in pendrive.	Each	14	8,888.00	1,24,432.00



Item No.	Description of Items	Unit	Quantity	Rate including GST (Rs.)	Amount including GST (Rs.)
8	For Minor Bridges:- Hydrological investigation for Bridges using DEM: Conducting hydrological investigation including detailed calculation for important major/ minor bridges using Digital Elevation Model (Geotechnical Information system) Tasks: (i) Marking of all bridge locations on index plan of the alignment. (ii) Delineating the catchment boundary of bridges from DEM and calculating physiographic parameters of the catchment - area, longest stream, slope. (iii) Calculating design discharge (Q50) for all bridges based on RBF 16/ RBF 22 reports for SSE and synthetic unit hydrograph from flood estimation reports for large catchments (greater than 25 sqkm). (iv) Consultant will verify if there are any dams/water storage structures in the catchment and obtain regulated flow discharge from concerned authority for calculation of design discharge. (v) Checking of adequacy of proposed linear waterway, vertical clearance, free board and depth of foundation, Soil Investigation report for scour depth calculations will be provided to the consultant, Deliverables (i) 3 copies of report with Bridge wise hydrological calculations should be submitted , Separate booklets should be prepared for major and minor bridges. (ii) For each bridge, calculations and catchment plan with longest stream marked on Survey of India Topo- sheet should be submitted. For bridges with large catchments, unit hydrograph and calculation of equivalent slope should also be submitted. (iii) Catchment plan should be marked on 50 year 24 hr rainfall map to verify correctness of rainfall data used and the same submitted in the booklet. (iv) The following are required to be submitted as soft copy - calculation spreadsheets Google Earth KLM files of catchment plans, longest stream, alignment and bridge location.	Each	6	1,620.00	9,720.00
9	For Major Bridges. Hydrological investigation for Bridges using DEM: Conducting hydrological investigation including detailed calculation for important major/ minor bridges using Digital Elevation Model (Geotechnical Information system) Tasks: (i) Marking of all bridge locations on index plan of the alignment. (ii) Delineating the catchment boundary of bridges from DEM and calculating physiographic parameters of the catchment - area, longest stream, slope. (iii) Calculating design discharge (Q50) for all bridges based on RBF 16/ RBF 22 reports for SSE and synthetic unit hydrograph from flood estimation reports for large catchments (greater than 25 sqkm). (iv) Consultant will verify if there are any dams/water storage structures in the catchment and obtain regulated flow discharge from concerned authority for calculation of design discharge. (v) Checking of adequacy of proposed linear waterway, vertical clearance, free board and depth of foundation, Soil Investigation report for scour depth calculations will be provided to the consultant, Deliverables (i) 3 copies of report with Bridge wise hydrological calculations should be submitted .	Each	0	4,600.00	0.00



Item No.	Description of Items	Unit	Quantity	Rate including GST (Rs.)	Amount including GST (Rs.)
	Separate booklets should be prepared for major and minor bridges. (ii) For each bridge, calculations and catchment plan with longest stream marked on Survey of India Topo- sheet should be submitted. For bridges with large catchments, unit hydrograph and calculation of equivalent slope should also be submitted. (iii) Catchment plan should be marked on 50 year 24 hr rainfall map to verify correctness of rainfall data used and the same submitted in the booklet. (iv) The following are required to be submitted as soft copy - calculation spreadsheets Google Earth KLM files of catchment plans, longest stream, alignment and bridge location.				
10	Making trial pit of size 1.0 x 1.0 x 5.0m at every 200m at OB dump soil area along the alignment & at every major & minor bridge site at appropriate location below the existing bed level as desired by the Engineer-In-Charge and UDS samples shall be collected at every 1m up to 5m depth for conducting soil tests/ investigation and preparing and submitting soil classification report with bore log and suggested safe bearing capacity, after conducting soil laboratory tests/Tri-axial/SPT tests as below under relevant USSR items, with all contractor's materials, tools, labour, consumables, shoring and supporting arrangements, with all lead and lift etc., complete as per relevant IS/ other specifications & as directed by Engineer-In-Charge. NOTES: (1) This includes taking disturbed samples and/ or Undisturbed samples as directed by the Engineer-In-Charge and conducting (i) laboratory tests on disturbed/un-disturbed samples for parameters, viz., and classification of starata based on following tests. (a) Specific Gravity of soil. (b) Bulk Density, water content and (c) Grain size analysis (Sieve & Hydrometer analysis), (d) Liquid & Plastic limits. (e) Chemical tests on soil for chloride, sulphur and PH value. (f) Crushing strength tests for rock, (g) Bearing Capacity of Soil (h) Water absorption for rock (i) ROD & CORE recovery value of rock. (2) Tri-axial shear tests on undisturbed samples. (3) UDS samples shall be collected at every 1m up to 5m depth. All above soil tests (as mentioned in item 7 of schedule B below) shall also be conducted including Max.dry density, in-situ dry density & relative compaction at every 1m. (4) Consolidation Test as per IS 2720 Part-15 at 2m depth and at 4m depth and presenting the results as per the format given in IS 2720 Part-15. The results shall include Coefficient consolidation (Cv) at varying applied pressure, initial void ratio, compression index (cc), re compression index (cr) and pre consolidation pressure. (Coefficient consolidation (Cv) versus Log P curve and Void ratio (e) versus log P curve, Coefficient of compaction. (5) Free swell index and swelling pressure test as per IS 2720. (5) Rate is inclusive of rate for making pits and collecting samples only. (Unit: Per Pit instead of Each).	Each	25	315.00	7,875.00
	Total of Schedule-A				3,64,045.00
B	Schedule-B: Geotechnical Investigation etc.				**

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 12/01/2023

Item No.	Description of Items	Unit	Quantity	Rate including GST (Rs.)	Amount including GST (Rs.)
1	Exploratory drilling of boreholes down to required depth, drilling of 150mm dia. boreholes in all type of soils except hard rock & large boulders (boulder core more than 30cm) including refilling, reinstating surface and disposing off surplus material including use of mechanical rigs with power operated winches as well as percussion/chiselling tool for advancing through occasional seams of hard strata to be employed, where necessary in Dry area.				
(a)	0 to 10 m	Metre	200	1,207.89	2,41,578.00
(b)	10 to 20 m	Metre	200	1,386.10	2,77,220.00
(c)	20 to 30 m	Metre	200	1,567.62	3,13,524.00
(d)	30 to 40 m (OB Dump area only)	Metre	50	1,778.18	88,909.00
(e)	40 to 50 m (OB Dump area only)	Metre	40	1,776.19	71,047.60
(f)	50 to 60 m (OB Dump area only)	Metre	30	2,607.20	78,216.00
(g)	60 to 70 m (OB Dump area only)	Metre	20	2,871.21	57,424.20
(h)	Extra for 150 mm dia. bore in hard Rock/large Boulder at all levels	Metre	40	3,019.73	1,20,789.20
2	Drilling of NX size borehole (75mm dia.) in all types of hard rock and collection of rock core samples from bore holes and preserving in boxes.				
(a)	0 to 10 m	Metre	6	3,184.74	19,108.44
(b)	10 m to 20m	Metre	89	3,679.78	3,27,500.42
(c)	20 m to 30 m	Metre	77	4,207.82	3,24,002.14
3	Taking out 100mm dia. & 450mm long undisturbed samples of soil from bore holes, including provision of air tight containers for packing and, labelling incl. transporting the samples to laboratory. Piston sampler shall be used for extracting undisturbed samples where necessary. Samples shall be collected as per IS:2720.	Each	86	170.95	14,701.70
4	Taking out 100mm dia. & 450mm long disturbed samples of soil from bore holes, including provision of air tight containers for packing, labelling and transporting the samples to laboratory. Samples shall be collected as per IS:2720.	Each	156	171.61	26,771.16
5	Conducting standard penetration test as per IS:2131 at approximate 1.5m intervals in bore holes, as directed by the Engineer in charge	Each	156	221.78	34,597.68
6	Collection of water samples at required intervals	Each	20	161.71	3,234.20
7	Conducting laboratory Tests on collected soil samples as per relevant IS code				
(a).	Moisture Content / Dry Density	Each	86	114.19	9,820.34
(b)	Atterberg Limits	Each	86	86.14	7,408.04
(c)	Specific Gravity	Each	86	297.02	25,543.72
(d)	Grain size analysis including Hydrometer analysis	Each	86	481.84	41,438.24
(e)	Direct Shear Test	Each	24	608.89	14,613.36
(f)	Natural Density	Each	86	202.97	17,455.42
(g)	Consolidation Test	Each	43	1,149.97	49,448.71

Signature
12/01/23
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LIMITED

Item No.	Description of Items	Unit	Quantity	Rate including GST (Rs.)	Amount including GST (Rs.)
(h)	Tri-axial Test	Each	86	507.41	43,637.26
8	Conducting Laboratory tests on collected ROCK SAMPLES as per relevant				
(a)	Density Test	Each	59	201.32	11,877.88
(b)	Water Absorption & Porosity	Each	59	267.32	15,771.88
(c)	Hardness (CR & RQD)	Each	59	102.31	6,036.29
(d)	Unconfined Compression Test	Each	59	1,096.67	64,703.53
(e)	Point Load Test	Each	10	940.57	9,405.70
(f)	Modulus of Elasticity	Each	24	3,019.73	72,473.52
(g)	Abrasion Testing	Each	24	448.83	10,771.92
9	Conducting chemical analysis of ground water samples to determine suitability for concreting and aggressiveness in relation to attack on concrete / reinforcement including determination of PH value.	Each	20	1,783.78	35,675.60
10	Preparation and submission of Final report giving complete and comprehensive record of investigations, Photographs of samples ,laboratory test reports and calculations in approved format.	Each	1	62,044.63	62,044.63
	Total of Schedule-B				24,96,749.78
C	Schedule-C- Unforeseen & Miscellaneous items of works covered by USSOR-2019 Items				
1	Any other items not covered above but may be required to be executed as per ECoR USSOR 2019.	LS	1	2,00,000.00	2,00,000.00
	Total of Schedule- C				2,00,000.00
	Total Cost including GST (Schedule-A+B+C)				30,60,794.78
	Quoted percentage 18.50% below on Total Cost of above(D)				-5,66,247.03
	Total Cost including GST & Contract quoted % (Schedule-A+B+C+D)				24,94,548
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Signature Not Verified

Digitally signed by APPARAO TATIPARTI
Date: 2023.05.03 14:50:16 IST
Location: eProcurement System for Central PSUs