

GARHWAL MANDAL VIKAS NIGAM LTD.
74/1 RAJPUR ROAD, DEHRADUN

AGREEMENT NO.

NATIONAL COMPETITIVE BIDDING

Name of work : Construction of gravity material ropeway at
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Period of sale of bidding : From 13.07.2010 to 02.08.2010
documents

Last date and time for : 03.08.2010 up to 15.00 Hours
receipt of bids

Date and time of opening of : 03.08.10 at 15.30 Hours
bids

Place of opening of bids : Garhwal Mandal Vikas Nigam Ltd.,
74/1 Rajpur Road, Dehradun.
Uttarakhand.

Officer inviting bids : Garhwal Mandal Vikas Nigam Ltd.,
74/1 Rajpur Road, Dehradun.
Uttarakhand.

INVITATION OF BIDS(IFB)

NATIONAL COMPETITIVE BIDDING

DATE :
BID NO.:

The General Manager (Projects) Garhwal Mandal Vikas Nigam Ltd., 74/ 1 Rajpur Road, Dehradun, Uttarakhand invites bid for the construction of works detailed in the table. The bidders may submit bids for any or all of the following works for the package or for any of the slices.

Bidding documents (and additional copies) may be purchased from the office of **The General Manager(Projects) Garhwal Mandal Vikas Nigam Ltd., 74/ 1 Rajpur Road, Dehradun, Uttarakhand** from 13.07.2010 to 02.08.2010 for a non-refundable fee as indicated in the form of cash or demand draft on any scheduled bank payable at Dehradun in favour of **The General Manager(Projects) Garhwal Mandal Vikas Nigam Ltd., 74/ 1 Rajpur Road, Dehradun, Uttarakhand**. Interested bidders may obtain further information at same address. Bidding documents requested by mail will be dispatched by registered/speed post on payment of an extra amount of Rs.500.00 **The General Manager (Projects) Garhwal Mandal Vikas Nigam Ltd., 74/ 1 Rajpur Road, Dehradun, Uttarakhand** will not be held responsible in the postal delay if any, in the delivery of the documents or non receipt of the same. Bidding documents can be download from the website of Govt. of Uttarakhand at <http://www.gov.ua.in/Tenders> or from the website of GMVN Ltd. at www.gmvnl.com and the bidder shall have to deposit the cost of bidding documents at the time of submission of bids.

Bids must be accompanied by security of the amount specified for the work in the table below, drawn in favour of **The General Manager (Projects) Garhwal Mandal Vikas Nigam Ltd., 74/ 1 Rajpur Road, Dehradun, Uttarakhand** . Bid security will have to be in any one of the forms as specified in the bidding documents and shall have to be valid for 45 days beyond the validity of the bid.

Bids must be delivered to **The General Manager (Projects) Garhwal Mandal Vikas Nigam Ltd., 74/ 1 Rajpur Road, Dehradun, Uttarakhand** on or before 15-00 hours on 03.08.2010 and will be opened on the same day at 15.30 hrs in the presence of the bidders who wish to attend. If the office happens to be closed on the date or receipt of the bids as specified, the bids will be received and opened on the next working day at the same time and venue.

Other details can be seen in the bidding documents.

A pre bid meeting will be held on 02.08.2010 at 1600 hrs at the office of **The General Manager(Projects) Garhwal Mandal Vikas Nigam Ltd., 74/ 1 Rajpur Road, Dehradun, Uttarakhand** to clarify the issues and to answer questions on any matter that may be raised at that stage as stated in Clause-9 of instructions to bidders of the bidding document.

Table

S. No.	Name of work	Estimated Cost of work (Rs. In Lac)	Bid Security (Rs.)	Cost of Tender documents (Rs.)+ T.Tax.	Period of Completion
	Construction of Gravity Based Material Ropeway including, supply design and erection of all materials, civil works, testing and commissioning of the gravity operated material ropeway on turnkey basis and imparting training to one or two local persons as per recommendation of DHO and handing over the installation to the concerning authority/N.G.O /S.H.G for:-				
1	Dagud-Rana(Uttarkashi)	10.74	22000.00	1000.00	4 months
2	Durvil-Hanumanchatti(Uttarkashi)	9.30	19000.00	1000.00	4 months
3	Dinapur-Sankari(Uttarkashi)	10.64	22000.00	1000.00	4 months
4	Bhankuli-Dhumakotok(Uttarkashi)	9.59	20000.00	1000.00	4 months
5	Khuna-Badogi(Uttarkashi)	13.71	28000.00	1000.00	4 months
6	Posala-Simalsari(Uttarkashi)	13.82	28000.00	1000.00	4 months
7	Rawadhar-Tickochi(Uttarkashi)	15.73	32000.00	1000.00	4 months
8	Pokhi-Hansudi(Pauri)	13.88	28000.00	1000.00	4 months
9	Mundhol-Tyuni(Dehradun)	14.31	29000.00	1000.00	4 months
10	Bulhad-Ataal(Dehradun)	16.17	33000.00	1000.00	4 months
11	Silikhud-Patangana(Dehradun)	21.03	43000.00	1000.00	4 months
12	Aala-Sitale(Chamoli)	11.44	23000.00	1000.00	4 months

Seal of office

**General Manager (Projects),
Garhwal Mandal Vikas Nigam Ltd.,
74/ 1 Rajpur Road, Dehradun,
Uttarakhand.**

CHAPTER-1

INSTRUCTIONS TO BIDDERS

1- SCOPE OF WORK

- 1.1 **The General Manager (Projects) Garhwal Mandal Vikas Nigam Ltd., 74/ 1 Rajpur Road, Dehradun, Uttarakhand** (refer to employer in these documents) invites bids for the construction of works (as defined in these documents and referred to as the works) detailed in the table given in the invitation for **Bids(IFB)**. The bidders may submit bids for any or all of the works detailed in the table given in **IFB**.
- 1.2 The successful bidder will be expected to complete the works by the intended completion date specified in the contract data.

2- QUALIFICATION OF BIDDERS

The bidders shall provide qualification information which shall include-

- (a) Total monetary value of construction work performed for each of the last five years.
- (b) Certified Photocopies of PAN Card, TAN No. and Registration Certificate in E.P.F Office
- (c) Report on his financial standing and
- (d) Details of any litigation, current or during the last five year in which the bidder is involved, the parties' concerned and disputed amount in each case.

3- TO QUALIFY FOR AWARD OF THE CONTRACT THE BIDDER

Shall furnish his past experience along with the list of similar works carried out by him with the value of the work done and also submit the satisfactory performance certificate of the client for whom the ropeways were constructed.

4- BID PRICE

- (a) The contractor shall bid for the whole works as described in drawing and technical specifications. Corrections if any shall be made by crossing out, initialing, dating and rewriting.
- (b) All duties, taxes and other levies payable by the contractor under the contract shall be included in the total price. The rates quoted by the bidder shall be fixed for duration of the contract and shall not be subjected to adjustment on any account.

5- BID SECURITY

The bidder shall furnish as part of his bid, a bid security for the amount detailed in the table given in the invitation for bids(IFB) in the form of a bank guarantee/ bank draft issued by a nationalized/scheduled bank in the form given in Chapter-7/N.S.C. pledged in favour of **The General Manager(Projects) Garhwal Mandal Vikas Nigam Ltd., 74/ 1 Rajpur Road, Dehradun, Uttarakhand**.

- 5.1 Bank guarantee (and other instructions having fixed validity) issued as surety for the bid shall be valid for 45 days beyond the validity of the bid.
- 5.2 Any bid not accompanied by and acceptable bid security and not secured shall be rejected by the employer as non responsible.
- 5.3 The bid security of unsuccessful bidders will be returned with in 28days of the end of the bid validity period.
- 5.4 The bid security of successful bidders will be discharge when the bidder has signed the agreement and furnish the require performance security.
- 5.5 The bid security may be forfeited-
 - (a) If the bidder withdraws the bid after bid opening during the period of bid validity.
 - (b) If the bidder does not accept the bid price or
 - (c) In the case of successful bidder, if the bidder fails with in the specified time limit to.

- (i) Sign the agreement or
- (ii) Furnish the require performance security.

6- SUBMISSION OF BID

- 6.1 The bidder is advised to visit the site of works at his own expenses and obtain all information i.e., necessary for preparing the bid.
- 6.2 Each bidder shall submit only one bid.
- 6.3 The bid shall be typed or return in indelible ink and shall be signed by person persons duly authorized to sign on behalf of the bidder. All pages of the bid where entries or amendments have been made shall be initiated by the person or persons signing the bid.
- 6.4 The set of bidding documents comprise of the following:-
 - (i) Lay out drawings of the works.
 - (ii) Structural details.
 - (iii) Details bill of quantities.
 - (iv) Technical specification.
 - (v) Instructions to bidders.
 - (vi) Draft contract agreement format which will used for finalizing the agreement for this contract.
- 6.5 The bid submitted by the bidder shall comprise the following:-
 - (a) Bid in the format given in the Chapter-7.
 - (b) Bid security.
 - (c) Signed bill of quantity.
 - (d) Qualification information form given in Chapter-7 duly completed and
 - (e) Income tax clearance certificate from the concerned IT circle.
- 6.6 The bid shall be submitted in two parts:-
 - (a) **Technical bids:-** The technical bid consisting of all technical details, along with commercial terms and conditions, and
 - (b) **Financial bids:-** The **FINANCIAL BID** should include the **BID FORM** as per **Chapter-7** along with **BILL OF QUANTITY** on item-wise price for the civil works as per **Chapter-3** and **FINANCIAL BID PART-B** as per **Chapter-5**
The technical bid and the financial bid should be sealed by the bidder in separate covers / duly super scribed as technical bid and financial bid and both these sealed covers will be put in a bigger cover which should also be sealed and duly super scribed to **The General Manager (Projects) Garhwal Mandal Vikas Nigam Ltd., 74/ 1 Rajpur Road, Dehradun, Uttarakhand.** The envelope shall also bear the following identifications:-
 - (i) Bid for (Name of the work)
 - (ii) Do not open before 3.30PM on(The date of opening of Tender)
- 6.7 Bids must be received in the office of the employer not later than the time and date given in the letter of invitation. If the specified date is declared a holyday, bids shall be received up to the appointed time on the next working day.
- 6.8 The technical bids are to be opened by Competent Committee/Authority on specified date and time. The committee/authority shall evaluate and rank the technical bid based on already defined specifications / parameters and prepare the list of technically qualified bidders. The financial bids of only those bidders should be opened who have qualified in the technical bid for further evaluation in ranking and the remaining financial bids (envelopes) will not be opened and as such returned to the bidders.

7- VALIDITY OF BID

Bid shall remain valid for a period not less than 45 days after the dead line date specified for submission.

8- EVALUATION OF BIDS

The employer will evaluate and compare the bids determine to be substantially responsive i.e. which:-

- (a) Meets the qualification criteria specified in clause-3 above,
- (b) Are properly signed, and
- (c) Conform to the terms and conditions, specifications and drawings with out material deviations.

9- AWARD OF CONTRACT

The employer will award the contract to the bidder whose bid has been determined to be substantially responsive and who has offered the lowest evaluated bid prize and who meets the specified qualification criteria.

- 9.1 Not with standing the above, the employer reserves the right to accept or rejects any bids and to cancel the bidding process at any time prior to award of contract.
- 9.2 The bidder whose bid is accepted will be notified of the award of the contract by the employer prior to expiration of the bid validity period.

10- PERFORMANCE SECURITY

With in 15 days of receiving letter of acceptance the successful bidder shall deliver to the employer the performance security, either of bank guarantee or a bank draft in favour of the employer for an amount equal to 5% of the contract price. The performance security shall be valid till the expiry of the period of maintenance of the works specified in clause-11 below.

11- MAINTENACE PERIOD/DEFECTS LIABILITY

The defects liability period for the above work is 12months from the date of taking over possession. During this period the contractor will be responsible for rectifying any defects in works free of cost to the employer.

12- SUPPLY OF ALL CONSTRUCTION MATERIALS

All constructions materials shall be supplied by the contractor as per the specifications(ISI certification marked goods wherever available)

CHAPTER-2

CONDITIONS OF CONTRACT AND RESTRICTIONS

1- COST OF THE CONTRACT

The total cost of the works (hereinafter referred to as the "total cost") is Rs.as reflected in Annexure-I.

2- PAYMENTS UNDER ITS CONTRACT

Payments to the second party for the construction work will be released by the first party in following manner:-

Payments for the civil works shall be made as per actual quantities carried out at site. Payment for Mechanical works on turnkey basis shall be made as per the following schedule:-

On signing of agreement.	—	10% of the total cost as mobilization advance against bank guarantee in the format attached.
On supply of complete materials at site.	—	30% of the total cost.
On erection.	—	30% of the total cost.
On satisfactory commissioning and handing over of the system.	—	30% of the total cost after obtaining certificate of satisfactory commissioning and handing over of the system from the concerned DHO.

2.2 Payments at each stage will be made by the first party:-

- (a) On the second party submitting an invoice for an equivalent amount.
- (b) On certification of the invoice (except for the first installment) by the engineer nominated by the first party with respect to quality of works in the format in Annexure-2; and
- (c) Upon proper and justified utilization of at least 50% of the previous installment and 100% of any prior installment.

3- NOTICE BY CONTRACTOR TO ENGINEER

The second party, on the works reaching stage of constructions, issue a notice to the first party or the Engineer nominated by the first party {who is responsible for supervising the contractor, administering the contract, certifying payments due to the contractor, issuing and valuing variations to the contract, awarding extension of time etc.) to visit the site for certification of stage completion. within 15 days of the receipt of such notice, the first party or the engineer nominated by it, will ensure issue of stage completion certificate after due verification.

4- COMPLETION TIME

The works should be completed in 04 months from the date of this agreement. In exceptional circumstances, the time period stated in this clause may be extended in writing by mutual consent of both the parties.

5- EXTENSION OF INTENDED COMPLETION DATE

If any of the compensation events mentioned below would prevent the work being completed by the intended completion date, the first party will decide on the intended completion date being extended by a suitable period:

- (a) The first party does not give access to the site or a part thereof by the agreed period.
- (b) The first party orders a delay or does not issue completed drawings, specifications or instructions for execution of the work on time.
- (c) Ground conditions are substantially more adverse than could reasonably have been assumed before issue of letter of acceptance and form information provided to second party or form visual inspection of the site.
- (d) Payments due to the second party are delayed without reason.
- (e) Certification for stage completion of the work is delayed unreasonably

6- LIQUIDATED DAMAGES.

Any willful delay on the part of the second party in completing the constructions with in the stipulated period will render him liable to pay liquidated damages. @ 0.05% of the contract price per week which will be deducted from payments due to him. The first party may cancel the contract and take recourse to such other action as deemed appropriate once the total amount of liquidated damages exceeds 10% of the contract amount.

7- DUTIES AND RESPONSIBILITIES OF THE FIRST PARTY

- 7.1 The first party shall be responsible for providing regular and frequent supervision and guidance to the second party for carrying out the works as per specification. This will include written guidelines and regular site visit of the authorized personnel of the first party, for checking quality of material and construction to ensure that it is as per the norms.
- 7.2 The first party shall supply 3 sets of drawings, specification and guidance to the second party for the proposed works.
- 7.3 Possession of the site will be handed over to the second party within 10 days of signing of the agreement.
- 7.4 The engineer or such other person as may be authorized by the first party shall hold meeting once in a month where the second party or his representative at site will submit the latest information including progress report and difficulties if any, in the execution of the work. The whole team may jointly inspect the site on a particular day to take stock of activities.
- 7.5 The engineer shall record his observation/instruction at the time of his site visit in a site register maintained by the second party. The second party will carry out the instructions and promptly rectify and deviations pointed out by the engineer. If the deviations are not rectified, within the time specified in the Engineer's notice, the first party as well as the engineer nominated by it, may instruct stoppage or suspension of the construction. It shall there upon be open to the first party or the engineer to have the deviations rectified at the cost of the second party.

8- DUTIES AND RESPONSIBILITIES OF THE SECOND PARTY

The second party shall :

- (a) Take-up the works and arrange for its completion within the time period stipulated.
- (b) Employ suitable skilled persons to carry out the work.
- (c) Regularly supervise and monitor the progress of work.
- (d) Abide by the technical suggestion/direction of supervisory personnel including engineer etc. regarding works.
- (e) Be responsible for bringing any discrepancy to the notice of the representative of the first party and seek necessary clarification.
- (f) Ensure that the work is carried out in accordance with specification, drawings and within the total of the contract amount without any cost escalation.
- (g) Keep the first party informed about the progress of work.
- (h) Be responsible for all security and watch and ward arrangements at site till handing over of the works to the first party.

- (i) Maintain necessary insure against loss of material/cash, etc. or workman disability compensation claims of the personnel deployed on the works as well as third party claims.
- (j) Pay all duties, taxes and other levies payable by construction agencies as per law under the contract (First party will effect deduction from running bills in respect of such taxes as may be imposed under the law).

9- VARIATIONS/EXTRA ITEMS

The works shall be executed by the second party in accordance with the approved drawings and specifications. No. variations in cost are acceptable. However, if the Engineer issues instructions for executions of extra items, the following procedure shall be followed:-

- (a) The second party shall provide the engineer with a bid for carrying out the extra items when requested to do so by the engineer. The engineer shall assess the bid, which shall be given within seven days of the request before the extra items are ordered.
- (b) If the bid given by the second party is unreasonable, the engineer may ordered the extra items and make a change to the contract price which shall be based on engineer's own forecast of the effects of the extra items on the contractor's costs.
- (c) The second party shall not be entitled to additional payment for costs, which could have been avoided by giving early warning.

10- SECURITIES

The performance security shall be provided to the employer no later than the date specified in the letter of acceptance and shall be issued in an amount and form and by a bank or surety acceptable to the employer. The performance security shall be valid until a date 28 days from the date of issue of the certificate of completion in case of a Bank Guarantee.

11- TERMINATION

- 11.1 The employer may terminate the contract if the other party causes a fundamental breach of the contract.
- 11.2 Fundamental breaches of contract include, but shall not be limited to the party following:
 - (a) The contractor stops work for 28 days and the stoppage has not been authorized by the engineer.
 - (b) The contractor has become bankrupt or goes into liquidation other than for a reconstruction or amalgamation.
 - (c) The engineer gives Notice that failure to correct a particular defect is a fundamental breach of contract and the contractor fails to correct it within a reasonable period of time determined by the engineer.
 - (d) The contractor does not maintain a security, which is required.
- 11.3 Not with standing the above, the employer may terminate the contract for convenience.
- 11.4 If the contract is terminated the contractor shall stop immediately, make the site safe and secure and leave the site as soon as reasonably possible.

12- PAYMENT UPON TERMINATION

- 12.1 If the contract is terminated because of a fundamental breach of contract by the contractor, the engineer shall issue a certificate for the value of work done less advance payments received up to the date of the issue of the certificate, less other recoveries due in terms of the contract, less taxes due to be deducted at source as per applicable law.
- 12.2 If the contract is terminated at the employer's convenience, the engineer shall issue a certificate for the value of the work done, the reasonable cost of removal of equipment, repatriation of the contractor's personnel employed solely on the works, and the contractor's cost of protecting and securing the works and less advance of the payments received upto the date of the certificate, less other recoveries due in terms of the contract and less taxes due to be deducted at source as per applicable law.

13- DISPUTE SETTLEMENT

13.1 If over the works any dispute arise between the two parties, relating to any aspects of this agreement, the parties shall first attempt to settle the dispute through mutual and amicable consultation.

13.2 In the event of agreement not being reached, the matter will be referred for arbitration within 28 days by a sole arbitrator to be appointed by the first party. The arbitration will be conducted in accordance with the Arbitration and Conciliation Act, 1996. The decision of the Arbitrator shall be final and binding on both the parties.

14- CONTRACTOR'S RISKS

All risks of loss or damage to physical property and of personnel injury and death which arise during and in consequence of the performance of the contract other than the expected risk are the responsibility of the contractor.

15- CONTRACTOR TO CONSTRUCT WORK

The contractor shall construct and install the works in accordance with the specification and drawings.

16- THE WORK TO BE COMPLETED BY THE COMPLETION DATE

The contractor may commence execution of the works on the start date and shall carry out the works in accordance with the program submitted by the contractor, as updated with the approval of the engineer, and complete them by the Intended Completion date.

17- SAFETY

The contractor shall be responsible for the safety of all activities on the site.

18- DISCOVERIES

Anything of historical or other interest or of significant value unexpectedly discovered on the site is the employer's. The contractor is to notify the engineer of such discoveries and carry out the engineer's instructions for dealing with them.

CHAPTER-3**DETAILS OF DEMAND OF GOODS/SERVICES****BILL OF QUANTITY FOR CIVIL WORKS(SAME FOR EACH ROPEWAY)**

SL.NO.	DESCRIPTION	QTY	UNIT	RATE	AMOUNT
1	Excavation in foundation in all type of soils including up to 1.5M lift and lead up to 30M and including filling watering and ramming of excavated earth into the trenches are in to the space between the building and sites of foundation trenches or in to the plinth and removal and disposal of surplus earth as directed by the Engineer-in-charge up to a distance of 30M from the foundation trenches. Rate as per S.I. No. 165 (a)]	52.00	Cum		
2	Earth work in excavation in general cutting in soil with earth mixed with boulders.	125.00	Cum		
3	Concrete with 40mm gauge approved stone ballast, local sand and cement in proportion of 12:6:1 in foundation including supply of all material, labour and T&P etc. required for proper completion of the work. (S.I. No. 172)	10.00	Cum		
4	Random coursed Rubble stone masonry 1:6 cement and fine sand mortar in foundation and plinth of building including supply of all material, labour, T & P etc. required for proper completion of the work S.I. No. 203	9.00	Cum		
5	Random coursed Rubble stone masonry 1:6 cement and fine sand mortar in super structure of building including supply of all material, labour, T & P etc. required for proper completion of the work S.I. No. 203	4.00	Cum		
6	P.C.C 1:2:4 cement coarse sand and 20 mm gauge stone ballast in hold fast including supply of all labour, material etc. S.I. No. 178	2.00	Cum		
7	R.R. stone masonry 1:6 cement, sand mortar in R/w and B/w including all labour, material T & P etc .S.I. No. 516	37.00	Cum		
8	R.R stone masonry laid dry in R/w and B/w including all material, Labour T & P etc. S.I. No. 518	24.00	Cum		
9	Filling earth and stone in plinth including watering, dressing, ramming etc. S.I. No. 161	25.00	Cum		
10	R.C.C 1:2:4 in columns superstructure. S.I. No. 288(UP)	12.00	Cum		
11	12mm thick plaster with 1:6 cement and fine sand mortar on smooth surface including supply of all material, labour T & P etc etc. S.I. No. 367.	11.00	Sqm		

12	MS or iron work in heavy sizes such as in roof trusses, purlins, rafters, MS SQUIRE/round/D shape pipe railings etc. wrought to required from, including drilling holes riveting or welding where necessary and also including supply of steel bolts, nuts etc and their fixing required for proper completion of the work.	8.00	Qtl		
13	S/F galvanized corrugated iron roofing 24 BWG in position including cutting, punching and riveting and including supply of all material, labour, T & P etc. S.I. No. 331.	23.00	Sqm		
Total					

DETAILS OF MECHANICAL COMPONENTS

Name of work: Construction of 840 m long gravity material ropeway between Dagud-Rana (Distt. Uttarkashi)

S. No.	PARTICULARS	QTY	UNIT
MECHANICAL COMPONENTS			
1	Steel core wire rope 6x17s(8-8-1), Grade 1770,Nominal diameter 13 mm, mass 69.3kg /100 m, Minimum Breaking force 107 kN [IS 10891(part1); 2001] (GRPW-1)	1848.00	RM
2	Fiber core wire rope, 6x7(6-1) Grade 1570,Nominal diameter 8 mm, mass 22.9/100 m, Minimum Breaking force 33 kN [IS 10891(part1) 2001],Endless wire rope. (GRPW-2)	1848.00	RM
3	6 mm steel communication wire,length to cover distance between stations and some spare (GRPW-27)	924.00	RM
4	Suitable ITI communication system for communication between L.T.P. & U.T.P.(GRPW-26)	1	Nos
5	Chamber frame with sliding arrangement for mounting of sheave pulley with shaft & plummer block and brake system	2	sets
6	Foundation bolts for channel frame,25 mm dia and 1.50 m long	12	Nos
7	U-Clamps 14mm dia (GRPW-3(i))	16	Nos
8	U-Clamps 16mm dia (GRPW-3(i))	16	Nos
9	U-Clamps 13mm dia (GRPW-3(i))	16	Nos
10	U-Clamps 8mm dia (GRPW-3(ii))	16	Nos
11	Nuts & Bolts of assorted size.	10	Kg
12	Latch for trolley (GRPW-4)	2	Nos
13	A reliable splicer for hauling rope (GRPW-5)	1	Nos
14	M.S.Sheave 1000mm dia (GRPW-6)	2	Nos
15	Trolley fabricated with M.S. rolled section,size 1000x800x600mm (GRPW-7)	2	Nos
16	Grooved pulley set for carriage of each trolley,fitted with two sets of two pulleys each of 250mm dia each.(GRPW-8)	4	Sets
17	Fabricated steel pillars Height 3m/ as per site requirements. Columns fabricated from Steel tube 125 mm nominal diameter,Class medium [IS 1161:1998] (GRPW-9)	4	Nos
18	Upper beam fabricated from ISMC 100 channel section welded together to form the box section. The length of the beam is 2.25 m (IS 808-1989 edition 4.1)	2	Nos
19	100X100 length embedded angle iron, equal to the length of the anchor block (GRPW-12)	2	Nos
20	Eye Connectors 25 mm dia and 1.50 m long to be welded with imbedded angle iron and embedded in the anchor block (GRPW-13)	4	Nos
21	Eye Connectors 25 mm dia and 1.00 m long to be connected with thrust pillars and embedded in the anchor block (GRPW-13)	4	Nos
22	Steel shaft with keys for mounting grooved pulley and brake drum, 50 mm diameter 1.25 m long (GRPW-15)	2	Nos
23	Keys assorted	6	Nos
24	Plummer block (M S) with removable cap (GRPW-17)	4	Nos
25	Ball Bearings NBC No. 6310 for 50 mm shaft (GRPW18)	4	Nos
26	Ball Bearings NBC No. 6305 for carriage pulley set (GRPW18)	8	Nos

27	Double shoe Brake drum diameter of 300 mm attached to shaft by key connection with wooden brake shoe as per design (GRPW-20)	1	Nos
28	Emergency Brake, Band brake, drum diameter 500 mm, band width 80 mm Band angle 120° (GRPW-21)	1	Nos
29	Standard ratchet for 50 mm shaft (GRPW22)	2	Nos
30	Hand crank for winching for 50 mm shaft with coupling (GRPW25)	1	Nos
31	Turn buckle of 1.20 m long & 40 mm dia size for countering weather effects (GRPW-30)	2	Nos
32	Turn buckle of 250mm dia & 0.60m long size for tensioning back pull of thrust pillar.(GRPW-30)	4	Nos
	Spares		
1	Wooden shoe for brakes	6	Nos
2	Nails/screws assorted for fixing brake shoe	2	Kg
3	Self aligning ball bearing 6310	4	Sets
4	Ball bearing 6305	4	Nos
5	Grease 5 Kg	4	Nos
6	Lubricating oil	20	Ltrs
7	Nuts & Bolts for coupling etc.	8	Nos
8	U-clamp of assorted size	20	Nos
9	Torch & cell	2	Nos
	Tools		
1	Slide wrench	2	Nos
2	Pipe wrench	2	Nos
3	Ring spanner	2	Nos
4	D.E.spanner	2	Nos
5	Tirfor	1	Nos
6	Screw driver set of industrial size	2	Nos
7	Oil can	2	Nos
8	Chain pulley block 1.5 MT capacity	1	Nos
9	Small grease gun	2	Nos

DETAILS OF MECHANICAL COMPONENTS

Name of work: Construction of 548 m long gravity material ropeway between Durvil-Hanumanchatti (Distt. Uttarkashi)

S. No.	PARTICULARS	QTY	Unit
	MECHANICAL COMPONENTS		
1	Steel core wire rope 6x17s(8-8-1), Grade 1770, Nominal diameter 13 mm, mass 69.3kg /100 m, Minimum Breaking force 107 kN [IS 10891(part1); 2001] (GRPW-1)	1206.00	RM
2	Fiber core wire rope, 6x7(6-1) Grade 1570, Nominal diameter 8 mm, mass 22.9/100 m, Minimum Breaking force 33 kN [IS 10891(part1) 2001], Endless wire rope. (GRPW-2)	1206.00	RM
3	6 mm steel communication wire, length to cover distance between stations and some spare (GRPW-27)	603.00	RM
4	Suitable ITI communication system for communication between L.T.P. & U.T.P. (GRPW-26)	1	Nos
5	Chamber frame with sliding arrangement for mounting of sheave PUIIEY with shaft & plummer block and brake system	2	sets
6	Foundation bolts for channel frame, 25 mm dia and 1.50 m long	12	Nos
7	U-Clamps 14mm dia (GRPW-3(i))	16	Nos
8	U-Clamps 16mm dia (GRPW-3(i))	16	Nos
9	U-Clamps 13mm dia (GRPW-3(i))	16	Nos
10	U-Clamps 8mm dia (GRPW-3(ii))	16	Nos
11	Nuts & Bolts of assorted size.	10	Kg
12	Latch for trolley (GRPW-4)	2	Nos
13	A reliable splicer for hauling rope (GRPW-5)	1	Nos
14	M.S. Sheave 1000mm dia (GRPW-6)	2	Nos
15	Trolley fabricated with M.S. rolled section, size 1000x800x600mm (GRPW-7)	2	Nos
16	Grooved pulley set for carriage of each trolley, fitted with two sets of two pulleys each of 250mm dia each. (GRPW-8)	4	sets
17	Fabricated steel pillars Height 3m/ as per site requirements. Columns fabricated from Steel tube 125 mm nominal diameter, Class medium [IS 1161:1998] (GRPW-9)	4	Nos
18	Upper beam fabricated from ISMC 100 channel section welded together to form the box section. The length of the beam is 2.25 m (IS 808-1989 edition 4.1)	2	Nos
19	100X100 length embedded angle iron, equal to the length of the anchor block (GRPW-12)	2	Nos
20	Eye Connectors 25 mm dia and 1.50 m long to be welded with imbedded angle iron and embedded in the anchor block (GRPW-13)	4	Nos
21	Eye Connectors 25 mm dia and 1.00 m long to be connected with thrust pillars and embedded in the anchor block (GRPW-13)	4	Nos
22	Steel shaft with keys for mounting grooved pulley and brake drum, 50 mm diameter 1.25 m long (GRPW-15)	2	Nos
23	Keys assorted	6	Nos
24	Plummer block (M S) with removable cap (GRPW-17)	4	Nos

25	Ball Bearings NBC No. 6310 for 50 mm shaft (GRPW18)	4	Nos
26	Ball Bearings NBC No. 6305 for carriage pulley set (GRPW18)	8	Nos
27	Double shoe Brake drum diameter of 300 mm attached to shaft by key connection with wooden brake shoe as per design (GRPW-20)	1	Nos
28	Emergency Brake, Band brake, drum diameter 500 mm, band width 80 mm Band angle 120° (GRPW-21)	1	Nos
29	Standard ratchet for 50 mm shaft (GRPW22)	2	Nos
30	Hand crank for winching for 50 mm shaft with coupling (GRPW25)	1	Nos
31	Turn buckle of 1.20 m long & 40 mm dia size for countering weather effects (GRPW-30)	2	Nos
32	Turn buckle of 250mm dia & 0.60m long size for tensioning back pull of thrust pillar.(GRPW-30)	4	Nos
Spares			
1	Wooden shoe for brakes	6	Nos
2	Nails/screws assorted for fixing brake shoe	2	Kg
3	Self aligning ball bearing 6310	4	sets
4	Ball bearing 6305	4	Nos
5	Grease 5 Kg	4	Nos
6	Lubricating oil	20	Ltrs
7	Nuts & Bolts for coupling etc.	8	Nos
8	U-clamp of assorted size	20	Nos
9	Torch & cell	2	Nos
Tools			
1	Slide wrench	2	Nos
2	Pipe wrench	2	Nos
3	Ring spanner	2	Nos
4	D.E.spanner	2	Nos
5	Tirfor	1	Nos
6	Screw driver set of industrial size	2	Nos
7	Oil can	2	Nos
8	Chain pulley block 1.5 MT capacity	1	Nos
9	Small grease gun	2	Nos

DETAILS OF MECHANICAL COMPONENTS

**Name of work: Construction of 740 m long gravity material ropeway between Dinapur-Sankari
(Distt. Uttarkashi)**

S. No.	PARTICULARS	QTY	UNIT
MECHANICAL COMPONENTS			
1	Steel core wire rope 6x17s(8-8-1), Grade 1770, Nominal diameter 13 mm, mass 69.3kg /100 m, Minimum Breaking force 107 kN [IS 10891(part1); 2001] (GRPW-1)	1628.00	RM
2	Fiber core wire rope, 6x7(6-1) Grade 1570, Nominal diameter 8 mm, mass 22.9/100 m, Minimum Breaking force 33 kN [IS 10891(part1) 2001], Endless wire rope. (GRPW-2)	1628.00	RM
3	6 mm steel communication wire, length to cover distance between stations and some spare (GRPW-27)	814.00	RM
4	Suitable ITI communication system for communication between L.T.P. & U.T.P. (GRPW-26)	1	Nos
5	Chamber frame with sliding arrangement for mounting of sheave PUIIEY with shaft & plummer block and brake system	2	sets
6	Foundation bolts for channel frame, 25 mm dia and 1.50 m long	12	Nos
7	U-Clamps 14mm dia (GRPW-3(i))	16	Nos
8	U-Clamps 16mm dia (GRPW-3(i))	16	Nos
9	U-Clamps 13mm dia (GRPW-3(i))	16	Nos
10	U-Clamps 8mm dia (GRPW-3(ii))	16	Nos
11	Nuts & Bolts of assorted size.	10	Kg
12	Latch for trolley (GRPW-4)	2	Nos
13	A reliable splicer for hauling rope (GRPW-5)	1	Nos
14	M.S. Sheave 1000mm dia (GRPW-6)	2	Nos
15	Trolley fabricated with M.S. rolled section, size 1000x800x600mm (GRPW-7)	2	Nos
16	Grooved pulley set for carriage of each trolley, fitted with two sets of two pulleys each of 250mm dia each. (GRPW-8)	4	sets
17	Fabricated steel pillars Height 3m/ as per site requirements. Columns fabricated from Steel tube 125 mm nominal diameter, Class medium [IS 1161:1998] (GRPW-9)	4	Nos
18	Fabricated steel pillars Height 8m/ as per site requirements. Columns fabricated from Steel tube 125 mm nominal diameter, Class medium for Intermediate tower [IS 1161:1998] (GRPW-9)	2	Nos
18	Upper beam fabricated from ISMC 100 channel section welded together to form the box section. The length of the beam is 2.25 m (IS 808-1989 edition 4.1)	3	Nos
19	100X100 length embedded angle iron, equal to the length of the anchor block (GRPW-12)	2	Nos
20	Eye Connectors 25 mm dia and 1.50 m long to be welded with imbedded angle iron and embedded in the anchor block (GRPW-13)	4	Nos
21	Eye Connectors 25 mm dia and 1.00 m long to be connected with thrust pillars and embedded in the anchor block (GRPW-13)	4	Nos

22	Steel shaft with keys for mounting grooved pulley and brake drum, 50 mm diameter 1.25 m long (GRPW-15)	2	Nos
23	Keys assorted	6	Nos
24	Plummer block (M S) with removable cap (GRPW-17)	4	Nos
25	Ball Bearings NBC No. 6310 for 50 mm shaft (GRPW18)	4	Nos
26	Ball Bearings NBC No. 6305 for carriage pulley set (GRPW18)	8	Nos
27	Double shoe Brake drum diameter of 300 mm attached to shaft by key connection with wooden brake shoe as per design (GRPW-20)	1	Nos
28	Emergency Brake, Band brake, drum diameter 500 mm, band width 80 mm Band angle 120° (GRPW-21)	1	Nos
29	Standard ratchet for 50 mm shaft (GRPW22)	2	Nos
30	Hand crank for winching for 50 mm shaft with coupling (GRPW25)	1	Nos
31	Turn buckle of 1.20 m long & 40 mm dia size for countering weather effects (GRPW-30)	2	Nos
32	Turn buckle of 250mm dia & 0.60m long size for tensioning back pull of thrust pillar.(GRPW-30)	4	Nos
	Spares		
1	Wooden shoe for brakes	6	Nos
2	Nails/screws assorted for fixing brake shoe	2	Kg
3	Self aligning ball bearing 6310	4	sets
4	Ball bearing 6305	4	Nos
5	Grease 5 Kg	4	Nos
6	Lubricating oil	20	Ltrs
7	Nuts & Bolts for coupling etc.	8	Nos
8	U-clamp of assorted size	20	Nos
9	Torch & cell	2	Nos
	Tools		
1	Slide wrench	2	Nos
2	Pipe wrench	2	Nos
3	Ring spanner	2	Nos
4	D.E.spanner	2	Nos
5	Tirfor	1	Nos
6	Screw driver set of industrial size	2	Nos
7	Oil can	2	Nos
8	Chain pulley block 1.5 MT capacity	1	Nos
9	Small grease gun	2	Nos

DETAILS OF MECHANICAL COMPONENTS

Name of work: Construction of 606 m long gravity material ropeway between Bhankuli-Dhumakatok (Distt. Uttarkashi)

S. No.	PARTICULARS	QTY	UNIT
MECHANICAL COMPONENTS			
1	Steel core wire rope 6x17s(8-8-1), Grade 1770, Nominal diameter 13 mm, mass 69.3kg /100 m, Minimum Breaking force 107 kN [IS 10891(part1); 2001] (GRPW-1)	1333.00	RM
2	Fiber core wire rope, 6x7(6-1) Grade 1570, Nominal diameter 8 mm, mass 22.9/100 m, Minimum Breaking force 33 kN [IS 10891(part1) 2001], Endless wire rope. (GRPW-2)	1333.00	RM
3	6 mm steel communication wire, length to cover distance between stations and some spare (GRPW-27)	667.00	RM
4	Suitable ITI communication system for communication between L.T.P. & U.T.P. (GRPW-26)	1	Nos
5	Chamber frame with sliding arrangement for mounting of sheave PUIIEY with shaft & plummer block and brake system	2	sets
6	Foundation bolts for channel frame, 25 mm dia and 1.50 m long	12	Nos
7	U-Clamps 14mm dia (GRPW-3(i))	16	Nos
8	U-Clamps 16mm dia (GRPW-3(i))	16	Nos
9	U-Clamps 13mm dia (GRPW-3(i))	16	Nos
10	U-Clamps 8mm dia (GRPW-3(ii))	16	Nos
11	Nuts & Bolts of assorted size.	10	Kg
12	Latch for trolley (GRPW-4)	2	Nos
13	A reliable splicer for hauling rope (GRPW-5)	1	Nos
14	M.S. Sheave 1000mm dia (GRPW-6)	2	Nos
15	Trolley fabricated with M.S. rolled section, size 1000x800x600mm (GRPW-7)	2	Nos
16	Grooved pulley set for carriage of each trolley, fitted with two sets of two pulleys each of 250mm dia each. (GRPW-8)	4	sets
17	Fabricated steel pillars Height 3m/ as per site requirements. Columns fabricated from Steel tube 125 mm nominal diameter, Class medium [IS 1161:1998] (GRPW-9)	4	Nos
18	Upper beam fabricated from ISMC 100 channel section welded together to form the box section. The length of the beam is 2.25 m (IS 808-1989 edition 4.1)	2	Nos
19	100X100 length embedded angle iron, equal to the length of the anchor block (GRPW-12)	2	Nos
20	Eye Connectors 25 mm dia and 1.50 m long to be welded with imbedded angle iron and embedded in the anchor block (GRPW-13)	4	Nos
21	Eye Connectors 25 mm dia and 1.00 m long to be connected with thrust pillars and embedded in the anchor block (GRPW-13)	4	Nos
22	Steel shaft with keys for mounting grooved pulley and brake drum, 50 mm diameter 1.25 m long (GRPW-15)	2	Nos

23	Keys assorted	6	Nos
24	Plummer block (M S) with removable cap (GRPW-17)	4	Nos
25	Ball Bearings NBC No. 6310 for 50 mm shaft (GRPW18)	4	Nos
26	Ball Bearings NBC No. 6305 for carriage pulley set (GRPW18)	8	Nos
27	Double shoe Brake drum diameter of 300 mm attached to shaft by key connection with wooden brake shoe as per design (GRPW-20)	1	Nos
28	Emergency Brake, Band brake, drum diameter 500 mm, band width 80 mm Band angle 120° (GRPW-21)	1	Nos
29	Standard ratchet for 50 mm shaft (GRPW22)	2	Nos
30	Hand crank for winching for 50 mm shaft with coupling (GRPW25)	1	Nos
31	Turn buckle of 1.20 m long & 40 mm dia size for countering weather effects (GRPW-30)	2	Nos
32	Turn buckle of 250mm dia & 0.60m long size for tensioning back pull of thrust pillar.(GRPW-30)	4	Nos
	Spares		
1	Wooden shoe for brakes	6	Nos
2	Nails/screws assorted for fixing brake shoe	2	Kg
3	Self aligning ball bearing 6310	4	sets
4	Ball bearing 6305	4	Nos
5	Grease 5 Kg	4	Nos
6	Lubricating oil	20	Ltrs
7	Nuts & Bolts for coupling etc.	8	Nos
8	U-clamp of assorted size	20	Nos
9	Torch & cell	2	Nos
	Tools		
1	Slide wrench	2	Nos
2	Pipe wrench	2	Nos
3	Ring spanner	2	Nos
4	D.E.spanner	2	Nos
5	Tirfor	1	Nos
6	Screw driver set of industrial size	2	Nos
7	Oil can	2	Nos
8	Chain pulley block 1.5 MT capacity	1	Nos
9	Small grease gun	2	Nos

DETAILS OF MECHANICAL COMPONENTS

Name of work: Construction of 1040 m long gravity material ropeway between Khuna-Badogi (Distt. Uttarkashi)

S. No.	PARTICULARS	QTY	UNIT
MECHANICAL COMPONENTS			
1	Steel core wire rope 6x17s(8-8-1), Grade 1770,Nominal diameter 14 mm, mass 80.30 kg /100 m, Minimum Breaking force 124 kN [IS 10891(part1); 2001] (GRPW-1)	2288.00	RM
2	Fiber core wire rope, 6x7(6-1) Grade 1570,Nominal diameter 8 mm, mass 22.9/100 m, Minimum Breaking force 33 kN [IS 10891(part1) 2001],Endless wire rope. (GRPW-2)	2288.00	RM
3	6 mm steel communication wire,length to cover distance between stations and some spare (GRPW-27)	1144.00	RM
4	Suitable ITI communication system for communication between L.T.P. & U.T.P.(GRPW-26)	1	Nos
5	Chamber frame with sliding arrangement for mounting of sheave PUIIEY with shaft & plummer block and brake system	2	sets
6	Foundation bolts for channel frame,25 mm dia and 1.50 m long	12	Nos
7	U-Clamps 14mm dia (GRPW-3(i))	16	Nos
8	U-Clamps 16mm dia (GRPW-3(i))	16	Nos
9	U-Clamps 13mm dia (GRPW-3(i))	16	Nos
10	U-Clamps 8mm dia (GRPW-3(ii))	16	Nos
11	Nuts & Bolts of assorted size.	10	Kg
12	Latch for trolley (GRPW-4)	2	Nos
13	A reliable splicer for hauling rope (GRPW-5)	1	Nos
14	M.S.Sheave 1000mm dia (GRPW-6)	2	Nos
15	Trolley fabricated with M.S. rolled section,size 1000x800x600mm (GRPW-7)	2	Nos
16	Grooved pulley set for carriage of each trolley,fitted with two sets of two pulleys each of 250mm dia each.(GRPW-8)	4	sets
17	Fabricated steel pillars Height 3m/ as per site requirements. Columns fabricated from Steel tube 125 mm nominal diameter,Class medium [IS 1161:1998] (GRPW-9)	4	Nos
18	Fabricated steel pillars Height 8m/ as per site requirements. Columns fabricated from Steel tube 125 mm nominal diameter,Class medium for Intermediate tower [IS 1161:1998] (GRPW-9)	2	Nos
18	Upper beam fabricated from ISMC 100 channel section welded together to form the box section. The length of the beam is 2.25 m (IS 808-1989 edition 4.1)	3	Nos
19	100X100 length embedded angle iron, equal to the length of the anchor block (GRPW-12)	2	Nos
20	Eye Connectors 25 mm dia and 1.50 m long to be welded with imbedded angle iron and embedded in the anchor block (GRPW-13)	4	Nos
21	Eye Connectors 25 mm dia and 1.00 m long to be connected with thrust pillars and embedded in the anchor block (GRPW-13)	4	Nos

22	Steel shaft with keys for mounting grooved pulley and brake drum, 50 mm diameter 1.25 m long (GRPW-15)	2	Nos
23	Keys assorted	6	Nos
24	Plummer block (M S) with removable cap (GRPW-17)	4	Nos
25	Ball Bearings NBC No. 6310 for 50 mm shaft (GRPW18)	4	Nos
26	Ball Bearings NBC No. 6305 for carriage pulley set (GRPW18)	8	Nos
27	Double shoe Brake drum diameter of 300 mm attached to shaft by key connection with wooden brake shoe as per design (GRPW-20)	1	Nos
28	Emergency Brake, Band brake, drum diameter 500 mm, band width 80 mm Band angle 120° (GRPW-21)	1	Nos
29	Standard ratchet for 50 mm shaft (GRPW22)	2	Nos
30	Hand crank for winching for 50 mm shaft with coupling (GRPW25)	1	Nos
31	Turn buckle of 1.20 m long & 40 mm dia size for countering weather effects (GRPW-30)	2	Nos
32	Turn buckle of 250mm dia & 0.60m long size for tensioning back pull of thrust pillar.(GRPW-30)	4	Nos
	Spares		
1	Wooden shoe for brakes	6	Nos
2	Nails/screws assorted for fixing brake shoe	2	Kg
3	Self aligning ball bearing 6310	4	sets
4	Ball bearing 6305	4	Nos
5	Grease 5 Kg	4	Nos
6	Lubricating oil	20	Ltrs
7	Nuts & Bolts for coupling etc.	8	Nos
8	U-clamp of assorted size	20	Nos
9	Torch & cell	2	Nos
	Tools		
1	Slide wrench	2	Nos
2	Pipe wrench	2	Nos
3	Ring spanner	2	Nos
4	D.E.spanner	2	Nos
5	Tirfor	1	Nos
6	Screw driver set of industrial size	2	Nos
7	Oil can	2	Nos
8	Chain pulley block 1.5 MT capacity	1	Nos
9	Small grease gun	2	Nos

DETAILS OF MECHANICAL COMPONENTS

Name of work: Construction of 1133 m long gravity material ropeway between Posala-Simalsari (Distt. Uttarkashi)

S. No.	PARTICULARS	QTY	UNIT
MECHANICAL COMPONENTS			
1	Steel core wire rope 6x17s(8-8-1), Grade 1770, Nominal diameter 14 mm, mass 80.30 kg /100 m, Minimum Breaking force 124 kN [IS 10891(part1); 2001] (GRPW-1)	2492.00	RM
2	Fiber core wire rope, 6x7(6-1) Grade 1570, Nominal diameter 8 mm, mass 22.9/100 m, Minimum Breaking force 33 kN [IS 10891(part1) 2001], Endless wire rope. (GRPW-2)	2492.00	RM
3	6 mm steel communication wire, length to cover distance between stations and some spare (GRPW-27)	1246.00	RM
4	Suitable ITI communication system for communication between L.T.P. & U.T.P. (GRPW-26)	1	Nos
5	Chamber frame with sliding arrangement for mounting of sheave PUIIEY with shaft & plummer block and brake system	2	sets
6	Foundation bolts for channel frame, 25 mm dia and 1.50 m long	12	Nos
7	U-Clamps 14mm dia (GRPW-3(i))	16	Nos
8	U-Clamps 16mm dia (GRPW-3(i))	16	Nos
9	U-Clamps 13mm dia (GRPW-3(i))	16	Nos
10	U-Clamps 8mm dia (GRPW-3(ii))	16	Nos
11	Nuts & Bolts of assorted size.	10	Kg
12	Latch for trolley (GRPW-4)	2	Nos
13	A reliable splicer for hauling rope (GRPW-5)	1	Nos
14	M.S. Sheave 1000mm dia (GRPW-6)	2	Nos
15	Trolley fabricated with M.S. rolled section, size 1000x800x600mm (GRPW-7)	2	Nos
16	Grooved pulley set for carriage of each trolley, fitted with two sets of two pulleys each of 250mm dia each. (GRPW-8)	4	sets
17	Fabricated steel pillars Height 3m/ as per site requirements. Columns fabricated from Steel tube 125 mm nominal diameter, Class medium [IS 1161:1998] (GRPW-9)	4	Nos
18	Upper beam fabricated from ISMC 100 channel section welded together to form the box section. The length of the beam is 2.25 m (IS 808-1989 edition 4.1)	2	Nos
19	100X100 length embedded angle iron, equal to the length of the anchor block (GRPW-12)	2	Nos
20	Eye Connectors 25 mm dia and 1.50 m long to be welded with imbedded angle iron and embedded in the anchor block (GRPW-13)	4	Nos
21	Eye Connectors 25 mm dia and 1.00 m long to be connected with thrust pillars and embedded in the anchor block (GRPW-13)	4	Nos

22	Steel shaft with keys for mounting grooved pulley and brake drum, 50 mm diameter 1.25 m long (GRPW-15)	2	Nos
23	Keys assorted	6	Nos
24	Plummer block (M S) with removable cap (GRPW-17)	4	Nos
25	Ball Bearings NBC No. 6310 for 50 mm shaft (GRPW18)	4	Nos
26	Ball Bearings NBC No. 6305 for carriage pulley set (GRPW18)	8	Nos
27	Double shoe Brake drum diameter of 300 mm attached to shaft by key connection with wooden brake shoe as per design (GRPW-20)	1	Nos
28	Emergency Brake, Band brake, drum diameter 500 mm, band width 80 mm Band angle 120° (GRPW-21)	1	Nos
29	Standard ratchet for 50 mm shaft (GRPW22)	2	Nos
30	Hand crank for winching for 50 mm shaft with coupling (GRPW25)	1	Nos
31	Turn buckle of 1.20 m long & 40 mm dia size for countering weather effects (GRPW-30)	2	Nos
32	Turn buckle of 250mm dia & 0.60m long size for tensioning back pull of thrust pillar.(GRPW-30)	4	Nos
	Spares		
1	Wooden shoe for brakes	6	Nos
2	Nails/screws assorted for fixing brake shoe	2	Kg
3	Self aligning ball bearing 6310	4	sets
4	Ball bearing 6305	4	Nos
5	Grease 5 Kg	4	Nos
6	Lubricating oil	20	Ltrs
7	Nuts & Bolts for coupling etc.	8	Nos
8	U-clamp of assorted size	20	Nos
9	Torch & cell	2	Nos
	Tools		
1	Slide wrench	2	Nos
2	Pipe wrench	2	Nos
3	Ring spanner	2	Nos
4	D.E.spanner	2	Nos
5	Tirfor	1	Nos
6	Screw driver set of industrial size	2	Nos
7	Oil can	2	Nos
8	Chain pulley block 1.5 MT capacity	1	Nos
9	Small grease gun	2	Nos

DETAILS OF MECHANICAL COMPONENTS

Name of work: Construction of 1307 m long gravity based material between Rawadhar-Tikochi (Distt Uttarkashi)

S. No.	PARTICULARS	QTY	UNIT
	MECHANICAL COMPONENTS		
1	Steel core wire rope 6x17s(8-8-1), Grade 1770, Nominal diameter 16 mm, mass 105 kg /100 m, Minimum Breaking force 162 kN [IS 10891(part1); 2001] (GRPW-1)	2876.00	RM
2	Fiber core wire rope, 6x7(6-1) Grade 1570, Nominal diameter 8 mm, mass 22.9/100 m, Minimum Breaking force 33 kN [IS 10891(part1) 2001], Endless wire rope. (GRPW-2)	2876.00	RM
3	6 mm steel communication wire, length to cover distance between stations and some spare (GRPW-27)	1438.00	RM
4	Suitable ITI communication system for communication between L.T.P. & U.T.P. (GRPW-26)	1	Nos
5	Chamber frame with sliding arrangement for mounting of sheave PUIIEY with shaft & plummer block and brake system	2	sets
6	Foundation bolts for channel frame, 25 mm dia and 1.50 m long	12	Nos
7	U-Clamps 14mm dia (GRPW-3(i))	16	Nos
8	U-Clamps 16mm dia (GRPW-3(i))	16	Nos
9	U-Clamps 13mm dia (GRPW-3(i))	16	Nos
10	U-Clamps 8mm dia (GRPW-3(ii))	16	Nos
11	Nuts & Bolts of assorted size.	10	Kg
12	Latch for trolley (GRPW-4)	2	Nos
13	A reliable splicer for hauling rope (GRPW-5)	1	Nos
14	M.S. Sheave 1000mm dia (GRPW-6)	2	Nos
15	Trolley fabricated with M.S. rolled section, size 1000x800x600mm (GRPW-7)	2	Nos
16	Grooved pulley set for carriage of each trolley, fitted with two sets of two pulleys each of 250mm dia each. (GRPW-8)	4	sets
17	Fabricated steel pillars Height 3m/ as per site requirements. Columns fabricated from Steel tube 125 mm nominal diameter, Class medium [IS 1161:1998] (GRPW-9)	4	Nos
18	Upper beam fabricated from ISMC 100 channel section welded together to form the box section. The length of the beam is 2.25 m (IS 808-1989 edition 4.1)	2	Nos
19	100X100 length embedded angle iron, equal to the length of the anchor block (GRPW-12)	2	Nos
20	Eye Connectors 25 mm dia and 1.50 m long to be welded with imbedded angle iron and embedded in the anchor block (GRPW-13)	4	Nos
21	Eye Connectors 25 mm dia and 1.00 m long to be connected with thrust pillars and embedded in the anchor block (GRPW-13)	4	Nos
22	Steel shaft with keys for mounting grooved pulley and brake drum, 50 mm diameter 1.25 m long (GRPW-15)	2	Nos

23	Keys assorted	6	Nos
24	Plummer block (M S) with removable cap (GRPW-17)	4	Nos
25	Ball Bearings NBC No. 6310 for 50 mm shaft (GRPW18)	4	Nos
26	Ball Bearings NBC No. 6305 for carriage pulley set (GRPW18)	8	Nos
27	Double shoe Brake drum diameter of 300 mm attached to shaft by key connection with wooden brake shoe as per design (GRPW-20)	1	Nos
28	Emergency Brake, Band brake, drum diameter 500 mm, band width 80 mm Band angle 120° (GRPW-21)	1	Nos
29	Standard ratchet for 50 mm shaft (GRPW22)	2	Nos
30	Hand crank for winching for 50 mm shaft with coupling (GRPW25)	1	Nos
31	Turn buckle of 1.20 m long & 40 mm dia size for countering weather effects (GRPW-30)	2	Nos
32	Turn buckle of 250mm dia & 0.60m long size for tensioning back pull of thrust pillar.(GRPW-30)	4	Nos
	Spares		
1	Wooden shoe for brakes	6	Nos
2	Nails/screws assorted for fixing brake shoe	2	Kg
3	Self aligning ball bearing 6310	4	sets
4	Ball bearing 6305	4	Nos
5	Grease 5 Kg	4	Nos
6	Lubricating oil	20	Ltrs
7	Nuts & Bolts for coupling etc.	8	Nos
8	U-clamp of assorted size	20	Nos
9	Torch & cell	2	Nos
	Tools		
1	Slide wrench	2	Nos
2	Pipe wrench	2	Nos
3	Ring spanner	2	Nos
4	D.E.spanner	2	Nos
5	Tirfor	1	Nos
6	Screw driver set of industrial size	2	Nos
7	Oil can	2	Nos
8	Chain pulley block 1.5 MT capacity	1	Nos
9	Small grease gun	2	Nos

DETAILS OF MECHANICAL COMPONENTS

Name of work: Construction of 1072 m long gravity material ropeway between Pokhi-Hansudi (Distt. Pauri)

S. No.	PARTICULARS	QTY	UNIT
	MECHANICAL COMPONENTS		
1	Steel core wire rope 6x17s(8-8-1), Grade 1770,Nominal diameter 14 mm, mass 80.30 kg /100 m, Minimum Breaking force 124 kN [IS 10891(part1); 2001] (GRPW-1)	2358.00	RM
2	Fiber core wire rope, 6x7(6-1) Grade 1570,Nominal diameter 8 mm, mass 22.9/100 m, Minimum Breaking force 33 kN [IS 10891(part1) 2001],Endless wire rope. (GRPW-2)	2358.00	RM
3	6 mm steel communication wire,length to cover distance between stations and some spare (GRPW-27)	1179.00	RM
4	Suitable ITI communication system for communication between L.T.P. & U.T.P.(GRPW-26)	1	Nos
5	Chamber frame with sliding arrangement for mounting of sheave PUIIEY with shaft & plummer block and brake system	2	sets
6	Foundation bolts for channel frame,25 mm dia and 1.50 m long	12	Nos
7	U-Clamps 14mm dia (GRPW-3(i))	16	Nos
8	U-Clamps 16mm dia (GRPW-3(i))	16	Nos
9	U-Clamps 13mm dia (GRPW-3(i))	16	Nos
10	U-Clamps 8mm dia (GRPW-3(ii))	16	Nos
11	Nuts & Bolts of assorted size.	10	Kg
12	Latch for trolley (GRPW-4)	2	Nos
13	A reliable splicer for hauling rope (GRPW-5)	1	Nos
14	M.S.Sheave 1000mm dia (GRPW-6)	2	Nos
15	Trolley fabricated with M.S. rolled section,size 1000x800x600mm (GRPW-7)	2	Nos
16	Grooved pulley set for carriage of each trolley,fitted with two sets of two pulleys each of 250mm dia each.(GRPW-8)	4	sets
17	Fabricated steel pillars Height 3m/ as per site requirements. Columns fabricated from Steel tube 125 mm nominal diameter,Class medium [IS 1161:1998] (GRPW-9)	4	Nos
18	Fabricated steel pillars Height 8m/ as per site requirements. Columns fabricated from Steel tube 125 mm nominal diameter,Class medium Intermediate tower [IS 1161:1998] (GRPW-9)	2	Nos
18	Upper beam fabricated from ISMC 100 channel section welded together to form the box section. The length of the beam is 2.25 m (IS 808-1989 edition 4.1)	3	Nos
19	100X100 length embedded angle iron, equal to the length of the anchor block (GRPW-12)	2	Nos
20	Eye Connectors 25 mm dia and 1.50 m long to be welded with imbedded angle iron and embedded in the anchor block (GRPW-13)	4	Nos

21	Eye Connectors 25 mm dia and 1.00 m long to be connected with thrust pillars and embedded in the anchor block (GRPW-13)	4	Nos
22	Steel shaft with keys for mounting grooved pulley and brake drum, 50 mm diameter 1.25 m long (GRPW-15)	2	Nos
23	Keys assorted	6	Nos
24	Plummer block (M S) with removable cap (GRPW-17)	4	Nos
25	Ball Bearings NBC No. 6310 for 50 mm shaft (GRPW18)	4	Nos
26	Ball Bearings NBC No. 6305 for carriage pulley set (GRPW18)	8	Nos
27	Double shoe Brake drum diameter of 300 mm attached to shaft by key connection with wooden brake shoe as per design (GRPW-20)	1	Nos
28	Emergency Brake, Band brake, drum diameter 500 mm, band width 80 mm Band angle 120° (GRPW-21)	1	Nos
29	Standard ratchet for 50 mm shaft (GRPW22)	2	Nos
30	Hand crank for winching for 50 mm shaft with coupling (GRPW25)	1	Nos
31	Turn buckle of 1.20 m long & 40 mm dia size for countering weather effects (GRPW-30)	2	Nos
32	Turn buckle of 250mm dia & 0.60m long size for tensioning back pull of thrust pillar.(GRPW-30)	4	Nos
	Spares		
1	Wooden shoe for brakes	6	Nos
2	Nails/screws assorted for fixing brake shoe	2	Kg
3	Self aligning ball bearing 6310	4	sets
4	Ball bearing 6305	4	Nos
5	Grease 5 Kg	4	Nos
6	Lubricating oil	20	Ltrs
7	Nuts & Bolts for coupling etc.	8	Nos
8	U-clamp of assorted size	20	Nos
9	Torch & cell	2	Nos
	Tools		
1	Slide wrench	2	Nos
2	Pipe wrench	2	Nos
3	Ring spanner	2	Nos
4	D.E.spanner	2	Nos
5	Tirfor	1	Nos
6	Screw driver set of industrial size	2	Nos
7	Oil can	2	Nos
8	Chain pulley block 1.5 MT capacity	1	Nos
9	Small grease gun	2	Nos

DETAILS OF MECHANICAL COMPONENTS

Name of work: Construction of 1149 m long gravity based material between Mundhol-Tyuni (Distt Dehradun)

S. No.	PARTICULARS	QTY	UNIT
MECHANICAL COMPONENTS			
1	Steel core wire rope 6x17s(8-8-1), Grade 1770,Nominal diameter 14 mm, mass 80.30 kg /100 m, Minimum Breaking force 124 kN [IS 10891(part1); 2001] (GRPW-1)	2528.00	RM
2	Fiber core wire rope, 6x7(6-1) Grade 1570,Nominal diameter 8 mm, mass 22.9/100 m, Minimum Breaking force 33 kN [IS 10891(part1) 2001],Endless wire rope. (GRPW-2)	2528.00	RM
3	6 mm steel communication wire,length to cover distance between stations and some spare (GRPW-27)	1264.00	RM
4	Suitable ITI communication system for communication between L.T.P. & U.T.P.(GRPW-26)	1	Nos
5	Chamber frame with sliding arrangement for mounting of sheave pulley with shaft & plummer block and brake system	2	sets
6	Foundation bolts for channel frame,25 mm dia and 1.50 m long	12	Nos
7	U-Clamps 14mm dia (GRPW-3(i))	16	Nos
8	U-Clamps 16mm dia (GRPW-3(i))	16	Nos
9	U-Clamps 13mm dia (GRPW-3(i))	16	Nos
10	U-Clamps 8mm dia (GRPW-3(ii))	16	Nos
11	Nuts & Bolts of assorted size.	10	Kg
12	Latch for trolley (GRPW-4)	2	Nos
13	A reliable splicer for hauling rope (GRPW-5)	1	Nos
14	M.S.Sheave 1000mm dia (GRPW-6)	2	Nos
15	Trolley fabricated with M.S. rolled section,size 1000x800x600mm (GRPW-7)	2	Nos
16	Grooved pulley set for carriage of each trolley,fitted with two sets of two pulleys each of 250mm dia each.(GRPW-8)	4	sets
17	Fabricated steel pillars Height 3m/ as per site requirements. Columns fabricated from Steel tube 125 mm nominal diameter,Class medium [IS 1161:1998] (GRPW-9)	4	Nos
18	Fabricated steel pillars Height 8m/ as per site requirements. Columns fabricated from Steel tube 125 mm nominal diameter,Class medium for Intermediate tower [IS 1161:1998] (GRPW-9)	2	Nos
19	Upper beam fabricated from ISMC 100 channel section welded together to form the box section. The length of the beam is 2.25 m (IS 808-1989 edition 4.1)	3	Nos
20	100X100 length embedded angle iron, equal to the length of the anchor block (GRPW-12)	2	Nos
21	Eye Connectors 25 mm dia and 1.50 m long to be welded with imbedded angle iron and embedded in the anchor block (GRPW-13)	4	Nos
22	Eye Connectors 25 mm dia and 1.00 m long to be connected with thrust pillars and embedded in the anchor block (GRPW-13)	4	Nos

23	Steel shaft with keys for mounting grooved pulley and brake drum, 50 mm diameter 1.25 m long (GRPW-15)	2	Nos
24	Keys assorted	6	Nos
25	Plummer block (M S) with removable cap (GRPW-17)	4	Nos
26	Ball Bearings NBC No. 6310 for 50 mm shaft (GRPW18)	4	Nos
27	Ball Bearings NBC No. 6305 for carriage pulley set (GRPW18)	8	Nos
28	Double shoe Brake drum diameter of 300 mm attached to shaft by key connection with wooden brake shoe as per design (GRPW-20)	1	Nos
29	Emergency Brake, Band brake, drum diameter 500 mm, band width 80 mm Band angle 120° (GRPW-21)	1	Nos
30	Standard ratchet for 50 mm shaft (GRPW22)	2	Nos
31	Hand crank for winching for 50 mm shaft with coupling (GRPW25)	1	Nos
32	Turn buckle of 1.20 m long & 40 mm dia size for countering weather effects (GRPW-30)	2	Nos
33	Turn buckle of 250mm dia & 0.60m long size for tensioning back pull of thrust pillar.(GRPW-30)	4	Nos
	Spares		
1	Wooden shoe for brakes	6	Nos
2	Nails/screws assorted for fixing brake shoe	2	Kg
3	Self aligning ball bearing 6310	4	sets
4	Ball bearing 6305	4	Nos
5	Grease 5 Kg	4	Nos
6	Lubricating oil	20	Ltrs
7	Nuts & Bolts for coupling etc.	8	Nos
8	U-clamp of assorted size	20	Nos
9	Torch & cell	2	Nos
	Tools		
1	Slide wrench	2	Nos
2	Pipe wrench	2	Nos
3	Ring spanner	2	Nos
4	D.E.spanner	2	Nos
5	Tirfor	1	Nos
6	Screw driver set of industrial size	2	Nos
7	Oil can	2	Nos
8	Chain pulley block 1.5 MT capacity	1	Nos
9	Small grease gun	2	Nos

DETAILS OF MECHANICAL COMPONENTS

**Name of work: Construction of 1315 m long gravity based material between Bulhad -
Ataal (Distt Dehradun)**

S. No.	PARTICULARS	QTY	UNIT
	MECHANICAL COMPONENTS		
1	Steel core wire rope 6x17s(8-8-1), Grade 1770,Nominal diameter 16 mm, mass 105 kg /100 m, Minimum Breaking force 162 kN [IS 10891(part1); 2001] (GRPW-1)	2892.00	RM
2	Fiber core wire rope, 6x7(6-1) Grade 1570,Nominal diameter 8 mm, mass 22.9/100 m, Minimum Breaking force 33 kN [IS 10891(part1) 2001],Endless wire rope. (GRPW-2)	2892.00	RM
3	6 mm steel communication wire,length to cover distance between stations and some spare (GRPW-27)	1446.00	RM
4	Suitable ITI communication system for communication between L.T.P. & U.T.P.(GRPW-26)	1	Nos
5	Chamber frame with sliding arrangement for mounting of sheave PUIIEY with shaft & plummer block and brake system	2	sets
6	Foundation bolts for channel frame,25 mm dia and 1.50 m long	12	Nos
7	U-Clamps 14mm dia (GRPW-3(i))	16	Nos
8	U-Clamps 16mm dia (GRPW-3(i))	16	Nos
9	U-Clamps 13mm dia (GRPW-3(i))	16	Nos
10	U-Clamps 8mm dia (GRPW-3(ii))	16	Nos
11	Nuts & Bolts of assorted size.	10	Kg
12	Latch for trolley (GRPW-4)	2	Nos
13	A reliable splicer for hauling rope (GRPW-5)	1	Nos
14	M.S.Sheave 1000mm dia (GRPW-6)	2	Nos
15	Trolley fabricated with M.S. rolled section,size 1000x800x600mm (GRPW-7)	2	Nos
16	Grooved pulley set for carriage of each trolley,fitted with two sets of two pulleys each of 250mm dia each.(GRPW-8)	4	sets
17	Fabricated steel pillars Height 3m/ as per site requirements. Columns fabricated from Steel tube 125 mm nominal diameter,Class medium [IS 1161:1998] (GRPW-9)	4	Nos
18	Fabricated steel pillars Height 3m/ as per site requirements. Columns fabricated from Steel tube 125 mm nominal diameter,Class medium for Intermediate tower [IS 1161:1998] (GRPW-9)	2	Nos
18	Upper beam fabricated from ISMC 100 channel section welded together to form the box section. The length of the beam is 2.25 m (IS 808-1989 edition 4.1)	3	Nos
19	100X100 length embedded angle iron, equal to the length of the anchor block (GRPW-12)	2	Nos
20	Eye Connectors 25 mm dia and 1.50 m long to be welded with imbedded angle iron and embedded in the anchor block (GRPW-13)	4	Nos

21	Eye Connectors 25 mm dia and 1.00 m long to be connected with thrust pillars and embedded in the anchor block (GRPW-13)	4	Nos
22	Steel shaft with keys for mounting grooved pulley and brake drum, 50 mm diameter 1.25 m long (GRPW-15)	2	Nos
23	Keys assorted	6	Nos
24	Plummer block (M S) with removable cap (GRPW-17)	4	Nos
25	Ball Bearings NBC No. 6310 for 50 mm shaft (GRPW18)	4	Nos
26	Ball Bearings NBC No. 6305 for carriage pulley set (GRPW18)	8	Nos
27	Double shoe Brake drum diameter of 300 mm attached to shaft by key connection with wooden brake shoe as per design (GRPW-20)	1	Nos
28	Emergency Brake, Band brake, drum diameter 500 mm, band width 80 mm Band angle 120° (GRPW-21)	1	Nos
29	Standard ratchet for 50 mm shaft (GRPW22)	2	Nos
30	Hand crank for winching for 50 mm shaft with coupling (GRPW25)	1	Nos
31	Turn buckle of 1.20 m long & 40 mm dia size for countering weather effects (GRPW-30)	2	Nos
32	Turn buckle of 250mm dia & 0.60m long size for tensioning back pull of thrust pillar.(GRPW-30)	4	Nos
	Spares		
1	Wooden shoe for brakes	6	Nos
2	Nails/screws assorted for fixing brake shoe	2	Kg
3	Self aligning ball bearing 6310	4	sets
4	Ball bearing 6305	4	Nos
5	Grease 5 Kg	4	Nos
6	Lubricating oil	20	Ltrs
7	Nuts & Bolts for coupling etc.	8	Nos
8	U-clamp of assorted size	20	Nos
9	Torch & cell	2	Nos
	Tools		
1	Slide wrench	2	Nos
2	Pipe wrench	2	Nos
3	Ring spanner	2	Nos
4	D.E.spanner	2	Nos
5	Tirfor	1	Nos
6	Screw driver set of industrial size	2	Nos
7	Oil can	2	Nos
8	Chain pulley block 1.5 MT capacity	1	Nos
9	Small grease gun	2	Nos

DETAILS OF MECHANICAL COMPONENTS

Name of work: Construction of 1601 m long gravity based material between Silikhud-Patangana (Distt Dehradun)

S. No.	PARTICULARS	QTY	UNIT
MECHANICAL COMPONENTS			
1	Steel core wire rope 6x17s(8-8-1), Grade 1770,Nominal diameter 18 mm, mass 133 kg /100 m, Minimum Breaking force 205 kN [IS 10891(part1); 2001] (GRPW-1)	3522.00	RM
2	Fiber core wire rope, 6x7(6-1) Grade 1570,Nominal diameter 8 mm, mass 22.9/100 m, Minimum Breaking force 33 kN [IS 10891(part1) 2001],Endless wire rope. (GRPW-2)	3522.00	RM
3	6 mm steel communication wire,length to cover distance between stations and some spare (GRPW-27)	1761.00	RM
4	Suitable ITI communication system for communication between L.T.P. & U.T.P.(GRPW-26)	1	Nos
5	Chamber frame with sliding arrangement for mounting of sheave PUIIEY with shaft & plummer block and brake system	2	sets
6	Foundation bolts for channel frame,25 mm dia and 1.50 m long	12	Nos
7	U-Clamps 14mm dia (GRPW-3(i))	16	Nos
8	U-Clamps 16mm dia (GRPW-3(i))	16	Nos
9	U-Clamps 13mm dia (GRPW-3(i))	16	Nos
10	U-Clamps 8mm dia (GRPW-3(ii))	16	Nos
11	Nuts & Bolts of assorted size.	10	Kg
12	Latch for trolley (GRPW-4)	2	Nos
13	A reliable splicer for hauling rope (GRPW-5)	1	Nos
14	M.S.Sheave 1000mm dia (GRPW-6)	2	Nos
15	Trolley fabricated with M.S. rolled section,size 1000x800x600mm (GRPW-7)	2	Nos
16	Grooved pulley set for carriage of each trolley,fitted with two sets of two pulleys each of 250mm dia each.(GRPW-8)	4	sets
17	Fabricated steel pillars Height 3m/ as per site requirements. Columns fabricated from Steel tube 125 mm nominal diameter,Class medium [IS 1161:1998] (GRPW-9)	4	Nos
18	Fabricated steel pillars Height 8m/ as per site requirements. Columns fabricated from Steel tube 125 mm nominal diameter,Class medium for Intermediate tower [IS 1161:1998] (GRPW-9)	2	Nos
19	Upper beam fabricated from ISMC 100 channel section welded together to form the box section. The length of the beam is 2.25 m (IS 808-1989 edition 4.1)	3	Nos
20	100X100 length embedded angle iron, equal to the length of the anchor block (GRPW-12)	2	Nos
21	Eye Connectors 25 mm dia and 1.50 m long to be welded with imbedded angle iron and embedded in the anchor block (GRPW-13)	4	Nos
22	Eye Connectors 25 mm dia and 1.00 m long to be connected with thrust pillars and embedded in the anchor block (GRPW-13)	4	Nos

23	Steel shaft with keys for mounting grooved pulley and brake drum, 50 mm diameter 1.25 m long (GRPW-15)	2	Nos
24	Keys assorted	6	Nos
25	Plummer block (M S) with removable cap (GRPW-17)	4	Nos
26	Ball Bearings NBC No. 6310 for 50 mm shaft (GRPW18)	4	Nos
27	Ball Bearings NBC No. 6305 for carriage pulley set (GRPW18)	8	Nos
28	Double shoe Brake drum diameter of 300 mm attached to shaft by key connection with wooden brake shoe as per design (GRPW-20)	1	Nos
29	Emergency Brake, Band brake, drum diameter 500 mm, band width 80 mm Band angle 120° (GRPW-21)	1	Nos
30	Standard ratchet for 50 mm shaft (GRPW22)	2	Nos
31	Hand crank for winching for 50 mm shaft with coupling (GRPW25)	1	Nos
32	Turn buckle of 1.20 m long & 40 mm dia size for countering weather effects (GRPW-30)	2	Nos
33	Turn buckle of 250mm dia & 0.60m long size for tensioning back pull of thrust pillar.(GRPW-30)	4	Nos
	Spares		
1	Wooden shoe for brakes	6	Nos
2	Nails/screws assorted for fixing brake shoe	2	Kg
3	Self aligning ball bearing 6310	4	sets
4	Ball bearing 6305	4	Nos
5	Grease 5 Kg	4	Nos
6	Lubricating oil	20	Ltrs
7	Nuts & Bolts for coupling etc.	8	Nos
8	U-clamp of assorted size	20	Nos
9	Torch & cell	2	Nos
	Tools		
1	Slide wrench	2	Nos
2	Pipe wrench	2	Nos
3	Ring spanner	2	Nos
4	D.E.spanner	2	Nos
5	Tirfor	1	Nos
6	Screw driver set of industrial size	2	Nos
7	Oil can	2	Nos
8	Chain pulley block 1.5 MT capacity	1	Nos
9	Small grease gun	2	Nos

DETAILS OF MECHANICAL COMPONENTS

Name of work: Construction of 903 m long gravity material ropeway between Aala-Sitale (Distt. Chamoli)

S. No.	PARTICULARS	QTY	UNIT
	MECHANICAL COMPONENTS		
1	Steel core wire rope 6x17s(8-8-1), Grade 1770,Nominal diameter 13 mm, mass 69.3kg /100 m, Minimum Breaking force 107 kN [IS 10891(part1); 2001] (GRPW-1)	1986.00	RM
2	Fiber core wire rope, 6x7(6-1) Grade 1570,Nominal diameter 8 mm, mass 22.9/100 m, Minimum Breaking force 33 kN [IS 10891(part1) 2001],Endless wire rope. (GRPW-2)	1986.00	RM
3	6 mm steel communication wire,length to cover distance between stations and some spare (GRPW-27)	993.00	RM
4	Suitable ITI communication system for communication between L.T.P. & U.T.P.(GRPW-26)	1	Nos
5	Chamber frame with sliding arrangement for mounting of sheave PUIIEY with shaft & plummer block and brake system	2	sets
6	Foundation bolts for channel frame,25 mm dia and 1.50 m long	12	Nos
7	U-Clamps 14mm dia (GRPW-3(i))	16	Nos
8	U-Clamps 16mm dia (GRPW-3(i))	16	Nos
9	U-Clamps 13mm dia (GRPW-3(i))	16	Nos
10	U-Clamps 8mm dia (GRPW-3(ii))	16	Nos
11	Nuts & Bolts of assorted size.	10	Kg
12	Latch for trolley (GRPW-4)	2	Nos
13	A reliable splicer for hauling rope (GRPW-5)	1	Nos
14	M.S.Sheave 1000mm dia (GRPW-6)	2	Nos
15	Trolley fabricated with M.S. rolled section,size 1000x800x600mm (GRPW-7)	2	Nos
16	Grooved pulley set for carriage of each trolley,fitted with two sets of two pulleys each of 250mm dia each.(GRPW-8)	4	sets
17	Fabricated steel pillars Height 3m/ as per site requirements. Columns fabricated from Steel tube 125 mm nominal diameter,Class medium [IS 1161:1998] (GRPW-9)	4	Nos
18	Fabricated steel pillars Height 8m/ as per site requirements. Columns fabricated from Steel tube 125 mm nominal diameter,Class medium for Intermediate tower [IS 1161:1998] (GRPW-9)	2	Nos
18	Upper beam fabricated from ISMC 100 channel section welded together to form the box section. The length of the beam is 2.25 m (IS 808-1989 edition 4.1)	3	Nos
19	100X100 length embedded angle iron, equal to the length of the anchor block (GRPW-12)	2	Nos
20	Eye Connectors 25 mm dia and 1.50 m long to be welded with imbedded angle iron and embedded in the anchor block (GRPW-13)	4	Nos
21	Eye Connectors 25 mm dia and 1.00 m long to be connected with thrust pillars and embedded in the anchor block (GRPW-13)	4	Nos

22	Steel shaft with keys for mounting grooved pulley and brake drum, 50 mm diameter 1.25 m long (GRPW-15)	2	Nos
23	Keys assorted	6	Nos
24	Plummer block (M S) with removable cap (GRPW-17)	4	Nos
25	Ball Bearings NBC No. 6310 for 50 mm shaft (GRPW18)	4	Nos
26	Ball Bearings NBC No. 6305 for carriage pulley set (GRPW18)	8	Nos
27	Double shoe Brake drum diameter of 300 mm attached to shaft by key connection with wooden brake shoe as per design (GRPW-20)	1	Nos
28	Emergency Brake, Band brake, drum diameter 500 mm, band width 80 mm Band angle 120° (GRPW-21)	1	Nos
29	Standard ratchet for 50 mm shaft (GRPW22)	2	Nos
30	Hand crank for winching for 50 mm shaft with coupling (GRPW25)	1	Nos
31	Turn buckle of 1.20 m long & 40 mm dia size for countering weather effects (GRPW-30)	2	Nos
32	Turn buckle of 250mm dia & 0.60m long size for tensioning back pull of thrust pillar.(GRPW-30)	4	Nos
	Spares		
1	Wooden shoe for brakes	6	Nos
2	Nails/screws assorted for fixing brake shoe	2	Kg
3	Self aligning ball bearing 6310	4	sets
4	Ball bearing 6305	4	Nos
5	Grease 5 Kg	4	Nos
6	Lubricating oil	20	Ltrs
7	Nuts & Bolts for coupling etc.	8	Nos
8	U-clamp of assorted size	20	Nos
9	Torch & cell	2	Nos
	Tools		
1	Slide wrench	2	Nos
2	Pipe wrench	2	Nos
3	Ring spanner	2	Nos
4	D.E.spanner	2	Nos
5	Tirfor	1	Nos
6	Screw driver set of industrial size	2	Nos
7	Oil can	2	Nos
8	Chain pulley block 1.5 MT capacity	1	Nos
9	Small grease gun	2	Nos

CHAPTER-4

SPECIFICATION AND ALLIED TECHNICAL DETAILS.

SCOPE OF WORKS The scope of work consists of, Construction of Gravity Based Material Ropeway including design supply and erection of all materials, civil works, testing and commissioning of the gravity operated material ropeway on turnkey basis and imparting training to one or two local persons as per recommendation of DHO and handing over the installation to the concerning authority/N.G.O./S.H.G..

MACHANICAL WORKS

As per Bill of quantity

CIVIL WORKS

Each station will have the following civil engineering structures:-

- 1- Concrete anchor block.
- 2- Foundations for the grooved pulley system for the hauling rope.
- 3- Foundation for Thrust pillars and intermediate pillars.
- 4- Shed for mechanical system at both the ends.
- 5- Site development.
- 6- Loading & Unloading platforms.
- 7- Panting of all mechanical & structural items.

ANCHOR BLOCK

The anchor block of concrete will be cast in pits dug at platforms built at lower station and upper station to hold the Track Ropes on which the loaded trolley glides down on one cable while the counter weight glides up on the other due to difference in potential energy of the two trolleys. To find the specifications for the anchor block and thrust column with connector tie rods of 25mm diameter with an eye attached and with an imbedded angle iron of size 100mm x 100mm x 10mm, 2.5m long at center of anchor block. The Twin Track Ropes and Twin thrust columns will be connected to the anchor block by insertion in eye and then attached by U-clamps 3 in No.

SIZE

2.2m x 1.6m x 1.6m weighing 13500kg No. required 2 The anchor block of 2.2m x 1.6m x 1.6m will be cast in situ with 1:2:4 concrete mix and will have a reinforcing of 100mm x 100mm x 10mm steel section (equal angle iron ISA-100100) along entire length of 2.2m of the anchor block. A steel round of 25mm diameter will be welded to this equal angle iron for each cable end (four in No.) and cast at the cg of the anchor block. The volume of the anchor block is 5.632m^3 with concrete density of $2400\text{kg}/\text{m}^3$, its mass & weight will be 13500kg and 138,240N (138kN).

Two No. Links of 25mm diameter steel rods and 2.5m long with an eye loop for insertion of the track rope will be welded to the angle iron in anchor block with spacing equal to the cable spacing [tentative decided on site ~ 2m]. After placing of the angle iron, the concrete will be pored and kept wetted for 28 days.

FOUNDATION FOR THE MECHANICAL SYSTEM

Following are the general guidelines for the foundation of the mechanical system. There may be variations on account of the site logistics.

The hauling rope will operate in vertical plane running on a grooved pulley assembly at upper as well as lower station.

The size of the concrete block will be 2m x 1.5m high(0.5m above ground) and 0.6m wide. The concrete used will be 1:2:4. The foundation bolts 20mm dia 6 in number will be inserted in the chassis.

A foundation for mounting of the shaft held in 2 Plummer blocks and fitted with grooved pulley and brake drum along with provision for addition of a jaw clutch (water pumping system) and a flange coupling on the other end(for hand winch) will be built at lower station. A similar foundation will be built at upper station. The connection between grooved pulley assembly and foundation will be provided with a connection through ragged bolts, where nuts will be used for alignment and fixation.

SIZE

The size of the concrete block will be 2m x 1.5m high(0.5m above ground) and 0.6m wide. The concrete used will be 1:2:4. The foundation bolts 20mm dia 6 in number will be inserted in the chassis.

THRUST PILLARS

To support the lateral pressure on the foundation due to pull from the controlling cable, two pillars will be provided at each station. These pillars have been specified separately.

FOUNDATION PLATE

The pillars will have a plate welded at the base of each pillar. The size of the plate will be 400mm x 400mm and 10mm thick. It will be encased in concrete in a pit of the same dimension up to a depth of 0.6m.

THRUST TRANSMITTERS

Two Nos Cross members needed across pillars and Two No. needed for transferring thrust to foundations.

The foundation supporting the grooved pulley assembly will be pulled towards the hauling ropes and a cross members will be connected to the vertical pillars by bolts of 20mm diameter for attachment.

The sketches attached with specification illustrate the civil engineering works to be carried at upper and lower station.

MATERIAL

The tenders are required to furnish the test certificates for the supply of ropes.

TESTING & COMMISSIONING

The entire ropeway system has to be tested and commissioned for its satisfactory performance. One or two local person will be imparted necessary training on operation and maintenance of the system. The Ropeway System shall be handed over to the concerning authority/N.G.O./S.H.G. after satisfactory commissioning of the system.

CHAPTER-5**PRICE SCHEDULE (TO BE UTILIZED BY THE BIDDERS FOR QUOTING THEIR PRICES)****FINANCIAL BID PART - B**

S. NO.	Name of Ropeway	Tender Cost of Mechanical works on turnkey basis	Tender Cost of Civil works as per bill of quantity	Total Tender Cost (In Rs.)	
				In figure	In words
1	Dagud-Rana(Uttarkashi)				
2	Durvil-Hanumanchatti(Uttarkashi)				
3	Dinapur-Sankari(Uttarkashi)				
4	Bhankuli-Dhumakotok(Uttarkashi)				
5	Khuna-Badogi(Uttarkashi)				
6	Posala-Simalsari(Uttarkashi)				
7	Rawadhar-Tickochi(Uttarkashi)				
8	Pokhi-Hansudi(Pauri)				
9	Mundhol-Tyuni(Dehradun)				
10	Bulhad-Ataal(Dehradun)				
11	Silikhud-Patangana(Dehradun)				
12	Aala-Sitale(Chamoli)				

CHAPTER-6

DRAFT AGREEMENT FORM FOR CONSTRUCTION THROUGH LUMP SUM CONTRACT

ARTICLES OF AGREEMENT

This deed of agreement is made in the form of agreement ondaymonthbetween the **The General Manager (Projects) Garhwal Mandal Vikas Nigam Ltd., 74/ 1 Rajpur Road, Dehradun, Uttarakhand** or his authorized representative (hereinafter referred to as the first party) and(Name of the contractor), S/oresident of(hereinafter referred to as the second party), to execute the work of construction of(hereinafter referred to as works) on the terms and conditions as per **Chapter-2.**

Date :

Place:

Signature of Contractor
(Name of Bidder)
(Address)

.....
.....

Signature of Employer
General Manager(Projects)
Garhwal Mandal Vikas Nigam Ltd.,
74/1 Rajpur Road, ,Dehradun.
Uttarakhand.

CHAPTER-7

FORMAT FOR QUALIFICATION INFORMATION

FORMAT FOR BID FORM

FORMAT FOR BANK GUARANTEE FOR ADVANCE PAYMENT

FORMAT FOR CERTIFICATE

**FORMATE FOR LETTER OF ACCETPTANCE CUM NOTICE TO PROCEED WITH
THE WORK**

QUALIFICATION INFORMATION

1- FOR INDIVIDUAL BIDDERS

- 1.1 Principal place of business:
Power of attorney of signatory of Bid.
[Attach copy]
- 1.2 Total value of Similar works performed in the last five years(in Rs. Lakhs)
- 1.3 Work performed as prime contractor (in the same name) on works of a similar nature over the last five years.

Project Name	Name of Employer	Description of work	Contract No.	Value of Contract (Rs. Lacks)	Date of issue of work order	Stipulated period of completion	Actual date of completion	Remarks explaining reasons for delay and work completed

Existing commitments and on-going works:

Description of work	Place & State	Contract No. & Date	Value of Contract (Rs. Lacks)	Stipulated period of completion	Value of Works* remaining to be completed (Rs. Lacks)	Anticipated date of completion
1	2	3	4	5	6	7

* Enclose a certificate from Engineer concerned.

1.4 Proposed subcontractors and firms involved:

Section of the work	Value of Sub-contract	Sub-contract (Name & Address)	Experience of Similar work
1	2	3	4

- 1.5 Evidence of access to financial resources to meet the requirement of working capital cash in hand, lines of credit, etc. List then below and attach copies of support documents.
- 1.6 Name, Address, and telephone, telex and fax numbers of the Bidders' bankers who may provide references if contacted by the employer.
- 1.7 Information on litigation history in which the Bidder is involved.

Other parties	Employer	Cause of dispute	Amount involved	Remarks showing present status

BID FORM

To,

The General Manager(Projects)
Garhwal Mandal Vikas Nigam Ltd.,
74/1 Rajpur Road, Dehradun
Uttarakhand.

Name of works*: Constructin of Gravity Based Material Handling Ropeway at.....
Distt. Uttarakhand.

Reference : Letter No. Dated

Sir,

We offer to execute the works described in your letter referred to above in accordance with the conditions of contract enclosed here with at a total fixed contract price of:-

Rs. **[in figures]

Rs.[in words]

This bid and your written acceptance of it shall constitute a binding contract between us. We understand that you are not bound to accept the lowest or any bid you receive.

We here by confirm that this bid is valid for 45 days as required in Clause-7 of the Instruction to Bidders.

Yours faithfully,

Authorized Signature

Date

.....

Name & Title of Signatory :

Name of Bidder :

Address :

* To be filled in by the Employer before issue of the Letter of Invitation.

** To be filled in by the Bidder, together with his particulars and date of submission at the bottom of this form.

FORMATE OF BANK GUARANTEE

To,

The General Manager(Projects)
Garhwal Mandal Vikas Nigam Ltd.,
74/1 Rajpur Road, Dehradun
Uttarakhand.

Name of works*: Constructin of Gravity Based Material Handling Ropeway at.....
Distt. Uttarakhand.

Gentleman:

In accordance with the provision of the conditions of contract,
.....(name and address of Contractor) (hereinafter called
"the Contractor") shall deposit with **The General Manager (Projects) Garhwal Mandal
Vikas Nigam Ltd., 74/ 1 Rajpur Road, Dehradun, Uttarakhand** a bank guarantee to
guarantee his proper and faithful performance under the said Clause of the Contract in an
amount of(amount of guarantee)
.....(in words).

We the(bank of financial institution), as instructed by the contractor, agree
unconditionally and irrevocably to guarantee as primary obligator and not as Surety merely, the
payment to **The General Manager(Projects) Garhwal Mandal Vikas Nigam Ltd., 74/ 1
Rajpur Road, Dehradun, Uttarakhand** on his first demand without whatsoever right of
objection on our part and without his first claim to the contractor, in the amount not exceeding
.....(amount
of guarantee)(in words).

We further agree that no change or additon to or other modification of the terms of the
contract or of works to be performed there under or any of the contract documents which may be
between **The General Manager(Projects) Garhwal Mandal Vikas Nigam Ltd., 74/ 1 Rajpur
Road, Dehradun, Uttarakhand.** and the contractor, shall in any way release us from any
liability under this guarantee, and we here by waive notice of any such change, addition or
modification.

This guarantee shall remain valid and in full effect from the date of the advance payment
under the contract until **The General Manager (Projects) Garhwal Mandal Vikas Nigam
Ltd., 74/ 1 Rajpur Road, Dehradun, Uttarakhand** receive full repayment of the same amount
from the Contractor.

Yours truly,

Signature and Seal :

Name of Bank/Financial Institution :

Address :

Date :

Annexure - 2

FORMAT OF CERTIFICATE

Certificate that the works up tolevel in respect of
contraction ofathave
been executed in accordance with the approved drawing and technical specifications.

**Signature
Name & Designation
(Official address)
Official Seal**

Place :

Date :

