



**Part-III: PRICED & ATTACHMENTS "6695-CMG-G00-CA-0021"**



Olant 1.0 MTPA ALUMINA REFINERY STREAM-5	Client  NALCO	Contract Code  NAL	Document ID  6695-CVC-G00-CA- 0002_PART B	Contract No.  66-6695
 thyssenkrupp	TECHNICAL SPECIFICATION & BILL OF QUANTITIES FOR PILING WORKS			 नेशनल एल्युमिनियम कम्पनी लिमिटेड National Aluminium Company Ltd.
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**1. BILL OF QUANTITIES**

<p><b>tkIS India / Vendor</b></p> <div style="display: flex; align-items: flex-start;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg); font-size: small; margin-right: 5px;">Category Codes (Submission Purpose)</div> <div style="margin-left: 10px;"> <input type="checkbox"/> 1 For Approval  <input type="checkbox"/> 2 For Review / Comments  <input type="checkbox"/> 3 For Information  <input type="checkbox"/> 4 For Engineering  <input type="checkbox"/> 5 For Enquiry  <input type="checkbox"/> 6 For Order Placement  <input type="checkbox"/> 7 Final &amp; Approved  <input type="checkbox"/> 8 Released for Construction </div> </div> <hr/> <div style="display: flex; align-items: flex-start;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg); font-size: small; margin-right: 5px;">Acceptance Codes (Approval Codes)</div> <div style="margin-left: 10px;"> <input type="checkbox"/> 1 Approved  <input type="checkbox"/> 2 Approved for Manufacturing / Fabrication with Comments as marked  <input type="checkbox"/> 3 Not Approved / Resubmit  <input type="checkbox"/> 4 Retained for Information / Records  <input type="checkbox"/> 5 Reviewed  <input type="checkbox"/> 6 Reviewed as Noted / Resubmit </div> </div> <p style="font-size: x-small; margin-top: 10px;"><b>Remarks for AC2 :</b> This marked-up drawings is hereby approved for fabrication / manufacturing and shall be re-submitted after revision. This drawing should be revised only to the extent of tkIS India / Owner / Client comments. Any other changes made by you will not be considered unless clearly highlighted in covering letter asking for approval.</p> <p style="font-size: x-small; margin-top: 10px;"><b>This approval / review does not absolve the supplier from the full responsibility for design and fabrication.</b></p> <p style="font-size: x-small; margin-top: 10px;">Date : ___/___/___      Name : _____</p>	<p><b>tkIS India / Owner / Client</b></p> <div style="display: flex; align-items: flex-start;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg); font-size: small; margin-right: 5px;">Category Codes (Submission Purpose)</div> <div style="margin-left: 10px;"> <input type="checkbox"/> 1 For Approval  <input type="checkbox"/> 2 For Review / Comments  <input type="checkbox"/> 3 For Information  <input type="checkbox"/> 4 For Engineering  <input type="checkbox"/> 5 For Enquiry  <input type="checkbox"/> 6 For Order Placement  <input type="checkbox"/> 7 Final &amp; Approved  <input type="checkbox"/> 8 Released for Construction </div> </div> <hr/> <div style="display: flex; align-items: flex-start;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg); font-size: small; margin-right: 5px;">Acceptance Codes (Approval Codes)</div> <div style="margin-left: 10px;"> <input type="checkbox"/> 1 Approved  <input type="checkbox"/> 2 Approved for Manufacturing / Fabrication with Comments as marked  <input type="checkbox"/> 3 Not Approved / Resubmit  <input type="checkbox"/> 4 Retained for Information / Records  <input type="checkbox"/> 5 Reviewed  <input type="checkbox"/> 6 Reviewed as Noted / Resubmit </div> </div> <p style="font-size: x-small; margin-top: 10px;">Date : ___/___/___      Name : _____</p>
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04		Updated as marked and Issued for Tender	30.06.2020	BHK	30.06.2020	DMB/VBV	30.06.2020	GLP/SJP	
03		Issued for Tender	02.06.2020	BHK	02.06.2020	DMB/VBV	02.06.2020	GLP/SJP	
02		Updated as marked and issued for Enquiry	24.02.2020	BHK	24.02.2020	DMB	24.02.2020	GLP/SJP	
01		NALCO comments incorporated & Issued for Enquiry	10.01.2020	BHK	10.01.2020	GLP	10.01.2020	GLP/SJP	-
00		Issued for Enquiry	13.12.19	BHK	13.12.19	GLP	13.12.19	GLP/SJP	-
Rev.	Status	Description	Date	Prepared	Date	Checked	Date	Approved	AC
				<b>Barcode</b>					Category Code :-

Plant <b>1.0 MTPA ALUMINA REFINERY STREAM-5</b>	Client <b>NALCO</b>	Contract Code <b>NAL</b>	Document ID <b>6695-CVC-G00-CA- 0002_PART B</b>	Contract No. <b>66-6695</b>
	<b>TECHNICAL SPECIFICATION &amp; BILL OF QUANTITIES FOR PILING WORKS</b>			 <b>नालको NALCO</b> नेशनल एल्युमिनियम कम्पनी लिमिटेड National Aluminium Company Ltd.
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## BILL OF QUANTITIES

Plant <b>1.0 MTPA ALUMINA REFINERY STREAM-5</b>	Client <b>NALCO</b>	Contract Code <b>NAL</b>	Document ID <b>6695-CVC-G00-CA- 0002_PART B</b>	Contract No. <b>66-6695</b>
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### PREAMBLE FOR BILL OF QUANTITIES



- The Scope of Piling Contractor will be constructing Piles minimum 600mm above cut off level including all works required to complete the work, including chipping of piles up to cut-off level. Any building up of piles above specified cutoff level if required to be done, due to any reason other than design change shall be at piling Contractor's cost.
- This project is inside and outside the running refinery and the site is fairly leveled and graded. Many units are leveled and graded with backfilled soil. Bidders to consider the possibilities of rock boulders underneath finished level.
- Following construction units are likely to be provided with Pile foundations:

Table gives the approximate pile diameter & numbers with indicative pile capacities for various units.



Sl.No.	Refinery Damanjodi Odisha UNITS	Tentative Pile Dia	Approx.no of Piles	Indicative Pile capacities		
				Vertical (T)	Uplift (T)	Lateral (T)
4	1	600	~ 382	150	130	1
4	2	600	~ 30	150	130	1
	3	600	~ 735	150	130	1
	4	500	~ 10	-	-	-
		600	~ 288	150	110	4
		1000	~ 490	500	375	18
4	5	500	~ 110	-	-	-
4		600	~ 108	150	130	3.5
4	6	600	~ 184	150	130	2.5
	7	600	~ 75	150	110	9
	8	600	~120			
4		1000	~215			

Sl.No.	Port Area Visakhapatnam Andhra Pradesh UNITS	Tentative Pile Dia	Approx.no of Piles	Indicative Pile capacities		
				Vertical (T)	Uplift (T)	Lateral (T)
1	Caustic tank area	1000	~ 100	210	72	7.6

Any variation in the values mentioned in above table with respect to Unit, diameter, numbers & capacity will not be considered for any extra claim. The above information is indicative only. The quantities can vary to any extent.

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	<b>TECHNICAL SPECIFICATION &amp; BILL OF QUANTITIES FOR PILING WORKS</b>			 नेशनल एल्युमिनियम कम्पनी लिमिटेड National Aluminium Company Ltd.
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- 4 The Bill of Quantities shall be read in conjunction with the drawings, the Conditions of Contract and the Specifications as these documents are jointly explanatory and descriptive of the works included in the Contract. Any interpretation of the scope of work, made from 'B.O.Q. or Technical Spec. in isolation shall not be valid for any extra claims.
- 5 The quantities of work and material in the Bill of Quantities are not to be considered as limiting or exceeding the amount of work to be done. The quantities in the Bill of Quantities are an estimate of the amount of work. The work will be measured after completion and the Contractor will be paid on the actual measurement of work agreed to by the Engineer.
- 6 All items shall be measured net in accordance with the drawings and no allowance has been made for wastage. The units are based on metric units. (one ton equals to 1,000 kg.)
- 7 General directions and descriptions of work and materials given elsewhere in the Contract documents are not necessarily repeated in the Bills of Quantities. Contractor has to make references to the other documents for information and guidance.
- 8 The Contractor shall be deemed to have visited the Site before preparing this Tender and to have studied and examined for himself the conditions under which the work will have to be priced and all other matters affecting the carrying out of the work and the cost thereof. The Contractor will also acquaint himself with the prevailing requirements of State, Central/State Government or any conditions levied by any Local Competent Statutory Body or any Agency duly authorized in connection with carrying on such works and he shall be responsible for compliance of such obligations including taking permission wherever necessary, submitting information when called for etc.
- 9 A price or rate in figures is to be entered against each item in the Bills of Quantities, against which quantities are in B.O.Q.
- 10 The prices and rates inserted in the Bills of Quantities are to be the full inclusive value of the work described under the various items, including all cost and expenses which may be required for preliminary / completion of the work described, together with all cost and obligations set forth or implied in the Conditions of Contract, the Specifications. Where special risk, liabilities and obligations cannot be dealt with as above, then the price thereof is to be separately stated in the item provided for the purpose.
- 11 The Employer reserves the right to adjust arithmetical or other errors in the tender in accordance with the following general rules. In the event of discrepancy between words and figures quoted, the description in words shall prevail. Similarly, in the event of an error in the Amount column arising as a result of wrong insertion, the unit or item rates shall be

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	<b>TECHNICAL SPECIFICATION &amp; BILL OF QUANTITIES FOR PILING WORKS</b>			 <b>नेशनल एल्युमिनियम कम्पनी लिमिटेड</b> <b>National Aluminium Company Ltd.</b>
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regarded as firm and insertions amended accordingly. The Bidder shall quote rates in figures and words for all the items listed in Bill of Quantities against which quantities are appearing.

- 12 The interpretation of the word 'PROVIDING' as appearing in different item description of B.O.Q. shall be that the materials are supplied by the Contractor, "Providing" shall include cost of materials, other incidental charges and delivery at site.
- 13 The schedule item nos. may not be found in continuous serial order. The missing nos. indicates that the items against missing nos. are not applicable in the scope of the particular tender and hence deleted.
- 14 Cement, Reinforcement steel and Structural Steel material will not be free issued by Client. For Construction Power and Water supply conditions refer General and Special Conditions of Contract.
- 15 Notation:

CU.M. or M<sup>3</sup> in the unit column of the Bill of Quantities represents Meter Cube.

SQ.M or M<sup>2</sup> --- do --- Meter Square

RM --- do --- Running Meter

L.S. --- do --- Lump sum

No. --- do --- Number

QRO --- do --- Quote Rate Only

Tender Inviting Authority: Mr. T. S. Bharadwaj, thyssenkrupp Industrial Solutions (India) Private Limited,Uhde house, LBS Marg, Vikhroli West, Mumbai, India – 400083

Name of Work: Piling Works for Fifth Stream Alumina Refinery at Damanjodi, Orissa and related facilities at Vishakhapatnam, AP

Contract No: 66-6695-700, Tender No. : 6695-CMG-G00-CA-0021

Name of the Bidder/ Bidding Firm /	
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**PRICE SCHEDULE: Rev-0**

(This BOQ template must not be modified/replaced by the bidder and the same should be uploaded after filling the relevent columns, else the bidder is liable to be rejected for this tender. Bidders are allowed to enter the Bidder Name and Values only )

**NOTE**

1. Bidder can quote in Indian Rupees only.
2. The Unit Rate quoted shall be inclusive of all costs to be incurred by the bidder in connection with the work but exclusive of GST. GST as applicable shall be paid extra.
3. The payment shall be released as per the payment terms of tender document (after effecting requisite statutory deductions) through e-payment.
4. The quoted Rate shall remain firm till completion of the assignment.

NUMBER #	TEXT #	NUMBER #	TEXT #	NUMBER #	NUMBER #	TEXT #
Sl. No.	Item Description	Quantity	Units	BASIC RATE In Figures To be entered by the Bidder in Rs. P	TOTAL AMOUNT Without Taxes in Rs. P	TOTAL AMOUNT In Words
1	2	3	4	5	6	7
1	<b>Item No.-1:Piling Works</b> BORED CAST IN SITU CONCRETE PILES					
2	<b>Item No.-1.01:</b> NOTE:Provide and supply materials for Piling like Cement, reinforcement etc. all complete. Mobilisation of all necessary plants, equipments, properly calibrated instruments, Hydraulic piling rigs and hammers, trucks, cranes and other necessary modes of transport for material handling, supply of materials to be furnished by Contractor, posting qualified personnel, skilled and unskilled labour etc. to site of work, arranging kentledges and all other equipments, set ups required for conducting the various types of pile load tests, setting up properly equipped material/concrete testing laboratory, insurance, erecting and commissioning all plants and equipment essential for operating the contract. Rate shall also include various designs of concrete mixes, that may be required from time to time, mobilisation & demobilisation of all equipment required for timely completion of scope of work. (Bidder shall submit details of driving equipment and list of all equipment including pile hammers and rigs, cranes etc). Contractor shall also indicate the number of piling rigs cranes etc. (all in working condition) that he proposes to bring to site from time to time to execute and complete the work. The Contractor shall provide along with the bid, guarantee for pile load carrying capacities as mentioned in the tender. In case the Contractor differs on these capacities, the justification for same along with supporting calculations shall be provided for approval of Client / Consultant. Also piling method statement shall be submitted for approval of Client / Consultant, cost included in the piling item.					
3	<b>Item No.-1.02:</b> Forming vertical piles by boring through all kinds of soils including hard murum with gravel and rock fragments including occasional boulders by DMC method using Bentonite slurry technique/bailer boring as specified, for various lengths from tip to cut off elevation of piles, filling the bore with M-30 grade concrete, using ordinary portland cement, as shown and called for on the drawings or as instructed by the OWNER/ENGINEER, with a minimum cement content of 400 Kg/cu.m. of concrete and with water cement ratio including the water contained in the aggregates not exceeding 0.45, etc. all as specified, inclusive of concreting minimum 600mm above specified cut off elevation of piles, cutting off piles at the specified level cutting / chipping off piles to specified cut off level, exposing of the rebars etc, etc. complete in all respects. Initial lead for disposal of bored / excavated / chipped material shall be 1000 M (NOTE: Empty boring, if any and reinforcement shall be measured separately). THE ABOVE TO BE EXECUTED FOR 500 MM DIA. PILE. (for pile length of 0-10m from cut off elevation of piles to Pile Toe)	1180	RM			
4	<b>Item No.-1.03:</b> All activities and scope same as 1.02 for 600 mm dia. pile.	18020	RM			
5	<b>Item No.-1.04:</b> All activities and scope same as 1.02 for 750 mm dia. pile.	100	RM			
6	<b>Item No.-1.05:</b> All activities and scope same as 1.02 but for 1000 mm dia. pile.	5940	RM			
7	<b>Item No.-1.06:</b> All activities and scope same as 1.02 but for additional length above 10m up to 20m for 500 mm dia. pile.	1100	RM			
8	<b>Item No.-1.07:</b> All activities and scope same as 1.03 but for the additional length above 10m up to 20m for 600 mm dia. pile.	15748	RM			
9	<b>Item No.-1.08:</b> All activities and scope same as 1.04 but for the additional length above10m up to 20m for 750 mm dia. pile.	100	RM			
10	<b>Item No.-1.09:</b> All activities and scope same as 1.05 but for the additional length above10m up to 20m for 1000 mm dia. pile.	3660	RM			
11	<b>Item No.-1.10:</b> All activities and scope same as 1.06 but for additional length above 20m for 500 mm dia. pile.	110	RM			
12	<b>Item No.-1.11:</b> All activities and scope same as 1.07 but for additional length above 20m for 600 mm dia. pile.	8884	RM			
13	<b>Item No.-1.12:</b> All activities and scope same as 1.08 but for additional length above 20m for 750 mm dia. pile.	100	RM			

NUMBER #	TEXT #	NUMBER #	TEXT #	NUMBER #	NUMBER #	TEXT #
Sl. No.	Item Description	Quantity	Units	BASIC RATE In Figures To be entered by the Bidder in Rs. P	TOTAL AMOUNT Without Taxes in Rs. P	TOTAL AMOUNT In Words
1	2	3	4	5	6	7
14	<b>Item No.-1.13:</b> All activities and scope same as 1.09 but for additional length above 20m for 1000 mm dia. pile.	1100	RM			
15	<b>Item No.-1.14:</b> Empty boring for vertical piles, measured from the working level to cut off level plus 600 mm above the cut off level for 500 mm dia. pile.	178	RM			
16	<b>Item No.-1.14A:</b> All activities and scope same as 1.02 but for Socketing in hard rock	120	RM			
17	<b>Item No.-1.15:</b> All activities and scope same as 1.14 but for 600 mm dia. pile.	3698	RM			
18	<b>Item No.-1.15A:</b> All activities and scope same as 1.03 but for Socketing in hard rock	2163	RM			
19	<b>Item No.-1.16:</b> All activities and scope same as 1.14 but for 750 mm dia. pile.	100	RM			
20	<b>Item No.-1.16A:</b> All activities and scope same as 1.04 but for Socketing in hard rock	10	RM			
21	<b>Item No.-1.17:</b> All activities and scope same as 1.14 but for 1000 mm dia. pile.	1628	RM			
22	<b>Item No.-1.17A:</b> All activities and scope same as 1.05 but for Socketing in hard rock	1188	RM			
23	<b>Item No.-1.05A:</b> Forming vertical piles by boring through all kinds of soils including hard murum with gravel and rock fragments including occasional boulders by DMC method using Bentonite slurry technique/bailer boring as specified, for various lengths from tip to cut off elevation of piles, filling the bore with M-30 grade concrete, using ordinary portland cement, as shown and called for on the drawings or as instructed by the OWNER/ENGINEER, with a minimum cement content of 400 Kg/cu.m. of concrete and with water cement ratio including the water contained in the aggregates not exceeding 0.45, etc. all as specified, inclusive of concreting minimum 600mm above specified cut off elevation of piles, cutting off piles at the specified level cutting / chipping off piles to specified cut off level, exposing of the rebars etc., complete in all respects. Initial lead for disposal of bored / excavated / chipped material shall be 1000 M (NOTE: Empty boring, if any and reinforcement shall be measured separately). THE ABOVE TO BE installed / EXECUTED FOR 1000 MM DIA. CONTIGUOUS / SHORE PILE AT 1100mm C/C, forming a retaining wall to support deep excavation of approx. 13m depth. These piles are further required to be anchored into rock for a depth of 6m. (for pile length of 0-10m from cut off elevation of piles to Pile Toe)	2160	RM			
24	<b>Item No.-1.03A:</b> All activities and scope same as 1.05A for 600 mm dia. Shore pile at 700mm C/C.	787	RM			
25	<b>Item No.-1.09A:</b> All activities and scope same as 1.05A but for additional length above 10m up to 20m for 1000 mm dia. pile.	2012	RM			
26	<b>Item No.-1.13A:</b> All activities and scope same as 1.09A but for additional length above 20m for 1000 mm dia. pile.	68	RM			
27	<b>Item No.-1.18:</b> Providing Reinforcement steel in RCC works at all heights and depths, as per drawing and specifications including preparation and obtaining approval of bar bending schedule, straightening, decolling, removing mil-scales and rust, cutting, bending to required shape, placing, binding in position, welding wherever required, supply of approved type of binding wire, mechanical anchorage, etc. all as per section FOUR of technical specifications and for High Yield strength Deformed (HYSD) TMT bars conforming to IS:1786 grades : Fe 500.	2670	MT			
28	<b>Item No.-1.19:</b> Extra over item 1.02 to 1.17A, 1.05A, 1.03A, 1.09A, 1.13A, 1.52 to 1.58 as applicable for carting away, stacking and spreading bored/excavated soil/ chipped material beyond the initial lead of 1 KM and upto 5 km.	31385	CUM			
29	<b>Item No.-1.19A:</b> Extra over item 1.19 as applicable for carting away, stacking and spreading bored/excavated soil/ chipped material beyond 5 KM up to 10 KM.	28834	CUM			
30	<b>Item No.-1.19B:</b> Extra over item 1.19A as applicable for carting away, stacking and spreading bored/excavated soil/ chipped material beyond 10 KM up to 15 KM.	2603	CUM			
31	<b>Item No.-1.19C:</b> Extra over item 1.05, 1.09, 1.13, 1.17, 1.17A, 1.52 to 1.58 as applicable for carting away, stacking and spreading bored/excavated soil/ chipped material from Port area beyond the initial lead of 1 KM outside NALCO premises. Suitable area for disposal with appropriate statutory compliance shall be located by the contractor.	3433	CUM			
32	<b>Item No.-1.20:</b> Extending piles above cut off level, if required, including supplying and pouring M-30 concrete with a minimum cement content of 400 Kg/cu.m. of concrete and with water cement ratio (including water contained in the aggregates) not exceeding 0.45 including all shuttering, vibrating, curing, etc. complete but excluding reinforcement (Any building up of piles upto specified cutoff level if required to be done, due to any reason other than design change shall be at piling CONTRACTOR's cost) for 500 MM DIA. PILE.	60	RM			
33	<b>Item No.-1.21:</b> All activities and scope same as 1.20 but for 600 mm dia. pile.	962	RM			

NUMBER #	TEXT #	NUMBER #	TEXT #	NUMBER #	NUMBER #	TEXT #
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1	2	3	4	5	6	7
34	<b>Item No.-1.22:</b> All activities and scope same as 1.20 but for 750 mm dia. pile.	100	RM			
35	<b>Item No.-1.23:</b> All activities and scope same as 1.20 but for 1000 mm dia. pile.	405	RM			
36	<u>LOAD TESTING ON PILES:</u> <u>A. INITIAL LOAD TESTS</u>					
37	<b>Item No.-1.24:</b> Carrying out initial cyclic vertical load test on single vertical test pile as per IS-2911 with loading equal to two and half times the proposed safe bearing loads including necessary arrangements such as jacks, measuring devices, structural frame work for platform, kentledge, all complete as required. Providing and installing test piles shall be measured and paid separately for 500 mm dia. bored cast-in-situ piles.	2	Nos			
38	<b>Item No.-1.25:</b> All activities and scope same as 1.24 but for 600 mm dia. bored cast in situ piles.	3	Nos			
39	<b>Item No.-1.26:</b> All activities and scope same as 1.24 but for 750 mm dia. bored cast-in-situ piles.	1	Nos			
40	<b>Item No.-1.27:</b> All activities and scope same as 1.24 but for 1000 mm dia. bored cast-in-situ piles.	4	Nos			
41	<b>Item No.-1.28:</b> Carrying out initial cyclic lateral load test on single vertical pile as per IS 2911 with loading equal to two and half times the proposed safe bearing loads including all necessary arrangements such as jacks, measuring devices, structural framework for platform, kentledge, all complete as required. Providing and installing test piles shall be measured and paid separately for 500 mm dia. pile.	2	Nos			
42	<b>Item No.-1.29:</b> All activities and scope same as 1.28 but for 600 mm dia. pile.	3	Nos			
43	<b>Item No.-1.30:</b> All activities and scope same as 1.28 but for 750 mm dia. pile.	1	Nos			
44	<b>Item No.-1.31:</b> All activities and scope same as 1.28 but for 1000 mm dia. pile.	4	Nos			
45	<b>Item No.-1.32:</b> Carrying out initial pull out load test on vertical test piles as per IS:2911 (Type of loading shall be as per cyclic loading method) with loading equal to two and half times the proposed safe bearing loads including all activities as mentioned in 1.24 for 500 mm dia. pile.	2	Nos			
46	<b>Item No.-1.33:</b> All activities and scope same as 1.32 but for 600 mm dia. pile.	3	Nos			
47	<b>Item No.-1.34:</b> All activities and scope same as 1.32 but for 750 mm dia. pile.	1	Nos			
48	<b>Item No.-1.35:</b> All activities and scope same as 1.32 but for 1000 mm dia. pile.	4	Nos			
49	<u>B. ROUTINE LOAD TESTS</u>					
50	<b>Item No.-1.36:</b> Carrying out routine cyclic vertical load test on single vertical working pile as per IS 2911 with loading equal to one and half times the proposed safe bearing loads including all necessary arrangements such as jacks, measuring devices, structural framework for platform, kentledge, all complete as required for 500 mm dia pile.	2	Nos			
51	<b>Item No.-1.37:</b> All activities and scope same as 1.36 but for 600 mm dia. pile.	21	Nos			
52	<b>Item No.-1.38:</b> All activities and scope same as 1.36 but for 750 mm dia. pile.	1	Nos			
53	<b>Item No.-1.39:</b> All activities and scope same as 1.36 but for 1000 mm dia. pile.	6	Nos			
54	<b>Item No.-1.40:</b> Carrying out routine cyclic lateral load test on vertical piles as per IS:2911 with loading equal to one and half times the proposed safe bearing loads including all activities as mentioned in 1.36. For this test, two working piles shall be used and jacked apart. Both piles shall be considered as test piles. The lateral deflection of both the piles shall be recorded. However, testing both these piles shall be considered as one test, for 500 mm dia. piles.	2	Nos			
55	<b>Item No.-1.41:</b> All activities and scope same as 1.40 but for 600 mm dia. pile.	21	Nos			
56	<b>Item No.-1.42:</b> All activities and scope same as 1.40 but for 750 mm dia. pile.	1	Nos			
57	<b>Item No.-1.43:</b> All activities and scope same as 1.40 but for 1000 mm dia. pile.	6	Nos			
58	<b>Item No.-1.44:</b> Carrying out routine pull out load test on vertical working piles as per IS:2911 (Type of loading shall be as per cyclic loading method) with loading equal to one and half times the proposed safe bearing loads including all activities as mentioned in 1.36 for 500 MM DIA. PILE.	2	Nos			



NUMBER #	TEXT #	NUMBER #	TEXT #	NUMBER #	NUMBER #	TEXT #
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1	2	3	4	5	6	7
59	<b>Item No.-1.45:</b> All activities and scope same as 1.44 but for 600 mm dia. pile.	21	Nos			
60	<b>Item No.-1.46:</b> All activities and scope same as 1.44 but for 750 mm dia. pile.	1	Nos			
61	<b>Item No.-1.47:</b> All activities and scope same as 1.44 but for 1000 mm dia. pile.	6	Nos			
62	<b>Item No.-1.48:</b> Making preparation and carrying out Pile integrity test (NDT) using High sensitive accelerometer or equivalent through specialist approved agency, in consultation with Owner / Consultant and submitting the report including site mobilization, dewatering, chipping, building up of piles, clearing & preparing top surface of pile, etc., as required for testing and submitting the report to Owner / Consultant for approval for all lengths for 500 mm dia. Pile	120	Nos			
63	<b>Item No.-1.49:</b> All activities and scope same as 1.48 but for 600 mm dia. pile.	1923	Nos			
64	<b>Item No.-1.50:</b> All activities and scope same as 1.48 but for 750 mm dia. pile..	5	Nos			
65	<b>Item No.-1.51:</b> All activities and scope same as 1.48 but for 1000 mm dia. pile.	810	Nos			
66	<b>Item No.-1.52:</b> Excavation in ordinary soil including clay black cotton soil, soft & hard murrum, sand, gravel, soil containing small pebbles, rubble, boulders, removable without breaking/blasting, etc. which can be loosened manually or mechanically operating tackles such as pick shovels, front loader (as defined in IS:1200) etc. for all types of foundations/footings, plinth beams, pilecaps or any other substructure, including shoring, strutting, dewatering and disposal of surplus earth up to a distance of 1000 metre from the nearest edge of excavation area. The rate shall include all tools, tackles, supervision, transport and incidental expense, overhead & profit, etc. as per section 1 of Tech. Specification, up to and including a depth of 2M below existing level.	13635	CUM			
67	<b>Item No.-1.53:</b> All activities & scope same as in item 1.52 but for excavation below 2M and upto 4 M below existing ground level.	1545	CUM			
68	<b>Item No.-1.54:</b> All specifications scope & activities same as for item no 1.52 but for excavation in SOFT-ROCK as defined in IS:1200 for soil classification and up to a depth of 2M below existing ground level.	3424	CUM			
69	<b>Item No.-1.55:</b> All activities & scope same as in item 1.54 but for excavation below 2M and upto 4 M below existing ground level.	2316	CUM			
70	<b>Item No.-1.56:</b> Excavation in hard rock or boulders by chiselling or any other suitable method(s), but not blasting, stacking the material in regular measurable stacks as directed by the supervising engineer or client. Generally measurements will be done based on the original rock levels and final rock levels. In case of blasting in boulders only, the stack measurements less 40 % voids shall be taken as payable quantity.	2911	CUM			
71	<b>Item No.-1.57:</b> All activities & scope same as in item 1.56 but for excavation below 2M and upto 4 M below existing ground level.	2212	CUM			
72	<b>Item No.-1.58:</b> Any chipping & crushing of pile required due to design change, including all tools, tackles, compressed air, labour, consumables and disposal of debris as directed within a lead of 1000 M from site.	723	CUM			
73	<b>Item No.-1.59:</b> Drilling / boring minimum 100mm dia. exploratory bore hole upto 10m depth including all tools, tackles, labour, consumables all complete, in case rock / boulder is encountered during piling activity.	50	RM			
74	<b>Item No.-1.60:</b> Providing, mixing, placing in position, Plain Cement Concrete of Grade M-15 as per IS:456 under foundations, floors, plinth beams etc. including compaction by vibration, curing, using 20 mm down aggregate all per sec 2 of tech-spec. but excluding formwork.	29	CUM			
75	<b>Item No.-1.61:</b> Supplying and placing in position Concrete of grade M-30 using 20 mm down coarse aggregate as per IS:456 in Reinforced Cement Concrete foundations, tie beams, plinth beams, columns, portals, slabs, walls, curved walls, retaining walls, dyke wall, ramp, grade slab, pedestals etc, including transportation, compaction, vibration, curing and finishing all as per Section 2 but excluding formwork and reinforcement.	70	CUM			
76	<b>Item No.-1.62:</b> Providing and fixing wrought timber formwork / smooth formwork of steel plates or marine plywood for concrete elements in foundations, rafts, beams, columns, portals, slabs, walls, pedestals, liquid retaining structures, pits etc at various levels below plinth and at required slopes as per drawing including making, materials, fixing, supporting, maintaining during and after concreting stripping at appropriate time, all as per Technical Specification Section 2.	121	SQM			
77	<b>Item No.-1.63:</b> Dismantling of existing structures or part at all levels including all tools, tackles, compressed air, labour, crane, consumables and disposal of debris/unserviceable items as directed outside NALCO premises. Suitable area for disposal with appropriate statutory compliance shall be located by the contractor. Serviceable materials to be stacked and handed over to NALCO.					
78	<b>Item No.-1.64:</b> Brick work of walls	20	CUM			
79	<b>Item No.-1.65:</b> Reinforced concrete Columns, Beams, Slabs, Walls, pavings	160	CUM			

NUMBER #	TEXT #	NUMBER #	TEXT #	NUMBER #	NUMBER #	TEXT #
Sl. No.	Item Description	Quantity	Units	BASIC RATE In Figures To be entered by the Bidder in Rs. P	TOTAL AMOUNT Without Taxes in Rs. P	TOTAL AMOUNT In Words
1	2	3	4	5	6	7
80	Item No.-1.66: Asphalt roads upto bottom of soling	100	CUM			
81	Item No.-1.67: CGI / A.C. Sheetings including ridges, hips, valleys and gutters	120	SQM			
82	Item No.-1.68: Flooring like Tiles in toilet including dado, acid lining	700	SQM			
83	Item No.-1.69: Structural Steel work (to be handed over to NALCO)	15	MT			
84	Item No.-1.70: Misc. sanitary items like over head water tank, WC, urinals, wash basin, taps, towel holder, soap dispenser, tissue holder, jet all complete.	12	Nos			
85	Item No.-1.71: Misc. items like doors, windows less than 3 sqm of area	10	SQM			
Total in Figures						
Quoted Value in Words						