



NATIONAL ALUMINIUM COMPANY LIMITED  
(A Government of India Enterprise)  
(A NAVRATNA COMPANY)  
Mines Division, Damanjodi-763008.  
(T & C DEPARTMENT)

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### **TENDER DOCUMENT COVERING LETTER**

**Tender Ref. No: T&C/MINES/CIVIL/C-1582**

**Dt: 07.11.2024**

**Name of the Work: Construction of CC road with ancillary works at NALCO Mines, Damanjodi.**

Dear Sirs,

With reference to above, you are requested to submit your best competitive offer for above referred work as specified in the enclosed documents, considering all the terms, conditions and specifications etc. in **online mode/e-mode** at the tendering portal (indicated in salient points of the tender).

The Bidders shall have to upload the scan copy of **Bank Guarantee (only if BID SECURITY amount >or = Rs. 1,00,000.00) or receipt for payment by electronic mode** towards Bid Security/Tender fee amount along with the **Online** offer. Payment for BID SECURITY and Tender fee shall be separately submitted and these two shall not be clubbed in any case.

**The copy of receipt for payment against BID SECURITY & tender fee by electronic mode or Original copy of Bank Guarantee shall have to be submitted /sent beforehand so as to reach the office of tender inviting authority on or before the bid submission due date & time or extended bid due date & time of the tender. In case you are claiming exemption from payment of tender fee/BID SECURITY, the valid attested by gazetted officer/notarized supporting documents for claiming the exemption (Ref clause no:5.0 & 6.0 of Annexure-AA) must be uploaded along with the Online offer, failing which the offer will be liable for rejection.**

For this tender- regarding payment of tender fee refer to Sl no. 8 of contract details.

**The bidder must be a registered vendor under GST and must possess valid GSTIN.**

- a) In case of **SINGLE PART BID TENDER**, the tender document, duly filled in & signed, on each page digitally, along with the required documents in support of terms and conditions as per the NIT/GCC etc are to be submitted in **online** mode along with the requisite BID SECURITY, as per details, indicated at clause no:25.0 of Annexure-AA.
- b) In case of **TWO PART BID TENDER**, the tender document, duly filled in & signed, on each page digitally along with the requisite BID SECURITY, required documents in support of qualifying criteria & other conditions of NIT/ GCC (Part-I: Techno-commercial bid) and the Price Bid (Part-II: Price bid) are to be submitted in online mode as per the details indicated at clause no: 25.0 of Annexure-AA.

NALCO reserves the right to reject any or all offers without assigning any reason thereof.

You are requested to refer to clause **25.0** of Instructions to bidders (Annexure-AA) for details regarding mode, submission, receipt and opening of tender.

**Important Note:**

- (i) **Bidders are requested to quote online well ahead of the schedule tender submission date and time to avoid unforeseen problem like last hour congestion, internet failure etc.**
- (ii) **Bidders are requested to visit the tendering portal for online participation, downloading the tender documents and submit the offer only in e-tendering mode as per the tender schedule. Bids submitted in any other mode shall not be considered.**

Thanking you,

Your's faithfully,  
For and on behalf of  
NATIONAL ALUMINIUM COMPANY LIMITED

**General Manager (Elect)- T&C, (Tender Inviting Authority)**

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**CONTRACT DETAILS**

1.	NAME OF THE WORK	<b>Construction of CC road with ancillary works at NALCO Mines, Damanjodi.</b>			
2.	LOCATION OF THE WORK	<b>Inside Mines Gate/Outside Mines Gate but within Mines Lease Area</b>			
3.	TENDER REFERENCE	<b>T&amp;C/MINES/CIVIL/C-1582</b>			
4.	CONTRACT PERIOD	<b>12 (Twelve) Months</b>			
5.	MODE OF TENDERING	<b>OPEN/TWO PART</b>			
6.	No. of Agency Required and percentage distribution of Work (Subject to availability of suitable vendors)	<b>ONE, 100%</b>			
7.	EMD/BID SECURITY (Ref clause no:6.0 of Annexure-AA)	<b>Rs. 5,66,226.00</b>			
8.	TENDER FEE (Ref clause no:5.0 of Annexure-AA)	<b>NIL</b>			
9.	TENDER SUBMISSION DATE / TIME (Ref. clause 25.6 of Annexure-AA)	On or before: As indicated in the portal			
10.	TENDER OPENING DATE / TIME (Ref. clause 25.6 of Annexure-AA)	On Date: As indicated in the portal			
11.	VALIDITY OF OFFER (Ref Clause 25.8 of Annexure-AA)	<b>120 days from the date of tender opening</b>			
12.	BANK GUARANTEE VALUE (As per clause no. 12.2 of Annexure-AA)	<b>NIL</b>			
13.	INDEMNITY BOND VALUE (As per clause no. 12.2 of Annexure-AA)	<b>NIL</b>			
14.	DEFECT LIABILITY PERIOD (Ref clause 7.0 of Annexure-AA).	<b>12 Months (Refer Cl. No. 11.0 of SCC at Annexure IB)</b>			
15a.	The value of L0 applicable to clause 20.2 of Annexure-AA	<b>USW</b>	<b>SSW</b>	<b>SW</b>	<b>HSW</b>
		<b>NA</b>			
15b.	Gate Pass Details	<b>USW</b>	<b>SSW</b>	<b>SW</b>	<b>HSW</b>
		<b>Temporary Gate passes will be issued as required</b>			
16a.	Applicability of Labour charge variation clause (Ref cl no:20.2 of Annexure-AA)	<b>Not Applicable</b>			
16b.	The values of D <sub>0</sub> applicable (D <sub>0</sub> = Diesel rate at Damanjodi)	<b>Not Applicable</b>			
16c.	Applicability of POL/Material variation (as per cl no:4.4 of contract manual)	<b>Not Applicable</b>			
17.	Applicability of income tax deduction at source (Ref cl.no. 10.6 of Annexure-AA)	<b>Applicable</b>			
18.	Applicability of GST (Ref cl.no. 10.0 of Annexure-AA)	<b>Applicable</b>			
19.	Applicability of ITC on GST (Ref cl.no. 10.0 of Annexure-AA)	<b>Not Applicable</b>			
20.	Minimum Workable rate (Ref: Clause no.2.7 of Annexure-AA)	<b>Not Applicable</b>			
21.	Applicability of Pre- Contract Integrity Pact (Ref Cl No. 14.1 & 14.2 of Annexure- AA)	<b>Applicable</b>			
22.	Date of Pre-bid meeting	<b>Applicable and the same is as Per GeM Document</b>			
23.	Joint Venture /Consortium Bidding	<b>NOT ALLOWED, Offers submitted by such Bidders shall be summarily rejected.</b>			

**SALIENT POINTS OF THE TENDER**

1	Schedule Quantity & Rates: clause no 2.1	The Quantity and rate schedule (Price bid format) is enclosed at the GeM bid document in GeM portal.	
2	Quantity Variation: Cl no 3.1	Item rate contracts: The Quantities mentioned in the schedule are approximate in nature and may vary by a wide margin for which the contractor shall have no option but to execute the works as per the direction of Engineer-in-charge at the same rates, terms & conditions. Payment shall be released to the contractor for the actual executed quantity.	
3	Independent External Monitor (IEM) details of NALCO		
	Smt. Deepa Krishnan, IRS (Retd.) e-mail: deepakrishnan@gmail.com	Ms. Meeran C Borwankar IPS(Retd), E-mail: mcborwankar@gmail.com	Ms Archana Ranjan, IRS (Retd.) e-mail: ranjan.archana@gmail.com
1. "Only representation in respect of Integrity Pact need to be addressed to the IEMs and no query regarding tender terms and conditions should be address to the IEMs". 2. "Any clarification regarding the tender details and terms & conditions should be addressed to NALCO's officials as per details given below "			
4	Nominated IEM for the tender	Ms. Archana Ranjan, IRS (Retd.)	
5	Concurrent Commitments	Applicable	
6	Reverse Auction	Applicable	
7	Retention / Release of Statutory wage components: 1. The monthly statutory components on wage like EPF, ESI, NH/PH as applicable in the month shall be released along with monthly RA Bill. 2. The Yearly /Annual wage components like Bonus / Annual Leave with wages and End of Contract components like Retrenchment Benefit and Gratuity (if applicable) will be retained from the monthly RA Bills and shall be released on payment of these components to the workmen.	Not Applicable	
8	Tendering Portal	www.gem.gov.in	
9	Details of Tender inviting Authority	N. Srinivasa Sudhakar GM(E), T&C Department Email: nissankararao.sudhakar@nalcoindia.co.in Ph No 9437028234	

**MINIMUM WAGES AS PAYABLE TO WORKMEN W.E.F 01.10.2024**

Sl no	Category	Minimum Rate of Wages (Rs.) per day								
		Basic Rate of Wage (Rs)	Rate of VDA	Total rate of Minimum wages (Rs)	Additional Element (Rs)	Canteen Subsidy (Rs)	Total Wages (Rs)	Medical Benefit (4.75% of Total Wages) (Rs)	SCA per day (Rs)	Minimum Total wage including additional element & Canteen Subsidy (Rs)
1	USW	350.00	176.00	526.00	55.00	30.00	611.00	29.02	30.00	670.02
2	SSW	437.00	218.00	655.00	55.00	30.00	740.00	35.15	30.00	805.15
3	SW	523.00	260.00	783.00	55.00	30.00	868.00	41.23	30.00	939.23
4	HSW	610.00	302.00	912.00	55.00	30.00	997.00	47.36	30.00	1074.36

In addition to the above-

- Provident Fund (PF) @ 13% (on Basic Rate of wage + Rate of VDA + Additional element + Canteen subsidy+ Medical benefit),
- Bonus @ 8.33% of (on Basic Rate of wage + Rate of VDA + Additional element),
- Retrenchment benefit @ 4.11% (on Basic Rate of wage + Rate of VDA + Additional element + Canteen subsidy),
- Leave wages @ 5% of (on Basic Rate of wage + Rate of VDA + Additional element + Canteen subsidy),
- NH/Festival Holiday wages @ 2.74% of (on Basic Rate of wage + Rate of VDA + Additional element + Canteen subsidy) are payable to the workmen.
- Retrenchment benefit is payable only if the contract duration is more than 240 days.

**CHECKLIST FOR BIDDERS****Following documents are to be submitted for two-part bids.**

Sl. No.	Description	Submitted/ Not submitted	Remarks
1.	Attested/Notarized Copy of Work Order meeting similar works as specified in PQC with Scope of Work, Special Conditions of Contract and Schedule of Rates/Bill of Quantity	Yes / No/ <del>NA (*)</del>	
2.	Attested/Notarized Copy of Work Completion Certificate/Part Completion Certificate against above Work Order	Yes / No/ <del>NA (*)</del>	
3.	Attested/Notarized Copy of Audited financial statements/profit & loss accounts of the last three Financial Years, duly certified by a Chartered Accountant or Annual Report indicating annual turnover.	Yes / No/ <del>NA (*)</del>	
4.	Attested/Notarized Copy of audited balance sheet for the last Financial Year duly certified by a Chartered Accountant.	Yes / No/ <del>NA (*)</del>	
5. a)	BID SECURITY Amount in form of RTGS/NEFT/ECS/BG as per NIT specification/Attested copy of BID SECURITY exemption Certificate like UAM/NSIC	Yes / No/ <del>NA (*)</del>	*
5. b)	Tender Fee in form of DD/BC as per NIT specification/ Attested copy of Tender Fee exemption Certificate like UAM/NSIC	Yes / No/ <del>NA (*)</del>	
6.	Attested/Notarized Copy of Independent E.P.F. A/c CODE of Bidder	Yes / No/ <del>NA (*)</del>	
7.	Attested/Notarized Copy of Independent E.S.I.C. A/c CODE of Bidder	Yes / No/ <del>NA (*)</del>	
8.	Attested/Notarized Copy of PAN Card of bidder	Yes / No/ <del>NA (*)</del>	
9.	Copy of GSTIN of bidder	Yes / No/ <del>NA (*)</del>	
10.	Attested/Notarized Copy of Proprietorship deed/ Partnership Deed / Article & Memorandum of Association of the bidder	Yes / No/ <del>NA (*)</del>	
11.	Attested/Notarized Copy of Power of Attorney of the signatory of the bid, if signed by other than proprietor	Yes / No/ <del>NA (*)</del>	
12.	Pre-Contract Integrity Pact/ Declaration on implementation of integrity duly filled in & signed in all pages	Yes / No/ <del>NA (*)</del>	*
13.	Tender Document duly digitally signed	Yes / No/ <del>NA (*)</del>	*
14.	Filled-up Internet Banking / R.T.G.S. Banking mandate form	Yes / No/ <del>NA (*)</del>	*
15.	Declaration form duly filled in & signed by authorized signatory of Bid	Yes / No/ <del>NA (*)</del>	*
16.	Undertaking letter on downloaded tender documents duly filled in & signed by authorized signatory of Bid	Yes / No/ <del>NA (*)</del>	*
17.	Deviation from NIT terms & conditions are listed in Deviation Sheet only & signed by authorized signatory of Bid	Yes / No/ <del>NA (*)</del>	*
18.	Appendix I & II regarding relatives in NALCO duly filled up	Yes / No/ <del>NA (*)</del>	*
19.	Appendix III, IV & V regarding details of commitments and proposed site organization of the tenderer and anti-profiteering declaration format duly filled up	Yes / No/ <del>NA (*)</del>	*
20.	Litigation History duly notarized Appendix VII	Yes / No/ <del>NA (*)</del>	*
21.	Appendix IX & X regarding PPP-MII and GFR compliance	Yes / No/ <del>NA (*)</del>	*
22.	Supporting documents are attested by Gazetted Officer / Notary Public	Yes / No/ <del>NA (*)</del>	
23.	Documents as mentioned against sl. nos. A2 (Other Technical Conditions) in "Documentary Proof" column of "PRE- QUALIFICATION CRITERIA" (Annexure- 1C).	Yes / No/ <del>NA (*)</del>	

**NOTE:**

IN CASE OF SINGLE PART BIDDING, THE ABOVE DOCUMENTS AS APPLICABLE &amp; MARKED AS (\*) SHOULD BE SUBMITTED.

Attested – implies attestation by Gazetted officer

\*\*\* 'NA' means 'NOT APPLICABLE'.

**ANNEXURE-IA****SCOPE OF WORK AND JOB DESCRIPTION**

**Name of the Work:** **Construction of CC road with ancillary works at NALCO Mines, Damanjodi.**

**1 SCOPE OF WORK:**

The scope of work in General shall broadly include, but not limited to following:-

1. Construction of cement concrete type road for HMV from existing work is worship gate to pass section & Fire station to proposed security gate at NALCO Mines ( as per tentative layout in attached tender drawing ).
2. Providing precast barrier block for separation of LMV (Const. of LMV road is beyond the party's scope) & HMV from fire station to "Work is worship gate". However the actual work shall be as per instruction of Engineer-in charge/ detail drawing which shall be issued during course of execution.
3. The boundary wall along central stores area will be dismantled and new wall to be constructed with provision of drains.
4. Retaining wall and ancillary works at appropriate locations.
5. The existing "Work is Worship" gate shall be dismantled and a new structural cable gallery shall be constructed keeping into consideration the revised width of the HMV as well as the adjacent LMV road (Const. of LMV road is beyond the party's scope).
6. Drainage work for proposed HMV road.
7. Construction of Pipe culverts near fire station, near training center & in front of driver's rest shelter to serve the purpose of crossing the run-off water from constructed drain to existing drain.
8. Construction of a security post with structural gate.
9. All required enabling jobs for making new/modification of road.
10. Agency shall be responsible to connect CC type road to BT road (Const. of LMV road is beyond the party's scope) with required gradient for smooth movement of traffic.

The details of work are mentioned in the enclosed bill of quantities. However, the actual work shall be as per instruction of Engineer in charge/ detail drawing which shall be issued during course of execution.

\*\*\*

## Technical Specification

### SECTION-1 -EARTHWORK IN EXCAVATION FOR FOUNDATIONS, TRENCHES, BASEMENTS, ETC

#### 1.1 Codes and Standards

IS:1200 ..Method of Measurement of Building and Civil Construction Works(28 parts).  
IS:1498 .. Classification and Identification of Soils for General Construction Purposes.  
IS:3764 .. Safety Code for Excavation Work

#### 1.2 Classification of Soil

The soil shall be classified for payment according to IS: 1200 and/or as per the item descriptions. All types of soil/rock excluding hard rock requiring blasting shall mean all soil and rock which can be excavated by axes, shovel or Phawara or earth moving equipment such as excavator, power shovels, paving/pneumatic breaker etc or quarried/split by crowbars without recourse to blasting and/or other quarrying methods such as chiseling, wedging, heating etc. In case any blasting is done by the Contractor in soils other than hard rock at his own convenience, such work will not be taken to be excavation in hard rock.

1.2.1 The excavated unserviceable materials from rock excavation that are not required to be stacked shall be disposed off in spoil dumps/fill areas.

1.3 **Setting Out** The work shall be set out to exact dimensions as shown on the approved drawings and excavation shall be commenced only after prior approval of the E-I-C.

Side slopes, beams or shoring/strutting etc for excavation work shall be as directed by the E-I-C. Prior approval of the E-I-C shall be obtained for a suitable method of protection before excavation work is commenced.

1.4 **Cleaning and Grubbing Up** The Contractor shall at his own cost grub up old roots, break up and remove old concrete or brick foundations, drains or manholes, empty and cleanse all old wells, cesspools and ponds found prior to/during progress of excavation, seal up water, sewerage and other connections where required, remove all contaminated earth and fill in voids with approved materials and ram well.

1.5 **Stripping** The Contractor at his own cost shall strip the surface of the site prior to the commencement of excavation to remove vegetable soil and carry such soil to separate soil heaps on the allotted site within 1.5 Km. The Contractor shall not remove any tree without the permission of the E-I-C.

Stripping work is deemed to have been included in the rate for earthwork in excavation and no extra will be paid.

#### 1.6 **Excavation**

The Contractor shall excavate by mechanical means to remove materials of any nature or description which may be encountered and excavate to depths, widths and inclinations as directed. The bed of the excavation shall be made level and firm by watering and ramming.

While carrying out excavation for drain work, the sides and the bottom shall be cut to the exact shape, slope and gradient. The surface shall be properly dressed. Excavated material shall not be placed within 1.5 m from the edge of any excavation.

##### 1.6.1 **Excavation and Transportation by Mechanical means**

The Contractor shall excavate the earth by mechanical excavator and transport the excavated earth by using dumpers/tipper. Levelling/grading of earth shall be done by using dozer or by any other mechanical means. Before commencement of mechanical excavation/ grading Contractor shall obtain clearance from E-I-C to ensure about underground facilities. Wherever excavation by normal excavator is difficult due to shortage of space/approach, smaller/mini excavator shall be used to avoid manual excavation. Contractor shall have sufficient numbers of wheel barrows to handle



earth for small lead where disposal of earth by dumper is not suitable and difficult due to site constraint. The excavated earth required for backfilling, the minimum lead distance considered as 1.5 Km. The balance earth shall be disposed off within plant boundary up to a distance of 1.5 km. If dumping is not possible within plant boundary, then dumping to be made outside plant boundary in places designated by the Employer.

### 1.7 Variation in Excavation

1.7.1 **Bad ground:** Should the bottom of any excavation appear to be soft, unsound or unstable, the Contractor shall report the matter to the E-I-C and if the E-I-C so directs, shall excavate the same to indicated depths. In case of such extra excavations the extra depth shall be filled up with concrete or such other materials as the E-I-C shall direct, such extra excavations and fillings shall be valued and paid for as an authorised extra item.

1.7.2 **Excavation too deep:** If the Contractor excavates to levels lower than actual level for any unauthorised reason he shall fill it up at his own expense to the proper level with concrete or such other materials as directed. No payment will be made for such excavation taken down to depths lower than actual level and for the filling carried out as directed.

1.7.3 **Slips and falls:** Every precaution shall be taken against slips and falls of earth, clay, sand or other materials in the excavations, but in the event of any such occurring, the Contractor shall at his own expense make good the space affected by the slips or falls, even if the affected area may be outside the dimension of the work ordered.

The E-I-C will determine in each case whether such affected area is to be filled up in whole with concrete, brickwork or masonry of the quality used in the adjoining work or where only a part is to be so filled, the materials to be used for this part.

If in the opinion of the E-I-C there is a possibility of the newly constructed work having been damaged or disturbed by such a collapse, the work shall be laid bare at the expense of the Contractor for inspection. Any damage shall be made good by the Contractor at his expense.

### 1.8 Keeping Works Free from Water

The excavation for foundation and building area shall be kept free from water by the Contractor at his own expense either by bailing out water with buckets manually or by pumping. Bailing out or pumping of water shall be carried out either directly from the excavation or from sumps made outside the excavation as directed. Adequate care shall be taken to prevent movement of water through freshly laid concrete or masonry work.

1.8.1 **Pumping:** The Contractor shall provide and operate pumps of adequate capacity or other equipment necessary to drain and keep all excavation pits, trenches etc free from water at all times during the continuance of the Contract at his own expense.

1.8.2 **De-silting:** If any excavation for foundation gets filled up with water due to rain, seepage or for any other reason, the water shall be removed and the bottom of the excavation shall be cleared of all silt/slush by the Contractor at his own expense.

1.8.3 **Disposal of water:** All water pumped or bailed out during dewatering of pits and trenches shall be disposed of to the nearest sewer or natural drains or ponds through properly laid channels or pipes by the Contractor as directed at his own cost. Disposal of water shall be carried out in such a way that no inconvenience or nuisance is caused to the work in progress in the area or to other agencies working in the area or cause damage to property and structures nearby.

### 1.9 Protection of Work

1.9.1 The Contractor shall support and maintain adjoining and abutting property and structures to render work safe to persons, property and structures/installations during the course of construction activity. The Contractor shall plank and strut as may be required on the sides of all excavation. The Contractor shall replace or repair at his own cost in an approved manner, all work damaged through removal of such temporary work or improper protective work.

The Contractor shall provide necessary decking, guard, fences, planking with red flags and red lights at night to maintain safe pedestrian and vehicular traffic near all open excavations at his own cost.

1.9.2 **Shoring and strutting:** Shoring and strutting shall be used as directed when excavation is to be carried out in soft, slushy or filled up soil which is likely to collapse during the excavation work. The shoring shall be either open or close boarded type or sand bag shoring depending on the nature of the soil and depth of excavation and the type adopted shall be as directed by the E-I-C. While

excavating in a very unstable ground requiring support throughout the period of excavation, runner rail shall be used and shall be driven always in advance of the excavation. The size and spacing of different members to be used in shoring shall be as directed by the E-I-C, depending on the site conditions.

**1.9.3 Open boarded shoring:** The work shall be carried out as specified in clause 1.9.2 but the poling boards shall be placed in such a way that the spacing between the poling boards should not exceed 500 mm and should at least cover 50% of the surface area of the excavations shored.

**1.9.4 Runners rails:** Runners rails shall be driven slightly in advance of the excavation to form a close vertical support to the sides of the excavation. The runners shall be lowered one at a time by digging away the ground below the toe and tapping the runner down after loosening the wedges. The wedges shall be tightened again after lowering the runner in position. All the runners shall be lowered in a similar manner by about 150 mm to 225 mm and excavation shall be carried out to the required depth by continuously lowering the runners as stated above always keeping the toes of the runner into the ground to prevent earth from slipping in.

## **SECTION -2 -FILLING IN PLINTH, BACKFILLING OF FOUNDATIONS & PITS**

1.1 Backfilling of foundations, pits, pipe trenches and in plinth or below floors shall be carried out as specified hereinafter. Materials obtained from excavation in foundations, if suitable, shall be used as far as possible for backfilling. If sufficient suitable materials are not available on the site to complete all fillings to required grades, they shall be brought to site by the Contractor from spoil dump area or any other place as directed by E-I-C. Immediately upon the completion of each phase of work, the Contractor shall at his own expense clear the mounds or heaps of earth which may have been raised or made and remove all earth and rubbish which may have become surplus in execution of the work within a lead as directed, no payment for double handling of the spoil shall be payable.

### **1.2 Fill Materials**

Earth used for filling shall be free from organic and other objectionable matter. All clods of earth shall be broken or removed. Where excavated material is mostly rock/slag, the boulders shall be broken into pieces not bigger than 150 mm in size and mixed with fine materials consisting of decomposed rock, moorum, stone dust, gravel earth and the mixture shall be used for filling.

### **1.3 Filling around Foundations with Earth**

Before commencement of backfilling, the Contractor shall remove from the space around the foundations all shoring and form work, all debris, brickbats, bits of timber, cement bags etc. Filling shall be carried out in layers not exceeding 250 mm in depth up to 1 m depth from finished ground level or any other level as specified by E-I-C. Each layer shall be watered, rammed and compacted before the next layer is deposited. Below 1 m of the finished ground level, mass backfilling shall be done with approved fill material.

### **1.4 Plinth Filling**

In small buildings, plinth filling with earth shall be generally carried out in a manner as specified in Clause 1.3 and as directed by the E-I-C. Thickness of each layer of filling shall not exceed 150 mm. In large floors like factory floors, the filling materials shall be deposited in layers not exceeding 250 mm in thickness and rollers shall be used to achieve the degree of compaction as indicated in Table. When power driven roller is used, every third and the top most layer shall be compacted by the power roller and the rest by rammers. Water shall be sprinkled during the compaction to maintain the desired moisture content for maximum compaction. Special care shall be taken to compact the filling at the junction of floors with walls or columns.

### **1.5 Sand Filling**

Sand used for filling shall be free from dust, organic and other objectionable matter and shall not contain more than 10% of clay.

Filling and compaction of sand shall be carried out as specified for earth filling in Clause 1.4. When filling has reached the approximate level, the area shall be flooded with water for a minimum period of 24 hours to allow the fill to settle. The filling shall be allowed to dry and then compacted and dressed to the required level.

### 1.6 Filling in Pipe Trenches

Earth filling of pipe trenches shall be carried out in layers not exceeding 250 mm in thickness, watered, rammed and compacted on the sides and top of pipes, taking necessary precaution so that the pipes are not damaged during the execution of the work.

In case of pipe trenches in rock, filling shall be carried out with earth/moorum or pulverised decomposed rock upto a depth of 250 mm above the crown of pipe and the remaining filling shall be carried out with a mixture of rock and finer materials as indicated in Clause 1.2. Filling shall be carried out in a manner as specified in Clause 1.4.

### 1.7 Embankments

1.7.1 The finalized formation width, side slopes and grade of the embankment shall be as per requirement.

1.7.2 The materials used in formation of the embankment shall be earth, moorum, gravel, a mixture of both, available top soil/overburden from the Panchpatmali mines area or any other material approved by the E-I-C provided it complies to the requirements of Clause 305.2 of MORTH. Materials used shall be free from logs, stumps, roots, rubbish or any other ingredients likely to deteriorate or affect the stability of the embankment. Generally, the material used for the formation of the embankment shall satisfy the density and compaction requirements given in Table-1.1 and 1.2

**TABLE-1.1**

Sl. No.	Type of Work	Maximum Laboratory Dry Density when tested as per IS:2720 (Part-VIII)
1.	Embankment up to 3m height	Not less than 1.52 gm/cc
2.	Embankment exceeding 3 m height	Not less than 1.60 gm/cc
3.	Sub-grade	Not less than 1.75 gm/cc

**TABLE-1.2**

Sl. No.	Type of Work	Relative Compactness as percentage of maximum Laboratory Dry Density as per IS:2720 (Part-VIII)
1.	Embankment	Not less than 95%
2.	Sub-grade	Not less than 97%

**Workmanship:** The top soil existing over the embankment foundation shall be stripped to depths as required.

The ground shall then be consolidated by rolling with a 8 -10 tonne power roller with a maximum of 6 passes to the satisfaction of the E-I-C.

Any unsuitable material occurring in the embankment foundation shall be removed and replaced by material approved by the E-I-C and compacted suitably.

The embankment material shall be spread in a uniform thickness over the entire width of the embankment in layers not exceeding 250 mm in loose thickness. When embankments are on side-long ground the whole area of the embankment on slope shall be benched out or stopped so as to

prevent the material from sliding. Successive layer shall not be laid until the layer under construction has been thoroughly compacted to the requirements set hereunder.

Moisture content of the material shall be checked at the source of supply and if found less the same shall be made good by sprinkling water after spreading the soil in loose thickness for compaction. If the material delivered on embankment bed is too wet it shall be allowed to air-dry till the moisture content is acceptable by the E-I-C for compaction.

Moisture content of each layer shall be tested in accordance with IS:2720 (Part-II) and shall be so adjusted that it is 1 or 2 per cent below the optimum moisture content determined in accordance with IS:2720 (Part-VIII).

In construction of embankment over the culverts or pipe drains care shall be taken to bring the embankment up equally on both sides simultaneously and over the top of the structure.

If embankments are made from borrow pits, the Contractor shall strip the top of borrow pit to get rid of vegetation and deleterious materials and then excavate the earth from the borrow pits approved by the E-I-C. The borrow pits shall be regular in width and slope and shall be properly graded.

### **1.8 Control of Compaction**

The Contractor shall conduct Laboratory Proctor Density Tests at regular intervals as per IS:2720 (Part VIII) and field dry density tests as per IS:2720 (Part XXVIII) or IS:2720 (Part XXIX) for each layer of 200 mm fill and for every 10,000 sq m area one (1) field density test shall be carried out as specified. For the embankment minimum one (1) field density test shall be carried out in each layer of 250 mm thickness and within every 200 m stretch of embankment to confirm that the specified degree of compaction has been achieved in the field. The cost of conducting all such laboratory and field tests shall be included by the contractor in his rates. In case the field tests indicate that the degree of compaction achieved is less than the specified values, the contractor will re-compact the particular layer of fill including watering if necessary and retest the same till the specified degree of compaction is achieved at no additional cost to the Employer. All tests shall be conducted in presence of E-I-C or his representative.

### **1.9 Compaction**

Compaction work shall be carried out by a sheep's foot roller capable of giving bearing pressure of 25 kg/sq cm of foot area in contact at a given time. The layer of earth fill shall be compacted till the feet of the sheep's foot roller commences rising out of the ground. Depending on the type of material smooth-wheeled vibratory or pneumatic rollers may be used if approved by the E-I-C. The Contractor shall demonstrate the efficiency of the rollers to obtain approval of the E-I-C. Compaction equipment viz. vibratory roller, pneumatic roller etc may be used for compaction purpose with prior approval from E-I-C.

Each layer of the material shall be thoroughly compacted to obtain a field dry density not less than 95% of the maximum laboratory dry density as per IS:2720 (Part-VIII).

When density measurement reveal soft areas in the embankment, further compaction shall be done as instructed by the E-I-C. In spite of this if specified density is not achieved then the soft area shall be removed and replaced by approved material and compacted to the specified density requirement.

## **SECTION-3 -PLAIN AND REINFORCED CEMENT CONCRETE WORK**

### **1.0**

#### **Codes and Standards (Latest Revision)**

##### **General**

IS:1200 -Method of Measurement of Building and Civil (28 Parts) Engineering Works

**Cement**

IS:1489 (Part 1) -Specification for Portland Pozzolana Cement

IS: 269 -Specifications for Ordinary Portland Cement

Make:- ULTRA TECH/J.K. Cement/ INDIA Cement/ RAMCO / AMBUJA/ JAY PEE or as approved by E-I-C.

**Aggregate**

IS:383 -Coarse and Fine Aggregates from Natural Sources for Concrete

IS:2430 -Method of Sampling of Aggregates for concrete

IS:2386 -Methods of Test for Aggregates for concrete (8 parts)

**Plain and Reinforced Concrete**

IS:456 -Code of Practice for Plain and Reinforced Concrete

IS:460 -Test Sieves (3 parts)

IS:516 -Method of Test for Strength of concrete

IS:1199 -Method of sampling and Analysis of concrete

IS:1607 -Method for Test Sieving

IS:1834 -Hot Applied Sealing Compounds for Joint in Concrete

IS:3370 -Code of practice for concrete structures (4 parts) for the storage of liquids

IS:4925 -Concrete Batching and Mixing Plant

IS:10262 -Recommended Guide Lines for Concrete Mix design

**Steel**

IS:432 -Mild Steel and Medium Tensile Steel Bars and (2 parts) Hard-drawn Steel Wire for Concrete Reinforcement

IS:1568 -Wire Cloth for General Purpose

IS:1786 -High Strength Deformed Steel Bars and Wires for Concrete Reinforcement

IS:2062 -Steel for general structural purposes

IS:2502 -Code of practice for bending and fixing of Bars for Concrete Reinforcement

IS:2751 -Welding of Mild Steel Plain and Deformed Bars for Reinforced Construction

IS:9417 -Recommendations for Welding Cold Worked Steel Bars for Reinforced Concrete Construction

Make: - SAIL/ TATA STEEL/ RINL/ JSPL/ JSW or as approved by E-I-C.

**1.1 Work Included**

The Contractor shall furnish materials, labour, plant, equipment and tools to complete the work as specified herein.

**1.2 Materials**

**1.2.1 Cement:** The cement used shall be any of the above, mentioned in clause 1.0 and the type selected shall be appropriate for the intended use. The Contractor shall carry out the required tests at his own cost in an approved testing laboratory, at the direction of the E-I-C, for all cements (if supplied by him) and submit the test report for the approval of the E-I-C, before using the cement in the works. If there is doubt in the quality of cement, E-I-C may ask the Contractor for supplying of cement sample of testing of the same in Employer's testing or any other approved laboratory. Cement shall be stored on raised platforms inside stores covered on all sides and roof with provision for ample ventilation. Different types of cement shall be stored separately and more than ten bags (10) of cement shall not be stacked one above the other in the stack. Sufficient space shall be left around the stacks for approach. Stacking shall be so arranged that bags from the oldest consignment in the stack can be conveniently removed first for use following the principle of first in first out (FIFO) basis. For this proper label tag indicating date of supply shall be displayed over the stack of stored cement received in a consignment (Batch). Cement which has hardened, clodded or deteriorated due to over stacking or long storage shall not be used in the works and shall be removed from the site immediately with intimation to Employer and E-I-C.

**1.2.2 Aggregates:** All aggregates shall conform to IS:383. Coarse aggregates shall be approved crushed stone or gravel, washed clean. Fine aggregates shall be approved river or pit sand. Coarse and fine aggregates shall be stored at site separately on clean and hard base or in separate compartments/hoppers. Samples of aggregates to be used shall be submitted to the E-I-C for approval before commencement of work. No aggregate shall be used without prior approval of the E-I-C. The Contractor shall ensure that over the entire period of construction all consignments of coarse and fine



aggregates brought to the site conforms to the quality and grading as approved in the mix design by the E-I-C before the commencement of work. If necessary, grading of aggregates shall be maintained by blending of different sizes of aggregates which shall be brought to site and stacked in separate stock piles. Whenever directed by the E-I-C, the Contractor shall perform tests at his own cost to satisfy the E-I-C that the grading and quality approved for coarse and fine aggregates are being maintained. Sampling of aggregates shall conform to IS:2430 and tests shall conform to IS:2386. The percentage to flaky and elongated pieces should not exceed 15%. Aggregates shall be cleaned and free from any foreign materials.

1.2.3 **Reinforcement:** MS and medium tensile steel bars shall conform to IS:432 ( Part-I & II), high strength deformed steel bars shall conform to IS:1786. All reinforcements shall be free from oil, paint, loose rust, mill scale, mud or other matter likely to weaken or destroy their bond with the concrete.

1.2.4 Binding **wire:** Binding wire shall be approved annealed black iron wire of 20 SWG.

1.2.5 **Joint filler:** Expansion joint fillers shall be approved non-extruding, resilient fillers.

1.2.6 **Water stops:** For all movement joints water stops used shall be of rubber, PVC or metallic sheets and shall be product of reputed manufacturer as per relevant IS codes and as approved by the E-I-C.

1.2.7 **Waterproofing:** The waterproofing compound/water proofing membrane materials and treatment shall be of approved quality and manufacturer.

1.2.8 **Water:** Water shall be clean and reasonably free from injurious amounts of oils, acids, alkalis, salts, sugar, organic materials or other substances that may be deleterious to concrete or steel. Water shall conform to the quality as specified in clause 5.4 of IS:456.

1.2.9 **Chemical Admixtures :** These are material other than water, aggregates and cement (any selected type mentioned in clause 1.0 above), used as an ingredient of concrete or mortar and added to the batch immediately before or during its mixing to modify one or more of the properties of concrete in the plastic or hardened state. Dosages of retarders, plasticisers and super-plasticisers shall be restricted to 0.5, 1.0 and 2.0 percent respectively by weight of cementitious materials and unless a higher value is approved by E-I-C only after obtaining performance test from the manufactures. They shall conform to either IS:9103 and as per clause No. 5.5 of IS:456 or ASTM Designation C494-RS. Admixture are generally of the following types and are used depending on the requirement

1.2.9.1 **Water reducing Admixture:** As per IS:9103 or ASTM C 494, which improves workability, accelerates the setting and early strength development of concrete.

1.2.9.2 **Retarding Admixture:** As per IS:9103 or ASTM C-494, which retards the setting of concrete.

1.2.9.3 **Water Reducing Admixture, High Range :** As per ASTM C494, which reduces the quantity of mixing water required to produce concrete of a given consistency by 12% or greater.

1.2.9.4 **Water Reducing and Accelerating Admixture:** As per ASTM C-494, which reduces the quantity of mixing water required to produce concrete of a given consistency and accelerates the setting and early strength development of concrete.

1.2.9.5 **Water Reducing and Retarding Admixture:** As per ASTM C-494, which reduces the quantity of mixing water required to produce concrete of a given consistency and retards the setting of concrete.

1.2.9.6 **Water Reducing, High Range and Retarding Admixture :** As per ASTM C-494, which reduces the quantity of mixing water required to produce concrete of a given consistency by 12% or greater and retards the setting of concrete, increase in both early and ultimate strengths.

### 1.3 Concrete Mix

1.3.1 All the concrete shall be 'Controlled Concrete' as defined by IS:456. The grades of concrete shall be as required. The Contractor shall at his own cost, grade the aggregate and control the water cement ratio, to design the different mixes of required strength and workability. The designed mix shall conform to the requirements of IS:456 and recommended guidelines for concrete mix design in IS:10262 and SP-23. The minimum cement content, maximum water cement ratio and minimum grade of concrete for different exposures with normal weight aggregates of 20 mm Nominal Maximum size in concrete work shall conform to Table 5 of IS:456. Adjustments to minimum cement contents for aggregates other than 20 mm nominal maximum size will be as per Table 6 of IS:456. All concrete (whether nominal or controlled) shall be machine mixed and no hand mixing will be allowed. Chemical admixtures may be used in the manufacture of concrete. The content, type, method and control of use and the locations and the products in which they are used shall be subject to the written approval of the E-I-C in each and every case.

The maximum size of aggregates shall be 40 mm. Where reinforcement is too closely spaced for the maximum size of stone in a range, the largest suitable range will be used with the approval of E-I-C. Before commencement of work the Contractor shall submit to the E-I-C for his approval complete details of the mix design calculations along with test results of different ingredients, grading analysis of the aggregates, the cube test results etc according to IS:10262. No concrete shall be placed on site until the E-I-C has approved the mix design. The concrete shall be of such consistency that it can be readily worked into the corners and angles of the formwork and around reinforcements without segregation of the materials or bleeding of free water at the surface.

If any change is made in the source and grading of the aggregates, strength of cement used, water content of the mix, manner of making, compacting the concrete or any other deviation from the preliminary test procedure, the E-I-C may instruct for fresh preliminary test which shall be carried out by the Contractor at his own cost. Over the full period of construction the Contractor shall carry out works tests as per Clause 1.6 of this specification at his own cost to satisfy the E-I-C that correct grade of concrete is being used.

1.3.2 Where 'Nominal Mix Concrete' in case of M20 or lower as defined by IS:456 is permitted by the E-I-C for any specific reason, the proportion of materials shall be as indicated in Table-9 of IS:456. The water cement ratios shall not exceed those specified in Table-9 of IS:456. If the quantity of water is required to be increased for better workability the cement content also shall be proportionately increased so that the limit specified in Table-9 of IS: 456 is not exceeded.

1.3.3 Concrete for water retaining structures shall be as per IS: 3370

#### **1.4 Mixing**

##### **1.4.1 Batching Plant**

All components of controlled concrete shall be proportioned by weight using concrete batching plant weigh batchers for each grade. Mixing shall be carried out in mechanical mixers but preferably a concrete batching plant shall be used. The mixer shall comply with IS:1791 and IS:12119. Volumetric mixing shall not be adopted unless specifically permitted by the Engineer. The mechanical mixer shall be equipped with automatic devices for control of speed, gauging of water and timing the mixing period. The mixing shall be continued until there is a uniform distribution of materials and the mass is uniform in colour and consistency. For general guidance the mixing time shall be 2 mins. In case of other types of efficient mixers manufacturers' recommendation shall be followed. Batches shall not exceed the capacity which can be mixed efficiently as determined by the mixer efficiency test and peripheral speed shall conform to manufacturer's recommended rate but shall not vary from  $\pm 10\%$ . Net minimum mixing time shall begin when ingredients including water is in the mixer. Excessive mixing shall be avoided. Weigh batchers shall be placed level during use and the hoppers shall be loaded evenly. The equipment shall be checked frequently to verify their accuracy. The concrete batching plant shall conform to IS:4925. The plant shall have mechanically operated mixers of approved size and type capable of ensuring a uniform distribution of the materials throughout the concrete mass. The mixers shall be completely emptied before receiving the materials of each succeeding batch. Precautions shall be taken to protect cement and concrete in wet weather. The plant shall be kept at all times well maintained and in particular it shall be kept free from adherent content. The calibration of the measuring instruments shall be checked periodically and particularly before all large pours of concrete.

#### **1.5 Workability of Concrete**

1.5.1 The concrete mix proportions chosen should be such that the concrete is of adequate workability for the placing conditions of the concrete and can properly be compacted with the means available. Suggested ranges of workability of concrete measured in accordance with IS:1199 are given below:

Placing Conditions ( 1 )	Degree of workability ( 2 )	Slump ( 3 )
Blinding concrete; Shallow sections; Pavements using pavers	Very low	See 1.5.2
Mass concrete; Lightly reinforced sections in slabs, beams, walls, columns; floors; Hand placed pavements; Canal lining; Strip footings	Low	25-75
Heavily reinforced sections In slabs, beams, walls, Columns;	Medium	50-100
Slipform work; Pumped concrete	Medium	75-100
Trench fill; In-situ piling	High	100-150
Tremie concrete }	Very high	see 1.5.3

Note : For most of the placing conditions, internal vibrators (needle vibrators) are suitable. The diameter of the needle shall be determined based on the density and spacing of reinforcement bars and thickness of sections. For tremie concrete, vibrators are not required to be used.

1.5.2 In the 'very low' category of workability where strict control is necessary, for example pavement quality concrete, measurement of workability by determination of compacting factor will be more appropriate than slump (see IS:1199) and a value of compacting factor of 0.75 to 0.80 is suggested.

1.5.3 In the 'very high' category of workability, measurement of workability by determination of flow will be appropriate (see IS: 9103).

## 1.6 Work/Laboratory Test

The Contractor shall carry out work/laboratory tests at his own cost. Sampling, making up, curing and testing of specimen shall conform to IS:456, IS:516 and IS:1199 and other test of the ingredients to be carried out periodically shall conform to IS:2386. Unless otherwise instructed by the E-I-C, frequency of work tests shall be as indicated below. The number of specimen to be tested and their criteria for acceptance shall be as per relevant clauses of IS:456. Report of the test results shall be submitted weekly to the E-I-C.

1.6.1 The Contractor shall provide at his own cost, concrete for the cube specimen, moulds for casting the specimen and also transport the cubes to the Employer's laboratory for testing. The Contractor shall also provide all facilities, at his own cost, for sampling, casting, curing and storage of cubes until they are transported to the laboratory.

1.6.2 Testing of cube specimen will be carried out in Employer's laboratory, when the Contractor, if required, may be present. The presence of the Contractor's representative shall however not be a condition for carrying out the tests.

## 1.7 Frequency of Test

The minimum frequency of sampling of concrete of each grade shall be in accordance with the following :



Quantity of Concrete in the work, cum	Number of samples
1 – 5	1
6 – 15	2
16 – 30	3
31 – 50	4
51 & above	4 plus one additional sample for each additional 50 cum or part thereof.

Note : At least one sample shall be taken from each shift. Where concrete is produced at continuous production unit, such as ready-mixed concrete plant, frequency of sampling may be agreed upon mutually by suppliers and purchasers.

#### 1.7.1 Test Specimen

Three test specimens shall be made for each sample for testing at 28 days. Additional specimen may be required for various purposes such as to determine the strength of concrete at 7 days or at the time of striking the formwork, or to determine the duration of curing, or to check the testing error. Additional specimen may also be required for testing specimens cured by accelerated methods as described in IS:9013. The specimen shall be tested as described in IS:516

#### 1.7.2 Test Results of Sample

The test results of the sample shall be the average of the strength of three specimens. The individual variation should not be more than  $\pm 15\%$  of the average. If more, the test results of the sample are invalid.

#### 1.7.3 Acceptance Criteria of Concrete

##### 1.7.3.1 Compressive strength

The Concrete shall be deemed to comply with the strength requirements when both the following conditions are met:

- The mean strength determined from group of four consecutive test results with the appropriate limit as per the table below.
- An individual test results complies with the appropriate limit as per the table below.

Characteristic Requirement		Compressive Strength	Compliance
Sl.No.	Specified grade	Means of the Group of four (4) Non-overlapping Consecutive Test Results in N/mm <sup>2</sup>	Individual Test Results in N/mm <sup>2</sup>
1.	M15	$\geq F_{ck} + 0.825 \times \text{established standard deviation (rounded off to nearest } 0.5 \text{ N/mm}^2)$ or $(f_{ck} + 3) \text{ N/mm}^2$ whichever is greater	$\geq (f_{ck}-3) \text{ N/mm}^2$
2.	M20 Or Above	$\geq F_{ck} + 0.825 \times \text{established standard deviation (rounded off to nearest } 0.5 \text{ N/mm}^2)$ or $(f_{ck} + 4) \text{ N/mm}^2$ whichever is greater	$\geq (f_{ck}-4) \text{ N/mm}^2$

Note : In the absence of established value of standard deviation, the values given in Table-8 of Section-2 of IS:456 shall be taken.

#### 1.7.3.2 Flexural strength

When both the above conditions are met, the concrete complies with the specified flexural strength:

- The mean strength determined from group of four consecutive test results exceeds the specified characteristic strength by at least  $0.3 \text{ N/mm}^2$ .
- The strength determined from any test results is not less than the specified characteristic strength less  $0.3 \text{ N/mm}^2$ .

1.7.3.3 Concrete is liable to be rejected if it is porous or honey combed, its placing has been interrupted in that providing a proper construction joint, the reinforcement has been displaced beyond the tolerance specified or construction tolerances have not been met. However, hardened concrete may be accepted after carrying out suitable test inspection/testing of structures as per the discretion of E-I-C.

### 1.8 Vacuum Dewatered Reinforced Cement Concrete Flooring

1.8.1 **Purpose:** The purpose of providing vacuum dewatered flooring is to increase the compressive strength and wear resistance of the concrete floor by reducing the water cement ratio of the concrete substantially. Finishing the top surface of the concrete by floating and trowelling with a skim floater fitted with a floating disc and/or trowelling blades ensures a water impermeable concrete surface. The workmanship for laying the floor is given below.

#### 1.8.2 Workmanship

**Preparation of sub-base:** A lean concrete (PCC) layer should be laid as sub-base over the ground.

**Formwork:** M.S. channels of approved sizes will have to be used for formwork. Suitable holes will have to be provided in the channels for passing reinforcement rods and dowels. The channels should be straight and placed firmly on sub-base to proper level and the bottom edge of the channel should be sealed properly to avoid entry of air. No channels should be removed earlier than 24 hours after the floor is cast.

**Placing of concrete and compaction:** Concrete should be distributed evenly and should be vibrated with an immersion vibrator in order to remove entrapped air and voids and make the concrete homogeneous. Surface vibrator should be used after immersion vibrator in order to make level and smooth concrete surface as directed by the E-I-C. The thickness of the floor should be kept more than the required thickness, as directed by the E-I-C, to compensate for the shrinkage effect.

**Vacuum dewatering:** After leveling the concrete surface by surface vibrators, the floor is dewatered by using filter mat and suction pump of approved make as per manufacturer's specification. The dewatering time should be based on site conditions and as directed/approved by the E-I-C.

**Floating and trowelling:** Immediately after the floor is vacuum dewatered, floating and trowelling operation shall commence by using a skim floater with floating disc and trowelling blades of approved make.

## 1.9 Formwork

**1.9.1 Shuttering for concrete:** The term 'Shuttering' shall include all centering and formwork required to support the concrete during the process of laying, compacting and setting and all items such as planking, lagging, walling, moulds, covers, cross-bearers, struts, props, bracings etc shall be covered by the term.

Shuttering shall be strong and rigidly constructed so that there may not be any deformation under weight and pressure of wet concrete, constructional loads, wind and/or other forces. It shall be constructed in such a manner that it can be easily removed afterwards.

The shuttering shall have smooth and even surface and so constructed as to remain sufficiently rigid during the placing and compacting of concrete and shall be sufficiently tight to prevent loss of liquid from the concrete.

Devices shall be provided in the shuttering for forming openings, holes, pockets, chases, recesses etc where required. Cutting of holes etc in the concrete after casting shall be avoided. Corner fillets shall be provided in the formwork to obtain chamfered edges to beams, columns, etc wherever required and the rate quoted shall be inclusive of the cost of carrying out such work.

Shuttering shall conform to IS:456 and IS:14687. Forms shall be prefabricated standard e.g. Doka system, British scaffolding system or approved equivalent or shop-built panels or built-in-place units, stiffened and braced. A smearing of oil release agent shall be given on the faces of the shuttering in contact with the concrete or mortar. Forms shall be cleaned from all dust and loose materials before applying oil release agent over it. Formwork with brick lining may be done for structures below ground level on earth face with prior permission of the E-I-C. Bricks shall be thoroughly wetted before laying concrete and the brick lining may be left in position, if so desired by the Contractor.

The shuttering shall be such that after its removal the exposed concrete surface shall be smooth and even. If any unevenness is found, the bulged portion of the concrete shall be chipped off and plastered with 6 mm thick cement plaster 1:4. No extra payment will be made for this.

**1.9.2 Stripping Time:** Forms shall not be released until the concrete has achieved a strength of at least twice the stress to which the concrete may be subjected at the time of removal of form work. The strength referred to shall be that of concrete using the same concrete, aggregates and admixtures, if any, with the same proportions and cured under conditions of temperature and moisture similar to those existing on the work.

**1.9.2.1** While the above criteria of strength shall be the guiding factor for removal of formwork, in normal circumstances where ambient temperature does not fall below 15°C and where ordinary portland cement is used and adequate curing is done, following striking period may deem to satisfy the guideline given in clause 1.10.2. Type of Formwork Minimum Period before Striking Formwork.

Type of Formwork	Minimum Period before Striking Formwork
a) Vertical Formwork to columns, walls, Beams	16 – 24 h
b) Soffit formwork to slabs (Props to be refixed immediately after removal of formwork)	3 days
c) Soffit formwork to beams (Props to be refixed immediately after removal of formwork)	7 days
d) Props to slabs :	
1) Spanning upto 4.5 m	7 days
2) Spanning over 4.5 m	14 days
e) Props to beams and arches :	
1) Spanning up to 6 m	14 days
2) Spanning over 6 m	21 days

For other cements and lower temperature, the stripping time recommended above, may be suitably modified.

**1.9.3 Supports:** Formwork shall be so designed that the side of beams and slabs can be removed without disturbing soffit forms and their supports. Props and supports shall allow accurate adjustment of the formwork true to line and level and be capable of being removed in an approved sequence without injury to the concrete. Provision shall be made for removal of formwork without disturbing props required for supporting hardened concrete.

**1.9.4 Setting:** Panels and units shall be set to true dimensions and alignment and rigidly tied, walled and braced to prevent distortion and displacement during concreting. All joints shall be tight and close fitting to prevent leakage. At all construction joints, formwork shall be tightly secured against previously cast or hardened concrete. When fixing formwork for beams and slabs tight fitting collars shall be provided around the heads of columns and the joints shall be made grout tight. Slip forms where used shall provide smooth even surface true to dimension and alignment and shall be free of unsightly off-sets, fins and bulges.

**1.9.5 Ties:** Standard form ties, clamps, bolts, inserts etc shall be of adequate strength. Spreaders, either removable or embedded type shall be used to maintain the wall thickness. The material and position of any tie passing through the formwork shall be as approved by the E-I-C. All tie members which will remain embedded in the concrete shall be fixed in a manner that will provide a minimum cover of 12 mm at both the ends. Any holes left after removal of ties shall be filled with concrete or mortar as approved by the E-I-C. Provision shall be made for forming holes and chases for services and for providing pipes, conduits and other fixing by the E-I-C.

**1.9.6 Cleaning and treating of forms:** All rubbish shall be removed from the interior of the formwork and inside of the formwork shall be wetted with water before commencing of concreting. Mould oil or other approved release agent shall be used to all panels. Care shall be taken to prevent contact of release agent with reinforcement.

## 1.10 Reinforcement

Workmanship shall conform to IS:2502. All reinforcements shall be free from loose mill scale, rust, oil, grease, mud and paint. Reinforcement shall not be bent or straightened in a manner that will injure the materials and all bars shall preferably be bent cold. Hot bending shall not be permitted

for bars whose strength have been increased by cold working. Cutting and bending of reinforcement bars shall be made by using appropriate cutting and bending machine. No manual cutting and bending shall be allowed.

Reinforcement bars shall be placed and maintained accurately in position within tolerance limit as per IS:456. The correct cover to the reinforcement shall be maintained by use of precast concrete blocks.

All intersections of longitudinal and transverse bars or stirrups and all laps shall be securely tied together with approved binding wire. The binding wire shall be so placed that it touches all the four corners of the intersection and the two ends shall be looped with pliers and the ends shall be turned into the body of the concrete. The cost of the binding wire and spacer/cover blocks shall be included by the Contractor in his rate for reinforcement work.

Welded joints may be used but in all cases of important connections, tests shall be made to prove that the joints are of the full strength of bars connected. Welding shall be done in accordance with IS:2751 and special precautions shall be adopted for cold worked bars as per IS:9417. Butt welding between the ends of a rod in line, whereby stress is transferred across the section may be adopted only for mild steel bars. In case of tack welding for fixing reinforcements in their position, no special precaution need be taken.

### 1.11 Embedment

All embedment shall be accurately set and rigidly fastened. Anchor bolts shall be set to template and firmly secured in vertical and horizontal line at required positions. Water stops shall be secured against displacement during the placing of concrete. The joints for G.S sheet water stops shall be soldered water-tight and those of PVC and rubber shall be joined by cementing and vulcanising.

Anchor holes and anchor bolts shall be protected by covering suitably with brickwork in lean cement mortar after thorough cleaning.

### 1.12 Placing of Concrete

**1.12.1 Transporting concrete:** Concrete shall be transported from the Batching Plant by transit mixers to the forms as rapidly as possible by means that will prevent segregation or flash set in the concrete during hot weather. The containers shall be such as to prevent heavy evaporation. At the time of placing concrete in very hot weather, care shall be taken to see that the temperature of wet concrete does not exceed 38°C. Before placing the concrete, all formwork, embedment and reinforcement shall be checked for completeness, location, dimension, square and plumb. All chips and saw dust or other foul matter shall be removed from within the forms. The base surface shall be well moistened and puddles wiped up. Placing equipment and accessories shall be kept clean and free of partially set grout and concrete, and maintained in proper working order.

**1.12.2 Placing aids:** In general, placing shall be done by concrete pump. Wherever required, concreting shall be done by direct pouring from transit mixer and also of approved chute. Concreting shall also be done with the help of bottom open bucket wherever required. No head load of concrete pouring is allowed and use of wheel barrow is mandatory wherever direct pump concrete or other mechanical means are not suitable.

**1.12.3 Conveying Equipment :** Conveying equipment shall be approved and shall be of size and design such that detectable setting of concrete shall not occur before adjacent/next layer concrete is placed. Conveying equipment shall be cleaned at the end of each operation or work day. Conveying equipment and operation shall conform to the following additional requirements.

**1.12.3.1** Truck mixers, agitators and agitating units and their manner of operation shall conform to the applicable requirements of IS 5892 and ASTM C 94.

**1.12.3.2** Chutes shall be metal or metal-lined and shall have a slope not exceeding 1 vertical to 2 horizontal and not less than 1 vertical to 3 horizontal, chutes more than 6 mtrs. long and chutes not meeting the slope requirements may be used provided they discharge into a hopper before distribution.

**1.12.3.3** Pumping or pneumatic conveying equipment shall be of a suitable kind with adequate pumping capacity. Pneumatic placement shall be controlled so that segregation is not apparent in the discharged concrete. The loss of slump pumping or pneumatic conveying equipment shall not exceed

50 mm.

1.12.3.4 Concrete shall not be conveyed through pipe made of aluminium or aluminium alloy.

1.12.4 **Construction joints & cold joints:** In general construction joints shall be limited to the design requirement. In mass concrete, construction joints shall be made at breaks, offsets or other convenient levels as controlled by volume, plant capacity, time factors etc. Such construction joints shall be so located that they do not impair the strength of the structure and prior approval of the E-I-C is to be taken. In walls and column height of each lift shall not generally exceed 1.5 m as directed by the E-I-C. Method of forming all construction joints shall conform to the provisions of IS:456. The surface of previously placed concrete at the construction joint shall be thoroughly hacked to expose the coarse aggregates of previously placed concrete and cleaned with wire brush or any other approved means and high pressure water jet to remove all laitance and loose aggregates. Immediately before placing fresh concrete, such prepared surface shall be coated with a thin layer of cement slurry or cement sand mortar of proportion same as that of original concrete. Where high shear resistance is required at the construction joint, shear keys shall be provided.

1.12.5 **Compaction:** Concrete shall be thoroughly compacted and fully worked around the reinforcement, around embedded fixtures and into corners of the form work. Concrete shall be compacted by mechanical vibration using high frequency mechanically driven vibrators comply with IS:2505, IS:2506, IS:2514 & IS:4656. Concrete shall be placed in layers at least 300 mm deep in walls and approximately 450 mm in mass pours. Vibrators shall not penetrate more than into the surface of previously placed layer but shall completely vibrate the working layer. Care shall be taken not to over-vibrate any concrete and especially those with higher slumps. Under no circumstances vibrators shall be attached to or allowed to touch reinforcement. Spare vibrators in good operating condition shall be on hand during placing operation.

1.12.6 **Special concreting:** The placing of underwater concrete shall follow IS:456 in all respects for the method employed. Special types of concrete shall be placed by methods most suitable for the particular conditions.

1.12.7 **Grouting bases of machines, columns, foundations bolts etc.**

1.12.7.1 **Level pads:** For preparing the level pads, the top of the foundation concrete shall be chipped off to remove laitance formed on the concrete surface and all loose materials shall be thoroughly cleaned and the surface wetted before the grouting. In case level pads are constructed they shall be cement concrete with grade M35 in conformity with the grouting requirement with 6 mm size ballast. The top of the level pads shall be finished fine, true to level and be of size as indicated by the E-I-C.

1.12.7.2 **Grouting:** Before placing the grout, the concrete surface shall be thoroughly cleaned, preferably with compressed air and the surface shall be thoroughly wetted with water for several hours. Before placing the grout all free water shall be removed and the flat surface shall be coated with thin cement slurry. The quantity of mixing water should be minimum commensurate with the workability, compaction and filling of the grout in all corners and crevices. The grout shall be evenly spread and compacted by rodding or a vibrator. The grout shall be carefully observed for initial settlement. If any settlement is observed further grout is to be poured and rodded. For base plates having ribs underside the base plate, proper care is to be taken to ensure filling of the cavities between the ribs. In case of wide base plates of bed plates having ribs under-side it may be necessary to do pressure grouting.

1.12.7.3 **Curing:** The grout must not dry out after it is placed in position. The surface shall be kept moist with wet sacks for at least seven days.

1.12.7.4 **Admixtures:** If any admixtures is to be used with the grout, it shall be as approved by the E-I-C.

1.12.7.5 **Non-shrinking grout:** Non-shrinking grout where indicated or directed shall be placed in accordance with the method specified by the manufacturer. Material shall be as approved by the E-I-C.

1.12.8 **Waterproofing:** Waterproofing of concrete with approved waterproofing compound shall be carried out strictly in accordance with the manufacturer's specification.

1.13 **Curing and Protecting**

Curing of concrete with water shall comply with IS:456. The Contractor shall keep the exposed surfaces of concrete in a constantly wet condition for at least 7 days from the date of placing



the concrete. Curing compound may be used subject to approval by the E-I-C. Finished floors and concrete shall be protected carefully until conditions shall comply with the code.

#### 1.14 **Repairing and Patching**

Pockets, honey combing and other defects which may be formed due to segregation, improper vibration and any other reason whatsoever shall be completely repaired to the satisfaction of the E-I-C. The voids, if any, shall be properly keyed and reinforced, if necessary. The face shall be tightly formed and arranged for providing a head in the concrete. The cavity shall be filled with the same concrete as used for the structure and thoroughly rodded or vibrated where possible. The concrete sets sufficiently to stay in place. While still 'alive', the upper part of form hopper shall be removed and excess concrete struck off and finished with wood flat or trowel to match existing concrete. Any fins or unsightly grout runs or bulges shall be removed from surfaces exposed to view. The rod holes shall be finished with cement or grouted to match the existing surface as closely as possible. No cement wash shall be used unless directed by E-I-C.

#### 1.15 **Tolerances for Formwork**

The Formwork shall be designed and constructed so as to remain sufficiently rigid during placing and compaction of Concrete and shall be such as to prevent loss of slurry from the Concrete. The tolerances on the shape, line and dimensions as shown in the approved drawing shall be within limits as given in the Table of clause no 11.1 of IS:456

#### 1.16 **Tolerances for Placing of Reinforcement**

Unless otherwise specified, the Reinforcement shall be placed within the following tolerances :

- a) For effective depth 200 mm or less  $\pm 10$  mm
- b) For effective depth more than 200 mm  $\pm 15$  mm

1.16.1 **Tolerances:** The permissible deviations in dimensions and positions of structural members shall not exceed the following limits:

##### a) **Deviations from the vertical for the whole height of construction**

- i) for foundations .. 20 mm
- ii) for walls and columns supporting .. 15 mm monolithic floors
- iii) for columns of a frame which are .. 10 mm connected with crane and truss beams
- iv) for structures placed in .. 1/500 of the a sliding form height of the structures but not more than 100 mm

##### b) **Deviations from horizontal planes**

- i) over 1m of the plane in any direction .. 5mm any direction
- ii) over the whole plane in buildings .. 10 mm
- iii) over the whole plane in structures .. 20 mm
- iv) local deviations of the upper surface .. 8 mm of concrete when measurements are made of the structural components (except surfaces at supports)

c) Deviations of structural components.. +20 mm in length or span

d) Deviations of structural .. +8 mm components in cross-section

e) Deviations in level of surface .. +5 mm and embedded fixtures serving as supports

f) Deviations in disposition of anchor bolts

- i) in plan, when the disposition is .. +/- 5 mm within the contour of a support
- ii) when the disposition is outside .. +/- 10 mm the contour of a support
- iii) in height .. +20 mm
- g) Deviations in laying out axes of foundations, footings and other metal structural parts having unmilled ends  $1.1 L$  mm, where  $L$  is the size of the span or pitch of the structural parts in meter.

## **SECTION -4 -PRECAST CONCRETE WORK**

1.1 In addition to Section-4.0 of this specification following specification shall apply for Precast Concrete Work.

### **1.2 Formwork and Moulds**

The formwork and/or moulds for precast concrete members shall be made of metal and true to shape and dimension of the finished product. The moulds shall be close jointed and perfectly smooth with joints caulked to prevent leakage of cement slurry. The moulds shall be of rigid construction to prevent distortion and bulging of sides and base. The moulds shall be designed with suitable fastenings to allow them to be struck without injury to the casting. The moulds shall generally be vibrated on a mechanically operated vibrating table.

### **1.3 Marking of Units**

All precast members shall be marked in a manner approved by the E-I-C in a conspicuous place, with date of manufacture and marking number. The upper part of the member shall be marked distinctly to ensure proper handling.

### **1.4 Erection**

Erection of the precast members shall be carried out as per the approved sequence.

### **1.5 Remedial Measures for Sub-Standard Concrete**

In case concrete strength falls below the mark, either of the following can be decided upon:

- a) In extreme cases, the concrete may have to be dismantled and redone at Contractor's cost. Decision of the E-I-C will be final and shall be binding on the Contractor.
- b) Remedial measures if approved by the E-I-C, must be carried out at the cost of the Contractor.
- c) When no remedial measures are considered necessary and the concrete is below strength, payment will be made at reduced rates as per the terms stipulated in the Contract

## **SECTION -5 -WATERPROOFING AND DAMP-PROOFING**

### **1.0 WATERPROOFING OF UNDERGROUND STRUCTURES BY PRESSURE GROUTING WITH NON-SHRINKING POLYMERIC WATERPROOFING GROUTING COMPOUND**

The Contractor shall furnish materials, labour, plant, equipment and tools to complete the work as specified herein.

#### **1.1 Codes and Standards**

IS:2645 .. Integral cement waterproofing compounds IS:9103 .. Admixtures for concrete

#### **1.2 Materials**



1.2.1 **Cement:** As mentioned in Section-4.

1.2.2 **Aggregates:** All aggregates shall conform to IS:383. Fine aggregates shall be approved river or pit sand. Coarse aggregates shall be approved crushed stone. Aggregates shall be clean and free from any foreign material.

1.2.3 **Cement waterproofing compound:** All cement waterproofing compound shall conform to IS:2645 and shall be of approved brand and quality.

1.2.4 **Acrylic Polymer Modified Cementitious Coating:** Acrylic Polymer Modified Cementitious Coating to form a thick resilient and flexible membrane on concrete/plastered surfaces with high resistance to oil and water shall be of approved brand and quality.

1.2.5 **Nozzle:** Nozzles shall be 15 mm dia threaded G.S. pipes of suitable length plugged at both ends and of approved quality.

1.2.6 **Super plasticiser:** High range water reducing admixture and integral cement waterproofer for concrete shall be of approved brand and quality. Super plasticiser shall conform to ASTM C-494 Type F or IS:9103 and IS:2645.

1.2.7 **Non-shrink polymeric waterproofing grouting compound:** The non-shrink polymeric waterproofing grouting compound shall be of approved brand and quality.

### 1.3 Workmanship

Waterproofing of underground structures shall be carried out as per approved manufacturer's specifications and as stated below:

1.3.1 **Raft:** The sub-base (PCC) of the underground structure shall be cleaned of all dirt and kept dry by continuous pumping of water.

The surface shall then be painted with two (2) coats of approved acrylic polymer modified cementitious compound to form a thick resilient and flexible membrane over the sub-base.

Threaded nozzles of 15 mm dia and of suitable length shall be placed and fixed in a grid pattern of maximum 1.5 m center to center over the whole raft, prior to casting of RCC raft. Similar nozzles will also be placed along the construction joints, if any, at regular intervals not exceeding 1.5 m c/c. Adequate precautions shall be taken to keep the nozzles plugged at both ends to prevent them from getting clogged by concrete. Similar nozzles shall also be post fixed at critical points, if required. Approved super plasticizer-cum-cement water proofer shall be added to the concrete for the raft as per manufacturer's specification. The concrete shall be at least M25 grade as defined by IS:456 and the water cement ratio of the concrete shall not exceed 0.50. Adequate precaution shall be taken to keep the nozzles vertical while concreting.

Approved non-shrink polymeric waterproof grouting compound mixed with cement slurry shall be injected through the nozzle (after removal of plugs) under pressure by pump as per the instructions of the manufacturer. When the injection operation is over the nozzles shall be sealed with a sealing compound as per manufacturer's specification and instruction.

#### 1.3.2 Vertical Wall

15 mm dia threaded nozzles of suitable lengths (about half of the thickness of the wall) shall be placed and fixed in a grid pattern of maximum 1.5 m center to center over the entire surface prior to concreting of the vertical wall. Similar nozzles are to be also fixed at construction joints, if any, at regular intervals not exceeding 1.5 m c/c. Adequate precaution shall be taken to keep the nozzle plugged at both the ends to avoid clogging of the nozzles by concrete. Similar nozzles shall also be post fixed at critical points, if required.

The concrete for the vertical wall shall be at least M25 grade as defined by IS:456 (or as given in drawings) having a maximum water cement ratio of 0.50. Approved super plasticizer-cum-cement waterproofing agent shall be mixed with the concrete as per the manufacturer's specification. Adequate precaution shall be taken to keep the nozzles horizontal during concreting.

The exterior surface of the concrete shall be finished smooth and painted with two (2) coats of approved acrylic polymer modified cementitious coating to form a thick resilient and flexible membrane over the surface.

Approved non-shrink polymeric waterproof grouting compound mixed with cement slurry shall be

injected through the nozzles (after removal of plugs) under pressure by pump as per the manufacturer's instruction. When the injection operation is over the nozzles shall be sealed with a sealing compound as per manufacturer's specification and instruction.

### 1. 3.3 **Guarantee for Waterproofs**

The Contractor shall furnish a guarantee of at least ten (10) years for the waterproofs of the underground structures (in a bone dry condition) treated by him by pressure grouting as specified above.

## **2.0 Waterproofing with Liquid Waterproofing Membrane**

### **2.1 Materials**

2.1.1 **Liquid waterproofing membrane:** It shall be of approved make and quality.

2.1.2 **Thinner:** Approved quality thinner as per manufacturer's recommendation shall be used.

2.1.3 **Water:** Water shall be clean and of potable quality.

### **2.2 Workmanship**

2.2.1 **Surface preparation:** The surface shall be dry and free from dust, grease, oil and loose particles. The roof surface shall be regarded to required levels and slope prior to waterproofing with screed concrete or cement mortar. If laitance is found it shall be removed by acid etching using a mixture of 1 part muriatic acid to 3 parts of water by volume. The acid solution shall be scrubbed into the surface with a shift broom while it effervescence for approximately two minutes. The surface shall then be thoroughly washed with fresh water and broomed to remove acid solution and slurry residue and allowed to dry completely. When dry the surface shall be finally broomed to remove all dust and dirt.

2.2.2 **Application:** The surface shall be completely dry. A coat of primer as recommended by the manufacturer shall be evenly sprayed/poured or brushed on the surface. It shall then be allowed to air dry undisturbed for about 24 hours.

The liquid waterproofing compound shall be stirred well before use and thinner/liquidizer shall be added if necessary as per the recommendations of the manufacturer only. The first coat of the liquid waterproof membrane shall then be applied on the primed surface by sprayer/wide thin hair brush. The coat shall then be allowed to air dry for 24 hours before the final coat is applied. The final coat shall then be applied in a manner same as that of the first coat and allowed for air dry undisturbed for 24 hours.

At perimeter cave or in other areas where vertical wall and horizontal slab meets the primer and the liquid membrane coating shall be turned up and finished in a groove.

The membrane shall then be finally protected by providing a suitable cover to prevent it getting physically damaged.

2.3 **Guarantee:** The Contractor shall provide guarantee against leakage of treatment for a minimum period of ten (10) years from the date of handing over of the structure.

## **3.0 ROOF WATER PROOFING TREATMENT WITH APP (ATACTIC POLYPROPYLENE POLYMERIC) MEMBRANE**

The Contractor shall furnish materials, labour, plant, equipment and tools to complete the work as specified herein.

### **3.1 Materials**

3.1.1 Bitumen primer for bitumen membrane shall have density at 25°C in the range of 0.87 -0.89 kg./litre and viscosity of 70160 CPS primer shall be applied @ of 0.40 litre/sqm.

3.1.2 Atactic Polypropylene Polymer Modified Prefabricated Membrane: It is a polymeric water proofing membrane. This shall be of the following type: (i) 3 mm thick with non-woven polyester matt.

It is prefabricated five layered black finish water proofing membrane comprising of centre core of 170 gsm nonwoven polyester matt sandwiched on both sides by APP polymer modified bitumen which is protected on both sides by 20 micron thermofusible polyethylene sheet. Composite thickness of the membrane including all five layers shall be 3 mm with non-woven polyester matt. It is available in 1 m width and variable lengths.

3.1.3 Preparation of Surface before laying of APP membrane shall be done as per manufacturer's specification

3.1.4 **Laying:** Bitumen primer @ 0.40 lts/sqm shall be applied to the prepared roof, drain and all other surfaces where polymer modified membrane is to be laid. The five layered water proofing membrane shall be laid using Butane torch and sealing all joints and preparing the surface complete. Drain outlets shall be given same treatment as specified for the roof in the description of the item in the manner specified for the flat roof surface. Water proofing treatment shall be carried into the drain pipe or outlets by at least 10 cm. The water proofing treatment laid on the roof surface shall overlap the upper edge of the water proofing treatment in the drain outlets by at least 10 cm.

The APP polymer modified prefabricated water proofing membrane shall be cut to the required length. Water proofing membrane shall normally be laid in length in the direction of the slope and laying shall be commenced at the lowest level and worked upto crest. APP water proofing membrane shall be laid in 6 to 8 m lengths. The roof surface shall be cleaned and bitumen primer shall be applied in the correct quantity, over this specified water proofing membrane shall be laid with butane torch after allowing 24 hours for primer to dry. Each strip shall overlap the preceding one by at least 10 cm. at the longitudinal edges and 15 cm. at the ends. All overlaps shall be firmly bonded with bitumen primer and levelled by heating the overlap with butane torch.

APP water proofing membrane shall be laid as flashing wherever junction of vertical and horizontal surfaces occur. Longitudinal laps shall be 10 cm. The upper edge of flashing membrane shall be well tucked into the flashing grooves in the parapets, etc. to a depth of not less than 6.5 cm; corresponding applications of primer coat shall also be made. The flashing treatment shall be firmly held in the grooves and it shall be sealed with the approved sealant after terminating the membrane.

Where parapet walls are of height 45 cm or less AP water proofing membrane flashing shall be provided in the same manner as for splashing in the core of high parapet walls except that upper edge shall be carried out the full height of the wall and taken right across the top of the parapet and down on the external vertical faces to a minimum distance of 5 cm. Where low dividing walls or inverted beams are met with, the same treatment shall be provided as for the main roof, the lateral bearing carried down both sides of the wall and overlapping the roof treatment.

Drain outlets where formed in the low dividing walls, shall be given water proofing treatment same as for the main roof.

The roof treatment shall be protected by a layer of screed concrete (1:2:4 grade nominal mix) with 10mm and down graded stone aggregates) admixed with approved waterproofing compound of specified dose recommended by manufacturer laid in slope of 1:150 with minimum thickness 50mm at the edges.

3.2 Guarantee: The Contractor shall provide guarantee against leakage for roof waterproofing for a minimum period of ten (10) years from the date of handing over of the structure.

#### **4.0 DAMP-PROOF COURSE**

4.1 **Work Included** The Contractor shall furnish materials, labour, plant, equipment and tools to complete the work as specified herein.

#### **4.2 Materials**

**Cement:** As mentioned in Section-4.

**Aggregates:** All aggregates shall conform to IS:383. Fine aggregates shall be approved river sand or pit sand. Coarse aggregate shall be approved stone chips of size not exceeding 6 mm. Aggregate shall be clean and free from any foreign material.

**Water:** Water shall be clean and of potable quality of PH value ranges from 8 to 6.

**Bitumen:** Bitumen shall conform to IS:3384.

#### 4.3 **Proportion:**

The proportion of cement and aggregates (fine and coarse) and thickness of the damp-proof course shall be 1:1.5:3 & 40 mm as per requirement.

#### 4.4 **Workmanship**

The masonry surface shall be leveled and joints shall be raked to receive the damp proof course. Damp proof course shall be provided at required positions. It shall be laid for the full width of the wall. The top surface shall be kept rough or ribbed for proper adhesion with the mortar for masonry coming over it. All other surfaces of the damp proof course shall be finished fair and smooth. After the surface has partially set hot bitumen shall be applied in two coats at the rate of 1.7 kg per sq m per coat and dry sand spread over it.

## SECTION -6 -BRICK AND STONE MASONRY WORK

1.0

**Work Included** The Contractor shall furnish materials, labour, plant, equipment and tools to complete the work as specified herein.

### 1.1 Codes and Standards

IS:2212 .. Code of Practice for Brickwork  
 IS:12894 .. Code of practice for flyash lime Bricks.  
 IS:2750 .. Steel Scaffoldings  
 IS:4014 .. Code of Practice for Steel Tubular Scaffolding (Part 1)  
 IS:3696 .. Safety Code for Scaffolds and Ladders (Part-1&2)  
 IS:1127 .. Recommendation for Dimensions and Workmanship of Natural Building Stones for Masonry Work  
 IS:1129 .. Recommendation for Dressing of Natural Building Stones  
 IS:1124 .. Methods of Test for Determination of Water Absorption Apparent Specific Gravity and Porosity of Natural Building Stones  
 IS:1597 .. Code of Practice for Construction of Stone (Part 1 & 2) Masonry

### 1.2 Materials

1.2.1 **Cement Mortar:** Cement mortar shall be as specified in Section-8 of this specification.

1.2.2 **Water:** Water shall be clean and reasonably free from deleterious materials such as oils, acids, alcohol, salts and vegetable growth.

1.2.3 **Flyash Lime Brick (Falg):** The bricks are made of quarry dust, fly ash, cement, lime and gypsum. The water absorption shall not be more than 10% after immersion in cold water for 24 hours. The brick shall conform to IS:12894.

1.2.4 **Stone:** Building stone shall conform to IS:1127. Rubble stone shall be strong, dense, compact, close grained and uniform in texture and colour with reasonable facility of working. It shall be free from cracks, flaws, decay and sandholes and shall be taken from approved quarries. A fresh fracture of stone shall be bright, clean and sharp without loose grains and free from any dull earthy appearance. The stone shall be properly dressed in conformity with IS:1129 after quarrying before they are put to use in the structure.

1.2.5 **Wire Netting:** Woven, hexagonal wire shall conform to type N3 of IS: 3150 and be galvanized. The width shall suit the thickness of the wall.

1.3 **Scaffolding** Generally, scaffolding shall conform to IS:4014 and shall be designed to withstand the required loads and to ensure complete safety of workmen and materials. The scaffolding shall be double, i.e. it shall have two sets of stands. Where this is not possible, the inner end of the scaffolding poles shall rest in a hole provided in a header course only. Only one header for each pole shall be left out. Holes, if provided shall be filled in and made good by the Contractor at his own cost to the satisfaction of the E-I-C.

1.4 **Lifting and Handling of bricks at height** All bricks shall be lifted at height with the help of builder hoist or any other approved mechanical means.

1.5 **Cleaning** The Contractor shall carry out work in as clean a manner as possible and shall remove excess material and mortar droppings and rubbish daily. Where brick walls and stone masonry are to receive plaster, the joints shall be cleaned of excess mortar and raked to a depth of 12 mm and the surface shall be brushed clean. During cleaning operations, adjacent work shall be protected and any damage resulting from improper protection shall be made good by the Contractor at his own cost.

### 1.6 Brickwork

**1.6.1 Workmanship:** The whole of the brickwork shall be carried out by the Contractor in an uniform manner. All the bricks shall be kept under water till they are completely soaked and used on their becoming skin dry. The Contractor shall set out and build all brickwork to the dimension, thickness and heights shown on the approved drawings. The Contractor shall build all brickwork in English bond and half brick walls and casing to pipe, chases etc in stretcher bond. Brickbats shall not be used except where required for bond.

The Contractor shall lay bricks in full mortar beds with shoved joints. The joints shall not exceed 10 mm in thickness and shall be full of mortar, close, well finished and neatly struck. The vertical joints in any course shall not be nearer than a quarter of brick length from those in the course below. All joints shall be of same width except for small variations to maintain the bond. The brickwork shall be laid plumb and true to line and level. No portion of brickwork shall be raised more than 1 meter above another in a day. If the mortar in any course has begun to set, the joints shall be raked out before another course is laid. The top course of brickwork in reinforced concrete frame structure shall be wedged against reinforced concrete surface and joint well filled with mortar.

The Contractor shall flush up all the joints thoroughly with mortar as the work proceeds. Where brickwork is to receive plaster, the joints shall be raked to a depth of 12 mm to provide proper bond. The brickwork as it progresses shall be thoroughly watered on its faces and top. New work shall be properly bonded with old work. New work surface of unfinished work shall be cleaned and thoroughly watered before joining new work to it.

Any work in which the mortar deteriorates shall be dismantled and rebuilt by the Contractor at his own expense.

**1.6.2 Curing:** The Contractor shall keep wet all brickwork for 7 days after laying.

#### 1.7 Uncoursed Random Rubble Masonry

**1.7.1 Workmanship for stone masonry** shall conform to IS:1597. No stone shall be less than 250 mm in thickness or less than 300 mm in each horizontal dimension. If the thickness be more than 300mm the least horizontal dimension must not be less than the thickness.

**1.7.2 Dressing:** The stones after being fully cleaned and wetted are to be set in the work as received from the quarry and without further dressing of any sort except that of knocking off weak corners and edges with the mason's hammer.

**1.7.3 Bond and laying :** The stones shall be carefully laid so as to break joints by at least 75 mm and solidly bedded with close joints. No joint shall exceed 20 mm in thickness. Chips of stones and spalls shall be wedged into the work, wherever necessary so as to avoid thick bed or joints of mortar. No dry work or hollow spaces shall be allowed in the masonry anywhere. Every stone whether large or small shall be set flush in mortar, smaller stones used in the filling being carefully selected to fit into interstices between the larger ones roughly. The outside and the inside faces of masonry in walls must be carried out in the same plane as the faces of the preceding length.

**1.7.4 Face stones :** The face stones shall be laid as far as possible without pinnings in front and they shall be selected from the mass or quarry stone for greater size, good beds and uniform colour. They shall be laid so that they shall tail back and bond well into the work and shall not be of greater height than either the breadth on face or length of tail in the work.

**1.7.5 Bond or header stones:** At least one-fifth of stones in the face shall be through stones evenly distributed throughout the wall. The through stones will fulfil all the conditions of the face stone except as regards their length which must be not less than 450 mm and must run right through the wall when the wall is not more than 450 mm thick. In thicker walls a line of two or more through stones must be laid from face to back overlapping each other at least 150 mm. Through stones should not be in the same vertical plan in successive courses. For facility of checking they shall be marked and the marks shall be capable of being easily rubbed out.

**1.7.6 Quoins :** Quoins must be of the same height as the course in which they occur and should be formed of header stones from 220 mm to 450 mm long according to the height of the course and laid



lengthwise alternatively along each face. They should be laid square on their beds which should be dressed to a depth of at least 100 mm. The corner of each quoin should have a chisel draft of 25 mm on each side to facilitate checking the vertical alignment.

**1.7.7 Finishing :** Where lime mortar is used, the exposed faces of work shall be cement flush pointed, unless otherwise specified. When cement mortar is used the joints may be flushed as the work proceeds. Where stone work is to receive plaster or to be pointed other than flush pointing, the joints shall be raked to a minimum depth of 12 mm to provide proper bond. Any work in which mortar perishes shall be dismantled and rebuilt by the Contractor at his own expense.

**1.7.8 Curing :** Curing shall be done for a period of 7 days.

## **1.8 Coursed Random Rubble Masonry**

The specification shall be same as in clause 1.7 above excepting that the work shall be roughly levelled up to courses at intervals varying from 300 mm to 900 mm.

**1.8.1 Height of courses :** The stones after being cleaned and wetted shall be laid in horizontal courses of equal depth of not less than 150 mm and shall be set full in mortar.

**1.8.2 Dressing :** The joint between two continuous face stones in the same course shall be truly vertical and the two stones shall be hammer or chisel dressed so as to be in proximity for at least 75 mm depth from the face of the wall. The beds of face stones shall also be hammer or chisel dressed for at least 75 mm depth.

**1.8.3 Bond and laying :** The stone shall be laid on their broadest face in mortar and beaten into position with mallet, care being taken that the mortar is well filled into the joint. The vertical joints in each course must break joint at least 75 mm with those in the courses above and below. No joint shall exceed 12 mm in thickness. The interior of the wall is to be carefully constructed with proper sized stones and not filled up with spalls and/or chips. Spalls may however be used to wedge into the mortar to avoid thick bed or joints of mortar.

**1.8.4 Face stones :** The face stones shall be squared on all joints and beds. No face stone shall be narrower or shorter than its depth. Its length tailing into the wall shall not be less than their height and at least one-third of the face stones shall tail into the work for a length twice their height or in the quick walls three times their height.

The width of the face stones in plan shall not be less than 150 mm for walls 400 mm thick, 200 mm for walls, 450 mm thick and 250 mm for walls 600 mm thick or more respectively. No stone less than 150 mm in height shall be used on the face. The face stones shall be laid headers and stretchers alternatively.

**1.8.5 Bond or header stones :** Through stones for headers shall fulfil all the conditions of face stones, except as regards their length which must not be less than the width of the wall or 450 mm whichever is less. Through stones shall be inserted approximately 1.5 metre apart in every course. Other details shall be same as for bond or header stones for random rubble masonry.

**1.8.6 Quoins :** The same specification shall be followed as detailed for random rubble masonry.

**1.8.7 Finishing :** The exposed surface of the work shall be flush pointed. Unless the interior face is to be plastered, it shall be of the same finish as that of exterior face.

**1.8.8 Curing :** Curing shall be done for a period of 7 days.

## **SECTION -7 -MORTAR FOR MASONRY AND PLASTER WORK**

### **1.0**

**Work Included** The Contractor shall furnish materials, labour, plant, equipment and tools to complete the work as specified herein.

#### **1.1 Materials**

**1.1.1 Cement:** As per Section-4.

**1.1.2 Sand:** The sand shall be of approved river or pit sand and it shall conform to IS:1542 for plaster and to IS:2116 for masonry mortar. Sand for the mortar shall be evenly graded from coarse to fine,

free from loam, clay, dust or organic matter etc.

1.1.3 **Water:** Water shall be clean and reasonably free from deleterious materials such as oils, acids, alcohol, salts, sulphate and vegetable growth as per clause No. 5.4 of IS:456.

## 1.2 Mortar Proportion

Cement sand mortar mix for masonry work shall be 1:6 for external walls. For protection walls to waterproofing membrane in tunnel basement etc., for internal and partition wall of 100 mm/110 mm thick, cement sand mortar of mix 1:4 shall be used with HB wire netting reinforcement at every fourth course. For reinforced brick wall cement sand mortar of mix 1:4 shall be used. For plastering, cement sand mortar proportion for 20 mm and 12 mm thick plasters shall be 1:6. For 6 mm thick plaster, the mortar proportion shall be 1:4. Internal surface of all water retaining structures shall have 25 mm thick plaster with cement sand mortar proportion 1:2 admixed with approved quality water proofing compound.

## 1.3 Workmanship

The workmanship shall conform to IS:2250 for preparation of masonry mortars and to IS:1661 for plaster mortars. The cement and sand shall be thoroughly mixed dry in specified proportion to obtain a uniform colour. The water shall be added by sprinkler just sufficient to make a stiff and workable paste. In case of mechanical mixing the mortar shall be mixed for at least 3 minutes and for hand mixing the mortar shall be mixed back and forth for 10 to 15 minutes with additions of water. Mortar that has stiffened because of evaporation of water may be re-tampered by adding water as frequently as necessary to restore consistency but this re-tempering will be permitted only within one (1) hour from time of addition of cement. Inner end of the scaffolding poles shall rest in a hole provided in a header course only. Only one header for each pole shall be left out. Holes, if provided shall be filled in and made good by the Contractor at his own cost to the satisfaction of the E-I-C.

## 1.4 Curing

After the completion of plaster work, it shall be cured by adequate watering for a period of seven (7) days. The plaster shall be protected during that period from extreme temperature and weather condition.



## SECTION -8 -PLASTER WORK

### 1.0 Work Included

The Contractor shall furnish materials, labour, plant, equipment and tools to complete the work as specified herein.

#### 1.1 Codes and Standards

IS:1542 .. Sand for plaster

IS:1661 .. Code of practice for application of cement and cement-lime plaster finishes

IS:2250 .. Code of practice for preparation and use of masonry mortars.

**1.2 Materials** All materials, cement mortar etc shall be as specified under Section-4 and 8 of this specification.

#### 1.3 Plastering in One and Two Operations

**1.3.1 Proportion:** All plaster work shall be carried out according to IS:1661.

**1.3.2 Workmanship:** The surface to be plastered shall be cleaned of all extraneous matter and rubbish. In brickwork the joints shall be raked and concrete surface roughened by chipping or hacking. Any shuttering material adhering to the concrete shall be removed. The surface shall be thoroughly watered and soaked, aerated and all log holes shall be closed before starting plastering operation. Plaster pads of required thickness of plaster for correctness of plumb, line and level shall be established before starting plaster work.

For one coat plaster work, the plaster shall be laid slightly thicker than the specified thickness and the surface then leveled with flat wooden rule to the required thickness. The plaster shall be well pressed into the joints and the surface finished as specified.

Where two coats of plaster work is specified, the first coat shall be applied as described above except that the surface shall be left rough and keys formed for the application of second coat. The second coat shall be applied a day or two after the first coat has set, but the first coat shall not be allowed to dry. The second coat shall consist of mortar ground very fine and shall be laid on with a wooden rule to a specified thickness, rubbed smooth and leveled and the surface plastered completely the same day. The leveling shall be continued till the plaster is quite dry and all moisture which exudes from the plaster shall be wiped off with fine cloth. The surface shall be kept dry until exudation of moisture ceases, during the process of rubbing.

#### 1.4 Plastering (Rough Cast Finish)

**1.4.1 Proportion:** The first coat shall consist of 1 part of cement and 4 parts of sand. The proportion of second coat (rough cast finish) shall be 3 parts of cement, 6 parts of fine sand and 4 parts of shingle or crushed stone not exceeding 10 mm size.

**1.4.2 Workmanship:** The workmanship shall conform to two coats plaster as indicated in IS:1661 and surface preparation shall be as specified under Clause 1.3.2. The first coat shall be dashed on to the prepared surface with a trowel to fill up all unevenness in the surface. The surface shall not be smoothed but left rough. A wet plastic mix of second coat as specified above shall be thrown on the first coat by means of a scoop or plasterer's trowel while the first coat is still soft. The thickness of the second coat shall not exceed 12 mm.

#### 1.5 Plastering (Pebble-dash Finish)

**1.5.1 Proportion:** The first coat of plaster shall consist of 1 part of cement and 4 parts of sand.

The second coat (i.e. pebble-dash finish) shall consist of 1 part of cement, 4 parts of sand upon which shingle is thrown. The second coat shall not exceed 10 mm in thickness.

**1.5.2 Workmanship:** The workmanship shall conform to two coat plaster as indicated in IS:1661 and the surface preparation shall be as specified under Clause 1.3.2.

The first coat of plaster shall be dashed on to the prepared surface to the specified thickness with a

trowel to fill up all unevenness in the surface, but the surface shall not be smoothened. The first coat shall be allowed to dry and shrink properly before the second coat is applied. A wet plastic mix of second coat as specified above shall be applied upon which selected shingle which has been well washed shall be thrown while it is still soft.

### 1.5.3 Curing

After the completion of plaster work, it shall be cured by adequate watering for a period of seven (7) days. The plaster shall be protected during that period from extremes of temperature and weather at no additional cost to the Employer.

## SECTION-9 – FLOORING, FLOOR FINISHES AND OTHER FINISHING WORKS

### 1.0 Work Included

The Contractor shall furnish labour, plant, equipment and tools to complete the work as specified herein.

### 1.1 Codes and Standards

- IS:1195 .. Specification for Bitumen Mastic for Flooring
- IS:1196 .. Code of Practice for Laying Bitumen Mastic Flooring
- IS:1237 .. Specification for Cement Concrete Flooring Tiles
- IS:1443 .. Code of Practice for Laying and Finishing of Cement Concrete Flooring Tiles
- IS:1580 .. Bituminous compounds for water-proofing and caulking purposes
- IS:2571 .. Code of Practice for Laying in-situ Cement concrete flooring
- IS:4443 .. Code of practice for use of Resin type Resistant mortars.
- IS:4457 .. Ceramic Unglazed Vitreous Acid Resisting Tiles
- IS:4832 .. Specification for Chemical resistant mortar (Part-II) (Resin type)
- IS:5491 .. Code of Practice for Laying in-situ Granolithic Concrete Floor for Topping

### 1.2 Cast-in-Situ Concrete Flooring

#### 1.2.1 Materials

**Cement:** Cement shall be as per Section-4.

**Sand:** The sand shall be of river sand or from approved pits and shall confirm to IS:383.

**Aggregates:** The aggregates shall conform to IS:383. The coarse aggregate shall generally be of the following sizes:

- Base concrete .. Graded from 40 mm and below
- Cement concrete topping of thickness 25 mm .. Graded from 10 mm and below
- Cement concrete topping of thickness 40 mm .. Graded from 10 mm and below.

#### **Cement concrete topping in two layers:**

- i) Under layer .. Graded from 10 mm and below
- ii) Top layer.. Graded from 6 mm and below

Grading of coarse aggregates shall conform to Table-1 of IS:2571. The fine aggregates shall be either of grading zone 1 or 2 of Table2, IS: 2571.

**Water:** Water shall be clean and reasonably free from deleterious materials such as oils, acids, alcohols, salts and vegetable growth.

**Aluminium and glass divider:** Strips used shall be 2 mm thick and the depth shall be equal to the overall thickness of the flooring.

**Colouring pigment:** Pigments, synthetic or otherwise, used for colouring shall have permanent non-

fading colour and shall not contain matters detrimental to concrete. The pigment shall be of approved brand and tints shall be uniform. All pigments used shall conform to the relevant Indian Standards.

### 1.2.2 Workmanship

**1.2.2.1 Plain cement concrete flooring:** Generally workmanship shall conform to IS: 2571. If the floor finish is to be laid over consolidated ground or a layer of hard core, cement concrete of approved mix shall be poured as a base layer to the required thickness. In the case of structural slabs, the slab itself will form the required base.

The area requiring floor finish shall be divided into suitable panels to reduce the risk of cracking. No dimension of a panel shall exceed 4 m in case of floor finish laid monolithically with base concrete and 2 m in case of floor finish laid separately on a hardened base. Length of the panel shall not exceed one and half times its breadth.

Paneling shall be done by fixing glass or aluminium strips of depth equal to the combined thickness of base concrete and topping. Before being fixed in position these strips shall be coated with a thick coat of lime wash. Flooring shall be laid in alternate panels, the intermediate panels being filled in after one or two days.

**1.2.2.2 Floor finish laid monolithically with base concrete:** The sub-base shall be properly wetted and divided into panels. For structural slabs, the formwork shall be erected to the finished thickness of floor finish and structural concrete shall be deposited in the forms and finished below the top edge of the form to accommodate the required thickness of the topping. The base concrete shall be poured and tamped and screeded to levels suitable to accommodate topping and to give the desired slope. The surface shall be left rough to provide bond with the topping.

On the green surface of the base concrete, topping shall be placed in position as soon as the base has stiffened enough to allow workmen to tread over it by placing planks on the surface. The mix for the topping shall be as stiff as possible consistent with workability so as to prevent accumulation of excess water or laitance. Should any water rise to surface during compaction and screeding, it shall be mopped up. The topping shall be then floated with a wooden float to render the surface even.

**1.2.2.3 Floor Finish laid separately on hardened concrete base:** The sub-grade shall be properly wetted and the base concrete laid, if possible over the whole area at a stretch. The surface shall be left rough to provide adequate bond for the topping by wire brushing two to three hours after its laying.

Before the topping is laid, the surface of the base shall be thoroughly cleaned of loose materials, dirt and laitance by wire brushing. Where this is not possible, chipping or hacking shall be done. The surface shall be soaked with water for 12 hours before laying the topping. The surplus water shall be mopped up, 1:1 sand cement slurry spread and the concrete for the topping deposited in suitably divided panels. The mix for the topping shall be as stiff as possible consistent with workability so as to prevent accumulation of excess water or laitance. After thorough consolidation the topping shall be struck off level and surface floated with a wooden float. It shall be tested with a straight edge and mason's spirit level to detect any inequalities and any undulations found shall be made good immediately.

**1.2.2.4 Laying topping in two layers:** Where it has been specified that the topping is to be laid in two layers to obtain very smooth and dense finish, the base concrete and underlayer of topping shall be laid as above with the exception that the surface of the concrete in the underlayer of topping shall not be finished smooth but left rough after tamping and leveling.

Before placing the top layer, any water or laitance which may have worked up to the surface of the underlayer shall be removed. The top 15 mm thick top layer of 1:1.5:3 cement concrete of consistency stiffer than that of underlayer of concrete shall then be immediately laid over the rough but green surface of underlayer and thoroughly tamped, struck off level and the surface floated with a wooden float. The surface shall then be tested with a straight edge and mason's spirit level to detect any undulations and if any, these shall be made good and then the surface finished smooth as specified below.

**1.2.2.5 Finishing the surface by troweling or floating:** After the concrete has slightly hardened it shall be finished by troweling or floating. Finishing operations shall start shortly after the compaction of concrete and shall be spread over a period of one to six hours depending upon the temperature and

atmospheric conditions. The surface shall be trowelled three times at intervals so as to produce a uniform and hard surface. Immediately after laying, just sufficient troweling, the duration being guided by temperature and rate of set of cement, the surface shall be retroweled to close any pores in the surface and to draw out and mop up any excess water in the concrete and laitance. The final troweling shall be done well before the concrete has become too hard but at such a time that considerable pressure is required to make any impression on the surface. Trowelling with dry cement mix on the surface shall not be permitted.

1.2.2.5.1 **Curing:** As soon as the surface has hardened beyond damage, it shall be kept continuously moist for at least 15 days by impounding water on the finished surfaces.

1.2.2.6 **Finishing the surface by grinding and polishing:** Where grinding and polishing is indicated, the topping shall be laid in two layers as specified in Clause 1.2.2.4. After the concrete has slightly hardened, it shall be finished with steel trowel but the trowelling shall be light to avoid excessive laitance coming up on the surface.

1.2.2.6.1 **Curing:** Immediately after final trowelling, the surface shall be laid for drying, and as soon as it has hardened sufficiently, water shall be sprinkled over it and kept wet continuously for at least fifteen (15) days.

1.2.2.6.2 **Grinding:** When the floor has sufficiently hardened and cured for 3-4 days after laying, initial grinding with a coarse grade of carborundum stone shall be carried out and all pits or air holes observed shall be filled up with cement grout of creamy consistency. The surface shall be saturated with water during grinding. After a further curing of 3-4 days, the second grinding shall be carried out with medium grade carborundum stone. The final grinding shall be carried out with fine grade carborundum stone after curing of the floor finish in complete.

1.2.2.6.3 **Polishing:** The finished floor shall be thoroughly cleaned and then polished with approved wax polish.

1.2.2.7 **Coloured cement concrete flooring:** Where coloured finish is indicated, the top shall be finished with coloured cement as specified. If coloured cement is not available pigment shall be mixed in the proportion, one part of pigment with three parts of cement. The colouring material and cement shall first be mixed dry. Special attention shall be paid to the mixing of colour, which should be screened twice with a fine screen and again through fine muslin before use. All the colour required for one room shall be mixed in one lot. For red colour, mixture shall consist of 1 part of iron oxide to 3 parts of cement. For green colour mixture shall consist of 1 part of chromium oxide to 3 parts of cement. After dry mixing, the minimum quantity of water required for workability shall be added gradually until a paste of the required consistency is obtained. Dry colour shall not be used to finish the surface of coloured concrete floor. Coloured paste shall be applied with wooden floating boards and English trowels. The quantity of colour mixture shall be 0.06 cu m for every 10 sq m of surface.

Any cracks, ruts, disfiguration or discoloring of surface shall be made good by the Contractor at his own cost. The finished portion of the floor shall be kept wet for at least 15 days.

### 1.3 Granolithic Finish and Floor Hardener Finish

#### 1.3.1 Materials

1.3.1.1 **Cement:** Cement shall conform to IS: 455 or IS: 8112 or IS: 12269.

1.3.1.2 **Aggregate:** It shall be approved granite, basalt, trap or quartzite chippings and the grading shall conform to Table-1 of IS: 5491.

1.3.1.3 **Sand:** The sand shall be approved river sand and shall conform to IS:383. The grading shall conform to Table-2 of IS:5491.

1.3.1.4 **Water:** Water shall be clean and reasonably free from deleterious materials such as oils, acids, alcohols, salts and vegetable growth.

1.3.1.5 **Floor Hardener:** It shall be approved quality metallic/nonmetallic hardener of approved make.

1.3.2 **Proportion of Mix:** The proportion of mix for granolithic flooring shall be 1 part of cement, 1.5 part of sand and 3 parts of stone chips.

The proportion of mix for floor hardener shall be according to the manufacturer's instructions.

#### 1.3.3 Workmanship

1.3.3.1 General: The floor topping shall be laid in suitable panels. While laying the topping on structural slab monolithically, no dimension of panel shall exceed 4 m and when the topping is laid on hardened base, no dimension shall exceed 2 m. In case of ground floor the dimensions of the

topping panels shall match those of the base concrete, length of panel shall not exceed one and half time its breadth.

1.3.3.2 Laying granolithic topping monolithically with base concrete: The topping shall be laid within two to three hours of laying the base concrete. At the time of laying the topping the base shall be still green but sufficiently firm to enable the workmen to tread over it by placing planks on the surface. The topping shall be laid on suitable panels and thoroughly compacted to the finished thickness. The surface shall be checked for undulation and made even using wooden floats. When the surface has slightly hardened it shall be finished smooth.

1.3.3.3 Laying topping on hardened base and hardened structural slab: The base concrete shall be thoroughly cleaned of all dirt, loose particles etc and roughened by chipping or hacking at close interval. The surface shall then be soaked in water for several hours and the excess water removed by mopping immediately before laying the topping. Cement sand (1:1) slurry shall be spread on the prepared surface of the base concrete and the topping laid in suitable panels as described in clause 1.3.3.1.

1.3.3.4 Laying floor hardener finish: The thickness of the floor hardener topping shall be 15 mm or as indicated on the drawings and shall be laid over the granolithic finish when it has partially dried as per instructions of the manufacturer. The surface shall be leveled and finished smooth. The finished surfaces after hardening beyond damage shall be cured for a period of seven (7) days by impounding water on the finished surfaces.

## **2.0 White washing, distempering and painting**

The Contractor shall furnish materials, labour, plant, equipment and tools to complete the work as specified herein.

### **2.1 Codes and Standards**

#### **White washing and distempering**

IS:427 .. Distemper, dry colour as required

IS:428 .. Washable Distemper, as required

#### **Painting**

IS:123 .. Ready mixed paint, brushing, finishing, semi-gloss for general purposes to Indian Standard colours

IS:1477 .. Code of practice for painting of ferrous metals (2 Parts) in buildings

IS:2074 .. Ready mixed paint, air drying, red oxide zinc chrome priming

IS:2339 .. Aluminium paint for general purposes in dual container

IS:2932 .. Enamel, synthetic, exterior a) under coating, b) finishing

### **2.2 Materials**

2.2.1 **Cement:** Cement shall conform to IS:8112 or IS:12269.

2.2.2 **Water:** Water shall be clean and reasonably free from deleterious materials such as oils, acids, alcohols, salts and vegetable growth.

2.2.3 **Paint:** The painting and finishing materials for use in the work shall conform to relevant Indian Standards and shall be of best brands of approved make produced for each kind of work. Ready mixed paints shall be used for the work, unless otherwise specified. All paints shall be of low VOC (volatile organic compound) quality. The contractor shall submit samples of each type of paint for approval of the E-I-C. The Contractor shall not assume approval of samples as acceptance of materials, as these materials shall be tested from time to time during the progress of the work.

The materials for succeeding coats on any surface shall be Products of the same manufacturer supplying the first coat for the particular surface. Painting for green building purpose, low volatile organic content paint shall be used where the volatile part shall be less than 50 gms per litre.

2.2.4 **Primer coat:** Unless otherwise specified, the primer coat for steel and iron work shall as per relevant Indian Standard.



**2.2.5 Brushes:** Paint shall be applied by brushes. Brushes required for painting shall be of type and size suitable for the work, conforming to relevant Indian Standards. Rags, inferior quality brushes or the like shall not be used on the work.

### 2.3 White wash with white cement

#### 2.3.1 Preparation of surface

The surfaces shall be thoroughly cleaned of all dirt, dust, grease, oil marks, cement marks, loose scales, mortar drops, efflorescence, chalking, and other foreign matter and rubbed with sandpaper to give a uniform smooth surface before white wash is applied.

#### 2.3.2 Preparation of white cement slurry

White Cement of approved make shall be mixed with water to form slurry to the consistency of a good ready mixed oil paint and the slurry applied with flat brushes to form a smooth bodied opaque surface. If so directed by Engineer in-charge, common salt (sodium chloride) may be added to the mixture at the rate of 1 kg per 160 litres of slurry.

#### 2.3.3 Application of Whitewash

Whitewash shall be applied with 'MOONJ' brush or other brush to the specified number of coats. The operation for each coat shall consist of a stroke of the brush given from the top downwards, another from the bottom upwards over the first stroke and similarly one stroke horizontally from the right and another from the left before it dries. Each coat shall be allowed to dry before the next coat is applied. No portion of the surface shall be left out initially to be patched up later on.

The brush shall be dipped in whitewash, pressed lightly against the wall of the container and then applied by lightly pressing against the surface with full swing of hand. Whitewashing on ceiling should be done prior to that on wall. For new work, unless otherwise indicated, minimum two coats shall be applied so that the surface presents a smooth and uniform finish through which the plaster does not show. The finished dry surfaces shall not show any signs of cracking and peeling and the whitewash shall not come off readily on the hand, when rubbed.

### **Acrylic emulsion paint (external quality)**

2.4.1 Acrylic emulsion paint shall be low of VOC quality ready mixed coating for external purpose. It can be applied over cement plaster, concrete surface etc. The emulsion is consisted of specially formulated pure acrylic latex and high opacity micronized pigments, fungicidal stabilizing agents. It is further reinforced with silicone to produce a versatile paint which resist alkali and protect from corrosion.

#### 2.4.2 Surface Preparation

Before the prescribed finish is laid on a new surface, the surface shall be prepared as stated in 2.3.1.

#### 2.4.3 Application

Prior to application of acrylic emulsion paint on above treated surface is to be painted with a coat of masonry primer. Prior to commencement of acrylic emulsion painting on the above prepared surface, evenness of the surface shall be checked by close inspection. Any uneven surface must be levelled and smoothened with a paste of acrylic emulsion. The paint is then to be applied evenly on the prepared surface with by brush. For thinning the paint to required consistency only potable water shall be used.

Prior to application of the second coat, first coat must be allowed to dry properly (24 hours). The second coat of painting shall then be applied evenly all over the surface.

### 2.5 Painting of masonry surface

**2.5.1 Storage of paint:** All paints shall be stored strictly in accordance with the manufacturer's instructions. The storage area shall be well ventilated and protected from spalls, flame, direct exposure to sun or excessive heat. The Contractor shall take proper care not to damage the labels identifying the paint, date of manufacture, batch number and special instructions. The Container shall be opened only at the time of use. Paint which has livered, galled or otherwise deteriorated during storage or otherwise shall not be used. Paints for which shelf life specified by the manufacturer has expired shall not be used without inspection and approval by the E-I-C.

**2.5.2 Mixing and thinning:** All ingredients in a paint container shall be thoroughly mixed to break up lumps and disperse pigments before use and during application to maintain homogeneity. All pigmented paints shall be strained after mixing to remove skins and other undesirable matters. Thinners shall not be used unless essential for proper application of the paint. Where thinners are used they shall be of approved make and added during the mixing process and the type and quality of the thinner shall be in accordance with the instructions of the paint manufacturer.

**2.5.3 Preparation of paint:** Normally, only ready mixed paints shall be used. Where ready mixed paints are not available and if synthetic enamel based paints are prepared at site, the ingredients shall be thoroughly ground and thinned with synthetic enamel in specified proportion to required consistency and added to the prepared base. The mixture shall be well stirred and strained through a piece of cloth. The painting materials, when applied, shall spread evenly in a thin coat and flow on smoothly without runs and sags and shall dry quickly forming a tough durable film without showing any brush marks or cracks.

**2.5.4 Preparation of surface:** The surfaces of members to be painted shall be cleaned free of dirt, oil, rust, mill scale and be thoroughly dry before painting. Cleaning, degreasing, derusting and descaling wherever necessary shall be carried out as specified in IS:1477 (Part I).

#### **2.5.5 Painting on concrete/ masonry surfaces**

Any loose or uneven areas or any major cracks or defects in the cement concrete or plaster background shall be cut out and made good and the repairs allowed to dry thoroughly. Cracks may be vetted thoroughly prior to filling or priming paint may be applied to the side of cracks to avoid undue absorption of water and subsequent shrinkage and filling. Minor cracks may be filled with cement mortar.

All mortar joints shall be brought to a sound condition before painting operations are started. In the case of new brick work painting shall be deferred for at least three months after completion of masonry work and longer if the weather during the period becomes unfavorable for drying. Dirt may be removed by washing with water.

New surfaces shall be given a priming coat of alkali resistant priming paint conforming to IS 109 or any other primer as recommended by the manufacturer and allowed to dry for at least 48 hours.

Undercoating, stopping or filling as required, shall be carried out before the painting is done. Any crack between the plaster and wood work shall be securely filled; if such cracks are wide, caulking with hemp or similar material may be necessary to support the filling. Undercoat shall then be applied by brush. After drying the coat shall be carefully rubbed down and wiped clean before the next coat is applied.

Finishing coat shall be applied by brush. The extent of gloss shall be as directed by the Engineer in-charge.

#### **2.5.6 Cement punning with white Cement based Putty**

Cement punning to finished cement plastered wall with white cement based putty of J.K. Wall Putty of J.K. White Cement or any other approved equivalent make provides smooth and strong finished for further application of all kinds of paints.

**Surface Preparation:** The surface should be cleaned to make it free from dirt, grease, oil and paint. All foreign impurities should be removed with a wire-brush. Wall surfaces should be cured so that the surface is saturated with water yet in 'touch dry' condition.

**Preparation of Putty:** It is fine powder, which is slowly mixed with approx. 40% of potable water by volume to prepare a paste of desired consistency. Mix vigorously for 5-10 minutes for making lump free, uniform and smooth putty paste. Product should be mixed in required quantities to be used within 2 – 3 hours of its preparation.

**Application:** Apply uniformly the first coat of wall putty with putty blade/trowel on the wall from bottom to top. Apply second coat after the first coat has dried completely. Limit the total thickness of 2 coats to 1.5 mm. Allow Complete drying and then use fine emery paper to remove the application

marks, if any. Use sufficient water for curing. All materials, workmanship shall be done as per manufacturer's specifications.

## SECTION – 10 – METAL DOORS AND WINDOWS AND MISCELLANEOUS WORK

### 1.0 METAL DOORS AND WINDOWS

#### 1.1 Codes and Standards

IS:1038.. Steel Doors, Windows and Ventilators

IS:1081.. Code of Practice for Fixing and Glazing of Metal (Steel and Aluminium) Doors, Windows and Ventilators.

IS:1361.. Steel Windows for Industrial Buildings

IS:1948.. Aluminium Doors, windows and Ventilators

IS:1949.. Aluminium Windows for Industrial Buildings

IS:6248.. Metal Rolling Shutters and Rolling Grills

#### 1.2 Materials

1.2.1 **Structural steel:** All structural steel materials shall conform to IS:1977 or IS:2062.

1.2.2 **Steel doors, windows and ventilators:** Steel doors, windows, ventilators and their fittings for residential and office buildings shall conform to IS:1038. Steel windows for industrial buildings shall conform to IS:1361.

External doors shall be provided with threshold as shown in IS:1081 and the doors required for internal use shall be provided with an approved size base tie-bar in lieu of threshold.

Unless otherwise specified, coupling sections shall be of mild steel and handles, peg stays and pivots of centre hung ventilators shall be of lead-tin-bronze alloy (gun metal). Hinges for side hung shutter shall be projecting non-friction type. Weather bars shall be provided as per requirement. The type, size, number and position of fixing lugs shall conform to IS:1038. The steel doors shall be painted with one coat of zinc chromate primer conforming to IS:2074 before they are supplied. Final painting shall be done with two coats of ready mixed approved synthetic enamel paint of approved colour. Glazing clips shall be provided where pane sizes exceed 600 x 300 mm and shall be of shape as shown in IS:1038

#### 1.2.3 Glazing for door, window, structural glazing

1.2.3.1 **Single Glazing :** Where single glazing is specified for the work, it shall be of float glass of specified thickness, with permissible tolerance. Float glass shall be clear or tinted as per requirement. For some specific purpose this may even be toughened. Float glass shall have solar low e, UV resistant, light transmittance (min) 55%, U-value 0.32 BTU/sqft°F, solar efficiency 0.44.

1.2.3.2 **Insulated Double Glazing:** Insulated double glazing shall comprise of two (2) numbers of float glasses (clear/tinted/ toughened as per requirement) as specified for single glazing above, hermitically factory sealed together with a specified argon gas gap in between. The glazing shall be kept in position using aluminium spacers, primary & secondary sealant for water, air tightness and structural integrity respectively. The argon gas gap in between the glass panes shall be kept dry using proper desiccant.

1.2.4 **Glazing putty:** The Glazing putty shall conform to IS:419.

#### 1.3 Workmanship

All steel doors, windows and ventilators shall be fixed true to line and level. Fixing and glazing of metal doors, windows and ventilators shall be in accordance with IS:1081.

1.4 **Steel Wire Fencing** Chain link fencing shall be 75 mm square mesh size of 4 mm nominal dia galvanised steel wire conforming to IS:2721. The barbed fencing wire shall consist of 2 ply, 12 gauge galvanised wires with 4 point thick set barbs at 75 mm centers.

Fencing posts shall be either of M.S. or reinforced concrete or pre-stressed concrete or timber as per requirement. The post shall be fixed in position in a concrete block. Corner posts shall be suitably strengthened by struts or ties to resist the forces acting on them.



Wire shall be fully stretched and securely tied to the posts. The fixing shall be done in a workmanlike manner without leaving any kinks etc. The wire shall be held tight in a position by eye bolts etc.

All steelwork shall receive one coat of zinc chromate paint conforming to IS:2074. wooden posts shall be treated with fungus resisting approved paint before fixing. Concrete posts shall be painted with two coats of cement wash

#### 1.4.1 **Concertina Coil Fencing**

Concertina coil fencing shall be dia 600 mm (having 50 nos round per 6 meter length), spring core (2.5 mm thick) wire of high tensile strength of 165 kg./sq.mm with tape (0.52 mm thick) and weight 43.478 gm/metre.

Spacing of Posts & Struts: The spacing of posts shall be 2.4 m or 3.00 m apart centre to centre, unless otherwise specified or as per Engineer-in Charge to suit the dimension of the area to be fenced. Every 15th last but one end posts and corner posts shall be strutted on both sides and end posts on one side only.

Fixing: Concertina coil fencing shall be fixed on angle iron shaped with 9 horizontal reinforced barbed tape (RBT) stud tied with GI staples and GI clips to retain horizontal including necessary bolts or GI barbed wire tied to angle iron all complete as per directions of Engineer-in-Charge with reinforced barbed tape.

1.5 **Aluminium window** The top, bottom, intermediate and side frame of the window shall be 101.6 mm x 44.45 mm x 3.2 mm thick anodized aluminium section of approved make (INDAL or any other approved equivalent) respectively and side hung 18 mm x 18 mm x 0.75 mm thick anodized aluminium bead shall be fixed to glass on both faces. The window shall be fixed as per IS:1948.

#### 1.6 **Aluminium Double Glazed Doors, Windows & Ventilators**

The frame section shall be anodized aluminium extruded built-up standard and other sections of approved make conforming to IS:733 and IS:1285. Extruded anodised aluminium box sections having wall thickness not less than 2.5 mm to accommodate two numbers 6 mm thick toughened float glasses of approved quality with an air gap of 12 mm hermetically factory sealed shall be used. Glazing shall be fixed to the shutter framings with snap on beads and approved quality neoprene gaskets.

The frames shall be securedly fixed to masonry work with rawl plugs and screws or with fixing clips or with expansion hold fasteners including necessary filling up of gaps at junctions at top, bottom and sides with required sealant. Aluminium sections shall be smooth, rust free, straight, mitred and jointed wherever required including cleat angles, Chromium Plated brass/Stainless Steel screws all complete for shutters of doors, windows and ventilators including provision double/single action floor spring (IS:6315)/hinges, handles, weather strips, bolting and locking arrangements, all materials and method of fixing as per manufacturer's specifications.

#### **Aluminium Joinery**

Anodized Aluminium joinery shall conform to the requirements specified in IS:1948 and IS:1949 and shall be of INDAL or equivalent reputed make. The average thickness of nodic coat shall not be less than 20 microns (IS: 7088) and shall be matt finished.

Aluminium doors, windows, ventilators shall be made of Aluminium alloy conforming to IS: 733 and sections shall generally conform to IS: 1948. Coupling members forming composite sections shall be of extruded true right angle. For side hung shutters. hinges shall normally be of projecting type made of Aluminium alloy and riveted / machine jointed to frame and shall have stainless steel / Aluminium alloy pins. Irrespective of the hinges being anodized or not. the Aluminium alloy pins shall be anodised to a minimum film thickness of 25 microns and shall be sealed with oil or wax.

Handles, peg stays shall be of approved heavy-duty quality Aluminium or its alloy conforming to IS specifications.

The door frame and shutters shall be single action or double action as per requirement with hydraulic

door closer in the floor. The doors shall be provided with anodized Aluminium door handles for full width of door inside and outside. The door frame shall be provide with approved anchors spaced not more than 900mm centres.

Before erecting, frames coming into contact with concrete masonry, plaster or dissimilar metals, shall be coated with a thick layer of clear transparent lacquer based on methacrylates or cellulose butyrate, which is compatible with zinc chromate to protect the surface from wel cement during installation. This lacquer coating shall be removed after installation is completed. Before handling over, the Aluminium work shall be washed with mild solution of non-alkali soap and water.

Gaskets to be used shall be made of neoprene/EDPM of approved make and shall be approved by the E-I-C before fixing in position. The sealant shall be of approved make and shall be duly approved before application. Alluminium doors, windows and ventilators after fixing in position shall be watertight and airtight.

Aluminium material used shall be specially anodised for protection against corrosion in marine environment in approved shade. The anodic coating shall conform to IS: 1868 and shan be of AC25 grade with minimum thickness of 20 microns when measured as per IS 660/2 and density shall be at least 32 MG/sq m. The anodic coating shall be double sealed or alternatively sealed with steam and shall be of minimum thickness of 50 microns. The anodic coating shall be tested in a laboratory by Eddy current method as per IS: 6012 for thickness Sulphuric acid shall be used as the electrolyte for the anodic process.

**Hydraulic Door Closer** These shall conform to IS: 3564 and be of brand approved by the E-I-C for both left and right hand openings. All hardware and fixtures shall be made able to withstand repeated use. Door closer shall be suitable for doors weighing 61-80 kg. Each closer shall be guaranteed against manufacturing defect for one year and any defect found within this period shall be rectified or the closer replaced free of charge. Concealed door closures shall be either floor mounted or transoms sounded suitable for installation with metal doors. It shall conform to the performance requirements and endurance test stated in IS:3564.

### 1.9 Pressed Steel Door Frame

The frame shall be 105 x 60 x 1.67 mm thick pressed steel having best material as per IS:513. All joints shall be welded and necessary fittings and fixtures shall be as per IS:4351 and IS:1341 for holding the door frame in position. The frame shall be provided with UV resistant powder coated paint finish of approved make and shade over galvanisation (as per IS:1477).

#### 1.9.1 Pressed Steel Door Shutter

The top and intermediate rail of the panel door shall be 100 mm x 35 mm x 1.25 mm thick CRCA steel section and stiles. The bottom rail is made up of 200 mm x 35 mm x 1.25 mm thick CRCA sheet section. In case of flush door the shutter shall be made of 1.25 thick CRCA sheet on both sides welded over 35 mm x 18 mm x 1.25 mm thick pressed steel channels @ 300 c/c both ways.

Pressed steel doors shall be made from materials as per IS:513 and shall be provided with UV resistant powder coated paint finish of approved make and shade over galvanisation as per IS:277. The handles, locks, hinges, bolts and lugs shall be of approved make as per IS:4351.

**1.9.2 Paint Specifications** Primer coat with epoxy primer of 5-7 microns thick, finish painted with a polyester paint of 12-16 microns thick and back coated with alkyd lacker of 5-7 microns or powder coated with pure polyester powder upto 50-60 microns thick.

**1.9.3 Accessories Handle** made of high grade aluminium powder coated and with nylon receiver. Gaskets made of Ethyl Propylene Diamine Monomer (EPDM). Corner brackets made of CRCA with zinc phosphating. Mullion caps made of glass filled nylon.

**1.9.4 Fixing Details** The section are to be cut to length, mitre joined with corner bracket. Centre mullions are to be fixed using mullion cap. The above frames should be fixed to the concrete/masonry walls by means of self expanding screws.

### 1.10 Concrete pipes

Concrete pipes shall be non-pressure type and shall conform to IS:458 and the type of joints shall be as indicated in the approved drawings. The class of pipe shall be NP-2/NP-3 as per drawings and

shall be tested as per IS:3597. The workmanship of laying and jointing of RCC pipes shall conform to the requirements of IS 783. The type of joint shall be as per drawings. The contractor's scope shall include supply of all materials, fittings and accessories.

## **SECTION-11 -ROAD WORK**

### **1.0 ROAD WORK**

#### **1.1 General**

All road works i.e. Quality of material, construction of roads and quality of execution shall conform to specification for road and bridge works under Ministry of Road Transport and Highways (MORTH) (5<sup>th</sup> Revision). Road work shall be executed in a most professional way by deploying all mechanical equipment like vibratory rollers, smooth wheeled roller, hydraulic excavators, batch mixer, rock breaker, mobile crusher (if applicable), self-propelled paver finisher or motor grader, hot mix plant, tipper vehicles, plate compactor, bitumen pressure sprayer, compressor air cleaner etc. No additional amount shall be payable on account of using any mechanical equipment not listed above or may be directed further by the E-I-C for deployment during the construction work. Provided where any provision of the specification stated hereinafter is contrary to provision of specification for road and bridge works under Ministry of Road Transport and Highways (MORTH) (5<sup>th</sup> Revision), provision of the later shall prevail to the extent of such contradiction unless otherwise directed by the E-I-C.

#### **1.2 PREPARATION OF SUB-GRADE**

Bottom of excavation before laying of sub-base shall be prepared, watered and re-rolled for compaction with minimum six (6) passes of 80-100 kN power roller to the specified lines and cross fall (camber), to get the required CBR value of 4%/6% as per requirement. Any ruts or soft yielding places shall be corrected in an approved manner and rolled with minimum two passes of 80 – 100 kN smoothed wheeled roller with sprinkling of water to achieve the required dry density. Haulage of materials over the formed surface shall not be permitted. The maximum laboratory dry density and relative compactness of the sub-grade shall be as shown in Table 1.1 and 1.2 in Section-1 – Earthwork

The sub-grade shall comply with the following requirements to receive the granular sub-base course:

- a) No soft spots shall be present.
- b) It shall be properly drained during construction.
- c) The minimum compaction shall not be less than 98 per cent of maximum laboratory dry density as per IS:2720 (Part VIII). This should be ensured by taking sample from finished top and tested in laboratory.
- d) CBR value at sub-grade level shall not be less than specified value as mentioned above.

### **2.0 SUB-BASES (NON-BITUMINOUS) AND SHOULDERS**

#### **2.1 Granular Sub-Base**

##### **2.1.1 Scope**

This work shall consist of laying and compacting well-graded material on prepared subgrade in accordance with the requirements of these Specifications. The material shall be laid in one or more layers as subbase or lower sub-base and upper sub-base (termed as sub-base hereinafter) as necessary according to lines, grades and cross-sections shown on the drawings or as directed by the Engineer.

##### **2.1.2 Materials**

2.1.2.1 The material to be used for the work shall be natural sand, crushed gravel, crushed stone, crushed slag, or combination thereof depending upon the grading required. Use of materials like brick metal, Kankar and crushed concrete shall be permitted in the lower sub-base. The material shall be free from organic or other deleterious constituents and shall conform to the grading given in Table 1 and physical requirements given in Table 2. Grading's III and IV shall preferably be used in lower sub-

base. Gradings V and VI shall be used as a sub-base-cum drainage layer. The grading to be adopted for a project shall be as specified in the Contract. Where the sub-base is laid in two layers as upper sub base and lower sub-base, the thickness of each layer shall not be less than 150 mm.

2.1.2.2 If the water absorption of the aggregates determined as per IS:2386 (Part 3) is greater than 2 percent, the aggregates shall be tested for Wet Aggregate Impact Value (AIV) (IS:5640). Soft aggregates like Kankar, brick ballast and laterite shall also be tested for Wet AIV (IS:5640).

**Table -1 : Grading for Granular Sub-base Materials**

IS Sieve Designation	Percent by Weight Passing the IS Sieve					
	Grading I	Grading II	Grading III	Grading IV	Grading V	Grading VI
75.0 mm	100	-	-	-	100	-
53.0 mm	80-100	100	100	100	80-100	100
26.5 mm	55 –90	70-100	55-75	50-80	55-90	75-100
9.50 mm	35-65	50-80	–	–	35-65	55-75
4.75 mm	25 – 55	40-65	10-30	15-35	25-50	30-55
2.36 mm	20- 40	30-50	–	–	10-20	10-25
0.85 mm	–	–	–	–	2-10	–
0.425 mm	10-15	10- 15	–	–	0-5	0-8
0.075 mm	<5	< 5	< 5	< 5	–	0-3

**Table 2 : Physical Requirements for Materials for Granular Sub-base**

Aggregate Impact Value (AIV)	IS:2386 (Part 4) or IS:5640	40 maximum
Liquid Limit	IS:2720 (Part 5)	Maximum 25
Plasticity Index	IS:2720 (Part 5)	Maximum 6
CBR at 98% dry density (at IS:2720-Part 8)	IS:2720 (Part 5)	Minimum 30 unless otherwise specified in the Contract

### 2.1.3 Construction Operations

#### 2.1.3.1 Preparation of Sub-grade

Immediately prior to the laying of sub-base, the subgrade already finished as per Clause 1.2 described earlier (or as per Clause 301 or 305 of MORTH) as applicable shall be prepared by removing all vegetation and other extraneous matter, lightly sprinkled with water, if necessary and rolled with two passes of 80–100 kN smooth wheeled roller.

#### 2.1.3.2 Spreading and Compacting

The sub-base material of the grading specified in the Contract and water shall be mixed mechanically



by a suitable mixer equipped with provision for controlled addition of water and mechanical mixing. So as to ensure homogenous and uniform mix. The required water content shall be determined in accordance with IS:2720 (Part 8). The mix shall be spread on the prepared subgrade with the help of a motor grader of adequate capacity, its blade having hydraulic controls suitable for initial adjustment and for maintaining the required slope and grade during the operation, or other means as approved by the Engineer.

Moisture content of the mix shall be checked in accordance with IS:2720 (Part 2) and suitably adjusted so that, at the time of compaction, it is from 1 to 2 percent below the optimum moisture content.

Immediately after spreading the mix, rolling shall be done by an approved roller. If the thickness of the compacted layer does not exceed 100 mm, a smooth wheeled roller of 80 to 100 kN weight may be used. For a compacted single layer upto 200 mm the compaction shall be done with the help of a vibratory roller of minimum 80 to 100 kN static weight capable of achieving the required compaction. Rolling shall commence at the lower edge and proceed towards the upper edge longitudinally for portions having unidirectional cross fall or on super-elevation. For carriageway having cross fall on both sides, rolling shall commence at the edges and progress towards the crown.

Each pass of the roller shall uniformly overlap not less than one-third of the track made in the preceding pass. During rolling, the grade and cross fall (camber) shall be checked and any high spots or depressions which become apparent, corrected by removing or adding fresh material. The speed of the roller shall not exceed 5 km per hour.

Rolling shall be continued till the density achieved is at least 98 percent of the maximum dry density for the material determined as per IS:2720 (Part 8). The surface of any layer of material on completion of compaction shall be well closed, free from movement under compaction equipment and from compaction planes, ridges, cracks or loose material. All loose, segregated or otherwise defective areas shall be made good to the full thickness of layer and re-compacted.

#### **2.1.4 Surface Finish and Quality Control of Work**

The surface finish of construction shall conform to the requirements of Clause 902 of MORTH. Control on the quality of materials and works shall be exercised by the Engineer in accordance with Section 900 of MORTH

### **3.0 CONCRETE PAVEMENT:**

**General:** Concrete pavements shall be laid as per IRC: 15 – Standard specification and Specification for road and bridge works under Ministry of Road Transport and Highways (MORTH) (5<sup>th</sup> Revision) and as specified herein. For further details and whenever required these codes maybe referred:

- i) Design of concrete pavements (IRC 58.2015)
- ii) Guidelines on quality system for roads (IRC SP 57)
- iii) Guidelines for Cement Concrete Mix Design for Pavements (IRC:44)
- iv) Recommended Practice for Sealing of Joints in Concrete Pavements (IRC:57)
- v) Guidelines for use of construction and demolition waste in Road sector (IRC:121)
- vi) Guidelines for Maintenance, Repairs and Rehabilitation of Cement Concrete Pavements. (IRC:SP:83).
- vii) Tentative Guidelines for Conventional, Thin and Ultra Thin White topping (IRC:SP:76)

#### **3.1 Box cutting, sub-grade preparation, laying and compaction of sub-base**

The Pavement Quality Concrete (PQC) shall be laid on two layers of sub-base. Granular sub-base (GSB) acting as a lower sub-base and Dry Lean Concrete (DLC) acting as upper sub-base. GSB, the lower sub-base shall be laid over a previously prepared subgrade. Subgrade shall be of selected earth complying the following requirements:

- (i) No soft spots are present in the subgrade.
- (ii) The camber and super-elevation of subgrade shall be same as that of the DLC & PQC.

Box cutting, sub-grade preparation shall be done for the new road construction as specified in Clause no.1.2. Over the prepared subgrade, sub-base shall be laid and compacted as specified in Clause no. 2.0.

#### **3.2 Laying of dry lean concrete upper sub -base (DLC) layer:**

After compaction of lower aggregate sub-base drainage layer, an upper sub base layer of Dry Lean Concrete of specified grade shall be laid uniformly over the lower sub base as per IRC SP 49 and as shown in the drawings. The workmanship for laying of DLC shall conform to Section 3.4

**3.3 Laying of pavement quality concrete (PQC) layer:** After setting of the DLC layer, a layer of Pavement Quality Concrete (PQC) of specified grade shall be laid uniformly over the DLC layer maintaining the road crown level as shown in the drawing. The workmanship for laying of PQC shall conform to 8.4.

#### **3.3.1 Separation Membrane (as per Clause 602.5 of MORT&H)**

A separation membrane shall be used between the concrete slab and the sub-base. As per Clause 602.5 of MORT&H, the separation membrane shall be impermeable PVC sheet 125 micron thick transparent or white in colour laid flat with minimum creases. Before placing the separation membrane, the sub-base shall be swept clean of all the extraneous materials using air compressor. Wherever overlap of plastic sheets is necessary, the same shall be at least 300 mm and any damaged sheathing shall be replaced at the Contractor's cost. The separation membrane may be nailed to the lower layer with concrete nails.

In summer (when ambient temperature is more than 25°C), before placing separation membrane, the existing DLC surface shall be moist with water.

### **3.4 Material and workmanship for laying of Dry Lean Concrete (DLC) and Pavement Quality Concrete (PQC)**

#### **3.4.1 MATERIALS**

##### **3.4.1.1 Cement**

Any of the following types of cement capable of achieving the design strength may be used. The minimum 28 days compressive strength of the cement should not be less than 43 MPa:

- i) Portland-Pozzolana Cement IS:1489 (Part 1)
- ii) Ordinary Portland Cement IS:269 (43 Grade and 53 Grade) including 5% performance Improver (Mineral admixture etc. as per IS:269)

If the soil around concrete pavement has soluble salts, like sulphates in excess of 0.5 per cent, the cement used shall be Sulphate Resisting Portland Cement, IS:12330. The limits of sulphate concentration (as sulphur trioxide) is that limit where either it is more than 0.2% in subgrade soil or more than 0.3% in ground water. Cement used in both DLC and pavement quality concrete in such situations should be sulphate-resistant. If chlorides are present, Sulphate Resisting Cement shall not be used, and in such case Portland Slag Cement should be used.

Cement to be used may preferably be obtained in bulk. If cement in paper bags is proposed to be used, there shall be bag-splitters with the facility to separate pieces of paper bags and dispose them off suitably. No paper pieces shall enter the concrete mix. Bulk cement shall be stored either in vertical or horizontal silos. The cement shall be subjected to acceptance tests prior to its use

##### **3.4.1.2 Admixtures**

##### **i) Chemical Admixtures**

Admixtures conforming to IS:9103 may be used to improve workability of the concrete or extension of setting time, on satisfactory evidence that they will not have any adverse effect on the properties of concrete with respect to strength, volume change, durability and have no deleterious effect on embedded steel. Satisfactory performance of the admixtures should be proved both on the laboratory concrete trial mixes and in trial paving works. If air entraining admixture is used for improving the workability of the mix and to reduce bleeding, the total quantity of air in air-entrained concrete as a percentage of the volume of the concrete shall have  $4.5 \pm 1.5$  per cent entrained air for 31.5 mm



maximum size of aggregate and  $5.0 \pm 1.5$  per cent for 19 mm maximum size of aggregate.

In freezing weather, use of air entraining agent is recommended to counter the freezing and thawing effect with  $5.5 \pm 1.5$  per cent entrained air for 31.5 mm maximum size of aggregate and  $6.0 \pm 1.5$  per cent for 19 mm maximum size of aggregate. The maximum quantity of chemical admixture shall be 2 per cent by weight of cementitious materials

Compatibility and optimum dose of the particular admixture (from a specific manufacturer) with the specific cement type (from a particular manufacturing plant) to be used, shall be established by Marsh Cone Test as per ASTM C939. Concrete mix should be designed for a combination of a particular cement and admixture, and admixture supplier and type cannot be substituted without test confirming the required results.

#### **ii) Mineral Admixtures**

Mineral admixtures can improve the workability, long term strength and durability of concrete. The following materials may be added as mineral admixtures subject to their availability and corresponding policy guidelines regarding their usage by the Central/State Governments/Employer.

### **3.4.1.3 Aggregates**

Aggregates for pavement concrete shall be complying with IS:383:2016. The limits of deleterious materials shall not exceed the requirements set out in IS:383. The aggregates shall be free from chert, flint, chalcedony or silica in a form that can react with the alkalis in the cement. In addition, the total chlorides content expressed as chloride ion content shall not exceed 0.06 per cent by weight and the total sulphate content expressed as sulphuric anhydride ( $\text{SO}_3$ ) shall not exceed 0.25 per cent by weight. In case the aggregates are not free from dirt, the same may be washed and drained for at least 72 hours before batching.

No aggregate which has water absorption more than 2 per cent shall be used in concrete mix. All aggregates shall be tested for soundness in accordance with IS:2386 (Part V). After 5 cycles of testing, the loss shall not be more than 12 per cent if sodium sulphate solution is used or 18 per cent if magnesium sulphate solution is used, irrespective of their water absorption.

#### **3.4.1.3.1 Coarse aggregate**

Coarse aggregate shall consist of clean, hard, strong, dense, non-porous and durable pieces of crushed stone or crushed gravel and shall be devoid of pieces of disintegrated stone, soft, flaky, elongated, very angular or splintery pieces. The combined flakiness and elongation index shall not be more than 35 per cent. Aggregate Impact Value (AIV) shall not be more than 30 per cent. Limestone aggregate may be used conforming to IS:383. The maximum size of coarse aggregate shall not exceed 31.5 mm in PQC and 26.5 mm in case of DLC. Continuously graded aggregates may be used, depending on the combined grading of the coarse and fine aggregate.

#### **3.4.1.4 Fine aggregate**

The fine aggregate shall consist of clean natural sand or crushed stone sand or a combination of the two and shall conform to IS:383:2016. Fine aggregate shall be free from soft particles, clay, shale, loam, cemented particles, mica and organic and other foreign matter.

The fine aggregate shall not contain substances more than the following:

- i) Clay lumps : 1.0%
- ii) Coal and lignite : 1.0%
- iii) Material passing IS sieve No. 75 micron :
- iv) Natural sand : 3% by weight of natural sand
- v) Crushed Stone sand : 12% by weight of crushed stone
- vi) Blend of natural sand and crushed stone sand: shall not exceed 8% by total weight of fine aggregates.

Although IS:383 permits in the case of stone crushed sand, the fines passing 75 microns up to 15 per

cent, this provision should be used with caution when crushed stone sand is used as fine aggregate and when the mix produced in the Laboratory and the field is satisfactory in all respects and complies with the requirement of Specification.

**3.4.1.5 Combined gradation of fine aggregate and coarse aggregate in case of DLC and PQC:** Table 18 and Table 19 is recommended for combined gradation of fine and coarse aggregates in case of DLC (Dry Lean Concrete) and PQC (Paving Quality Concrete) respectively.

**Table 18: Aggregate gradation for Dry Lean Concrete**

Sl. No.	Sieve Size	Percentage passing by weight
1	26.50 mm	100
2	19.0 mm	75-95
3	9.50 mm	50-70
4	4.75 mm	30-55
5	2.36 mm	17-42
6	600 micron	8-22
7	300 micron	7-17
8	150 micron	2-12
9	75 micron (Wet Sieving)	0-5

**Note:** The above grading is applicable both for Natural River sand and crushed stone sand. For finding the fraction passing 75 micron, wet sieving of whole aggregate sample shall be performed.

**Table 19: Aggregate gradation for Pavement Quality Concrete**

Sieve Designation	Percentage Passing		
	31.5 mm Nominal Size	26.5 mm Nominal Size	19 mm Nominal Size
37.5 mm	100	100	100
31.50 mm	90-100	100	100
26.50 mm	85-95	90-100	100
19.0 mm	68-88	75-95	90-100
9.50 mm	45-65	50-70	48-78
4.75 mm	30-55	30-55	30-58
600 micron	8-30	8-30	8-35
150 micron	0-10	0-10	0-12
75 micron (Wet Sieving)	0-5* 0-2**	0-5* 0-2**	0-5* 0-2**

\*Crushed Sand, \*\*Natural sand

**Note:** The above grading is applicable both for Natural River sand and crushed stone sand

#### 3.4.1.4 **Steel Dowel Bars and Tie Bars**

These shall conform to the requirements of IS:432 and IS:1786 as relevant. The dowel bars shall conform to IS:432 of Grade I. Tie bars shall be Thermo-Mechanically Treated (TMT) bars conforming to IS:1786 and grade of Fe 500. If steel mesh is used, it shall conform to IS:1566. The steel shall be coated with appropriate anti-corrosive coating as per IS:13620.

#### 3.4.4 **Materials for joint construction:**

##### i) Pre-moulded joint filler:

Joint filler board for expansion joints shall be of 20-25 mm thickness within a tolerance of  $\pm 1.5$  mm and of a compressible synthetic material and having compressibility more than 25 percent as per relevant international standards. It shall be 25 mm less in depth than the thickness of the slab within a tolerance of  $\pm 3$  mm and provided to the full width between the side forms. It shall be in suitable length which shall not be less than one lane width. Holes to accommodate dowel bars shall be accurately bored or punched out to give a sliding fit on the dowel bars.

##### ii) Joint sealing:

The joint sealing compound shall be of hot poured, elastomeric type or cold type chemical based polysulphide or single chemical based silicone, or polyurethane having flexibility, durability and resistance to age hardening. If the sealant is of hot poured type, it shall be of rubberized bitumen and shall conform to AASHTO M 282 or ASTM: D 3406 and cold applied sealant shall be in accordance with BS: 5212 (Part 2).

**3.4.5 Fibers:** Fibers may be used subject to the provision in the drawings/approval by the Engineer in-charge to reduce the shrinkage cracking and post-cracking. The fibers may be steel fiber or polymeric synthetic fibers and shall conform to relevant international standards. The polymeric synthetic fibers shall be within the following range of specifications:

- Effective Diameter: 10 micron — 1000 micron
- Length: 6-48 mm
- Specific gravity: more than 1.0
- Suggested dosage: 0.6-2.0 kg/cum (0.2-0.6 percent by weight of cement in mix).
- Usage will be regulated as stipulated in relevant standards.
- Water absorption: less than 0.45 percent
- Melting point shall not be less than 160°C.
- The aspect ratio shall vary from 200 to 2000.
- Synthetic fibers shall have good alkali and UV light resistance.

When fibers are used, the mix shall be so designed that the slump of concrete at paving site shall be in the range of  $25 \pm 10$  mm and that in manual construction using needle vibrators for compaction, the slump shall not be more than  $40 \pm 10$  mm.

#### 3.4.6 **Workmanship for laying of DLC and PQC:**

**3.4.6.1 Placing of Concrete:** Concrete mixed in central mixing plant shall be transported to the site without delay and the concrete which has been mixed too long before laying will be rejected and shall be removed from the site. The total time taken from the addition of the water to the mix, until the completion of the surface finishing and texturing shall not exceed 120 minutes when concrete temperature is less than 25°C and 100 minutes when the concrete temperature is between 25°C to 30°C. Trucks/Tippers delivering concrete shall not run directly on plastic sheet nor shall they run on completed slabs until after 28 days of placing of concrete.

**3.4.6.2 Equipment:** The concrete shall be placed with an approved fixed form or slip form paver with independent units designed to (i) spread, (ii) consolidate from the mould, screed and float-finish, (iii) texture and cure the freshly placed concrete in one complete pass of the machine in such a manner that a minimum of hand finishing will be necessary and so as to provide a dense and homogeneous pavement in conformity with the plans and specifications. The paver shall be equipped with electronic

sensors to pave the slab to the required thickness, camber and alignment in the case of slip form pavers.

Vibrators shall operate at a frequency and spacing recommended by the manufacturer. The variable vibration setting shall be provided in the machine.

The placement of dowels can be done by either using Dowel Bar Inserter (DBI) or by prefixing the dowels on steel chairs to the sub-base. The DBI is normally fitted in the paver finisher. The progress of work is better when a DBI is employed.

**3.4.6.3 Use of guide-wires:** Where slip form paving is proposed, a guidewire shall be provided along both sides of the slab. Each guidewire shall be at a constant height above and parallel to the required edges of the slab as described in the contract/drawing within a vertical tolerance of  $\pm 2$  mm. Additionally, one of the wires shall be kept at a constant horizontal distance from the required edge of the pavement as indicated in the contract drawings within a lateral tolerance of  $\pm 10$  mm.

The guide-wires shall be supported on stakes not more than 6 m apart by connectors capable of fine horizontal and vertical adjustment. The stake to stake distance in case of paving at curve shall suitably be decreased. The guide-wire shall be tensioned on the stakes so that a 500 gram weight shall produce a deflection of not more than 20 mm when suspended at the midpoint between any pair of stakes. The ends of the guide-wires shall be anchored to fixing point or winch and not on the stakes.

The stakes shall be positioned and the connectors maintained at their correct height and alignment 12 hours on the day before concreting takes place until 12 hours after finishing of the concrete. The guide-wires shall be checked and tensioned on the connectors at any section at least 2 hours before concreting that section. The Engineer in charge shall inspect and approve the line and level, the stakes and connectors which are ready for use in the length of road to be constructed at least 12 hours before the day of construction of slab. Any deficiencies noted by the Engineer in-charge shall be rectified.

**3.4.6.4 Construction by slip form paver:** The slip form paving train shall consist of power machine which spreads, compacts and finishes the concrete in a continuous operation. The slip form paving machine shall compact the concrete by internal vibration and shape it between the sides forms with either a conforming plate or by vibrating and oscillating finishing beams. The concrete shall be deposited without segregation in front of slip form paver across the whole width and to a height which at all times is in excess of the required surcharge. The deposited concrete shall be struck off to the necessary average and differential surcharge by means of the strike off plate or a screw auger device extending across the whole width of the slab.

The level of the conforming plate and finishing beams shall be controlled automatically from the guide-wires installed as per Clause 3.4.6.3 by sensors attached at the four corners of the slip form paving machine.

Slip form paving machines shall have vibrators of variable output, with a maximum energy output of not less than 2.5 KW per meter width of slab per 300 mm depth of slab for a laying speed upto 1.5 m per minute or pro-rata for higher speeds. The pace of construction of slabs shall desirably not be less than 1 m per minute. The capacity of the batching plant should be sufficiently more than this requirement so that the paver remains in motion without stoppages for want of mix. This factor is essential for achieving better riding

**3.4.6.5 Surface texturing:**

i) Tinning: After final floating and finishing of the slab and before application of the liquid curing membrane preferably two coats, the surface of concrete slabs shall be textured either in the transverse direction (i.e., at right angles to the longitudinal axis of the road) or in longitudinal direction (i.e., parallel to the centerline of the roadway). The texturing shall be done by tining the finished concrete surface by using rectangular steel tines. A beam or a bridge mounted with steel tines shall be equipped and operated with automatic sensing and control devices from main paver or auxiliary unit. The tining unit shall have facility for adjustment of the downward pressure on the tines as necessary to produce the desired finish.

ii) Brush texturing:



Alternatively on the instructions of the Engineer in -charge, the brush texturing may be applied. The brushed surface texture shall be applied evenly across the slab in one direction by the use of a wire brush not less than 450 mm wide but wider brushes normally of 3 m length are preferred. The brush shall be made of 32 gauge tape wires grouped together in tufts placed at 10 mm centres. The tufts shall contain an average of 14 wires and initially be 100 mm long. The brush shall have two rows of tufts. The rows shall be 20 mm apart and the tufts in one row shall be opposite the centre of the gap between tufts in the other row. The brush shall be replaced when the shortest tuft wears down to 90 mm length.

Texture depths shall not be less than the minimum required when measurements are taken as given in Table 8 nor greater than a maximum average of 1.25 mm

Table-8 texture depth

Sl. No.	Time of Specified	Tolerance	Number of Test Measurements	Texture Depth (mm) Required	
1)	Between 24 hours and 7 days after the construction of the slab or until the slab is first used by vehicles.		An average of 5 measurements	1.00	±0.25
2)	Not later than 6 weeks but before the road is opened to public traffic.		An average of 5 measurements	1.00	+0.25 -0.35

Where the texture depth requirements are found to be deficient, the Contractor shall make good the texture across the full lane width over length as directed by the Engineer incharge, by re-texturing the hardened concrete surface in an approved manner. The edges of the concrete slabs shall be rounded after texturing using an arising tool having a radius of 3 mm diligently without applying pressure to the surface to leave the pavement edges smooth and true to line. The surface shall be brush textured and cured within the time to completion given in Table 9

Table 9- Maximum working time

Temperature of concrete at discharge from the delivery vehicle	Reinforced Concrete Slabs Consumed in Two layers		All other Concrete Slabs	
	Mixing first layer to finishing concrete	between layers	Mixing first layer to finishing concrete	between layers in 2 layer work
Not more than 25 °C	3 hours	1/2 hour	3 hours	1 1/2 hours
Exceeding 25 °C	2 hours	1/2 hour	2 hours	1 hour
Exceeding 30 °C	unacceptable for paving		unacceptable for paving	

**3.5.5.6 Construction by small paving machines, semi-mechanized or hand guided construction techniques:** As an alternative to fixed form or slip-form paving trains, the concrete slab may be constructed using parts of trains, small paving machines, truss type finishing beams, semi - mechanised or hand guided methods. Hand tamping beams may only be used for short lengths or infill bays or tapers. Reinforcement, dowel bars and tie bars shall be supported in position, except where two layer construction is used and reinforcement is placed on the bottom layer in a method of construction approved by the Engineer in charge.

Where semi-mechanised construction technique is adopted, concrete shall be deposited between the forms directly from head loads or wheel barrows. Where a certain amount of redistribution is necessary, it shall be done with shovels and not with rakes. The concrete shall be compacted with needle vibrators and vibrating screeds in semi-mechanised construction where a paver finisher is not available. Use of vibrator near side forms is essential to eliminate honeycombing. To effect adequate compaction, the concrete shall be placed with appropriate surcharge over the final slab thickness. The amount of surcharge will depend on the mode of placement of concrete and shall be determined by trial. In general, the required surcharge is about 20 percent of the required slab thickness. Any portion of the batch of concrete that becomes segregated while depositing it on sub-grade/sub-base shall be thoroughly mixed with the main body of the batch during the process of spreading. In case of unavoidable interruption, a full depth transverse joint shall be made at the point of stoppage of work provided the section on which the work has been suspended is about 2 to 3 m long.

Where semi-mechanized and labour-oriented technique is adopted, compaction of the pavement shall be accomplished by a vibrating screed supplemented by plate/internal vibrators. For slabs of thickness more than 125 mm, vibrating screeds maybe supplemented by portable needle vibrators. The vibrating screed shall rest on side forms. It shall be lowered vertically on to the concrete surface, evenly spread to the appropriate level above the base to provide the required surcharge for compaction; allowed to remain in position for a few seconds until compaction is complete, then lifted vertically and lowered to the adjacent strip of un-compacted concrete. The amplitude of vibration of the screed shall not be less than 1.5 mm and the speed of travel not more than 0.6 m per minute. The screed shall again be taken slowly over the surface, sliding with its axis slightly tilted away from the direction of sliding and the operation repeated until the required dense, close knit textured surface is obtained. Compaction of concrete slabs upto 125 mm thickness may be done by means of vibrating screed alone, while for thickness greater than 125 mm both internal vibrators, like, needle and vibrating screeds shall be used.

#### **3.5.5.6.1 Floating and straight edging:**

As soon as practicable after the concrete has been compacted, its surface shall be smoothed by means of a longitudinal float, operated from a foot-bridge. The longitudinal float shall be worked with a sawing motion, while held in a floating position parallel to the carriageway centre-line and passed gradually from one side of the pavement to the other.

Forms shall not be removed from freshly placed concrete unit it has set, or at least 12 hours, whichever is later. They shall be carefully removed in such a manner that no damage is done to the edges of the pavement. After the forms have been removed, the slab edges shall be cleaned and any limited honeycombed areas pointed with 1:2 cement: sand mortar, after which the sides of the slab shall be covered with wet hessian for curing.

After the longitudinal floating has been completed, the excess water has disappeared, but while the concrete is still plastic, the slab surface shall be tested for trueness with a 3 m straight edge. The straight edge shall be held in successive positions parallel to the road centre-line in contact with the surface and the whole area gone over from one side of the slab to the other. Advance along the road shall be in successive stages of not more than one-half length of the straight edge. As mentioned in previous section, the surface shall be brush textured and cured within the time to completion given in Table 9.

#### **3.5.5.7 Placement dowel bars and tie bars:**

**Dowel bars:** Transverse joints shall be provided with dowels and of the dimension and at the spacing and location indicated on the drawing. They shall be firmly supported in place, accurately aligned parallel to the sub-grade/subbase, parallel to each other and parallel to the centre line of the pavement, by means of appropriate dowel supports/chairs.

**Tie bars:** Tie bars are provided in longitudinal joints to prevent opening of such joints and shall be bonded to the adjacent slabs on both sides of the longitudinal joint. These are installed by providing appropriate chair or these are installed by providing appropriate (drilled) holes in the side forms depending on the size and spacing of bars. These are sometimes bent aside temporarily to avoid obstruction to construction traffic and straightened later at the time of laying of slab in the adjacent



lane.

**3.5.5.8 Curing of concrete:** Immediately after the finishing the surface texturing operation, the entire surface and sides of the newly laid concrete slab shall be cured by application of resin based aluminized reflective type or white pigmented curing compound which hardens into an impervious film or membrane with the help of a mechanical sprayer.

In addition to spraying of curing compound, fresh concrete surface shall be protected for at least 3 hours by covering the finished concrete pavement with tents mounted on mobile trusses. After 3 hours, the pavement shall be covered by moist hessian laid in two layers and the same shall be kept damp for a minimum period of 14 days after which the hessian may be removed. In case of blended cement curing shall be done for 16 days.

The water used for curing shall also be free from all injurious chemicals like chlorides and sulphates and shall meet the requirements and shall meet the requirements of IS 456.

#### 4.0 TRAFFIC SIGNS

The colour, configuration, size of location of all traffic signs for highways is in accordance with IRC 67-1977, or as shown in drawings. The signs shall be either reflectorized or non-reflectorized as shown on the drawings or as directed.

**4.1 Materials:** The various materials and fabrication of the Traffic Signs shall conform to Ministry of Surface Transport, Specifications for roads and bridge works – (Fifth revision).

**4.2 Installation:** Sign posts, their foundations and sign mountings shall be as indicated in the drawings.

#### 5.0 ROAD MARKINGS

The colour width and layout of road markings shall be in accordance with the code of practice for road markings with paints IRC – 35 – 1970.

**5.1 Lane Markings:** Traffic lane lines shall be single broken lines, their width shall be 10 cm (4 inches) and the length of segments and gaps shall be as under:

On straight reaches	1.5 metres segments and 4.5 metres gaps
On curves and Approaches	1.5 metres segments and to intersection 1.5 metres gaps

- 1. Arrow Markings:** The size and location shall be as indicated in the drawings.

#### 6.0 METAL BEAM CRASH BARRIERS (as per Clause 811.3 of MORTH)

##### 6.1 Materials

**6.1.1** Metal beam rail shall be corrugated sheet steel beams of the class, type, section and thickness indicated on the drawings. Railing posts shall be made of steel of the section, weight and length as shown on the drawings. All complete steel rail elements, terminal sections, posts, bolts, nuts, hardware and other steel fittings shall be galvanized. All elements of the railing shall be free from abrasions, rough or sharp edges and shall not be kinked, twisted or bent.

**6.1.2** The “W” beam type safety barrier shall consist of a steel post and a 3 mm thick “W” beam rail element. The steel post and the blocking out spacer shall both be channel section of 75 mm x150 mm & size 5 mm thick. The rail shall be 70 cm above the ground level and posts shall be spaced 2 m center-to-center. Double “W” beam barrier shall be as indicated in IRC:5-1998.

The thrie beam safety barrier shall have posts and spacers similar to the ones mentioned above for “W” beam type. The rail shall be placed at 85 cm above the ground level.

The “W” beam, the thrie beam, the posts, spacers and fasteners for steel barriers shall be galvanized by hot dip process (zinc coated, 0.55 kg per square metre; minimum single spot) unless otherwise specified. The galvanizing on all other steel parts shall conform to the relevant IS Specifications. All

fittings (bolts, nuts, washers) shall conform to the IS:1367 and IS:1364. All galvanizing shall be done after fabrication.

6.1.3 Concrete for bedding and anchor assembly shall conform to Sec 4 of this specification.

## 6.2 Construction Operations

6.2.1 The line and grade of railing shall be true to that shown on the plans. The railing shall be carefully adjusted prior to fixing in place, to ensure proper matching at abutting joints and correct alignment and camber throughout their length. Holes for field connections shall be drilled with the railing in place in the structure at proper grade and alignment.

6.2.2 Unless otherwise specified on the drawing, railing steel posts shall be given one shop coat of paint (primer) and three coats of paint on structural steel after erection, if the sections are not galvanized. Any part of assembly below ground shall be painted with three coats of red lead paint.

6.2.3 Splices and end connections shall be of the type and designs specified or shown on the plans and shall be of such strength as to develop full design strength of the rail elements.

## 6.3 Installation of Posts

6.3.1 Holes shall be dug or drilled to the depth indicated on the plans or posts may be driven by approved methods and equipment, provided these are erected in proper position and are free from distortion and burring or any other damage.

6.3.2 All post holes that are dug or drilled shall be of such size as will permit proper setting of the posts and allow sufficient room for backfilling and tapping.

6.3.3 Holes shall be backfilled with selected earth or stable materials in layers not exceeding 100 mm thickness and each layer shall be thoroughly tamped and rammed. When backfilling and tamping are completed, the posts or anchors shall be held securely in place.

6.3.4 Post holes that are drilled in rock and holes for anchor posts shall be backfilled with concrete.

6.3.5 Posts for metal beam guardrail on bridges shall be bolted to the structure as detailed on the plans. The anchor bolts shall be set to proper location and elevation with templates and carefully checked.

## 6.4 Erection

6.4.1 All guard rail anchors shall be set and attachments made and placed as indicated on the plans or as directed by the Engineer.

6.4.2 All bolts or clips used for fastening the guardrail or fittings to the posts shall be drawn up tightly. Each bolt shall have sufficient length to extend at least 6 mm through and beyond the full nut, except where such extensions might interfere with or endanger traffic in which case the bolts shall be cut off flush with the nut.

6.4.3 All railings shall be erected, drawn and adjusted so that the longitudinal tension will be uniform throughout the entire length of the rail.

## 6.5 End Treatment for Steel Barrier

6.5.1 End treatments shall form an integral part of safety barriers which should not spear, vault or roll a vehicle for head-on or angled impacts. The two end treatments recommended for steel barriers are "Turned-down-guardrail" and "Anchored in back slope", as shown on the drawings or as directed by the Engineer.

## 6.6 Tolerance

The posts shall be vertical with a tolerance not exceeding 6 mm in a length of 3 m. The railing barrier

shall be erected true to line and grade.

## 7.0 QUALITY CONTROL FOR ROAD WORK

7.1 **General:** All materials to be used, all methods adopted and all works performed shall be strictly in accordance with the requirement of these specification and as per requirements of Section 900 of MORTH. The Contractor shall set up a field laboratory at locations approved by the E-I-C and equipment at the same with adequate and personnel in order to carry out all required tests and quality control work as per specification/as directed by E-I-C.

7.2 The method of sampling and testing of materials shall be as required by Clause 903 of MORTH (5th Revision) and also as per stipulations mentioned in the "Handbook of Quality Control for Construction of Roads and Runways" (IRC:SP:11)

7.3 All materials which the E-I-C has determined as not conforming to the requirements of the specification shall be rejected and removed from the site with immediate effect as directed. Materials which have been subsequently corrected, shall not be used in the work unless otherwise approval is accorded from E-I-C.

7.4 **Rectification:** The rectification work (if required) shall be done as per the direction of E-I-C and/or as per the specification for road and bridge works under Ministry of Road Transport and Highways (MORTH) (5<sup>th</sup> Revision).

## SECTION 12 – DISMANTLING/DEMOLITION WORK

1.1 **Planning** Before starting the actual dismantling work, the Contractor shall carefully study the structures/ buildings/equipment to be dismantled/demolished and of the manner in which various parts are supported and also how far the stage by stage demolition will affect the safety of the adjoining structures, if any. The Contractor shall then prepare a definite plan of the procedure for systematic demolition and submit to the E-I-C for his approval. The plan of procedure as approved by the E-I-C shall be rigidly followed in actual execution of the demolition work.

1.2 **Working Condition** The dismantling operations if required to be carried out in an operating plant shall be done without any hindrance to the plant operation activities.

All dismantling work shall be carried out in a phased manner as approved by the E-I-C.

### 1.3 Safety

The Contractor shall take adequate precautions to ensure complete safety of all installations and the operational personnel working in the region, while carrying out the dismantling work and transportation.

All safety codes as prescribed by the Employer for working in the plant area and the safety codes prescribed by other mandatory bodies shall be followed by the Contractor while dismantling.

On all demolition works, safety signals like danger boards, red lights, safety net etc as needed and/or as directed shall be conspicuously exhibited and the area of demolition shall be kept barricaded or kept manned to prevent trespassing by unauthorized persons.

First-aid equipment shall be kept at the site of demolition work of any magnitude for emergency use.

Personal safety equipment as mentioned hereunder shall be made available for the use of persons employed on the demolition work and maintained in good condition.

- i) Safety helmets and shoes to workmen entering into dismantling site.
- ii) Goggles preferably made of celluloid lens to workmen employed on demolition of walls, floors, etc to protect the eyes from flying pieces, dirt, dust etc,
- iii) Gloves to workmen engaged on demolishing RCC work, removing steelwork etc.

iv) Safety belts, fall arrestor to workmen working at height.

#### **1.4 Tools and Tackles**

1.4.1 All tools and tackles and equipment viz diamond sawing machine for cutting floor panels, chipping guns, hydraulically operated rock and concrete splitter, rock breaker, pneumatic/paving breaker, core cutter, gas cutting set, movable/crawler crane etc as required for dismantling/demolition shall be arranged by the Contractor.

#### **1.5 Scope of Dismantling/Demolition**

1.5.1 On being given the clearance for dismantling of building/structure/equipment, the Contractor shall take over the area for dismantling and shall shut-off all utility lines and disconnect power lines etc. The Contractor shall then check up all the closed valves of the utility lines like gas lines, oil lines, compressed air line, water line, steam line etc. All these lines shall then be provided with suitable blanking arrangements at the tapping points or at suitable points approved by the E-I-C before the dismantling work is undertaken.

1.5.2 Similarly, all the power cables, bus bars, control cables, instrument cables, earthing etc shall be disconnected from the supply sources at suitable locations as approved by the E-I-C.

#### **1.5.3 Structural**

All columns, supports, platforms, covers, railings, ladders, stairs, roofs, girders etc shall be dismantled from their erected position without any damage. In case existing structures require to be cut, the Contractor shall take prior permission of the E-I-C. All rivets and welding shall be burnt out to dismantle the structures. All bolts and nuts shall be opened out to the extent possible.

#### **1.5.7 Utility piping and equipment**

All instruments and controls including connecting cables installed shall be dismantled without damaging the same.

#### **1.5.8 Demolition of civil works**

All concrete and other civil construction works shall be dismantled up to a level 500 mm below the existing ground level if and where no new foundations are interfering. In case the new foundations/structure interfere then the concrete and other civil construction work will have to be dismantled fully.

#### **1.5.9 Disposal**

All the equipment dismantled under clauses 1.5.1 to 1.5.8 above (both inclusive) shall be transported to the disposal yard or scrap and salvage stores of Employer to the stores as directed by E-I-C.

For dismantling of roadwork, all dismantled materials shall be broken to pieces whose volume shall not exceed 0.02 cum and stockpiled at designated location if the material is to be used later or otherwise arranged for disposal as directed by E-I-C.

All dismantled muck shall be transported out, dumped and leveled in the dumping place allotted by the E-I-C. Dismantled muck shall not be allowed to be heaped up in the operating area of the plant and hence the muck shall be disposed off expeditiously.

During dismantling care shall be exercised to see that the dust arising out of dismantling is kept down by the frequent spraying of water.

#### **1.6 Jungle Clearance**

Jungle clearance shall comprise uprooting of rank vegetation, grass, brushwood, shrubs, stumps, trees and saplings of girth upto 30 cm measured at a height of one metre above the ground level. Where only clearance of grass is involved it shall be measured and paid for separately.

#### **1.6.1 Uprooting of vegetations**

The roots of trees and saplings shall be removed to a depth of 60 cm below ground level

or 30 cm below formation level or 15 cm below sub-grade level, whichever is lower. All holes or hollows formed due to removal of roots shall be filled up with earth rammed and levelled. Trees, shrubs, poles, fences, signs, monuments, pipe lines, cable etc., within or adjacent to the area which are not required to be disturbed during jungle clearance shall be properly protected by the contractor at his own cost and nothing extra shall be payable.

#### **1.6.2 Stacking and disposal**

All useful materials obtained from clearing and grubbing operation shall be stacked in the manner as directed by the Engineer-in-Charge. Trunks and branches of trees shall be cleared of limbs and tops and stacked neatly at places indicated by the E-I-C. The materials shall be the property of the Employer. All unserviceable materials which in the opinion of the E-I-C cannot be used or auctioned shall be removed up to a distance of 3 km outside the periphery of the area under clearance. It shall be ensured by the contractor that unserviceable materials are disposed off in such a manner that there is no likelihood of getting mixed up with the materials meant for construction.

#### **1.6.3 Clearance of grass**

Clearing and grubbing operation involving only the clearance of grass shall be measured and paid for separately and shall include removal of rubbish upto a distance of 3 km outside the periphery of the area under clearance.

#### **1.6.4 Measurements**

The length and breadth shall be measured correct to the nearest cm and area worked out in square metres correct to two places of decimal.

#### **1.6.5 Rates**

The rate includes cost of all the operation described above.

### **1.6 Uprooting Trees**

#### **1.7.1 Cutting**

While clearing jungle, stumps upto and above 30 cm girth (measured at a height of one metre above ground level) to be cut, shall be approved by the E-I-C and then marked at site. Felling trees shall include taking out roots upto 60 cm below ground level or 30 cm below formation level or 15 cm below sub-grade level, whichever is lower.

All excavation below general ground level arising out of the removal of trees, stumps etc. shall be filled with suitable material in 20 cm layers and compacted thoroughly so that the surfaces at these points conform to the surrounding area. The trunks and branches of trees shall be cleared of limbs and tops and cut into suitable pieces as directed by the E-I-C.

#### **1.6.3 Stacking and disposal**

Wood, branches, twigs of trees and other useful material shall be the property of the Employer. The serviceable materials shall be stacked in the manner as directed by the E-I-C up to a lead of 3 km.

All unserviceable material, which in the opinion of E-I-C cannot be used or auctioned shall be removed from the area and disposed off as per the directions of the E-I-C. Care shall be taken to see that unsuitable waste materials are disposed off in such a manner that there is no likelihood of these getting mixed up with the materials meant for construction.

#### **1.7.3 Measurements**

Uprooting of trees up to and above 30 cm in girth (measured at a height of one metre above level) shall be measured in numbers according to the sizes given in the Bill of Quantities.

#### **1.7.4 Rate**

The rate includes the cost involved in all the operations described above. The contract unit rate for uprooting of trees upto and above 30 cm in girth shall include removal of stumps as well.

## **SECTION 13 – SPECIFICATION FOR STRUCTURAL STEEL WORK**

### **1.0 GENERAL**

This specification shall apply to Structural steelwork in cable gallery and gates only. Detail 'approved for construction drawings' will be provided during construction. Structures as mentioned in BOQ, has been considered as scope for Structural Steel.

Tenderer will provide all material, erection equipment, consumables, labour, maintenance staff, transportation and necessary tools & tackle whatever is required for execution of Structural Steel.

All type of structural steel materials, permanent bolts & nuts with washers and paint material will be supplied by successful bidder.

### **2.0 FABRICATION OF STEEL STRUCTURES**

#### **2.1 Material**

##### **2.1.1 Structural Steel**

Hot rolled steel sections and plates up to 20 mm thickness shall be semi-killed and conform to IS: 2062 Grade E 250 Quality A. Parallel flange sections and plates above 20 mm thickness shall be killed and conform to IS: 2062 Grade E 250 -Quality BR or BO. Steel grade E 250 need not be normalized. Chequered plates shall conform to IS: 3502/IS: 2062 Grade E 250 Quality A. If cold formed hollow sections are used, specific requirements laid down in IS:4923 shall be complied with. All structural steel shall be free from rust, scales, laminations, cracks, fissures and other surface defects.

##### **2.1.2 Bolts and Nuts**

All bolts and nuts shall conform to IS:1363 (parts 1 to 3) or IS:1364 (parts 1 to 6) as applicable. Nuts shall have property class conforming to IS:1367 (parts 1 to 20) compatible to the property class of the matching bolts.

##### **2.1.3 Washers**

Plain washers shall conform to IS:2016 unless otherwise specified. Each nut shall be provided with at least one washer. An additional double coil helical spring washer conforming to IS:6755 shall be provided.

#### **2.2 Scope of Work**

All fabrication of structural steelwork shall be in accordance with IS 800 (Latest edition) unless otherwise stated herein. The tolerance for fabrication of steel structures shall be in accordance with IS 7215. The scope of work under fabrication includes, but not limited to, the following:

- i) Preparation and supply of material indents, bolt lists and bought out items list.
- ii) Procurement and collection of all steel materials from market, including loading, transportation, unloading and stacking and storing on skids or supports.
- iii) Procurement and collection of all consumables like erection bolts nuts, washers, electrodes, etc., including allowance for spares and wastage.
- iv) Structural steelwork construction/design drawings shall be provided by E-I-C. Preparation and submission of fabrication drawings, modification /rectification sketches, as made drawings, erection drawings, bill of materials, bolts lists and shipping documents for approval of E-I-C shall be under the scope of tenderer.



- v) Cold straightening of section and plates, whenever they are bent and kinked.
- vi) Control Assembly of steel structural components at site fabrication yard, wherever required.
- vii) Preparation of steel structural surfaces for painting as provided in the specifications / drawings.
- viii) Application of painting at shop, as specified in the construction drawing/specifications.
- ix) Loading, transportation from fabrication workshop to site of erection and unloading of all steel structural components / units / assemblies.
- x) Preparation of As-Built drawings.

xi) The existing 'Work is Worship' gate shall be dismantled

### **2.3 Preparation of fabrication and erection drawings**

2.3.1 Fabrication drawings shall be prepared based on design drawings of steel structures.

2.3.2 Drawing shall be prepared in metric system as per IS: 696 and IS:813-1986. The fabrication drawings shall specify the following details:

- (i) Type, size and length of welds in case of welded connections, (specifying clearly shop or site weld). Length of weld specified shall be effective length (excluding end crates).
- (ii) In case of bolted joints, arrangement of bolts and specification of bolts, nuts etc. (specifying clearly shop and site bolts).
- (iii) Specification of electrode/wire flux.
- (iv) If required special provision to be mentioned in the drawings for handling of structures during and after fabrication.
- (v) Specification of paint and corresponding surface preparation for painting.
- (vi) General arrangement/markings plan.
- (vii) Material list indicating mark number-wise material requirement giving size, weight, material specification, identification number of each item, number of pieces required etc.
- (viii) Specification of preparation of mating surfaces in case of connection by HSFG bolts.
- (ix) Appropriate edge preparation in case of butt/groove welds in accordance with IS:9595-1980, for all plates and sections having thickness greater than 8 mm.
- (x) Erection clearances in order to facilitate smooth erection at site.
- (xi) Each erection piece shall be clearly identified by an erection mark in these drawings. All loose members shall be given part mark, which shall be 'wired on' the main erection piece for dispatch.

2.3.3 Fabrication drawings shall be prepared in such a manner that Structures can be dispatched from fabrication shop to erection site with maximum economic transportable size, so as to reduce work involved at site to a minimum.

2.3.4 Wherever there is risk of nuts becoming loose due to vibration, lock nuts shall be provided, or nuts shall be welded after alignment and tightening.

2.3.5 For all connections by permanent bolts, two nos. of washers shall be used in this fashion one washer bearing against the head and the other bearing against the nut.

### **2.4 Inspection & Testing**

- i) The E-I-C shall have free access at all times to those parts of tenderer's or his sub-tenderer's works which are concerned with the fabrication of steel works and shall be afforded all reasonable facilities

at all stages of preparation, fabrication and trial assemblies for satisfying himself that the fabrication is being undertaken in accordance with the provisions of relevant specification.

- ii) All gauges and templates, tools, apparatus, labour and assistance for checking shall be supplied by the tenderer free of charge. The E-I-C may at his discretion, check the test results obtained at the tenderer's works, by independent test at the Government Test House or elsewhere, and should the material so tested be found to be unsatisfactory, the cost of such test shall be borne by the tenderer.
- iii) Tenderer shall make all necessary arrangements for stage inspection by E-I-C during the fabrication at shop and incorporate all on-the-spot instructions/changes conveyed in writing to the tenderer.
- iv) Material improperly detailed or wrongly fabricated shall be reported to the E-I-C and shall be made good as directed. Minor misfits which can be remedied by moderate use of drift pins, and moderate amount of reaming and slight chipping may be corrected in that manner; if in the opinion of the E-I-C the strength or appearance of the structure will not be adversely affected. In the event the E-I-C directs otherwise, the items will be rejected and a completely new piece shall be fabricated. The cost of correcting errors shall be to the account of the tenderer.

v) The E-I-C shall have the power:

- a) To certify, before any structure is submitted for inspection, that the same is not in accordance with the contract, owing to the adoption of any unsatisfactory method of fabrication.
  - To reject any structure as not being in accordance with specifications & drawings.
  - To insist that no structure or parts of the structure once rejected is resubmitted for inspection/test, except in cases where the E-I-C authorized representative considers the defects as rectifiable.
- b) If, on rejection of structure by the E-I-C the tenderer fails to make satisfactory progress within the stipulated period, the E-I-C shall be at liberty to cancel the contract and fabricate or authorize the fabrication of the structures at any other place he chooses, at the risk and cost of the tenderer, without prejudice to any action being taken in addition to terms of General Conditions of Contract.
- c) The E-I-C decision regarding rejection shall be final and binding on the tenderer.
- d) The specifications prescribe various tests at specified intervals for ascertaining the quality of the work done. If the tests prove unsatisfactory, E-I-C shall have liberty to order the tenderer to re-do the work, done in that period and/ or to order such alterations and strengthening that may be necessary at the cost of the tenderer and the tenderer shall be bound to carry out such orders failing which the rectification/redone will be done by the Engineer through other agencies and the cost recovered from the tenderer.
- e) Notwithstanding any inspection at the workshop the E-I-C shall have the liberty to reject, without being liable for compensation any fabricated members or materials brought to site that do not conform to specifications/drawings.
- f) All rejected materials shall be removed from the site of fabrication by the tenderer at his own cost and within the time stipulated by the E-I-C.

### **3.0 Welding**

#### **3.1 General**

- i) All joints shall be welded unless noted otherwise on the design drawings.
- ii) Welding shall be in accordance with IS: 816, IS: 819: 1957, IS: 1024: 1999, IS: 1261: 1959, IS: 1323: 1982 and IS: 9595 as appropriate.
- iii) The tenderer shall make necessary arrangement for providing sufficient number of welding sets of the required capacity, all consumables, cutting and grinding equipment with requisite accessories/ auxiliaries, equipment & materials required for carrying out various tests such as dye penetration, magnetic particle, ultrasonic etc.
- iv) Adequate protection against rain, dust, snow & strong winds shall be provided to the welding personnel and the structural members during welding operation. In the absence of such a protection no welding shall be carried out. It shall be the responsibility of the tenderer to ensure that all welding is carried out in accordance with the terms of this specification and relevant BIS codes. The tenderer shall provide all the supervision to fulfill this requirement.

#### **3.2 Preparation of Member for Welding**

##### **i) Edge Preparation**

Edge preparation/beveling of fusion faces for welding shall be done strictly as per the dimensions shown in the drawings. In case, the same are not indicated, edges shall be prepared (depending on the type of weld indicated in the drawing) as per the details given in IS: 9595. Beveling of fusion faces shall be got checked and approved by the Engineer-in-Charge. The tolerances on limits of gap, root face & included angle shall be as stipulated in IS: 9595.

## **ii) Cleaning**

Welding edges and the adjacent areas of the members (extending up to 20mm) shall be thoroughly cleaned of all oil, grease, scale and rust and made completely dry. Gaps between the members to be welded shall be kept free from all foreign matter.

## **iii) Preheating**

Preheating of members shall be carried out as per IS: 9595 when the base metal temperature is below the requisite temperature for the welding process being used.

Preheating shall be done in such a manner that the parts, on which the weld metal is being deposited, are above the specified minimum temperature for a distance of not less than 75mm on each side of the weld line. The temperature shall be measured on the face opposite to that being heated. However, when there is access to only one face, the heat source shall be removed to allow for temperature equalization (1 minute for each 25mm of plate thickness) before measuring the temperature.

## **iv) Grinding**

- a) Column splices & butt joints of struts and compression members (depending on contact for load transmission) shall be accurately ground and close-butt over the whole section with a tolerance not exceeding 0.2mm locally at any place. In column caps & bases the ends of shafts together with the attached gussets, angles, channels etc., shall be accurately ground so that the parts connected butt over minimum 90% surface of contact. In case of connecting angles or channels, care shall be taken so that these are fixed with such accuracy that they are not reduced in thickness by grinding by more than 2 mm.
- b) Ends of all bearing stiffeners shall be ground to fit tightly at both top and bottom. Similarly bottom of the knife edge supports along with the top surface of column brackets shall be accurately ground to provide effective bearing with a tolerance not exceeding 0.2 mm locally at any place.
- c) Slab bases and caps shall be accurately ground over the bearing surfaces and shall have effective contact with the ends of stanchions. Bearing faces which are to be grouted direct to foundations need not be ground if such faces are true & parallel to the upper faces.

## **3.3 Welding Processes**

Welding of various materials under this specification shall be carried out using one or more of the following processes:

- Manual Metal Arc Welding Process (MMAW)
- Submerge Arc Welding Process (SAW)
- Gas Metal Arc Welding Process (GMAW)

The welding procedure adopted and consumables used shall be specifically approved by the Engineer-in-Charge. A combination of different welding processes or a combination of electrodes of different classes/make may be deployed for a particular joint only after qualifying the welding procedures to be adopted and obtaining the written approval of the Engineer-in-Charge. Welding procedure shall cover the following:

- Type and size of electrodes
- Position of welding

- Current and arc voltage
- Length of run per electrode or (for automatic welding) speed of travel of electrode
- Number of run in multipass welds and arrangement
- Preparation of the parts
- Welding sequence
- Pre or post heating

### 3.4 Approval & Testing of Welders

The tenderer shall satisfy the Engineer-in-Charge that the welders are suitable for the work upon which they will be employed. For this purpose the welders shall have satisfied the relevant requirements of IS: 7318. If the welders will be working to approved welding procedures, they shall have satisfied the relevant requirements of IS: 7310.

Adequate means of identification shall be provided to enable each weld to be traced to the welder by whom it was made. The tenderer shall intimate the Engineer-in-Charge sufficiently in advance, the commencement of tests, to enable him to be present to witness the same.

### 3.5 Approval & Testing of Welding Procedures

The tenderer shall carry out procedure tests in accordance with IS: 7307 to demonstrate by means of a specimen weld of adequate length on steel representative of that to be used, that he can make welds with the welding procedure to be used for the work to the complete satisfaction of the Engineer-in-Charge. The test weld shall include weld details from the actual construction and it shall be welded in a manner simulating the most unfavorable instances of fit-up, electrode condition etc., which are anticipated to occur on the particular fabrication. Where material analysis is available, the welding procedure shall be carried out on material with the highest carbon equivalent values.

After welding, but before the relevant tests given in IS: 7307 are carried out, the test weld shall be held as long as possible at room temperature, but in any case not less than 72 hours, and shall then be examined for cracking. The examination procedure shall be sufficiently rigorous to be capable of revealing significant defects in both parent metal & weld metal.

After establishing the welding method, the tenderer shall finally submit to the Engineer-in-Charge for his approval the welding procedure specification in standard format given in IS: 9595 before starting the fabrication.

### 3.6 Sequence of Welding

- i) As far as practicable, all welds shall be made in a sequence that will balance the applied heat of welding while the welding progresses.
- ii) The direction of the general progression in welding on a member shall be from points where the parts are relatively fixed in position with respect to each other towards points where they have a greater relative freedom of movement.
- iii) All splices in each component part of a cover-plated beam or built up member shall be made before the component part is welded to other component parts of the member.
- iv) Joints expected to have significant shrinkage shall be welded before joints expected to have lesser shrinkage.
- v) Welding shall be carried continuously to completion with correct number of runs.
- vi) The tenderer shall choose the welding sequence after carefully studying each case such as to minimize distortion and shrinkage & submit the same to the Engineer-in-Charge for comments and approval.
- vii) The welding seams shall be left to cool slowly. The tenderer shall not be allowed to cool the welds quickly by any other method.
- viii) For multi-pass welding, before welding the following layer the formerly welded layer shall be cleaned metal bright by light and wire brushing.

### 3.7 Welding Technique

- i) After the fusion faces are carefully aligned and set with proper gaps, the root pass of butt joints shall be executed properly so as to achieve full penetration with complete fusion of the root edges.
- ii) On completion of each run all slag and spatters shall be removed and the weld and the adjacent base metal shall be cleaned by wire brushing and light chipping. Visible defects such as cracks, cavities and other deposition faults, if any, shall be removed to sound metal before depositing subsequent run of weld.
- iii) All full penetration butt welds shall be completed by chipping/gouging to sound metal and then depositing a sealing run of weld metal on the back of the joints. Where butt welding is practicable from one side only, suitable backing steel strip shall be used and joint shall be arranged in such a way as to ensure that complete fusion of all the parts is readily obtained.
- iv) While welding is in progress care shall be taken to avoid any kind of movement of the components, shocks, vibrations to prevent occurrence of weld cracks.
- v) Any deviation desired from the recommended welding technique and electrodes shall be adopted only after obtaining written approval of the Engineer-in-Charge.

### 3.8 Inspection & Testing of Welds

The method of inspection shall be according to IS: 822: 1970 and extent of inspection and testing shall be in accordance with the relevant applicable standard or, in the absence of such a standard, as specified by the Engineer-in-Charge. Welds shall not be painted or otherwise obscured until they have been inspected, approved and accepted.

The Engineer-in-Charge or his representative shall have access to the tenderer's work at all reasonable times and the tenderer shall provide him with all facilities necessary for inspection during all stages of fabrication and erection with, but not limited to, the following objectives.

- i) To check the conformity with the relevant standards and suitability of various welding equipment and their performance.
- ii) To witness/approve the welding procedure qualification.
- iii) To witness/approve the welders performance qualification.
- iv) To check whether shop/field welding being executed is in conformity with the relevant specifications and codes of practice.

Inspection and testing of all fabricated structures shall be carried out by the tenderer by any, or, a combination of all the following methods as directed by the Engineer-in-Charge and no separate payment shall be made, unless otherwise mentioned, for inspection and testing of welds/fabricated structures:

#### 3.8.1 Visual inspection

- i) All finished welds (i.e. 100 percent) shall be visually inspected for identification of the following types of weld defects & faults.
- ii) Weld defects occurring at the surface such as blow holes, exposed porosity, un-fused welds etc.
- iii) Surface cracks in the weld metal or in the parent metal adjacent to it.
- iv) Damages to the parent metal such as undercuts, burning, overheating etc.
- v) Profile defects such as excessive convexity or concavity, overlapping, unequal leg lengths, excessive reinforcement, incompletely filled grooves, excessive penetration beads, root grooves etc.
- vi) Distortion due to welding i.e., local shrinkage, camber, bowing, twisting, rotation, wariness etc.
- vii) Linear eccentric, angular and rotational misalignment of parts.
- viii) Dimensional errors.

#### 3.8.2 Mechanical tests

The mechanical testing (such as tensile load tests, bend tests, impact tests etc.) shall be done in accordance with the relevant standards and as per the instructions of the Engineer-in-Charge.

### 3.9 Repair of Faulty Welds

No repair of defective welds shall be carried out without proper permission of the Engineer-in-Charge and his approval for the corrective procedure.

Welds not complying with the acceptance requirements (as specified by BIS Codes & the Engineer-in-Charge), as revealed during inspection & testing of welds or erection or in-situ condition shall be corrected either by removing & replacing or as follows:

1	Excessive convexity	Reduced to size by removal of excess weld metal
2	Shrinkage cracks, cracks in parent plates and craters	defective portions removed down to sound metal and rewelded
3	Under cutting	Additional weld metal deposited
4	Improperly fitted/misaligned parts Welding cut & edges suitably prepared	Weld joint to be checked for proper alignment
5	Members distorted by heat of welding	Member straightened by mechanical means or careful application of limited amount of heat. Temperature of such area shall be less than 650 degree Centigrade (dull red heat).

In removing defective parts of a weld, gouging, chipping, oxygen cutting or grinding shall not extend into the parent metal to any substantial amount beyond the depth of weld penetration, unless cracks or other defects exist in the parent metal. The weld or parent metal shall not be undercut in chipping, grinding, gouging or oxygen cutting.

Any fabricated structure or its component which in the opinion of Engineer-in-Charge is defective and/or beyond any corrective action shall be removed forthwith from the site as instructed by the Engineer-in-Charge without any extra claim. The owner reserves the right to recover any compensation due to any loss arising out of such rejections.

## 4.0 ERECTION

### 4.1 General

- i) Erection shall be carried out in accordance with IS: 800 (Latest edition) and other relevant standards referred to therein.
- ii) For safe and accurate erection of structural steelwork, staging, temporary support etc. shall be erected as required.
- iii) The fabricated materials received at erection site shall be verified with respect of marking on the key plan/marketing plan or shipping list.
- iv) Any material found damaged or defective shall be stacked separately and the damaged or defective.
- v) Erection Drawings: The approved erection drawings and any approved arrangement drg, specification or instruction accompanying them shall be followed in erecting structures.
- vi) Erection of Structures:

Erection work shall be taken up after receipt of clearance from the E-I-C.

- vii) For safety requirements during erection, provisions in IS:7205, IS:7969 and other relevant Indian standards shall be followed.



Erection shall be carried out with the help of maximum mechanization possible. Prior to commencement of erection, all the erection equipment, tools, tackles, ropes etc. shall be tested for their load carrying capacity. Such tests may be repeated at intermediate stages also if considered necessary and frequent visual inspection shall be done of all vulnerable areas and components to detect damages or distress in the erection equipment, if any.

Following shall be taken care of during erection, whenever necessary

- a) Temporary bracing, whenever required, shall be provided to sustain forces due to erection loads and equipments etc. Erected parts of the structures shall remain stable during all stages of erection when subjected to the action of wind, dead weight and erection forces etc. Specified sequence of erection of vertical and horizontal structural members shall be followed.
- b) Erected members shall be held securely in place by bolts to take care of dead load, wind load and erection load.
- c) All connections shall achieve free expansion and contraction of structures wherever provided
- d) No final bolting or welding of joints shall be done until the structure has been properly aligned.
- e) For positioning beams, columns and other steel members, the use of steel sledges is not permitted.
- f) Instrumental checking of correctness of initial setting out of structures and adjustment of alignment shall be carried out in sequence and at different stages as required. The final leveling and alignment shall be carried out immediately after completion of each section of a building.
- g) All structural members shall be erected with erection marks in the same relative position as shown in the appropriate erection and shop drawings.
- h) The tenderer shall design, manufacture, erect and provide false work, staging temporary support etc. required for safe and accurate erection of structural steelwork and shall be fully responsible for the adequacy of the same.
- i) The tenderer shall also provide facilities such as adequate temporary access ladders, gangways, tools & tackles, instruments etc. to E-I-C for his inspection at any stage during erection.

#### xi) Field Connections

- a) Assembly by permanent bolts.
- b) The numbers of washers on permanent bolts shall not be more than two (and not less than one) for the nuts and one for the bolt head.
- c) Wooden rams or mallet shall be used in forcing members into position in order to protect the metal from injury or shock.
- d) Where bolting is specified on the drawing, the bolts shall be tightened to the maximum limit. The threaded portion of the each bolt shall be project through the nut by at least one thread. Tapered washers shall be provided for all heads and nuts to achieve uniform bearing on sloping surface
- e) To prevent loosening of nuts, spring washers or lock-nuts shall be provided as specified in the design/shop drawings.
- f) All machine-fitted bolts shall be perfectly tight and the ends shall be checked to prevent nuts from becoming loose. No unfilled holes shall be left in any part of the structures.

#### xii) Assembly by welding

- a) All field assembly by welding shall be executed in accordance with the requirements for shop fabrication. Where the steel has been delivered painted, the paint shall be removed before field welding for a distance of at least 50 mm on either side of the joints to be welded.

- b) All other requirements in welding shall be in accordance with clauses specified under Section-1 of this specification

xiii) Assembly by High Strength Friction Grip Bolts (HSFG)

- a) Assembly of structures with HSFG bolts shall conform to IS: 4000-1992.
- b) The mating surfaces shall be prepared in accordance with the requirements of design in order to achieve required properties to develop adequate friction between the surfaces.
- c) The mating surfaces shall be absolutely free from grease, lubricant, dust, rust etc. and shall be thoroughly cleaned before assembly.
- d) The nuts shall be tightened up to the specified torque with the help of torque -wrench or by half-turn method with the help of pneumatic wrench lever.
- e) The direction of tightening of the nuts shall be from the middle toward the periphery of assembly.
- f) After desired tightening the bolt heads, nuts and edges of the mating surfaces shall be sealed with a coat of paint to obviate entry of moisture.

xiv) Painting after erection

Incomplete painted items / touch-up painting will be carried out as per Design basis for painting document no. DB-29054-UTL-P-001.

## 5.0 PAINTING

Complete painting work will be carried out as per IS standard.

## 6.0 DESPATCH INSTRUCTIONS

Each dispatch able structure shall bear mark no. along with reference drawing number at two prominent locations (e.g. on flange and bottom of base plate of a column).

- i) "As built" drawing shall be prepared after fabrication is completed to indicate additions / alterations made during the process of fabrication.
- ii) Control assembly of important structures shall be done in the shop floor before despatch to avoid mismatching. For all such important structures, match marking shall be given at the control assembly stage in the shop floor and such match markings shall be made clearly visible while assembling the structures at site.
- iii) Centre lines of column flanges and both sides of web shall be punched, preferably at top and bottom to facilitate alignment after erection.

## 7.0 COMPLETION DOCUMENTS

- i) On completion of work, the tenderer shall submit to the E-I-C the following documents:
  - a) The technical documents according to which the work was carried out.
  - b) Copies of the "As built" drawings showing thereon all additions and alterations made during the fabrication.
  - c) Manufacturer's test certificates
  - d) Certificates/documents on control checking
  - e) Test of welds
- ii) Inspection Certificates shall be issued to the tenderer for the structures found acceptable in all respects by the E-I-C.

**ANNEXURE-IB****SPECIAL CONDITIONS OF CONTRACT**

**Name of the Work: - : Construction of CC road with ancillary works at NALCO Mines, Damanjodi.**

**1.0 SCOPE OF WORK:**

The scope of work in General shall include **Construction of CC road with ancillary works at Nalco Mines.**

**2.0 Contract Period:** Time is the essence the contract. The contract period for this work shall be 12 (Twelve) Months. The work shall be completed within the contract period.

**3.0 OWNER'S SCOPE OF SUPPLY**

- 3.1 Water and Electricity point will be provided at the nearest available point at free of cost.
- 3.2 Bidder shall be responsible for the arrangements to obtain supply of water necessary for the works, his labour colony, his workshops, offices etc. All pipe network and distribution system will have to be carried out by the Bidder at his own cost.
- 3.3 The Owner at his discretion and convenience and for the duration of the execution of the work shall provide the land to the Bidder for their offices, go-down and workshop for the execution of the contract nearer to the owner's Plant premises. The Bidder shall at his cost construct all these temporary buildings, structures and provide suitable water supply and sanitary arrangement as approved by the Engineer-in-Charge.
- 3.4 On the award of contract, agency shall submit Mix design of M25 approved by authorized laboratory, conforming to IS 10262 .All the reinforced concrete works shall be of design mix and agency should use weigh batcher/transit mixer for the concrete works. All testing of materials, cubes shall be as CPWD standards. Expenditure towards, design mix, sample testing shall be done by agency.

**4.0 CONTRACTOR'S SCOPE OF SUPPLY**

The procurement and supply of cement, reinforcement steel , structural steel and all other equipment's, materials, consumables, hardware etc. including necessary tools, tackles and machinery required for the completion of work shall be the responsibility of the contractor and quoted price shall be deemed to include costs towards the same.

**5.0 BG & Indemnity bond for Nalco's free Issue material:** NA

**6.0 MEASUREMENT OF WORK**

- 6.10 Payment will be made on the basis of joint measurements, taken by Contractor and Certified by Engineer-in-charge and recorded in measurement sheets. Measurement shall be made for various items under schedule of rates of the following basis as indicated in the unit column of schedule of rates.
  - (I) Length- M, Breadth- B & Height- H/Depth- D (in meter)
  - (II) Number-Nos.
  - (III) Volume- Cubic Meter (Cum)
  - (IV) Area- Square Meter (Sqm)
  - (V) Weight in M.T.
- 6.20 Whenever work is executed based on instructions of Engineer-in-Charge, or details are not adequate in the drawings, physical measurements shall be taken by contractor in the presence of Engineer-in-charge.

**7.0 GENERAL**

- 7.1 Prior to offering of rates, agency is advised to visit the site & assess the local condition and actual work to be executed.

- 7.2 All materials brought by the Bidder for execution of work inside Owner's plant premises shall be with proper challan & documents and records shall be maintained. It will be advisable for the Bidder to store the materials separately for proper identification and all relevant documents to be submitted to department.
- 7.3 Work shall continue with micro planning. Man power & resource deployment shall be planned accordingly for hassle free execution of work. Work shall be executed without disturbing the tipper transportation from SB/CB to stock pile. Half width of the road need to be constructed in first phase & other half will be constructed after curing & completion of first phase. Proper barricading including safety tape, traffic cone, and demarcation poles with 3M sticker is to be provided at the work site. No extra payment shall be given for ensuring the safety feature mentioned above. Tipper transportation will continue throughout the day & night, accordingly all preparatory jobs, planning, stacking of material & execution of the road work shall be done without hampering the production.
- 7.4 Contractor is to take labor license/safety Clearance/workers insurance/Height permit as per Nalco rules.
- 7.5 Agency has to store the construction material at designated place as per instruction of E-I-C.
- 7.6 Excavation works shall be carried out with utmost care along the cable belt, necessary precaution/protection to be adhered to ensure continuous and smooth production of the NALCO Mines.
- 7.7 Every lot of cement, reinforcement & structural steel shall be supplied with test certificate as per relevant standard
- 7.8 The culverts are to be constructed on the cable belt conveyor, formwork used for the centering & shuttering activities shall be made of steel such as across spans /structural supports/trestles/adjustable props/shuttering plates etc as deemed fit as per the advice of E-I-C
- 7.9 The contractor shall plan and execute his work in a phased manner as directed by the Engineer from time to time and shall fully cooperate with other agencies working at Site simultaneously as well as with Owner's Operation Department so as not to obstruct or retard the work simultaneously being executed by other agencies and in the plant operation in any way. The decision of the Owner on any point of dispute between the various Contractors shall be final and binding on all the parties concerned.
- 7.10 In case, in Contractor's opinion, any shut-down is essential for carrying out construction work in a particular place, the Contractor shall so apply to the Engineer with sufficient advance notice keeping his requirement of shut-down period to its absolute minimum so that the necessity, possibility and duration of such a shut-down can be examined. However, it is clearly understood that no shut-down can be arranged which may materially affect the plant production and no claim whatsoever shall be admissible by the Owner if shut-down cannot be arranged at the required time and place in the interest of plant production.

## **8.0 Terms of payment**

- 8.1 Monthly Running Account bills (RA bills) may be raised with wage bill (certified by the NALCO representative) duly enclosed. The said RA bill needs to be checked and certified by Engineer-in-charge or his authorized representative.
- 8.2 Bills shall be processed along with the HRD clearance certificate submitted by the party from the NALCO MINES HRD Department.

## **9.0 Safety:**

- 9.1 The Contractor shall adhere to safe construction practices and guard against hazardous and unsafe working conditions and shall comply with safety rules as set forth herein. The Owner reserves the right

to take any appropriate punitive action, in case there is any safety lapse for reasons solely attributable to the Contractor involving his employees or due to his employees.

- 9.2 Safety Training: No person shall be deployed to workplace/ Site without Safety Induction Training. Refresher Safety Training may be conducted at regular intervals. Contractor shall depute their workmen & staff for the training session conducted by NALCO.
- 9.3 The Contractor shall submit to the Owner the name of a Key Person from his organization who shall (a) be fully responsible for safety of persons (b) ensure safety practices during the execution of the Contract/ Order. The Contractor shall engage adequate number of skilled/ unskilled labour and supervisor on the job to execute the work in a safe way. Also the Contractor shall depute his own Safety Officer to look after and ensure the day-to-day Safety Compliances at the work site.
- 9.4 Before start of the day's work, the contractor shall check and ensure that all the workers have put on safety appliances and then allow the workers to go to the work spot.
- 10.0 The contractor must ensure proper disposal of all scrap, surplus construction material and debris etc. at designated places and/or return to the stores as the case maybe.

After completion of work, Temporary Site office & store room constructed for this work should be dismantled. The rubbish generated from the work should be disposed at designated places.

- 11.0 **Defect liability period** shall be **12(Twelve) Months** from the date of completion of work and acceptance by NALCO. During defect liability period if any defect has been found the same shall be rectified by the agency at their own cost.

**12.0 It is recommended to all the agencies to attend pre-bid meeting to clarify doubts/quarries if any, regarding scope and execution of job, prior to bidding.**

- 13.0 Only Nawarangpur quality sand will be used for all construction activity.
- 14.0 All charges on account of royalty, tollage, rent octroi terminal or sales tax and/ or other duties or any other levy on materials obtained for the work or temporary work or part thereof (excluding materials provided by the Owner) shall be borne by the contractor.

## ANNEXURE-1C

**RISK ASSOCIATED AND SAFE / STANDARD OPERATING PROCEDURE****(Ref: Recommendations of 10<sup>th</sup> Conference on Mines Safety)****NAME OF WORK: Construction of CC road with ancillary works at NALCO Mines, Damanjodi.****(I) STEPS INVOLVED IN THE WORK**

- a. Earth work in excavation.
- b. Pouring of Plain cement concrete.
- c. Bar bending and laying of reinforcement.
- d. Shuttering/centering.
- e. Fabrication & Erection of structural steel.

**(II) RISK ASSOCIATED.**

1. During excavation person may fall in the trench.
2. During production of concreting, Inhalation of Cement powder and aggregates dust causing health problems.
3. While mixing and handling of fresh concrete, it may cause injury to work men hand, legs and eyes etc.
4. During welding, fire sparks may injure the eyes and body of workmen.
5. During fabrication, sharp iron cut pieces/used welding rods may cause injury of the foot /body.
6. During gas cutting, LPG gas may leak may cause fire accidents.
7. Fall of person from height while erection at height.
8. Fire due to electric short circuit in the fabrication yard
9. During welding, fire sparks may catch fire with cotton waste generated in fabrication yard.
10. Defective gas cylinder regulator and leakage of gas, firing and bursting.
11. While gas cutting, fire may catch with cotton debris generated in fabrication yard.
12. While gas cutting/welding, fire torch may cause fire injury to workmen.
13. During Welding and erection structure at height, welding sparks may fall on the body of the welder/workmen.
14. During transportation and erection of fabricated member, the member may slip and fall, cause injuries.

**(III) SAFE/STANDARD OPERATING PROCEDURES**

1. Necessary barricade should be provided around the deep trench.
2. If the excavated surface is loose, necessary shoring arrangement should be provided to prevent the collapse of soil.
3. Fabrication yard should be cleaned regularly and metal scrapes, metal wastage, used welding rod cut pieces etc should be collected and stored in designated place.
4. Cotton wastage generated should be collected and kept at the designated places.
5. Gas connection, regulator, hose pipe should be thoroughly examined regularly, in case of any defect found, the same should be immediately rectified.
6. Lifting cable/sling should be thoroughly examined for its healthiness. Validity etc need to be checked. If found any lapse, the sling/pulley/lifting rope shall be rejected.
7. Structural members should be lifted with proper crane and hook arrangement during erection & alignment in position.
8. Net arrangement should be provided with proper appropriate cushion height from the ground level/floor level where the Structural working/sheeting work is taking place at height more than 3 metre. Necessary height permit need to be taken for working at Height.
9. The required recommended PPEs should be issued to the workmen. Workmen should be allowed in work after ensuring the workmen wearing and using of recommended PPEs
10. Gas cylinder handling in the fabrication yard should be done safely. In case of the LPG, it should be rolled vertically by the round handle provided at top. In case of oxygen cylinder it should be handled by rolling horizontally on the ground/floor etc.



11. Necessary clearance should be obtained from the Nalco Electrical department for getting Electric power connection, installation welding machine, cutting machines in fabrication yard.
12. Electrical connection and insulation should be thoroughly examined, In case of any defect found the same should be rectified before use.
13. All electrical connection to the equipments such as welding machines, grinding machines/ cutting machines etc should be properly insulated. Body should be properly earthed.
14. Adequate nos of fire extinguisher should be kept in the fabrication yard in different location.
15. First Aid box should be kept in the fabrication yard with easy access.
16. Housekeeping should be maintained at work site

**(V) PPEs INCLUSIVE OF SPECIAL PPEs, IF ANY:**

- |                        |                       |
|------------------------|-----------------------|
| a) Helmet              | g) Nose mask          |
| b) Welding Helmet      | h) Safety Hooks       |
| c) Safety goggles      | i) Safety belt        |
| d) Hand Gloves         | j) Safety Shoes       |
| e) Hand and Leg sleeve | k) Fire extinguisher. |
| f) Safety Chest apron  |                       |

**(VI) SUPERVISOR/ENGINEER RESPONSIBLE FOR PROVIDING SITE SUPERVISION.**

Arjun Basu HOD (CIVIL)  
Rohit kumar Khichi Mgr (CIVIL)

## ANNEXURE-1D

**PRE-QUALIFYING CRITERIA – APPLICABLE****A) TECHNICAL**

Eligibility criteria	Documentary proof
<p>The bidder should have experience of having successfully completed “Similar work” during the last seven years ending on last day of the month previous to the one in which the NITs are invited, should be either of the following:</p> <p>(i) <b>Three</b> similar completed works each (with above criteria) having <b>executed value</b> not less than <b>Rs.2,26,49,052.00 (Rupees Two Crore Twenty Six Lakh Forty Nine Thousand Fifty Two Only)</b></p> <p style="text-align: center;"><b>OR</b></p> <p>(ii) <b>Two</b> similar completed works each (with above criteria) having <b>executed value</b> not less than <b>Rs.2,83,11,315.00 (Rupees Two Crore Eighty Three Lakh Eleven Thousand Three Hundred And Fifteen Only)</b></p> <p style="text-align: center;"><b>OR</b></p> <p>(iii) <b>One</b> similar completed works each (with above criteria) having <b>executed value</b> not less than <b>Rs.4,52,98,104.00 (Rupees Four Crore Fifty Two Lakh Ninety Eight Thousand One Hundred And Four Only)</b></p> <p><b>Evaluation Criteria:</b> Cost of the completed works by the bidder shall be escalated @10% per annum (simple rate) to bring them at the current price level. (The cost of work completed within one year prior to original date of bid opening shall not be considered for any weightage. The weightage shall only be considered for work completed prior to one year of original date of bid opening on annual basis and no weightage shall be given for part of the year.)</p> <p>“Similar Work” means: The party must have experience in the following: “Construction of cement concrete road “or” Construction of cement concrete pavements” or “Construction of RCC bridge/culverts/canals” or “Combination of any or all of the above”.</p>	<p>The work experience should be of “Working directly” and possess relevant experience as per the details given under experience criteria. “Working directly” implies, working as a Contractor or Sub Contractor under above authorities who is the Principal Owner of the work.</p> <p>The bidder should submit Work order copies showing Order value, Scope of Work &amp; Bill of quantity for assessment of Experience Criteria.</p> <p>Satisfactory Completion Certificate indicating the value of work executed &amp; period of contract should be obtained from Principal Owner of the work for whom the work has been executed.</p> <p>In case of past experience criteria, the experience as a sub-contractor to a main agency in a project awarded by any principal / project authorities shall be considered subject to following:</p> <ol style="list-style-type: none"> <li>Bidder to submit detailed work order / PO/ Agreement from the main agency.</li> <li>Completion certificate issued by main agency.</li> <li>Copy of completion certificate issued by the Principal / project authorities in favour of the main agency showing due completion of the package.</li> </ol> <p><b>The Experience/ Completion certificate shall mandatorily bear the name and designation of the Issuing Authority in case the same is issued after 30.06.2022.</b></p>
<p><b>Partially completed work in progress (not abandoned) shall be considered and the part completion certificate submitted by the bidder should clearly indicate the value of work completed along with completed portion of the work (which should satisfy the similar work) and the performance / progress of the bidder should be satisfactory.</b></p>	

**B) FINANCIAL**

Eligibility criteria	Documentary proof.
<p>1) The average annual turnover of the vendor for last three financial years should be minimum <b>Rs. 1,69,86,789.00 (Rupees One Crore Sixty Nine Lakh Eighty Six Thousand Seven Hundred And Eighty Nine Only)</b>. (Turn over shall be escalated @10% per annum (simple rate) to bring them at the current price level. The turnover of the latest previous year shall not be considered for any weightage).</p> <p>2) Net worth of the bidder during the latest financial year shall be positive as per audited balance sheet.</p>	<p>The bidders have to submit the copies of Audited Financial Statements, Profit &amp; Loss accounts and Balance Sheet of relevant years</p> <p>(For bids received prior to 30<sup>th</sup> June of any year, the financial figure for the previous to previous year may also be considered for evaluation. Whereas for bids submitted after 30<sup>th</sup> June, the bidder may also submit financial statement for the previous year certified by Chartered Accountant/Auditor for consideration of their bid.)</p>

**EVALUATION OF THE OFFERS OF THE BIDDERS FOR VALUE OF SIMILAR WORK EXECUTED  
BY THE BIDDER AGAINST A WORK ORDER.**

A) Bidder may note that, in cases of works executed by them-

(i) Composite works - In this case where the qualifying work portion (as per the PQC similar work definition) is a part of the composite work as per the BOQ submitted by the bidder, only the portion of the work value executed by the bidder & certified by the work order issuing agency against the composite work that meets the similar work definition of the PQC shall be considered as the qualifying value of the work {escalation as defined in PQC shall be considered if applicable}.

(ii) In cases, where all the items of BOQ of the work order submitted by the bidder meets the similar work definition of the PQC, the entire value certified as per completion certificate shall be taken as the value qualifying the similar work definition {escalation as defined in PQC shall be considered if applicable}.

**Documentary proofs to be submitted by the bidders:**

- 1) Copies of the detailed work order (all pages) comprising of Scope of work, Special conditions of contract, Bill of quantities.
- 2) Amendment to the Work Order if any.
- 3) Work Completion Certificate or Partial work completion Certificate as applicable
- 4) Final BOQ for completed jobs duly certified by issuing agency/ BOQ executed till the last date prior to date of inviting NIT (in case of partial completion) duly certified by the issuing agency
- 5) All above documents are to mandatorily attested by GAZETTED OFFICER of NOTARISED

**PRE-CONTRACT INTEGRITY PACT- Applicable**

This pre-bid pre-contract Agreement (hereinafter called the Integrity Pact) is made on \_\_\_\_\_ day of the month of \_\_\_\_\_ 2024, between, on one hand, the National Aluminium Company Limited (NALCO), a company registered under the Companies Act 1956 and a Government of India Enterprise, having its Registered Office at NALCO Bhawan, P/1, Nayapalli, Bhubaneswar- 751013, Odisha, India (referred to as NALCO) acting through **Shri N Srinivasa Sudhakar, General Manager (T&C)** (hereinafter called the “BUYER”, which expression shall mean and include, unless the context otherwise requires, his successors in office and assigns) of the First Part and M/s. \_\_\_\_\_ represented by Shri \_\_\_\_\_, Chief Executive Officer (hereinafter called the “BIDDER / Seller” which expression shall mean and include, unless the context otherwise requires, his successors and permitted assigns ) of the Second Part.

WHEREAS the BUYER proposes to procure **“Construction of CC road with ancillary works at NALCO Mines, Damanjodi.”** and the BIDDER/Seller is willing to offer/has offered the stores and WHEREAS the BIDDER is a private company / public company /Government undertaking/ partnership /registered export agency, constituted in accordance with the relevant law in the matter and the BUYER is a Company under the administrative control of the Ministry of Mines, Govt. of India.

**NOW THEREFORE**

To avoid all forms of corruption by following a system that is fair, transparent and free from any influence / prejudiced dealings prior to during and subsequent to the currency of the contract to be entered into with a view to :-

Enabling the BUYER to obtain the desired said stores/equipment at a competitive price in conformity with the defined specifications by avoiding the high cost and the distortionary impact of corruption on public procurement, and

Enabling BIDDERS to abstain from bribing or indulging in any corrupt practice in order to secure the contract by providing assurance to them that their competitors will also abstain from bribing and other corrupt practices and the BUYER will comment to prevent corruption, in any form, by its officials by following transparent procedures.

The parties hereto hereby agree to enter into this Integrity Pact and agree as follows:

**Commitments of the BUYER**

- 1.1 The BUYER undertakes that no official of the BUYER, connected directly or indirectly with the contract, will demand, take a promise for or accept, directly or through intermediaries, any bribe, consideration, gift, reward, favour or any material or immaterial benefit or any other advantage from the BIDDER, either for themselves or for any person or organisation or third party related to the contract in exchange for an advantage in the bidding process, bid evaluation, contracting or implementation process related to the contract.

- 1.2 The BUYER will, during the pre-contract stage, treat all BIDDERS alike and will provide to all BIDDERS the same information and will not provide any such information to any particular BIDDER which could afford an advantage to that particular BIDDER in comparison to other BIDDERS.
- 1.3 All the officials of the BUYER will report to the appropriate Government office any attempted or completed breaches of the above commitments as well as any substantial suspicion of such a breach.
2. In case any such preceding misconduct on the part of such official(s) is reported by the BIDDER to the BUYER with full and verifiable facts and the same is prima facie found to be correct by the BUYER, necessary disciplinary proceedings, or any other action as deemed fit, including criminal proceedings may be initiated by the BUYER and such a person shall be debarred from further dealings related to the contract process. In such a case while an enquiry is being conducted by the BUYER the proceedings under the contract would not be stalled.

#### **Commitments of BIDDERS**

3. The BIDDER commits itself to take all measures necessary to prevent corrupt practices, unfair means and illegal activities during any stage of its bid or during any pre-contract or post-contract stage in order to secure the contract or in furtherance to secure it and in particular commit itself to the following :-
  - 3.1 The BIDDER will not offer, directly or through intermediaries, any bribe, gift, consideration, reward, favour, any material or immaterial benefit or other advantage, commission, fees, brokerage or inducement to any official of the BUYER, connected directly or indirectly with the bidding process, or to any person, organisation or third party related to the contract in exchange for any advantage in the bidding, evaluation, contracting and implementation of the contract.
  - 3.2 The BIDDER further undertakes that it has not given, offered or promised to give, directly or indirectly any bribe, gift, consideration, reward, favour, any material or immaterial benefit or other advantage, commission, fees, brokerage or inducement to any official of the BUYER or otherwise in procuring the Contract or forbearing to do or having done any act in relation to the obtaining or execution of the contract or any other contract with the Government for showing or forbearing to show favour or disfavour to any person in relation to the contract or any other contract with the Government.
  - 3.3 BIDDERS shall disclose the name and address of agents and representatives and Indian BIDDERS shall disclose their foreign principals or associates.
  - 3.4 BIDDERS shall disclose the payment to be made by them to agents / brokers or any other Intermediary, in connection with this bid / contract.
  - 3.5 The BIDDER, either while presenting the bid or during pre-contract negotiations or before signing the contract, shall disclose any payments he has made, is committed to or intends to make to officials of the BUYER or their family members, agents, brokers or any other intermediaries in connection with the contract and the details of services agreed upon for such payments.
  - 3.6 The BIDDER will not collude with other parties interested in the contract to impair the transparency, fairness and progress of the bidding process, bid evaluation, contracting and implementation of the contract.

- 3.7 The BIDDER will not accept any advantage in exchange for any corrupt practice, unfair means and illegal activities.
- 3.8 The BIDDER shall not use improperly, for purposes of competition or personal gain, or pass on to others, any information provided by the BUYER as part of the business relationship, regarding plans, technical proposals and business details, including information contained in any electronic data carrier. The BIDDER also undertakes to exercise due and adequate care lest any such information is divulged.
- 3.9 The BIDDER commits to refrain from giving any complaint directly or through any other manner without supporting it with full and verifiable fact.
- 3.10 The BIDDER shall not instigate or cause to instigate any third person to commit any of the actions mentioned above.
- 3.11. If the Bidder or any employee of the Bidder or any person acting on the behalf of the Bidder, either directly or indirectly, is a relative of any of the officers of the Buyer, or alternatively, if any relative of an officer of the Buyer has financial interest/stake in the Bidder's firm, the same shall be disclosed by the Bidder at the time of filing of tender.
- The term "relative" for this purpose would be as defined in Section 6 of the Companies Act 1956.
- 3.12. The Bidder shall not lend to or borrow any money from or enter into monetary dealings or transactions, directly or indirectly, with any employee of the Buyer.
- 3.13 Bidder(s)/ Contractor(s) who have signed the integrity pact shall not approach the courts while representing the matter to IEMs and shall wait for their decision in the matter.

#### 4. **Previous Transgression**

- 4.1. The Bidder declares that no previous transgression occurred in the last three years immediately before signing of this integrity Pact, with any other company in any country in respect of any corrupt practices envisaged hereunder or with any Public Sector Enterprise in India or any Government Department in India that could Justify Bidder's exclusion from the tender process.
- 4.2. The Bidder agrees that if it makes incorrect statement on this subject, Bidder can be disqualified from the tender process or the contract, if already awarded, can be terminated for such reason.

#### 5. **Sanctions for Violations:**

- 5.1. Any breach of the aforesaid provisions by the BIDDER or any one employed by it or acting on its behalf (whether with or without the knowledge of the BIDDER) shall entitle of the BUYER to take all or any one of the following actions, wherever required: -
- (i) To immediately call off the pre-contract negotiations without assigning any reason or giving any compensation to the BIDDER. However, the proceedings with the other BIDDER(s) would continue.



- (ii) The Earnest Money Deposit ( in pre-contract stage) and/or Security Deposit / Performance Bond ( after the contract is signed) shall stand forfeited either fully or partially, as decided by the BUYER and the BUYER shall not be required to assign any reason therefore.
- (iii) To immediately cancel the contract, if already signed, without giving any compensation to the BIDDER.
- (i) To recover all sums already paid by the BUYER, and in case of an Indian BIDDER with interest thereon at 2% higher than the prevailing Prime Lending Rate of State Bank of India, while in case of a BIDDER from a country other than India with interest thereon at 2% higher than the LIBOR. If any outstanding payment is due to the BIDDER from the BUYER in connection with any other contract for any other stores, such outstanding payment could also be utilized to recover the aforesaid sum and interest.
- (v) To en-cash the advance bank guarantee and performance bond / warranty bond, if furnished by the BIDDER, in order to recover the payments, already made by the BUYER, along with interest.
- (vi) To cancel all or any other Contracts with the BIDDER. The BIDDER shall be liable to pay compensation for any loss or damage to the BUYER resulting from such cancellation / rescission and the BUYER shall be entitled to deduct the amount so payable from the money(s) due to the BIDDER.
- (vii) To debar the BIDDER from participating in future bidding processes of NALCO for a minimum period of five years, which may be further extended at the discretion of the BUYER.
- (viii) To recover all sums paid in violation of this Pact by BIDDER(s) to any middleman or agent or broker with a view to securing the contract.
- (ix) In cases where irrevocable Letters of Credit have been received in respect of any contract signed by the BUYER with the BIDDER, the same shall not be opened.
- (x) Forfeiture of Performance Bond in case of a decision by the BUYER to forfeit the same without assigning any reason for imposing sanction for violation of this Pact.

5.2 The BUYER will be entitled to take all or any of the actions mentioned at para 5.1(i) to (x) of this Pact also on the Commission by the BIDDER or any one employed by it or acting on its behalf (whether with or without the knowledge of the BIDDER), of an offence as defined in Chapter IX of the Indian Penal Code 1860 or Prevention of Corruption Act, 1988 or any other statute enacted for prevention of corruption.

5.3 The decision of the BUYER to the effect that a breach of the provisions of this Pact has been committed by the BIDDER shall be final and conclusive on the BIDDER. However, the BIDDER can approach the independent Monitor(s) appointed for the purposes of this Pact.

## 6. Independent External Monitors (IEMs):

- 6.1 The BUYER has a panel of Independent External Monitors (hereinafter referred to as IEMs) for this Pact in consultation with the Central Vigilance Commission as mentioned in NALCO's NIT/NALCO's website ([www.nalcoindia.com](http://www.nalcoindia.com)).
- 6.2 The task of the IEMs shall be to review independently and objectively, whether and to what extent the parties comply with the obligations under this Pact.
- 6.3 The IEMs shall not be subject to instructions by representatives of the parties and perform their functions neutrally and independently.
- 6.4 Both the parties accept that the IEMs have the right to access all the documents relating to the project / procurement including minutes of meetings.
- 6.5 As soon as the IEM notices, or has reason to believe, a violation of this Pact, he will so inform the Authority designated by the BUYER.
- 6.6 The BIDDER(s) accepts that the IEM has the right to access without restriction to all Project documentation of the BUYER including that provided by the BIDDER. The BIDDER will also grant the IEM, upon his request and demonstration of a valid interest, unrestricted and unconditional access to his project documentation. The same is applicable to Subcontractors. The IEM shall be under contractual obligation to treat the information and documents of the BIDDER / Subcontractor(s) with confidentiality.
- 6.7 The BUYER will provide to the IEM sufficient information about all meetings among the parties related to the Project provided such meetings could have an impact on the contractual relations between the parties. The parties will offer to the IEM the option to participate in such meetings.
- 6.8 The IEM will submit a written report to the designated Authority of BUYER / Secretary in the Department / within 8 to 10 weeks from the date of reference or intimation to him by the BUYER / BIDDER and should be occasion arise, submit proposals for correcting problematic situations.
- 6.9 Bidder may write to the IEM through E-mail (provided in the tender) for their grievances, if any, giving details of the tender reference, name of the tender issuing officer and Nalco's Unit for quick identification of the tender by the IEM.

**7. Facilitation of Investigation:**

In case of any allegation of violation of any provisions of this Pact or payment of commission, the IEMs shall be entitled to examine all the documents including the Books of Accounts of the BIDDER and the BIDDER shall provide necessary information and documents in English and shall extend all possible help for the purpose of such examination.

**8. Law and Place of Jurisdiction:**

This Pact is subject to Indian Law. The place of performance and jurisdiction is the seat of the BUYER.

**9. Other Legal Actions:**

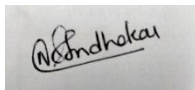
The actions stipulated in this Integrity Pact are without prejudice to any other legal action that may follow in accordance with the provisions of the extant law in force relating to any civil or criminal proceedings.

10. **Validity:**

- 10.1 This Pact begins when both parties have legally signed it. It expires for the Contractor 12 months after the last payment under the contract, and for all other Bidders 6 months after the contract has been awarded. If any claim is made/lodged during this time, the same shall be binding and continue to be valid despite the lapse of this pact as specified above, unless it is discharged/ determined by CMD, NALCO.
- 10.2 Should one or several provisions of this Pact turn out to be invalid, the remainder of this Pact shall remain valid. In this case, the parties will strive to come to an agreement to their original intentions.
11. If the bidder/ Contractor is a partnership or a consortium, this agreement must be signed by all partners or consortium members
12. The parties hereby sign this Integrity Pact at \_\_\_\_\_ on \_\_\_\_\_.

For &amp; on behalf of


For &amp; on behalf of

**BUYER**

**BIDDER**Name of the Officer: **N Srinivasa Sudhakar**Designation: **General Manager (T&C)**

Company: National Aluminium Company Ltd.

Official Seal

WitnessWitness

1.  \_\_\_\_\_ Malaya Sahoo Sahoo

1. \_\_\_\_\_

2.  \_\_\_\_\_ Deo Kumar Azad

2. \_\_\_\_\_

**Declaration by Bidder for Implementation of Integrity NOT APPLICABLE****Tender Ref: T&C/MINES/CIVIL/C-1582**

I/We (\_\_\_\_\_) commit to take all measures necessary to prevent corrupt practices, unfair means and illegal activities during any stage of his bid or during any pre-contract or post-contract stage in order to secure the contract. I/ We further undertakes that

- Will not offer, directly or through intermediaries, any bribe, gift, consideration, reward, favour, any material or immaterial benefit or other advantage to any official of the Buyer, connected directly or indirectly with the bidding process, evaluation, contracting and implementation of the Contract.
- will not collude with other parties interested in the contract to impair the transparency, fairness and progress of the bidding process, bid evaluation, contracting and implementation of the contract.
- will not accept any advantage in exchange for any corrupt practice, unfair means and illegal activities.
- will commits to refrain from giving any complaint directly or through any other manner without supporting it with full and verifiable fact.
- will not instigate or cause to instigate any third person to commit any of the actions mentioned above.

Yours faithfully

(Authorized signatory of the Bidder)

Date:

## ANNEXURE-AA

## INSTRUCTIONS TO BIDDERS

- 1.0 SCOPE OF WORK:** The scope of work shall be as detailed in Annexure-IA. The work shall be carried out as per direction of Engineer-in-charge (EIC)/ Manager in-charge (MIC) subject to special condition of contract given in Annexure-IB.
- 2.0 SCHEDULE QUANTITY & RATES:**
- 2.1** *Refer Point No 1 of Salient points of the tender at P/4*
- 2.2** Bidders are required to submit digitally signed complete Tender documents ONLINE only along with all Annexure and Appendices downloaded from the tendering portal then filled-up, signed and stamped in each page Price bid in .xls and all other enclosures in .pdf format shall be uploaded.
- 2.3** Price bids must not contain any conditions stipulated by the bidders. Conditional price bids are liable for rejection.
- 2.4** Premium or discount over quoted rate / total amount mentioned separately anywhere in the offer other than in the specified cell of the excel format of the Price bid shall be ignored.
- 2.5** The overall Premium/ Discount, figure should be quoted up to two decimal digits only. Also for unit rates, rates can be quoted in Decimals. Decimal digits beyond two will be ignored for all purposes.
- 2.6** Bidders are requested to quote their best prices considering the fact that price negotiation, if required, may be held with the lowest tenderer only.
- 2.7** The tenderers must quote their most reasonable and workable rate. **The bidders must download the BOQ in excel format from the GeM portal (excel file is available in the GeM bid document) and quote the unit rate for all items of the BOQ in excel sheet, the unit rates to be quoted shall be exclusive of GST and submit the same in GeM Portal as PDF. In the portal the bidder should enter the total price for the contract in the designed price location, this price is inclusive of GST @ 18% and the value to be entered in GeM portal shall be taken from the total amount obtained in the excel sheet, where the total price is automatically calculated by the Excel sheet inclusive of 18% GST.** Overall total evaluated price for all items of schedule of quantities shall be the basis for determining the reasonableness of price and gradations of the tenders. In case the offered price of the tenderer(s) is found to be unworkable, based on the rate approved by NALCO(Ref SI No 20 at Page 4), the tenderer(s) may be asked to justify their quoted rates within ten days of issuance of letter to that effect. The bidder must provide written clarification including detail price analysis of its bid price in relation to scope, schedule, allocation of risks and responsibilities, and any other requirements of the bid documents. However, if after evaluating the price analysis, Nalco determines that the bidder has substantially failed to demonstrate its capability to deliver the contract at the offered price, then Nalco may reject the bid/ proposal. Nalco also reserve the right to award the job without seeking clarification or receiving clarification from the bidder about the price reasonability. Non-acceptance of work order will be dealt as per the provisions of Bid Security.
- 3.0 QUANTITY VARIATION:**
- (i) *Refer Point No 2 of Salient points of the tender at P/4*
- (ii) **Lump sum / Turnkey Contracts:** In case of Turnkey / lump sum contract no adjustment in the contract value shall be made unless there is written instruction by the EIC to change the scope of contract due to addition / deletion of items. Adjustment to the contract value due to such addition / deletion shall be governed by the provisions of GCC.
- 4.0 CONTRACT PERIOD:** The Quality of work output and Time of completion is the essence of the Contract. The contract period for this work shall be as mentioned in **SI no: 4** of Page-4 from the effective start date mentioned in the work order. Time period of completion of individual items may be decided jointly by EIC and contractor, which shall be adhered to by the successful bidder.
- 5.0 TENDER FEE:** *Refer SI no 8 of Contract Details at P/3*
- 5.1** An amount as stipulated on page no.4 of the tender document towards the tender fee shall be paid in the form RTGS/NEFT/ECS in favor of National Aluminium Company Limited, Damanjodi, paid through any

NALCO's Approved Bank (list attached) payable at Damanjodi, with the tender. *However the Public Sectors, Government agencies, and firms registered with NSIC (for the service/work for which they are registered) or MSEs registered with DIC are exempted from submission of tender cost, subject to submission of attested (by gazetted officer) documentary evidence in support of the same along with the offer. MSEs registered with DIC who claims exemption of Tender fee through "Udyog Adhaar Memorandum (UAM)", must submit their "UAM" duly verified & certified by the concerned General Manager, DIC.* The tender cost should be paid separately and it shall not be clubbed with BID SECURITY. The tender fee is non refundable.

- 5.2 The Bidders shall have to upload the scan copy of **receipt for payment by electronic mode** towards the tender fee and a copy of the same shall have to be submitted / deposited beforehand so as to reach the office of tender inviting authority before the bid submission date or extended bid submission date of the tender at the following address: **T&C Dept, Panchpatmali Bauxite Mines, PO: Damanjodi, Dist- Koraput, Odisha-763008** clearly mentioning the Tender No. on the envelope. The envelope containing the tender fee instrument shall clearly mention: "Tender fee instrument against Tender No.: ----- Tender Submission Date: -----" along with name of the bidder.

The details of tender fee deposit document submitted physically to the department and the scanned copies furnished at the time of ONLINE bid submission should be the same, otherwise the Tender will be liable for rejection.

**In case the bidder is claiming exemption from payment of tender fee, the information along with attested (by gazetted officer) supporting documents for claiming the exemption must also be uploaded online along with the offer.**

- 5.3 i) MSEs having UAM no. shall also submit supporting documents such as UAM certificate, CA certificate (certifying that the unit is a MSE having valid MSE certificate), details available from the website of Ministry of Corporate Affairs, etc to support their MSE status and the same shall be verified by NALCO.  
(ii) In case of any doubt or complaints, NALCO shall refer the matter to the General Managers of the District Industries Centre of the concerned districts to undertake enquiry and verify credentials of the MSE and submit confirmation to NALCO regarding their MSE status.

## 6.0 **BID SECURITY : Refer Sl no 7 of Contract Details at P/3**

- 6.1 The contractor shall deposit the bid security for an amount as stipulated at page no.4 of the tender document in the form of Bank Guarantee or through RTGS/NEFT/ECS in favor of National Aluminium Company Limited, paid from any of NALCO's Approved Banks (list attached) payable at Damanjodi, with the tender. The offers received without bid security will be liable for rejection. *However the Public Sectors, Government agencies, and firms registered with NSIC (for the service/work for which they are registered) or MSEs registered with DIC are exempted from submission of BID SECURITY, subject to submission of attested (by gazette Officer) documentary evidence in support of the same along with the offer. MSEs registered with DIC who claims exemption of BID SECURITY through "Udyog Adhaar Memorandum (UAM)", must submit their "UAM" duly verified & certified by the concerned General Manager, DIC.* Bid Security shall not carry any interest and will be refunded to all unsuccessful bidders after finalization of the contract but is liable to be forfeited in full or part, at Company's discretion, as per Clause No. 6.3 below. In case of technically rejected bidders of two part / three part bid, the BID SECURITY shall be returned to the bidder after rejection of their offer. BID SECURITY of successful bidder shall be returned after submission of Initial Security Deposit/Security Deposit. The BID SECURITY of the successful bidder if paid in form of RTGS/NEFT/ECS shall be adjusted towards initial security deposit. Bank mandate form in prescribed format, duly filled in & signed (Ref Annexure-V) is to be submitted by the bidder for refund of BID SECURITY through e-payment.

**\*Bank Guarantee shall be accepted in the prescribed proforma for an amount of Rupee One lakh or more only. The BG submitted towards BID SECURITY shall remain valid for 09(Nine) months beyond validity period of offer.**

**NOTE: The payment towards Tender fee and BID SECURITY as applicable shall be made as per the following Bank Details.**

Sl No	Bank Details	
1	State Bank Of India	Damanjodi
2	IFSC CODE	SBIN0006908
3	Bank Account No	10838944125



- 6.2 The Bidders shall have to upload the scan copy of *receipt for payment by electronic mode or Bank Guarantee* towards the BID SECURITY and *the copy of receipt for payment by electronic mode or Original copy of Bank Guarantee shall have to be submitted / deposited beforehand so as to reach the office of tender inviting authority before the bid submission date or extended bid submission date of the tender at the following address: T&C Dept, Panchpatmali Bauxite Mines, PO: Damanjodi, Dist- Koraput, Odisha- 763008* clearly mentioning the Tender No. on the envelop. The details of BID SECURITY deposit document submitted physically to the department and the scanned copies furnished at the time of ONLINE bid submission should be the same, otherwise the Tender will be liable for rejection.  
**In case the bidder is claiming exemption from payment of BID SECURITY, the information along with attested (by gazetted officer) supporting documents for claiming the exemption must also be uploaded online along with the offer.**
- 6.3 (a) No Bidder can withdraw his bid after the bid submission due date & time. Withdrawal of any bid after bid submission due date & time will lead to forfeiture of bid security in full **and the bidder shall be debarred as per the provisions of bid security.**
- (b) Once a withdrawal letter is received from any bidder, the offer will be treated as Withdrawn and no further claim / correspondence will be entertained in this regard.
- 7.0 **DEFECT LIABILITY PERIOD (DLP):** The DLP shall be governed by the detailed terms and conditions stipulated in clause 65 and 68 of GCC. Duration of DLP is mentioned at **Sl. No. 14** of Page.4. The defect liability period shall be reckoned from the date of completion of the contract period for supply and workmanship unless mentioned otherwise in Scope of Work / Special Condition of Contract.
- 8.0 **SECURITY DEPOSIT :**
- 8.1 A sum of **10%** of the accepted value of the tender or actual value of the work done whichever is higher for contracts not exceeding Rs.1 Crore, 7.5 % for the value of contracts over Rs.1 crore up to Rs. 5 crores and 5% for the value of contracts over Rs.5 crores shall have to be deposited by the person/ persons (hereinafter called as contractor) as security deposit with the owner until the expiry of defect liability period.
- 8.2 This may be deposited initially at 2.5% of the value of the contract (referred as initial Security deposit) **within a period of 21 days from the date of issue of work order/ FOI/ LOA** and the balance will be recovered in installments through the deduction @ 10% of the gross value of the each running account bill for the contract value up to Rs.1 crore, 7.5 % for contract value between Rs. 1 crore to Rs.5 crores and 5% for contract value over Rs. 5 crores, till total security deposit is collected. No further deduction from the bills will be made on this account subject to clause 19.6 of GCC.
- 8.3 Alternatively the contractor may at his option deposit the full amount as mentioned at 8.1 above towards deposit within a period of 21 days from the date of issue of work order/ FOI/ LOA. This amount will have to be suitably enhanced to the tune of above percentage of the executed value.
- 8.4 **In case the successful bidder fails to submit the ISD /SD, with in a period of 21 days from the date of issue of work order/ FOI/ LOA , the ISD amount along with a simple interest @12% per annum as penalty, applicable from the date of issue of LOA/work order till the date of submission of ISD or submission of 1st RA bill, shall be recovered starting from 1st RA bill.**
- 8.5 The bid security deposited with the tender, by the successful bidder **if paid in the form of electronic mode** shall be adjusted towards Initial Security Deposit.
- 8.6 The security deposit will be released after successful completion of the defect liability period on certification of Manager-in-charge / Engineer-in-Charge.
- 8.7 In case the DLP is NIL, the Security Deposit will be released to the successful bidder within three months of the submission of full and final bill to the EIC.

9.0 **PAYMENT TERM :**

**Providing copy of the Income Tax Return for each of the two previous Financial Years for which due date of filling of Income Tax Return has expired with self-certification is mandatory along with each GST Tax Invoice else suitable provisions of Income Tax Act will be applicable.**

- 9.1.1 Payment shall be made as indicated in Special Conditions of Contract /against monthly bills duly approved and certified by the Engineer-in-charge. Such Certificate/ approval by the EIC and passing of the amount so payable shall be binding and conclusive subject to deduction as per contract, which is subject to Arithmetical correction if any.
- 9.1.2 Payment facility is available under INTERNET mode through company banker as well as in NEFT/ RTGS (National Electronic Fund Transfer / Real Time Gross Settlement) mode through designated branches. The contractor shall submit duly filled bank mandate form in duplicate with due authentication from their bankers to avail e-payment facility. All the payment shall be made only through e-mode. The prescribed form is enclosed in Annexure-V.
- 9.1.3 If the contract value is Rs.20, 000/- or less only one full and final bill will be admitted.
- 9.2 If full security deposit has been submitted or security deposit is not applicable as per contract terms, then the amount passed will be paid in full. Otherwise, 90% /92.5% /95% (as applicable) of the amount passed will be paid and 10% / 7.5%/ 5% (as applicable) will be retained towards the balance security deposit, till full recovery of total security deposit.
- 9.3 The materials drawn if any by the party as “free issue materials” from Nalco shall be reconciled. The reconciliation statement of free issue items / materials should be submitted to the Engineer in-charge for certification. The final reconciliation statement should be submitted along with final bill for release of payment.
- 9.4 (i) The final bill shall be submitted by the contractor **within one month** of the completion of contract otherwise the contract may be closed ex-parte’ on the basis of the Engineer-in- Charge certificate of the measurement and the amount payable or recoverable as certified by the EIC taking all recoveries into account shall be final and binding on the contractor.
- (ii) Besides above, the contractor may be treated as dormant or non-responsive. This may affect contractor’s futures business with NALCO.
- 9.5 *The contractor is required to obtain clearance from HRD dept and submit the same along with RA bill to Manager-in-charge of the contract for processing for release of payment. For obtaining clearance from HRD dept, the Contractor shall ensure that all the contract workmen engaged by him shall follow Bio-metric Punching System for their daily Attendance. Wages & other applicable dues of the workmen shall be made by the contractor based on the attendance through Bio-metric Punching System. The amount due to the individual workmen should be credited to their respective bank account only, within the stipulated period as per statute. The copy of the payment sheet, bank statement and attendance sheet of individual contract workmen is to be submitted to the HRD department along with each RA bill for necessary verification, record and clearance of RA bill from HRD department to the Manager-in-charge for processing for release of Payment.*
- The final bill will only be released subject to clearance of all statutory dues including EPF of the contract workmen by way of bank transfer and obtaining a certificate to this effect from the contract labour cell of HRD dept.*
- 9.6 *Contractor employing contract labour for execution of the contract shall have to use NALCO's online portal for various activities like safety clearance, issue of gate pass, application for license in Form IV, issue of certificate from Principal Employer (NALCO) in form V for obtaining license from the Central Labour Department, preparation of monthly wage sheets, issue of wage slips, employment cards, preparation and filing of returns, maintenance of statutory registers etc. The contractors have to use the online portal for entering relevant data about themselves and the labour engaged by them.*

- 9.7 “The contractor may use NALCO’s online application eSaukarya (eMeasurement Book-{eMB} & eBill Application) for submitting measurement books & bills in respect of the jobs carried out by them. This application provides online processing of Measurement Book & Bill, tracking movement of bills, status of bill payment etc. to respective contractor. This application also provides alert and mail at important events /stages.

In order to use the application, contractor must register in the application through the NALCO website ([www.nalcoindia.com](http://www.nalcoindia.com)>Menu>Business>Material & Procurement>eBilling System)

#### 10.0 TAXES & DUTIES :

- 10.1 The rates indicated in **Annexure-II**, are inclusive of **all taxes and duties**. For claiming GST from NALCO, the clauses in the para 10.2 to 10.5 below will be applicable.
- 10.2 GST shall be payable extra at applicable rates subject to the fulfillment of following conditions:
1. Providing of GSTIN.
  2. Providing proof of payment of GST and correct uploading of invoice into GSTN.
  3. Compliance with other relevant GST provisions
  4. Payment of GST is subject to reflection of the party’s invoice in GSTR 2A/ Anx-2 (GST new return) of NALCO.
- 10.3 For claiming GST from NALCO, the contractor should submit the GST invoice as per the format Annexure-IV.
- 10.4 The contractor shall be fully & solely responsible to the statutory authorities for compliance of all the provisions of GST and other statutory provisions applicable to this work as a service provider.
- 10.5 NALCO reserves the right to recover from the service provider any penalty imposed on NALCO by the concerned statutory authorities due to non fulfillment of GST compliance by the service provider.
- 10.6 **The anti-profiteering provisions of GST Act mandate that any reduction in tax rates or benefits of input tax credits be passed on to the service recipient by way of commensurate reduction in prices. Vendors to take note and pass on such benefits to NALCO while quoting.**
- 10.7 **The bidder has to submit the anti-profiteering declaration format (Appendix V) duly signed and stamped with seal of the bidder at the time of submission of bid.**

#### **Anti-Profiteering Clause (Sec 171 of CGST Act) Applicable for Indian Bidders)**

- 10.7.1 If any new Tax/Taxes is introduced on sale of goods/service. Either in lieu of existing tax/taxes or as separate tax/taxes, then the overall incidence of tax/taxes on the Vendor on account of its inputs and outputs wherever less than the incidence of existing taxes, then the Vendor shall pass on to Owner, the benefits thereof by way of commensurate reduction in the basic price w.r.t. Input Tax benefit and reduction in Tax chargeable to Nalco w.r.t. Output Tax benefits in connection with goods and/or services provided.
- 10.7.2 If on the other hand, the incidence of tax/taxes is in excess of the incidence of existing tax/taxes, the Owner on submission of satisfactory proof, shall reimburse the Vendor the additional incidence of tax provided they are within the contractual completion date.
- 10.7.3 The Vendor has to provide a declaration along with the Tender that they will abide by the requirements under CI 171 of CGST Act, 2017.

#### 10.8 DEDUCTION OF INCOME TAX:

- 10.8.1 Income Tax as applicable at the prevailing rate on the gross amount billed shall be deducted from the contractor’s bills.
- 10.8.2 Compliance to recent amendments to the provisions of Income Tax TDS/ TCS is applicable to vendors for supply of Services. Reference is invited to recent amendments in Finance Act 2021 sections 206AB & 206 CCA of Income Tax TDS /TCS. The newly introduced sections shall be effective from 01.07.2021. In compliance to the said provisions, all payments to the vendor’s w.e.f 1.7.2021 for supply of services shall be subject to TDS/ TCS as per the newly introduced sections under Income Tax Act.

The provision mandates different rate of TDS depending upon the Compliance as detailed below:

- i. It mandates submission of Income Tax Return (ITR) filed by the vendor for supply of Services for two immediate previous years for which the due date of filing the return has been expired.
- ii. It mandates updation of PAN (Permanent Account Number) of Income Tax of the vendor for supply of Services in the vendor master before processing of the Bill for payment.

With introduction of this section w.e.f 1.7.2021, the applicable TDS is 0.1% subject to compliance of (a) and (b) above. However in the event of non-compliance higher rate of TDS shall be applicable as furnished below:

- i. If PAN No is not available, then TDS @ 5% shall be applicable on the amount paid/ credited to the vendor for supply of services.
- ii. If Income tax Return is not submitted as mentioned at (a) above the applicable TDS shall be higher of twice of rate of relevant TDS section or 20 % (for services).

In view of the same,

- (i) All the vendors are required to submit their PAN No with Copy of PAN Card along with the bid.
- (ii) All the vendors are required to submit the copy of Annual Income Tax Return for previous Year 2018-19 and 2019-20 along with invoice for processing the bills up to 30.9.2021. Thereafter, IT Return for next previous year 2020-21 may be submitted if the statutory period for filling the return is expired which shall suffice the release of payment up to 31.07.2022.
- (iii) In the event of non-compliance to the above, the bill shall be processed (after waiting for seven days of Bill submission) with applicable higher TDS as mentioned above.

**Providing a Copy of Income Tax Return for each of the Two previous Financial Years for which due date for filling of Income Tax Return has expired with self-certification is a mandatory requirement else suitable provisions of the Act will be applicable.**

#### **10.9 DEDUCTION OF CESS UNDER BUILDING & OTHER CONSTRUCTION WELFARE CESS Act.1996**

For any building or other construction work which are covered under section 2 (I) (d) of the Building & Other Construction worker (RE & CS) Act. 1996 and the Building & Other Construction Welfare Cess Act. 1996, 1% Cess shall be deducted from the RA & Final bill gross amount payable till the completion of the job. In addition, contractors having 10 or more workers in their establishment have to register themselves with the registering Officer under the Building & Other Construction worker (RE & CS) Act. 1996.

#### **11.0 DECLARATION OF RELATIVES WORKING IN NALCO:**

The contractors must furnish certificate as mentioned in Appendix – I & II enclosed, disclosing in detail about their relative / relatives, working in the company. Suppression of this information in any form if detected at any stage will be disqualification and lead to rejection of the offer or termination of the contract as the case may be. The concerned party may be debarred from participation in future tenders.

#### **12.0 MATERIALS; TOOLS & TACKLES; ENERGY/WATER REQUIREMENT:**

- 12.1 The contractor shall have to make his own arrangement for supply and storage of his materials / consumables and general tools, tackles, welding sets, electrodes, chain pulley blocks, slings, gas welding/cutting sets, in connection with execution of work. No extra payment shall be applicable for such provisions. Wherever required consumables of approved quality like general purpose welding electrodes, cleaning agents, Oxygen, D.A., etc to execute the contract shall be in Contractor's scope and contractor has to arrange for these materials at their own cost unless mentioned otherwise in the tender documents attached herewith.

#### **12.2 FREE ISSUE MATERIALS(FIM) / CONSUMABLES / FACILITIES FROM NALCO :**

- (a) The contractor will do transportation of FIM from point of issue to work site.

- (b) Electrical energy and Water for the work to be executed inside plant / township, if required, **will be supplied by Nalco** from any suitable point. The contractor shall have to make arrangements, at his own cost, for tapping and using the power/water so required as per advice of EIC.

For availing Electrical energy, **the contractor shall have to provide, at his own cost, a MCB** (Miniature Circuit Breaker) at the point of power supply by Nalco. The MCB shall have to be of a suitable capacity as decided by Nalco's electrical authorities for the concerned area and shall have to be replaced, as and when warranted, on the grounds of changed power requirements or the MCB having been defective and/or damaged.

- (c) Issue of cement and steel as Free Issue shall be governed by clauses 52 to 54 of GCC unless mentioned otherwise in the scope of work / special conditions / BOQ or elsewhere in this tender document subject to the followings:
- (i) For issue of materials within Mines, the contractor shall submit only indemnity bond for the entire value of materials issued to them free of cost as per clause 53 (ix) of GCC.
  - (ii) For value of actual material issued on phased manner for outside Mines, the contractor shall furnish Bank Guarantee equivalent to 20% of the value of material actually issued and indemnity bond for 80% value of materials being issued to the contractor.
  - (iii) For materials taken out side Mines to the vendor's shop, Bank Guarantee equivalent 100% of the value of the materials will be submitted by the vender before taking out the materials.
  - (iv) The Indemnity bond and the Bank Guarantee (from Nalco's approved bankers) shall remain valid till the material account is totally settled. The Indemnity Bond and BG shall be submitted in the format approved by NALCO.

### 13.0 **SUPERVISION:**

- (i) The contractor shall have to work as per direction of the Engineer-in-charge, and shall report to him daily regarding day-to-day progress. The contractor shall give full access to the Engineer-in-charge/ authorized representative of Nalco to inspect day-to-day work executed by the contractor. Besides the contractor shall have to engage his own supervisor to ensure proper workmanship and good quality work, which is a part of the scope of work.
- (ii) If required under prevailing statute, the supervision should be carried out by person holding valid licenses issued by appropriate statutory body.

### 14.0 **EXECUTION OF AGREEMENT:**

The contractor shall have to execute an agreement (in case order value is more than Rs.1,00,000/-) on non-judicial stamp paper of Rs.50/- purchased in the name of the Contractor **from any registered stamp vendor under the jurisdiction of the Orissa High Court**, in the specific format of NALCO. The agreement should be executed in the office of T&C Department-I/c, NALCO, Damanjodi within **10 days** of receipt of Work order or before starting the execution of the work, whichever is earlier.

#### 14.1 **PRE CONTRACT INTEGRITY PACT: Refer SI no 21 of Contract Details at P/3**

Bidders are required to unconditionally accept the "Integrity Pact (IP)" (executed on plain paper), as per format attached separately at Annexure-ID, which has been pre-signed by the Employer, and upload the same duly signed on all pages by the Bidder's Authorized Signatory before stipulated Project Proposal submission time. Bidder and its Subsidiary (ies) and/or Holding Company and/or Subsidiary (ies) of its Holding Company / Consortium members shall individually sign Integrity Pact (IP) and the same shall be uploaded before stipulated Project Proposal submission time. Bidder's failure to comply with the aforesaid requirement regarding submission of Integrity Pact (IP) is liable for rejection of Project Proposal as being non-responsive.

In case of joint venture/ consortium bidding (**Not applicable for this tender**), selected bidder being a Consortium, in addition to above, after incorporation of Joint Venture Company, Integrity Pact shall be signed by the Joint Venture Company along with Project Agreement.



**14.2 INDEPENDENT EXTERNAL MONITOR (IEM):**

In respect of the Tender, the Independent External Monitors (IEMs) would be monitoring the Bidding Process and execution of Project Agreement to oversee implementation and effectiveness of the Integrity Pact Program.

The following Independent External Monitor(s) (IEMs) have been appointed by NALCO, in terms of Integrity Pact (IP) which forms part of the NALCO Tenders/Contracts.

**As per NIT Documents, Salient Points**

IEM is authorized to examine /consider all references made to it under this tender. The bidder(s), in case of any dispute(s) / complaint(s) pertaining to this package may raise the issue either with the designated 'Nodal Officer' in NALCO or directly with the IEMs at above Address.

- i. The Independent External Monitors (IEMs) have the right to access without restriction to all Project documentations of the NALCO including that provided by the Bidder. The Bidder will also grant the Monitor, upon its request and demonstration of a valid interest, unrestricted and unconditional access to its Project Documentations. The same is applicable to Subcontractors. The Monitor is under contractual obligation to treat the information and documents of the Bidder / Subsidiary (ies) and/or Holding Company and/or Subsidiary (ies) of its Holding Company / Consortium members/Sub Contractors with confidentiality.
- ii. Tender Inviting Authority is the Nodal Officer for necessary coordination in this regard.
- iii. If the Employer has terminated the Contract pursuant to Section-3 of the Integrity Pact (IP), NALCO shall encash the Contract Performance Bank Guarantee/Performance Guarantees, in accordance with Section 6 of Integrity Pact.
- iv. The bid security shall be valid for nine months beyond validity period of offer. In case of security deposit, same should be valid till the complete conclusion of the contractual obligations to the complete satisfaction of both the BIDDER and the OWNER, including warranty period.

**14.3 SECRECY TERMS:**

The contractor shall use all the documents, drawings, data & information of proprietary in nature, received from NALCO, solely for the purpose of performing and carrying out the obligations on their part under this contract. He shall not disclose the same to any other person except to the extent required in the performance of the work and shall maintain the utmost secrecy. Contractor and NALCO shall bind their employees, who are involved in engineering of the project by a suitable secrecy contract. The documents, drawings, data and information received from NALCO shall not be used by contractor for any other purpose and will also keep them confidential. All data, documents and information provided by Contractor during the course of execution of the work will be treated as confidential by NALCO and will not be released to any third party, without specific written permission of Contractor.

**Breach of Secrecy:** In case of breach of secrecy by the Contractor, Nalco will have right to terminate contract, Performance Security and claim damages from the party

- 15.0 GATE PASS & SECURITY:** The contractor shall have to arrange valid gate passes for the labor/ workers engaged by him in order to enter into the Mines premises if the work is to be executed inside Mines.

**15.1 TIME OF WORK: The Mines working timings are as follows:**

NAME OF THE SHIFT	DURATION	FROM	TO
"A" SHIFT		06.00 AM	02.00 PM
"B" SHIFT		02.00 PM	10.00 PM
"C" SHIFT		10.00 PM	06.00 AM
GENERAL SHIFT		08.30 AM	05.00 PM
		(LUNCH HOUR 01:00 P.M. TO 01:30 PM )	



**16.0 OCCUPATIONAL HEALTH & SAFETY MANAGEMENT SYSTEM :****16.1 SAFETY:**

The contractor shall have to take necessary safety arrangements / precautions for the workmen engaged by him and shall be responsible for any First Aid/ Emergency treatment for his labors/workmen. In addition, the contractor shall have to abide by all fire & safety regulations of the owner. The contractor has to execute the works after taking necessary instruction & clearance from the safety officer, available at Mines.

**16.2** All lifting/handling tools & tackles should be load-tested as required by law. Mobile equipment such as Truck, Tractors, Tippers, Dumpers etc. shall have valid fitness certificate with due insurance required as per law.

**16.3 PERSONAL PROTECTIVE EQUIPMENTS (PPEs):**

The contractor shall have to provide all necessary PERSONAL PROTECTIVE EQUIPMENTS (PPEs) like *Safety Shoes, Gum Boots, Helmets, Safety Goggles and Nose Masks* etc. as applicable to the workmen engaged by them as per the requirement. Safety aprons and Masks should also be provided to all workmen engaged in wherever necessary. The contractor should ensure use of the above by his workmen during the contract period. In case the contractor fails to provide PPEs as per requirement, at the time of starting the job, they will not be allowed to carry out the assigned job.

- I) The contractor should be aware that the workers engaged by him shall not be allowed to enter into the Mines at the NALCO Mines gate unless they wear the safety helmet and safety shoe. The contractor shall take all necessary steps/actions so that his workmen enter into the NALCO plant premises with safety helmet and safety shoe.
- II) The occupational health & safety policy is enclosed. The contractor has to ensure attendance in a training programme for all his contract workers conducted by safety department and obtain a certificate before putting the workers to work front.
- III) The contractor has to adhere to "NALCO's safety code for contractors" while executing the work.
- IV) In case the contractor shows negligence in adherence to the above conditions and results in causing loss to the company properties or causing obstruction for normal movement inside the plant, NALCO may take suitable action as deemed fit and NALCO may sever the business relation with the party.

**16.4 Medical Checkup:** Contractors will have to submit medical certificate from a Govt. Hospital or registered medical practitioner in the prescribed format for the workmen engaged by him along with application for gate pass and for annual renewal. No gate pass will be issued / renewed unless the medical certificate is enclosed along with the application.

**16.5** The Engineer in-charge executing the contract upon his satisfaction that the Contractor is not performing as per the safety requirements may direct stoppage of work. The contractor shall not proceed with the work until he has complied with such directions to the satisfaction of concerned Engineer in-charge.

**16.6** The contractor shall be fully responsible for accidents caused due to him or his agents workmen's negligence or carelessness in regard to the observance of the safety requirements and shall be liable to pay compensations for injuries.

**16.7** Without prejudice to the right conferred by the Clause 16.5 above for stoppage of work the contractor shall be liable for penalty as per the provisions stipulated at CI No. 34.0.

**16.8** Whenever work at height is involved, contractor must obtain working at height permit from concerned Dept. for the persons required to work at height.

**16.9** The Engineer in-charge executing the contract will assess the penalty amount having regarded to all the circumstances, in particular the nature and the gravity of the violation & will issue a show-cause notice specifying therein the proposed penalty. Considering the cause shown by the Contractor, if any the Engineer in-charge executing the contract shall pass final orders which shall then be final and binding on the contractor. The penalty amount shall be recoverable from any bill and / or EMD / SD of the Contractor without any further reference to him.

**17.0 ENVIRONMENTAL REQUIREMENTS:**

- 17.1 The contractor shall be responsible to promote awareness on the Environmental requirements among the workmen engaged by them for the subject job and ensure adherence to sound environmental practices.
- 17.2 The contractor shall remove all the waste/debris generated during the work on each occasion & dispose off to a place identified by Engineer-in-charge. The thorough up keeping of the work spot before the contractor leaves the work spot is essential. In case the contractor fails to comply with the above, the owner may get the up keeping done & recover the expenses with overheads from the contractor.
- 17.3 The contractor has to ensure efficient use of natural resources like water, fuel oil and lubricants.
- 17.4 In case the contractors are quoting for oil, grease, chemicals and toxic substances or these substances form a part of materials quoted they should ensure proper storage, handling, packing and shifting of materials to our site properly so that the same should not pollute the environment.
- 17.5 The contractor should ensure that materials/ equipment quoted is manufactured/ supplied through Eco friendly process/ system.
- 17.6 The contractor should ensure proper awareness of workers working in their factory/ plant to maintain for a green and clean environment inside/ outside their plant.
- 17.7 It will be the responsibility of the contractor to use Eco friendly packing materials.

**18.0 STATUTORY PROVISIONS :**

- 1) The contractor shall abide by various statutory provisions to the satisfaction of Central/State Government Authorities. The contractor has to comply with provisions made in various statutes such as The Contract Labor (Regulation & Abolition) Act 1970, the payment of Bonus Act 1965. The Employees compensation Act 1923, The Employees Provident Fund & Misc. provisions Act 1952, The Payment of wages Act 1936, The Minimum wages Act 1948, The Industrial Disputes Act 1947, The Mines Act 1952. In case of failure of the contractor to comply with any statutory provisions, NALCO as principal employer, shall have the right to withhold the bills and/or security deposit of the contractor and/or take such action as it may be deemed fit.
- 2) The Engineer-in-charge/Section-in-charge shall ensure that the following statutory requirements are being complied by the contractor. The bidder to take note for necessary compliance.
  - 1) Before executing the job, the contractor has to submit Police Verification Report from the Local Police Station, Voter/Aadhaar Card for imparting Mines Vocational Training. After completion of the MVT. It must be required to cover all the workmen under Employees Insurance Scheme and then photo gate pass shall be issued in favour of contract workmen.
  - 2) If the contractor intend to engage 20 or more workmen on the said job then he/they must take labour license from the Asst. Labour Commissioner (Central), Bhubaneswar. In such case, the contractor has to apply in Form-IV to the Principal Employer to obtain Form-V as per the CL(R&A) Act, 1970.
  - 3) The workmen engaged on the job will be paid Minimum wages as circulated by Nalco from time to time. All the payments shall be made through Bank Account only before 7<sup>th</sup> of the Month.
  - 4) The contractor has to issue Wage slip well in advance & ensure that the wage payment sheet is duly signed by the concerned workmen & the representative of the Principal Employer, after that the payments shall be made only through Bank Account of the individual workman.
  - 5) The Provident Fund contribution shall be deducted and deposited in the Individual PF Code allotted to the contractor and ensure timely submission of reports/returns to the Appropriate Authority.
  - 6) Holiday wages as declared by Nalco shall be paid month wise, if occurred during the month.

- 7) Minimum Bonus @ 8.33% shall be paid to the workmen on the wage limit i.e.Rs.7,000/- or the Minimum wage for the scheduled employment as fixed by the appropriate Government, whichever is higher before Puja or within one month of the completion of the contract as per the Payment of Bonus Act, 1965 revised.
- 8) After completion of the contract, Leave salary, Retrenchment Benefit, bonus are required to be paid within 48 hours to the workmen.
- 9) All the workmen shall be provided Employment Card (within 03 days of commencement of duty) & Wages slip every month before disbursement of Wages as per the Contract Labour (R&A) Act, 1970.
- 10) Statutory records/registers are required to be maintained under different labour laws by the Contractor and to be shown to the appropriate authority on demand.
- 11) The contractor should also provide Personnel Protective Equipment to all their workers engaged on the job.
- 12) The contractor has to insure their workers under the Payment of Gratuity Act, 1972 for payment in the event of death.
- 13) The contractor has to ensure the compliance under the Motor Transport Workers Act, 1961
- 3) The contractor should not engage persons, male or female below 18 years of age and above 60 years of age for the execution of the work awarded to him.
- 4) In case of electrical contracts, the tenderer should have possessed valid electrical contractor's license of MV/HV/EHV as the case may be, issued by licensing authority of government of Odisha, a copy of which shall be enclosed along with the offer.

#### **19.0 DOCUMENTS TO BE SUBMITTED BY BIDDER:**

- 1) *Tender documents duly signed* and stamped with seal of bidder
- 2) ~~Tender fee deposit~~ & EMD receipt
- 3) Annexure III duly filled up signed and stamped with seal of bidder
- 4) Annexure V duly filled up signed and stamped with seal of bidder
- 5) Annexure VI duly filled up signed and stamped with seal of bidder
- 6) Annexure VII duly filled up signed and stamped with seal of bidder
- 7) Annexure IV duly filled up signed and stamped with seal of bidder
- 8) Appendix I duly filled up signed and stamped with seal of bidder
- 9) Appendix II duly filled up signed and stamped with seal of bidder
- 10) Appendix III duly filled up signed and stamped with seal of bidder
- 11) Appendix IV duly filled up signed and stamped with seal of bidder
- 12) Appendix V duly filled up signed and stamped with seal of bidder
- 13) Pre-contract Integrity Pact/ ~~declaration on implementation of integrity~~ duly filled up signed and stamped with seal of bidder
- 14) Declaration of % of Local content along with the place of value addition
- 15) Format for Declaration towards Compliance of Order (Public Procurement No.1, 2 & 3) dtd 23 Jul 2020 & 24 Jul 2020 on Restrictions under Rule 144 (xi) of the General Financial Rules (GFRs), 2017

**The bidder should also submit duly attested (attested by Gazetted Officer) / notarized copies of the following documents along with the bid:**

- 1) MSME Certificate if applicable
- 2) PAN Card of the bidder. (For proprietorship firms PAN should be in the name of the sole proprietor and for other firms/ companies PAN must be in the name of the respective firm/ company).
- 3) PAN Based GSTIN of the bidder
- 4) Proof of Possession of independent EPF code. The tenderer shall possess independent P.F. "Account Code" from the concerned Regional Provident Fund Commissioner. A copy of evidence in this respect may be furnished as & when required.
- 5) Proprietorship Deed/ Partnership Deed/ Article & Memorandum of Association of the Bidder
- 6) Power of Attorney of signatory of the bid, if the signatory of the bid is other than the proprietor

7) Profit and Loss accounts and Balance sheets for the last three financial years as per PQC

**The bidder should also submit notarized copies of the following documents along with the bid:**

1) Appendix VII duly filled up signed and stamped with seal of bidder and notarised

**Non-submission of the above documents shall lead to rejection of bid. No correspondence/documents shall be entertained after scheduled tender submission date and tender opening regarding submission of shortfall documents.**

## **20.0 PAYMENT OF WAGES TO ENGAGED LABOUR AT SITE:**

### **20.1 WAGES OF THE CONTRACT LABOR:**

- A) The payment of minimum wages to the contractor labors shall be as per the rates notified by the central government, as per the minimum wages act – 1948 and as adopted/circulated by the Nalco management from time to time.
- B) The classified workers in different categories will be as per the notification issued by the central government fixing the minimum wages for above scheduled appointment. Where the minimum wages notified by the government of Odisha is higher than the rates notified by the central government, the government of Odisha rates should apply to concerned scheduled employment as long as the same remains higher than the central government rates.

Therefore, the contractor must quote their rates considering the following conditions applicable

*The rate of minimum wages for different categories of laborers' are indicated in Salient Points of the tender at P/4.*

- C) Besides the minimum wages payable as mentioned above, the contractor is required to pay an additional element of Rs. 32/- (Rupees Thirty Two only) per day as a part of wages per day. It would qualify for all statutory payments.
- D) In addition to minimum wages, an amount of Rs12/-(rupees twelve) per day as indicated above shall be payable to each contract labourer towards canteen subsidy and this will be paid by the contractor concerned which will qualify for deduction of provident fund and other statutory deductions as applicable.
- E) Also contractor shall pay to his workmen medical benefit @ 4.75% & special compensatory allowance @ Rs. 30/- per day of actual work.  
*The daily wages to be paid shall include the following components –Basic wages, VDA, contribution to provident fund, additional element, canteen subsidy, medical benefit, special compensatory allowance, bonus, leave salary, safety appliances, holiday/ PH/NH wages and retrenchment benefit as applicable to NALCO Mines.*
- F) The minimum wage as notified by the chief labour commissioner (central) has a variable component as special allowance which is linked to average AICPI for industrial workers, which keeps on changing every six months. The contractor has to absorb all such variations due to increase in minimum wage in their quoted price, and no claim whatsoever on this account shall be entertained.

### **20.2 a) Price variation clause (PVC) towards changes in labour charge for this contract (Refer SI no 16a of Contract Details at P/3)**

**b) In case labour charge variation Clause is applicable for this contract as per SI. No. 16a of Page-3, the following shall be applicable:**

1. In case of increase in minimum wages of the workers, the differential wages and associated components will be reimbursed based on actual payment to labourers excluding OT amount claimed.
2. The reimbursement of escalated amount under this provision will be based on documentary evidence of payment of the claimed amount to the bank account of the workmen.

### **20.3 In case the contractor fails to pay wages to the workmen employed by him for the subject work, NALCO will make the payment and recover the same from the contractor's bill along with 10% service charge for the amount paid.**

### **20.4 The contractor failing to make payment of labor wages as per applicable Law, may be debarred / banned for conducting future business with NALCO.**

**21.0 RECOVERY TOWARDS COMPENSATION FOR DELAY:**

Quality and time (contract period) is the essence of the contract. In the event of failure of the contractor to perform as per the contract in the stipulated period, penalty is leviable @ 1% of contract value for every week of delay subjected to maximum of 10% of work order value and/or as specified in the special conditions of contract. Decision of engineer-in-charge in this regard is final and binding. Clause no.24 of GCC is applicable for the above

This is a genuine pre-estimate of the loss/damage which will be suffered on account of delay/breach on the part of the contractor and said amount will be payable on demand without there being any proof of the actual loss or damages caused by such delay/breach. GST as applicable shall also be recovered.

**22.0 ARBITRATION:** The clause No.87 of General Conditions of contract shall be applicable incase of any dispute or difference whatsoever, which may arise at any point of time. Subject to all other provisions contained in clause 87 of GCC, the provisions of the Arbitration and Conciliation Act, 1996 or any statutory modification or re-enactment thereof and the rule made there under, and for the time being in force shall apply to the arbitration proceeding under this clause.

**23.0 TERMINATION OF CONTRACT:**

- a. If the performance of the successful bidder is found unsatisfactory during the period of contract, the contract will be terminated with short notice of 15 days and the same shall be carried out by any other of the successful bidder / agency at the risk & cost of the contractor. Other penal actions such as forfeiture of BID SECURITY and Security Deposit and debarring the contractor for participating in future tenders of NALCO may also be taken.
- b. If the Government of India or any Statutory Authority/empowered to do so, decides/directs to terminate the Contract, the contract shall be terminated without any notice and for that contractor shall not be entitled to any claim such as extra claim, loss, loss of profit etc. against NALCO. The settlement of the dues of contractor shall be done on the basis of execution of actual work in accordance with the terms & conditions of contract.
- c. Short Closure of Contract: NALCO reserves the right to short close the contract by serving 15 days' notice to the contractor, when either of the contract value is executed or the assigned BOQ quantity is exhausted. The decision of NALCO in this regard shall be final & binding on the contractor.

**24.0 GENERAL INFORMATION:**

- 24.1** Before submission of the bid the bidders are requested to read the bid document carefully make themselves fully conversant with the GCC, Special Conditions of Contract, and Conditions of bidding, Specific conditions, technical Specifications and bid drawings if any. **The bidder should visit site and get familiarized with the site conditions** so that, no ambiguity may arise in these respect subsequent to submission of the bids.
- 24.2** NALCO's General Conditions of Contract (GCC) & Special Conditions of Contract if any shall form part of this contract. The tenderer is advised to go through them before quoting the rates. It will be taken for granted by NALCO that tenderer has seen and gone through the terms and conditions and shall abide by those.
- 24.3** Wherever transport of material is applicable, the contractor has to ensure that goods carried during transportation do not exceed permitted laden weight as certified by registering authority for the respective vehicles.
- 24.4** Wherever applicable Bank Guarantee are to be submitted in Nalco's prescribed format only from NALCO's approved Banker.
- 24.5 (i)** In case there are more than one L-1 bidders, the concerned bidders may be called to offer maximum possible discount on their quoted rates in sealed envelope in order to decide the L-1 bidder.

- (ii) In case of tie of price bids, the following criteria shall prevail in the given order. (after application of clause (i) above.
- Bidder having highest average turnover during last three financial years shall be preferred.
  - The existing contractor/latest contractor executing the same contract satisfactorily shall be preferred.

**Note: Average Annual Turnover shall be decided on the basis of audited profit and loss accounts submitted by the bidder for the last three financial years.**

- (iii) In case of tie for L2 or other positions and L1 price matching is to be sought for splitting of the job as per NIT condition, then L2, L3 etc positions shall be determined by applying criteria at Sl. No. (ii) above.”

- 24.6 The bidder is required to give the names of other firms / agencies / partnership firm / wholly owned or partly owned subsidiary etc. where they are having financial / professional stakes and also give a certificate if any such firm / agency are participating in the subject tender.
- 24.7 Bidders are requested to quote their best prices considering the fact that price negotiation if required may be held with lowest bidder only.

## **25.0 MODE OF SUBMISSION, RECEIPT AND OPENING OF TENDER:**

- 25.1 All covering letters & information are to be included in the offer.
- 25.2 The tender duly digitally signed should be uploaded online in web site of the tendering portal. The Bidders are advised to fill up the prescribed *Formats* available in the tender document as Annexures and Appendices as per requirement with no deviations to the specific requirements, terms & conditions and upload the complete set of tender document duly signed on the bottom of each page along with a forwarding letter addressed to the DGM(T&C), Nalco Damanjodi for uploading in the Online Tendering Portal.
- 25.3 **In case deviation is unavoidable, bidders are instructed to give all deviations in the enclosed deviation statement sheet only (Annexure-VII).** Please be informed that only deviation statement will be evaluated and considered.
- 25.4 Deviation(s) listed at any other place shall not be considered at all and shall not be binding on NALCO. The tender shall be evaluated based on the deviation statement and no claim whatsoever shall be entertained irrespective of bidder has accepted this particular clause or not.
- 25.5 Financial implications of the agreed deviation as per assessment of NALCO will be loaded on the price quoted by the bidder. Deviation not accepted by NALCO will have to be withdrawn by the bidder otherwise such bids may be disqualified/rejected.
- 25.6 **Tenders are to be uploaded in the tendering portal web site** on or before time & date specified at **Sl. No. 9** of Page-4 of tender document. The PART-I bids in case of two part tendering and Single part bid in case of LTE tendering shall be opened at the time & date specified **Sl. No. 10** of Page-4 of tender document.
- 25.7 In the event of the office remaining closed on the Bid opening date, tenders will be opened on the next working day as per the convenience of the concerned officials.
- 25.8 The validity period of the offers submitted by the bidders shall be as indicated at Sl. No. 11 at page-4 from the end date of submission of Tender. However, NALCO reserves the right to defer the date of tender opening in case the response is considered to be inadequate or due to any other reasons. In such event, the bidders shall have to visit the site tendering portal to see the next tender submission & opening dates. In such case, validity period of the offer shall be reckoned from the extended last date



of tender submission. Any Addendum/ Corrigendum to the tender shall only be uploaded in the tendering portal web site and separate information shall not be sent to the bidders by NALCO.

- 25.9** The price bids of technically qualified bidders shall only be opened on a later date. The date & time of opening of price bid shall be intimated to the qualified bidders online **through tendering portal website**. The price bids shall also be opened ON LINE.
- 25.10** All the supporting documents uploaded with the offer should be attested by a Gazetted Officer or Notary Public and are required to be signed on each page by the bidder or by their authorized representative.
- 25.11** The tenderer shall ensure submission of complete information / documents in the first instant itself. Nalco reserves the right to evaluate the offer based on the details furnished by the bidders on the scheduled date of tender submission without seeking any subsequent additional information. If at all shortfall documents are sought from the bidders, bidders are required to submit shortfall documents only pertaining to the technical credentials already submitted in the first instant, any fresh work experience credentials (e.g. Work orders/ work completion certificates) will not be considered for evaluation of the bids.

As per Manual for Procurement of Works 2019 Ministry of Finance Department of Expenditure 5.4.5 Normally no post bid clarification at the initiative of bidder shall be entertained. The shortfall information /documents if any may be sought only in case of historical documents which pre- existed at the time of tender opening and which have not undergone change since then. So far as the submission of documents is concerned after submission of the tender, Nalco may ask and consider, only related shortfall documents. For example, if the bidder has submitted a contract without its completion / performance certificate / annual turnover, the certificate can be asked for and considered. However, no new contract will be asked further so as to qualify the bidder. No post-bid clarification at the initiative of the bidder shall be entertained. Hence bidders are required to take due care to upload all relevant work credentials available with them in order to avoid rejection.

- 25.12** In case a bidder has been debarred/ blacklisted/suspended in any unit of NALCO from participating in tenders for Work/Service Contract, his offer will not be considered during the period of blacklisting/suspension/debarment, as the case may be.
- 25.13** Previous and Present Performance of contractors at NALCO sites shall be considered while evaluating their offers. In case of poor performance, the offer from such bidders shall not be evaluated.
- 25.14** Bidders shall submit the details about engagement of Agents/ Middlemen/ Intermediary/ Consultants / Service Providers and payments proposed to be made to them by the bidder as a part of the present bid.
- 25.15** In case any specific adverse report is received against any bidder during enquiry about the statement made/ credential submitted along with the offer document in respect of capabilities, performance and criminal background of the bidder, the offer submitted by such bidder shall be rejected.
- 25.16** Bidder shall provide information regarding the past & current litigation, debarring/ expelling of the bidder or abandonment of work by the bidder in any Unit of NALCO etc.
- 25.17** Litigation History- a) The bidder is required to give the names of other firms / agencies / partnership firm / wholly owned or partly owned subsidiary etc. where they are having financial / professional stakes and also give a certificate if any such firm / agency is participating in the subject tender.
- a) Bidder may note that any pending criminal case involving moral turpitude, fraud, theft & unlawful activities or conviction by court of law or indictment/ adverse order by regulatory authority against the person, company, Directors of the Company or sister concern of the Company, partner of the firm etc. would constitute disqualification for participating for tender.
- b) The bidder or its proprietor /partner(s)/director(s) of the firm should not have been convicted by court of law for an offence involving moral turpitude in relation to the business dealing during past seven years for acceptance of the offer.

- c) Litigation history for criminal backgrounds to be provided by the bidder. The bidder shall give an affidavit to this effect. The affidavit must be affirmed before the competent judiciary authority or duly notarized by Notary.

**25.18** The bidder or its Proprietor/Partner(s)/Director(s) of the firm should not have been convicted by a court of Law for an offence involving moral turpitude in relation to business dealings during the past seven years for acceptance of the offer. The bidder shall give an affidavit to this effect. The affidavit must be affirmed before the competent judicial authority or duly notarized by the Notary. Besides, bidder should furnish litigation history of their firm or group firm (if claiming fulfillment of PQC on group entity terms). The litigation history shall include:

- (i) Arbitration cases pending.
- (ii) Disputed incomplete works.
- (iii) Pending civil cases against the firm or its Proprietor/Partner(s)/Director(s) involving moral turpitude in relation to business dealings
- (iv) Pending criminal cases against the firm or its Proprietor/Partner(s)/Director(s) involving moral turpitude in relation to business dealings.
- (v) Punishments awarded under civil cases or criminal cases involving moral turpitude in relation to business dealings

**26.1** **EVALUATION OF BIDS:** The price bids of the techno-commercially qualified bids in case of two part bid system & bids in case of single part bidding shall be evaluated to arrive at the lowest (L-1) bidder as indicated at clause no: 24.5 above.

**26.2** Loading of Amount for the agreed deviation shall be done on the Price Bids.

**26.3** **Concurrent commitment:** - The bidder has to submit complete list of concurrent commitments on all jobs under execution by them, which will be taken into account to assess the spare capacity available with the bidder. If the annualized concurrent commitments of the bidder plus annualized estimated value of the work (for single agency)/annualized estimated maximum percentage of work in split case under consideration (for multiple agency) exceeds FOUR times the average annual financial turnover during the last three financial years of the bidder, then the bid of such a bidder shall not be considered for further evaluation.

Concurrent commitment of the bidder shall be evaluated as on the last day of the Month previous to bid date, based on the confirmation/declaration of the bidders that they have disclosed all works being executed by them. Bidders shall exclude all stalled project for which there is no progress in last one year giving reason for no progress in considering above cut-off date. In case any adverse report/complaint are received against bidder and on enquiry found correct, offer shall be rejected and bidder shall be liable for appropriate legal action.

Suppression of fact /data regard to jobs under execution will be considered as gross violation and rejection of bid including penal action such as banning/ blacklisting, as deemed fit- The bidder must confirm that they have disclosed all the works being executed by them in the offer, as per Appendix-III)- [Refer SI no 5 of Salient Points of the tender at P/4.](#)

**26.3** NALCO reserves the right to use in-house data / information for evaluation of bids if felt necessary.

**26.4** In case of discrepancies, the original tender document uploaded by T & C Department, Mines shall be treated as authentic & binding for all purposes.

**26.5** **REVERSE AUCTION:** The guidelines for the same shall be as per the applicable guidelines of tendering portal- [Refer SI no 6 of Salient Points of the tender at P/4](#)

**26.6** Evaluation of bids shall be done in compliance with Govt. Guidelines on Preference to Make In India (as per GOI ORDER NO. P-45021/2/2017-PP(BE-II), Dtd: 16.09.2020) as given in Appendix- IX. In this regard party should upload duly filled up and signed declaration provided in Appendix –IX.

**26.7** Evaluation of bids shall also comply with Govt. Guidelines on Restriction on Countries sharing a land border with India (as per Public order on Restrictions under Rule 144 (xi) of the General Financial Rules

(GFRs), 2017 and ORDER NO: F.No.6/18/2019-PPD DATED 23/07/2020 & 24/07/2020) as given in Appendix-X. In this regard party should upload duly filled up and signed declaration as Appendix-X.

26.8 Bid Evaluation shall comply with Govt. Guidelines on Preference to MSEs (GOI Micro and Small Enterprises (MSEs) Order, 2012 and Amendment dated 9th November, 2018), as applicable.

## **27.0 ACCEPTANCE OF TENDER:**

27.1 Vendors may note that, any pending case or conviction by a Court of Law or indictment /adverse order by regulatory authority against the person, company or against any sister concern which relates to a criminal offence would constitute disqualification”.

**27.2** *The concurrent commitments of bidder on various jobs under execution by the bidder will be taken into account to access the spare capacity available with the bidder. Bidders are required to fill Appendix-III for calculation at our end. Suppression of fact and figures will liable to cancellation of bid and penal action as per rule- [Refer Sl no 5 of Salient Points of the tender at P/4.](#)*

27.3 *A bidder may seek clarification regarding the bidding document provisions, bidding process and / or rejection of his bid. NALCO / Consultant shall respond to such queries within a reasonable time.*

27.4 NALCO reserves the right to award the work in parts between two or more agencies if considered expedient. The quoted rates shall hold good for such an eventuality. Reference is also invited to clause 9 of General conditions of contract.

27.5 Bidders may note that, Letter / Fax of Acceptance or work order/ AOC issued to them is based on acceptance of their offer by NALCO and shall be binding on them. Bidder should return a copy of the same duly signed by the authorized representative as a token of acceptance of the letter of Acceptance / Fax of intent / work order within seven days failing which it will be deemed to have been accepted by the bidder.

## **28.0 OTHER TERMS & CONDITIONS:**

28.1 If found suitable, Preference for engagement of labors under NALCO's contractors establishment may be given to the land affected persons.

28.2 The contractor has to dismantle the structure constructed by him for the purpose of office-cum-store on completion of the contract as per the provision of GCC clause no.2.4.2. If the same is not dismantled within two months of completion of contract he will not be issued any tender paper or will not be allowed to participate in any tender including with-holding of final bill besides initiation of other contractual/legal action as deemed fit against the contractor.

28.3 The contract shall be subject to the provisions of GCC save those provisions of GCC, which are superseded by the above clauses under instruction to Bidders.

**28.4** *The bidder should indicate valid e-mail ID under Annexure-III (DECLARATION BY THE BIDDER) enclosed.*

**28.5** *As per Govt. of India directive, it is mandatory for contractors providing goods & services to central Govt. organizations to be registered in GeM (i.e. Govt. e-market place, [www.gem.gov.in](http://www.gem.gov.in)) and obtain a unique GeM registration Id at the time of placement of order/acceptance of contract. Contractor to ensure immediate compliance in this regard.*

**28.6** If conflicts between documents, comprising the contract arise, the following shall prevail in the order as below;

- FOI/LOA/WO including any agreed variation.
- Schedule of rates/Bill of Quantity
- Technical specifications
- Drawings
- Special Conditions of Contract
- Instruction to Bidders
- General Condition of Contract ([www.nalcoindia.com](http://www.nalcoindia.com) – Tenders – Downloads – Policies & documents – Sl. No. 7) (GCC copy may be downloaded from NALCO website as stated above)

- Relevant Indian Standards (Relevant Indian Standards may be downloaded from concerned website)

28.7 If any alteration or modification to the tender document is done by the bidder, the offer shall be ignored.

28.8 If any bidder is having any unauthorized structure / occupation inside Nalco Mines, their offer may not be considered for evaluation and shall be liable for rejection.

**29.A CONDITIONS FOR DEBARRING / OF BUSINESS WITH A CONTRACTOR/ TENDERER:**

***NALCO reserves the right to debar a tenderer/contractor from participating in future tenders of NALCO or banning of business with NALCO, as deemed fit, along with forfeiture of BID SECURITY & SD under the following (but not limited to) conditions:***

29.A1 **Withdrawal of offer** after the last day & time of tender submission and within the offer validity period.

29.A2 **Failure to mobilize for the work** - The contractor does not mobilize and start work on the scheduled date or within reasonable period.

29.A3 **Failure to adhere to the time schedule of work** - Time schedule indicated by executing engineers will be compiled every week and default in adhering to schedule will have to be reported to HOD for necessary action. Depending on the Mines requirements HOD may initiate debarring proposal.

29.A4 **Failure to maintain required quality of work** - If the quality rating is less than 50% at any instance, subsequent fortnightly rating will be done and if the same is less than 50%, it will be construed as a failure.

29.A5 **Failure to make labour payment** on time at least twice in a contract.

29.A6 **In case of any serious offence committed by the party: e.g. - sabotage, fraud, theft of company property etc. any time during execution of work, debarring process starts immediately.**

**29.B BLACKLISTING/BANNING/SUSPENSION/DELISTING OF BUSINESS/HOLIDAY LIST**

29.B.1 **Blacklisting:** Blacklisting of any agency/ firm/ contractor working with the Company may be resorted to in following cases:

- If the Proprietor or Partner or Director of the Firm is convicted by a Court of Law, following prosecution under the normal process of Law for an offence involving moral turpitude in relations to business dealings;
- If security considerations including the question of loyalty to the State warrant as per recommendations of Ministry of Home Affairs.
- If there is justification for believing that the Proprietor or Partner or Director (or Employee) of the Firm has been guilty of malpractices such as bribery, corruption, cheating, fraud, substitution of bid or theft or any other illegal activities while carrying out the work etc.
- If the Firm refuses/fails to return the Company's dues without adequate cause;
- If the Firm is blacklisted by any Department of the Central Government/ State Government.
- If the Firm is a confirmed evader of Central / State taxes/duties for which NALCO has received notice from the concerned department of Central / State Govt.
- Misbehavior/ threatening of departmental supervisory staff during work execution.
- Constant non-achievement of milestones on insufficient and imaginary grounds and non-adherence to quality specifications despite being pointed out.
- Persistent & intentional violation of important conditions of contract.
- Submission of false/ fabricated/ forged documents for consideration of a bid.
- If declared bankrupt or insolvent.

29.B.2 **Banning:** In case where the conduct of the firm is not serious enough to merit blacklisting but removing the name from the registered vendors of NALCO is justified in the interest of the company, the firm/company shall be banned from doing business with NALCO for a period up to

3 years but not less than one year. The reasons for banning are listed below. This list is illustrative only and not exhaustive

- (i) Offence except criminal, such as moral turpitude, fraud, theft, unlawful activities within the premises of the company (Plant or Township) by the contractor or their workmen.
- (ii) Submission of false declaration / documents in the offer.
- (iii) Misconduct / misbehavior of the contractor or any of the workers engaged by them.
- (iv) Non-compliance of environment, safety and health requirements including use of proper PPEs.
- (v) Any failure to execute the contract satisfactorily
- (vi) Defaults such as failing in disbursements of wages of the workmen/contract labourers in time at least twice in a contract period

**29.C Delisting from Vendor List against all Contracts:**

29.C.1 Party's performance is being evaluated half yearly through online assessment system by the respective Managers-in-Charges for the works being executed at site / at party's premises.

29.C.2 Half-yearly assessment ratings are reviewed and the contractors are reminded for improvement in next assessment period if their performance rating is poor.

29.C.3 If two consecutive Six-monthly assessments of a contract are Very poor in a single evaluation / Safety & Environmental requirements compliance is not O.K. / SA 8000:2008 Compliance is not OK, then the concerned Vendor will be delisted for one year for that particular job subject to approval by Competent Authority of NALCO and the vendor will be intimated through a letter.

29.C.4 The delisted Vendor may be re-enlisted upon the request of the Vendor on completion of the delistment period and subsequent approval by Competent Authority of NALCO.

29.C.5 If any vendor is Black-listed / Banned by any units of NALCO, the Vendor will also be delisted.

29.C.6 In case the performance of the vendor is found to be unsatisfactory by the Manager-in-charge, the vendor may not be considered in future tender for similar jobs.

**29.D Holiday List:** In case the bidder does not participate in three consecutive bids, the bidder will be put under holiday list for a period of one year.

**29.E Suspension of Business:** Temporary Suspension of business may be ordered without any notice, where full enquiry into the allegation is pending and may entail the blacklisting of the firm/ party/ contractor, if the allegation is proved.

**NALCO will issue show-cause notice giving 15 days' time to the contractor to respond to the same in cases of debarring/ blacklisting/ banning/ suspension of business with the party.**

**29.F** If any varying of conflicting situation arises in any of the document forming part of the Contract, NALCO's decision with regard to intention/interpretation of the document and the decision shall be final and binding on the parties.

**30.0 MARKING OF ATTENDANCE/ JOB ALLOCATION.**

30.1 The contractor shall have to maintain an attendance register as provided in the CL(R&A) Act and mark attendance of workmen under his establishment for every day at the beginning of the shift.

30.2 The daily attendance of persons employed by contractors is to be recorded in form " D & E " of the Mines Rules by contractor/supervisor which needs to be countersigned by Engineer In Charge of contract as a statutory record.

30.3 The contractor or his authorized representative has to make regular interaction with the Engineer In Charge for day to day execution of contract. The contractors' workmen are to report every day to the contractors, Engineer/supervisor, who will assign the job and maintain allocation chart for the record, with the following details.

**JOB ALLOCATION REGISTER**

Sl	Name of job	Area	Target date of job completion



- 30.4 At the end of the day, the contractor/supervisor shall report back with the status of job which needs to be certified by Nalco representative.
- 30.5 Nalco Engineer-In-Charge or his authorized representative has the authority to supervise and advise suitable actions which is to be carried out by the contractor/his supervisor and workmen.
- 30.6 Use of PPE by the workmen of the contractor has to be ensured on daily basis to ensure safe working.

**30.7 Use of Online Contract Labour Management System (CLMS):**

An online Contract Labour Management System (CLMS) has been launched across NALCO w.e.f. 01.07.2017. As per the portal architecture, every contractor employing contract labour in NALCO shall have to use this online portal for various activities like safety clearance, issue of gate pass, application for license in Form II, issue of certificate from Principal Employer (NALCO) in Form III for obtaining license from the Central Labour Department, preparation of monthly wage sheets, issue of wage slips, employment cards, preparation and filing of returns, maintenance of statutory registers etc. The contractors have to use the CLMS for entering relevant data about themselves and the labour engaged by them for getting the benefits of the system. Since the package has been developed as per the mandate given by the Management and is being closely monitored by the Ministry of Mines as an item on the DASHBOARD, use of the system is mandatory for the contractor.

**31.0 DEPLOYMENT OF PERSONS IN MINES:**

- 31.1 Before deploying any persons on the job, it should be ensured by the contractor that all such persons deployed possesses a valid Training Certificate in Form-A [(Rule 28(1)] & Rule 16 of Mines Vocational Training Rules 1996.
- 31.2 In case the persons do not possess any valid training certificate as stated above, they are to be given Induction Training as per First Schedule of Mines Vocational Training Rules, 1966 before starting work. They are also to be given on the job training for 6 days.
- 31.3 Name of all the persons employed in the Mines by the contractor should be entered in "B" Register.
- 31.4 If 20 or more than 20 labours are engaged for the job then the contractor has to obtain a license under contract labour (R&A) Act. from the Assistant Labour Commissioner, (Central) Bhubaneswar, Orissa before starting of the work.
- 31.5 As per Rule 29B of Mines Rules'1955 all the workmen to be deployed under this contract are to be medically examined and report of the fitness is to be submitted to the Engineer In Charge before commencement of the work.**

**32.0 SAFETY APPLIANCES:**

- 32.1 **Safety Shoes:** The contractor is required to supply DGMS approved Safety Shoes to all its workmen and supervisors free of cost at a frequency not exceeding once in six months.
- 32.2 **Safety Helmet:** The contractor is required to supply DGMS approved safety helmets to all its workmen and supervisors free of cost, at least once during the period of the contract.
- 32.3 **Special Safety appliances:** The contractor is required to supply all the special safety appliances (like safety belt, safety net, apron, welding screen etc.) as would be detailed under the SOP for the work.
- 32.4 **Responsibility to ensure the use of safety appliances:**
- (i) The contractor shall be responsible to ensure that no one is deployed in the work without wearing safety appliances as required to safely execute the work.
  - (ii) The Engineer -in-charge of the contract shall be responsible to ensure that no one is allowed to work under the contract unless otherwise he wears the Safety appliances as required for the work.

**33.0 RECORDS TO BE MAINTAINED AS REGARD TO DEPLOYMENT OF WORKMEN UNDER THIS CONTRACT.**

On the receipt of LOI/work order, the contractor should open up individual bound paged book (Register) to keep the records of various aspects of deployment of workmen in the prescribed formats, as detailed under (A) & (B).

**(A) Records to be maintained as per the provisions made in the Central Rules, under the Contract Labour (Regulation & Abolition) Act [1970].**

1. Register of workmen employed by contractor in Form XIII (See Rule 75).
2. Muster Roll in Form XVI [See Rule 78(1)(a)(i)].
3. Register of wages in Form XVII [See Rule 78(1)(a)(i)].
- 4. Register of Overtime in Form XXIII [See Rule 78(1)(a)(iii)].**
5. Register of Fines in Form XXI [See Rule 78(1)(a)(ii)].



6. Register of deduction for damage or loss in Form XX [See Rule 78(1)(a)(ii)].
7. Issue of Employment Card in Form No.XIV (See Rule 76).
8. Wage slips to be issued every month before wage payment in Form No.XIX [See Rule 78(1)(b)].
9. Register of advance in Form No.XXII [See Rule 78(1)(a)(ii)].

**(B) Records to be maintained as per the provision made in Mine Rule, 1955 under Mines Act, 1952.**

1. 'B' Register entry in respect of all Workmen, Supervisor & Contractor.
2. Attendance register/off D (Face work) & E (others)
3. G- Register of Leave
- 4. H- Register of leave wages.**
5. I- Register of overtime.
6. Compensatory off.

**34.0 PENALTY FOR NON-COMPLIANCE OF SAFETY LAWS OF MINES ACT:**

- (i) If a contractor is found non-compliant with any safety laws under the statues and systems related to safety, the concerned contractor shall be directed by the Engineer-in-charge of the contract through a letter to comply with the said requirement immediately.
- (ii) If the same contractor is found contravening any safety laws again, a penalty as stated below shall be imposed by the Engineer-in-charge of the contract on the contractor and the same shall be deducted from his RA bill of the contract for month in which the non-compliance was recorded.

The penalty amount shall be as stated below:-

Sl No	Contract Value	Penalty Amount
i.	Contract value up to Rs.10,00,000/-	Rs.10,000/- (Rupees Ten Thousand)
ii	Contract value from Rs.10,00,001/- upto Rs.50,00,000/-	Rs.12,500/- (Rupees Twelve Thousand Five Hundred)
iii	Contract value from Rs.50,00,001/- upto Rs.1,00,00,000/-	Rs.14,000/- (Rupees Fourteen Thousand )
iv	Contract value above Rs.1,00,00,000/-	Rs.15,000/- (Rupees Fifteen Thousand)

- (iii) If the contractor shall be contravening the safety aspects again & again, the above penalty shall be imposed on repeated basis for each time the contraventions has been made. However, after imposition of penalty for 03 (Three) times, the contract shall be cancelled with the approval of Competent Authority.

**35.0 CONTRACTORS RESPONSIBILITIES FOR SAFETY**

- 35.1 The contractor shall prepare the written Safety Operating Procedure (SOP) for the work to be carried out, including an assessment of risk, wherever possible for the safe working of the individual workman engaged by him and the methods to deal with situation which may happen consequence of any accident/incident.
- 35.2 The contractor shall provide a copy of the SOP to the person designated by the mine owner who shall supervise the contractors work.
- 35.3 THE CONTRACTOR SHALL KEEP AN UP TO DATE SOP AND PROVIDE A COPY OF ANY CHANGES MADE SUBSEQUENTLY TO THE DESIGNATED PERSON BY THE MINE OWNER.
- 35.4 THE CONTRACTOR SHALL ENSURE THAT ALL WORK IS CARRIED OUT IN ACCORDANCE WITH THE STATUTE AND SOP AND FOR THE PURPOSE HE MAY DEPLOY ADEQUATE QUALIFIED AND COMPETENT PERSONNEL FOR THE PURPOSE OF CARRYING OUT THE JOB IN A SAFE MANNER.
- 35.5 THE CONTRACTOR SHALL WORK STRICTLY AS PER THE SCOPE OF THE WORK ORDER ENSURING APPLICABLE SAFETY PRACTICES AS PER THE STANDARD.
- 35.6 THE CONTRACTOR SHALL ENSURE THAT ALL SUB-CONTRACTORS HIRED BY HIM COMPLY WITH THE SAME REQUIREMENT AS THE CONTRACTOR HIMSELF AND SHALL BE LIABLE FOR ENSURING COMPLIANCE OF ALL SAFETY PROVISIONS APPLICABLE TO HIM AND THE SUB CONTRACTOR.
- 35.7 ALL PERSONS DEPLOYED BY THE CONTRACTOR FOR WORKING IN A MINE MUST UNDERGO VOCATIONAL TRAINING, INITIAL MEDICAL EXAMINATION AND PME. THEY SHOULD BE ISSUED CARDS STATING THE NAME OF THE CONTRACTOR AND THE WORK AND ITS VALIDITY PERIOD, INDICATING STATUS OF TV & IME.
- 35.8 EVERY PERSON DEPLOYED BY THE CONTRACTOR IN A MINE MUST WEAR SAFETY GADGETS TO BE PROVIDED BY THE CONTRACTOR. IF CONTRACTOR IS UNABLE TO PROVIDE, OWNER/AGENT/MINE MANAGER SHALL PROVIDE THE SAME AND RECOVER THE COST FROM THE CONTRACTOR.

- 35.9 THE CONTRACTOR SHALL SUBMIT TO DGMS, THE RETURNS INDICATING- NAME OF HIS FIRM, REGISTRATION NUMBER, NAME AND ADDRESS OF PERSON HEADING THE FIRM, NATURE OF WORK, TYPE OF DEPLOYMENT OF WORK PERSONS, NUMBER OF WORK PERSONS DEPLOYED, HOW MANY WORK PERSONS HOLD VT CERTIFICATE, HOW MANY WORK PERSONS UNDERGONE IME, PME AND TYPE OF MEDICAL COVERAGE GIVEN TO THE WORK PERSONS. THE RETURN SHALL BE SUBMITTED QUARTERLY (BY EVERY 10<sup>TH</sup> OF APRIL, JULY, OCTOBER & JANUARY) FOR CONTRACTS OF MORE THAN ONE YEAR. HOWEVER, FOR CONTRACTS OF LESS THAN A YEAR, RETURNS SHALL BE SUBMITTED MONTHLY.
- 35.10 THE CONTRACTOR SHALL HAVE TO TAKE ALL SAFETY PRECAUTION FOR HIS WORKMAN WORKING DURING ANY HOUR OF THE DAY AND WILL BE RESPONSIBLE FOR ANY FIRST AID/EMERGENCY TREATMENTS FOR HIS EMPLOYEES. THE CONTRACTOR SHALL ABIDE BY ALL FIRE AND SAFETY REGULATION OF THE OWNER. SAFETY PPE LIKE SAFETY SHOES, HELMETS, GUM BOOTS AND MASKS ETC. SHALL BE PROVIDED BY THE CONTRACTOR TO ALL WORKMEN WORKING UNDER HIM. THE CONTRACTOR SHALL ENSURE THE USE OF THE ABOVE BY HIS WORKMEN DURING THE CONTRACT PERIOD. THE OCCUPATIONAL HEALTH & SAFETY POLICY IS ENCLOSED. YOU HAVE TO UNDERGO HALF A DAY TRAINING PROGRAMME FOR ALL YOUR CONTRACT WORKERS BEFORE APPLYING FOR SAFETY GUIDELINES.

### **36.0 COMPLIANCE ON QMS/EMS/OHSMS/SA**

- 36.1 The contractor shall ensure that all his men and activities comply with the QMS/EMS/OHSMS/SA requirements as per respective standards, follow respective Policies and Objectives and Targets etc. set by the Panchpatmali Bauxite Mine, Nalco. For details of Policies Annexure: VIII may please be referred which is enclosed herewith
- 36.2 The Engineer-in-charge shall monitor/review the compliance of above requirements by the party as per respective standards periodically and intimate any deviation to the party for compliance.
- 36.3 During the course of contract activities/jobs, different scraps generated are to be segregated and to be disposed off in earmarked locations/ are to be disposed off in designated bins or as directed by Engr-in-charge.

### **37.0 CONTRACT CLOSURE:**

- 37.1 Completion of work assigned through the contract within contractual period is both a contractual obligation and legal obligation on both the parties to the contract i.e. Contractor and Nalco. Closure of contract is achieved in stages through contractual terms or through mutual agreement/settlement. Submission of Final Bill is the 1st stage of closure. Successful completion of Defect Liability Period and Performance Guarantee Period is the 2nd Stage of closure. Settlement of all outstanding payables and receivables is the 3rd stage of closure.
- 37.2 It will be the responsibility of the Contractor in all three stages to lodge necessary claims with EIC/MIC and settle it as follows:
- 37.2.1 1st stage - Submission of Final Bill, and Performance Guarantee Bond (PGB)-if applicable maximum within 01 month from the end date of contract period.
- 37.2.2 2nd stage - Submission of Claim letter for release of SD/PBG maximum within 15 days from the date of closure of Guarantee/DLP.
- 37.2.3 3rd stage - Settlement of all outstanding relating to the Contract, before release of Contract Completion Certificate by EIC/MIC with concurrence of Finance regarding Contract Execution Value.

## ANNEXURE - III

**:DECLARATION BY THE BIDDER:**

I \_\_\_\_\_ representing the bidder, do declare on behalf of the firm as hereunder:

\* That, I am the PROPRIETOR of the bidder firm. I undertake to submit proof of ownership as and when demanded by NALCO.

OR

\* That I am the authorized signatory to the tender documents holding valid Power of Attorney. Certified copy of the valid power of Attorney is enclosed with offer.

**NOTE: \* Strike out whichever is not applicable.**

1. That, we do not have any FINANCIAL/PROFESSIONAL stake in any of the other bidders participating in this tender;
2. That, this firm has not been blacklisted/debarred/banned in any unit of NALCO/Other PSUs / GOVTs of India/states.
3. That, we have never been prosecuted by any statutory authority.
4. That, any change in the constitution of the firm shall be made with prior clearance from Nalco.
5. That, we have studied all the clauses/sub-clauses terms and conditions of the tender documents and our offer fully comply with the requirements spelt out in the tender documents.
6. We undertake to abide by and comply with all the safety and environmental regulations in force during the execution of work.
7. We undertake to abide by and comply with all the applicable provisions of laws governing contract workers engaged by you for this work.
8. The appendix I & II regarding relatives working in NALCO are filled up and enclosed.
9. That we have quoted the rates in figures as well as words.
10. We undertake that we do not have any unauthorized structure / construction inside Nalco Township or Plant. We also undertake to remove any / all such structures, if detected by Nalco later on in compliance of GCC terms and conditions.
11. We declare that all supporting documents of the offer submitted are attested by a gazetted officer / Notary.
12. **" I/we declare that I/we have not been convicted / or any case has been initiated against me / us by a Court of Law or indictment / adverse order by a regulatory authority against me / us, or my / our company or against any sister concern of mine / ours which relates to a criminal offence."**

I further declare that all above statements are true and if found otherwise any time during pre-ordering/post ordering stage of the contract, action as deemed fit by NALCO including 'rejection of my offer' and 'debarring/blacklisting' may be taken against me/my firm / my company and shall be binding on me/firm / my company represented by me.

**(Signature and official seal of the Proprietor / Authorized Person)**

Date :

**Name of the signatory**.....

**Postal address of the firm**.....

.....

**PF NO :** ..... **TIN NO :** .....

**PAN NO.:**..... **PAN based GSTIN Reg. No.:**.....

**Landline Phone No**..... **Mobile**.....

**Fax No**.....

**Email Address :** .....

**TAX INVOICE**

[See Rule 46 of the Central Goods and Services Tax Rules, 2017]

**Details of Supplier**

Name  
Address  
  
GSTIN/Unique ID

ORIGINAL FOR RECIPIENT  
DUPLICATE FOR TRANSPORTER  
TRIPLICATE FOR SUPPLIER

Date :  
Inv serial No. :

**Details of Recipient (Billed to)**

Name  
Address  
  
State  
State Code  
GSTIN/Unique ID

Place of supply:  
Name of State:

**Details of Consignee (Shipped to)**

Name  
Address of delivery

State  
State Code  
GSTIN/Unique ID

Sr. No.	Description of Goods / Services	HSN Code / SAC	Qty.	Unit	Rate (per item)	Total	Discount	Taxable Value	CGST		SGST /UTGST		IGST		CESS	
									Rate	Amt	Rate	Amt	Rate	Amt	Rate	Amt
	Freight															
	Insurance															
	Packing and Forwarding Charges															
	<b>Total</b>															
	<b>Total Invoice Value (In figure)</b>															
	<b>Total Invoice Value (In Words)</b>															
	<b>Amount of Tax subject to Reverse Charges</b>															

E.&amp;O.E

Electronic Reference Number

Designation / Status

Name of the Signatory

Note:

Signature

**Note:**

1. In case of Supply of service, the tax invoice shall be as follows: "ORIGINAL FOR RECIPIENT", "DUPLICATE FOR SUPPLIER".
2. The tax invoice can be signed with digital signature also.
3. In case of unregistered recipient where the value of the taxable supply is less than INR 50,000/-, name and address of the recipient and the address of delivery, along with the name of the State and its code shall be recorded in the invoice if he requests for the same.
4. Where an invoice is required to be issued under section 31(3)(f) of the CGST Act, a registered person may issue a consolidated invoice at the end of a month for supplies covered under section 9(4), the aggregate value of such supplies exceeds rupees five thousand in a day from any or all the suppliers.
5. The information in red colour indicates the changes as per Notification No. 10/2017 - Central Tax dated 28th June, 2017 as compared to rules finalised by the GST Council on 18.05.2017
6. The information in green colour indicates the words removed as per Notification No. 10/2017 - Central Tax dated 28th June, 2017 as compared to rules finalised by the GST Council on 18.05.2017

**ANNEXURE-V**

**INTERNET BANKING / R.T.G.S. BANKING MANDATE FORM**  
**(To be submitted in Duplicate)**

To  
**National Aluminium Company Limited,**  
**M&R complex,**  
**Damanjodi-763008**

Dear Sir,

**SUB: AUTHORISATION FOR RELEASE OF PAYMENT DUE FROM NALCO, M&R COMPLEX THROUGH INTERNET BANKING (SBI) OR THROUGH R.T.G.S. BANKING.**

Refer Order No..... date..... and/ or Tender/ Enquiry/ Letter

No..... date.....

(Please fill in the information in LETTERS. Please TICK wherever it is applicable)

1. Name of the Party.....

2. Address of the Party

.....City.....Pin Code

E-Mail Id:.....

--	--	--	--	--	--

**3.Particulars of Bank:**

Bank Name					Branch Name										
Branch Place					Branch City										
Pin Code					Branch Code.										
MICR No.															
(9 Digits code number appearing on the MICR Band of the cheque supplied by the Bank. Please attach Xerox copy of a cheque of your bank for ensuring accuracy of the bank name and code number)															
Account Type	Savings				Current				Cash Credit						
Account No. (as appearing in the Cheque Book)															
R.T.G.S. IFSC Code.															

4. Date from which the mandate should be effective: Dt.     /     /20.....

I/we hereby declare that the particulars given above are correct and complete. If any transaction is delayed or not effected for reasons of incomplete or incorrect information, i shall not hold m/s national aluminium company limited responsible. I also undertake to advise any change in the particulars of my account to facilitate updating of records for purpose of credit of amount through RBI ECS/ RBI EFT/SBI net.

Place:

Signature of the party/ Authorized Signatory.

Date:

-----  
 Certified that particulars furnished above are correct as per our records.

Bank's Stamp:

Date:

(Signature of the Authorized Official from the Bank)

ANNEXURE-VI**Undertaking Letter on Downloaded tender documents**

We here by confirm that, we have downloaded the complete set of tender documents along with the set of enclosures hosted in tendering portal website. We confirm that the bid document has not been edited or modified by us. In case, it is observed by NALCO that the bid document has been edited or modified, we agree for the rejection of the bid by NALCO besides any action as deemed fit by NALCO.

Company Name \_\_\_\_\_

Name \_\_\_\_\_

Signature \_\_\_\_\_ Date \_\_\_\_\_

Postal Address \_\_\_\_\_

\_\_\_\_\_

Email ID \_\_\_\_\_

Phone \_\_\_\_\_ FAX \_\_\_\_\_

**Signature of Authorized Person With seal**



ANNEXURE-VII**EXCEPTION / DEVIATION STATEMENT TO THE TENDER TERMS & CONDITIONS**

In case of no deviation please write 'No Deviation' in the space below:

In case of single part bidding no deviation is acceptable.

Sl. No	Reference of Tender Document			Subject	Deviation / Exception
	Page No.	Clause No.	Para No.		

Signature & Seal of bidder.

**B) DECLARATION BY THE BIDDER ON INCLUSION OF GST IN THE QUOTED PRICE AS PER NIT CONDITIONS-  
(APPLICABLE ONLY FOR TENDERS FLOATED IN GEM PORTAL)**

***IT IS HEREBY CERTIFIED THAT WE HAVE INCLUDED            (TO BE FILLED UP) % GST IN THE QUOTED  
UNIT PRICE FOR ALL ITEMS OF THE BOQ FOR THIS TENDER AS PER THE REQUIREMENTS OF THE TENDER.***

Signature & Seal of bidder.

**NOTE: OFFERS SUBMITTED IN THE GEM PORTAL WITHOUT INCLUDING GST IN THE QUOTED PRICE SHALL  
NOT BE CONSIDERED FOR TECHNO-COMMERCIAL EVALUATION & THE BID SHALL BE SUMMARILY  
REJECTED.**



### QUALITY POLICY

Quality will form the core of our business philosophy. Meeting the needs and expectations of the customer and consistently improving our systems and work ethos will be our chosen path in achieving excellence in business and fulfilling our social obligations.

### GUIDING PRINCIPLES

- To ensure a healthy return on investment by maximizing Operational efficiency, Capacity utilization and Productivity.
- To continually improve and redesign Systems, Processes and Practices in order to ensure error prevention and improve response time.
- To adopt Internal Customer focus as a means to external customer satisfaction.
- To treat Human Resource as the key to Quality excellence and ensure development, involvement and satisfaction of employees.
- To ensure high quality of inputs through proactive interaction with suppliers.
- To meet obligations towards the society as a responsible corporate citizen.
- To provide value for money to all stake holders.
- To follow ethical business philosophy at all times.

### COMMITMENT

We dedicate ourselves to the Quality Policy and Objectives of the company in letter and spirit and commit to continuously strive for their fulfillment

SD/-  
Chairman-cum-Managing Director

Continued...



### ENVIRONMENT POLICY

In recognition of the interest of the society in securing sustainable industrial growth, compatible with a wholesome environment, NALCO affirms that it assigns high importance to promotion and maintenance of a pollution-free environment in all its activities.

#### Objectives: -

- To use non-polluting and environment-friendly technology
- To monitor regularly air, water, land, noise & other environmental parameters.
- To constantly improve upon the standards of pollution control and provide a leadership in environment management.
- To develop employees awareness on environmental responsibilities and encourage adherence to sound environmental practices.
- To work closely with Government and local authorities to prevent or minimize adverse consequences of the industrial activities on the environment.
- To comply with all applicable laws governing environment protection through appropriate mechanisms.
- To actively participate in social, welfare and environmental development activities of the locality around its units.

#### Commitment:-

We dedicate ourselves to ensure a green and wholesome environment in all areas of our operations for sustainable industrial growth and to set standards in environmental management.

Bhubaneswar

SD/-  
Chairman-cum-Managing Director

Continued...



NATIONAL ALUMINIUM COMPANY LIMITED  
M&R COMPLEX, DAMANJODI

### OCCUPATIONAL HEALTH & SAFETY POLICY

NALCO is committed to maintaining a Safe, Healthy and Sustainable work environment in all its operations. This shall be achieved by:

- Focusing on prevention of Accidents and Occupational Health issues.
- Complying with all legal requirements & other requirements related to Safety and Occupational Health of persons, and establishing clearly defined goals & procedures to achieve the same.
- Ensuring Safety & Health of all employees and contract workers in its premises, including those involved in transportation, cleaning and other such activities.
- Conducting Periodic Safety Audits, Environment Audits, Health Check-ups and Risk Assessment by both internal and external qualified persons.
- Considering aspects related to Safety and Health of personnel as well as environmental issues at the time of procurement of equipment and selection of technologies.
- Ensuring health of persons in the peripheral locations, likely to be affected by our operations.
- Periodically monitoring and reviewing safety & occupational health issues at relevant levels, including the highest levels.
- Communicating Safety Hazards and health related issues to all concerned through suitable means, including training.
- Consulting and ensuring participation of workmen or their representatives in Policy implementation, identification of potential issues and formulation of measures to address the same.
- Considering Health & Safety performance of individuals at different levels during their career advancement, as per Nalco's policy
- Establishing and maintaining suitable set-up with competent persons to monitor and bring to the notice of the management any issues related to unsafe conditions & practices.
- Striving for continual improvements, exceeding statutory compliance levels, wherever feasible.

Bhubaneswar

SD/-  
Chairman-cum-Managing Director



### **SOCIAL ACCOUNTABILITY POLICY (SA 8000)**

We at NALCO are committed to provide a socially accountable work environment to all employees and uphold ethical business practices by respecting employees' rights to ensure a decent Workplace.

We shall achieve these by adopting a companywide culture, which will help to promote:

- a) Involvement of all employees in sustenance of SA 8000:2014 Standard;
- b) Conforming to all requirements of SA 8000:2014 Standard;
- c) Complying with National laws, other applicable laws and other requirements to which the organization subscribes;
- d) Continual improvement initiatives in all social aspects;
- e) Learning and training opportunities to all employees.

This policy is communicated and understood within the organization.

**Date: 04.03.2020**

SD/-

**Chairman-cum-Managing Director**

### **SA 8000 Requirements**

- The organization shall not engage in or support any form of child labour
- The organization shall refrain any form of forced labour
- The organization shall provide to all its employees the necessary health and safety benefits as per the statutory and regulatory authorities
- The organization shall respect the right of worker to organize themselves and bargain collectively
- The organization shall not allow or support any form of discrimination among its worker and shall not engage in or tolerate any form of corporal punishment.
- The organization shall follow the statutory requirements described for normal working hours, remuneration and social benefits.

**HOD (H&A)**

**I hereby confirm that our firm abides by the above-mentioned SA 8000 requirements of the tender.**

**ANNEXURE –X**

**This Proforma is to be used by Bidder for Bank Guarantee For Bid Security/EMD**

**PROFORMA FOR BANK GUARANTEE FOR BID SECURITY/EMD**

(To be executed on non-judicial stamped paper of appropriate value)

B. G. No. \_\_\_\_\_

Date: \_\_\_\_\_

1. WHEREAS M/s National Aluminium Company Limited (A Government of India Enterprise), having its Unit/Office at .....(UNIT/OFFICE ADDRESS ISSUING THE TENDER) (hereinafter called "The Company" which expression shall unless repugnant to the subject or context includes its legal representatives, successors and assigns) has issued Tender paper vide its Tender No..... dt.....for .....(hereinafter called "the said tender") to M/s. ....(hereinafter called the said Tenderer(s)" which expression shall unless repugnant to the subject or context includes their legal representatives, successors and assigns and as per terms and conditions of the said tender, the tenderer shall submit a Bank Guarantee for ` .....(Rupees .....only) towards bid security in lieu of cash.
2. WE .....Bank having its branch office at .....do hereby undertake to pay the amount due and payable under this guarantee without any demur, merely on a demand from the Company stating that in the opinion of the company which is final and binding, the amount claimed is due because of any withdrawal of the tender or any material alteration to the tender after the opening of the tender by way of any loss or damage caused to or would be caused or suffered by the Company by reason of any breach by the said tenderers(s) of any of the terms and conditions contained in the said tender or failure to accept the Letter of Intent Agreement or that the amount covered under this Guarantee is forfeited. Any such demand made on the Bank by the Company shall be conclusive as regards the amount due and payable by the Bank under this guarantee. However, our liability under this guarantee shall be restricted to an amount not exceeding ` ..... (Rupees.....only).
3. We undertake to pay to the Company any money so demanded notwithstanding any dispute or entree raised by the tenderer(s) in any suit or proceeding pending before any office, court or tribunal relating thereto our liability under this present guarantee being absolute and unequivocal. The payment so made by us under this bond shall be a valid discharge of our liability for payment there under. Our liability to pay is not dependent or conditional on the Company proceeding against the tenderer.
4. The guarantee herein contained shall not be determined or affected or suspended by the liquidation or winding up, dissolution or change of constitution or insolvency of the said tenderer(s) but shall in all respect and for all purposes be binding and operative until payment of all money due or liabilities under the said contract(s)/ Order(s) are fulfilled.



5. WE .....Bank Ltd. further agree that the guarantee herein contained shall remain in full force and effect during the period that would be taken for the finalization of the said tender and that it shall continue to be enforceable till the said tender is finally decided and order placed on the successful tenderer(s) and or till all the dues of the company under or by virtue of the said tender have been fully paid and its claims satisfied or discharged or till a duly authorized officer of the company certifies that the terms and conditions of the said tender have been fully and properly carried out by the said tenderer(s) and accordingly discharges the guarantee.
6. That the Company will have full liberty without reference to us and without affecting this guarantee to postpone for any time or from time to time. The exercise of any of the power of the Company under the tender.
7. Notwithstanding anything contained herein before, our liability shall not exceed `.....(Rupees.....only) and shall remain in force till.....Unless a demand or claim under this Guarantee is made on us within three months from the date of expiry, we shall be discharged from all the liabilities under this guarantee.
8. We.....Bank, lastly undertake not to revoke this guarantee during its currency except with the previous consent of the Company in writing. We further undertake to keep this Guarantee renewed from time to time on the request of Tenderer(s).
9. We ..... Bank further agree that this Guarantee shall be invocable at our place of business at ..... (Bank name), ..... , (Branch Name and address of the Branch), Bhubaneswar, Odisha 751\_\_ \_\_ .

Date.....

.....Bank

Corporate Seal of the Bank

By its constitutional Attorney

Signature of duly Authorized person

On behalf of the Bank With seal &amp; signature code

Details of Persons Issuing the BG:

Name-----

Address for Correspondence: -----

Telephone &amp; Fax No.

E-mail :

Note: BGs to be furnished from any of the approved banks of NALCO.

**APPENDIX – I****NATIONAL ALUMINIUM COMPANY LIMITED.  
Mines Division****INSTRUCTION FOR BIDDERS: FILLING UP OF FOLLOWING APPENDICES IS MUST, WITHOUT WHICH THE  
OFFER IS LIABLE FOR REJECTION.**

The tenderer shall carefully study the list of directors of NALCO from the website mentioned below given below and state “Yes” or “No” to questions given below:

<https://nalcoindia.com/company/nalco-leadership/board-of-directors/>

Sl. No	Description	Write “Yes” or “No”
1.	Whether the tenderer is a relative of any of the directors of NALCO?	
2.	If the tenderer is a firm, any of NALCO Directors or any of their relatives is a partner in the tender’s firm?	
3.	If the tenderer is a Company Registered under Company’s Act 1956, whether any of NALCO’s Directors is Director of the Company?	

**Note:** If Yes to any of the above questions, please give the name of NALCO’s Director and relationship of the tender / partner / member / Director as the case may be.

Sl. No.	Name	Relationship

**APPENDIX – II**

**Important : Suppression of information shall be viewed seriously and action deemed fit would be taken including termination of the contract.**

**(Strike out which is not applicable)**

1. I/We hereby declare that none of my/our relative is an employee of NALCO.
2. I/We hereby declare the following are the employee/s of NALCO is/are my/our relative/s.

Sl.No.	Name of the employee/ P.No. / Designation/Place of Posting.	Relationship with the employee.
1		
2		
3		
4		

(PLEASE ATTACH EXTRA SHEET, IF REQUIRED)

**Appendix - III****DETAILS OF PRESENT COMMITMENTS OF THE TENDERER****As on the last date of previous month in which the tender opening is due**

I/We \_\_\_\_\_, age \_\_\_\_\_ years, son of \_\_\_\_\_ do hereby solemnly affirm and declare as follows for on behalf of Firm \_\_\_\_\_.

SI No	Full postal Address of client & Name of Officer-in-Charge with telex/ Telephone NO.	Description of work	Value of contract	Date of commencement of work	Scheduled Completion period	Completion in % as on date	Expected date of completion	Amount of Balance work during the period of Next 12 Months from the date of declaration	Remarks
1	2	3	4	5	6	7	8	9	10

It is certified that the above particulars furnished are true and correct. If any information given is found to be misleading at a later date NALCO will have the authority to take necessary action as per provision of the contract and as per laid down procedure of the Company. It is further certified that all the works under execution at NALCO and outside NALCO have been indicated in the above format.

Signature of the bidder \_\_\_\_\_

Name of the Bidder \_\_\_\_\_

Company Seal

**PROPOSED SITE ORGANISATION****NAME OF TENDERER:**

Tenderer is to indicate here the site organization, he proposes to set up for execution of the work.

It is understood that this will be augmented from time to time depending on the requirements for timely completion of the work as directed by the Engineer-in-Charge.

Tenderer is also to furnish the bio-data of the Resident Engineer & key personnel to be deployed at site.

**Format:- (To be submitted with BID)**

**ANTI-PROFITEERING DECLARATION FORMAT**  
**To whomsoever it may concern**

I, Mr. \_\_\_\_\_, Proprietor/ \_\_\_\_\_  
 Other authorised signatories) of M/s. \_\_\_\_\_, hereby solemnly and  
 sincerely declare that, while giving this quotation to NALCO against Tender No.  
 \_\_\_\_\_ Dt. \_\_\_\_\_, me /my firm/mycompany has abided by all Tax Laws and Rules  
 including but not limited to Section 171 of the Central Goods and Services Tax Act, 2017.

I hereby solemnly and sincerely declare that, me/my firm/my company, will continue to abide by the said  
 laws, including but not limited to Section 171 of the Central Goods and Services Tax Act, 2017, as  
 applicable from time to time during the life of the tender and during execution of any order placed with  
 reference to the said tender.

I further declare that, me/my firm/my company, in furtherance and in compliance to the said section, will  
 make commensurate reduction in the basic prices w.r.t. Input Tax benefits and reduction in Tax charged  
 to 'Nalco' w.r.t. Output Tax benefits in connection with goods and/or services provided.

I further declare that the foregoing is true and correct and the same is a legal obligation and failure  
 to fulfil if could result in penalties under the law.

Date: \_\_\_\_\_

Place: \_\_\_\_\_ To be signed by the authorized person under the firm's seal.



**Format:- (To be submitted at the time of release of Final Due)**

**ANTI-PROFITEERING DECLARATION FORMAT**  
**To whomsoever it may concern**

I Shri/Mr. ----- Proprietor/manager service(similar salutation for other authorized signatories) of M/s----- hereby sincerely declare that I have abided with all the laws and rules as applicable on me /my firm/my company from time to time ,in my dealing with M/s National Aluminum Company Ltd (NALCO) including but not limited to section 171 of central goods an service tax Act, (CGST Act) 2017 .

In furtherance and compliance of the said section, I declare that I have made commensurate benefit of reduction in rate of tax or benefit of input tax credit in the purchase order/work order/Contract No..... Dt.....has been passed on to NALCO.

I declare that foregoing is true and correct and the same is a legal obligation and failure to fulfill it could result in penalties under the Tax law.

Date:

Place:

Signature with seal/stamp.

## APPENDIX – VII

**LITIGATION HISTORY TO BE SUBMITTED ON NON-JUDICIAL STAMP PAPER****BEFORE THE NOTARY PUBLIC  
A F F I D A V I T**

I .....aged about ..... years, S/O: ....., At-....., PO-....., Dist-....., Pin-....., State: ....., Designation: ..... of M/s. .... have not been convicted by a court of Law for an offence involving moral turpitude in relation to business dealings during the past seven years for acceptance of the offer. I do hereby solemnly affirm and state as follows:

**INFORMATION REGARDING CURRENT LITIGATION, DEBARRING EXPELLING OF BIDDER  
OR ABANDONMENT OF WORK BY THE BIDDER**

1.	(a)	Is the bidder currently involved in any litigation relating to the works.	Yes/No
	(b)	If yes, give details:	
2.	(a)	Has the bidder or any of its constituent partners been debarred/expelled by any agency in India during the last 5 years.	Yes/No
	(b)	If yes, give details:	
3.	(a)	Has the bidder or any of its constituent partners failed to perform on any contract work in India during the last 5 years.	Yes/No
	(b)	If yes, give details:	
4.	(a)	Arbitration cases pending.	Yes/No
	(b)	If yes, give details:	
5.	(a)	Disputed incomplete works.	Yes/No
	(b)	If yes, give details:	
6.	(a)	Pending civil cases against the firm or its Proprietor/Partner(s)/Director(s) involving moral turpitude in relation to business dealings.	Yes/No
	(b)	If yes, give details:	
7.	(a)	Pending criminal cases against the firm or its Proprietor/Partner(s)/Director(s) involving moral turpitude in relation to business dealings.	Yes/No
	(b)	If yes, give details:	
8.	(a)	Punishments awarded under civil cases or criminal cases involving moral turpitude in relation to business dealings	Yes/No
	(b)	If yes, give details:	

**Note:**

If any information in this schedule is found to be incorrect or concealed, qualification application will be summarily rejected.

Signature of the bidder

Date : .....

## Appendix - VIII

Return No. \_\_\_\_\_

Date: \_\_\_\_\_

To

The Director General of Mines Safety,  
Govt. of India,  
At: Eastern Railway,  
Dhanbad- 826001 (Jharkhand)

Sub: Monthly/Quarterly Return in respect of -----(Name of  
work) for the month/quarter -----of M/s -----

Dear Sir,

Enclosed please find herewith the details of the work persons (Contractual workers) **engaged at Panchpatmali Bauxite Mines, M/s NALCO, Damanjodi, Dist: Koraput (Orissa)**, in relation to work on the subject cited above for the month/ quarter ending----- as per Cl.No.2.2(i)(II) of the relevant recommendations of **10<sup>th</sup> conference on safety in mines**.

This is for your kind information and record please.

Thanking you Sir.

Yours faithfully.

(Signature of the contractor/his authorized representative)

(Seal)

Place:

Date:

C.C:

1. Director of Mines Safety  
Plot No. L1, Nayapalli  
P.O. RRL Campus  
Bhubaneswar- 751013 (ORISSA)
2. Mine Manager  
Panchpatmali Bauxite Mine  
M/s NALCO  
p.o: Damanjodi, Dist. Koraput (ORISSA)
3. Mgr In-charge of respective work.

**Monthly/ Quarterly report of contractual work persons engaged at Panchpatmali Bauxite Mine, M/s NALCO, Damanjodi, Orissa for the month/ quarter ending \_\_\_\_\_**

**(As per clause No.2.2 (i) (ii) of 10<sup>th</sup> conference on safety in Mines)**

- 01. Name of the firm:
- 02. Registration number:
- 03. Name & address of persons heading the firm:
- 04. Nature of work:
- 05. Type of deployment of work persons:
- 06. Number of work persons deployed:
- 07. Number of work persons hold VT certificate:
- 08. Number of work persons undergone IME
- 09. Type of medical coverage given to the work persons:

(Signature of the contractor/his authorized representative)

(Seal)

NB: To be submitted quarterly (by 10<sup>th</sup> of April, July, October & January every year) for contracts of more than one year and monthly for contracts of less than one year.

**PREFERENCE TO MAKE IN INDIA****ORDER NO. P-45021/2/2017-PP(BE-II), DTD: 16.09.2020**

- 1.0 The bidders are requested to go through the GoI Order No: P-45021/2/2017-PP(BE-II), DTD: 16.09.2020 for the purpose of Purchase Preference on the basis of Local Content and submit the Declaration by the Bidder accordingly.
- 2.0 For the purpose of this order dtd. 16.09.2020:-
- 2.1 Local content means the **amount of value added in India** which shall, unless otherwise prescribed by the nodal ministry, **be the total value of the item procured** (excluding net domestic indirect taxes) **minus the value of imported content in the item** (including all customs duties) **as a proportion of the total value, in percent.**
- 2.2 Class I local supplier means a supplier or service provider whose goods, services or works offered for procurement has local content equal to or more than 50%, as defined at cl. 2.1 above.
- 2.3 Class II local supplier means a supplier or service provider whose goods, services or works offered for procurement has local content equal to or more than 20% but less than 50%, as defined at cl. 2.1 above.
- 2.4 Non-local supplier means a supplier or service provider whose goods, services or works offered for procurement has local content less than 20%, as defined at cl. 2.1 above.
- 2.5 **'Margin of purchase preference'** means the maximum extent to which the price quoted by a "Class-I Local supplier" may be above the L1 for the purpose of purchase preference. The margin of purchase preference shall be 20% against the tender.
- 3.0 Subject to the provisions of the above order and to any specific instructions issued by the Nodal Ministry or in pursuance of this order, purchase preference shall be given to 'Class-I Local supplier' in procurement undertaken by procurement entities in the manner specified here under:-

**CASE-I (FOR DIVISIBLE QUANTITY):** All the provisions of the order No.P-45021/2/2017-PP(BE-II) dtd. 16.09.2020 shall be applicable for this tender towards purchase preference.

However, in case of participation by MSE & ancillary units, the tender quantity reserved for MSE & ancillary units as per purchase preference policy of NALCO for MSEs as mentioned in the tender document shall take precedence over the purchase preference against the above mentioned order (to be mentioned, if applicable).

- 4.1 In the procurement of goods or works which are divisible in nature, the 'Class-I Local Supplier' shall get purchase preference over 'Class-II local supplier' as per the following procedure:
  - a) Among all qualified bids, the lowest bid will be termed as L1. If L1 is 'Class-I local supplier', the contract of full quantity will be awarded to L1.
  - b) If L1 bid is not a 'Class I local supplier', 50% of the order quantity shall be awarded to L1. Thereafter, the lowest bidder among the 'Class I Local supplier' will be invited to match the L1 price for the remaining 50% quantity subject to Class-I local supplier's quoted price falling within the margin of purchase preference and contract for that quantity shall be awarded to such 'Class-I Local supplier' subject to matching the L1 price. In case such lowest eligible 'Class-I Local supplier' fails to match the L1 price or accepts less than the offered quantity, the next higher 'Class-I Local supplier', within the margin of purchase preference shall be invited to match the L1 price for the remaining quantity and so on and the contract shall be awarded accordingly. In case some quantity is still left uncovered on 'Class-I Local supplier, then such balance quantity may also be ordered on the L1 bidder.
- 4.2 'Class-II local supplier' will not get purchase preference in any procurement undertaken by procuring entities.

**CASE-II (FOR NON-DIVISIBLE QUANTITY):** All the provisions of the order No. P-45021/2/2017-PP(BE-II) dtd. 16.09.2020 shall be applicable for this tender towards purchase preference.

- 4.3 In the procurement of goods or works which are not divisible in nature, the 'Class-I Local Supplier' shall get purchase preference over 'Class-II local supplier' as per the following procedure:
- Among all qualified bids, the lowest bid will be termed as L1. If L1 is 'Class-I local supplier', the contract will be awarded to L1.
  - If L1 bid is not a 'Class I local supplier', the lowest bidder among the 'Class I Local supplier' will be invited to match the L1 price subject to Class-I local supplier's quoted price falling within the margin of purchase preference and contract shall be awarded to such 'Class-I Local supplier' subject to matching the L1 price.
  - In case such lowest eligible 'Class-I Local supplier' fails to match the L1 price, 'Class-I Local supplier' with the next higher bid within the margin of purchase preference shall be invited to match the L1 price and so on and contract shall be awarded accordingly. In case none of the 'Class-I Local supplier' within the margin of purchase preference matches the L1 price, the contract may be awarded to the L1 bidder.
- 4.4 'Class-II local supplier' will not get purchase preference in any procurement undertaken by procuring entities.

#### 5.0 Verification of local content.

- The 'Class-I local supplier' / 'Class II-local supplier' at the time of tender, bidding or solicitation shall be required to indicate percentage of local content and provide self-certification that the item offered meets the local content requirement for 'Class-I local supplier' / 'Class II-local supplier', as the case may be. They shall also give details of the location(s) at which the local value addition is made. **Declaration to be given in the format attached/enclosed below.**
- In case of procurement for a value in excess of Rs. 10 crores, the 'Class-I local supplier' / 'Class II- local supplier' shall be required to provide a certificate from the statutory auditor or cost auditor of the company (in the case of the companies) or from a practicing cost accountant or practicing chartered accountant (in respect of suppliers other than companies) giving the percentage of local content.
- Decisions on complaints relating to implementation of this order shall be taken by the competent authority which is empowered to look into procurement-related complaints relating to the procuring entity.

#### 6.0 Only "Class-I local suppliers and Class-II local suppliers", as defined under the order, shall be eligible for participation against this tender. The offers of 'Non-Local Suppliers' shall not be considered for evaluation against this tender.

=====XXXX=====



(Declaration by the bidder on their letter head)

To, GM (T&C),  
M/s. National Aluminium Company Limited,  
Mines  
Dist.-Koraput, Odisha-763008

Sub: Declaration of % of Local content along with the place of value addition. (Ref. No: Gol order No: P-45021/2017-PP (BE-II), Dated: 16.09.2020)

Tender Ref. No: T&C/MINES/CIVIL/C-1582

Dear Sir,

We, M/s. \_\_\_\_\_ having its office at

\_\_\_\_\_  
(address) hereby confirm that the offered product has \_\_\_\_\_ %

of the local content.

Following is/are the location(s) at which local value addition is made:

\_\_\_\_\_  
\_\_\_\_\_

Yours sincerely,

Signature

Name:

Designation:

Contact No.:

**It should be noted by bidder that, apart from the declaration submitted by bidder regarding % of local content vide Appendix IX of the NIT, the bidder should also update their MII status on GeM Portal while submitting their bid or creating catalogue.**

**If there is mismatch in MII declaration submitted by bidder as per Appendix-IX and status of MII as evaluated by GeM then MII status as evaluated by GeM will be treated as final and accordingly tender will be processed.**

## APPENDIX-X

**Compliance of Public order on Restrictions under Rule 144 (xi) of the General Financial Rules (GFRs), 2017 and ORDER NO:F.No.6/18/2019-PPD DATED 23/07/2020 & 24/07/2020**

**DEFINITIONS**

1. GOI vide Order (Public Procurement No.1, 2 & 3) dated 23 Jul 2020 & 24 Jul 2020 has imposed Restrictions under Rule 144 (xi) of the General Financial Rules (GFRs), 2017 on bidders from a country which shares a land border with India.
2. "Bidder" for the purpose of this Order (Public Procurement No.1, 2 & 3) (including the term 'tenderer', 'consultant' 'vendor' or 'service provider' in certain contexts) means any person or firm or company, including any member of a consortium or joint venture (that is an association of several persons, or firms or companies), every artificial juridical person not falling in any of the descriptions of bidders stated hereinbefore, including any agency, branch or office controlled by such person, participating in a procurement process
3. "Bidder from a country which shares a land border with India" for the purpose of this Order (Public Procurement No.1, 2 & 3) means
  - a. An entity incorporated, established or registered in such a country; or
  - b. A subsidiary of an entity incorporated, established or registered in such a country; or
  - c. An entity substantially controlled through entities incorporated, established or registered in such a country; or
  - d. An entity whose beneficial owner is situated in such a country; or
  - e. An Indian (or other) agent of such an entity; or
  - f. A natural person who is a citizen of such a country; or
  - g. A consortium or joint venture where any member of the consortium or joint venture falls under any of the above

**Note:** "Beneficial owner" for the purpose of above paragraph (3) will be as under:

- i. In case of a company or Limited Liability Partnership, the beneficial owner is the natural person(s), who, whether acting alone or together, or through one or more juridical person(s), has a controlling ownership interest or who exercises control through other means.

**Explanation**

- a) "Controlling ownership interest" means ownership of, or entitlement to, more than twenty-five per cent of shares or capital or profits of the company;
- b) "Control" shall include the right to appoint the majority of the directors or to control the management or policy decisions, including by virtue of their shareholding or management rights or shareholder's agreements or voting agreements;
- ii. In case of a partnership firm, the beneficial owner is the natural person(s) who, whether acting alone or together, or through one or more juridical person, has ownership of entitlement to more than fifteen percent of capital or profits of the partnership;
- iii. In case of an unincorporated association or body of individuals, the beneficial owner is the natural person(s), who, whether acting alone or together, or through one or more juridical

person, has ownership of or entitlement to more than fifteen percent of the property or capital or profits of such association or body of individuals;

- iv. Where no natural person is identified under (i) or (ii) or (iii) above, the beneficial owner is the relevant natural person who holds the position of senior managing official;
- v. In case of a trust, the identification of beneficial owner(s) shall include identification of the author of the trust, the trustee, the beneficiaries with fifteen percent or more interest in the trust and any other natural person exercising ultimate effective control over the trust through a chain of control or ownership.
- vi. "Agent" for the purpose of this Order (Public Procurement No.1, 2 & 3) dtd 23 Jul 2020 & 24 Jul 2020 is a person employed to do any act for another, or to represent another in dealings with third persons.

**Rule: Following shall be complied by the Bidders of the said countries while submitting bids.**

- A) Any bidder from a country who shares a land border with India will be eligible to bid in this tender only if the bidder is registered with the Competent Authority. The Competent Authority for the purpose of registration under this Order shall be the Registration Committee constituted by the Department for Promotion of Industry and Internal Trade (DPIIT). However, Order will not apply to bidders from those countries (even if sharing a land border with India) to which the Government of India has extended lines of credit or in which the Government of India is engaged in development projects. Lists of countries to which lines of credit have been extended or in which development projects are undertaken are given in the website of the Ministry of External Affairs. This order shall also not apply to procurement by Indian missions and by offices of government agencies / undertakings located outside India.
- B) **The Bidder shall have to submit declaration / certificate as per the attached Format towards compliance of Public Order on Restrictions under Rule 144 (xi) of the General Financial Rules (GFRs), 2017. B)**
- C) For works contracts, including Turnkey contracts, the successful bidder shall not be allowed to sub-contract works to any contractor from a country which shares a land border with India unless such contractor is registered with the Competent Authority. The definition of "Contractor from a country which shares a land border with India" shall be as in paragraph (3) above.

\*\*\*

**Format for Declaration towards Compliance of Order (Public Procurement No.1, 2 & 3) dtd 23 Jul 2020 & 24 Jul 2020 on Restrictions under Rule 144 (xi) of the General Financial Rules (GFRs), 2017 .**

This declaration must form part of all tenders & it contains general information and serves as a declaration form for all bidders. (Before completing this declaration, bidders must study the General Conditions, Definitions, Govt Directives applicable in respect of Public Procurement No.1, 2 & 3) dtd 23 Jul 2020 & 24 Jul 2020 on Restrictions under Rule 144 (xi) of the General Financial Rules (GFRs), 2017 & prescribed tender conditions).

**DECLARATION BY AUTHORISED SIGNATORY OF THE FIRM**

I, the undersigned , ..... (full names), do hereby declare, in my capacity as ..... of M/s .....(name of bidder entity), that:

- 1) The facts contained herein are within my own personal knowledge.
- 2) I have read the Order (Public Procurement No.1, 2 & 3) dtd 23 Jul 2020 & 24 Jul 2020 on the subject of Restrictions under Rule 144 (xi) of the General Financial Rules (GFRs), 2017 regarding restrictions on procurement from a bidder of a country which shares a land border with India and comply to all the provisions of the Order.
- 3) I certify that M/s .....(name of bidder entity) is not from such a country / ~~is from such a country~~ (**strike out whichever is not applicable**), has been registered with the Competent Authority. I hereby certify that this SUPPLIER fulfils all requirements in this regard and is eligible to be considered. [Where applicable, evidence of valid registration by the Competent Authority is attached].
- 4) I understand that the submission of incorrect data and / or if certificate / declaration given by M/s .....(name of bidder entity) is found to be false, this would be a ground for immediate termination and further legal action in accordance with law as per Clause 12 of the Public Order on Restrictions under Rule 144 (xi) of the General Financial Rules (GFRs), 2017

AUTHORISED SIGNATURE:

DATE: \_\_\_\_\_

**Seal / Stamp of Bidder**

**LIST OF NALCO APPROVED BANKS****LIST OF PSU BANKS:**

SI No	Name of the Bank	SI No	Name of the Bank
1	Bank of Baroda	10	Oriental Bank of Commerce
2	Bank of India	11	Punjab and Sindh Bank
3	Bank of Maharashtra	12	Punjab National Bank
4	Canara Bank	13	State Bank of India
5	Central Bank of India	14	Syndicate Bank
6	Corporation Bank	15	UCO Bank
7	Dena Bank	16	Union Bank of India
8	IDBI Bank	17	Vijaya Bank
9	Indian Bank		

**LIST OF PRIVATE BANKS:**

SI No	Name of the Bank	SI No	Name of the Bank
1	HDFC Bank Ltd.	9	The South Indian Bank Ltd.
2	ICICI Bank Ltd.	10	The Karur Vysya Bank Ltd.
3	AXIS Bank Ltd.	11	The Karnataka Bank Ltd.
4	Kodak Mahindra Bank Ltd.	12	IDFC Bank
5	YES Bank	13	RBL Bank
6	Indus Ind Bank Ltd.	14	The Lakshmi Vilas Bank Ltd.
7	The Federal Bank Ltd.	15	Tamilnad Mercantile Bank Ltd.
8	The Jammu & Kashmir Bank Ltd.	16	City Union Bank Ltd.

**LIST OF FOREIGN BANKS:**

SI No	Name of the Bank	BIC	SI No	Name of the Bank	BIC
1	Abu Dhabi Commercial Bank Limited	ADCB AE AA	19	KEB Hana Bank	KOEX KR SE
2	Australia & New Zealand Banking Group Limited	ANZB AU 3M	20	Krung Thai Bank Public Company Ltd.	KRTH TH BK
3	Bank of America NA	BOFA US 3N	21	Mashreqbank PSC	BOML AE AD
4	Bank of Bahrain and Kuwait B.S.C.	BBKU BH BM	22	Mizuho Bank Ltd.	MHCB JP JT
5	Bank of Ceylon	BCEY LK LX	23	National Australia Bank Ltd.	NATA AU 33
6	Barclays Bank PLC	BARC GB 22	24	Sberbank	SABR RU MM
7	BNP Paribas	BNPA FR PP	25	Shinhan Bank	SHBK KR SE
8	Citibank N.A.	CITI US 33	26	Societe Generale	SOGE FR PP
9	Commonwealth Bank of Australia	CTBA AU 2S	27	Sonali Bank Ltd.	BSON BD DH
10	Credit Agricole Corporate & Investment Bank	BSUI FR PP	28	Standard Chartered Bank	SCBL GB 2L
11	Credit Suisse AG	CRES CH ZZ	29	Sumitomo Mitsui Banking Corporation	SMBC JP JT
12	DBS Bank Ltd.	DBSS SG SG	30	The Bank of Nova Scotia	NOSC CA TT
13	Deutsche Bank AG	DEUT DE FF	31	The Bank of Tokyo-Mitsubishi UFJ Ltd.	BOTK JP JT
14	Doha Bank	DOHB QA QA	32	The Hongkong and Shanghai Banking Corp. Ltd.	HSBC HK HH
15	FirstRand Bank Ltd.	FIRN ZA JJ	33	The Royal bank Of Scotland PLC	RBOS GB 2L
16	Industrial Bank of Korea	IBKO KR SE	34	United Overseas Bank Ltd.	UOVB SG SG
17	Industrial & Commercial Bank of China Limited	ICBK CN BJ	35	Westpac banking Corporation	WPAC AU 2F
18	JP Morgan Chase Bank	CHAS US 33	36	Woori Bank	HVBK KR SE





## **PRICE TO BE QUOTED BY THE BIDDER IN GEM PORTAL**

The bidder has to quote the lumpsum price for the contract in the field provided for entering the price in the GeM portal.

The price to be quoted is inclusive of applicable GST for the job, i.e **18%** in this tender.

The price to be quoted in the GeM portal is to be the same as the final value obtained in the BoQ format enclosed in the tender in GeM bid document.

The bidder has to upload the BOQ format in PDF in the GeM portal at the location of financial break up.

## **PROCEDURE TO FILL UP THE BOQ FOR THE TENDER**

- The BOQ for the tender is a part of the GeM bid Document.
- To view the BOQ, download the GeM Bid Document by clicking the bid no of the tender in which participation is to done.
- In the GeM bid document, Search for Excel Upload Required, there the BOQ is attached.
- Download the BOQ.
- Fill the column Unit rate (**excluding GST**) for all the items.
- The price inclusive of GST is automatically calculated by the excel work sheet.
- At the end of the BOQ, total amount of the contract / BOQ including GST @ 18% is visible. This price is to be quoted in the GeM portal at the relevant field.

- Convert the duly filled in BOQ to PDF format and upload in the location earmarked for **financial break up**.

**The bidder has to submit the PDF copy of the BOQ format of the tender without prices in the location for Certificates requested in ATC along with other documents as sought in the tender. Non submission of the unpriced PDF copy of the BOQ in the offer shall lead to summary rejection of the offer.**

**SAMPLE GEM BID DOCUMENT IS ENCLOSED BELOW**



Bid Number/बोली क्रमांक (बिड संख्या):

GEM/2023/B/-----

Dated/दिनांक :

**Bid Document/ बिड दस्तावेज़**

Bid Details/बिड विवरण	
<b>Bid End Date/Time/बिड बंद होने की तारीख/समय</b>	
<b>Bid Opening Date/Time/बिड खुलने की तारीख/समय</b>	
<b>Bid Offer Validity (From End Date)/बिड पेशकश वैधता (बंद होने की तारीख से)</b>	90 (Days)
<b>Ministry/State Name/मंत्रालय/राज्य का नाम</b>	Ministry Of Mines
<b>Department Name/विभाग का नाम</b>	Materials
<b>Organisation Name/संगठन का नाम</b>	National Aluminium Company Limited, Bhubaneswar
<b>Office Name/कार्यालय का नाम</b>	Mines Division,damanjodi,koraput
<b>Item Category/मद केटगरी</b>	Custom Bid for Services -
<b>Contract Period/अनुबंध अवधि</b>	
<b>MSE Exemption for Years of Experience and Turnover/ अनुभव के वर्षों से एमएसई छूट</b>	No
<b>Startup Exemption for Years of Experience and Turnover/ अनुभव के वर्षों से स्टार्टअप छूट</b>	No
<b>Document required from seller/विक्रेता से मांगे गए दस्तावेज़</b>	Certificate (Requested in ATC),Additional Doc 1 (Requested in ATC) *In case any bidder is seeking exemption from Experience / Turnover Criteria, the supporting documents to prove his eligibility for exemption must be uploaded for evaluation by the buyer
<b>Bid to RA enabled/बिड से रिवर्स नीलामी सक्रिय किया</b>	No
<b>Type of Bid/बिड का प्रकार</b>	
<b>Time allowed for Technical Clarifications during technical evaluation/तकनीकी मूल्यांकन के दौरान तकनीकी स्पष्टीकरण हेतु अनुमत समय</b>	3 Days
<b>Evaluation Method/मूल्यांकन पद्धति</b>	Total value wise evaluation
<b>Financial Document Indicating Price Breakup Required/मूल्य दर्शाने वाला वित्तीय दस्तावेज़ ब्रेकअप आवश्यक है</b>	Yes

EMD Detail/ईएमडी विवरण

Advisory Bank/एडवाइजरी बैंक	State Bank of India
EMD Amount/ईएमडी राशि	

#### ePBG Detail/ईपीबीजी विवरण

Required/आवश्यकता	No
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(a). EMD EXEMPTION: The bidder seeking EMD exemption, must submit the valid supporting document for the relevant category as per GeM GTC with the bid. Under MSE category, only manufacturers for goods and Service Providers for Services are eligible for exemption from EMD. Traders are excluded from the purview of this Policy./जेम की शर्तों के अनुसार ईएमडी छूट के इच्छुक बिडर को संबंधित केटेगरी के लिए बिड के साथ वैध समर्थित दस्तावेज प्रस्तुत करने हैं। एमएसई केटेगरी के अंतर्गत केवल वस्तुओं के लिए विनिर्माता तथा सेवाओं के लिए सेवा प्रदाता ईएमडी से छूट के पात्र हैं। व्यापारियों को इस नीति के दायरे से बाहर रखा गया है।

(b). EMD & Performance security should be in favour of Beneficiary, wherever it is applicable./ईएमडी और संपादन जमानत राशि, जहां यह लागू होती है, लाभार्थी के पक्ष में होनी चाहिए।

#### Beneficiary/लाभार्थी :

National Aluminium Company Limited  
Mines Division,damanjodi,koraput, Materials, National Aluminium Company Limited, Bhubaneswar, Ministry of Mines  
(National Aluminium Company Limited)

#### Splitting/विभाजन

Bid splitting not applied/बोली विभाजन लागू नहीं किया गया.

#### MII Compliance/एमआईआई अनुपालन

MII Compliance/एमआईआई अनुपालन	Yes
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#### MSE Purchase Preference/एमएसई खरीद वरीयता

MSE Purchase Preference/एमएसई खरीद वरीयता	
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#### Details of the Competent Authority for MSE

Name of Competent Authority	
Designation of Competent Authority	
Office / Department / Division of Competent Authority	NALCO MINES
CA Approval Number	
Competent Authority Approval Date	
Brief Description of the Approval Granted by Competent Authority	

Competent Authority Approval for not opting Micro and Small Enterprises Preference : **Document Reference**

1. Estimated Bid Value indicated above is being declared solely for the purpose of guidance on EMD amount and for determining the Eligibility Criteria related to Turn Over, Past Performance and Project / Past Experience etc. This has no relevance or bearing on the price to be quoted by the bidders and is also not going to have any impact on bid participation. Also this is not going to be used as a criteria in determining reasonableness of quoted prices which would be determined by the buyer based on its own assessment of reasonableness and based on competitive prices received in Bid / RA process.

**Excel Upload Required/एक्सेल में अपलोड किए जाने की आवश्यकता :**

BOQ for Carry out HEMM stability test/study report at NALCO MINES **12345678. XLSX**

**Additional Qualification/Data Required/अतिरिक्त योग्यता /आवश्यक डेटा**

**Scope of Work:**

**Service Level Agreement (SLA):**

**Payment Terms:**

**GEM Availability Report ( GAR):**

**Custom Bid For Services -  
Mines ( 1 )**

**: NALCO**

**Technical Specifications/तकनीकी विशिष्टियाँ**

Specification	Values
<b>Core</b>	
Description /Nomenclature of Service Proposed for procurement using custom bid functionality	.
Regulatory/ Statutory Compliance of Service	YES
Compliance of Service to SOW, STC, SLA etc	YES
<b>Addon(s)/एडऑन</b>	

**Additional Specification Documents/अतिरिक्त विशिष्टि दस्तावेज़**

**Consignees/Reporting Officer/परेषिती/रिपोर्टिंग अधिकारी**

S.No./क्र. सं.	Consignee Reporting/Officer/ परेषिती/रिपोर्टिंग अधिकारी	Address/पता	The quantity of procurement "1" indicates Project based or Lumpsum based hiring.	Additional Requirement/अतिरिक्त आवश्यकता
1		763008,PANCHAPATTAMALI BAUXITE MINES.DAMANJODI,KORAPUT,763008	1	N/A

## Buyer Added Bid Specific Terms and Conditions/क्रेता द्वारा जोड़ी गई बिड की विशेष शर्तें

### 1. Generic

OPTION CLAUSE: The buyer can increase or decrease the contract quantity or contract duration up to 25 percent at the time of issue of the contract. However, once the contract is issued, contract quantity or contract duration can only be increased up to 25 percent. Bidders are bound to accept the revised quantity or duration

### 2. Buyer Added Bid Specific ATC

Buyer Added text based ATC clauses

#### Note:

- 1) The bidder has to quote the unit rates in the blue colored cells up to two decimals only. Unit rate shall be excluding GST.
- 2) After filing up the BOQ, the value obtained in the TOTAL AMOUNT INCLUDING GST Shall be quoted as the price for the contract in GeM portal.
- 3) The bidder has to convert this EXCEL sheet to PDF and upload the same in GeM portal at the Financial breakup location.
- 4) This tender is limited to Enlisted parties of NALCO Mines Damanjodi for the category of the job.
- 5) Only offers from enlisted vendors shall be considered for evaluation & unsolicited offers shall be summarily rejected.

### 3. Certificates

Bidder's offer is liable to be rejected if they don't upload any of the certificates / documents sought in the Bid document, ATC and Corrigendum if any.

## Disclaimer/अस्वीकरण

The additional terms and conditions have been incorporated by the Buyer after approval of the Competent Authority in Buyer Organization, whereby Buyer organization is solely responsible for the impact of these clauses on the bidding process, its outcome, and consequences thereof including any eccentricity / restriction arising in the bidding process due to these ATCs and due to modification of technical specifications and / or terms and conditions governing the bid. Any clause(s) incorporated by the Buyer regarding following shall be treated as null and void and would not be considered as part of bid:-

1. Definition of Class I and Class II suppliers in the bid not in line with the extant Order / Office Memorandum

issued by DPIIT in this regard.

2. Seeking EMD submission from bidder(s), including via Additional Terms & Conditions, in contravention to exemption provided to such sellers under GeM GTC.
3. Publishing Custom / BOQ bids for items for which regular GeM categories are available without any Category item bunched with it.
4. Creating BoQ bid for single item.
5. Mentioning specific Brand or Make or Model or Manufacturer or Dealer name.
6. Mandating submission of documents in physical form as a pre-requisite to qualify bidders.
7. Floating / creation of work contracts as Custom Bids in Services.
8. Seeking sample with bid or approval of samples during bid evaluation process.
9. Mandating foreign / international certifications even in case of existence of Indian Standards without specifying equivalent Indian Certification / standards.
10. Seeking experience from specific organization / department / institute only or from foreign / export experience.
11. Creating bid for items from irrelevant categories.
12. Incorporating any clause against the MSME policy and Preference to Make in India Policy.
13. Reference of conditions published on any external site or reference to external documents/clauses.
14. Asking for any Tender fee / Bid Participation fee / Auction fee in case of Bids / Forward Auction, as the case may be.

Further, if any seller has any objection/grievance against these additional clauses or otherwise on any aspect of this bid, they can raise their representation against the same by using the Representation window provided in the bid details field in Seller dashboard after logging in as a seller within 4 days of bid publication on GeM. Buyer is duty bound to reply to all such representations and would not be allowed to open bids if he fails to reply to such representations.

This Bid is governed by the [General Terms and Conditions/सामान्य नियम और शर्तें](#), conditions stipulated in Bid and [Service Level Agreement](#) specific to this Service as provided in the Marketplace. However in case if any condition specified in General Terms and Conditions/सामान्य नियम और शर्तें is contradicted by the conditions stipulated in Service Level Agreement, then it will over ride the conditions in the General Terms and Conditions.

In terms of GeM GTC clause 26 regarding Restrictions on procurement from a bidder of a country which shares a land border with India, any bidder from a country which shares a land border with India will be eligible to bid in this tender only if the bidder is registered with the Competent Authority. While participating in bid, Bidder has to undertake compliance of this and any false declaration and non-compliance of this would be a ground for immediate termination of the contract and further legal action in accordance with the laws./जेम की सामान्य शर्तों के खंड 26 के संदर्भ में भारत के साथ भूमि सीमा साझा करने वाले देश के बिडर से खरीद पर प्रतिबंध के संबंध में भारत के साथ भूमि सीमा साझा करने वाले देश का कोई भी बिडर इस निविदा में बिड देने के लिए तभी पात्र होगा जब वह बिड देने वाला सक्षम प्राधिकारी के पास पंजीकृत हो। बिड में भाग लेते समय बिडर को इसका अनुपालन करना होगा और कोई भी गलत घोषणा किए जाने व इसका अनुपालन न करने पर अनुबंध को तत्काल समाप्त करने और कानून के अनुसार आगे की कानूनी कार्रवाई का आधार होगा।

**---Thank You/धन्यवाद---**



Name of Work: Construction of CC road with ancillary works at NALCO Mines, Damanjodi.								
Tender No T&C/MINES/CIVIL/C-1582								
BILL OF QUANTITIES								
Name of the bidder								
APPLICABLE GST FOR THE TENDER IS 18 %								
Sl. No.	Item No	Item Description	Unit	Quantity	Unit Rate Excl GST in Rs	Amount Excl GST in Rs	Unit Rate incl 18% GST in Rs	Amount incl 18% GST in Rs
1	2	3	4	5	6	7	8	9
1	1.1	Earthwork in excavation in all types of soil including sand & silty sand, moorum (hard, compacted or soft), broken rock, boulders, quartz etc and fill materials or any other debris etc. at depths as specified below in foundations of structures and equipment, pipe trenches, tunnels, sewerlines, drains, basement, cellars, pits etc to required levels and grades and dressing complete in all respect as per the specifications and directions of the E-I-C in both dry and wet conditions including necessary pumping/ bailing out of water, slush removal etc and transporting the excavated materials to spoil dumps/fill areas/ excavated pits within a lead of 1.5 km at all heights and descents including dozing, levelling at the site of filling all as directed by the E-I-C all tools, plant and labour complete in all respect (The mode of measurement will be box cutting keeping the bottom dimension of PCC considering additional working space, benching and side slopes, etc.) Note for item 1.1 & 1.2 This item will be operated upon that category of strata which can be excavated by Mechanical means with reasonable application as approved by the E-I-C with all tools and labour complete in all respect: i) upto 3 m depth below finished ground level	Cum	1280.00		0.00	0	0.00
2	1.2	Earthwork in excavation in all types of soil including sand & silty sand, moorum (hard, compacted or soft), broken rock, boulders, quartz etc and fill materials or any other debris etc. at depths as specified below in foundations of structures and equipment, pipe trenches, tunnels, sewerlines, drains, basement, cellars, pits etc to required levels and grades and dressing complete in all respect as per the specifications and directions of the E-I-C in both dry and wet conditions including necessary pumping/ bailing out of water, slush removal etc and transporting the excavated materials to spoil dumps/fill areas/ excavated pits within a lead of 1.5 km at all heights and descents including dozing, levelling at the site of filling all as directed by the E-I-C all tools, plant and labour complete in all respect (The Contractor shall quote the rate considering additional working space, benching and side slopes, etc.) i) exceeding 3 m depth upto 6 m depth below finished ground level	Cum	400.00		0.00	0	0.00
3	1.3	Same as item 1.1, but for excavation done manually on approval/written instruction given by the E-I-C, with all tools, plant and labour complete in all respect. i) upto 3 m depth below finished ground level	Cum	200.00		0.00	0	0.00
4	1.4	Excavation in hard, compacted or soft rock, boulders, etc done with the help of excavator provided with hydraulically operated rock breaker attachment or equivalent or for excavation done by any other mechanical means as approved by the E-I-C all tools, plant and labour complete in all respect: i) upto 3 m depth below finished ground level	Cum	2.00		0.00	0	0.00
5	1.5	Excavation in hard, compacted or soft rock, boulders, etc done with the help of excavator provided with hydraulically operated rock breaker attachment or equivalent or for excavation done by any other mechanical means as approved by the E-I-C all tools, plant and labour complete in all respect: i) exceeding 3 m depth upto 6 m depth below finished ground level	Cum	20.00		0.00	0	0.00

6	1.6	Backfilling in all positions and heights and descents in foundations, pits, pipe trenches, tunnels, sewer lines, around foundations and structures, in plinth etc with approved excavated material obtained within a lead of 1.5 km including reclaiming from spoil heaps at all heights, or reclaiming from dump at all depths, transporting, depositing and dressing complete in all respect as per drawings, specifications and directions of the E-I-C, all tools, plant and labour complete in all respect: i) mass backfilling including dozing, leveling and dressing complete in all respect as directed by the E-I-C	Cum	500.00		0.00	0	0.00
7	1.7	Backfilling in all positions and heights and descents in foundations, pits, pipe trenches, tunnels, sewer lines, around foundations and structures, in plinth etc with approved excavated material obtained within a lead of 1.5 km including reclaiming from spoil heaps at all heights, or reclaiming from dump at all depths, transporting, depositing and dressing complete in all respect as per drawings, specifications and directions of the E-I-C, all tools, plant and labour complete in all respect: i) backfilling in layers not exceeding 250 mm thickness including dozing, leveling, dressing and compacting complete in all respects as directed by the E-I-C.	Cum	300.00		0.00	0	0.00
8	1.8	Backfilling in all positions and heights and descents in foundations, pits, pipe trenches, tunnels, sewer lines, around foundations and structures, in plinth etc with approved excavated material obtained within a lead of 1.5 km including reclaiming from spoil heaps at all heights, or reclaiming from dump at all depths, transporting, depositing and dressing complete in all respect as per drawings, specifications and directions of the E-I-C, all tools, plant and labour complete in all respect: i) plinth filling in layers of 150 mm thickness where special compaction is required including watering and consolidating by mechanical means as per specification and directions of the E-I-C.	Cum	4.00		0.00	0	0.00
9	1.9	Extra over item 1.6,1.7 & 1.8 for lead distance only beyond initial lead of 1.5 km but within 2.5 km	Cum	10.00		0.00	0	0.00
10	2.1	Supplying, laying and compacting plain cement concrete of nominal mix M7.5 by volume as defined by IS:456 in all mudmats/levelling courses including filling of loose pockets etc. under foundations, pipelines, tunnels, floors etc at all depths below finished ground level as per drawings, specifications and directions of the E-I-C including curing but excluding the cost of shuttering, all materials, tools, plant and labour complete in all respect: a) with 20 mm down graded coarse stone aggregates	Cum	30.00		0.00	0	0.00
11	2.2	Supplying, laying and compacting plain cement concrete of following grades as defined by IS:456, in all foundations, bed blocks, manholes, chambers, scale flumes, tunnels, trenches, floors, roofs, pavements, screedings, encasing etc at and at all heights and depths above and below finished ground level to required levels, slopes etc including curing but excluding the cost of shuttering, all as per drawings, specifications and directions of the E-I-C, all materials, tools, plant and labour complete in all respect: a) for M10C grade concrete	Cum	200.00		0.00	0	0.00
12	2.3	Supplying, laying and compacting plain cement concrete of following grades as defined by IS:456, in all foundations, bed blocks, manholes, chambers, scale flumes, tunnels, trenches, floors, roofs, pavements, screedings, encasing etc at and at all heights and depths above and below finished ground level to required levels, slopes etc including curing but excluding the cost of shuttering, all as per drawings, specifications and directions of the E-I-C, all materials, tools, plant and labour complete in all respect: a) for M15C grade concrete	Cum	2.00		0.00	0	0.00
13	2.4	Supplying, laying and compacting plain cement concrete of following grades as defined by IS:456, in all foundations, bed blocks, manholes, chambers, scale flumes, tunnels, trenches, floors, roofs, pavements, screedings, encasing etc at and at all heights and depths above and below finished ground level to required levels, slopes etc including curing but excluding the cost of shuttering, all as per drawings, specifications and directions of the E-I-C, all materials, tools, plant and labour complete in all respect: a) for M20C grade concrete	Cum	5.00		0.00	0	0.00

14	2.5	Supplying, laying and compacting reinforced cement concrete of following grades as defined by IS:456, in all foundations and super structures, in walls, beams/corbels, etc including curing but excluding cost of shuttering and steel reinforcement, all as per drawings, specifications and directions of the E-I-C, all materials, tools, plant and labour complete in all respect: i) for M25C grade concrete a) At and at all depths below finished ground level	Cum	220.00		0.00	0	0.00
15	2.6	Supplying, laying and compacting reinforced cement concrete of following grades as defined by IS:456, in all foundations and super structures, in walls, deck slab, beams/corbels, etc including curing but excluding cost of shuttering and steel reinforcement, all as per drawings, specifications and directions of the E-I-C, all materials, tools, plant and labour complete in all respect: i) for M25C grade concrete a) At and at all heights above finished ground level	Cum	10.00		0.00	0	0.00
16	2.7	Supplying, manufacturing, erecting and fixing in position at and at all heights and depths above and below finished ground level different types of precast R.C. units of concrete grade M- 25 as defined by IS:456 with 20 mm and down graded stone aggregates including shuttering and curing but excluding steel reinforcement, all as per specifications and directions of the E-I-C all materials, tools, plant and labour complete in all respect a) for units weighing upto 0.5 ton	Cum	14.00		0.00	0	0.00
17	2.8	Supplying and placing damp-proof course 40 mm thick with concrete of M20 grade as defined by IS:456 with 6 mm and down graded stone aggregates including applying of two coats of hot bitumen as per IS:3384 when the concrete has partially set @1.7 kg per sq m and spreading of sand as per IS:383 over the bitumen, all as per drawings, specifications and directions of the E-I-C all materials, tools, plant and labour complete in all respect in all respect	Sqm	37.50		0.00	0	0.00
18	2.9	Supplying and providing grout with concrete of grade M35 as defined by IS:456 with 6 mm and down graded stone aggregates in foundation bolt holes, pockets and column bases after aligning and levelling of steel structures including cleaning holes and foundation tops, providing shuttering, mixing, placing, compacting and curing, all as per drawings, specifications and directions of the E-I-C, all materials, tools, plant and labour complete in all respect	Cum	1.00		0.00	0	0.00
19	3.1	Supplying, loading, transporting, unloading, straightening, decoiling, cutting, bending, cranking, bending, tack welding as necessary, placing and fixing in position steel reinforcement including angles/pins provided for the approved welded joints, at all levels above and below finished ground level for reinforced cement concrete and precast reinforced cement concrete works including supplying approved 20 SWG annealed black binding wire, cover blocks etc all as per drawings, specifications and directions of the E-I-C all materials, tools, plant and labour complete in all respect: a) with M.S. rounds of all diameters	Ton	45.00		0.00	0	0.00
20	3.2	Supplying, loading, transporting, unloading, straightening, decoiling, cutting, bending, cranking, bending, tack welding as necessary, placing and fixing in position steel reinforcement including angles/pins provided for the approved welded joints, at all levels above and below finished ground level for reinforced cement concrete and precast reinforced cement concrete works including supplying approved 20 SWG annealed black binding wire, cover blocks etc all as per drawings, specifications and directions of the E-I-C all materials, tools, plant and labour complete in all respect: a) with high strength deformed bars of grade Fe500D of all diameters	Ton	20.00		0.00	0	0.00
21	4.1	Supply structural steel material, loading, transporting, unloading, fabricating, erecting and fixing in position at and at all heights and depths above and below finished ground level M.S. inserts, curb angles, angle posts, channels, joists and other rolled sections. a) M.S. plates/flat inserts, angles, channels etc. with lugs, rungs, fabricated ducts etc.	Ton	0.50		0.00	0	0.00

22	5.1	Providing and fixing shuttering (formwork) in position with necessary centerings, bracings, proppings etc and striking, removing and clearing the same after the specified periods for all types of shuttering for all plain and reinforced cement concrete works including all chamfers, splays, fillets, keys, wedges, props, nails, bracings, brackets, cutting holes for passing embedments etc and applying waste oil on shuttering surfaces in contact with concrete all as per drawings, specifications and directions of the E-I-C all materials, tools, plant and labour complete in all respect: a) Straight shuttering i) at and at all depths below finished ground level	Sqm	2473.00		0.00	0	0.00
23	5.2	Providing and fixing shuttering (formwork) in position with necessary centerings, bracings, proppings etc and striking, removing and clearing the same after the specified periods for all types of shuttering for all plain and reinforced cement concrete works including all chamfers, splays, fillets, keys, wedges, props, nails, bracings, brackets, cutting holes for passing embedments etc and applying waste oil on shuttering surfaces in contact with concrete all as per drawings, specifications and directions of the E-I-C all materials, tools, plant and labour complete in all respect: a) Curved shuttering i) Below GL	Sqm	200.00		0.00	0	0.00
24	6.1.1	Supplying, constructing one or more brick thick Fly ash brickwork using bricks of Class10 with compressive strength not less than 100 kgf/sq cm as defined in IS:12894 in cement sand mortar (1:6) in foundations, super structure, manholes, ducts, drains etc including fair cutting, waste, bonding, plumbing, lining, levelling, flushing, raking joints, scaffolding and curing, all as per specifications and directions of the E-I-C at all depths below finished ground level	Cum	400.00		0.00	0	0.00
25	6.1.2	Supplying, constructing one or more brick thick Fly ash brickwork using bricks of Class10 with compressive strength not less than 100 kgf/sq cm as defined in IS:12894 in cement sand mortar (1:6) in foundations, super structure, manholes, ducts, drains etc including fair cutting, waste, bonding, plumbing, lining, levelling, flushing, raking joints, scaffolding and curing, all as per specifications and directions of the E-I-C at all heights above finished ground level	Cum	10.00		0.00	0	0.00
26	6.2	Supplying and constructing half-brick thick Fly ash brickwork, using bricks of Class10 with compressive strength not less than 100 kgf/sq cm as defined in IS:12894 in cement sand mortar (1:4) with continuous HB wire netting reinforcement at every fourth course at and at all heights and depths above and below finished ground level for partition walls and including fair cutting, waste, bonding, plumbing, lining, levelling, raking joints, scaffolding and curing, all as per specifications and directions of the E-I-C all materials, tools, plant and labour complete in all respect	Cum	1.00		0.00	0	0.00
27	6.3	Supplying & constructing coursed rubble masonry in cement sand mortar (1:6) in super structures including sunk pointing of finished size 15 mm wide and 10 mm deep or as specified in the drawings and as directed by the E-I-C at all heights & depths above and below finished ground level, including wastage, scaffolding and curing, fair cutting, plumbing, lining, levelling etc, all materials, tools, plants and labour complete in all respect:	Cum	400.00		0.00	0	0.00
28	7.1	Supplying and laying 6 mm thick plaster with (1:4) thick cement sand mortar at and at all heights and depths above or below finished ground level to ceilings, beams, staircases, lintel soffits, chajjas, sunshades, projections, narrow bands and widths etc including chipping of concrete surfaces, raking joints, scaffolding, cleaning and curing all as per drawings, specifications and directions of the Engineer in-charge, all materials, tools, plant and labour complete in all respect:	Sqm	30.00		0.00	0	0.00
29	7.2.1	Supplying and laying plaster with (1:4) cement sand mortar at and at all heights and depths above and below finished ground level to faces of brickwall, pillars, columns, posts, lintel sides, drains, jambs, column projections, narrow bands and widths etc including chipping and hacking of concrete surfaces, raking joints, scaffolding, cleaning and curing, all as per drawings, specifications and directions of the Engineer in-charge, all materials, tools, plant and labour complete in all respect: 12 mm thick (in one operation)	Sqm	70.00		0.00	0	0.00

30	7.2.2	Supplying and laying plaster with (1:4) cement sand mortar at and at all heights and depths above and below finished ground level to faces of brickwall, pillars, columns, posts, lintel sides, drains, jambs, column projections, narrow bands and widths etc including chipping and hacking of concrete surfaces, raking joints, scaffolding, cleaning and curing, all as per drawings, specifications and directions of the Engineer in-charge, all materials, tools, plant and labour complete in all respect: 20 mm thick (in two operations)	Sqm	1500.00		0.00	0	0.00
31	7.3	Supplying and applying three coats of white washing with white cement over the plastered surfaces/concrete surface as per drawings and as specified at all heights and depths above and below finished ground level including surface preparation, scaffolding, curing etc., all as per drawings/ specifications and directions of the Engineer in-charge, all materials, tools, plant and labour complete in all respect:	Sqm	98.00		0.00	0	0.00
32	7.4	Providing neat cement finish on green plastered surfaces of drains, walls, pits, manholes, sewers etc at and at all heights and depths above and below finished ground level, all as per drawings, specifications and directions of the Engineer in- charge, all materials, tools, plant and labour complete in all respect	Sqm	1500.00		0.00	0	0.00
33	7.5	Supplying and applying two coats of exterior quality acrylic emulsion paint (weathercoat or equivalent with 7 years warranty) of approved make and shades over one coat of approved primer as per manufacturer's specification to exposed surface including thorough cleaning of all loose, dirt, fungi, algae and fill up minor cracks of surface with cement sand mortar (1:3) at all heights above finished ground level all as per drawings, specifications and directions of the Engineer in-charge, all materials, tools, plant and labour complete in all respect(VOC content of paint shall be less than 50 gms/litre)	Sqm	88		0.00	0	0.00
34	7.6	Providing trowel finish with neat cement slurry on green plastered/ concrete surface of floors, ramps, steps etc. to the correct slope, line & level as per drawings, specifications and directions of the E-I-C.	Sqm	33		0.00	0	0.00
35	8.1	Supplying and execution of waterproofing to roof slab with a guarantee of water proofing as per manufacturers specifications for a period often (10) years and directions of the Engineer in-charge, all materials, labour complete in all respect consisting supplying and laying of 3 mm thick atactic poly-propylene (APP) modified water proofing membrane (non-woven polyester matt type) of approved equivalent and brand laid over roof slab with application of bituminous primer, overlapping in parapet wall, dressed into chase of parapet wall and finished with bitumen putty, protected by a layer of screed concrete (1:2:4 nominal mix concrete with 10mm and down graded stone aggregates) admixed with approved water proofing compound of specified dose recommended by manufacturer laid in 1:150 slope with minimum thickness 50mm at the edges,all as per specification as shown in the drawing and as directed by Engineer in-charge, with all ancillary civil work with all materials, tools, labour complete in all respect	Sqm	30		0.00	0	0.00
36	9.1	Supplying, fitting & fixing in position fully sheeted single/double leaf pre-coated pressed steel flush door with shutters and frames Glazed or Non Glazed including all necessary fittings and fixtures including cutting /drilling necessary holes in walls/concrete & grouting of lugs in the same with (M20D) cement concrete all as per drawings, specifications & direction of Engineer in-charge (glazing shall be measured separately and paid under relevant item):a) Pressed steel flush door	Sqm	6		0.00	0	0.00
37	9.2	Supplying, fitting and fixing in position aluminium windows and ventilators with frames and shutters of UV resistant powder coated, coloured aluminium sections including handles, locking arrangement, stays, neoprene dry set rubber gasket & all necessary fittings and fixtures, all as per drawings/specifications and directions of the Engineer in- charge. All materials, tools, plant and labour complete in all respect. (glazing shall be measured separately and paid under relevant item): a) Fully glazed fixed window	Sqm	3		0.00	0	0.00
38	9.3	Supplying and providing in position composite underdeck therma insulation to soffit of roof slab with Gypsum board topping and glass wool underlayer as per attached drawings, specification anddirection of the E-I-C	Sqm	28		0.00	0	0.00


39	9.4.1	Supplying, fitting and fixing in position single glazing to doors, windows, ventilators, staircase balustrade as specified of approved quality clear float glass, including glazing putty, glazing clips etc, all as per drawings, specifications and directions of the Engineer in-charge, plant and labour complete in all respect (glazing will be measured on the basis of individual glass panel size as specified in IS:1038): a) 4 mm thick clear float glass of approved quality	Sqm	3		0.00	0	0.00
40	9.4.2	Supplying, fitting and fixing in position single glazing to doors, windows, ventilators, staircase balustrade as specified of approved quality clear float glass, including glazing putty, glazing clips etc, all as per drawings, specifications and directions of the Engineer in-charge, plant and labour complete in all respect (glazing will be measured on the basis of individual glass panel size as specified in IS:1038): b) 6 mm thick clear float glass of approved quality	Sqm	2		0.00	0	0.00
41	10.1	Supplying, fitting and laying in position to correct level and slope R.C. pipes of following dia conforming to IS:458 including collars with joints packed with jute breading dipped in hot bitumen and filled with cement mortar (1:2) and curing, neatly finished with with 45 degree splay, all as per specifications and directions of the E-I-C, all materials, tools, plant and labour complete in all respect (Excavation and backfilling required for laying RC pipes will be measured and paid separately under relevant items): a) NP2 class - 150 mm dia	M	1		0.00	0	0.00
42	10.2	Providing, fixing and lowering, laying and jointing Double Walled Corrugated (DWC) Pipes of HDPE in 6m. length bar with IS-14930-II in prepared trenches in grade and level including cost of couplers and testing of pipes at factory as per the stipulation in relevant IS codes etc. complete. (Excavation and backfilling required for laying HDPE pipes will be measured and paid separately under relevant items): a) 200mm outer diameter / 174mm inner diameter	M	150		0.00	0	0.00
43	10.3	Supplying, fitting and laying in position to correct level and slope R.C. pipes of following dia conforming to IS:458 including collars with joints packed with jute breading dipped in hot bitumen and filled with cement mortar (1:2) and curing, neatly finished with with 45 degree splay, all as per specifications and directions of the E-I-C, all materials, tools, plant and labour complete in all respect (Excavation and backfilling required for laying RC pipes will be measured and paid separately under relevant items):a) NP3 class - 350 mm dia	M	20		0.00	0	0.00
44	10.4	Supplying, fitting and laying in position to correct level and slope R.C. pipes of following dia conforming to IS:458 including collars with joints packed with jute breading dipped in hot bitumen and filled with cement mortar (1:2) and curing, neatly finished with with 45 degree splay, all as per specifications and directions of the E-I-C, all materials, tools, plant and labour complete in all respect (Excavation and backfilling required for laying RC pipes will be measured and paid separately under relevant items): a) NP3 class - 600 mm dia	M	40		0.00	0	0.00
45	10.5	Supplying, fitting and laying in position to correct level and slope R.C. pipes of following dia conforming to IS:458 including collars with joints packed with jute breading dipped in hot bitumen and filled with cement mortar (1:2) and curing, neatly finished with with 45 degree splay, all as per specifications and directions of the E-I-C, all materials, tools, plant and labour complete in all respect (Excavation and backfilling required for laying RC pipes will be measured and paid separately under relevant items):a) NP3 class - 900 mm dia	M	10		0.00	0	0.00
46	10.6	Providing and fixing concertina coil fencing with punched tape concertina coil 600 mm dia 10 metre openable length (total length 90 m), having 50 nos rounds per 6 metre length, upto 3 m height of wall with existing angle iron 'Y' shaped placed 2.4m or 3.00 m apart and with 9 horizontal R.B.T. reinforced barbed wire, stud tied with G.I. staples and G.I. clips to retain horizontal, including necessary bolts or G.I. barbed wire tied to angle iron, all complete as per direction of Engineer in-charge, with reinforced barbed tape (R.B.T.) / Spring core (2.5mm thick) wire of high tensile strength of 165 kg/ sq.mm with tape (0.52 mm thick) and weight 43.478 gm/ metre. (MS angle posts will be measured and paid separately under relevant BOQ item). Note: For the purpose of measurement length of the boundary shall be measured in RM.	M	140		0.00	0	0.00

47	10.7	Supplying and laying 15 mm thick heavy duty floor hardener topping course with "Ironite" @ 2.75 kg per sq m or approved equivalent including the bedding layer of 25 mm thick screed concrete M25D, topping course laid whilst the screed concrete is still green, all according to the manufacturer's specification including trowel finishing and curing, all as per drawings, specifications and directions of the Engineer, all materials, tools, plant and labour complete	Sqm	5		0.00	0	0.00
48	10.8	Supplying, decoiling, stretching fully and fixing to M.S./R.C fencing posts of approved quality 75 mm square (mesh size) chain link fencing of 4 mm nominal dia galvanised steel wire conforming to IS:2721 including supplying and fixing galvanised steel clips, bolts, nuts, washers etc for fixing with fencing posts, all as per and directions of the E-I-C all materials, tools, plant and labour complete in all respect	Sqm	5		0.00	0	0.00
49	10.9	Providing weep holes in Random Rubble masonry walls for the entire thickness of structure with 100 mm dia AC pipe with slope 1:20 towards drainage surface @ 1500mm c/c horizontally @ 1500mm c/c vertically placed in staggered position including loosely packing with brick bats or boulders of approved quality and sizes to drive moisture from the back filling as per drawing, technical specification & direction of E-I-C	Nos	25		0.00	0	0.00
50	10.10	Supplying, fitting and fixing in position approved make automatic hydraulic door closer conforming to IS:3564 to doors with all necessary screws fittings and fixtures, all as per drawings, manufacturer's specification and directions of the E-I-C.	Nos	1		0.00	0	0.00
51	11.1	Earthwork in excavation for box-cutting in all types of soil and filled materials but excluding hard rock in mass which requires Breaking for forming road base to required sub-levels and cross- sections and dressing the bottom of excavation, in both dry and wet conditions, including stripping of the existing vegetation cover and necessary pumping/bailing out of water, slush removal etc and transporting the excavated material to spoil dumps/fill areas/excavated pits/ road berms within a lead upto 1.5 km including levelling of the disposed excavated materials all as directed, as per specification and direction of the Engineer, all tools, plant and labour complete. Note: Excavation will be measured paid as per the approved excavation plan or as per actuals whichever is less. The Tenderer may be asked to excavate and transport the earth directly for mass backfilling in other areas within a lead of 1.5 km. In such cases, no extra payment for backfilling shall be made. a) upto 1.5 m depth below existing ground level	Cum	2270		0.00	0	0.00
52	11.2	Earthwork in formation of embankments and/or road berms at all heights and depths with earth obtained directly from excavation kept elsewhere within a lead of 1.5 km to correct slope and grade to be formed in layers not exceeding 200 mm in thickness compacting each layer by mechanical means to obtain a minimum dry density of not less than 95% of the maximum dry density of the soil as obtained by Standard Proctor Test in each layer, dressing to profile, trimming etc all complete as per drawing, specification and direction of the Employer/Engineer, all materials, tools, plant and labour complete. (Measurement will be made on the basis of finished cross-section of the earthwork in embankment and/or road berms)	Sqm	75		0.00	0	0.00
53	11.3	Watering, rolling and compacting the bottom of excavation with minimum six (6) passes of 80 - 100 KN power roller for formation of road sub-grade to achieve a CBR value as specified in the drawing and density of not less than 98% of the maximum dry density of the soil as obtained by Standard Proctor Test and dressing to correct camber, profile and slope all as per specification and direction of the Engineer, all materials tools, plant, and labour complete	Sqm	10430		0.00	0	0.00
54	11.4	Supplying and laying of granular sub-base by providing close graded materials conforming to specifications, mixing in a mechanical mix plant at OMC, carriage of mixed material by tipper to work site, for all leads & lifts, spreading in uniform layers not exceeding 150 mm thickness with motor grader or equivalent on prepared sub grade, dressing, watering and rolling with optimum moisture content (OMC) using 80 to 100 kN vibratory roller and compacted to at least 98% of maximum dry density obtained by laboratory tests as per IS:2720 (Part-8), including loading, transporting, unloading, stacking etc, necessary testing of materials and finishing the work, all complete in all respect as per drawings, specifications and/or as directed by the E-I-C. i) With material conforming to Grading-I (size range 75 mm to 0.075 mm)	Cum	1565		0.00	0	0.00



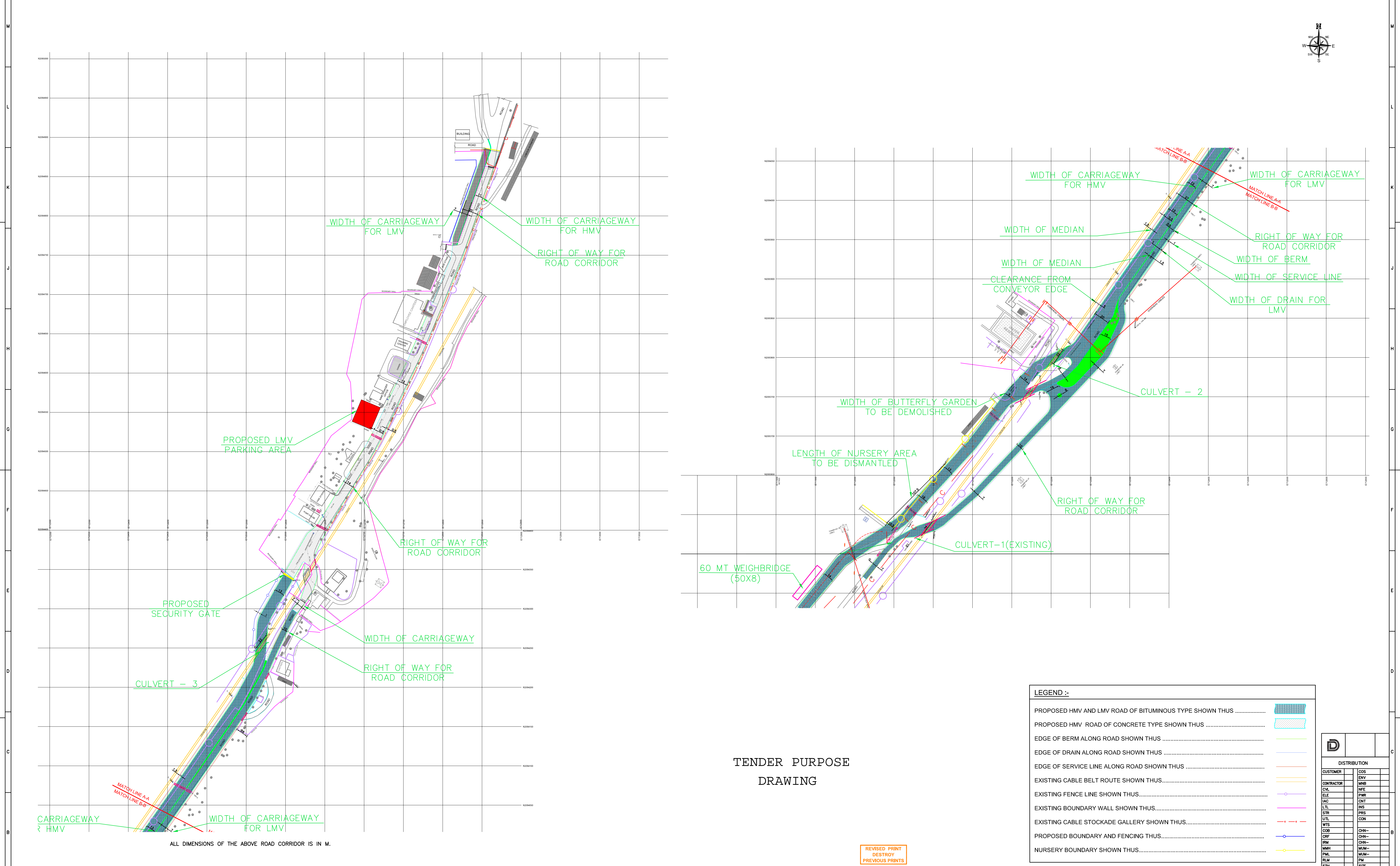
55	11.5	Providing and filling moorum of approved quality in layers, each layer not exceeding 150 mm thick, including consolidating each layer by watering and ramming at any location all as per specifications and directions of the E-I-C, all materials, tools, plant and labour complete in all respect:	cu m	0.5		0.00	0	0.00
56	11.6.1	Manufacturing, erecting and fixing in position with (1:4) cement sand mortar precast PCC kerb stones of the following sizes with concrete grade M25 as defined by IS:456, machine mixed and mechanically vibrated with 20 mm and down graded stone aggregates all as per drawing, specification and direction of the E-I-C including curing, providing shuttering, making excavation for fixing the kerb stones and removal of surplus excavated materials after completion and depositing in spoil dumps/fill areas within a lead of 3 km, all materials, tools, plant and labour complete in all respect:i) For straight portion :a) 900 mm x 150 mm x 750 mm long	Nos	300		0.00	0	0.00
57	11.6.2	Manufacturing, erecting and fixing in position with (1:4) cement sand mortar precast PCC kerb stones of the following sizes with concrete grade M25 as defined by IS:456, machine mixed and mechanically vibrated with 20 mm and down graded stone aggregates all as per drawing, specification and direction of the E-I-C, including curing, providing shuttering, making excavation for fixing the kerb stones and removal of surplus excavated materials after completion and depositing in spoil dumps/fill areas within a lead of 3 km, all materials, tools, plant and labour complete in all respect:ii) For curved portion :a) 900 mm x 150 mm x 750 mm long	NOs	200		0.00	0	0.00
58	11.7	Construction of dry lean cement concrete sub-base over freshly prepared layer of granular sub-base with coarse and fine aggregate conforming to IS:383, the size of coarse aggregate not exceeding 25 mm, aggregate cement ratio not to exceed 15:1, aggregate gradation after blending to be as per specifications, cement content not to be less than 150 Kg/cum, optimum moisture content to be determined during trial length construction, of M10 grade concrete having strength not less than 10 Mpa at 7 days, mixed in a batching plant, transported to site, for all leads & lifts, laid with a mechanical paver, compacting with 8-10 tonne vibratory roller, finishing and curing etc. complete as per direction of Engineer- in- charge.	Cum	880		0.00	0	0.00
59	11.80	Construction of un-reinforced, dowel jointed, pavement quality concrete pavement as per IRC:58 over a prepared sub-base, coarse and fine aggregate conforming to IS:383 and graded as per table 600-3 mixed in a batching and mixing plant as per approved mix design, transported to site, laid with a fixed form or slip form paver, spread, compacted and finished in a continuous operation including provision of contraction, expansion, construction and longitudinal joints, joint filler, separation membrane, sealant primer, joint sealant, debonding strip, dowel bar, tie rod, admixtures as approved, curing compound, brush texturing, finishing to lines and grades, all as per Clause 602 of MORT&H, all complete in all respect as per directed by the E-I-C with all tools, tackles and machinery. a) for M40 grade concrete	Cym	1800		0.00	0	0.00
60	11.9.1	Providing formwork (shuttering) and fixing in position with necessary centrings, bracings, propping's etc and striking,removing and clearing the same after the specified periods for all types of formwork for all DLC and PQC works including all chamfers, splays, fillets, keys, wedges, props, nails, bracings,brackets, cutting holes for passing embedments etc and applying approved quality 'formwork oil' on formwork surfaces in contactwith concrete all materials, tools, plant and labour complete.(Note :-Formwork for the construction joints will not be paid) a) Straight formwork.	Sqm	240		0.00	0	0.00
61	11.9.2	Providing formwork (shuttering) and fixing in position with necessary centrings, bracings, propping's etc and striking,removing and clearing the same after the specified periods for all types of formwork for all DLC and PQC works including all chamfers, splays, fillets, keys, wedges, props, nails, bracings,brackets, cutting holes for passing embedments etc and applying approved quality 'formwork oil' on formwork surfaces in contactwith concrete all materials, tools, plant and labour complete.(Note :-Formwork for the construction joints will not be paid) b) Curve formwork.	Sqm	160		0.00	0	0.00
62	11.10	Supplying and fixing of 125 micron polythene sheet over DLC and below PQC as per drawing, specification and direction of E-I-C	Sqm	8800		0.00	0	0.00

63	11.11	Providing hot poured rubberized bitumen sealing compound of approved make and quality including marking grooves at elastic/expansion/ contraction/ longitudinal joints as per drawings, specifications and directions of the Employer, all materials, tools plant and labour complete in all respect:	M	1892		0.00	0	0.00
64	11.12	Providing and applying bitumen coating of longitudinal reinforcement at the location of elastic joints, all as per drawings, specifications and directions of the E-I-C, all materials, tools plant and labour complete in all respect.	Sqm	820		0.00	0	0.00
65	11.13	Providing speed-breaker hump as per with cement concrete of grade M20 with stone aggregate 20 mm and down nominal size, laid at road surface true to line, level and curvature, compacted with appropriate size needle vibrator and/or plate vibrator all as per specification and direction of the E-I-C, all materials, tools, plant and labour complete in all respect	Cum	2		0.00	0	0.00
66	11.14	Supplying, fabricating and erecting in position 90 cm triangle shaped standard traffic signs, side road ahead and the like, with scotch lites reflective high intensity heat activated sheet bonded on standard 140 aluminium blank of suitable size, sign plates mounted on 3 M long 50 NB galvanised steel pipe conforming to IS:1239, with bolts & nuts, welded with 100 x 100 x 6 mm thick MS base plate and 6 mm, thick MS capping at top, complete in all respect pipe and rear of aluminium blank painted with one coat of zinc chromate yellow primer and two or more coats of enamel paint in approved pattern to match with the even shade, of approved brand, 450 x 450 x 600 mm foundation block of PCC M7.5, necessary earthwork excavation, backfilling, disposal of surplus earth upto a lead 1 km all complete in all respect as per IRC specifications and/or as directed by the E-I-C.	Each	12		0.00	0	0.00
67	11.15	Painting lane markings on the road surface with two or more coats of ready mixed road marking white paint conforming to IS:164, including cleaning the surface of all dirt scales, oil, grease and foreign material etc., complete in all respect all as per the directions of the E-I-C	Sqm	600		0.00	0	0.00
68	11.16	Providing painted cautionary bands of required patterns on road/speed breaker/guard stones/ kerb surfaces, using floor enamel paint of required shades in three coats, including supply of paint all complete in all respect as per directed by the E-I-C (Payment based on plan area in case of speed breaker)	Sqm	45		0.00	0	0.00
69	11.17	Providing and erecting a "W" metal beam crash barrier comprising of 3 mm thick corrugated sheet metal beam rail, 70 cm above road/ground level, fixed on ISMC series channel vertical post, 150 x 75 x 5 mm spaced 2 m centre to centre, 1.8 m high, 1.1 m below ground/road level firmly fixed to the ground by means of foundation with M-15 grade cement concrete 30 x 30 x 110 cm, all steel parts and fitments to be galvanised by hot dip process, all fittings to conform to IS:1367 and IS:1364, metal beam rail to be fixed on the vertical post with a spacer of channel section 150 x 75 x 5 mm, 330 mm long complete as per Clause 811.3 of MoRTH	M	50		0.00	0	0.00
70	12.1	Demolishing R.C.C. work manually/ by mechanical means including stacking of steel bars and disposal of unserviceable material within 1 Km lead as per direction of Engineer in- charge.	Cum	5		0.00	0	0.00
71	12.2.1	Demolishing cement concrete manually/ by mechanical means including disposal of material within 1 Km lead as per direction of Engineer in - charge. Nominal mix of 1:3:6 or richer mix (i/c equivalent mix design)	Cum	70		0.00	0	0.00
72	12.2.2	Demolishing cement concrete manually/ by mechanical means including disposal of material within 1 Km lead as per direction of Engineer in - charge. Nominal mix of 1:4:8 or leaner mix (i/c equivalent mix design)	Cum	5		0.00	0	0.00
73	12.3	Jungle cutting and removal of all vegetation, shrubs, bushes etc complete and disposing the same anywhere within plant premises as directed by E-I-C, all tools and labour complete in all respect.	Sqm	30		0.00	0	0.00
74	12.4	Uprooting trees carefully having a girth measured at a height upto 1.0 m above ground level or as directed by E-I-C transporting the trees in convenient sizes anywhere within Purchaser works premises and stacking them, all tools and labour complete in all respect. a) girth size upto 300 mm	Each	150		0.00	0	0.00

75	12.5	Uprooting trees carefully having a girth measured at a height upto 1.0 m above ground level or as directed by E-I-C transporting the trees in convenient sizes anywhere within Purchaser works premises and stacking them, all tools and labour complete in all respect. a) girth size above 300 mm	Each	90		0.00	0	0.00
76	12.6	Dismantling with due care RR masonry work at all heights and depths above and below finished ground level and disposing of the muck/debris within a lead of 1 km as directed by the E-I-C all materials, tools, plant and labour complete in all respect.	Cum	550		0.00	0	0.00
77	12.7	Dismantling carefully existing steel signage boards of all height and sizes and transporting the same to Employer's scrapyard or as directed by E-I-c, all materials, tools, plant and labour complete in all respect.	Ton	1		0.00	0	0.00
78	13.1	Supplying, fabricating, loading, transporting, erecting and fixing at all heights & depths above and below finished ground level, welded/bolted structural steelwork as specified for all structures/units such as all types of cable and cable rack supporting trestles, towers and gallery girder and beams including all types of fixing arrangement of cable racks, bus duct supporting structures at road crossing, height barrier, lacing systems, bracings, stiffeners, cutouts, crane runway beams and crane stoppers, all types of platform /floor arrangements along with their access systems, platform/ floor supports, walkways and its supporting systems, miscellaneous staircases, toe guards, ladders, doors, clamps, and struts, ties, brackets and all the structural steelwork consisting of built-up welded sections and rolled sections as specified and as shown in drawings and/or as directed by Engineer in-charge, including fixing of bolts, nuts, lock nuts, washers, fittings, fixtures etc, and applying paint as per General specification for painting including all tools, plants, labour, etc to complete the work in all respect.	Ton	50		0.00	0	0.00
79	13.2	Supplying, fabricating, loading, transporting, erecting and fixing at all heights & depths above and below finished ground level Structural Steelwork welded in built up sections/ framed work, including cutting, hoisting, fixing in position and applying paint as per General specification for painting including all tools, plants, labour, etc to complete the work in all respect. i) In gratings, frames, guard bar, ladder, railings, brackets, gates and similar works	Ton	2.5		0.00	0	0.00
<b>TOTAL AMOUNT INCLUDING GST (THIS VALUE TO BE QUOTED IN THE GEM PORTAL)</b> 								<b>0.00</b>

		<p><b>Note : 1) The bidder has to quote the unit rates in the blue coloured cells upto two decimels only. Unit rate shall be excluding GST</b></p> <p><b>2) After filing up the BOQ, the value obtained in the TOTAL AMOUNT INCLUDING GST Shall be quoted as the price for the contract in GeM portal</b></p> <p><b>3) The bidder has convert this EXCEL sheet to PDF and upload the same in GeM portal at the Financial breakup location</b></p> <p><b>4) The name of the bidder is to be filled up in the cell earmarked for the same in green colour</b></p>
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TENDER PURPOSE  
DRAWING

REVISED PRINT  
DESTROY  
PREVIOUS PRINTS

**LEGEND :-**

PROPOSED HMV AND LMV ROAD OF BITUMINOUS TYPE SHOWN THUS .....

PROPOSED HMV ROAD OF CONCRETE TYPE SHOWN THUS .....

EDGE OF BERM ALONG ROAD SHOWN THUS .....

EDGE OF DRAIN ALONG ROAD SHOWN THUS .....

EDGE OF SERVICE LINE ALONG ROAD SHOWN THUS .....

EXISTING CABLE BELT ROUTE SHOWN THUS.....

EXISTING FENCE LINE SHOWN THUS.....


EXISTING BOUNDARY WALL SHOWN THUS.....

EXISTING CABLE STOCKADE GALLERY SHOWN THUS.....

PROPOSED BOUNDARY AND FENCING THUS.....

NURSERY BOUNDARY SHOWN THUS.....

	PROPOSED HMV AND LMV ROAD OF BITUMINOUS TYPE SHOWN THUS .....
	PROPOSED HMV ROAD OF CONCRETE TYPE SHOWN THUS .....
	EDGE OF BERM ALONG ROAD SHOWN THUS .....
	EDGE OF DRAIN ALONG ROAD SHOWN THUS .....
	EDGE OF SERVICE LINE ALONG ROAD SHOWN THUS .....
	EXISTING CABLE BELT ROUTE SHOWN THUS.....
	EXISTING FENCE LINE SHOWN THUS.....
	EXISTING BOUNDARY WALL SHOWN THUS.....
	EXISTING CABLE STOCKADE GALLERY SHOWN THUS.....
	PROPOSED BOUNDARY AND FENCING THUS.....
	NURSERY BOUNDARY SHOWN THUS.....

			
DISTRIBUTION			
CUSTOMER		COS	
		ENV	
CONTRACTOR		MMB	
CVL		NFE	
ELE		PWR	
IAC		CNT	
LTL		INS	
STR		PRS	
UTL		CON	
WTS			
COB		CHN—	
CRF		CHN—	
IRM		CHN—	
MMH		MUM—	
PML		MUM—	
RLM		PM	
STM		SITE	



# **GENERAL CONDITIONS OF CONTRACT**

**NATIONAL ALUMINIUM COMPANY LIMITED  
NALCO BHAWAN, P-1 NAYAPALLI,  
BHUBANESWAR – 751 013**

**Web site: [www.nalcoindia.com](http://www.nalcoindia.com)**

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## SECTION – 1

### DEFINITIONS AND INTERPRETATION

#### 1. DEFINITION & INTERPRETATION:

##### 1.1 Definition:

In the contract (as hereinafter defined) the following words and expressions shall have the meanings hereby assigned to them except where the context otherwise requires.

- 1.1.1 The ‘Owner’ shall mean the National Aluminium Company Limited (NALCO), a Company incorporated under the Companies Act, 1956 having its registered office at IDCO Tower, 8<sup>th</sup> Floor, Janapath, Bhubaneswar –751007 or any other place as modified subsequently and shall include its Chairman-cum-Managing Director or other Administrative Officers authorised to deal with these presents are concerned on his behalf posted in the any of the Offices of NALCO and shall also include Owner’s successors and assignees.

The Chairman-cum-Managing Director has nominated the following persons as the representative of the ‘Owner’ for the purpose of all contractual matters.

Smelter	-	General Manager (Smelter)	} Projects
CPP	-	General Manager (CPP)	
Mines	-	General Manager (Mines)	
Alumina	-	General Manager (Alumina)	

- 1.1.2 The ‘Tender’ shall mean the tender submitted by the tenderer for acceptance by the Owner.
- 1.1.3. The ‘Chairman-cum-Managing Director’ shall mean the Chairman-cum-Managing Director of National Aluminium Co. Ltd., or his successors in office as designated by the Owner.
- 1.1.4. The ‘Project Head’ shall mean General Manager/ Deputy General Manager of the Project of National Aluminium Company Ltd., or his successor in office or his authorised representative.
- 1.1.5. The ‘Contractor’ shall mean the person or persons, firm or company whose tender has been accepted by owner and includes the contractor’s legal representatives, his successors and permitted assigns.
- 1.1.6. The ‘Sub-contractor’ shall mean any person or firm or company (other than the contractor to whom any part of the work has been entrusted by the contractor, with the written consent of the owner or his representative and the legal representatives, successors and permitted assignee of such person, firm or company.

- 1.1.7. The ‘Engineer-in-Charge’ shall mean the person nominated by the Owner from time to time and shall include those who are expressly authorised by the Owner to act for            and on his behalf for all function pertaining to operation of this contract. All functions pertaining to the operation of contract means all acts necessary for execution of the contract coordinating between the different agencies and final closing of the contract.
- 1.1.8. The ‘Works’ shall mean and include all works to be executed in accordance with the contract or part thereof as the case may and shall include all extras, addition, altered or substituted works as required for the purpose of the contract or as may be required to be executed by the owner/ engineer-in-charge.
- 1.1.9. The ‘Contract’ shall mean the agreement between the Owner and the contractor for the execution of the works including therein all documents such as the invitation to tender, instructions to Tenders, General Conditions of Contract, Special Conditions of Contract, Job Specifications, General Requirements, Time Schedule of Completion of Job, Drawings, Letter of Intent awarding the work, Agreed variations, if any etc.
- 1.1.10. The ‘Contract Document’ shall mean collectively the tender documents, designs, drawings specifications, agreed variations, if any and other documents constituting the tender and acceptance thereof.
- 1.1.11. ‘Constitutional Plant’ shall mean all appliances or things of whatsoever nature required in or about the execution, completion or maintenance of the works or temporary works (as hereinafter defined) but does not include materials or other things intended to form of forming part of the permanent work.
- 1.1.12. ‘Temporary Works’ shall mean all temporary works of every kind required in or about the execution, completion or maintenance of the works.
- 1.1.13. ‘Specifications’ shall mean all directions, various technical specification, provisions, and requirements, attached to the contract, which pertain to the method and manner of performing the work or works to the quantities and qualities of the work or works and the materials to be furnished under the contract for the work or works as may be amplified or modified by the Owner or the Engineer-in-charge during the performance of Contract in order to provide the unforeseen conditions or in the best interests of the work or works. It shall also include the latest edition including all addenda/ corrigenda or relevant Indian Standard Specifications and other relevant codes.
- 1.1.14. ‘Plans’ shall mean all maps, sketches, and layouts as are incorporated in the contract in order to define broadly the scope and specifications of the work or works, and all reproductions thereof.

- 1.1.15. 'Drawings' shall include maps, plans and tracings or prints thereof with any modifications approved in writing by the Engineer-in-Charge and such other drawings as may, from time to time, be furnished or approved in writing by the Engineer-in-charge.
- 1.1.16. 'Foreign consultant' shall mean a person, agency or firm including their successors and assigns, who are nonresidents of India and are responsible for supply of process Technology for expansion plant based on review of existing plant including material flow, energy balance, additional facilities and improvement on the basis of the recent experience.
- 1.1.17. 'Indian Consultant' shall mean a person, agency or firm including their successors and assign who are responsible for detailed engineering and construction management of the project.
- 1.1.18. 'Project manager' shall mean the authorised representative of the consultant posted at site. He shall be responsible for supervision of the work by the contractors as well as coordinate with different agencies within the organisation or otherwise.
- 1.1.19. 'Site' shall mean the lands and other places on, under in or through which the permanent works are to be carried out and any other lands or places provided by the owner for the purpose of the contract.
- 1.1.20. 'Notice in writing or written Notice' shall mean a notice in written, typed or printed characters sent (unless delivered personally or other wise proved to have been received) by registered post to the last known private or business address or registered office of the addressee and shall be deemed to have been received in the ordinary course of post it would have been delivered.
- 1.1.21. The 'Completion Certificate' shall mean the certificate to be issued by the owner or his representative when the works have been completed to his satisfaction.
- 1.1.22. The 'Final Certificate' in relation to the work shall mean the certificate regarding the satisfactory compliance of the various provisions of the contract to be issued by the owner or his representative after the period of liability is over.
- 1.1.23. 'Approved' shall mean approved in writing including subsequent written confirmation of previous verbal approval and 'Approval' means approved in writing including as aforesaid.
- 1.1.24. The 'Period of Liability' in relation to a work means the specified period from the date of issue of completion certificate up to the date of issue of final certificate which the contractor stands responsible for rectifying all defects that may appear in the works.

- 1.1.25. The ‘Appointing Authority’ for the purpose of arbitration shall be the Chairman and managing Director or any other person so designated by him.
- 1.1.26. The ‘Alteration Variation Order’ means an order given in writing by the Engineer-in-Charge/ owner to effect additions to or deletions from or alteration in the works.
- 1.1.27. ‘Letter of Intent’ shall mean an intimation by a letter to tenderer that the tender has been accepted in accordance with the provisions contained in the letter.
- 1.1.28. ‘Days’ means a day of 24 hours from mid night irrespective of the number of hours worked in that day.
- 1.1.29. ‘Working Day’ mean any day which is not declared to be holiday or rest day by the Owner.
- 1.1.30. ‘Week’ means a period of any consecutive seven days.
- 1.1.31. ‘Metric System’: All technical documents regarding the construction of works are given in the metric system and all work in the project should be carried out accordingly to the metric system. All documents concerning the work shall also be maintained in the metric system.
- 1.1.32. ‘Value of Contract’ shall mean the sum accepted or the sum calculated in accordance with the prices accepted in tender and / or the contract rates as payable to the contractor for the entire execution and full completion of the work.
- 1.1.33. ‘Headings and Marginal Notes’ in these contract documents are given solely for facility of reference and are not part of the contract documents and are not to be taken into account in the interpretation of the provisions of the contract.
- 1.1.34. ‘Language for Drawings & Instruction’: All the drawings, titles, notes, instruction, dimensions etc. shall be in English Language.
- 1.1.35. ‘Singular and Plural’: The singular shall include the plural and vice versa wherever the context so requires.



## SECTION - II

### 2. FACILITIES TO CONTRACTOR

#### 2.1 Location of Sites and Access by Road:

##### 2.1.1 Locations of Sites:

The general information about Mines Alumina, Aluminium Smelter and Captive power Plants furnished below is of indicative nature only and shall not be considered as binding in any way on the Owner and shall not govern either the scope of work or the nature of the respective rights and the obligations of the parties to such contract.

##### (a) Alumina Plant and Mines:

Alumina plant is on south-western side of the Panchpatmali hill near Damanjodi village in Koraput District, Orissa State. The site is situated at 12 Km from the national highway No. 43 off Semiliguda village. The Alumina Plant Site has the form of saddle between groups of low hills. The location of Red Mud Pond is in the natural basis of hills situated at a distance of 2 Km from the western side of the plant. The Bauxite mine is located at 14 Km away from the Alumina Plant Site.

##### (b) Smelter Plant:

Aluminium Smelter is on the Southern side of National Highway No. 42, with its approximate latitude and longitude as 20°51'N and 85°10'E respectively. The area, at a higher elevation in comparison with adjacent land, is not subjected to either normal or flash foods. The prevalent directions of wind are from North-West and West.

##### (c) Captive Power Plant:

Captive Power Plant is located at Angul, District Angul, Orissa on the south of Talcher Thermal Power Station of Orissa State Electricity Board the main plant site is about 3 Km on the north of the junction of the National Highway Nos. 42 and 23, between the villages Balaram Prasad Patna and Gotamara. The access roads to the main plant site may be taken from either of the highways.

##### 2.1.2. Access by Road:

Contractor, if necessary, shall build other temporary access roads to the actual site of construction for his own work at his own cost. The Contractor shall be required to permit the use of the roads so constructed by him for vehicles of any other parties who may be engaged on the project site. The Contractor shall also facilitate the construction of the permanent roads should the construction thereof start while he is engaged on this work. He shall make due allowance in his tender for any inconvenience he anticipates on such account.

Non-availability of access roads, railway siding and railway wagons for the use of contractor shall in no case condone any delay in the execution of works not be the cause for any claim for compensation against the Owner.

**2.2 Water Supply:**

2.2.1. Unless other wise provided in the Contract, the Contractor shall be responsible for the arrangements to obtain supply of water necessary for the works, his labour colony, his workshops, his offices etc. All pumping installations, pipe network and distribution system will have to be carried out by the Contractor at his own cost.

2.2.2. The Owner may agree to supply water to the Contractor for use in the Owner's works on specified terms and conditions as shall be determined by the Owner, which shall be binding on the Contractors. The tenderer is however required to exercise his option to receive such water supply from Owner's main at the time of submission of his tender.

2.2.3. When the water is supplied by the Owner, the Owner's main will be within 500 metres form the site of work. The Contractor shall provide at his own cost, all necessary ferrules, pipes, fitting, couplings and tanks and temporary works required and he shall maintain all such works in satisfactory condition. The Contractor shall remove all such works and shall re-instate and make good any work disturbed, to the satisfaction of the Engineer-in-Charge.

2.2.4. In the event of the Contractor's drawing water from the Owner's main/ source, he shall not claim any compensation for interruption or failure of Owner's water supply caused due to any reasons beyond the control of the owner.

2.2.5. The water so supplied by the Owner shall be free of cost for the Constructional work only.

**2.3. Power Supply:**

2.3.1 Subject to availability, Owner will supply power at 400/440 V at only one point at the nearest substation, from where the contractor will make his own arrangement for temporary distribution. The point of supply will not be more than 500 Metres away from the Contractor's premises. All the works will be done as per IEA regulations and passed by the Engineer-in-Charge. The temporary line will be removed forthwith after the completion of work or if there is any hindrance caused to the other works due to the alignment of these lines, the contractor will re-route or remove the temporary lines at his own cost. The Contractor at his cost will also provide suitable electric metres, fuses, switches, etc. for purposes of payment to the Owner which should be in the custody and control of the Owner. The cost of power supply shall be payable to the owner every month. Rs. 1/- per kWh for power, which will be deducted from the running bills. The owner shall not, however, guarantee the supply of electricity and no compensation for any failure or short supply of electricity will be entertained and this does not relieve the contractor of his

responsibility for timely completion of this works as stipulated in the contract.

- 2.3.2 It shall be the responsibility of the contractor to provide and maintain the complete installation of the load side of the supply with due regard to safety requirement at site. All cabling, equipment, installations etc. shall comply in all respects with the latest statutory requirements and safety provisions i.e. as per and the Central/ State Electricity Acts and Rules etc. The Contractor will ensure that his equipment and Electrical wiring etc. are installed modified, maintained by a licensed Electrician/ Supervisor. A test certificate is to be produced to the Engineer-in-Charge for his approval, before power is made available.
- 2.3.3 At all times, IEA regulations shall be followed failing which the Owner has a right to disconnect the power supply without any reference to the contractor. No claim shall be entertained for such disconnection by the Engineer-in-Charge. Power supply will be reconnected only after production of fresh certificate from authorised electrical supervisors.
- 2.3.4 The Owner is not liable for any loss or damage to the Contractor's equipment as a result of variation in voltage or frequency or interruption in power supply or other loss to the Contractor arising there from.
- 2.3.5 The Contractor shall ensure that the Electrical equipment installed by him are such that average power factor does not fall below 0.90 at his premises. In case power factor falls below 0.90 in any month, he will reimburse to the Owner at the penal rate determined by the Owner for all units consumed during the month.
- 2.3.6 The Power supply required for Contractor's colony near the plant site will be determined by the Owner and shall as per state Electricity Board's Rules and other Statutory provisions applicable for such installations from time to time. In case of power supply to Contractor's colony, the power will be made available at a single point and the Contractor shall make his own arrangement at his own cost for distribution to the occupants of the colony as per Electricity Rules & Acts. The site area and colony shall be sufficiently illuminated to avoid accidents.
- 2.3.7 The Contractor will have to provide and install his own light and power meters, which will be governed as per Central/ State Government Electricity Rules. The meters shall be sealed by the Owner.
- 2.3.8 In case of damage to any of the Owner's equipment on account of fault, intentional or unintentional on the part of the Contractor the Owner reserves the right to recover the cost of such damage from the contractor's bill. Cost of HRC Fuses replaced at the Owner's terminals due to any fault

in the Contractor's installation shall be to contractor's account at the rates decided by the Engineer-in-Charge.

- 2.3.9 Only motors upto 3 HP will be allowed to be started direct on line. For motors above 3 HP and up to 100 HP a suitable starting devices approved by the Engineer-in-Charge shall be provided by the Contractor For Motor s above 100 HP slipping induction motors will suitable starting devices as approved by the Engineer-in-Charge shall be provided by the Contractor.
- 2.3.10 The Contractor shall ensure at his cost that all electric lines and equipment and all installations are approved by the State Electricity Inspector before power can be supplied by the Owner.
- 2.3.11 The total requirement of power shall be indicated by the tenderer along with his tender.

#### **2.4. Land for Contractor's Filed Office, Godown and Workshop :**

- 2.4.1. The Owner will at his discretion and convenience and for the duration of the execution of the work may provide the land for construction of Contractor's field office, godown, workshops and assembly yard required for the execution of the contract nearer to the site.

The Contractor shall at his cost construct all these temporary buildings structures and provide suitable water supply and sanitary arrangement as approved by the Engineer-in-Charge and other inspectorates.

- 2.4.2. On completion of the works undertaken by the Contractor, he shall remove all temporary works erected by him and have the site cleared as directed by Engineer-in-Charge. If the Contractor fails to comply with these requirements, the Engineer-in-Charge has the right to remove any structure, such surplus, rubbish materials and depose off the same as he deems fit and get the site cleared and the contractor shall forthwith pay the amount of all expenses so incurred and shall have no claim in respect of any such surplus materials disposed as aforesaid. The Owner reserves the right to ask the Contractor at any time during the pendancy of the contract, to vacate the land by giving 7 (seven) days notice on security reasons or on national interest or otherwise. A token rent of Rs. 100/- (Rupees One hundred only) per hectare or part thereof per annum or part thereof shall be charged for the land so made available.

Land provided shall be solely on licence basis which is terminable by at any time without notice or without assigning any reasons. In the event of any such termination or the termination of the contract/completion thereof, the contractor shall forthwith vacate the premises.

**2.5. Land for Residential Accommodation:**

Land for residential accommodation for staff and labour may be made available at the discretion of the Engineer-in-Charge and rent for the same will be as decided by the Engineer-in-Charge according to location and the area occupied by the Contractor.

## SECTION - III

### GENERAL INSTRUCTIONS TO TENDERERS

#### 3. SUBMISSION OF TENDER:

3.1. The documents issued to the tenderers shall be as follows:

- (i) One complete set of tender documents as per index sheet and drawings marked 'ORIGINAL' (To be submitted along-with the quotation).
- (ii) One complete set of tender documents as per index sheet marked 'TENDERER'S COPY' (To be retained by the tenderer for reference).

3.1.1. The tender documents shall be in 2 parts viz. Technical Bid and Price Bid. Technical and Price Bid should be put in separate sealed cover and marked with the tender reference and name of the work. In addition, a note on the Price Bid "Quotation do not open" is to be superscribed. Both the sealed covers are to be put in a single sealed cover. The name of the work the tender reference and date of opening are to be superscribed on this sealed envelope also.

The technical Bid shall be opened in the first instance. Clarifications, confirmations, if any, shall be obtained with regard to technical specifications. After technical specifications are firmed up, if a tenderer revises his price bid, he is required to submit justification in support of the revision made. The price bid shall be opened thereafter.

3.2. If Addenda/ Corrigenda are issued to this tender document, they must be signed, submitted along-with the tender documents. The tenderer should write clearly the revised quantities in schedule of Rates of Tender Document and should price the work based on revised quantities when amendments on quantities are issued in addenda.

3.3. Tenderers are advised to submit quotations based strictly on the terms and conditions and specifications contained in the tender documents and not stipulate any deviations. Should it however become unavoidable, deviations should be stipulated in the prescribed proforma only, contained in the proposal form. Owner reserves the right to evaluate the quotations containing deviations having financial implications, by adding the cost for such deviations are determined by Owner.

3.4. Tenders should be submitted in double sealed envelope with the name of work superscribed thereon and with the note "QUOTATION DO NOT OPEN" written prominently. The full name, postal address and telegraphic address of the tenderer shall be written on the bottom left hand corner of the sealed cover.

#### 4.0. DOCUMENTS:

4.1.1 Bidders shall submit with his bids the particular/ documents as envisaged from Appendix (i) to (x) along with tentative construction net work/ Bar chart for completion of work taking into account various intermediate completion milestones/ component milestones and the overall completion of work under the contract.

4.1.2. Details to be submitted along with tender:

The tenders, as submitted will consist of the following:

The technical Bid and Price Bid shall be submitted as stated in para 3.1.1 Documents to be attached with price bid.

- (i) Complete set of the tender document (marked ORIGINAL) as issued duly filled in by the tenderer as prescribed in different clauses of the tender document, signed and date affixed.

Documents to be attached with Technical Bid.

- (ii) Earnest money in the manner specified in Clause 6 hereof.
- (iii) The following proposal forms in FIVE copies
  - (a) Details of works of similar nature and magnitude carried out during last 5 years as per the Appendix – 1(A)
  - (b) Concurrent commitments of the tenderer as per the Appendix – 1(B).
  - (c) Details of equipments, tools and tackles proposed to be deployed for this work as per the Appendix – (II).
  - (d) Details of manpower proposed to be deployed for this work as per the Appendix – (III), indicating the qualification.
  - (e) Site organisation chart showing number of qualified engineers and supervisors etc. indicating their bio-data as per the Appendix – (IV), indicating the qualification.
  - (f) List of proposed sub-contractors to be deployed as per the Appendix – (V).
  - (g) Progress Billing as per the Appendix – (VI).
  - (h) Information about tenderers as per the Appendix – (VII).
  - (i) List of enclosures as per the Appendix – (VIII).
    - a) Power of attorney
    - b) Income tax & Sales tax clearance certificate.
    - c) Solvency certificate from nationalised Bank
    - d) Documents showing annual turnover.
  - (j) Exception and deviation which tenderer may desire to stipulate as per Appendix – (IX).

**4.2 All pages to be initialled:**



All signatures in tender documents shall be dated, as well as the pages of all sections of tender documents shall be initialled at the lower right hand corner or signed wherever required in the tender papers by the tenderer or by a person holding power of attorney authorising him to sign on behalf of the tenderer before submission of tender.

**4.3. Rates to be in Figures and Words:**

The tenderer shall quote in English, in figures and in words for the rates and amount tendered by him in the Schedule of Rates forming part of the documents, in such a way that interpolation is not possible. The amount of each item shall be worked out and entered and requisite total given of all items. The tendered amount for the work shall be entered in the tender and duly signed by the tenderer.

If some discrepancies are found between the rates given in works and figures or the amount shown in the tender, the following procedure shall be followed:-

- a) When there is difference between the rates in figures and words, the rate which corresponds to the amount worked out by the tenderer shall be taken as correct.
- b) When the rate quoted by the tenderer in figures and words tally but the amount is incorrect, the rate quoted by the tenderer shall be taken as correct.
- c) When it is not possible to ascertain the correct rate by either of above methods the rate quoted in words shall be taken as correct.

**4.4. Corrections and Erasures:**

All corrections and alterations in the entries of tender papers shall be signed in full by the tenderer with date. No erasures or over writings are permissible.

**4.5. Signature of Tenderer:**

- 4.5.1. The tender shall contain the name, residence and place of business of person or persons making the tender and shall be signed by the tenderer with his usual signature. Partnership firms shall furnish the full names of the partners in the tender. It should be signed in the partnership's name by all the partners or by duly authorised representative followed by the name and designation of the person signing. Tender by a corporation shall be signed by an authorised representative and a power of attorney on the behalf shall accompany the tender. A copy of constitution of the firm with names of all partners shall be furnished.
- 4.5.2. When the tenderer signs a tender in a language other than English, the total amount tendered should in addition be written in the same language. The signature should be attested by at least one witness.

**4.6 Witness:** Witness and sureties shall be persons of status and property. Their name occupation and address shall be stated below their signature.

**5. TRANSFER OF TENDER DOCUMENTS:**

Transfer of tender document purchased by one intending tenderer to another is not permissible.

**6. EARNEST MONEY:**

6.1. The tenderer must pay earnest money as given in the Letter/ Notice Inviting Tenders. Tenders not accompanied with earnest money deposit will be rejected. The earnest money can be paid in cash or by crossed demand draft or fixed deposit or Bank Guarantee from any Nationalised/ Scheduled Bank or Insurance Guarantee in the prescribed proforma as indicated in the tender document in favour of National Aluminium Company Ltd.

6.2. The Bank Guarantee so furnished by the tenderer shall be only in the proforma prescribed by the Owner and valid for six months from the date of opening of the tender. No interest shall be paid by the Owner on the Earnest Money deposited by the tenderer.

7. **VALIDITY:** Tender submitted by tenderers shall remain valid for acceptance for a period of four months from the date of opening of the tender. The tenderers shall not be entitled during the said period of four months, without the consent in writing of the Owner, to revoke or cancel his tender or to vary the tender given or any term thereof. In case of tenderer revoking or canceling his tender or varying any terms in regard thereof without the consent of a Owner in writing, the earnest money paid by him along-with the tender shall be forfeited.

**8. ADDENDA/ CORRIGENDA:**

8.1. Addenda/ Corrigenda to the tender documents may be issued prior to the date of opening of the tenders to clarify documents or to reflect modification in the design or contract terms.

8.2. The Addenda/ Corrigenda will be issued in duplicate to each person or organisation to whom a set of tender documents has been issued. Each recipient should acknowledge the receipt of the same and attach one copy of the addenda/ corrigenda along-with his offer. All addenda/ corrigenda issued shall become part of Tender Documents.

**9. RIGHT OF OWNER TO ACCEPT OR REJECT TENDER:**

9.1. The right to accept the tender will rest with the Owner. The Owner further does not bind himself to accept the lowest tender and reserves the authority to reject any or all the tenders received without assigning any reason whatsoever. The whole work may be split up between two or more contractors or accepted in part (not entirely) if considered expedient. The quoted rates would hold good for such eventualities. Tenders in which any of the particulars and prescribed information are missing or incomplete in any respect and / or the prescribed conditions are not

fulfilled are liable to be rejected. The decision for the owner in respect of the above shall be final and binding on the contractor.

9.2. Canvassing in connection with tenders is strictly prohibited. The submitted tenders of the tenderers who resort to canvassing are liable to rejection. Tenders containing uncalled remarks or any additional conditions are liable to be rejected.

#### **10. THE SCHEDULE:**

10.1. The work shall be executed strictly as per the Time Schedule given in Appendix –1. The period of construction given in time Schedule includes the time required for mobilisation as well as testing, rectification if any, re-testing and completion in all respects to entire satisfaction of the Engineer-in-Charge.

10.2. A joint programme of execution of the work will be prepared by the Engineer-in-Charge and contractor based on priority requirement of this project. This programme will take into account the time of completion mentioned in 19.1 above and the time allowed for the priority works by the Engineer-in-Charge.

10.3. Monthly/ weekly construction programme will be drawn up by the Engineer-in-Charge jointly with the Contractor, based on availability of work fronts and the joint construction programme as per 10.2 above. The contractor shall scrupulously adhere to these targets/ programs by deploying adequate personnel construction tools and tackles and he shall also supply himself materials of his scope of supply in good time to achieve the targets/ programmes. In all matters concerning the extents of targets set out in the weekly and monthly programmes and the degree of achievement, the decision of the Engineer-in-Charge will be final and binding on the contractor.

#### **10.4. CONSTRUCTION SCHEDULE AND PRESENTATION:**

The construction schedule shall be in the form of network of PERT CHART/ CPM or other suitable presentation for the programme of the work indicating therein the different components item of works and time required for completion of each components item wise/ month wise season wise so as to complete the work in all respects within the stipulated period. Before award of the work the contractor is also required to make the presentation to satisfy owner of their proposal for construction schedule in the form of BAR CHART and organizational resources, equipments, machinaries, manpower to be deployed for timely completion of the project.

#### **11. TENDERER'S RESPONSIBILITY:**

The intending tenderers shall be deemed to have visited the site and familiarised themselves thoroughly with the site conditions before submitting the tender. Non-familiarity with the site conditions will not be considered a reason either for extra claims or for not carrying out the works in strict conformity with the drawings and specifications.

#### **12. RETIRED GOVERNMENT OR COMPANY OFFICERS:**

No Engineer of Gazetted rank or other Gazetted Officer employed in Engineering or Administrative duties in an Engineering department of the State/ Central Government or of the owner is allowed to work as a contractor for a period of two years after his retirement from Government service or from the employment of the Owner without the previous permission of the Owner. The contract if awarded, is liable to be cancelled if either the contractor or any of his employees is found at any time to be such a person, who had not obtained permission of the owner as aforesaid before submission of tender or engagement in the contractor's service as the case may be.

**13. SIGNING OF THE CONTRACT:**

The successful tenderer shall be required to execute an agreement with the Owner in the proforma attached with tender document within 10 days of the receipt by him of the notification of acceptance of the tender. In the event of failure on the part of the successful tenderer to sign the agreement within the above stipulated period, the earnest money or his initial security deposit will be forfeited and the acceptance of the tender shall be considered as cancelled. No bills shall be payable unless the agreement is executed.

**14. FIELD MANagements AND CONTROLLING AUTHORITY:**

14.1 The field management will be responsibility of the Project Manager posted at site by the consultant and nominated by the owner. The Project manager shall work in accordance with the directions given to him from time to time by the project head.

14.2. The Engineer-in-Charge shall only co-ordinate with the other agencies engaged to work at site, to ensure minimum disruption of work carried out by different agencies. It shall be the responsibility of the contractor to plan and execute the works strictly in accordance with site instructions and avoid hindrance to the works being executed by other agencies. The instructions of the Engineer-in-Charge shall be binding on the contractor.

**15. NOTE TO SCHEDULE OF RATES:**

15.1. The schedule of rates should be read in conjunction with all the other sections of the tender.

15.2. The tenderer shall be deemed to have studied the drawings, specifications and details of work to be done within time schedule and to have acquainted himself of the conditions prevailing at site.

15.3. Rates must be filled in the original tender document. If quoted in separate typed sheets, no variation in time description or specification shall be accepted. Any exceptions taken by the tenderer to the schedule of rates shall be brought out in the terms and conditions of offer.

15.4. The quantities shown against the various items are only approximate. Any increase or decrease in the quantities shall not form the basis of alternation of the rates quoted and accepted.

15.5. The owner reserves the right to interpolate the rates for such items of work falling between similar items of lower and higher magnitude.

## SECTION - IV GENERAL OBLIGATIONS

### 16. INTERPRETATION OF CONTRACT DOCUMENTS:

- 16.1. Complete documents forming the contract are to be taken as mutually explanatory. Should there be any discrepancy, inconsistency, error or omission in the contracts or any of them the matter may be referred to Engineer-in-Charge who shall give decisions and Issue to the contractor instructions directing in what manner the work is to be carried out. The decision of Engineer-in-Charge shall be final and conclusive and the contractor shall carry out work in accordance with this decision.
- 16.2. Works shown in the drawing but not mentioned in the specification or described in specification but not shown in the drawings shall nevertheless be deemed to be included in the same manner as if they had been specifically shown upon the drawings as well as described in the specifications.
- 16.3. Unless otherwise stated specifically, the 'singular' shall also mean 'plural' and vice versa wherever the context so requires words implying 'persons' shall include relevant 'corporate companies or registered association' or 'body of individuals' or 'firm of partnership' as case may be.

### 17. SPECIAL CONDITIONS OF CONTRACT:

- 17.1. Special Conditions of Contract shall be read in conjunction with the General Condition of Contract Specifications of work, drawing and any other documents forming part of this contract wherever the context so requires.
- 17.2. Notwithstanding the sub-divisions of the documents into the separate sections and volumes each part shall be deemed to be supplementary to complementary of every other part and shall be read with and into the contract so far as it may be practicable to do so.
- 17.3. In case of any discrepancy between various sections of the contract, the following order of preference shall be observed.
  - (1) Schedule of quantities
  - (2) Technical specifications
  - (3) Special Conditions of Contract
  - (4) General Conditions of Contract
- 17.4. Wherever it is mentioned in the specifications that the Contractor shall perform certain work or provide certain facilities it is understood that the Contractor shall do so at his cost.
- 17.5. The materials, design and workmanship shall satisfy the relevant Indian Standard, the job specifications contained herein and codes referred to.

Where the job specifications stipulate the requirements in addition to those contained in the standard codes and specification, these additional requirements shall also be satisfied.

**18. Tenderer to Obtain his Own Information:**

- 18.1. The tenderer shall for all purposes and whatsoever reason may be, deemed to have himself independently obtained all necessary information for the purpose of preparing his tender. The correctness of the details given in the Tender Document as guideline information to help the tenderer but to make-up the tender is not guaranteed.
- 18.2. The tenderer shall be deemed to have examined the tender documents, to have obtained his own information in all matters whatsoever that might influence carrying out of the works at the scheduled rates and satisfied himself to the sufficiency of his tender. Any error in description or quantity or omission therefrom shall not vitiate the contract or release the contractor from executing the work comprised in the contract according to drawings and specifications at the scheduled rates. He is deemed to know the scope, nature and magnitude of the works, the requirements of materials and labour involved etc. and as what works he has to complete in accordance with the contract document whatever be the defects, omissions or errors that may be found in the Contract Document. The contractor shall be deemed to have visited site and surroundings areas, to have satisfied himself to the nature of all existing structures, and also as to the nature and the conditions of available facilities like Railways, roadways, bridges culverts, means of transport and communications like by land, water or air and possible interruptions thereto the access to and egress from site and to have made enquiries, examined satisfied himself of the sites for obtaining sand, stones, bricks and other materials, the sites for disposal of surplus materials, the available accommodation like depots, buildings as may be necessary for executing and completing the works, to have made local independent enquiries as to the sub-soil water and variations thereof, storms, prevailing winds and climatic conditions and all other similar matters affecting the works. He is deemed to have acquainted himself his liability for payment of Government Taxes, Customs Duties and other charges.
- 18.3. Any neglect or failure on the part of the tenderer in obtaining necessary and reliable information or issues stated at 18.2 or any other matters affecting the contract shall not relieve him from any risks or liabilities or the entire responsibility for completion of the works at the scheduled rates and time in strict accordance with the contract documents.
- 18.4. Any change in layout due to site conditions or technological requirement shall be binding on the contractor and no extra claim on this account shall be entertained.

18.5. No verbal agreement or inference from conversation with any officer or employee of the Owner either before, during or after the execution of the contract agreement shall in any way affect or modify and of the terms or obligations herein contained.

**19. Security Deposit:**

19.1. A sum of 10% of the accepted value of the tender or actual value of the work done whichever is higher for contracts not exceeding Rs. 1 Crore, 7 1/2 % for the value of contracts over Rs. 1 up to Rs. 5 crores and 5% for the value of contracts over Rs. 5 crores shall have to be deposited by the person/ persons (hereinafter called as contractor) as security deposit with the owner until the expiry of defect liability period.

19.2. This may be deposited initially at 2 1/2% of the value of the contract (referred as initial Security deposit) within 20 days of receipt by him of the notification of acceptance of tender and the balance will be recovered in installments through the deduction @ 10% of the gross value of the each running account bill for the contract upto Rs. 1 crore, 7 1/2 % for contract between Rs. 1 to Rs.5 crores and 5% for contract over Rs. 5 crores, till total security deposit is collected. No further deduction from the bills will be made on this account subject to clause 19.6 below.

19.3. Alternatively the contractor may at his option to deposit the full amount percentage as mentioned 19.1 above towards deposit within 10 days of issue of notification accepting his tender. This amount will have to be suitably enhanced to the tune of above percentage of the executed value.

19.4. The earnest money deposited with the tender shall be adjusted towards security deposit.

19.5. Contractor can furnish the initial or total security deposit amount (a) in Demand Draft or (b) through a Bank Guarantee from any Scheduled bank in the prescribed proforma.

19.6. If contractor /sub-contractor or their employees damages, breaks, deface or destroy the property belonging to the owner or other during the execution of the contract, the same shall be made good by the contractor at his own expense and in default thereof; the Engineer-in-Charge may cause the same to be made good by other agencies and recover expenses from the contractor (for which the certificate of Engineer-in-Charge shall be final).

19.7. All compensation or other sums of money payable by the contractor to the Owner or recoveries to be made under terms of this contract may be deducted from or paid by the sale of a sufficient part of his security deposit or from any sums which may be due or may become due to the contractor by the Owner on any account whatsoever. In the event of his security being reduced by reasons of any such deduction or sale, the contractor shall within ten days



thereafter make good in cash, bank drafts, any sum or sums which may have fallen short or Security deposit amount or any part thereof. No interest shall be payable by the Owner for sum deposited as security deposit.

- 19.8. The security deposit will be refunded after the expiry of the period of liability as stipulated in the contract.

**20. Forfeiture of Security Deposit:**

Whenever any claim against the Contractor for the payment of a sum of money arises out of or under the contract, the Owner shall be entitled to recover such sum by appropriating in part or whole the security deposit of the contractor, and to sell any Government securities, etc. forming whole or part of such security deposit. In the event of security being insufficient or if no security has been taken from the contractor, then the balance or the total sum recoverable as the case may be, shall be deducted from any sum then due or which at any time thereafter may become due to the contractor. The contractor shall pay to the Owner on demand any balance remaining due.

In the event of any breach by the contractor or any loss or damage occasioned to the owner which in the opinion of the owner has arisen, the decision whereof shall be final and binding on the contractor or in the event of the termination of the contract for any such breach, the security deposit is liable to be forfeited. The decision of forfeiture by the Owner shall be final and binding on the contractor.

**21. Time of performance:**

The work covered by this contract shall be commenced within twenty one days after the issue of the letter of acceptance of tender and be completed in stages on or before the dates as mentioned in the time schedule of completion of works. The contractor should bear in mind that time is the essence of the contract, unless such time be extended pursuant to the provision of clause No.22 Request for Revision of Construction time after tenders are opened will not receive consideration. The above period of twenty one days is included within the overall completion schedule, not over and above the completion time.

**22. Extension of Time.**

- 22.0. The application for extension of time is to be given to project head through the engineer –in-charge and the project head may authorise extension of time after considering the due merits.

Whenever extension of time is granted by the project head, the same shall be on the existing terms and conditions of the contract and without any additional financial liability to the Owner. The contractor in any case shall have no claim whatsoever for any type of compensation on account of any delay attributable to any one.

**23. Force Majeure:**

- 23.1 Any delays in or failure of the performance of either parties thereto shall not constitute default hereunder or give rise to any claims for damages, if any, to the extent such delays or failure of performance caused by occurrences such as acts of God or the public enemy, expropriation or confiscation of facilities by Government authority, compliance with any order or request of any Governmental authorities, acts or war rebellion, sabotage, fire, floods, explosions riots or illegal strikes, provided always that such occurrences result in impossibility of performances of the contract.
- 23.2 Only events of Force Majeure which impedes the execution of the contract at the time of its occurrence shall be taken into cognizance.

**24. Compensation For Delay:**

- 24.1. Time is essence of the contract. In case the contractor fails to complete the work within the stipulated period, he shall be liable to pay to the Owner as compensation, an amount equal to 1% of the value of contract per week of the delay subject to a maximum of 10% of the value of the contract. This is a genuine pre-estimate of the loss/ damage which will be suffered on account of delay /breach on the part of the contractor and he agrees to pay the said amount on demand without going in for any proof of the actual loss or damages caused by such delay/ breach.
- 24.2. To ensure good progress during execution of work, the contractor shall be bound in all case in which the time allowed for any work exceeds by one month to complete one-fifth of the work before one-fourth of the time allowed under the contractor has elapsed, three-eighth of the work before the half of such time has elapsed and three-fourth of the work before three-fourth of such time has elapsed. In the event of the contractor failing to comply with this condition, he shall be liable to pay as compensation for delay an amount as stipulated above. The compensation for delay so paid shall not relieve the contractor from his obligations to complete the work or from any other obligations and liabilities under this contract.

**25. Failure by the Contractor to Comply with the Provisions of the Contract:**

- 25.1. If the contractor refuses or fails to execute the work or any separate part thereof with such diligence as will ensure its completion within the time specified in the contract or extension thereof or fails to perform any of his obligation under the Contract or in any manner commits a breach of any of the provisions of the contract it shall be open to the Owner at its option by written notice to the Contractor to: -
- (a) **Determine the Contract:** In which event the Contract shall stand terminated and shall cease to be in force and effect on and from the date appointed by the Owner on that behalf, whereupon the contractor shall stop forth with any of the contractor's work then in progress, except such work as the Owner may, in writing, requires to be done to safeguard any property or work, or

installations from damage, and the owner, for its part, may take over the work remaining unfinished by the Contractor and complete the same through fresh contractor or by other means, at the risk and cost of the Contractor, and any of his sureties if any, shall be liable to the owner for any excess cost occasioned by such work having to be so taken over and completed by the Owner over and above the cost at the rates specified in the schedule of quantities and rates.

- (b) **Without determining the Contract:** To take over the work of the contractor or any part thereof and complete the same through a fresh contractor or by other means at the risk and cost of the Contractor. The contractor and any of his sureties are liable to the Owner for any excess cost over and above the cost at the rates specified in the schedule of quantities/ rates, occasioned by such works having been taken over and completed by the Owner. Besides, the contractor shall also be liable for any compensation accruing under clause 24.
- (c) In other cases, the decision of the Owner is binding on the contractor.

25.2. In such events of clause 25.1 (a) or (b) above

- (a) The whole or part of the security deposit furnished by the Contractor is liable to be forfeited without prejudice to the right of the Owner to recover from the contractor the excess cost referred to in the sub-clause aforesaid, the Owner shall also have the right of taking possession and utilizing in completing the works or any part thereof, such of materials, equipment and plants available at work site belonging to the contractor as may be necessary and the Contractor shall not be entitled for any compensation for use or damage to such materials, equipment and plant.
- (b) The amount that may have become due to the Contractor on account of work already executed by him shall not be payable to him until after the expiry of six (6) calendar months reckoned from the date of termination of contract or from the taking over of the work or part thereof by the Owner as the case may be, during which period the responsibility for faulty materials or workmanship in respect of such work shall under the contract, rest exclusively with the contractor. This amount shall be subject to deduction of any amounts due from the Contractor to the Owner under the terms of the contract authorised or required to be reserved or retained by the Owner.

25.3. Before determining the contract as per clause 25.1 (a) or (b) provided in the judgement of the Owner, the default or defaults committed by the Contractor is/are curable and can be cured by the Contract if an opportunity given to him, then the Owner may issue notice in writing calling the Contractor to cure the default within such time specified in the notice.

25.4. The Owner shall also have the right to proceed or take action as per 25.1 (a) or Clause 25.1(b) above, in the event that the contractor becomes bankrupt, insolvent, compounds with his creditors, assigns the contract in favour of his

creditors or any other person or persons or being a company or a corporation goes into liquidation, provided that in the said events it shall not be necessary for the Owner to give any prior notice to the contractor.

- 25.5. Termination of the Contract as provided for in sub-Clause 25.1 (a) above shall not prejudice or affect their rights of the Owner which may have accrued upto the date of such termination.

**26. Contractor Remains Liable to Pay Compensation if Action Not Taken Under Clause 25.**

In any case in which any of the powers conferred upon the owner by clause 25 hereof shall have become exercisable and the same had not been exercised, the non-exercise thereof shall not constitute a waiver of any of the conditions hereof and such powers shall notwithstanding be exercisable in the event of any further case of default by the contractor for which by any clause or clauses hereof he is declared liable to pay compensation amount to the whole of his security deposit and the liability of the contractor for past and future compensation shall remain unaffected. In the event of the Owner putting in force the powers vested in him under the proceeding clause no. 25 he may if he do so desires, take possession of all or any tools and plants, materials and stores in or upon the works of the site thereof belonging to the contractor or procured by him and intended to be used for the execution of the work or any part thereof paying or allowing for the same in account at the contract rates or in case of these not being applicable at current market rates to be certified by the Engineer-in-Charge whose certificate thereof shall be final, otherwise the Engineer-in-Charge may give notice in writing to the contractor or his clerk of the works, foremen or other authorised agent, requiring him to remove such tools, plant, materials or stores from the premises (within a time to be specified in such notice), and in the event of the contractor failing to comply with any such requisition, the Engineer-in-Charge may remove them at the contractor's expenses or sell them by auction or private sale on account of the contract and at his risk in all respects without any further notice as to the date, time or place of sale and the certificate of the Engineer-in-Charge as to the expense of any such removal and the amount of the proceeds and expenses of any such sale shall be final and conclusive against the contractor.

**27. No Compensation For Alteration in or Restriction of Work:**

At any time from the commencement of the work if the Owner decides for whatsoever reason, not to carryout the whole work or part thereof as specified in the tender, then owner shall give notice in writing of the fact to the contractor, who shall have no claim to any payment or compensation on whatsoever account (profit or advantage which he might have derived by executing the work in full) neither shall he have any claim for compensation by reason of any alterations having been made from the original specifications, drawings, designs and instructions which may involve any curtailment of the work as originally contemplated.

**28. Change in Constitution:**

When the contractor is a partnership firm the prior approval in writing from the Owner shall be obtained before any changes are made in the constitution of the firm, where the contractor is an individual or a Hindu undivided family business concern. Such approval as aforesaid shall, like wise be obtained before such contractor enters into any agreement with other parties, where under the reconstituted firm would have the right to carry out the work hereby undertaken by the contractor. In either case if prior approval is not obtained. The contractor shall be deemed to have been allotted in contravention of Clause - 34 hereof and the action and consequence shall ensure as provided in that clause.

**29. Termination of Contract For Death:**

If the Contractor is an individual or a proprietary concern and the individual or the proprietor dies or if the contractor is a partnership concern and one of the partners dies then, unless the Owner is satisfied that the legal representative of the individual or the proprietary concern or the surviving partners are capable of carrying out and completing contract, he (the Owner) is entitled to cancel the contract for the uncompleted part without being in any way liable for any compensation payment to the estate of the diseased contractor and/or to the surviving partners of the contractor's firm on account of the cancellation of contract. The decision of the Owner in such assessment shall be final and binding on the parties. In the event of such cancellation, the Owner shall not hold the estate of the diseased contractor and / or the surviving partners of the contractor's firm liable for any damages for non-completion of contract.

**30. Members of the Owner Not individually Liable:**

No Director or official or employee of the Owner shall in any way be personally bound or liable for the acts or obligations of the Owner under the contract or answerable for any default or omission in the observance or performance of the acts, matters or things which are herein contained.

**31. Owner Not Bound by Personal Representation:**

The Contractor shall not be entitled to any increase on the scheduled rates or any other rights or claims whatsoever by reason of any representation, explanation, statement or alleged understanding promise or guarantees given or to have been given to him by any person.

**32. Contractors Office at Site:**

The Contractor shall provide and maintain an office at the site for the accommodation of his agent and staff and such office shall be open at all reasonable hours to receive instructions, notices or other communications. The contractor at all time shall maintain a site instruction book and compliance of these shall be communicated to the Engineer –in-Charge from time to time and the whole document to be preserved and handed over after completion of works.

**33. Contractor's Sub-ordinate Staff and their conduct :**

- 33.1. The contractor on award of the work shall name and depute a qualified engineer having sufficient experience in carrying out work of similar nature to whom the equipment, materials if any, shall be issued and instruction for works given. The contractor shall also provide to the satisfaction of the Engineer-in-charge sufficient and qualified staff to supervise the execution of the works, competent sub-agents, foremen and leading hands including those specially qualified by previous experience to supervise the types works comprised in the contract in such manner as will ensure the best quality and expeditious working. At any time of in the opinion of the Engineer-in-Charge any additional, qualified experienced staff is considered necessary, they shall be employed by the contractor without additional charge. The contractor shall ensure to the satisfaction of the Engineer-in-Charge that sub-contractors, if any, shall provide competent and efficient supervision over the work entrusted to them.
- 33.2. If any of the contractor's sub-contractor's, agents, sub-agents, assistants, foremen or any employee in the opinion of Engineer-in-Charge be guilty of any misconduct or be incompetent or insufficiently qualified or negligent in the performance of their duties or that in the opinion of the Owner Engineer-in-Charge, undesirable for administrative or any other reasons, for such or person (s) to be employed on the works, then at the directions of Engineer-in-Charge the Contractor shall at once remove such person (s) from employment with the works without the written permission of the Engineer –in-Charge. Vacancy so created shall be immediately filled at the expenses of the contractor by a qualified and competent substitute. Should the contractor be requested to repatriate any person removed from the works he shall do so and shall bear all costs in connection therewith.
- 33.3. The contractor shall be responsible for the proper behaviour of all the staff, foremen, workmen and others, shall exercise proper degree of control over them and in particular without prejudice to the said generality the contractor shall be bound to prohibit/ prevent any employees from trespassing or acting in any way detrimental or prejudicial to the interest of the community or the properties or the occupiers of land or properties in the neighborhood. In the event of such trespassing, the contractor shall be responsible for all consequent claims or actions for damages or injury or any other grounds whatsoever. The decision of the Engineer-in-Charge upon any matter arising under this clause shall be final.
- 33.4. If and when required by the Owner, all contractor's personnel entering upon the owner's premises shall be properly identified by badges of a type acceptable to the owner which must be worn at all times on Owner's premises.



33.5. It is made clear that no relationship of employer and employee is created between the owner and the contractor labourer and no claim for employment of any such labourer shall be tenable or entertained.

**34. Sub-Letting Work:**

34.1. No part of the contract nor any share or interest there in shall in any manner or degree be transferred, assigned or sublet by the contractor directly or indirectly to any person, firm or corporation whatsoever except as provided for in the succeeding sub-clauses without the consent in writing of the Owner.

**34.2. Sub – Contracting of Works:**

The Engineer-in-Charge may give written consent to sub-contract for the execution of any part of the works at the site, provided the contractor submits each individual sub-contract to the Engineer-in-Charge for approval of mode of operation and agency for the work. The contractor is advised not to enter into contract before the consent of Engineer-in-Charge.

**34.3. List of sub-contracted works to be furnished:**

At the commencement of each month, the contractor shall furnish to the Engineer-in-charge, a list of sub-contractors, persons or firms engaged by the contractor and worked at the site during the previous month with particulars like general nature of the sub-contract or works done by them.

**34.4. Contractor's liability not Limited by Sub-Contractors:**

Notwithstanding any sub-letting with such approval as aforesaid and notwithstanding that the Engineer-in-Charge shall have received copies of any sub-contracts, the contractors shall be and shall remain solely responsible for the quality and proper and expeditious execution of the works and the performance of all the conditions of the contract in all respects as if such sub-contract or sub-letting had not taken place, and as if such work had been done directly by the contractor.

**34.5. Owner may terminate sub-contracts:**

If any sub-contractor engaged upon the works at the site executes any work which in the opinion of the Engineer-in-Charge is not in accordance with the contract documents, the owner may by written notice to the contractor request him to terminate such sub-contract. The contractor upon the receipt of such notice shall terminate and dismiss the sub-contract and the sub-contractor. The owner shall have the right to remove such sub-contractor from the site if contractor fails to vacate the sub-contractor immediately.

**34.6. No remedy for action taken under this clause:**

For action taken by the owner under the clause shall not relieve the contractor of any of his liabilities under the contract or give rise to any right or compensation, extension of time or otherwise.

**35. Power of Entry:**



If the contractor shall not commence the work in the manner described in the contract documents or if he at any time in the opinion of the Engineer-in-Charge.

- (i) fail to carry on the works in conformity with the contract documents or
- (ii) fail to carry on the works in accordance with the contract schedule or
- (iii) substantially suspend work or the works for a period of fourteen days without authority from the Engineer-in-Charge or
- (iv) fail to carry on and execute the works to the satisfaction of Engineer-in-Charge or
- (v) fail to supply sufficient or suitable constructional plant, temporary works, labour materials or other things or
- (vi) Commit, suffer or permit any other breach of any of the provisions of the contract on his part to be performed or observed or persist in any of the above mentioned breaches of the contract for fourteen days, after notice in writing shall have been given to the contractor by the Engineer-in-Charge requiring such breach to be remedied or
- (vii) If the contractor abandons the works or
- (viii) If the contractor during the continuance of the contract shall become bankrupt, make any arrangement or composition with his creditors, or permit any execution to be levied or go into liquidation whether compulsory or voluntary not being merely a voluntary liquidation for the purpose of amalgamation or reconstruction then in any such case, the owner shall have the power to enter upon the works and take possession thereof and of the materials, temporary works, constructional plant, and stock thereon, and to revoke the contractor's licence to use the same, and to complete the works by his agents, other contractors, or workmen, or to relate the same upon any terms and to such other person, firm or corporation as the Owner in his absolute discretion may think proper to employ and for the purpose aforesaid to use or authorize the use of any materials, temporary works, constructional plant, and stock as aforesaid, without making payment or allowance to the contractor for the said materials other than such as may be certified in writing by the Engineer-in-Charge to be reasonable, and without making any payment or allowance to the contractor for the use of temporary said works, constructional plant and stock or being liable for any loss or damage thereto and if the Owner shall by reason or his taking possession of the work or of the works being completed by other contractor (due account being taken of any such extra work or works which may be omitted) than the amount of such excess as certified by the Engineer-in-Charge shall be deducted from any money which may be due for work done by the contractor under the contract and not paid for any deficiency shall forthwith be made good and paid to the Owner by the contractor and the Owner shall have power to sell in such manner and for such price as he may think fit all or any of the constructional plan, materials etc. constructed by or belonging to and

to recoup and retain the said deficiency or any part thereof out of the proceeds or the sale.

**36. Contractor's Responsibility with other Agencies:**

36.1 Without repugnance to any other condition, it shall be the responsibility of the contractor executing the work of civil construction to work in close cooperation and to coordinate in the works with the mechanical, electrical, air-conditioning and intercommunication contractors and other agencies or their authorised representatives, in providing the necessary grooves, recesses, cuts and opening etc. in wall, slabs beams and column etc. and making good the same to the desired finish as per specification, for the placement of electrical and intercommunication cables, conduits, air-conditioning inlets and outlets, grills and other equipment in the false ceiling and other partitions, the contractor before starting up the work shall in consultation, with the electrical, mechanical, inter-communication, air-conditioning contractors and other agencies prepare and put up a joint scheme, showing the necessary opening, grooves, recesses, cuts, the methods of fixing required for the works of the aforesaid, and the finishes therein, to the Engineer-in-Charge and get the approval. The contractor before finally submitting the scheme to the Engineer-in-Charge, shall have the written agreement of the other agencies. The Engineer-in-Charge, before communicating his approval to the scheme, with any required modifications shall get the final agreements of all the agencies, which shall be binding. No claim shall be entertained on account of the above.

36.2 The contractor shall conform in all respect with the provisions any statutory regulation, ordinance or bye-laws of any local or duly constituted authorities or public bodies which may be applicable from time to time to the works or any temporary works. The contractor shall keep the Owner indemnified against all penalties and liabilities of every kind, arising out of non-adherence to such statutes, ordinances, laws, rules, regulations, etc.

**37. Other Agencies at Site:**

The contractor shall have to execute the work in such place and condition where other agencies will also be engaged for other works such as site grading, filling and leveling, electrical and mechanical engineering works etc. No claim shall be entertained due to work being executed in the above circumstances.

**38. Serving of Notices:**

**38.1. To the Contractor:**

Any notice may be served on the contractor or his duly authorised representatives at the job site or by registered mail directly to the address furnished by the contractor. Proof of issue of such notice should be conclusive of the contractor having been duly informed of the contents.

**38.2. To the Owner:**

Any notice to be given to the Owner under the terms of the contract shall be served by sending the same by Registered mail to or delivering the same at the respective site offices of M/s. National Aluminium Co. Ltd. addressed to the head/ site in-charge.

38.3. Rights of various Interests:

- (i) The Owner reserves the right to distribute the work between more than one contractor. The contractor shall cooperate and afford the other contractors all reasonable opportunity for access to the works for the carriage and storage of materials and execution of their works.
- (ii) Wherever the work being done by any department of the Owner or by the contractor employed by the Owner as per the contingent upon work covered by this contract, the respective rights and various interests involved shall be determined by the Engineer-in-Charge to secure the completion of the various portions of the work in general harmony.

**40. Patents, Royalties, Rent and Excavated Material:**

- 40.1. The contractor, if licensed under any patent covering equipment, machinery, materials or compositions of matter to be used or supplied or methods and process to be practiced or employed in the performance of this contract, agrees to pay all royalties and licence fees which may be due with respect thereto. If any equipment, machinery, materials composition matters, to be used or supplied or methods and processes to be practiced or employed the performance of this contract, is covered by a patent under which the contractor is not licensed then the contractor before supplying or using the equipment, machinery, materials, composition, method or processes shall obtain such licenses and pay such royalties and license fees as may be necessary for performance of this contract. In the event the contractor fails to pay any royalty or obtain any such license, any suit for infringement of such patents which is brought against the contractor or the Owner as a result of such failure will be defended by the contractor at his Own expense and the contractor will pay damages and costs awarded in such suit. The contractor shall promptly notify the Owner if the contractor has acquired knowledge of any plant under which a suit for infringement could be reasonably brought because of the use by the owner of any equipment, machinery, materials, process, methods, to be supplied hereunder. The contractor agrees to and does hereby grant to Owner, together with the right to extent the same to any of the subsidiaries of the Owner as irrevocable, royalty-free licence to use in country, any invention made by the contractor or his employee in or as a result of the performance of the work under the contract.
- 40.2. All charges on account of royalty, tollage, rent octroi terminal or sales tax and/ or other duties or any other levy on materials obtained for the work or temporary work or part thereof (excluding materials provided by the Owner) shall be borne by the contractor.

- 40.3. The contractor shall not set or otherwise dispose of or remove except for the purpose of this contract, the sand stone, clay, ballast, earth, rock or other substances, or materials obtained from any excavation made for the purpose of the works or any building or produce upon the sited at the time of delivery of the possession thereof, but all such substances, materials buildings and produce shall be the property of the Owner provided that contractor may with the permission of the Engineer-in-Charge, use the same for the purpose of the works by payment of cost of the same at such a rate as may be determined by the Engineer-in-Charge.

The Owner shall indemnify and save harmless the contractor from any loss on account of claims against contractor for the contributory infringement of patent rights arising out and based upon the claim that the use by the Owner of the process included in the design prepared by the Owner and used in the operation of the plant infringes on patent right. With respect of any sub-contract entered into by the contractor pursuant to the provisions on the respect to any sub-contract entered into by the contractor pursuant to the provisions of the relevant clause thereof, the contractor shall obtain from the sub contractor an undertaking to provide the Owner with the same patent protection that contractor is required to provide under the provisions of this clause.

**41. Liens:**

- 41.1. If at any time there should be evidence or any lien, claim for which the Owner might have become liable, which is chargeable to the contractor, then the Owner may pay and discharge the same and deduct the amount so paid from any amount which may be or may become due and payable to the contractor, if any lien or claim remain unsettled after all payments are made, the contractor shall refund or pay to the Owner the cost such lien or claim including all payment and reasonable expenses. Owner reserves the right to the same.

**41.2. Nothing Extra for Adverse Sub-Soil Conditions:**

The nature of sub-soil of the work site varies widely horizontally and vertically. The KI and KII values also vary widely from place to place. In addition the water bearing seems are also conspicuous with the water table at a depth of 0.75 to 3.0 metres from ground level. A number of cohesive and non-cohesive strata are available particularly everywhere. The contractor shall have to make cuts and resort to pumping with due care to avoid collapsing of sides and occurrence of 'Piping'. The Contractor shall also be careful to avoid occurrence of excessive 'heaving' by avoiding keeping the excavation proposed to atmosphere for a longer period.

- 41.3. Slips and falls in excavation shall be cleared by the contractor at his own cost.

Excessive heaving shall have to cut and refill with lean concrete by the contractor at his own cost. The contractor shall have to adopt under-water work in case of occurrence of piping/ quick condition without any additional cost to the Owner.

The contractor will be paid for the earthwork as per the drawing. The slopes etc. as required for the safety of the work has to be provided as per the decision of the Engineer-in-Charge at his own cost. All types of dewatering including seepage, rain water entering. The earthwork in excavation or from any other source is to be done by the contractor at his own cost till the completion of foundation upto ground level including back filling.

**41.3. No Compensation in case of change of Location of site :**

Change of location of site do not invalidate the contract and tenderer have no claim for any compensation for such changes.

## **SECTION – V** **PERFORMANCE OF WORK**

**42. Execution of Works:**

All the work shall be executed in strict conformity with the provisions of the contract documents explanatory detailed drawings, specifications and instructions by the Engineer-in-Charge whether mentioned in the contract or not. The contractor shall be responsible for ensuring that works are executed in the most substantial, proper and workman like manner using the quality materials and labour, through out the job Completion in strict accordance with the specifications and to the entire satisfaction of the Engineer-in-Charge.

**43. Coordination and inspection of Works:**

The coordination and inspection of the day-to-day work under the contract shall be the responsibility of the Engineer-in-Charge or his authorised representative. A work order book will be maintained by the contractor for each sector in which the aforesaid written instructions will be entered. These will be signed by the contractor or his authorised representative by way of acknowledgement within 12 hours.

**44. Works in Monsoon and Dewatering:**

44.1 The execution of work may entail working in the monsoon also. The contractor must maintain a minimum labour force as may be required for the job. And plan execute the construction and erection according to the prescribed schedule. No extra will be considered for such work in monsoon.

44.2 During monsoon and other period, it shall be the responsibility of the contractor to keep the construction work site free from water at his own cost.

**45. Work on Sundays and Holidays:**

For carrying out works on Sundays and holidays, the contractor will to keep Engineer-in-Charge or his representative at least two days in advance and obtain permission in writing. The contractor shall observe all labour laws and other statutory rules and regulations in force. In case of any violation of such laws, rules and regulations, consequence if any, including the cost thereto shall be exclusively borne by the contractor and the Owner shall have no liability whatsoever on his account.

**46. General Conditions of Construction and Erection Work:**

46.1 The working time at the time of work is 48 hours per week. Overtime work is permitted in case of need and the owner will not compensate the same. Shift-working at 2 or 3 shifts per day will become necessary and the contractor should take this aspect into consideration for formulating his rates for quotation. No extra claims will be entertained by the Owner on this account.

- 46.2 The contractor must arrange for the placement of workers in such a way that the delayed completion of the work or any part thereof or for any reason whatsoever will not affect their proper employment. The Owner will not entertain any claim for old time payment whatsoever.
- 46.3 The contractor shall submit to the Engineer-in-Charge reports at regular intervals regarding the state and progress of work. The contract shall provide display boards showing progress and labour strength at work site, as directed by the Engineer-in-Charge.
- 46.4 The site of work will be released progressively in stages and no claim for any compensation or damages will be tenable for non-release of the entire site at a time.
- 47. Drawings to be supplied by Owner:**
- 47.1 The drawings attached with tender are only for the general guidance to the contractor to enable him to visualise the type of work contemplated. The contractor will be deemed to have studied the drawings and formed an idea about the total work involved.
- 47.2 In the Course the progress of work detailed working drawings on the basis of which actual execution of the work has to proceed, shall be furnished in stages. The contractor shall be deemed to have gone through the drawings supplied to him thoroughly and carefully, in conjunction will all other connected drawings and discrepancies if any, shall be brought to the notice of the Engineer-in-Charge, before actually carrying out the works.
- 47.3 Copies of all detailed working drawings relating to the works shall be kept at the contractor's office on the site and shall be made available to the Engineer-in-Charge at any time during the contract period. The drawings and other documents issued shall be returned to the Owner on completion of the works.
- 48. Drawings to be supplied by the Contractor:**
- 48.1 The drawings/data which are to be furnished by the contractor are enumerated in the special conditions of contract and shall be furnished within the specified time.
- 48.2 Where approval of drawings for manufacture/construction/fabrication has been specified it shall be contractor's responsibility to have these drawings prepared as per the directions of Engineer-in-Charge and get them approved before proceeding with manufacture/construction/fabrication works as the case may be. Any changes that may have become necessary in these drawings during the execution of the work shall have to be carried out by the contractor to the satisfaction of Engineer-in-Charge at no extra cost. All final approved drawings shall bear the certification stamp duly signed by both the contractor and the Engineer-in-Charge as indicated below.



“Certified true for .....  
(Name of work)

Agreement No .....

Signed  
(Contractor) (Engineer-in-Charge)

48.3 A period of 3 weeks from the date of receipt shall be required for approval of drawings by the Engineer-in-Charge.

48.4 As built drawing showing all Corrections, adjustments etc. shall be furnished by the Contractor in five copies and one transparent to record purposes to the owner.

**49 Setting Out Works:**

49.1 The Engineer-in-Charge shall furnish to the contractor with only the four corners of the work site that is plant boundary limits, and a level bench mark only. The contractor shall set out the works, provide an efficient staff for the purpose and shall be solely responsible for the accuracy of such setting out.

49.2 The contractor shall provide, fix and be responsible for the maintenance of all stacks, templates, level marks, profiles and other similar things and shall take all necessary precautions to prevent their removal or disturbance. He shall be responsible for their consequences arising of such removals, disturbances corrections thereon and for their efficient and timely reinstatement. The contractor shall also be responsible for the maintenance of all existing survey marks, boundary marks, distance marks and centre line marks, either existing or supplied and fixed by the contractor. The work shall be set out to the satisfaction of the Engineer-in-Charge. The approval thereon or jointing with the contractor by the Engineer-in-Charge in setting out the work, shall not relieve the contractor of any of his responsibilities.

49.3 Before beginning the work the contractor shall at his own cost, provide all necessary reference and level posts-pegs, bamboos, flags, ranging rods, strings, and other materials for proper layout of the work in accordance with the scheme for bearing marks acceptable to the Engineer-in-Charge. The centre, longitudinal, face and cross lines shall be marked by means of small masonry pillars. Each pillar shall have distinct mark at the centre to enable the theodolite to be set over it. No work shall be started until all these points are checked and approved by Engineer-in-Charge in writing, but such approval shall not relieve the contractor of any of his responsibilities. The contractor shall also provide all labour, materials and other facilities as necessary, for the proper checking or layout and inspection of the points during construction.

49.4 Pillars bearing geodetic marks located at the sites of units of works under construction should be protected and faced by the contractor.

49.5 On completion of work, the contractor must submit the geodetic documents according to which the work was carried out.

**50. Responsibility for Level and Alignment:**

50.1 The contractor shall be entirely and exclusively responsible for the horizontal and vertical alignment, the level and correctness of every part of the work shall rectify effectually any errors or imperfections therein. Such rectification shall be carried out by the contractor at his own cost, when instructions are issued to that effect by the Engineer-in-Charge.

**50.2 Lighting, Watch & Ward:**

The contractor shall in connection with works provide and maintain at his own cost all lightings, guards, fencing and watch and ward and the security of the entire work in progress including all the machineries, materials shall be the responsibility of the contractor till taken over by the owner by way of the written taking over certificate.

**51. Materials to be Supplied by Contractor :**

51.1 The contractor shall procure and provide the whole of the materials required for the construction including M.S. Rods, Cement and other building materials, tools, tackles, construction plant and equipment for the completion and maintenance of the work except the materials which will be issued by the Owner and shall make his own arrangement for procuring such materials and for the transport thereof. The owner may give necessary recommendation to the respective authorities, if so desired by the contractor, but assumes no further responsibility of any nature. The owner will insist on the procurement of materials which has the approval of Indian Standards Institution having ISI stamp and/or which are supplied by reputed suppliers borne on DGS & D list.

51.2 The contractor shall properly store all materials either issued to him or brought by him to the worksite to prevent damages due to rain, wind, direct exposure to sun etc. as also from theft, pilferage, etc. for proper and speedy execution of his works. The contractor shall maintain sufficient stocks of all materials required by him.

51.3 No material shall be despatched from the contractor's stores before obtaining the approval in writing of the Engineer-in-Charge.

51.4 All plants, tools and other materials brought by the contractor to the site must be declared at the time of bringing the same to the site.

**52. Stores Supplied by the Owner:**

52.1 If the specification of the work provides for the use of any material other than Steel & Cement of special description to be supplied from the Owner's stores or it is required that the contractor shall use certain stores to be provided by

the Engineer-in-Charge, such materials and stores, and price to be charged therefore as hereinafter mentioned being so far as practicable for the convenience of the contractor, but no so as in way to control the meaning or effect of the contract, the contract shall be bound to purchase and shall be supplied much materials and stores as are from time to time required to be used by him for the purpose of the contract only. The sums due from the contractor for the value of materials supplied by the Owner will be recovered from the Running Account Bill on the basis of actual consumption of materials (after taking into account any wastage allowance as may be provided for in the contract). The contractor should raise requisite copies of indents in a proforma as prescribed by the Engineer-in-Charge and no claim whatsoever will be entertained by the Engineer-in-Charge on this account. After completion of the works, the contractor is required to account as per relevant clauses in this document, for the full quantity of materials supplied to him.

52.2 The value of the stores/materials as may be supplied to the contractor by the Owner will be debited to the contractor's account at the rates shown in the schedule of materials and if they are not entered in the schedule, they will be debited at cost price, which for the purpose of the contract shall include the cost of carriage and all other expenses whatsoever such as normal storage supervision charges which shall have been incurred in obtaining the same at the Owner's stores. All materials so supplied to the contractor shall remain the absolute property of the Owner and shall not be removed on any account from the site of the work and shall be at all times open for inspection to the Engineer-in-Charge. Any such materials remaining unused at the time of the completion or termination of the contract shall be returned to the Owner's stores or at a place as directed by the Engineer-in-Charge in perfectly good condition at contractor's cost.

### **52.3 Steel & Cement:**

52.3.1 If the specification of the work provides for the use of steel or cement such items of steel and cement to the extent required as per the specification of the works, shall be supplied at Owner's stores by the Owner for utilisation in the work on non-chargable basis from time to time depending upon the progress of the work. The tender rates shall be exclusive of the cost of steel and cement to be supplied as per the specification of the work, However, in case of flats and chequered plates the same have to be procured by the contractor at his own cost.

52.3.2 Such materials of steel and cement shall be issued only for permanent works and not for making other temporary works etc. Contractor shall bear all cost including lifting and loading carting from issue points to work site/contractor stores, custody and handling etc. and return of surplus serviceable/unserviceable materials to owner's store or other places to be designed by owner and no separate payment for such expenditure shall be made.

52.3.3 Items of steel as per specification of the work as mentioned above shall be supplied in the available length only. No claim on account of supply of non-standard length shall be entertained. Steel materials shall be issued on actual weight basis.

52.3.4 Cement as mentioned above will be supplied to the contractor a receive from the manufacturer/stockist. The theoretical weight of each bag of cement supplied will be considered as 50 Kg.

**52.3.5 Scraps & Surplus Material:**

The Contractor shall return all the surplus/unutilised as well as the scraps and wastages out of the materials supplied to him to the Owner's stores in a perfectly good condition at the contractor's cost. However, the following scraps allowances are permissible.

	<u>Unaccountable</u>	<u>Accountable</u>
(i) Cement	3%	Nil
(ii) Reinforcement Steel	½%	2.5%
(iii) Steel structural (Plates & Sections)	½%	4.5%
(iv) M.S. Plates for fabrication of Pipes	½%	As per cutting diagrams approved by Engineer-in-Charge before cutting and fabrication.

**52.3.6 Return of unutilised/surplus materials and scrap/wastage:**

In respect of any utilised/surplus quantities of cement and steel supplied by not accounted for and or returned by the contractor shall pay to the Owner amounts at the penal rate of twice the SAIL, Bhubaneswar Stock-yard rate of that particular section of steel and cement as the case may be as on the date of accountability. If the Contractor fails to return the scraps/wastage generated as per the above percentage, recovery of such scrap/wastage shall be made at the rate of Rs. 7000/- per tonne.

The charging of penal rate shall be without the prejudice to the other remedies or action available to the owner against the contractor including any criminal action.

**52.3.7. Accounting for Materials:**

Every month the Contractor shall submit a statement for all the materials supplied to him by the owner in the proforma prescribed by the Engineer-in-Charge.

52.3.8 On completion of the work, the Contractor shall submit material appropriation statement for the materials supplied to him by the Owner.

**52.3.9** All materials supplied to the contractor shall remain the absolute property of the all times and title therein shall not pass to the contractor at any time. The possession of the materials in the hands of the contractor is only for the

purpose of incorporating the same in the Owner's work. The material supplied shall not be removed by the contractor on any account from the site of work and shall be at all times open for inspection by the Engineer-in-Charge or owners representative. The contractor shall not use the materials supplied to him for any purpose or work other than the work, which the said materials are supplied.

**53. Conditions for issue of Materials:**

- (i) Materials specified as to be issued by the Owner will be supplied to the contractor by the Owner from his stores. It shall be the responsibility of the contractor to take delivery of the materials and arrange for its loading, transport and unloading at the site work at his own cost. The material shall be issued during the working hours of his Stores and as per the rules of the Owner framed from time to time.
- (ii) The contractor shall bear all incidental charges for the storage and safe custody of materials at site after these have been issued to him.
- (iii) The contractor shall construct suitable godown at the site of work for storing the materials safe against damage by rain, dampness, fire, theft, etc. He shall also employ necessary watch and ward establishment for the purpose.
- (iv) Materials specified as to be issued by the Owner shall be issued in standard sizes as obtained from the manufacturers.
- (v) It shall be duty of the contractor to inspect the materials supplied to him at the time of taking delivery and satisfy himself that they are in good condition. After the materials have been delivered by the Owner, it shall be the responsibility of the contractor to keep them in good condition and if the materials are damaged or lost, at any time, they shall be repaired and/or replaced by him at his own cost according to the directions of the Engineer-in-Charge.
- (vi) The Owner shall not be liable for delay in supply or non-supply of any materials, which the Owner has undertaken to supply where such failure or delay is due to natural calamities, act of enemies, transport and procurement difficulties and any circumstances beyond the control of the Owner. In no case, the contractor shall be entitled to claim any compensation or loss suffered by him on his account.
- (vii) It shall be the responsibility of the contractor to arrange in time all materials required for the works other than those to be supplied by the Owner. If however in the opinion of the Engineer-in-Charge the execution of the work is likely to be delayed due to the contractor's inability to make arrangements for supply of materials which normally he has to arrange for, the Engineer-in-Charge shall have the right at his own discretion to issue such materials if available with the Owner or procure the materials from the market or elsewhere. The contractor will be bound to take such materials at the rates decided by the Engineer-in-Charge. This however, does not in anyway absolve the contractor from responsibility of making arrangement for the supply of such materials in part or in full, should such a situation occur nor shall this constitute a reason for the delay in the execution of the work.

- (viii) Non of the materials supplied to the contractor will be utilised by the contractor for manufacturing item which can be obtained as supplied from standard manufacturer in finished form unless approved by Engineer-in-Charge in writing.
- (ix) The contractor shall, if desired by the Engineer-in-Charge, be required to execute an indemnity bond in the prescribed form for safe custody, usage and accounting of all materials issued by the Owner.
- (x) The contractor shall furnish to Engineer-in-Charge sufficiently in advance a statement showing his requirements of the quantities of the materials to be supplied by the Owner and the time when the same will be required by him for the works, so as to enable the Engineer-in-Charge to make necessary arrangement for procurement and supply of material.
- (xi) Account of the materials to be issued by the Owner shall be maintained by the contractor indicating the daily receipt, consumption and balance in hand in a manner prescribed by the Engineer-in-Charge. All connected papers requisitions, issues returns etc. shall be always available for inspection in the contractor's office at site.
- (xii) The contractor should see that only the required quantities of materials are got issued. The contractor shall not be entitled to cartage and incidental charges for returning the surplus materials, if any, to the stores, place of issue or to the place as directed by the Engineer-in-Charge.
- (xiii) Materials/equipment supplied by Owner shall not be utilised for any other purpose (s) than issued for.
- (xiv) The owner may issue the material in phases at his discretion keeping in view the programmes of the work.
- (xv) In case of free issue of materials, the contractor shall submit an indemnity bond in the prescribed format for 80% (eighty) value of the materials and a bank guarantee for 20% (twenty) of the value of the materials. The indemnity bond and bank guarantee shall be valid till the material account is totally settled.

**54. Return of Surplus:**

Notwithstanding anything contained to the contrary in any or all the clauses of this contract where any materials for the execution of the contract are procured with the assistance of the Owner either by issue from Owner's stock or purchases made under orders, or permits or licences issued by government the contractor shall hold the said materials as trustee for the owner and use such materials economically and solely for the purpose of the contract and not dispose them off without the permission of the Owner and return, if required by the project head all surplus or unserviceable materials that may be left with him after the completion of the contract or at its termination for any reason whatsoever on his being paid or credited such price as the Project head shall determine having due regard so the condition of the materials. The price allowed to the contractor however, shall not exceed the amount charged to him excluding the storage charges, if any. The decision of the project head shall be final and conclusive in such matter. In the event of breach of the aforesaid conditions, the contractor shall, in the terms of the licences, or permits and/ or



for criminal breach of trust, be liable to compensate the Owner at double rate or any higher, in the event of those materials at the time having higher rate or not being available in the market, then any other rate to be determined by the project head and his decision shall be final and conclusive.

**55. Materials Obtained From Dismantling:**

If the contractor in the course of execution of the work is called upon to dismantle any part for reasons other than those stipulated in clauses 57 and 65 hereunder, the materials obtained in the work of dismantling etc. will be considered as the Owner's property and will be disposed off to the best advantage of the Owner.

**56. Articles of Value Found:**

All gold silver and other materials of any descriptions, precious stones, coins, treasures, relics, antiques and other similar things which shall be found, in, under or upon the site, shall be property of the Owner and the contractor shall duly preserve the same to the satisfaction of the Engineer-in-Charge and shall from time to time delivery the same to such person or persons indicated by the Owner.

**57. Inspection of Works:**

57.1 The Engineer-in-Charge will have full power and authority to inspect the works in progress at any time wherever the premises/ workshops situated, of the Contractor, person, firm or corporation where works in connection with the contract may be or where materials are being or intended to be supplied.. The contractor shall afford or procure every facility and assistance to Engineer-in-Charge carry out such inspection. The contractor shall, at all time during the usual working hours and at all other times at which reasonable notice of the intention of the Engineer-in-Charge or his representative to visit the works shall have been given to the contractor, either himself be present to receive orders and instructions or have a responsible agent duly accredited in writing be present for the purpose. Orders given to the contractor's agent shall be considered to have the same force as if they had been given to the contractor himself.

57.2 The contractor shall give not less than seven days notice in writing to the Engineer-in-Charge before covering up or otherwise placing beyond reach of inspection and measurement any work in order that the same may be inspected and measured. In the event of failure of above the same shall be uncovered and all facilities made available again at contractor's expense for carrying out such measurement or inspection.

57.3 The contractor is to provide at all times during the progress of the work and maintenance period proper means at access with ladders gangways etc. and the necessary attendance to move and adopt as directed for inspection or measurement of the works by the Engineer-in-Charge.

**58. Assistance to the Engineer:**

The Contractor shall make available to the Engineer-in-Charge free of cost all necessary instructions and assistance in checking of settling out of works and



in the checking of any works made by the contractor for the purpose of setting out and taking measurements of work.

**59. Discrepancies between instructions:**

Should any discrepancy arise between the various instructions furnished to the contractor or his agents or staff or if any doubt arises on the meaning or implementation of any such instructions or should there be any difference of opinion on the issues, the contractor shall refer the matter immediately in writing to the Engineer-in-Charge whose decisions thereon shall be final and conclusive. No claim on losses alleged to have been caused by such discrepancies between instructions, doubts or misunderstanding shall in any event be admissible.

**60. Alterations in Specifications and Designs and Extra Works:**

(a) The Project Head shall have power to make any alterations, in omission from additions to or substitutions, for the schedule of rates, the original specifications, drawings and instructions that may appear to him to be necessary or advisable during the progress of the work, and the contractor shall be bound to carry out such altered/ extra/ new items of work in accordance with any instructions which may be given to him in writing signed by the Project Head and such alterations, omissions, additions or substitutions shall not invalidate the contract and any altered, additional or substituted work which the contractor may be directed to do in the manner above specified as part of the work shall be carried out by the contractor on the same conditions in all respects on which he agreed to do the main work. The time of completion of work may be extended for the part of the particular job at the discretion of the Project Head for any such alterations, additions, or substitutions of the work, as he may consider as just and reasonable. The rates for such additional, altered or substituted work under the clause shall be worked out in accordance with the following provisions:-

(b) If the rates for the additional, altered or substituted work are specified in the contract for the work, the contractor is bound to carry out the additional, altered or substituted work at the same rates as are specified in the contract.

(c) If the rates for the additional, altered or substituted work are not specifically provided in the contract for the work, the rates will be derived from rates for similar class of work as are specified in the contract for the work. The opinion of the Project head as to whether or not the rates can be reasonably so derived from the items in this contract will be final and binding on the contractor.

(d) If the rates for the additional, altered or substituted work can not be determined in the manner specified in sub-clause (a) & (b) above, then the contractor shall within 7 days of the date of receipt of order to carry out

the work, inform the Project Head of the rate which it is his intention to charge for such class of work, supported by analysis of the rate or rates claimed, and the project Head shall determine the rate or rates on the basis of the prevailing market rates of materials plus labour cost including equipment hire charge at schedule of hourly/ daily rates plus 15% to cover contractor's supervisions overhead and profit and pay to the contractor accordingly. The opinion of the Project Head to current market rates of the materials and the quantum of labour and equipment involved per unit of measurement will be final and binding on the contractor. The schedule of hourly/ daily rates shall be as enclosed.

**61. Action Where no Specification is issued:**

In case of any class of work for which there is no such specification supplied by the Owner as is mentioned in the tender document such work shall be carried out in accordance with the Indian Standard Specifications. If the Indian Standard Specifications do not cover the same, the work should be carried out as per standard Engineer in Practice subject to the approval of the Engineer-in-Charge.

**62. Abnormal Rates:**

The contractor is expected to quote the rate for each item after careful analysis of cost involved for the satisfactory performance and completion of item work considering all specifications and conditions of contract. This will avoid loss of profit or gain in case of curtailment or change in specification for any other item. In case the rate quoted by the tenderer for any item are usually high or unusually low it will be sufficient cause of the rejection of the tender unless the Owner is convinced about the reasonableness of the analysis for such rate furnished by the tenderer (on demand) after scrutiny.

**63. Tests For Quality Works:**

**63.1** All materials and workmanship shall be of the respective kinds described in the contract documents and in accordance with the instructions of the Engineer-in-Charge and shall be subjected from time to time to such tests at contractor's cost as the Engineer-in-Charge may direct at the place of manufacture or fabrication or at the site or at all or any such places. The contractor shall provide assistance, instruments, machines, labour and materials as are required for examining, measuring and testing any workmanship as may be selected and required by the Engineer-in-Charge.

**63.2** All the tests that will be necessary in connection with the execution of the work as decided by Engineer-in-Charge shall be carried out at the field testing laboratory of this Owner if available by paying the charges as decided by the Owner from time to time. In case of non-availability of testing facilities with the Owner, the required laboratory as directed by Engineer-in-Charge.

**63.3** If any tests are required to be carried out in connection with the work or materials or workmanship not supplied by the contractor, such tests shall be

carried out by the contractor as per the instructions of Engineer-in-Charge and cost of such tests shall be reimbursed by the Owner.

**64. Samples:**

The contractor shall furnish to the Engineer-in-Charge for approval when request or if required by the specifications, adequate samples of all materials and finished to be used in the work. Such samples shall be submitted before the work is commenced and in sample time to permit tests and examinations thereof. All materials furnished and finishes applied in actual work shall be fully equal to the approved samples.

**65. Liabilities for Defect, Imperfections etc. and Rectifications Thereof:**

If it shall appear to the Engineer-in-Charge that any work has been executed with unsound, imperfect or unskilled workmanship, or with materials of any inferior description, or that any materials or articles provided by the contractor for the execution of work are unsound or of quality inferior to that contracted for, or otherwise not in accordance with the contract, the contractor shall on demand in writing from the Engineer-in-Charge or his authorised representative specifying the work, materials or articles complained of, notwithstanding that the same may have been inadvertently passed, certified and paid for, forthwith rectify or remove and reconstruct that work so specified and provide other proper and suitable materials or articles at his own charge and cost, and in the event of failure to do so within a period to be specified by the Engineer-in-Charge in his demand aforesaid, the Engineer-in-charge may on expiry of notice period rectify or remove, and re-execute the work or remove and replace with others, the materials or articles complained of as the case may be at the risk and expense in all respects of the contract. The decision of the Engineer-in-Charge as to any question arising under this clause shall be final and conclusive.

**66. Suspension of Works:**

- (i) Subject to the provision of sub para (ii) of this clause, the contractor shall if ordered in writing by the Engineer-in-Charge, or his representative, temporarily suspend the works or any part thereof such period and such time as so ordered and shall not, after receiving such written orders, proceed with the work therein, ordered to be suspended until he shall have received a written order to proceed therewith. The contractor shall not be entitled to claim compensation for any loss or damage sustained by him by reason of temporary suspension of the works aforesaid. An extension of time for completion, corresponding with the delay caused by any such suspension of the works as aforesaid will be granted to the contractor should he apply for the same provided that the suspension was not consequent to any default or failure on the part of the contractor.
- (ii) In case of suspension of entire work, ordered in writing by the Engineer-in-Charge, for a period of more than two months, the contractor shall have the option to terminate contract.

**67. Possession Prior to Completion:**

The Engineer-in-Charge shall have the right to take possession of or any completed or partially completed work or part of the work. Such possession or use shall not be deemed to be an acceptance of any work completed in accordance with the contract. If such prior possession or use by the Engineer-in-Charge delay the progress of work, equitable adjustment in the time of completion will be made and the contract agreement shall be deemed to be modified accordingly.

**68 Twelve months Period of Liability from the Date of Issue of Completion Certificate:**

68.1 The contractor shall guarantee the installation/work for a period of 12 months from the date of completion of work as certified by the Engineer-in-Charge which is indicated in the completion certificate. Any damage or defect that may arise though remained undiscovered at the time of issue of completion certificate, connected in any way with the equipment or materials supplied by him or in the workmanship shall be rectified or replaced by the contractor at his own expenses as deemed necessary by the Engineer-in-Charge or in default the Engineer-in-Charge may cause the same to be made good by other agency and deduct expenses (of which the certificate or Engineer-in-Charge shall be final) from any sums that may be then or at any time thereafter become due to the contractor or from his security deposit, or the proceeds of sale thereof or of a sufficient portion thereof.

68.2 If the contractor feels that any variation in work or in quality of materials or proportions would be beneficial or necessary to fulfil the guarantees called for, he shall bring this in writing to the notice of the Engineer-in-Charge.

**68.3 Care of works:**

From the commencement of completion of the work, the contractor shall take full responsibility for the care of all works including all temporary works and in case any damage, loss or injury shall happen to the work or to any part thereof or to any temporary works from any cause whatsoever, shall at his own cost repair and make good the same so that on completion the work shall be in good order and in conformity in every respects with the requirements of the contract and the Engineer-in-Charge's Instructions.

**68.4 Defects Prior to Taking Over:**

If at any time before the work is taken over, the Engineer-in-Charge shall:

- (a) Decide that any work done or materials used by the contractor or any sub-contractor is defective or not in accordance with the contract, or that the works or any portion thereof are defective, or do not fulfil the requirements of contract (all such matter, being hereinafter, called 'Defects' in this clause) and (b) as soon as reasonably practicable gives to the contractor notice in writing of the said decision specifying particulars of the defects claimed to exist or to have occurred then the contractor shall at his own expenses and with all speed make good the defects so specified.

In case contractor shall fail to do so, the Owner may take, at the cost of contractor, such steps as may in all circumstances be reasonable to make good such defects. The expenditure so incurred by the owner be recovered from the amount due to the contractor. The decision of the Engineer-in-Charge with regard to the amount to be recovered from the contractor will be final and binding on the contractor. As soon as the works have been completed in accordance with the contract (except minor respects that do not affect their use for the purpose for which they are intended and except for maintenance thereof provided in clause 68.1 of General Conditions of Contract) and have passed the tests on completion, the Engineer-in-Charge shall issue a certificate (hereinafter called completion certificate) in which he shall certify the date on which the works have been so completed and have passed the said tests and the Owner shall be deemed to have taken over the works on the date so certified. If the works have been divided into various groups in the contract, the Owner shall be entitled to take over any group or groups before the other or others.

**68.5 Defect After Taking Over:**

In order that the contractor could obtain a completion certificate he shall make good with all possible speed, any defect arising from the defective materials supplied by the contractor or that may have been noticed or developed, after the works or group of the works has been taken over, the period allowed, for carrying out such work will be normally one month. If any defect be not remedied within a reasonable time, the owner may proceed to do the work at contractor's Risk and expenses and deduct from the final bill such amount as may be decided by the Owner.

If by reason of any default on the part of the contractor a completion certificate has not been issued in respect of every portion of the works within one month after date fixed by the contract for the completion of the works, the Owner shall be at liberty to use the work or any portion thereof in respect of which a completion certificate has not been issued, provided that the works or the portion thereof so used as aforesaid shall be afforded reasonable opportunity for completion of these works for the issue of completion certificate.

**68.6 Guarantee/Transfer of Guarantee:**

For works like water-proofing, acid & alkali resisting materials, pre-construction soil treatment against termite or any other specialized works etc. the contractor shall invariably engage sub-contractors who are specialists in the field and firms of repute and such a sub-contractor shall furnish guarantees for their workmanship to the Owner, through the contractor. In case such a sub-contractor/firm is not prepared to furnish a guarantee to the owner, the contractor shall give that guarantee to the Owner directly.

## SECTION – VI CERTIFICATE AND PAYMENT

### 69. SCHEDULE OF RATE AND PAYMENTS:

#### 69.1 Contractor's Remuneration:

The price to be paid by the Owner to the contractor for the whole of the work done and for the performance of all the obligations undertaken by the contractor under the contract document shall be ascertained by the application of the respective schedule of rates (the inclusive nature of which is more particularly defined by way of application but not of limitation, with clause No. 69.2) and payment to be made accordingly to the work actually executed and approved by the Engineer-in-Charge. The sum so ascertained shall (exception only as and to the extent expressly provided here in ) constitute the sole and inclusive of remuneration of the contractor under the contract and no further or other payment whatsoever shall be or become due or payable to the contractor under the contract.

#### 69.2 Schedule of Rates to the Inclusive:

The prices/rates quoted by the contractor shall remain firm till the issue of final certificate and shall not be subject to escalation. Schedule of rates shall be deemed to include and cover all costs, expenses and liabilities of every description and all risks of every kind to be taken in executing, completion and handing over the work to the Owner by the contractor. The contractor shall be deemed to have known the nature, scope, magnitude and the extent of the works and materials required though the contract document may not fully and precisely furnish them. He shall make such provision in the schedule of rates as he may consider necessary to cover the cost of such items of work and materials as may be reasonable and necessary to complete the work. The opinion of the Engineer-in-Charge as to the items of work which are necessary and reasonable for completion of work shall be final and binding on the contractor although the same may not be shown on or described specifically in contract documents.

Generality of this present provision shall not be deemed to cut down or limited in any way because in certain cases it may and in other cases it may not expressly stated that the contractor shall do or perform a work or supply articles or perform with services at his own cost or without addition of payment or without extra charge or works to the same effect or that it may be stated or not stated that the same are included in and covered by the schedule of rates.

#### 69.3 Schedule of rates to cover Constructional Plant, Materials. Labours etc.:

Without in any way limiting the provision of other subclauses the schedule of rates shall be deemed to include the cover the cost of all constructional plant, temporary works (except as provided for herein), pumps, materials, labour, insurance, fuel, stores, and appliances to be supplied by the contractor and all other matters in connection with each items in the schedule of quantities and



the execution of the works or any portion thereof finished complete in every respect and maintained as shown or described in the contract documents or as may be ordered in writing during the continuance of the contract.

**69.4 Schedule of Rates to cover Royalties, Rents and Claims:**

The schedule of rates shall be deemed to include and cover the cost of all royalties and fees for the articles, processes, protected by letters, patent or otherwise incorporated in or used in connection with the works, also all royalties, rents, and other payments in connection with obtaining materials of whatsoever kind for the works and shall include an indemnity to the owner which the contractor hereby gives against all actions, proceedings, claims, damages, costs and expenses arising from the incorporation in or use on the works of any such articles, processes or charges if levied on materials, equipment or machinery to be brought to site for use on work, shall be borne by the contractor.

**69.5 Schedule of Rates to cover taxes and duties:**

No exemption or reduction of custom duties, excise duties, sales tax, quay or any port duties, transport charges, stamp duties or Central or State Government or Local Body (or from any other body) or Municipal Taxes or duties, taxes or charges whatsoever will be granted or obtained and all expenses of which shall be deemed to be included in and covered by the schedule of rates. The contractor shall be obtain and pay for all permits or other privileges necessary to complete the work.

**69.6 Schedule of Rates to cover Risk of Delay:**

The schedule of rates shall be deemed to include and cover the risk of all responsibilities of delay and interference with the contractor's conduct of work which occur from any cause including orders of the owner in the exercise of his powers and on account of extension of time granted due to various and for all other possible or probable causes of delay.

**69.7 Schedule of Rates cannot be altered:**

For work under unit rate basis no alteration will be allowed in the schedule of rates by reasons of works or any part of them being modified, altered, extended, diminished or omitted. The schedule of rates is of fully inclusive rates which have been fixed by the contractor and agreed to by the Owner and cannot be altered.

- 69.7.1 The schedule of rates to cover for working in operating plant. Contractor's rates shall be deemed to include taking into account that he has to work in operating plant and shall take sufficient care in moving the plants, equipments and materials from one place to another, so that they do not cause any damage to any person or to the property of the owner or to third party including overhead and underground cable/pipe lines. In the event of such damages including eventual loss of production and operation of the plant or services in any plant or establishment as estimated by the owner or ascertained or by the



third party shall be borne by the contractor. Since the work is to be executed for the expansion of the plant, the rate of the contractor shall also deem to include all interference/obstruction/interruption for which no compensation shall be paid to be contractor.

**70. Procedure For Measurement/ Billing of Work in Progress:**

70.1 All measurements shall be in metric system. All the works in progress will be jointly measured by the representative of the Engineer-in-Charge and the contractor's authorised agent progressively. Such measurements will be got recorded in the measurement book by the Engineer-in-Charge or his authorised representative and signed in token of acceptance by the contractor or his authorised representative.

For the purpose of taking joint measurement the contractor's representative shall be bound to be present whenever required by the Engineer-in-Charge. If, however, he absents for any reason whatsoever the measurements will be taken by the Engineer-in-Charge or his representative and this will be deemed to be correct and binding on the contractor.

**70.2 Billing:**

The contractor will submit a bill in approved proforma in accordance with the contract terms and the agreed billing schedules in quintuplicate to the Engineer-in-Charge giving abstract and detailed measurement for the various items executed during a month, before the expiry of the first week of the succeeding month. The Engineer-in-Charge shall take or cause to be taken the requisite measurements for the purpose of having the same verified and the claim as far as admissible, adjusted, if possible, before the expiry of 10 days from presentation of the bill.

70.2.1 The bill shall be submitted by the contractor in computerised formats approved by the owner. The bills along-with floppies containing measurement of work, particulars of materials, recoveries etc. have to be submitted to the owner.

70.2.2 For lump-sum contracts, the payment will be according to agreed billing schedule. No adjustment shall be allowed in lump-sum prices for any variations in the quantities, specifications etc. shall take or a cause to be taken the requisite measurement for the purposes of having the same verified and the claim as far as admissible, adjusted, if possible, before the expiry of 10 days from presentation of the bill.

**70.3 Secured Advance on Materials:**

In case of tenders for completed items of works, contractor may be allowed "Secured Advance" on the security of materials brought to site for execution of the contracted items of work to the extent of 75% of the value of materials which go into the completed works as assessed by the Engineer-in-Charge provided that the materials are of an imperishable nature and that formal

agreement is drawn up with the contractor under which the Owner secures a lien on the materials and is safe guarded against losses due to the contractor postponing the execution of the work or to the improper storage &/or misuse of the materials and against the expenses entitled for their proper watch and safe custody. Recoveries of advances so made would not be postponed until the whole of the work entrusted to the contractor is completed. They should be adjusted from his running account bills for work done as the materials are used, the necessary deductions being made whenever the items of work in which they are used and billed for.

**70.4 Dispute in Mode of Measurement:**

In case of any dispute as to the made of measurement not covered by the contract to be adopted for any item of work, mode of measurement as per latest Indian Standard Specifications shall be followed.

**70.5 Rounding of Amounts:**

In calculating the amount of each item due to the contractor in every certificate prepared for payment, sum of less than 50 paisa shall be omitted and the total amount on each certificates shall be rounded off to the nearest, i.e. sum of less than 0.50p shall be omitted and sums of 0.50p and more upto one rupee shall be reckoned as one rupee.

**71. LUMPSUMS IN TENDER:**

For the item in tender where it includes lumpsum in respect of parts of work, the contractor shall be entitled to payment in respect of the items at the same as are payable under this contract for such items, or if the part of the work in question is not, in the opinion of the Engineer-in-Charge capable of measurement, or determination, the Owner may at his discretion pay the lumpsum amount entered in the tender or a percentage thereof and the certificate in writing of the Engineer-in-Charge shall be final and conclusive against the contractor with regards to any sum payable to him, under the provisions of this clause.

**72. RUNNING ACCOUNT PAYMENTS TO BE REGARDED AS ADVANCE:**

All Running Account Payment shall be regarded as Payments by way of advance against the final payment only and not as payment for work actually done and completed, and shall not preclude the requiring of bad, unsound and imperfect or unskilled work to be removed and taken away and reconstructed or re-erected or be considered as an admission of the due Performance of the contract, or any part thereof, in this respect, or of the accruing of any claim by the contractor, nor shall it, conclude, determine or affect in any way the powers of the Owner under these conditions or any of them as to the final settlement and adjustments of the accounts or otherwise, or in any other way vary or affect the contract. The final bill shall be submitted by the contractor within one month from the sate of physical completion of the work, otherwise,

the Engineer-in-Charge's certificate of the measurement and of total amount payable for the work accordingly shall be final and binding on all parties.

**73. NOTICE OF CLAIMS FOR ADDITIONAL PAYMENT:**

Should the contractor consider that he is entitled to any extra payment or compensation or to make any claims whatsoever in respect of the works arising under the terms of this contract he shall forthwith give notice in writing to the Engineer-in-Charge that he claims extra payment within ten days from the ordering of any work or happening of any event upon which the contractor bases such claims and such notice shall contain full particulars of the nature of such claims with necessary particulars as above within the time above specified shall be an absolute waiver thereof. No omission by the Owner to reject any such claim and no delay in dealing therewith shall be waiver by the Owner of any right in respect thereof.

**74. PAYMENT OF CONTRACTOR'S BILL:**

No payment shall be made for works estimated to cost less than Rs. 10,000/- till the whole of the work shall have been completed and a certificate of completion given. But in case of works estimated to cost more than Rs. 10,000/- the contractor, on submitting the bill thereof be entitled to receive a monthly payment proportionate to the part thereof approved and passed by the Engineer-in-Charge, whose certificate of such approval and passing of the sum so payable be final and conclusive against the contractor. This payment will be made after making necessary deductions as stipulated elsewhere in the contract document for materials, security deposit etc. or any statutory recoveries.

Payment due to the contractor shall be made by the Owner, by Crossed Account Payee Cheque forwarding the same to registered office or the notified office of the contractor. In no case will owner be responsible if the Cheque is mislaid or misappropriated by un-authorized person/ persons. In all cases, the contractor shall present his bill duly pre-receipted on proper revenue stamp.

**All payment shall be made in Indian Currency.**

**75. Receipt For Payment:**

Receipt for payment made on account of work when executed by a firm, must be signed by a person holding due power of attorney in this respect on behalf of the contractor, except when the contractors are described in their tender as limited company in which case the receipts must be signed in the name of the company by one of its principal officers or by some other persons having authority to give effectual receipt for the company.

**76. Completion Certificate:**

**76.1. Application for completion certificate:**

When the contractor fulfils his obligation under clause 69.4 he shall be eligible to apply for completion certificate in respect of the work by submitting the completion documents along with such application for completion certificate.

The Owner or his representative shall normally issue to the contractor the completion certificate within one month after receiving an application therefor from the contractors after verifying from the completion documents and satisfying himself that the work has been completed in accordance with and as set out in the construction and erection drawings, and the contract documents.

The contractor, after obtaining the completion certificate, is eligible to present the final bill for the work executed by him under the terms of contract.

**76.2. Completion Certificate:**

Within one month of the completion of work in all respects, the contractor, shall be furnished with a certificate by the owner or his representative of such completion but no completion certificate shall be given not shall the work be deemed to have executed until all, scaffolding, surplus materials and rubbish is cleared off the site completely not until the work shall have been measured by the Engineer-in-Charge, whole measurement shall be binding and conclusive. The work will not be considered as complete and taken over by the owner, until all the temporary work, labour and staff colonies etc. constructed are removed and work site cleared to the satisfaction of the Engineer-in-Charge.

If the contractor shall fail to comply with the requirements of this clause on or before the date fixed for the completion of the work, the Engineer-in-Charge may at the expenses of contractor remove such scaffolding, surplus materials and rubbish and dispose off the same as he thinks fit and clean off such dirt as aforesaid, and the contractor shall forthwith pay the amount for all expenses so incurred and shall have no claim in respect of any such scaffolding or surplus materials as aforesaid except for any sum actually realized by the sale thereof.

**Completion Certificate shall be in 3 parts as follows:**

- (1) Physical/ Mechanical Completion work.
- (2) Satisfactory completion of commissioning of equipment with load.
- (3) Satisfactory completion of guarantee.

The contractor shall clearly indicate the 3 dates separately.

**76.3. Completion Documents:**

For the purpose of Clause 76 the following documents will be deemed to form the completion documents:

- (i) The technical documents according to which the work was carried out.

- (ii) Three sets of construction drawings showing therein the modification and corrections made during the course of execution and signed by the Engineer-in-Charge.
- (iii) Completion Certificate for embedded and covered –up works.
- (iv) Certificate of final levels as set out for various works.
- (v) Certificate of tests performed for various works.
- (vi) Material appropriation statement to the materials issued by the owner for the works and list of surplus materials returned to the owner's store duly supported by necessary documents.
- (vii) Physical/ Mechanical Completion work.
- (viii) Satisfactory completion of commissioning of equipment with load.
- (ix) Satisfactory completion of guarantee.

The Contractor shall clearly indicate the 3 dates separately.

**77. Final Decision And Final Certificate:**

Upon the expiration of the period of liability and subject to the Engineer-in-Charge being satisfied that the works have been duly maintained by the contractor during monsoon or such period as herein provided in clause 68.1 and that the contractor has in all respect duly made up all subsidence and performed all his obligations under the contract, the Engineer-in-Charge shall (without prejudice to the right of the Owner to retain the provisions of relevant clause hereof) otherwise give a certificate, herein referred to as the final certificate, to the effect and the contractor shall not be considered to have fulfilled the whole of his obligations under the contract until Final Certificate shall have been given by the Engineer-in-Charge notwithstanding any previous entry upon the work and taking possession, working or using of the same or any part thereof by the Owner.

**78. Certificate And Payments No Evidence of Completion:**

Except the final certificate no other certificate or payment against a certificate or on general account shall be taken to be an admission by the Owner of the due performance of the contract of any part thereof or of occupancy or validity of any claim by the Contractor.

## SECTION – VII

## TAXES AND INSURANCE

### 79. TAXES, DUTIES, OCTROI ETC.

- 79.1. The Contractor shall defray all charges, such as rent, toll local taxes excise duty, other payments and compensations, if any, in connection with the procurement and handling of materials, fabrication and execution of works or any method or process connected with the works or Temporary works.

Sales Tax or any other tax on materials required for the works as also Tax on works contract shall be payable by the Contractor and the Owner will not entertain any claim whatsoever in this regard.

- 79.2. Notwithstanding anything contained elsewhere in the contract, the owner shall deduct at source from the payments due to the contractor, the taxes as required under Section -13-AA of the Orissa Sales Tax Act or as amended from time to time or under any other statute. The amounts so deducted shall be deposited by the Owner with the Sales Tax authorities as per Law. It is for the contractor to deal with the Sales Tax authorities directly in respect of any claim or refund relating to the above deductions and the owner shall not be liable or responsible for any claims or payments or reimbursement in this regard.

### 80. INSURANCE:

Contractor shall at his own expense carry and maintain insurance with reputed insurance companies to the satisfaction of the Owner as follows:

#### 80.1 Employees State Insurance Act:

The contractor agrees to and does hereby accept full and exclusive liability for compliance with all obligations imposed by the Employees State Insurance Act., 1948, and the contractor further agrees to defend, indemnify and hold Owner harmless from any liability of penalty which may be imposed by the Central, State or Local authority by the reason of any asserted violation by contractor or Sub-contractor of the Employee's State Insurance Act, 1948 and also from all claims, suits or proceeding that may be brought against the Owner arising under, growing out of or by reasons of the work provided for by this contract whether brought by employees of the contractor, by third parties or by Central or State Government authority or any political sub-division thereof.

The contractor agrees to fill in with the Employees State Insurance Corporation, the Declaration Forms and all forms which may be required in respect of the contractor's or sub-contractor's employees, whose aggregate remuneration is Rs. 560.00 per month or less and who are employed in the work provided for or those covered by ESI from time to time under the Agreement. The contractor shall deduct and secure the agreement of the sub-contractor to deduct the employee's contribution as per the first schedule of the Employee's State Insurance Act from wages and affix the employee's

contribution cards at wages payments intervals. The contractor shall remit and secure the agreement of the sub-contractor to remit to the State Bank of India, Employees State Insurance Corporation Account, the employee's contribution as required by the Act. The contractor agrees to maintain all cards and records as required under the Act in respect of employees and payments and the contractor shall secure the agreement of the sub-contractor to maintain such records. Any expenses incurred for the contributions, making contributions or maintaining records shall be to the contractor's or sub-contractor's account.

The Owner shall retain such sum as may be necessary from the total contract value until the contractor shall furnish satisfactory proof that all contribution as required by the Employees State Insurance Act, 1984, have been paid. This will be pending on the contractor when the Employees State Insurance Act is extended to the place of work.

**80.2 Workmen Compensation and Employees Liability Insurance:**

Insurance shall be affected for all the contractor's employees engaged in the performance of this contract. If any of the work is subject, the contractor shall require the sub-contractor to provide workmen's compensation and employer's liability insurance for the latter's employees if such employees are not covered under the contractor insurance.

**80.3 Any other insurance required under Law or Regulations or by Owner:**

Contractor shall also carry and maintain any and all other insurance, which he may be required under any law or regulation from time to time. He shall also carry and maintain any other insurance, which may be required by the Owner.

**80.4 Accident or Injury to workmen:**

The owner shall not be liable for or in respect of any damages or compensation payable at law in respect or in consequence of any accident or injury to any workman or other person in the Employment of the contractor or any sub-contractor save and except an accident or injury resulting from any act or default of the Owner, his agents or servants and the contractor shall indemnify and keep indemnified the Owner against all such damages and compensation (save and except as aforesaid) and against all claims, demands, proceeding, costs, charges and expenses, whatsoever in respect or in relation thereto.

**80.5 Transit Insurance:**

In respect of all items to be transported by the Contractor to the site of work, the cost of transit insurance should be borne by the contractor and the quoted price shall be inclusive of this cost.

**81 DAMAGE TO PROPERTY OR TO ANY PERSON OR ANY THIRD PARTY:**

81.1 Contractor's rate shall deem to include taking into account that he has to work in operating plant and shall take sufficient care in moving the plants, equipment and materials from one place to another so that they do not cause



any damage to any person or to the property of the Owner or to a third party including over head and underground cables, pipelines. In the event of such damages including eventual loss of production and operation of the plants or services in any plant or establishment as estimated by the Owner or ascertained or by the third party shall be borne by the Contractor.

81.2 Contractor shall also be responsible for making good to the satisfaction of the Owner any loss or any damage to all structures and properties belonging to the Owner or being executed or procured or being procured by owner or by other agency within the premises of all the work or Owner. If such loss or damages is due to fault and or the negligence or willful acts or omission of the contractors, his employees, agents, representatives or sub-contractors.

81.3 The contractor shall indemnify and keep the owner harmless of all claims for damages to property other than owner's property arising under or by reason of this contract if such claims result from the fault and/ or negligence or willful acts or omission of the contractor, agents, representative or sub-contractor.

**82 DEMURRAGE DUES:**

The contractor shall pay demurrage charges incurred by the Owner because of the contractor's failure to load or unload any goods or materials within the time allowed by the Railway and/ or Transport Agency for such loading or unloading as charges incurred by the contractor within the permissible time as also charges due on consignments booked by or to him. In case the contractor fails to pay these charges, these charges shall be deducted from any sums, which may be due or become due to the contractor in terms of this contract and/ or any other contract.

## SECTION – VIII LABOUR LAWS AND ARBITRATION

### 83 LABOURER LAWS:

Contractor shall comply with any and all laws, ordinances, regulations and decision of courts (which shall be deemed to be a part of this Agreement) concerning the health, sanitary arrangements, wages, welfare, safety and employment of any and all of his workers upon the Project or any portion thereof and shall exclusively bear the consequences of failure to comply therewith Contractor shall Indemnify and hold Engineer and Owner harmless from any claims, fines or penalties which may be made against Engineer or Owner as result of Contractor's failure to fulfil these obligations.

Without limiting the generality of the foregoing, Contractor shall fully comply with.

The contractor shall obtain clearance from the Labour Department regarding the compliance of the labour laws on 6 monthly basis and submit to the owner for record.

- (i) No labour below the age of 18 (eighteen) years shall be employed on the work.
- (ii) The contractor shall not pay less than what is provided under law to labourers engaged by him on the work.
- (iii) The contractor shall at his expense comply with all labour laws and keep the Owner indemnified in respect thereof .
- (iv) The contractor shall pay equal wages for men and women in accordance with applicable labour laws.
- (v) If the contractor is covered under the contractor labour (Regulation and Abolition) Act, he shall obtain a licence from licensing authority (i.e. office of the labour commissioner) by payment of necessary prescribed fee and the deposit, if any, before starting the work under the contract.
- (vi) The Contractor shall employ labour in sufficient numbers either directly or through sub-contractors to maintain the required rate of progress and of quality to ensure workmanship of the degree specified in the Contract and to satisfaction of the Engineer-in-Charge. The contractor shall not employ in connection with the works any person who has not completed his 18 (eighteen) years of age.
- (vii) The Contractor shall furnish to the Engineer-in-Charge the distribution return of the number and description, by trades of the work people

employed on the works. The Contractor shall also submit on the 4<sup>th</sup> and 19<sup>th</sup> of every month to the Engineer-in-Charge a true statement showing in respect of the second half of the preceding month and the first half of the current month (1) the accidents that occurred during the said fortnight showing the circumstance-under which they happened and the extent of damage and injury caused by them and (2) the number of female workers who have been allowed Maternity benefit as provided in the Maternity Benefit Act 1961 or Rules made thereunder and the amount paid to them.

- (viii) The contractor shall comply with the provisions of the payment of Wages Act 1936, Minimum Wages Act 1938, Employees Liability Act 1928, Workmen's Compensation Act, 1923, Industrial Dispute Act 1947, the Maternity Benefit Act 1961, Employees Provident Fund Act, 1952 and Contract Labour regulation and abolition Act 1937, Employment of Children Act 1938 or any modifications thereof or any other law relating thereto and rules made thereunder from time to time.
- (ix) The Engineer-in-Charge shall on a report having been made by an Inspecting Officer as defined in Contract Labour (Regulation and Abolition) Act 1970 have the power to deduct from the moneys due to the Contractor any sum required or estimated to be required for making good the loss suffered by a worker or Workers by reason of non-fulfillment of the Conditions of the Contractor for the benefit of workers, non-payment of wages or of deductions made from his or their wages which are not justified by the terms of the Contract or non-observance of the said regulations.
- (x) The Contractor shall indemnify the Owner against any payments to be made under and for the observance of the provisions of the aforesaid Acts without prejudice to his right to obtain indemnity from his sub-contractors. In the event of the contractor committing a default or breach of any of the provisions of the aforesaid Acts as amended from time to time, of furnishing any information or submitting or filling any Form/Register/Slip under the provisions of these Acts which is materially incorrect then on the report of the inspecting Officers the Contractor shall without prejudice to any other liability pay to the owner a sum not exceeding Rs. 50.00 as liquidated damages for every default, breach of furnishing, making submitting, filling materially incorrect statement as may be fixed by the Engineer-in-Charge and in the event of the contractor's default continuing in this respect the liquidated damages may be enhanced to Rs. 50.00 per day of default subject to a maximum of one percent of the estimated cost of the works put to tender. The Engineer-in-Charge shall deduct such amount from bills or security deposit of the Contractor and credit the same to the welfare fund constituted under these acts. The decision of the Engineer-in-Charge in this respect shall be final and binding.

**84 Implementation Of Apprentices Act 1961:**

The contractor shall comply with the provisions of the Apprentices Act 1961 and the Rules and orders issued thereunder from time to time. If he fails to do so, his failure will be a breach of the contract and the Engineer-in-Charge may, at his discretion, cancel the contract. The contractor shall also be liable for any pecuniary liability arising of any violation by him of the provisions of the Act.

**85 Contractor to Indemnify the Owner:**

85.1 The contractor shall indemnify the Owner and every member, Officer and employee of the owner, also the Engineer-in-Charge and his staff against all actions, proceedings, claims, demands costs and expenses whatsoever arising out of or in connection with the matter referred to in clause 81 and elsewhere and all actions, proceedings, claims demands costs and expenses which may be made against the Owner for or in respect of or arising out of any failure by the contractor in the performance of his obligations under the contract. The Owner shall not be liable for or in respect of any demand or compensation payable by law in respect or in consequence of any accident or injury to any workman or other person in the employment of the contractor or his sub-contractor and contractor shall indemnify and keep indemnified the Owner against all such damage and compensation and against all claims, damages, proceedings, costs, charges and expenses whatsoever thereof or in relation thereto.

**85.2 Payment of Claims and Damages:**

Should the Owner have to pay any money in respect of such claims or demands as aforesaid the amount so paid and the cost incurred by the Owner shall be charged to and paid by the Contractor and the contractor shall not be at liberty to dispute or question the right of the Owner to make such payments notwithstanding the same may have been made without his consent or authority or in law or otherwise to the contrary.

85.3 In every case in which by virtue of the provisions of section 12, sub-section (i) of workmen's compensation Act, 1923 or other applicable provision of Workman Compensation act or any other act, the Owner is obliged to pay compensation to workman employed by the contractor in execution of the works, the Owner will recover from the contractor the amount of the compensation so paid, and without prejudice to the rights of Owner under section 12, sub-section (2) of the said act. Owner shall be at liberty to recover such amount or any part thereof by deducting it from the security deposit or from any sum due to the contractor whether under this contract or otherwise. The Owner shall not be bound to contest any claim made under section 12 sub-section (I) of the said Act except on the written request of the contractor and upon his giving to the Owner full security for all costs for which the Owner might become liable in consequence of contesting such claims.

**86. Health and Sanitary Arrangements For Workers:**

- 86.1 In respect of all labour directly or indirectly employed in the works for the performance the contractor's part of this agreement, the contractor shall comply with or cause to be complied with all the rules and regulations of the local sanitary and other authorities or as framed by the Owner from time to time for the protection of health and sanitary arrangements for all workers.
- 86.2 The contractor shall provide in the labour colony all amenities such as Electricity, water and other sanitary and health arrangements. The Contractor shall also provide necessary surface transportation to the place of work and back to the colony for their personnel accommodated in the labour colony.

**87. Arbitration:**

All disputes or differences whatsoever which shall at any time arise between the parties hereto touching or concerning the works or the execution or maintenance thereof of the contract or the rights touching or concerning the works or the execution or maintenance thereof of this contract or the construction meaning operation or effect thereof or to the rights or liabilities of the parties or arising out of or in relation thereto whether during or after completion of the contract or whether before or after determination, fore closure or breach of the contract (other than those in respect of which the decision of any person is by the contract expressed to be final and binding shall after written notice by either party to the contract to the other of them and to the Appointing Authority hereinafter mentioned be referred for adjudication to a sole Arbitrator to be appointed as hereinafter provided.

For the purpose of appointing the sole Arbitrator referred to above, the Appointing Authority will send within thirty days of receipt of the notice, to the contractor a panel of three names of persons.

The contractor shall on receipt of the names as referred selected any one of the person names to be appointed as a sole Arbitrator and communicate his name to the Appointing Authority within thirty days of receipt of the names. The appointing Authority shall there upon without any delay appoint the said person as the sole Arbitrator. If the contractor fails to communicate such selection as provided above within the period specified, the Appointing Authority shall make the selection and appoint the selected person as the sole Arbitrator.

If the Arbitrator so appointed is unable or unwilling to act or resigns his appointment or vacate his office due to any reason whatsoever sole Arbitrators shall be appointed as aforesaid. The work under the contract shall, however continue during the arbitration proceedings.

The Arbitrator shall be deemed to have entered on the reference on the date he issues notices to both the parties fixing the date of the first hearing.

The Arbitrator may, from time to time, with the consent of the parties, enlarge the time for making and publishing the award.

The Arbitrator shall give a separate award in respect of each dispute or difference and shall give a reasoned and speaking award/ awards.

The venue of arbitration shall be at Bhubaneswar. However, if the situation so warrants, it may, as and when required, be held at the place where the site of work is situated.

The fees, if any, of the Arbitrator shall, if required to be paid before the award is made and published be paid half and half by each of the parties. The costs of the reference and of the award including the fees, if any of the Arbitrator shall be in the discretion of the Arbitrator who may direct to and by whom and in what manner, such costs or any part thereof shall be paid may fix or settle the amount of costs to be so paid.

The award of the arbitrator shall be final and binding on both the parties.

Subject to aforesaid, the provisions of the Arbitration Act 1940 or any statutory modification or re-enactment thereof and the rules made thereunder, and for the time being in force shall apply to the arbitration proceeding under this clause.

For Public Sector Enterprises guidelines as per the circular of BPE No. 15/9/86-BPE (FIN) dated 30.03.89 as amended time to time will be followed.

## **88. Jurisdiction/ Governing Laws:**

### **(a) Jurisdiction:**

For all disputes arising of this contract, the jurisdiction shall be lie under the jurisdiction of direct courts in the respective areas in the State of ORISSA (India) only.

### **(b) Governing Laws:**

The contract shall be governed by and constructed according to the laws in force in INDIA.

## SECTION – IX SAFETY CODE

### 89. GENERAL:

Contractor shall adhere to safe construction practice and guard against hazardous and unsafe working conditions and shall comply with Owner's safety rules as set forth herein. Prior to start of construction, contractor will be furnished copies of Owner's 'Safety Code' for information and guidance, if it has been prepared.

### 90. SAFETY REGULATIONS:

90.1. In respect of all labour, directly or indirectly employed in the work for the performance of contractor's part of this agreement, the contractor shall at his own expense arrange for all the safety provisions as per (i) Safety codes of CPWD & Indian Standards Instructions (ii) The electricity Act, (iii) The Mines Act, and (iv) Regulations. Rules and orders made thereunder and such other acts as applicable.

90.2. The contractor shall observe and abide by all fire and safety regulations of the Owner. Before starting construction work, contractor shall consult Owner's Safety Engineer or Engineer-in-Charge and must make good to the satisfaction of the Owner any loss or damage due to fire to any portion of the work done under this contract or to any of the Owner's existing property.

### 91. First Aid and Industrial Injuries:

(i) Contractor shall maintain first aid facilities for his employees and those of his subcontractors.

(ii) Contractors shall make outside arrangements for ambulance service and for treatment of industrial injuries. Name of those providing these services shall be furnished to Owner prior to start of constructions and their telephone numbers shall be prominently posted in Contractor's field office.

(iii) All critical industrial injuries shall be reported promptly to owner, and a copy of Contractor's report covering each personal injury requiring the attention of a physical shall be furnished to the Owner.

### 92. General Rules:

Smoking within the Battery Areas, rank farm, or dock limits is strictly prohibited. Violators of the "No Smoking" rules shall be discharged immediately.

### 93. Contractor's Barricades:

(i) Contractor shall erect and maintain barricades required in connection with his operation to guard or protect.



- (a) Excavations.
  - (b) Hosting Areas.
  - (c) Areas adjudged hazardous by Contractor's or Owner's Inspectors.
  - (d) Owner's existing property subject to damage by Contractor's operation.
  - (e) Rail road unloading spots.
- (ii) Contractor's employees and those of his sub-contractors shall become acquainted with Owner's barricading practice and shall respect the provisions thereof.
  - (iii) Barricades and hazardous areas adjacent to but not located in normal routes of travel shall be marked by red flasher lanterns at nights.

**94. Scaffolding:**

- (i) Suitable scaffoldings should be provided for workmen for all works that cannot safely be done from the ground or from solid construction except such short period works as can be done safely from ladders. When a ladder is used a Mazdoor shall be engaged for holding the ladder and if the ladder is used for carrying materials as well, suitable footholds and handholds shall be provided on the ladder and the ladder shall be given an inclination not steeper than 1 in 4 (1 horizontal and 4 vertical).
- (ii) Scaffolding or staging more than 4 metres above the ground or floor swing on suspended from an overhead support or erected with stationary support shall have a guard rail properly attached, bolted, braced and otherwise retarded at least one metre high above the floor or platform of such scaffolding or staging and extending along with entire length of the outside and ends thereof with only such openings as may be necessary for the delivery of materials. Such scaffolding or staging shall be so fastened as to prevent it from swaying from the building or structure.
- (iii) Working platform, gangways and stairways should be so constructed that they should not sag unduly or unequally and if the height of the platform of gangway or the stairway is more than 4 metres above ground level or floor level, they should be closely boarded, should have adequate width and should be suitably fastened as described in (ii) above.
- (iv) Every opening in the floor of a building or in a working platform be provided with suitable means to prevent the fall of persons or materials by providing suitable fencing or railing whose minimum height shall be 1 metre.
- (v) Safe means of access shall be provided to all working platforms and other working places. Every ladder shall be securely fixed. No portable single ladder shall be over 9 metres in length. The width between the side rails in run ladder shall in no case be less than 30 cm. For ladder up to and including 3 metres in length; for longer ladders this width should be

increase at least 15 mm for each additional metre of length. Uniform step spacing shall not exceed 30 cms. Adequate precautions shall be taken to prevent danger from electrical equipment. No materials on any of the sites of work shall be so stacked or placed as to cause danger or inconvenience to any person or public. The contractor shall also provide all necessary fencing and lights to protect the workers and staff from accidents, and shall be bound to bear the expenses of defence of every suit, action or other proceedings of law that may be brought by any person for injury sustained owing to neglect of the above precautions and to pay any damages and cost which may be awarded in any such suit or action or proceedings to any such person or which may with the consent of the contractor be paid to compromise any claim by any such person.

**95. Excavation and Trenching:**

All trenches 1.2 metres or more in depth, shall at all times be supplied with at least one ladder for each 50 M length or fraction thereof.

Ladder shall be extended from bottom of the trench to at least 1 metre above the surface of the ground. The sides of the trenches which are 1.5 metres in depth shall be stepped back to give suitable slope, or securely held by timber bracing, so as to avoid the danger of sides to collapse. The excavated materials shall not be placed within 1.5 metres of the edge of the trench or half of the trench width whichever is more. Cutting shall be done from top to bottom. Under no circumstances undermining or under-cutting shall be done.

**96. General Safety:**

- (i) Before any demolition work is commenced and also during the process of the demolition work.
  - (a) All roads and open areas adjacent to the work site shall either be closed or suitably protected.
  - (b) No electric cable or apparatus which is liable to be a source of danger shall remain electrically charged.
  - (c) All practical steps shall be taken to prevent danger to persons employed from risk of fire or explosion or flooding. No floor, roof or other part of the building shall be so overloaded with debris or materials as to render it unsafe.
- (ii) All necessary personal safety equipment as considered adequate by the Engineer-in-Charge, should be kept available for the use of the persons employed at the site and maintained condition suitable for immediate use and the contractor should take adequate steps to ensure proper use of equipment by persons concerned as outlined below:

- (a) Workers employed on mixing asphalt materials, cement and lime mortars shall be provided with protective footwear and protective gloves.
- (b) Those engaged in white washing and mixing or stacking of cements bags or any materials which are injurious to the eyes shall be provided with protective goggles.
- (c) Those engaged in welding and cutting works, shall be provided with protective face and eye –shields, hand gloves etc.
- (d) Stonebreakers shall be provided with protective goggle and protective clothing and seated at sufficiently safe intervals.
- (e) When workers are employed in sewers and manholes which are in use, the contractor shall ensure that the manhole cover are opened and are ventilated at least for an hour before the workers are allowed to get into the manholes, and the manholes so opened shall be cordoned off with suitable railing and provided with warning signals or board to prevent accident to the public.
- (f) The contractor shall not employ men below the age of 18 years and women on the work of painting with products containing lead in any form. Wherever men above the age of 18 years are employed on the work of lead painting, the following precautions should be taken:
  - (1) No paint containing lead or lead products shall be used except in the form paste or readymade paint.
  - (2) Suitable facemasks should be supplied for use by the workers when paint is applied in the form of spray or a surface having lead paint dry rubbed and scrapped.
  - (3) Overalls shall be supplied by the Contractor to the workmen and adequate facilities shall be provided to enable the working painters to wash them on cessation of work.
- (iii) When the work is done near any place where there is a risk of drowning all necessary safety equipment shall be provided and kept ready for use and all necessary steps taken for prompt rescue of any person in danger and adequate provision should be made for prompt first aid treatment of all injuries likely to be sustained during the course of the work.
- (iv) Use of hoisting machines and tackles including their attachments anchorage and supports shall conform to the following standard or conditions:
  - (a) These shall be of good mechanical construction, sound materials and adequate strength and free from patent defect and shall be kept in good working order.
  - (b) Every rope used in hoisting or lowering materials or as means of suspension shall be of durable quality and adequate strength and free from patent defects.

- (c) Every crane driver or hoisting appliance operator shall be properly qualified and no person under the age of 21 years should be in charge of any hoisting machine including any scaffolding which or give signals to the operator.
- (d) In case of every hoisting machine and of every chain ring hook, shackle swivel and pulley block used in hoisting or lowering or as means of suspension, the safe working load shall be ascertained by adequate means. Every hoisting machine and all gear referred to above shall be marked with the safe working load and the conditions under which it is applicable shall be clearly indicated. No part of any machine or any gear referred to above in this paragraph shall be loaded beyond the safe working load except for the purpose of testing.
- (e) In case of department machines, the safe working load shall be notified by the Engineer-in-Charge. As regards contractor's machines, the contractor shall notify the safe working load of the machine to the Engineer-in-Charge, whenever he brings any machinery to site of work and get it verified by the Engineer-in-Charge.
- (v) Motors, gears, transmission lines, electric wiring and other dangerous parts of hoisting appliances should be provided with efficient safe-guards. Hoisting appliances should be provided with such means as to reduce to the minimum the accidental descent of the load, adequate precaution should be taken to reduce to the minimum the risk of any part or parts of a suspended load becoming accidentally displaced. When workers are employed on electrical installations, which are already energized, insulating mats, wearing apparel such as gloves sleeves and boots as may be necessary should be provided. The workers shall not wear any rings, watches and carry keys or other materials, which are good conductors or electricity.
- (vi) All scaffolding, ladders and other safety devices mentioned or described herein shall be maintained in safe conditions and no scaffoldings, ladder or equipment shall be altered or removed while it is in use. Adequate washing facilities should be provided at or near places of works.
- (vii) These safety provisions should be brought to the notice of all concerned by displaying on a notice board at a prominent place at the work spot. The person responsible for compliance of the safety code shall be named therein by the contractor.
- (viii) The ensure effective enforcement of the rules and regulations relating to safety precautions, the arrangements made by the contractor shall be open to inspection by the welfare officer Engineer-in-Charge or safety Engineer of the Administration or their representatives.
- (ix) Notwithstanding the above clauses there is nothing in these to exempt the contractor from the operations of any other Act or rules in force in the Republic of India. The works throughout, including any temporary works, shall be carried out in such a manner as not to interfere in any way whatsoever with the traffic on any roads or footpaths at the site or in vicinity thereto or any existing works whether the property of the Administrations or of a third party.

**97. Care in handling Inflammable gas:**

The Contractor has to ensure all precautionary measures and exercise utmost care in handling the inflammable gas cylinder/ inflammable liquids/ paints etc. as required under the law and/ or as advised by the fire authorities of the Owner.

**98. Temporary Combustible Structures:**

Temporary combustible structures will not be built near or around work site.

**99. Precautions Against Fire:**

The Contractor will have to provide Fire Extinguisher/ Fire Buckets and drums at work site as recommended by Engineer-in-Charge. They will have to ensure all precautionary measures and exercise utmost care in handling the inflammable gas cylinders/ inflammable liquid/ paints etc. as advised by Engineer-in-Charge. Temporary combustible structures will not be build near or around the work-site.

**100. Explosives:**

Explosives shall not be stored or used on the works or on the site by the contractor without the permission of the Engineer-in-Charge in writing and then only in the manner and to the extent to which such permission is given. When explosives are required for the works they shall be stored in a special magazine to be provided at the cost of the contractor in accordance with the Explosive Rules. The contractor shall obtain the necessary licence for the storage and the use of explosives and all operations in which or for which explosives are employed shall be at sole risk and responsibility of the contractor and the contractor shall indemnify the owner against any loss or damage resulting directly or indirectly therefrom.

**101. Mines Act:**

101.1 Safety Code: The contractor shall at his own expense arrange for the safety provisions as required by the Engineer-in-Charge in respect of all labour directly employed for performance of the works and shall provide all facilities in connection therewith. In case the Contractor fails to make arrangements and provides necessary facilities as aforesaid. The Engineer-in-Charge shall be entitled to do so and recover the costs thereof from the Contractor.

101.2 Failure to comply with Safety code or the provisions relating to report on accidents and to grant of maternity benefits to female worker shall make the Contractor liable to pay Company liquidated damages an amount not exceeding Rs. 50/- for each default or materially incorrect statement. The decision of the Engineer-in-Charge in such matters based on reports from the Inspecting Officer or from representatives of Engineer-in-Charge shall be final and binding and deductions for recovery of such liquidated damages may be made from any amount payable to the Contractor from all the provisions of the Mines Act 1952 or any statutory modification's or re-enactment thereof the time being in force and any Rules and Regulations made thereunder in respect of all the

persons employed by him under this contractor and shall indemnify the Owner from and against any claim under the Mines Act or the rules and regulations framed thereunder by or on behalf of and persons employed by him or otherwise.

**102. Preservation of Peace:**

The Contractor shall taken requisite precautions and use his best endeavors to prevent any riotous or unlawful behaviour by or amongst his workmen and other employed on the works and for the preservation of peace and protection of the inhabitants and Security of property in the neighborhood of the work. In the event of the Owner requiring the maintenance of a special Police force at or in the vicinity of the site during the tenure of works, the expenses thereof shall be borne by the Contractor and if paid by the Owner shall be recoverable from the Contractor.

**103. Outbreak of Infectious Diseases:**

The Contractor shall remove from his camp such labour and their families as refuse protective inoculation and vaccination when called upon to do so by the Engineer-in-Charge's Representative. Should Cholera, Plague or other infectious diseases break out the Contractor shall burn the huts, bedding clothes and other belonging of or used by the infected parties and promptly erect new huts on healthy sites as required by the Engineer-in-Charge failing which within the time specified in the Engineer's requisition, the work may be done by the Owner and the cost thereof recovered from the Contractor.

**104. Treatment of Contractor's Staff in Company's Hospital:**

The Contractor and his staff, other than labourers and their families requiring medical aid from the Owner's hospitals and dispensaries will be treated as private patients and charged accordingly. The contractor's labourers and their families will be granted from treatment in the Owner's hospitals and dispensaries where no other hospitals or dispensaries are available provided the contractor pays the cost of medicines dressing and money accordingly to the normal scale as also additional charges if any for special examination e.g. X- Ray etc.

**105. Use of Intoxicants:**

The sale of dent spirits or other intoxicating beverages upon the work in any of the buildings, encampments or tenements owned, occupied by or within the control of Contractor or any of his employee is forbidden and the contractor shall exercise his influence and authority to the utmost extent to secure strict compliance with this condition.

In addition to the above, the contractor shall abide by the safety code provision as per CPWD safety code and Indian Standard Code framed from time to time.

**PROFORMA FOR BANK GUARANTEE FOR EARNEST MONEY DEPOSIT**

(To be executed on non-judicial stamped paper of appropriate value)

B. G. No. \_\_\_\_\_

Date: \_\_\_\_\_

1. WHEREAS M/s National Aluminium Company Limited (A Government of India Enterprise), having its Corporate Office at NALCO BHAWAN, P-1 Nayapalli, Bhubaneswar (hereinafter called "The Company Owner" which expression shall unless repugnant to the subject or context includes its legal representatives, successors and assigns) has issued tender paper vide its Tender No. ....for .....  
..... (hereinafter called "the said tender") to M/s. ....(hereinafter called the said Tenderer(s)" which expression shall unless repugnant to the subject or context includes their legal representatives, successors and assigns and as per terms and conditions of the said tender, the tenderer shall submit a Bank guarantee for Rs. ....(Rupees .....only) towards earnest money in lieu of cash.
2. WE .....Bank having its branch office at .....do hereby undertake to pay the amount due and payable under this guarantee without any demur, merely on a demand from the Company stating that in the opinion of the company which is final and binding, the amount claimed is due because of any withdrawal of the tender or any material alteration to the tender after the opening of the tender by way of any loss or damage caused to or would be caused or suffered by the Company by reason of any breach by the said tenderer(s) of any of the terms and conditions contained in the said tender or failure to accept the letter of Intent Agreement or that the amount covered under this Guarantee is forfeited. Any such demand made on the Bank by the owner shall be conclusive as regards the amount due and payable by the Bank under this guarantee, However, our liability under this guarantee shall be restricted to an amount not exceeding Rs.....(Rupees.....only).
3. We undertake to pay to the Company any money so demanded notwithstanding any dispute or disputes raised by the tenderer (s) in any suit or proceeding pending before any office, court or tribunal relating thereto our liability under this present guarantee being absolute and unequivocal. The payment so made by us under this bond shall be a valid discharge of our liability for payment thereunder. Our liability to pay is not dependent or conditional on the owner proceeding against the tenderer.
4. The guarantee herein contained shall not be determined or affected or suspended by the liquidation or winding up, dissolution or change of constitution or insolvency of the said tenderer(s) but shall in all respect and for all purposes be binding and operative until payment of all money due or liabilities under the said contract(s)/ Order(s) are fulfilled.
5. WE .....Bank Ltd. further agree that the guarantee herein contained shall remain in full force and effect during the period that would be taken for the finalisation of the said tender and that it shall continue to be enforceable till the said tender is



finally decided and order placed on the successful tenderer(s) and or till all the dues of the company under or by virtue of the said tender have been fully paid and its claims satisfied or discharged or till a duly authorised officer of the company certifies that the terms and conditions of the said tender have been fully and properly carried out by the said tenderer (s) and accordingly discharges the guarantee.

6. That the Owner Company will have full liberty without reference to us and without affecting this guarantee to postpone for any time or from time to time. The exercise of any of the power of the owner under the tender.
7. Notwithstanding anything contained herein before, our liability shall not exceed Rs.....(Rupees.....only) and shall remain in force till.....Unless a demand or claim under this Guarantee is made on us within three months from the date of expiry we shall be discharged from all the liabilities under this guarantee.
8. We.....Bank, lastly undertake not to revoke this guarantee during its currency except with the previous consent of the Company in writing. We further undertake to keep this Guarantee renewed from time to time on the request of Tenderer (s).

Date.....  
Corporate Seal of the Bank

.....Bank  
By its constitutional Attorney

Signature of duly  
Authorised person  
On behalf of the Bank  
With seal & signature code

Note: BGs to be furnished from any of the banks listed earlier.

**BANK GUARANTEE FOR SECURITY DEPOSIT**

(To be executed on non-judicial stamped paper of appropriate value)

B. G. No. \_\_\_\_\_

Date: \_\_\_\_\_

1. In consideration of National Aluminium Company Limited (A Government of India Enterprise), having its office at \_\_\_\_\_(hereinafter called “ The Company Owner” which expression shall unless repugnant to the subject or context includes its legal representatives, successors and assigns) having agreed to exempt M/s. ....(Hereinafter called “the said Contractor (s)/ Seller(s)” which expression shall unless repugnant to the subject or context includes their legal representatives, successors and assigns) from the demand under the terms and conditions of Contract(s)/ Order(s) No. .... dt. ....of cash security deposit for the due fulfillment by the said contractor(s) seller(s) of the terms and conditions contained in the said Contract(s)/Order(s), on production of Bank Guarantee for Rs. ....(Rupees.....only).
2. We .....Bank having its branch office at .....do hereby agree and undertake to pay the amount due and payable under this guarantee without any demur, merely on a demand from the Company stating that in the opinion of the company which is final and binding, the amount claimed is due by way of loss or damage caused to or would be caused to or suffered by the Company by reason of any breach by the said Contractor(s)/seller(s) of any of the terms and conditions contained in the said contract(s) or ders(s) or by reasons of the said Contractor(s)/ Seller(s) failure to perform the said Contract(s)/ Order(s) including defect liability obligations or that the amount covered under this guarantee is forfeited. Any such demand made on the Bank by the owner shall be conclusive as regards the amount due and payable by the Bank under this guarantee, However, our liability under this guarantee shall be restricted to an amount not exceeding Rs.....(Rupees.....only).
3. We undertake to pay to the Company any money so demanded notwithstanding any dispute or disputes raised by the contractor (s)/ Seller(s) in any suit or proceeding pending before any office, court or tribunal relating thereto our liability under present guarantee being absolute and unequivocal. The payment so made by us under this bond shall be valid discharge of our liability for payment there under. Our liability to pay is not dependent or conditional on the owner proceeding against the Contractor(s)/ Seller(s).
4. The guarantee herein contained shall not be determined or affected or suspended by the liquidation or winding up, dissolution or change of constitution or insolvency of the said Contractor(s)/ Seller(s) but shall in all respect and for all purposes be binding and operative until payment of all money due or liabilities under the said contract(s)/ Order(s) are fulfilled.
5. We .....Bank further agree that the guarantee herein contained shall remain in full force and effect during the period that would be taken for the performance of the said Contract(s)/ Order(s) and that it shall continue to be enforceable till all the dues of the company under or by virtue of the said Contract(s)/Order(s) have been fully paid and its claims satisfied or discharged or till a duly Authorised officer of the company certifies that the terms and conditions of the said Contract(s)/Order(s) have been fully

and properly carried out by the said contractor(s) and accordingly discharges the guarantee.

6. We .....Bank further agree with the Company that the company shall have the fullest liberty without our consent and without affecting in any manner our obligations hereunder to vary any of the terms and conditions of the said Contract(s)/ Order(s) or to extend the time of performance by the said Contractor(s) Seller(s) from time to time or to postpone for any time or from time to time any of the powers exercisable by the Company against the said Contractor(s)/ Seller(s) and to forbear or enforce any of the terms and conditions relating to the said Contract(s)/ Order(s) and we shall not be relieved from our liability by reason of any such variations, or extension being granted to the said Contractor (s)/ Seller(s) or for any forbearance, act or omissions on the part of the Company or any indulgence by the Company to the said Contractor(s)/ Seller(s) or by any such matter or thing whatsoever which under the law relating to sureties would, but for this provision, have affect of so relieving us.
7. Notwithstanding anything contained herein before, our liability shall not exceed Rs.....(Rupees.....only) and shall remain in force till.....Unless a demand or claim under this Guarantee is made on us within three months from the date of expiry we shall be discharged form all the liabilities under this guarantee.
8. We.....Bank, lastly undertake not to revoke this guarantee during its currency except with the previous consent of the Company in writing. We further undertake to keep this Guarantee renewed from time to time at the request of Contractor(s)/ Sellers(s).

Date.....

.....Bank

Corporate Seal of the Bank

By its constitutional Attorney

Signature of duly  
Authorised person  
On behalf of the Bank  
With seal & signature code

BGs to be furnished from any of the banks listed as per Annexure.

**PROFORMA FOR CONTRACT CUM PERFORMANCE GUARANTEE BY SELLER/  
CONTRACTOR.**

(To be executed on non-judicial stamped paper of appropriate value)

B. G. No.....

Date.....

1. WHEREAS National Aluminium Company Limited (A Government of India Enterprise) having its office at .....(hereinafter referred to as “The Company/Owner” which expressions shall unless repugnant to the subject or context includes its legal representatives, successors and assigns) has entered into a contract with M/s. .... / has placed a purchase order on M/s.....( hereinafter referred to as “Contractor(s)/ Seller(s)” which expression shall unless repugnant to the subject or context includes their legal representatives, successors and assigns) for .....on the terms and conditions as set out inter alia, in the Company’s contract No./ P.O. No. ....date .....and various documents forming part thereof hereinafter referred to as the “said contract” which expression include all amendments, modifications and/ or variations thereto and where as the Contractor(s)/ Seller(s) has agreed for due execution of the entire contract and guarantees its performance including any parts executed through any other agencies/ subcontractors.

AND WHEREAS one of the conditions of the “said contract” is that “contractor(s)/seller(s) shall furnish to the owner a Bank Guarantee from a bank for ....% (.....percent) of the total value of the “said contract” against due and faithful performance of the “said contract” including defect liability obligations” and the performance guarantee obligations of the contractor(s)/seller(s) for execution/ supplies made under the “said contract.”

2. We .....Bank having its branch office at .....do hereby agree and undertake to pay the amount due and payable under this guarantee without any demur merely on a demand from the Company stating that in the opinion of the Company, which is final & binding, the amount claimed is due by reason of default made by the Contractor(s)/ Seller(s) in performing any of the terms & conditions of the said Contract including defect liability obligations, in fulfilling the performance guarantee obligation or loss or damage caused to or would be caused to or suffered by the Company by reason of any breach by the said Contractor (s)/ Seller(s) of any of the terms & conditions of the contract. Any such demand made on the Bank by the owner shall be conclusive as regards the amount due and payable by the Bank under this guarantee. However our liability under this guarantee shall be restricted to Rs. ....(Rupees.....only).
3. We undertake to pay to the Company any money so demanded notwithstanding any dispute or disputes raised by the contractor(s)/ Seller(s) in any suit or proceeding pending before any office, court or tribunal relating thereto our liability under this present guarantee being absolute and unequivocal. The payment so made by us under this bond shall be a valid discharge of our liability for payment there under. Our liability to pay is not dependent or conditional on the owner proceeding against the Contractor(s)/ Seller(s).

4. The guarantee herein contained shall not be determined or affected or suspended by the liquidation or winding up, dissolution or change of constitution or insolvency of the said Contractor(s)/ Seller(s) but shall in all respect and for all purposes be binding and operative until payment of all money due or liabilities under the said contract(s)/ Order(s) are fulfilled.
5. We .....Bank further agree that the guarantee herein contained shall remain in full force and effect during the period that would be taken for the performance of the said Contract(s)/ Order(s) and that it shall continue to be enforceable till all the dues of the company under or by virtue of the said Contract(s)/Order(s) have been fully paid and its claims satisfied or discharged or till a duly authorised officer of the Company certifies that the terms and conditions of the said Contract(s)/Order(s) have been fully and properly carried out by the said contractor(s) and accordingly discharges the guarantee.
6. We .....Bank further agree with the Company that the company shall have the fullest liberty without our consent and without affecting in any manner our obligations hereunder to vary any of the terms and conditions of the said Contract(s)/ Order(s) or to extend the time of performance by the said Contractor(s) Seller(s) from time to time or to postpone for any time or from time to time any of the powers exercisable by the Company against the said Contractor(s)/ Seller(s) and to forbear or enforce any of the terms and conditions relating to the said Contract(s)/ Order(s) and we shall not be relieved from our liability by reason of any such variation, or extension being granted to the said Contractor (s)/ Seller(s) or for any forbearance, act or omission on the part of the Company or any indulgence by the Company to the said Contractor(s)/ Seller(s) or by any such matter or thing whatsoever which under the law relating to sureties would, but for this provision, have affect of so relieving us.
7. Notwithstanding anything contained herein before, our liability shall not exceed Rs.....(Rupees.....only) and shall remain in force till.....Unless a demand or claim under this Guarantee is made on us within three months from the date of expiry we shall be discharged form all the liabilities under this guarantee.
8. We.....Bank, lastly undertake not to revoke this guarantee during its currency except with the previous consent of the Company in writing. We further undertake to keep this Guarantee renewed from time to time at the request of Contractor(s)/ Sellers(s).

Date.....

Corporate Seal of the Bank

.....Bank

By its constitutional Attorney

Signature of duly

Authorised person

On behalf of the Bank

With seal & signature code

BGs to be furnished from any of the banks listed as per Annexure.

**BANK GUARANTEE FOR ADVANCE PAYMENT**

(To be executed on non-judicial stamped paper of appropriate value)

B. G. No. \_\_\_\_\_

Date: \_\_\_\_\_

1. In consideration of National Aluminium Company Limited (A Government of India Enterprise), having its office at \_\_\_\_\_ (hereinafter called “ The Company Owner” which expression shall unless repugnant to the subject or context includes its legal representatives, successors and assigns) having agreed to make an advance payment of Rs. .... (Rupees.....only) to M/s. .... (hereinafter called “the said Contractor (s)/ Seller(s)” which expression shall unless repugnant to the subject or context includes their legal representatives, successors and assigns) from the demand, terms and conditions of Contract/Order dated. .... on production of a bank guarantee of equivalent amount.
2. We ..... Bank having its branch office at ..... do hereby agree and undertake to pay the amount due and payable under this guarantee without any demur, merely on a demand from the Company stating that in the opinion of the Company which is final and binding, the amount claimed is due by way of loss or damage caused to or would be caused to or suffered by the Company by reason of non-payment / adjustment of any part of the said advance or any dues to the company or any breach by the said Contractor(s)/seller(s) of any of the terms and conditions contained in the said contract(s) orders(s) or by reasons of the Contractor(s)/ Seller(s) failure to perform the said Contract(s)/ Order(s). Any such demand made on the Bank by the owner shall be conclusive as regards the amount due and payable by the Bank under this guarantee, However, our liability under this guarantee shall be restricted to an amount not exceeding Rs. .... (Rupees.....only).
3. We undertake to pay to the Company any money so demanded notwithstanding any claim dispute or disputes raised by the contractor (s)/ Seller(s) in any suit or proceeding pending before any office, court or tribunal relating thereto our liability under this present guarantee being absolute and unequivocal. The payment so made by us under this bond shall be valid discharge of our liability for payment thereunder. Our liability to pay is not dependable or conditional on the owner proceeding against the Contractor(s)/ Seller(s).
4. The guarantee herein contained shall not be determined or affected or suspended by the liquidation or winding up, dissolution or change of constitution or insolvency of the said tenderer(s) but shall in all respect and for all purposes be binding and operative until payment of all money due or liabilities under the said tenderer(s) are fulfilled.
5. We ..... Bank further agree that the guarantee herein contained shall remain in full force and effect during the period that would be taken for the finalisation of the said tenderer(s) and that it shall continue to be enforceable till the said tender is finally decided and order placed on the successful tender and/or till all the dues of the company under or by virtue of the said tender have been fully paid and its claims satisfied or discharged or till a duly authorised officer of the Company certifies that the terms and conditions of the said Contractor(s)/ Order(s) have been fully and properly carried out by the said tenderer(s) and accordingly discharges the guarantee.

6. That the owner/Company will have fully liberty without reference to us and without affecting this guarantee to postpone for any time or from time to time the exercise of any of the power of the owner under the tender.
7. Notwithstanding anything contained herein before, our liability shall not exceed Rs.....(Rupees.....only) and shall remain in force till.....Unless a demand or claim under this Guarantee is made on us within three months from the date of expiry we shall be discharged form all the liabilities under this guarantee.
8. We.....Bank, lastly undertake not to revoke this guarantee during its currency except with the previous consent of the Company in writing. We further undertake to keep this Guarantee renewed from time to time on the request of the Contractor(s)/ Seller(s).

Date.....

.....Bank

Corporate Seal of the Bank

By its constitutional Attorney

Signature of duly  
Authorised person  
**On behalf of the Bank**  
With seal & signature code

- i) BGs to be furnished from any of the banks listed as per Annexure.
- ii) Address of Corporate Office should be referred in case of Foreign BG.



## **LIST OF STANDARDISED BANKS**

### **SCHEDULED PUBLIC SECTOR BANKS (INDIAN)**

1. State Bank of India.
2. State Bank of Bikaner and Jaipur
3. State Bank of Hyderabad
4. State Bank of Indore.
5. State Bank of Mysore.
6. State Bank of Patialia.
7. State Bank of Saurashtra
8. State Bank of Travancore.
9. Allahabad Bank
10. Andhra Bank
11. Bank of Baroda.
12. Bank of India
13. Bank of Maharashtra
14. Canara Bank
15. Central Bank of India
16. Corporation Bank
17. Dena Bank
18. Indian Bank
19. Indian Oversea Bank
20. Oriental Bank of Commerce
21. Punjab National Bank
22. Punjab and Sid Bank
23. Syndicate Bank
24. Union Bank of India
25. *United Bank of India (Deleted)*
26. UCO Bank
27. Vijaya Bank.

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## **LIST OF STANDARDIED BANKS**

### **SCHEDULED PRIVATE SECTOR BANKS (INDIAN)**

1. Vyasa Bank
  2. UTI Bank Ltd.
  3. SBI Commercial & International Bank Ltd.
  4. ICICI Banking Corporation Bank Ltd.
  5. HDFC Bank Ltd.
  6. IDBI Bank Ltd.
- 

### **SCHEDULED FOREIGN BANKS**

1. American Express Bank Ltd.
  2. ANZ Grindlays Bank Plc
  3. Bank of American NT & SA
  4. Bank of Tokyo Ltd.
  5. Banque Nationale de Paris
  6. Barclays Bank Plc
  7. Citi Bank N.A.
  8. Deutsche Bank A.G.
  9. Hongkong & Shanghai Banking Corporation.
  10. Standard Chartered Bank
  11. The Chase Manhattan Bank Ltd.
  12. Dresdner Bank AG.
-

**DETAILS OF WORKS OF SIMILAR NATURE & MAGNITUDE CARRIED OUT  
DURING THE LAST 5 YEARS**

<b>Sl. No.</b>	<b>Name of work done</b>	<b>Estimated cost</b>	<b>When started</b>	<b>When completed</b>	<b>Date of Completion As per contract.</b>	<b>Remarks</b>
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- Note :** 1. In the remarks column, please state whether the works stated above are carried out by you in the name of the Firm in which the present Bid is submitted or any other names, if later, state relationship of the firm and also a copy of the Partnership Deed.
2. Please enclose the true copy of the certificate issued by the authorities, if any.

***Signature of Bidder***

Name of Work:

Name of Tenderer:

### CONCURRENT COMMITMENTS OF THE TENDERER

Full Postal Address of Client & Name of Officer-in-Charge	Description of the work	Value of contract	Date of commencement of work	Scheduled Completion period	Percentage Completion as on date	Expected date of completion	Remarks if any

***SIGNATURE OF BIDDER***

NAME OF WORK:

NAME OF TENDERER:

**DETAILS OF EQUIPMENT, TOOLS & TACKLES**

Tenderer shall submit herein details of equipment, tools, tackles, etc required to perform the work and shall note in each case whether the same is (a) already owned by tenderer and available for use on this contract (b) anticipated to be hired by Contractor or (c) anticipated to be purchased by Contractor, in case of (a) anticipated (b) and (c) Location of hirer or supplier shall be stated.

<b>Sl. No.</b>	<b>Description, Make &amp; Capacity</b>	<b>Year of Manufacture</b>	<b>Category (a) or (b) or (c) below</b>	<b>Location</b>	<b>Remarks</b>
<b>(1)</b>	<b>(2)</b>	<b>(3)</b>	<b>(4)</b>	<b>(5)</b>	<b>(6)</b>

1. Contractor agrees to augment the above chart with additional number/ categories of equipment, if required to complete the work within the agreed time schedule of completion and directed by the Engineer-in-charge.
2. In case of hiring of equipment from other agencies, copies of the arrangements made with the hirer/ supplier shall have to be furnished.

*(Signature of Bidder)*

**DETAILS OF MINIMUM MANPOWER PROPOSED TO BE  
DEPLOYED ON THIS WORK**

Sl. No.	Details of Manpower	No.	Remarks
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Note : Please furnish the above details in two categories – To be deployed by (I) Contractor and (ii) Sub- contractors.

Minimum manpower deployment shall be based broadly as above and will be modified as mutually agreed to suit the detailed construction programme jointly worked out; further if any additional man power is required for completion of work in time, the same shall be provided by you as directed by Engineer without any extra cost.

The manpower proposed to be deployed in the work needs to be given quarter wise separately for direct personnel of the contractor and the manpower proposed to be deployed through the sub-contractors.

***(Signature of Bidder)***

**ORGANISATION CHART SHOWING NO. OF QUALIFIED  
ENGINEERS & SUPERVISORY PERSONNEL ETC.**

<b>Sl. No.</b>	<b>Details of personnel to be deployed on this work</b>	<b>No.</b>
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**Note:** Names and short resume of their experiences may also be given for key personnel.

The tentative chart of your site organisation as above furnished by you shall be subject to variation to suit the construction programme/ requirement and as directed by Owner/ Engineer.

*(Signature of Bidder)*



**LIST OF PROPOSED SUB CONTRACTORS**

Sl. No.	Name of sub-contractor	Description of work or trade	Amount (Rs.)
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- 
- 1) Types of work executed by the sub-contractors.
  - 2) The particulars of clients where the sub-contractors did the works.
  - 3) Approximate value of the work carried by the sub-contractors in the last 3 years.

***(Signature of Bidder)***

**PPROGRESS BILLINGS**

(Bidder's anticipated progress billing month by month to be inserted here)

Tentative construction schedule indicating the expected dates of start of activity is to be given by the contractor. This schedule shall be updated within specified milestones from time to time depending upon the availability of fronts equipment and priorities fixed by Engineer. Contractor shall submit within 15 days of the date of letter of intent programme/ schedule for supply of items covering all phases of work including design, procurement, manufacture, assembly, fabrication, testing, transportation, erection, testing at site and commissioning matching the overall completion schedule.

The billing as well as all the connected documents shall be computerized.

***(Signature of Bidder)***

NAME OF WORK

NAME OF TENDERER :

**INFORMATION ABOUT TENDERERS (FORM – H)**

- 1.0. In case of Individual:
  - 1.1. Name of Business:
  - 1.2. Whether his business is registered:
  - 1.3. Date of Commencement of Business:
  - 1.4. Whether he pays Income Tax over Rs. 10,000/- per year:
- 2.0. In case of Partnership:
  - 2.1. Name of Partnership with qualification:
  - 2.2. Whether the Partnership is Registered:
  - 2.3. Date of Establishment of firm:
  - 2.4. If each of the partners of the firm pays Income Tax over Rs. 10,000/- a year and if not, who of them pays the same.
- 3.0. In case of Limited Liability Company or Company Limited by Guarantees:
  - 3.1. Amount of paid of capital:
  - 3.2. Name of Directors:
  - 3.3. Date of Registration of Company:
  - 3.4. Copies of the Balance Sheet of the Company of the last two years:

Copies of audited Profit & Loss Account and the Balance sheet shall be enclosed in case of Individuals, partnerships as well as limited companies for the last 3 years.

**(Signature of Bidder)**  
**Name & Address of the Bidder**

NAME OF WORK:

NAME OF TENDERER:

**LIST OF ENCLOSURES (FORM– I)**

The tenderer is required to enclose the following documents as part of his tenderer.

1. Power of attorney of the signatory to the tender.
2. Income Tax/ Sales Tax Clearance Certificate in the proforma prescribed by the Govt. of India.
3. Documents showing annual turnover for similar works for the past two years such as annual report, profit and loss account etc.
4. Solvency Certificate by Nationalized Schedule Bank.

***(Signature of Bidder)***

\*\* In absence of Income Tax Clearance Certificate tenderer may not be awarded the work tendered for as per Central Govt. Directives.

NAME OF WORK:

NAME OF TENDERER:

**EXCEPTION AND DEVIATION (FORM – J)**

As pointed out in the NIT/ LIT, tenderer may stipulate here exceptions and deviations to the tender conditions, if considered un-avoidable.

Sl. No.	Page No. of tenderer document	Sl. No. of tender document	Subject	Deviation
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***(Signature of Bidder)***

## AMENDMENT TO GCC

<b>Sl No</b>	<b>Clause No</b>	<b>Brief Description of Clause</b>	<b>Modification</b>
01	2.3	Power Supply	<p>i) Clause No. 2.3.1 of General Condition of Contract stands modified to the following extent:</p> <p>The cost of construction power appearing in the 12<sup>th</sup> &amp; 13<sup>th</sup> line as Rs 1.00 per kwh shall be read as Rs. 4.30 (Rupees four and thirty paise only) per kwh.</p> <p>ii) Clause No. 2.3.10 of General Condition of Contract stands modified to the following extent:</p> <p>The state Electricity Inspector appearing in the second line shall be read as 'Central Electricity Authority at Chennai'.</p>
02	2.4	Land for contractor's Field office, Godown and Workshop	<p>Clause No. 2.4 of General Condition of Contract modified to the following extent:</p> <p>"The owner shall provide land to the Contractor for their offices, godown and workshop."</p>
03	2.5	Land for Residential Accommodation	<p>Clause No. 2.5 of General Condition of Contract modified to the following extent:</p> <p>"The land for residential accommodation for staff and labour may be made available to Contractor outside plant boundary limit."</p>
04	22	Extension of time	<p>The word "any one" appearing in the end of the second para of Clause No. 22.0 shall be read as "OWNER".</p>
05	52.3.6	Return of unutilized/ surplus materials and scrap/ wastage	<p>i) The words "SAIL, Bhubaneswar stockyard rate" appearing in 3<sup>d</sup> line of first para shall be replaced by "Landed cost."</p> <p>ii) The words "Rs. 7000.00 per tonne" appearing in last line of first para shall be replaced by "twice the landed cost of materials."</p>
06	53 (xv)	Conditions for issue of materials	<p>The contents of the sub-clause No. 53 (xv) shall stand deleted and replaced with the following:</p> <p>"For the free issue materials, the following norms shall be adopted:</p> <p>i) For issue of materials within plant boundary-wall limit, the Contractor shall submit only indemnity bond for the entire value of the materials issued to them free of cost as Clause 53 (ix) of GCC.</p>

Sl No	Clause No	Brief Description of Clause	Modification
			<p>ii) For the materials which are issued to out side plant boundary like township etc., the contractor shall furnish Bank Guarantee equivalent to 20% of value of materials and indemnity bond for the 80% value of the materials.</p> <p>iii) For materials taken out side Damanjodi/ Angul to the vendor's shop, 100% Bank Guarantee against value of the materials will be submitted by the vendor before taking of the materials.</p> <p>iv) The Indemnity Bond and the Bank Guarantee shall remain valid till the material account is totally settled. “</p>
07	60 (d)	Alterations in Specifications and Design and Extra Works	The words “including equipment hire charges at Schedule hourly/ daily rates” appearing in 7 <sup>th</sup> and 8 <sup>th</sup> line shall be replaced by the words “including equipment hire charges prevalent at site at the time of execution.”
08	60	Alterations in Specifications and Design and Extra Works	Add new sub-clause 60 (e) as follows: “the quoted prices/ rates indicated in Schedule of Rates shall remain firm for all variations in contract value within range of (+) 50% and (-) 25% for the entire duration of the contract. In case the actual contract value varies from the awarded contract value beyond the above mentioned limit then adjustment to contract value shall be made in accordance with procedure specified in proforma for adjustment for increase/ decrease in contract value enclosed as per Annexure.”
09	76.3 (ii)	Completion documents	<p>Clause No. 76 (ii) of General Condition of Contract shall be replaced by:</p> <p>“Six sets of construction drawings showing therein the modifications and corrections made during the course of execution of the work (<b>As built drawing</b>) duly approved by Engineer-in-charge and one set of reproducible on polyester film/ in Soft copy in CD.”</p>
10	80.1	Employees State Insurance Act	Delete the word “whose aggregate remuneration is Rs.560.00 per month or less and” appearing in the 3 <sup>d</sup> & 4 <sup>th</sup> line of the 2 <sup>nd</sup> para of this sub clause.



SI No	Clause No	Brief Description of Clause	Modification
11	New sub-clause	---	Add a new clause designated as Sub-clause 80.6 - Statutory Provisions after existing clause No. 80.5: “80.6- Statutory Provisions: The contractor shall comply with all relevant and applicable statutory provisions in respect of the workers engaged by him at his cost and above stipulations are only indicative and are not exhaustive.”
12	83 (viii)	Labour Laws	<p>Clause 83 (vii) of GCC shall be modified to following extent:  Add the words <i>‘all relevant statutes at their own costs including’</i> between the words <i>“provisions of”</i> and <i>“the payment of Wages Act 1936”</i> appearing in the first line of this sub-clause.</p> <p>Provided further that:</p> <ol style="list-style-type: none"> <li>The payment of minimum wages to contract labour shall be as per the rates notified by the Central Govt. as per Minimum Wage Act, 1948 and as adopted by the NALCO Management from time to time plus any additional element and statutory dues thereon.</li> <li>The minimum wage as notified by the Chief Labour Commissioner (Central) has a variable component as Special Allowance which is linked to average AICPI for Industrial workers, which keeps on changing every six months. The contractor has to absorb all such variations due to increase in Minimum wage in their quoted price, and no claim whatsoever on this account shall be entertained.</li> <li>Where the minimum wages notified by the concerned State Government are higher than the rates notified by Central Government, the State Government rates should apply in concerned <i>scheduled employment</i> as long as the same remains higher than the Central Government rates.</li> <li>The classification on workers in different categories will be as per the notification issued by the Central Government fixing the minimum wages for the above scheduled appointment.</li> </ol>

<b>Sl No</b>	<b>Clause No</b>	<b>Brief Description of Clause</b>	<b>Modification</b>
13	New Clause	Jurisdiction/ Governing Law	<p>Add a new clause designated as sub-clause 88 (c) after existing clause No. 88 (b).</p> <p>All the works that will be carried out inside the factory premises shall attract the provisions of factory act for the contract labourers engaged therein.</p> <p>The contractor, before commencement of work will arrange medical examination at his cost and shall submit the certificate of fitness in respect of the workers in the prescribed form from the nearby District HQ hospital or any Govt. hospitals for his workers, who will be handling or working with hazardous substance.</p> <p>In respect of contracts having more than one year, the medical check up of such workers shall have to be repeated by the contractor on completion of every one year.</p>
14	79	Taxes & Duties, Octroi etc.	<p>Add a new clause designated as sub-clause 79.3 after existing sub-clause No. 79.2 as follows:</p> <p>The rates quoted by the tender will cover all the taxes, duties and levies as applicable on the date of bid/ revised bid (if any).</p> <ul style="list-style-type: none"> <li>- In case of any imposition of new taxes by Govt. notification at a later date, same shall be reimbursed to the contractor against submission of authentic document towards payment of such taxes by them.</li> <li>- In case of revision of rate of Works Contract Tax by Govt. notification, same shall be reimbursed to the contractor against submission of documentary evidence towards payment of such extra amount by them.</li> </ul>
15	74	Payment of Contractor's Bill	<p>Insert the following after the last para:</p> <p>“However, owner prefers to release the payment due to the contractor electronically. The e-payment facility is available under INTERNET mode through company banker as well as in EFT/RTGS mode through Reserve Bank of India, which is available only at designated centers. The contractor shall submit duly filled Bank Mandate form in duplicate with due authentication from their banker to avail e-payment facility. The prescribed mandate form is appended as Appendix to GCC.”</p>

(To be submitted in duplicate)

**MANDATE FORM FOR ELECTRONIC PAYMENT THROUGH INTERNET & RBI**

To  
National Aluminium Company Limited,

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Dear Sir,

Sub: Authorization for release of payment due from NALCO, \_\_\_\_\_ through  
Electronic fund transfer(RBI-EFT)/Internet / RTGS.  
Refer Order No.....dt.....and/or Tender/Enquiry/Letter No.....dt.....

(Please fill in the information in CAPITAL LETTERS. Please TICK wherever it is applicable)

1. Name of the Party :  
2. Address of the party :  
.....  
.....  
City :.....Pin Code:.....  
E-mail Id: .....  
Permanent Account Number :.....

3. Particulars of Bank:

Bank Name		Branch Name	
Branch Place		Branch City	
Pin Code		Branch Code	
MICR No			
(9 Digits code number appearing on the MICR Band of the cheque supplied by the Bank. Please attach Xerox copy of a cheque of your bank for ensuring accuracy of the bank name, branch name and code number)			
Account Type	Savings ف	Current ف	Cash Credit ف
Account Number(as appearing in the Cheque Book)			
RTGS / IFSC Code			

4. Date from which the mandate should be effective :

I hereby declare that the particulars given above are correct and complete. If any transaction is delayed or not effected for reasons of incomplete or incorrect information, I shall not hold National Aluminium Company Limited responsible. I also undertake to advise any change in the particulars of my account to facilitate updation of records for purpose of credit of amount through RBI EFT / Internet / RTGS.

Place:

Date:

Signature of the party/Authorized Signatory

-----  
Certified that particulars furnished above are correct as per our records.

Bank's Stamp:

Date:

(Signature of the Authorized Official from the Banks)

**N.B. :** RBI EFT / RTGS facilities Centre:  
New Delhi, Chandigarh, Kanpur, Jaipur, Ahmedabad, Mumbai, Nagpur, Hyderabad, Bangalore, Chennai,  
Trivandrum, Kolkata, Bhubaneswar, Guwahati, Patna.

**N.B. : RTGS charges if any, is to be borne by the party.**

(To be submitted in duplicate)

## MANDATE FORM FOR ELECTRONIC PAYMENT THROUGH INTERNET

To  
National Aluminium Company Limited,

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-----  
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Dear Sir,

Sub: Authorisation for release of payment due from NALCO, \_\_\_\_\_ through  
Electronic fund transfer by Internet Mode .  
Refer Order No.....dt.....and/or Tender/Enquiry/Letter No.....dt.....

(Please fill in the information in CAPITAL LETTERS. Please TICK wherever it is applicable)

1. Name of the Party :  
2. Address of the party :  
.....  
.....  
City :.....Pin Code:.....  
E-mail Id: .....  
Permanent Account Number :.....

3. Particulars of Bank:

Bank Name			Branch Name										
Branch Place			Branch City										
Pin Code			Branch Code										
Account Type	Savings ف		Current ف	Cash Credit ف									
Account Number(as appearing in the Cheque Book)													
Please attach Xerox copy of a cheque of your bank for ensuring accuracy of the bank name, branch name and code number .													

4. Date from which the mandate should be effective :

I hereby declare that the particulars given above are correct and complete. If any transaction is delayed or not effected for reasons of incomplete or incorrect information, I shall not hold National Aluminium Company Limited responsible. I also undertake to advise any change in the particulars of my account to facilitate updation of records for purpose of credit of amount through Internet.

Place:

Date:

Signature of the party/Authorized Signatory

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Certified that particulars furnished above are correct as per our records.

Bank's Stamp:

Date:

(Signature of the Authorized Official from the Banks)