

**ANNEXURE -I to NIT**  
**(For Better Understanding Only)**

Globalization of free issue items such as cement & steel quantities means that any individual free issue item can vary and vendor should not be penalized in case total value of free issue item does not change. There will be no penalty on excess quantity as long as total cost of free issue items remain unchanged i.e. quantity of one item can go up and quantity of other item can go down within total cost of free issue arrived based on the quantity quoted by the bidders.

**EXAMPLE-1**

1) The value of the quoted quantities of the free issue items by a bidder for the project is as below:

Cement: 20,000 tons @ Rs. 7,000.00 per ton =	Rs. 1400 Lakh
Reinforced steel: 6,000 tons @ Rs. 60,000 per ton =	Rs. 3600 Lakh
Total	<hr/> Rs. 5000 Lakh

Assuming that the actual reinforcement steel requirement goes down to 5000 tons and actual cement quantity goes up to 25000 MT, final evaluated value of free issue item will be as under:

Cement - 25000 tons @ Rs. 7,000.00 per ton =	Rs. 1750 Lakh
Reinforcement Steel- 5000 tons @ Rs. 60,000 per ton =	Rs. 3000 Lakh
Total	<hr/> Rs. 4750 Lakh

Since actual value of free issue item (Rs. 4750 Lakh) is less than the value of quoted free issue item (Rs. 5000 Lakh), there will be no penalty on account of excess quantity of cement 5000 Tons i.e. (25000-20000).

**EXAMPLE-2**

1) The value of the quoted quantities of the free issue items by a bidder for the project is as below:

Cement: 20,000 tons @ Rs. 7,000.00 per ton =	Rs. 1400 Lakh
Reinforced steel: 6,000 tons @ Rs. 60,000 per ton =	Rs. 3600 Lakh
Total	<hr/> Rs. 5000 Lakh

Assuming that the actual reinforcement steel requirement goes down to 5000 tons and actual cement quantity goes up to 30000 MT, final evaluated value of free issue item will be as under:

Cement - 30000 tons @ Rs. 7,000.00 per ton =	Rs. 2100 Lakh
Reinforcement Steel- 5000 tons @ Rs. 60,000 per ton =	Rs. 3000 Lakh
Total	<hr/> Rs. 5100 Lakh

Since actual value of free issue item (Rs. 5100 Lakh) is more than the value of quoted free issue item (Rs. 5000 Lakh), there will be penalty on cement quantity on account of excess amount i.e. 100 Lakhs (51000-50000). Quantity of excess cement for penalty= 100 Lakhs / 7000= 1428.57 ton

Penalty amount= 1428.57 \* Latest Purchase Price (LPP) of BHEL PSNR or  
Rs 7000 per Ton, whichever is higher **plus** 5% thereon.

## **BOCW Act & BOCW Welfare Cess Act**

- 1.1. Contractor's price/rates shall be exclusive of BOCW Cess.
- 1.2. The Contractor should Register their Establishment under BOCW Act 1996 read with rules 1998 by submitting Form I (Application for Registration of Establishment) and Form IV (Notice Of Commencement / Completion of Building other Construction Work) to the respective Labour Authorities i.e.,
  - a. Assistant Labour Commissioner (Central) in respect of the project premises which is under the purview of Central Govt.–NTPC, NTPL etc.
  - b. Appropriate State authorities in respect of the project premises which is under the purview of State Govt.
- 1.3. The Contractor should comply with the provisions of BOCW Welfare Cess Act 1996 in respect of the work awarded to them by BHEL.
- 1.4. The contractor should ensure compliance regarding Registration of Building Workers as Beneficiaries, Hours of work, welfare measures and other conditions of service with particular reference to Safety and Health measures like Safety Officers, safety committee, issue of Personal protective equipments, canteen, rest room, drinking water, Toilets, ambulance, first aid centre, etc.
- 1.5. The contractor irrespective of their nature of work and manpower (Civil, Mechanical, Electrical works etc.) should register their establishment under BOCW Act 1996 and comply with BOCW Welfare Cess Act 1996.
- 1.6. Contractor shall make remittance of the BOCW Cess as per the Act in consultation with BHEL as per the rates in force (presently 1%). BOCW remittance should be made only after obtaining prior consent from BHEL. BHEL shall reimburse the same upon production of documentary evidence. However, BHEL shall not reimburse the Fee paid towards the registration of establishment, fees paid towards registration of Beneficiaries and Contribution of Beneficiaries remitted.
- 1.7. Non-compliance to Provisions of the BOCW Act & BOCW Welfare Cess Act is not acceptable. In case of any non-compliance, BHEL reserves the right to withhold any sum as it deems fit. Only upon total compliance with the BOCW Act and the discharge of total payment of Cess (in consultation with BHEL) under the BOCW Cess Act by the Contractor, BHEL shall consider refund of the amounts.

## ANNEXURE-XIX

### SAFETY CODE FOR CONTRACTORS

#### 1.0 GENERAL

- 1.1 Safety is the responsibility of every employee, individually and collectively.
- 1.2 Head of the Dept/Division should ensure that a copy of this Contractor's Safety Code is handed over to every Contractor working under his control and he should in turn prominently display all rules on the office/site notice board for the benefit of all the men working under him.
- 1.3 The Contractor shall in connection with provide adequate guards, illumination, fencing and watch wherever necessary at the construction site & working area, for the safety & convenience of general public.
- 1.4 Fire extinguishers adequate in number and with proper validity shall always be kept by the Contractor at the site of works, where there is risk of fire hazard, especially near the site stores.
- 1.5 Adequate washing facilities with proper drainage shall be provided and properly maintained near the place of work but at a safe distance from railway tracks and busy roads.
- 1.6 Whenever work is to be undertaken near a place, where there is a risk of drowning, arrangements to be made for safe barricading of such areas. All necessary equipment shall be provided and kept ready for use and necessary steps taken for prompt rescue of any person in danger and adequate provision shall be made for prompt first-aid treatment of all injuries likely to be sustained during the course of the work, in case of a mishap.
- 1.7 To 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 Safety Engineer, the Labour Officer, Engineer-in-charge of the concerned Department or their representatives.

- 1.8 Notwithstanding the above clauses, there is nothing in these to exempt the Contractor from the operation of any other Act or Rule in the Republic of India for the safety of men and materials.
- 1.9 An injury sustained in the plant, must be immediately reported to the First-Aid Station or next higher Supervisor/Officer in-charge, no matter how minor the nature of the injury.
- 1.10 In case of a fatal accident, the Contractor must inform the Engineer in-charge of the department for which he is working and a report in writing should be made, clearly explaining the sequence of events leading to the accident.
- 1.11 Smoking or use of naked lights is strictly prohibited near gas lines, valves and any other equipment linked to the gas distribution networks.
- 1.12 Smoking and carrying of matches, lighters and other spark producing devices is strictly prohibited within the area where inflammable liquids are stored, handled or used or where loading or unloading operations are performed. Any tank or container containing inflammable liquid should be properly grounded for preventing ignition due to static electricity charges. Contractor should ear-mark such areas and provide necessary signage and warning signals.
- 1.13 Contractors should ensure that employees do not report to work while under the influence of intoxicants. Any employee found on duty under the influence of liquor or of intoxicating drugs, will be liable to severe disciplinary action.
- 1.14 Work surroundings should be kept clean, free from oil, grease and other obstructions or fallen objects like nuts bolts etc.
- 1.15 After a job or work is completed, all left-over junk and other scrap materials should be cleared from the area immediately.





- 1.16 Drums or other make-shift arrangement must not be used in place of ladders or as work benches or supports for any job.
- 1.17 Employees shall not walk through or cross any operating units unless their duties require them to do so, or they are authorised.
- 1.18 Compressed air should not be used for removing dust from one's clothes and deliberately directed or used on any person as it is likely to cause serious injury.
- 1.19 If an employee, in the course of his work, encounters conditions of unusual hazard with which he is not familiar, he should contact the supervisor for advice before proceeding further. He should also inform the Contractor as well as the Engineer in-charge.
- 1.20 Contractors should particularly ensure that they or their employees do not meddle with any equipment they are not concerned or unfamiliar with and see that they should generally keep away from such equipment.
- 1.21 It should be ensured that no one takes rest/shelter below any under cut pit/excavation or near any stock-pile of materials.
- 1.22 For any work involving repair & maintenance underground, the Contractor shall follow the safety procedural orders/instruction issued by the Purchaser.
- 1.23 The Contractor shall ensure supervision of such jobs by competent persons within the meaning of Factories Act & Rules.
- 1.24 All persons engage on such jobs shall have to have before hand proper training instructions as required under Factories Act & Rules.

## **2.0 SAFETY MEASURES IN CONTRACT WORK**

Whereas, it is necessary to take steps to ensure safety at work sites by the executing contractual agency, it is incumbent of the Purchaser to introduce all measures to guide, induce, train and bind the agencies concerned to adopt remedial steps to



prevent accidents. Problem gets aggravated in contractual zones due to lack of training, in-adequate supply of personal protective equipment, shortage of skilled labour changing deployment of works etc. Accordingly, the following measures are intended to be introduced and the salient clauses will be included in the contract documents.

- 2.1 The Contractor shall take all safety precautions and provide adequate supervision in order to carry out the job safely and without damage to men & equipment.
- 2.2 Any special safety precautions, if required to be followed by the Contractor, such clauses shall be added.
- 2.3 The executing department would take necessary shut-downs wherever there are hazards of gases, electricity, moving machinery etc. The Contractor shall ensure that the shut-down/clearance are taken before deploying workers to such locations.
- 2.4 The Contractor shall supply safety appliance such as safety shoes, safety belts, helmets, gloves, harness etc. to his workers depending on working conditions and life saving jackets shall always be kept in readiness at the site. The Contractor shall not deploy any workmen without safety shoes and safety helmet and the safety applicable to the specific work conditions.
- 2.5 Before starting the day's job, the Purchaser's Supervisor/representatives will ensure that safety briefing has been done to the Contractor's supervisor who has previously been imparted safety induction training.
- 2.6 Head/Zonal in-charge will nominate Engineer in-charge of the contractual work under reference who will be fully responsible for the safe execution of the work at site.
- 2.7 In case of injury to persons, the Contractors shall first take the injured person to nearest hospital with the necessary forms. In no case the Contractors are allowed to take injured persons directly to their own Doctors.
- 2.8 The Contractor shall abide by the provisions of Factories Act, State Factory Rules, Workmen's Compensation Act, Payment of Wages Act, Contract Labour (Regulation)



Act etc., and keep the Purchaser indemnified of provision the above Acts and Rules.

- 2.9 The Head of Department. executing the contract upon the satisfaction that the Contractor is not conforming to the Safety requirements may direct stoppage of work and require the Contractor to remedy the defects. The Contractor shall not proceed with the work until he has complied with each directions to the satisfaction of such Head of the Department.
- 2.10 The Contractor shall be fully responsible for accidents caused due to him or his agents or workmen's negligence or carelessness in regard to the observance of the safety requirements and shall be liable to pay compensation for injuries.
- 2.11 Without prejudice to the right conferred by the above clause, for stoppage of work for violations of safety requirements the Contractor shall be liable for penalty as deemed fit for violation of safety rules & regulations upto first two instances. For the third violation he shall be liable to be debarred from further contracts upto a period of one year from the date of issue of debarring notice.
- 2.12 The Head of the Safety Engg. Deptt. or the Head of the Deptt. executing the contract will assess the penalty amount having regard to the circumstances, in particular, the nature and gravity of the violation. After issuing a notice to the Contractor to show cause why the amount specified therein shall not be imposed as a penalty and considering the cause shown by the Contractors, if any, he shall pass final orders which shall then be final and binding on the Contractor. The penalty amount will be recoverable from any bill and/or EMD/SD of the Contractor without any further reference to him.
- 2.13 Whenever work, at heights is involved, Contractor must obtain necessary permissions and clearances from the Safety Engg. Dept. for such persons required to do work at height.
- 2.14 Contractor must insure all the workmen under the "Workmen Compensation Act."



- 2.10.17 Before erection of any equipment on a foundation, the Bidder shall check and undertake if necessary rectification of foundation bolts, reaming of holes, drilling of dowels, matching of bolts and nuts, making new dowel pin, etc.
- 2.10.18 Assistance for calibrating/testing the power cylinders, valves, gauges, instruments, etc., and setting of actuators coming under various groups shall be provided by Bidder.
- 2.10.19 It shall be the responsibility of the Bidder to provide ladders on columns for initial works till such time stairways are completed. For this, the ladder should not be welded on the column and should be prefabricated clamping type. No temporary welding on any structural member is permitted except under special circumstances with the approval of Owner.
- 2.10.20 Structural materials required for the supporting/operating platforms required for the valves at various levels for the safe operation of valves will be arranged by the Bidder.
- 2.10.21 For civil, structural and architectural works, Volume II-G/1 & II-G/2 may be referred. For Instrumentation and Electrical works, Volume. II-E and Volume. II-F/1 & F/2 may be referred.
- 2.11.00 **Safety**
- 2.11.01 Safety and overall cleanliness of work site shall be given top priority. The Bidder shall ensure the safety of all workmen, materials and equipment either belonging to him or to others working at site. He shall observe safety rules & codes applied by the Owner at site without exception.
- 2.11.02 The Bidder shall notify the Owner of his intention to bring to site any equipment or material which may create hazard. The Owner shall have the right to prescribe the conditions under which such equipment or material may be handled and the Bidder shall adhere to such instructions. The Owner may prohibit the use of any construction machinery, which according to him is unsafe. No claim for compensation due to such prohibition will be entertained by the Owner.
- 2.11.03 Storage of petroleum products & explosives for construction work shall be as per rules and regulation laid down in Petroleum Act, Explosive Act and Petroleum and Carbide of Calcium Manual. Approvals as necessary from Chief Inspector of Explosives or other statutory authorities shall be the responsibility of the Bidder.
- 2.11.04 The Bidder shall be responsible for safe storage of his and his sub-Bidder's radioactive sources.
- 2.11.05 All requisite tests & inspection of handling equipment, lifting tools & tackle shall be periodically done by the Bidder. Defective equipment shall be removed from service. Any equipment shall not be loaded in excess of its recommended safe working load.



- 2.11.06 All combustible waste and rubbish shall be collected and removed from the worksite at least once each day. Use of undercoated canvas paper, corrugated paper, fabricated carton, plastic or other flammable materials shall be restricted to the minimum and promptly removed.
- 2.11.07 The Bidder shall provide adequate number of fire protection equipment of the required types for his stores, office, temporary structures, labour colony etc. Personnel trained for fire-fighting shall be made available by the Bidder at site during the entire period of the Contract.
- 2.11.08 All electrical appliances used in the work shall be in good working condition and shall be properly earthed. No maintenance work shall be carried out on live equipment. The Bidder shall maintain adequate number of qualified electricians to maintain his temporary electrical installation.
- 2.11.09 All workmen of the Bidder working in construction site shall wear safety helmets, safety boots and safety belts. The Bidder shall take appropriate insurance cover against accidents for his workmen as well as third party.
- 2.11.10 All the worksites shall be provided with adequate lighting facilities e.g. flood lighting, hand lamps, area lighting etc. by the Bidder for proper working environment during night times.
- 2.11.11 Adequate number of temporary toilets/urinals (men & women separate) shall be provided at work places with soak pits. Adequate drinking water facilities and rest rooms shall be provided for workers to take food and rest.
- 2.11.12 All safety precautions shall be taken for welding and cutting operations as per IS-818.
- 2.11.13 All safety precautions shall be taken for foundation and other excavation marks as per IS-3764.
- ~~2.12.00 **Taking Delivery & Storage**~~
- ~~2.12.01 The Bidder shall arrange issue of all equipment and materials to be erected under the contract from the stores/open yard at site by signing on standard indent forms. After completion of work, detailed auditing of the materials so issued shall be submitted to the Owner.~~
- ~~2.12.02 The Bidder shall arrange for proper and safe storage of materials till the same are taken over by the Owner as per terms of the contract. Manufacturer's instructions for preservation shall be strictly followed.~~
- ~~2.12.03 All empty containers, packing materials, gunny bags, transport frames and also surplus and unused materials reconciliation prior to completion of contract shall be dealt as per clause 2.12.0 Section – 2 of Vol IB.~~



EPC Bidding Document

NLC India Limited  
NLC Talabira Thermal  
Power Project - 3x800 MW  
Jharsuguda, Odisha

**VOLUME: II-G/2  
PART-B  
SECTION-XIX  
GUIDELINE  
FOR  
SAFETY REQUIREMENTS FOR CONSTRUCTION WORKS**



Development Consultants Pvt. Ltd.

Vol. II-G2/Part-B/Section-XIX  
Safety Requirements for Construction Works

SECTION-B



## CONTENTS

CLAUSE NO.	DESCRIPTION	PAGE NO.
1.00.00	GENERAL	1
2.00.00	EXCAVATIONS	1
3.00.00	DEMOLITION	2
4.00.00	VEHICLE	4
5.00.00	SCAFFOLDING, GANGWAYS, LADDERS & SHUTTERING	4
6.00.00	MOBILE LIFTING APPLIANCES	6
7.00.00	RIVETTING, WELDING & GAS CUTTING & STEEL ERECTION	7
8.00.00	SAFETY APPLIANCES	9
9.00.00	ELECTRICAL	11
10.00.00	MISCELLANEOUS	12
11.00.00	REPORTING OF ACCIDENT	13
12.00.00	GENERAL SAFETY PROVISIONS FOR COOLING TOWER AND CHIMNEY	14
13.00.00	CHECK LIST FOR INSPECTION OF JUMP FORM SYSTEM	16



**VOLUME: II-G/2  
PART-B****SECTION-XIX****GUIDELINE  
FOR  
SAFETY REQUIREMENTS FOR CONSTRUCTION WORKS****1.00.00 GENERAL**

This specification deals with the subject matter of safety and protection to be observed in the Civil Construction. This shall be followed along with all related statutory requirements/obligation including Governmental byelaws, codes, ordinance of local or central authorities related to the construction work.

In case of complicated work like deep excavation, intricate shuttering and formwork, excavation in loose soil and below water table, stacking of excavated earth etc., work plan with necessary drawings and documents have to be prepared by the Bidder and got approved by the Engineer.

Necessary reference shall be made to the following Indian Standard Codes on safety requirements for various type of work :

**Indian Standard**

5916	Construction with Hot Bituminous Materials.
4130	Demolition of Buildings.
3764	Excavation Work
5121	Piling & Other Deep Foundations.
4014 - (P-II)	Scaffolding, Steel Tubular.
3696 –	
(P-I & P-II)	Scaffolds and Ladders.
6922	Structures Subject to Underground Blasts.
4756	Tunneling Work.
5499	Underground Air-raid Shelters in Natural Soil.
4138	Working in Compressed Air.
7293	Working with Construction Machinery
8989	Erection of Concrete Framed Structures.

**2.00.00 EXCAVATIONS**

2.01.00 Sides of all excavations must be sloped to a safe angle, not steeper than the angle of repose of the particular soil. If it is not possible to give a proper slope, the sides of the excavation where there is a danger of fall or dislodgement of earth or any material, shall be securely supported by timber or other type of shoring.







- 2.02.00 No excavation or earth work below the foundation level of an adjoining building shall be taken up unless adequate steps are taken to prevent damage to the existing structure or fall of any part.
- 2.03.00 Every accessible part of an excavation, pit or opening in the ground into which there is a danger of persons falling shall be suitably fenced with a barrier upto a height of one metre suitably placed from the edge of the excavation as far as practicable.
- 2.04.00 No material or load shall be placed or stacked near the edge of the excavation or opening in the ground. The excavated material shall not be placed within 1.5 m of the trench or half of the depth of the trench whichever is more.
- 2.05.00 Cutting shall be done from top to bottom. No undercutting of sides of excavation shall be allowed.
- 2.06.00 All narrow trenches 1.2 m or more depth, shall at all times be supplied with atleast one ladder for each 30m in length or fraction thereof. Ladder shall be extended from bottom of the trench to atleast one metre above the surface of the ground. The side of the trenches which are 1.5 m or more in depth shall be stepped back to give suitable slope, or securely held by planking, strutting and bracing so as to avoid the danger of side collapse.
- 2.07.00 Materials shall not be dumped against existing walls or partition to a height that may endanger the stability of the walls.
- 2.08.00 While withdrawing piled materials like loose earth, crushed stone, sand, etc., from the stock piles, no over hanging shall be allowed to be formed in the existing dump.
- 2.09.00 No material on any of the sites of work shall be so stacked or placed as to cause danger or inconvenience to any person or public or any other agency at work.

### **3.00.00 DEMOLITION**

- 3.01.00 On every demolition job, danger signs shall be conspicuously posted all round the structure and all doors, openings giving access to the structure shall be kept barricaded or marked except during the actual passage of workmen or equipment. However, provision shall be made for at least two independent exits for escape of workmen during any emergency.
- 3.02.00 During night, red lights shall be placed on or about all the barricades.
- 3.03.00 Where in any work of demolition it is imperative, because of danger existing to ensure that no unauthorised person shall enter the site of demolition outside working hours, a watchman shall be employed. In addition to watching





the site he shall also be responsible for maintaining all notices, lights and barricades.

- 3.04.00 All the necessary safety appliances as per IS ;4130 shall be issued to the workers and their use explained. It shall be ensured that the workers are using all the safety appliances while at work.
- 3.05.00 The removal of a member may weaken the side wall of an adjoining structure and to prevent possible damage, these walls shall be supported until such time as permanent protection is provided. In case any danger is anticipated to the adjoining structure the same shall be got vacated to avoid any danger to human life.
- 3.06.00 The power on all electrical service lines shall be shut off and all such lines cut or disconnected at or outside the property line, before the demolition work is started. Prior to cutting of such lines the necessary approval shall be obtained from the electrical authorities concerned. The only exception shall be any power line required for demolition work itself.
- 3.07.00 All gas, water, steam and other service lines shall be shut off and capped or otherwise controlled at or outside the building line, before demolition work is started.
- 3.08.00 All the mains and meters of the building shall be removed or protected from damage.
- 3.09.00 If a structure to be demolished has been partially wrecked by fire, explosion or other catastrophe, the walls and damaged roofs shall be shored or braced suitably.
- 3.10.00 Walkways and passage ways shall be provided for the use of the workman who shall be instructed to use them and all such walkways and passageways shall be kept adequately lighted, free from debris and other materials.
- 3.11.00 All nails in any kind of lumber shall be withdrawn, hammered or bent over as soon as such lumber is removed from the structure being demolished, and placed in piles for future cleaning or burning.
- 3.12.00 All the roads and open area adjacent to the work site shall either be closed or suitably protected.
- 3.13.00 No electric cable or apparatus which is liable to be a source of danger or a cable or apparatus used by the operator shall remain electricity charged.
- 3.14.00 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.





**4.00.00 VEHICLE**

- 4.01.00 No person shall board any vehicle or equipment when it is in motion.
- 4.02.00 Suitable blocks shall be placed against the wheels of a vehicle when it is used for tipping materials into excavation or a pit or over the edge of any embankment or earthwork to avoid the danger of its running over the edge.
- 4.03.00 All workers shall stand clear of the vehicle while it is dumping. If the material being dumped is very heavy or sticky, dump hooks shall be used or dumper shall be clamped to prevent any danger of its tripping.
- 4.04.00 Materials shall not be allowed to be loaded in a vehicle so as to project horizontally beyond the sides of the body of the vehicle. All materials projecting beyond the front or rear shall be indicated by a red flag in the day and with red light in the night.
- 4.05.00 Driver of the truck or any heavy vehicle shall not reverse it unless assisted by a signal man who shall have a clear view of the driver and the area beyond the truck during reversing operation.
- 4.06.00 Maximum speed of a heavy vehicle must not exceed 15 km. per hour.

**5.00.00 SCAFFOLDING, GANGWAYS, LADDERS & SHUTTERING**

- 5.01.00 For all work that cannot be done from the ground level or from part of any permanent structure or from other available means of support, soundly constructed scaffoldings of adequate strength shall be used as a safe means of access to places of work.
- 5.02.00 All scaffolding shall be securely supported or suspended and wherever necessary be properly braced to ensure stability.
- 5.03.00 Chains, ropes or other lifting materials used for the suspension of scaffoldings must be of adequate strength and shall be of tested quality.
- 5.04.00 All such chains and ropes used for the suspension of scaffoldings shall be properly fastened to safe anchorage points.
- 5.05.00 The platform of a suspended scaffolding shall be sufficiently wide. Suspended scaffolding shall have hand rail on 3 sides of about 1.0 m height.
- 5.06.00 All working platform and stages from which workers are liable to fall shall be of adequate width depending on the type of work done and closely boarded and planked.
- 5.07.00 Scaffolding or staging more than 3.5 m above the ground or floor, suspended from an overhead support or erected with stationary support shall have a guard rail properly attached, bolted, braced and otherwise secured at least 1



m high above the floor or platform of such scaffolding or staging and extending along the entire length of the outside ends thereof with only such opening 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. The platform shall also be provided with toe boards of at least 150 mm high so placed as to prevent the fall of materials and tools from there.

- 5.08.00 All platforms or gangways, runways and the stairs shall be kept free from unnecessary obstructions, materials or junk.
- 5.09.00 Working platforms, gangways & stairways shall be so constructed that they shall not sag unduly or unequally, and if the height of the platform or the gangway or the stairway is more than 3.5 m above ground level or floor level they shall be closely boarded, shall be of adequate width and shall be suitably fenced.
- 5.10.00 Every opening in the floor of a building or in a working platform shall be provided with suitable fencing or railing whose minimum height shall be 1 m to prevent the fall of persons or materials.
- 5.11.00 Every ladder shall be securely fixed at top and bottom. A ladder more than 5 m long shall have a prop.
- 5.12.00 All ladders used shall be of good construction, sound materials and adequate strength. Ladders with defective or missing rungs shall not be brought into use. The spacing of rungs shall not exceed 30 cm and these shall be recessed at least 12 mm into rails.
- 5.13.00 All ladders or rungs used for vertical height of more than 10 m shall have an intermediate landing. All such intermediate landings shall be provided with guard rails to a height of at least 1 m.
- 5.14.00 Every ladder shall be securely placed so that it cannot move either at the top or at the bottom and it shall rise to a height of at least 1.2 m above the place of landing.
- 5.15.00 No portable single ladder shall be over 8 m in length.
- 5.16.00 Spacing between the side rails of the ladder shall not be less than 300 mm for ladders up to 3 m in length. For longer lengths, this shall be increased at 6 mm for each additional 0.3 m of length.
- 5.17.00 Metal ladders must not be used for electrical work or near electric circuit of equipment.
- 5.18.00 All scaffolds, ladders and other safety devices mentioned or described herein shall be maintained in safe condition and no scaffold, ladder or equipment shall be altered or removed while it is in use.

5.19.00 Unfinished scaffolding which is under construction shall be prominently marked as unsafe and any access points shall be closed.

5.20.00 All Planking and Decking on walkways and scaffolds shall be adequately supported at each end of the plank and intermediately if necessary. Planks shall not be allowed to cantilever beyond the last support but shall be overlapped if necessary on to the next plant.

5.21.00 Shuttering

The above remarks shall be applicable for this also. Shuttering, particularly for slabs, shall be treated as a scaffold. Unfinished shuttering shall be marked as dangerous similarly the finished formwork shall be adequately supported, care being taken to avoid trap door effects.

## **6.00.00 MOBILE LIFTING APPLIANCES**

6.01.00 No mobile lifting appliances shall used on a sloping surface unless adequate precautions are taken to ensure stability.

6.02.00 Adequate precautions shall be taken to see that jib of the mobile crane does not come in contact with overhead electric transmission line.

6.03.00 Only one person shall give signals to the operator of mobile lifting appliances.

6.04.00 Maximum load to be lifted by lifting appliances shall be marked in a position where it can be clearly seen by the crane driver and the operator.

6.05.00 No load shall be raised, lowered or suspended from a chain or rope having a knot in any of the part.

6.06.00 No chain which is joined to another chain by means of bolt and nut shall be used for raising, lowering or suspending any load.

6.07.00 All chains, ropes and lifting gears shall be carefully examined and tested by a competent Maintenance Engineer at least once in every quarter.

6.08.00 When the work is stopped or when the mobile lifting equipment is not in operation, the boom must be lowered to the horizontal position and tied securely in place to prevent accidental drop.

6.09.00 No person shall walk under a load which is swinging by a lifting equipment.

Guide rope must be attached to the load to prevent its swinging.

6.10.00 The foot blocks of the crane before starting work shall be securely supported and firmly anchored to prevent its movement in any direction.

6.11.00 Use of Hoisting machines and tackle including their attachments, anchorage and supports shall conform to the following standards of condition.



- 6.11.01 These shall be of good mechanical construction, sound material and adequate strength and free from defect and shall be kept in good working order.
- 6.11.02 Every rope used in hoisting or lowering materials or as a means of suspension shall be of durable quality and adequate strength and free from patent defects.
- 6.11.03 Every crane driver or hoisting appliance operator shall be properly qualified and no person under the age of 21 years shall be in charge of any hoisting machine or give signals to the operator.
- 6.11.04 In case of every hoisting machine and 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 gears referred to above shall be plainly marked with the safe working load. In case of hoisting machine having a variable safe working loading, each safe working load of the conditions under which it is applicable shall be clearly indicated. No part of any machine or of any gear referred to above in this paragraph shall be loaded beyond the safe working load except for the purpose of testing. Mobile cranes shall have the working load and the radius of jib for the load marked on it.
- 6.11.05 The top pulley for hoisting a load shall be opened monthly and the spindle inspected to see if any undue wear has taken place and for greasing.
- 6.11.06 In case of departmental machine, the safe working load shall be notified by the Engineer concerned. As regards bidder's machines the Bidder shall notify the safe working load of the machine to the Engineer whenever he brings any machinery to site of work and get it verified by the Engineer concerned.
- 6.12.00 Motors, gearing, transmission, electric wiring and other dangerous part of hoisting appliances shall be provided with efficient safeguards. Hoisting appliances shall be provided with such means as shall reduce to the minimum, the risk of accidental descent of the load. Adequate precautions shall be taken to reduce to the minimum, risk of any part of a suspended load becoming accidentally displaced.

## **7.00.00 RIVETTING, WELDING & GAS CUTTING & STEEL ERECTION**

### **7.01.00 Rivetting**

- 7.01.01 Bolts covered with wet or slippery compounds shall not be used in fabricating structural work.
- 7.01.02 The rivet heater must keep the rivet heating equipment as near as possible to the place of work.
- 7.01.03 A pail of water shall always be kept ready for quenching fire when stopping rivetting work.







- 7.01.04 Hot rivet shall not be thrown across aisles and shaftways.
- 7.01.05 Metal buckets for catching hot rivets must have false wooden bottoms to prevent rivets from rebounding.
- 7.01.06 All rivets, bolts, nuts, and other tools must be kept in boxes and not let loose, (For any further safety measures relevant Indian Standards and safety specifications of structural section shall be referred to).
- 7.02.00 Welding & Gas Cutting
- 7.02.01 All cylinders must be used and stored in upright position only.
- 7.02.02 Cylinders must be stored away from open flames and other source of heat.
- 7.02.03 Oxygen cylinders must not be stored near other cylinders containing gas or oil, grease or other combustible materials.
- 7.02.04 While the cylinder is in use, the cylinder valve key or wrench must be placed on the valve spindle.
- 7.02.05 Before a cylinder is moved, the cylinder valve must be closed.
- 7.02.06 Gas cutting torches must be lighted by means of friction flames or similar other methods and not with matches.
- 7.02.07 When torches are being changed or welding stopped for some time valves for all cylinders must be closed.
- 7.02.08 The coloured lenses used for welding or gas cutting must be of proper shade for the work being done.
- 7.02.09 Suitable eye protection equipment such as goggles, hand shields etc., must be used by persons engaged in welding or gas cutting operations.
- 7.02.10 Before any heavy structural member is gas cut, make sure that it is cleared and supported by ropes, cables, chains or any other means to prevent its dropping or swinging.
- 7.02.11 Cylinder valves and connections are not to be lubricated. All oily or greasy substances must be kept away from cylinders.
- 7.02.12 Substantial and incombustible screen must be used below or near the welding operations, if there is a possibility of a spark falling on other workmen engaged in work closely.
- 7.02.13 All air pipe lines and air hoses must be frequently inspected. Air hoses shall not be used for dusting or for cooling purposes.





- 7.03.00 Steel Erection
- 7.03.01 All persons shall stand clear when a crane is sorting or shifting steel girders or other structural materials.
- 7.03.02 No person shall stand, walk or work beneath any suspended load.
- 7.03.03 Guide rope must be used for guiding lifting loads.
- 7.03.04 When guiding a beam or fabricated structure or erection it shall be so held that the employees hands do not get jammed against other objects.
- 7.03.05 Safety belts equipped with suitable life lines must be used by persons working at heights and standing on structural members. Life line must be tied to an independent support. For any further safety measures, for Structural Steel Works, IS : 7205 shall be referred to.

**8.00.00 SAFETY APPLIANCES**

- 8.01.00 Workers employed on mixing asphaltic materials, cement and lime mortars, shall be provided with protective footwear and protective goggles.
- 8.02.00 Those engaged in white washing and mixing or stacking of cement bags or any materials which is injurious to the eyes, shall be provided with protective goggles.
- 8.03.00 Those engaged in welding works shall be provided with welder's protective eye-shields.
- 8.04.00 Stone breakers shall be provided with protective goggles and protective clothing and seated at sufficiently safe intervals.
- 8.05.00 When workers are employed in sewers and manholes which are in use, the Bidder shall ensure that the manhole covers are opened and chambers are ventilated atleast 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 boards to prevent accident to the public.
- 8.06.00 The Bidder shall not employ men below the age of 18 and women on the work of painting with products containing lead in any form. Whenever men above the age of 18 are employed on the work of lead painting the following precautions shall be taken :
- 8.06.01 No paint containing lead or lead products shall be used except in the form of paste or ready made paint.
- 8.06.02 Suitable face mask shall be supplied for use by them when paint is applied in the form of spray on a surface having lead paint dry rubbed and scraped.







- 8.06.03 Overalls shall be supplied by the Bidders to the workmen and adequate facilities shall be provided to enable the working painters to wash during the cessation of work.
- 8.07.00 The workers going into inspection chamber shall have gas masks, gum boots and rubber gloves while working inside. After coming out they shall have some disinfectant from the first aid box for proper washing
- 8.08.00 All necessary personnel safety equipment such as safety helmets, safety boots, safety belts, leather gloves for welders, clear glass safety goggles etc., as considered adequate by the engineer have to be kept available for the use of persons employed at the site of work and maintained in condition suitable for immediate use and Bidder shall take steps to ensure proper use of equipment by the workers.
- 8.09.00 All the persons entering the tunnel shall be provided with protective wear, such as helmets, steel toe safety shoe, gum boots or other suitable type of protective foot wear. In the case of steeply inclined tunnels and inshafts, safety belts shall also be provided.
- 8.10.00 Sign boards 1 x 1.5 m in size with the following wording shall be erected at the access to these areas. "CONSTRUCTION AREA, HELMET REQUIRED BEYOND THIS POINT"
- 8.11.00 No loose garments or ragged clothing shall be worn by the personnel engaged in tunneling operation.
- 8.12.00 A telephone system shall provided to ensure a positive and quick method of communication between all control location inside tunnel and portal of the tunnels when longer than 500 m and for shafts when longer than 50 m
- 8.13.00 Irrespective of length and bends in the tunnel, arrangements shall be made for transmitting of warning signals by any one of the following means.
- 8.13.01 By electrically operated bells, operated by battery/dry cells with the bell placed outside the tunnel and the position of the switch shifting with the progress of the tunneling work. The position of the operating switch although temporary shall be so chosen as to ensure proper accessibility and easy identification.
- 8.13.02 By the use of two field (magnet type) telephone.
- 8.13.03 Any other suitable arrangement like walkie-talkie.
- 8.14.00 Arrangement for rendering prompt and adequate first aid to the injured persons shall be maintained at every work site under the guidance of a medical officer-in-charge of the project. Depending upon the magnitude of the work the availability of an ambulance at a very short notice (at telephone call) shall be ensured.



- 8.15.00 First-aid arrangements commensurate with the degree of hazard and with the number of workers employed shall be maintained in a readily accessible place throughout the working hours. At least one experienced first-aid attendant with his distinguishing badge shall be available on each shift to take care of injured persons. Arrangements shall be made for calling the medical officer, when such a need may arise. It is recommended that foreman/assistant foreman/supervisor/ permanent workmen who are normally present at each working phase in each shift are given adequate training on first-aid methods to avoid employment of a separate attendant.
- 8.16.00 Stretchers and other equipment necessary to remove injured persons shall be provided at every shift.
- 8.17.00 Where there are more than 50 persons working in a shift, effective artificial respiration arrangements shall be provided, with trained men capable of providing artificial respiration.
- 9.00.00 ELECTRICAL**
- 9.01.00 Only authorised persons shall handle or otherwise interfere with electrical equipment. Any person detecting electrical apparatus being handled by an unauthorised person or equipment in unsafe condition must report the matter to the Engineer concerned.
- 9.02.00 No person shall work on any live electric conductor or apparatus and no person shall assist such person on such work, unless he is authorised in that behalf.
- 9.03.01 After isolating the equipment from the source of supply before the work begins, a sign 'DON'T SWITCH ON' must be hung on or near the switch to avoid its being accidentally or inadvertently switched on when persons are working.
- 9.03.02 Take out the fuses and keep in safe custody.
- 9.03.03 The switch may be locked if locking arrangement exists.
- 9.03.04 Earth the equipment, before work, to discharge it and short the terminals as a precautionary measure against accidental switching ON.
- 9.03.05 After the work is finished take out Earthing and shorting link.
- 9.03.06 Remove all tools and materials from the site of work. Replace the fuses and unlock the switch.
- 9.03.07 The switch shall only be put 'ON' by the person who switched it 'OFF' or by the person authorised by him in writing.

- 9.04.00 When working on live equipment use one hand only whenever possible, it is advisable to keep the other hand behind the back. Shocks from hand to hand are most dangerous.
- 9.05.00 All persons handling electrical gear in elevated position must use safety belts. Even a slight shock may cause loss of balance and fall.
- 9.06.00 No one shall attempt to extinguish a fire on or near a live electrical apparatus with water. Water is a good conductor of electricity. Use extinguishers wherever provided. Use sand and blankets etc., if available.
- 9.07.00 No person shall use any part of electrical equipment for storing or hanging clothes, umbrellas or other articles. Serious accidents occur from this practice.
- 9.08.00 For attending the work on O.H. lines or equipment use wooden ladders. Metallic ladders shall not be used.
- 9.09.00 Use insulated tools and ensure the insulation is in proper condition periodically at least once in three months. Use rubber gloves wherever possible.
- 9.10.00 As far as possible verbal instructions shall be avoided in case of pre-arranged shut-down of electrical apparatus.
- 9.11.00 When workers are employed for electrical installations which are already energised, insulating mats, wearing apparel such as gloves, sleeves and boots as may be necessary shall be provided. The workers shall not wear any rings, watches and carry keys or other materials which are good conductors of electricity.
- 10.00.00 MISCELLANEOUS**
- 10.01.00 The Bidder shall provide necessary fencing and lights to protect the public from accident.
- 10.02.00 Fire extinguishers adequate in number shall be kept by the Bidder at the site of works where there is risk of fire hazard.
- 10.03.00 Adequate washing facilities shall be provided near the place of work.
- 10.04.00 When the work is done near any place where there is risk of drowning, all necessary equipment shall be provided and kept ready for use and all necessary steps taken for prompt rescue of any person in danger and adequate provisions shall be made for prompt first aid treatment of all injuries likely to be sustained during the course of the work.
- 10.05.00 These safety provisions shall be brought to the notice of all concerned by displaying on a Notice Board at a prominent place at the work spot. The

persons responsible for compliance of the code shall be named therein by the Bidder.

- 10.06.00 To ensure effective enforcement of the rules and regulations relating to safety precautions, the arrangements made by the Bidder shall be open to inspection by the Engineer and Owner.
- 10.07.00 Notwithstanding the above clauses there is nothing in those to exempt the Bidder from the operations of any other Act or Rule in force in the Republic of India.
- 10.08.00 All storage, handling and use of flammable liquids shall be under the supervision of qualified persons. Flammable liquid shall not be stored inside the tunnel
- 10.09.00 All sources of ignition shall be prohibited in areas where flammable liquids are stored, handled and processed. Suitable warning and 'NO SMOKING' signs shall be posted in all such places. Receptacles containing flammable liquids shall be stacked in such a manner as to permit free passage of air between them.
- 10.10.00 All combustible materials shall be continuously removed from such areas where flammable liquids are stored, handled and processed. All spills of flammable liquids shall be cleared up immediately. Containers of flammable liquids shall be tightly capped.

#### **11.00.00 REPORTING OF ACCIDENT**

All accidents, major or minor must be reported immediately. The Bidder, shall provide first aid to the injured person immediately and the injured person shall report to the first aid station along with the 'INJURED ON WORK' form duly filled in quintuplicate and submit to the Medical Officer of the First Aid Station".

##### **Serious Injury**

In case of serious injury, the following procedure shall be adopted by the Bidder :

- 1). Provide First Aid at his own First Aid Station.
- 2). Take the injured person to the Hospital along with the "INJURED ON WORK" form duly filled in.
- 3). Reporting the accident to the Owner/Engineer by the Bidder.

##### **Fatal Accident**

Fatal accident must be reported immediately to the Engineer/Owner as well as to the Police.

## Penalty

Failure to observe the Safety Rules shall make the Bidder liable to penalty by way of suspension of work, fine and termination of bid.

### 12.00.00

## GENERAL SAFETY PROVISIONS FOR COOLING TOWER AND CHIMNEY:

There are numerous safety aspects to consider in construction; they are affected not only by the structural and environmental aspects of the form and scaffold system in use, but also by the strength and stability of the partially completed structure.

The early age of the concrete is a critical item and can control the rate of progress. Similarly, the design, manufacture, and installation of anchorages in the young concrete are important items. Jump form systems rely heavily on strengths of previous lifts to resist construction loads and moments; vertical slip forms do not typically apply eccentric loads to lifts below but are dependent on the strength of concrete at very early ages.

Training of personnel is important to the safe operation of any construction system. It is a critical item in the use of jump form and slip form systems. The sequencing and execution of the many procedures involved can affect the overall safety of the system, including the partially completed structure. The bidder shall implement safety inspection procedures which shall be part of the field records. Personnel shall be made aware of the interrelationships of the various system components and be cautioned as to the critical elements.

Access ways shall be available for use at all times, without restrictions caused by debris or other items. Alternate routes must be made available in the event normal access is interrupted. Ladders between work levels shall be secured and available at all times; access hatches shall be clearly marked and available at any time.

## CONSTRUCTION REVIEWS

Preconstruction reviews can be useful in acquainting jobsite personnel and other associated personnel with planned construction methods, form and scaffold systems, materials delivery systems, schedules, and overall operating procedures. Compliance officers can be informed of safety procedures to be in effect and notified of persons responsible for reporting. Preliminary discussions shall include basic construction procedures and schedules, as well as design loading criteria for the form and scaffold system. More specific procedures, schedules, and loads can be provided with design drawing submittals at a later time, but prior to starting construction.

Critical conditions or loads shall be clearly noted; key operations shall be denoted and appropriate safety measures put into effect.



Regular or periodic construction meetings can be effectively used to review progress of construction and to discuss changes to operating procedures, equipment, and/or personnel.

Specific bench marks shall be established for all key operations; these shall include, but not necessarily be confined to, minimum concrete strength for form removal, minimum concrete maturity, minimum size and number of anchor bolts, and their proper placement, sequence of operation, maximum deck loads, minimum size and number of scaffold connections, maximum concrete casting rates and size and spacing of form ties.

Inspections shall be adequate to assure the bench marks are being met. Job site records can be satisfactorily used to review many items. Some items will require detailed inspections to be performed.

There are a number of key factors influencing the overall structural integrity of moving formworks used in the construction of cooling towers and chimneys. The principal forming systems, which have been addressed in the respective sections, cannot be treated independently of the partially completed structure. The forms, scaffolds, moving mechanisms and the structure combine to form an interactive construction system in which the safety of individual components is affected by the design and operation of other components.

A working knowledge of the operational aspects of the systems will ensure meaningful field evaluation of system safety by compliance officers. Among critical safety items, the capacity of partially matured concrete to resist imposed construction loads with an adequate margin of safety shall receive foremost priority.

The minimum factor of safety shall be maintained at a level consistent with the design of concrete structures for occupancy loads for two important reasons.

First, service loads and fully developed concrete strength are more predictable than construction loads and the strength of concrete at early ages. Second, the consequences of a construction failure in terms of human casualties would be quite severe owing to the fact that moving form systems are generally well-populated and inherently limited in providing the exit ways for emergency evacuation of personnel in the event of structural distress.

In addition, where the partially cured concrete supports loads transmitted by scaffolds and other work platforms, its strength requirements shall be consistent with the safety factors prescribed by the construction safety regulations.

The compliance officer shall expect to find field records which will show, above all else, that the construction system is well-conceived and structurally sound with regard to the maintenance of a minimum factor of safety on component strengths. The engineer's records shall be sufficiently comprehensive to indicate, through a detailed set of specifications, critical







benchmarks for the movement of forms and imposition of loads on partially cured concrete.

The field logs shall show these bench marks are being met. The proper implementation of these items is the key requirement contained in regulations. Many of the safety hazards found in cooling tower and chimney construction are universal in application.

Access ways must be available at all times, without blockage by debris or other items. All structural connections of the scaffolding and forming systems must be sound and adequate for the intended loads. Any signs of distress in the system, such as cracking, peeling, bending, etc., shall be noted and remedial measures taken immediately. Structural engineering consultants may be needed in the evaluation of certain moving form systems which incorporate relatively complex mechanisms (such as catheads used in conjunction with flexible cables to transport concrete to the top of the tower) capable of producing extraordinary loads on the partially matured concrete structure.

### 13.00.00 CHECK LIST FOR INSPECTION OF JUMP FORM SYSTEM

#### REFERENCE DOCUMENTS

#### REVIEWED

Tower drawings  
Formwork drawings  
Formwork calculations  
Sequence of moving cycle  
Criteria for form movement  
Concrete records  
Material test records  
Maintenance records

GENERAL		YES	NO
Concrete Anchorages Access ways Forms	Overall formwork condition adequate	-----	-----
	Routine maintenance performed	-----	-----
	Regular inspections performed:		
	-----	-----	-----
	-----	-----	-----
	-----	-----	-----
	-----	-----	-----
	-----	-----	-----
	Training provided for personnel	-----	-----
	Form movement criteria observed	-----	-----
	Signs of overload or structural distress	-----	-----
	If answer is yes, explain further.		





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CONCRETE	DESIGN	OBSERVED
28-day compressive strength	-----	-----
Max. slump, in.	-----	-----
Max. water/cement ratio	-----	-----
Min. compr.str. for form movement	-----	-----
Min. comp. str. for placing concrete in succeeding lift	-----	-----
General Comments:		

---

ANCHORAGES	DESIGN	OBSERVED
Design working load (in concrete, with safety factor)	-----	-----
-		
Shear	-----	-----
Tension	-----	-----
Nominal size of embedment	-----	-----
Nominal size of anchor bolt	-----	-----
Min. anch.bolts per strongback	-----	-----
General Comments:		

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ACCESS/EGRESS	DESIGN	OBSERVED
Level 1 (Top) scaffold (..... simple..... braced..... Cantilevered)		
Live load	-----	-----
Spacing of scaffold brackets	-----	-----
Nom.bolt sizes	-----	-----
Level 2 Scaffold (..... Simple..... braced..... cantilevered)		
Live load	-----	-----
Spacing of scaffold brackets	-----	-----
Nom. bolt sizes	-----	-----
Level 3 Scaffold (..... simple..... braced..... cantilevered)		
Live load	-----	-----
Spacing of scaffold brackets	-----	-----
Nom. bolt sizes	-----	-----
Level 4 Scaffold {..... simple..... ..braced..... cantilevered)		







## EPC Bidding Document

NLC India Limited  
NLC Talabira Thermal  
Power Project - 3x800 MW  
Jharsuguda, Odisha

Live load -----  
Spacing of scaffold brackets -----  
Nom. bolt sizes -----  
Miscellaneous Comments:  
Ladders: \_\_\_\_\_  
Stairs: \_\_\_\_\_  
Elevators: \_\_\_\_\_  
Guardrails: \_\_\_\_\_  
Toe boards: \_\_\_\_\_  
Maintenance: \_\_\_\_\_  
General Comments: \_\_\_\_\_

HOISTING SYSTEM	DESIGN	OBSERVED
-----------------	--------	----------

Main hoist line		
Min. sheave size	-----	-----
Min. line size	-----	-----
Static line		
Min. sheave size	-----	-----
Min. line size	-----	-----
Max. tension	-----	-----
Max. hoist load	-----	-----
General Comments:		

RAISERS	YES	NO
---------	-----	----

Mechanical components checked regularly	-----	-----
Safety mechanism operating properly	-----	-----
Regular maintenance performed	-----	-----
General Comments:		

### CHECK LIST FOR INSPECTION OF SLIP FORM SYSTEM

REFERENCE DOCUMENTS	REVIEWED
Chimney / silo drawings	-----
Formwork drawings	-----
Formwork calculations	-----
Criteria for slipping rate	-----
Concrete records	-----
Material test records	-----
Maintenance records	-----





## EPC Bidding Document

NLC India Limited  
NLC Talabira Thermal  
Power Project - 3x800 MW  
Jharsuguda, Odisha

GENERAL	YES	NO
Overall formwork condition adequate	-----	-----
Routine maintenance performed	-----	-----
Regular inspections performed	-----	-----
Concrete	-----	-----
Climbing rods	-----	-----
Anchorage	-----	-----
Access ways	-----	-----
Forms	-----	-----
Training provided for personnel	-----	-----
Form slipping criteria observed	-----	-----
Signs of overload or structural distress	-----	-----
If answer is yes, explain further	-----	

CONCRETE	DESIGN	OBSERVED
28-day compressive strength-----	-----	-----
Max. slump in.	-----	-----
Max. water/cement ratio	-----	-----

CLIMBING RODS	DESIGN	OBSERVED
Diameter of rods	-----	-----
Unbraced length	-----	-----
Dist between climbing rods	-----	-----
General Comments:	-----	

ANCHORAGE (climbing mast system)	DESIGN	OBSERVED
Design working load (in concrete, with safety factor) -----	-----	-----
Shear	-----	-----
Tension	-----	-----
Nominal size of embedment	-----	-----
Nominal size of anchor bolt	-----	-----
General Comments:	-----	

ACCESS/EGRESS	DESIGN	OBSERVED
Main work deck Live load, psf	-----	-----
Level I (TOP) scaffold (..... ..simple..... ..braced..... ..cantilevered)		
Live load	-----	-----
Spacing of scaffold brackets	-----	-----
Nom. bolt sizes	-----	-----
Level 2 scaffold (... simple..... ..Braced..... ..cantilevered)		
Live load	-----	-----
Spacing of scaffolds brackets	-----	-----





## EPC Bidding Document

NLC India Limited  
NLC Talabira Thermal  
Power Project - 3x800 MW  
Jharsuguda, Odisha

Nom. bolt sizes \_\_\_\_\_

Level 3 scaffold [..... simple.....Braced.....cantilevered)

Live load \_\_\_\_\_

Spacing of scaffold brackets \_\_\_\_\_

Nom. bolt sizes \_\_\_\_\_

Miscellaneous Comments:

Ladders: \_\_\_\_\_

Stairs: \_\_\_\_\_

Elevators: \_\_\_\_\_

Guardrails: \_\_\_\_\_

Toe boards: \_\_\_\_\_

Maintenance: \_\_\_\_\_

General Comments: \_\_\_\_\_

YOKES/HYDRAULIC JACKS YES NO

Level controls \_\_\_\_\_

adequate Safety mechanisms \_\_\_\_\_

operating properly \_\_\_\_\_

Regular maintenance performed \_\_\_\_\_

General Comments: \_\_\_\_\_



## FACILITIES IN THE SCOPE OF CONTRACTOR/ BHEL (SCOPE MATRIX)

Sl. No	Description  PART I	Scope		Remarks
		BHEL	Bidder	
<b>3.1</b>	<b>Establishment:</b>			
<b>3.1.1</b>	<b>For Construction Purpose:</b>			
a	Open space for office (as per availability within project premises)	Yes		Free of cost as provided by NLCIL on as is where is basis
b	Open space for storage (as per availability within project premises)	Yes		Free of cost as provided by NLCIL on as is where is basis
c	Construction of bidder's office, canteen and storage building including supply of materials and other services		Yes	
d	Bidder's all office equipment, office / store / canteen consumables		Yes	
e	Canteen facilities for the bidder's staff, supervisors and engineers etc.		Yes	
f	Firefighting equipment like buckets, extinguishers etc.		Yes	
g	Fencing of storage area, office, canteen etc. of the bidder		Yes	
h	Development of land provided for office, storage, fabrication yard, etc.		Yes	
<b>3.1.2</b>	<b>For living purpose of the bidder:</b>			
a	Open space for labour colony		Yes	Space to be arranged by Bidder at his own cost and make his own arrangements for shelter and transportation of laborers as per requirement.
b	Labour Colony with internal roads, sanitation, complying with statutory requirements		Yes	
<b>3.2</b>	<b>Electricity:</b>			
<b>3.2.1</b>	<b>Electricity for construction purposes</b>			On chargeable basis. Refer clause 3.11
a	Single point source (In general) For detail, refer clause no. 3.11	Yes		
b	Further distribution for the work to be done which include supply of materials and execution		Yes	At bidder's own cost

Sl. No	Description  PART I	Scope		Remarks
		BHEL	Bidder	
c	Distribution of Electricity for the office, stores, canteen, of the bidder which include supply of materials and execution		Yes	At bidder's own cost
d	Supply, installation and connection of energy meter including operation and maintenance		Yes	At bidder's own cost. Calibration certificate to be provided
e	Duties and deposits including statutory clearances for the above		Yes	At bidder's own cost
f	Demobilization of all the facilities after completion of works		Yes	At bidder's own cost
3.2.2	<b>Electricity for living accommodation for the bidder's staff, engineers, supervisors, labour Hutment etc.</b>			
a	Single point source		Yes	At bidder's own cost
b	Further distribution including all materials, Energy Meter, Protection devices and its service		Yes	At bidder's own cost
c	Payment/Duties and deposits including statutory clearances if applicable		Yes	At bidder's own cost
3.3	<b>Water Supply:</b>			
3.3.1	<b>For construction purposes:</b>			<b>Contractor to draw water from Bhedan river</b>
a	Making the water available at single point		Yes	
b	Further distribution as per the requirement of work including supply of materials and execution		Yes	
3.3.2	<b>Water supply for bidder's office, stores, canteen etc.</b>			<b>Contractor to draw water from Bhedan river</b>
a	Making the water available at single point		Yes	
b	Further distribution as per the requirement of work including supply of materials and execution		Yes	
3.3.3	<b>Water supply for Living Purpose</b>			<b>Contractor has to make his own arrangement</b>
a	Making the water available at single point		Yes	

Sl. No	Description  PART I	Scope		Remarks
		BHEL	Bidder	
b	Further distribution as per the requirement of work including supply of materials and execution		Yes	
<b>3.4</b>	<b>Lighting</b>			
a	For construction work (supply of all the necessary materials) 1. At office/storage area 2. At the preassembly area 3. At the construction site /area		Yes	
b	For construction work (execution of the lighting work/ arrangements) 1. At office/storage area 2. At the preassembly area 3. At the construction site /area		Yes	
c	Providing the necessary consumables like bulbs, switches, etc. during the course of project work		Yes	
d	Lighting for the living purposes of the bidder at the colony / quarters		Yes	
<b>3.5</b>	<b>Communication facilities for site operations of the bidder</b>			
a	Telephone, fax, internet, intranet, e-mail , etc.		Yes	
<b>3.6</b>	<b>Demobilization of all the above facilities</b>		Yes	
<b>3.7</b>	<b>Erection Facilities</b>			
3.7.1	Engineering works for construction:			
a	Providing the erection/constructions drawings for all the scope/equipment covered under this scope		Yes	
b	Drawings for construction methods		Yes	In consultation with BHEL
c	As-built drawings where ever deviations observed and executed and also based on the decisions taken at site		Yes	Changes are to be marked in drawing & handover to BHEL on completion of work.
d	Preparation of site execution schedules and other input requirements as per Form-14.	Yes	Yes	In consultation with BHEL

Sl. No	Description  PART I	Scope		Remarks
		BHEL	Bidder	
e	Review of performance and revision of site execution schedules in order to achieve the end dates and other commitments	Yes	Yes	In consultation with BHEL
f	Weekly construction / erection schedules based on Sl. No. d		Yes	In consultation with BHEL
g	Daily work plan based on Sl. No. d		Yes	In consultation with BHEL
h	Periodic visit of the senior official of the bidder to site to review the progress so that works is completed as per schedule. It is suggested this review by the senior official of the bidder should be done once in every two months.		Yes	

<b>3.8</b>	<b>Land/Open Space:</b>
<b>3.8.1</b>	Availability of land within plant boundary is very limited and the contractor has to plan and use the existing land considering the use of land by other Civil /mechanical/ electrical contractors and the storage of plant machineries and materials. The existing land shall be shared by all erections agencies. BHEL shall provide free of charge limited open space inside or outside the proposed plant boundary for office, storage shed and laydown area as and where made available by Customer. It is the responsibility of the contractor to construct sheds, fabrication yard, establish batching pant, provide all utilities and dismantle and clear the site after completion of work or as and when required, as a part of his scope of work.
<b>3.8.2</b>	Contractor shall maintain one centralized store cum bar bending yard at his own cost. Hard surfacing of this yard and all round drain shall be carried out by the contractor at his own cost within the quoted rate. The construction of cement storage sheds for unloading of cement bags, stacking properly in the storage sheds drain shall be carried out by the contractor at his own cost within the quoted rate.
<b>3.8.2</b>	Security of stores & work place shall be in Contractor's scope.
<b>3.8.3</b>	On completion of work, all the temporary buildings, structures, pipe lines, cables etc. shall be dismantled and leveled and all debris shall be removed as per instructions of BHEL by the contractor at his cost. In the event of his failure to do so, the expenditure towards clearance of the same will be recovered from the contractor. The decision of BHEL Engineer in this regard is final.
<b>3.9</b>	<b>Labour and Staff Colony:</b> <b>Following are in the Bidder's scope of work for labour &amp; staff colony:</b>
<b>3.9.1</b>	BHEL shall not provide any space or residential accommodation to the contractor for his staff or labour and the contractor has to make his own arrangements at his cost. Labour colony is to be developed by bidder for all the labourers required to be deployed for the works. Bidder has to identify the land for labour colony at their cost and no land will be given by BHEL for labour colony purpose. The contractor to develop/ construct labour colony/ hutment fulfilling the minimum requirements as



	<p>specified in the “HSE Plan for Site Operations by Subcontractors” enclosed along with this tender as well as meeting the statutory norms.</p> <p>Ownership of the labour hutment shall be of the contractor and contractor shall keep BHEL indemnified from any statutory obligations/ legal compliances w.r.t. labour hutment establishment during as well as after the completion of contract.</p>
<b>3.9.2</b>	Land for labor colony shall be arranged by Contractor at their own cost as per availability outside project area. Necessary levelling/ dressing of land shall be done by the contractor. All arrangement for electricity and drinking/service water to be arranged by the contractor within his quoted price. The contractor shall provide adequate water arrangement for drinking/ washing/ bathing with required toilets, drainage system, and electrification etc. in labour colony at his own cost.
<b>3.9.3</b>	Development of Bidder’s temporary staff colony and labour colony having adequate no. of rest rooms along with toilets & fencing etc.
<b>3.9.4</b>	All Civil and Structural work associated with drinking and service water for Bidder’s labour and other personnel at the work site/colony/offices including pump houses, pipes, overhead tank, tube wells etc.
<b>3.9.5</b>	Providing and maintaining facilities for safety, welfare, drinking water and sanitation, hygiene, biennial health check-up etc. for construction workers at their workplaces as well as at labour & staff colonies.
<b>3.9.6</b>	Development and maintenance of above facilities for construction workers deployed by the Contractor shall solely rest with the Contractor.
<b>3.10</b>	<p>Installation of necessary amenities- and temporary infrastructure for construction activities at Project site locations.</p> <p>Following are the minimum amenities to be provided by the bidder within the quoted price including removal/disposal of the same in environment friendly manner after its intended use/completion of scope of work:</p> <ul style="list-style-type: none"> <li>i. Labour rest sheds near work spot.</li> <li>ii. Canteen facility creation.</li> <li>iii. Drinking water facility.</li> <li>iv. Labour Bio toilets near work spot in sufficient nos. with regular cleaning &amp; maintenance arrangement.</li> <li>v. Labour colony should have all hygienic condition, dining hall, toilets, proper sewerage system, good drinking water arrangements.</li> </ul>
<b>3.11</b>	<b>Construction Power:</b>
<b>3.11.1</b>	Construction power (three phase, 415V/440V) will be provided to the contractor on chargeable basis at one single point by BHEL. The contractor shall make his own arrangement for further distribution with necessary isolator/LCB etc.

<b>3.11.2</b>	In general, Construction power will be provided to the contractor on chargeable basis at one single point. However, based on request of Contractor and requirement of project, BHEL Site in charge, at his discretion, may provide construction power at multiple point, if feasible. If, BHEL provides electricity at more than one point, it will be responsibility of the contractor to provide all the support necessary for enabling BHEL for extending such provision to contractor.
<b>3.11.3</b>	Contractor to note that BHEL shall complete the arrangements for Construction Power Supply after about nine months from the commencement of contract period. However, in the meantime, BHEL will also make alternate temporary arrangements to provide Construction Power Supply to contractor.  Till such arrangement is made by BHEL, the contractor should make his own arrangement for alternative source of power supply through deployment of adequate number of DG sets/usage of diesel operated machines, at their cost. No separate payment shall be applicable for this.
<b>3.11.4</b>	Further, as there are bound to be interruptions in regular power supply, power cut/load shedding as in any construction sites, contractor should make his own arrangement for alternative source of power supply through deployment of adequate number of DG sets/usage of diesel operated machines, at their cost during the power breakdown /failure to get urgent and important work to go on without interruptions. No separate payment shall be made for any contingency arrangement made by contractor, due to delay / failure in providing electricity.
<b>3.11.5</b>	The Construction Power consumed by the contractor shall be chargeable based on prevalent rate of DISCOM (OERC guidelines). The existing rates are provided below:  Demand Charge: Rs.250/KVA/ Month  Energy Charge:  For Load Factor $\leq 60\%$ : 585.00 Paise/kVAh  For Load Factor $> 60\%$ : 475.00 Paise/kVAh
<b>3.11.6</b>	The above rates are indicative only. This rate may vary from time to time and the prevailing rates during execution shall be applicable.
<b>3.11.7</b>	Any duty, deposit involved in getting the Electricity shall be borne by the bidder.
<b>3.11.8</b>	The contractor has to Provide necessary meter for measuring the power consumption. In case of any dispute, BHEL engineer's decision shall be final and binding on contractor. The meter used by the contractors shall be duly calibrated.
<b>3.11.9</b>	Necessary "Capacitor Banks" to improve the Power factor to a minimum of 0.9 shall be provided by the contractor at his cost. On account of the contractor's failure in maintaining the power factor as required by customer, penalty if any, levied by customer will be recovered from contractor's bills.
<b>3.11.10</b>	The contractor shall make his own arrangement for further distribution of power, taking due care of surrounding construction activities like movement of cranes & vehicles, civil work, fabrication/construction/assembly/ erection etc. and safety of personnel. Sometimes it may become necessary to relocate some of the installations to facilitate work by other agencies or by him.  Distribution of supply shall be done by the contractor using underground cables. The contractor shall be responsible to provide complete LT distribution with Fuseless system including the supply of all materials like cables, necessary isolators/LCB, Switch boards, industrial receptacles/sockets, pipes,

	<p>etc. observing the safety rules laid down by electrical authority of the State / BHEL / their customer with appropriate statutory requirements.</p> <p>All cables being used for construction power shall be armoured only. Buried cable shall be suitably identified by the route markers.</p>
3.11.11	BHEL is not responsible for any loss or damage to the contractor's equipment as a result of variations in voltage / frequency or interruptions in power supply.
3.11.12	Contractor has to make their own arrangements for electricity requirement for labour colony at his own cost.
3.12	<b>Construction water:</b>
3.12.1	Construction Water (Raw water) required for site requirements shall be drawn from the Bhedan river at a point identified by Contractor and approved by BHEL Engineer in charge. The required pumps & accessories, pipes for drawing water from the given point and for further distribution shall be arranged by the contractor at their cost to ensure supply of water without interruptions. No extra payment shall be made under this account.
3.12.2	The Contractor should make arrangements for storage of sufficient quantity of water required for work. The agency should also construct sumps (if required) of suitable size for storage of construction water as per their requirement for use for execution and construction purposes.
3.12.3	Contractor to satisfy himself that the water drawn by him is fit for construction/ consumption and adequately treat such water at his cost when it is not found fit for the said purposes.
3.12.4	In case of non-availability of water, the contractor shall make his own arrangements of water suitable for construction purpose to have uninterrupted work. No separate payment shall be made for any contingency arrangement made by contractor.
3.12.5	BHEL shall establish pumping system for drawing water from Bhedan river for Construction purposes. On establishment of the system, Contractor shall draw water from BHEL's single point source for water supply. All Necessary pumps & accessories, pipes for drawing water from the given point and for further distribution shall be arranged by the contractor only at their cost.
3.13	<b>RECORDS TO BE MAINTAINED AT SITE</b>
3.13.1	Record of Quantity of free/Chargeable items issued by BHEL must be maintained during contract execution. Also reconciliation statement to be prepared at regular intervals

<b>3.13.2</b>	<p>The below mentioned Records/ Log-books/ Registers applicable to be maintained.</p> <ol style="list-style-type: none"> <li>1. Hindrance Register.</li> <li>2. Site Order Book.</li> <li>3. Test Check of measurements.</li> <li>4. Steel &amp; Cement Supply and Consumption Daily Register</li> <li>5. Records of Test reports of Field tests.</li> <li>6. Records of manufacture's test certificates.</li> <li>7. Records of disposal of soil/ rock generated during and after the work completion.</li> <li>8. Records of disposal of scraps generated during and after the work completion.</li> <li>9. List of T&amp;Ps and MMEs</li> </ol>
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## ISSUE OF MATERIALS

1. Cement and Reinforcement Steel required for the tender scope shall be procured by BHEL and issued to contractor free of cost (FOC) as FOC item. However, unloading, handling/ storage of Cement Reinforcement steel procured by BHEL for this tender scope at site, Contractor's Stores, issuance of materials from BHEL Stores and further transportation from Stores to work area (including loading and unloading) will be in the scope of contractor. No Extra payment shall be made for this work.
2. The contractor shall take care of material issued by BHEL and shall protect the same from damage and weathering.
  - a) The cement shall be provided normally in bulkers and shall be unloaded in the silos to be installed by the bidder nearer to their batching plants. In cement supplies in bags, Contractor shall construct waterproof cement store for storing and stacking of cement issued by BHEL. Cement has to be kept over wooden raised platform. Stacking of cement is to be done as per IS codes with proper illumination and locking arrangements.
  - b) All TMT shall be stacked diameter wise over sleepers

Clotting of cement and excessive rusting of steel must be avoided. In case, due to lack of preservation on the part of contractor, rusting of steel (issued by BHEL)/ clotting of cement (issued by BHEL) takes place rendering the same unusable, then cost of such quantity of steel/ cement shall be recovered from the interim payment at the penal rate specified in the tender.

2. The contractor shall maintain proper store account for all the BHEL issued materials and shall submit once in every month reconciliation statement of such account to the BHEL along with RA bill.
3. The contractor shall in no case be entitled for any compensation on account of any delay in supply or non-supply thereof for all or any such materials. However, in case of non-availability of any specific material / section(s) which delays the completion of work, such cases shall be recorded separately in monthly planning format (F14) and shall be considered for time extension of contract.
4. Contractor shall also carryout in complete association with BHEL, the material management functions and execution like day-to-day update of materials, issued to contractor, accounting for surplus/scrap material returned etc.
5. The contractor shall solely be responsible for the safety & security of material after it is handed over and issued to contractor by the BHEL.
6. BHEL reserves the right to recover from the contractor any loss of material issued by BHEL arising out of damage/ theft or any other causes during verification/stacking or at any time under the custody of the contractor.
7. BHEL issued materials, shall not be under any circumstances whatsoever, and shall be taken out of the project site unless otherwise permitted by BHEL.

## MATERIAL HANDLING, STORAGE AND PRESERVATION ETC.

1.0	<b>MATERIAL HANDLING AND STORAGE</b>
1.1	All the equipments/ materials furnished under this contract shall be received from the project stores, sheds / storage yards and transported to pre assembly area / erection site and stored in the storage spaces in a manner so that they are easily retrievable till the contractor erects them. <b>While drawing/ lifting material from BHEL stores, the contractor shall ensure that the balance/ other materials are stacked back immediately. No claim is admissible on this account</b>
1.2	While BHEL will endeavor to store / stack / identify materials properly in their open / close / semi closed / tarpaulins covered storage yard / shed, it shall be contractor's responsibility to assist BHEL in identifying materials well in time for erection. They should take the delivery of the same, following the procedure indicated by BHEL, and transport the material safely to pre-assembly yard / erection site in time, according to program.
1.3	The contractor shall take delivery of Construction material from storage area after getting the approval of BHEL Engineer on standard indent forms. All the construction material shall be handled carefully by contractor to prevent any damage or loss.
1.4	The contractor shall identify and deploy necessary Engineers / supervisors / workmen for the above work in sufficient number as may be needed by BHEL, for areas covering their scope.
1.5	All the equipment shall be handled very carefully to prevent any damage or loss. No untested wire ropes / slings etc. shall be used for unloading / handling. Valid fitness/load test certificate need to be submitted before execution of erection/lifting/handling work. The equipment shall be properly protected to prevent damage either to the equipment or to the floor where they are stored.
1.6	Contractor shall ensure that while lifting slings shall be put over the points indicated on the structure/ erection component or as indicated in the manufacturer's drawings. Slings / shackles of proper size shall be used for all lifting and rigging purposes. All care shall be taken to safe guard the materials against any damage. Dragging of materials should be avoided. In case of any damage the cost shall be recovered from the contractor, for those structure/ erection component which are issued, stored, erected by contractor.
1.7	Approach road conditions from the stores / yards to the erection/ construction site may not be equipped and ideal for smooth transportation of the material. Contractor may have to be adequately prepared to transport the materials under the above circumstances without any extra cost. The contractor may familiar himself with soil conditions at site.
1.8	Contractor shall be responsible for examining all the plant and materials issued to him and notify the Engineer immediately of any damage, shortage, discrepancy etc. before they are moved out of the stores / storage area. The contractor shall be solely responsible for any shortages or damages in transit, handling, storage, theft and erection of the material once received by him. Materials once taken over will be deemed to have been received in good condition and in correct quantities except for intrinsic defects which cannot be observed by visual and dimensional inspection and weighing. As the erection work will be spread in different areas / locations of the project, contractor has to arrange sufficient number of watch / ward personal to avoid any pilferage of materials which are under custody of the contractor.
1.9	The contractor shall maintain an accurate and exhaustive record-detailing out the list of all equipment received by him for the purpose of erection and keep such record open for the inspection of the engineer at any time.

1.10	All the material in the custody of contractor and stored in the open or dusty locations must be covered with suitable weather proof/ fire retardant covering material wherever applicable and shall be stacked up on raised level above ground. All covering materials including blocks and sleeper shall be arranged by the contractor at his cost.
1.11	If the material belonging to the contractor are stored in area other than those earmarked for his operation the engineer will have the right to get it moved to the area earmarked for the contractor at the contractor's risk and cost.
1.12	The contractor shall be responsible for making suitable indoor storage facilities to store all material & equipment (drawn by the contractor from BHEL / customer stores), which require indoor storage till the time of their utilization. The Engineer will direct the contractor in this regard, which item in his opinion will require indoor storage, and the contractor shall comply with Engineer's decision.
1.13	All materials issued by BHEL shall be utilized as directed by Engineer-in-Charge or most economically in the absence of such direction. The contractor shall ensure that all surplus / damaged / scrap / unused material, packing wood / containers/ special transporting frames etc. are returned to BHEL at a place in project area identified by the Engineer. The contractor will maintain an account for all items received and returned to BHEL. Any shortage in returning such items shall be chargeable to the contractor except allowable wastage as specified in SCC/TCC.
1.14	The contractor shall hand over all parts / materials remaining extra over the normal requirement with proper identification tags to the stores as directed by the concerned BHEL engineer.
1.15	It shall be the responsibility of the contractor to keep the work / storage areas in neat, tidy and working conditions. All surplus/unusable packing and other materials shall be removed and deposited at location(s) specified by BHEL within the project premises. If required weighing of the same within the project premises will have to be carried out.
2.0	<b>PRESERVATION OF COMPONENTS</b>
2.1	After taking delivery from BHEL stores, materials storage shall be subjected to the following protection besides other provisions indicated in these specifications elsewhere.
2.1.1	Items stored outdoors shall be stacked up at least six inches (6") off the ground. Items should not be stored in a low lying area where water logging is a possibility. Contractor should have sufficient numbers of wooden / concrete / steel sleepers for the job.
2.2	The contractor shall effectively protect the finished work from action of weather and from damage or defacement and shall cover the finished parts then and there for their protection.
2.3	Any failure on the part of contractor to carry out works according to above clauses will entail BHEL to carry out the job from any other party and recover the cost from contractor.
3.0	<b>HANDLING OF MATERIALS ISSUED BY BHEL:</b>
3.1	Materials shall be issued by BHEL based on the weighment basis/linear measurements & sectional weight. However, on specific request of the contractor <b>"as a special case to expedite the job"</b> the consignment received at BHEL stores can directly be diverted to the work site following issuance procedure of BHEL. Quantity of such direct issues shall be as per the Challan/dispatch document/LR received with the consignment. In such cases, Contractor shall do unloading of materials from trucks/lorry at their own cost.

3.2	<p>All materials issued by BHEL shall be stacked, stored above ground level <b>by use of concrete or wooden sleepers. No materials shall remain on ground at any time.</b> All concrete or wooden sleepers required for stacking the materials shall be arranged by contractor (successful bidder of this package) at his own cost within the quoted rates. All other equipments like winches, D-Shackles, slings of various sizes, max puller, pulley blocks, jacks, trucks, trailers etc. required for such handling of steel from BHEL stores/storage yard etc. shall be arranged by contractor within quoted/accepted rates.</p> <p>All materials stored by contractor shall be in accordance to standards/specifications and instruction of BHEL. Utilization of these material shall also be done in such a manner so that wastage on account of long storage/storage beyond shelf life can be avoided. Any loss/damage of material on this account will be attributable to the contractor.</p>								
3.3	<p>The contractor shall take delivery of the materials from the designated place within the project premises at his own cost and store the same at his stores as per standard norms. Open land for such purposes as available shall be provided by BHEL on free of cost basis. Temporary barbed wire fencing of the open storage yard is to be done by the contractor and is included under the scope of his work. Contractor shall also remove grass, bushes, trees etc. wherever required off the land provided to him and shall make proper continuous up keeping of the open yard /land by removing grass, bushes trees etc. and same is included under the scope of his work &amp; No extra payment shall be made to the contractor in this regard. The bidder shall make complete arrangement of necessary security personnel to safeguard all such materials in his custody. Materials issued will be used only for construction of permanent works. The contractor shall take care of material issued by BHEL and shall protect the same from theft, damage and weathering. Excessive rusting of steel in custody of agency/contractor must be avoided. <b>In case, due to any cause attributable to the contractor, such rusting of steel occurs rendering the same unusable, then such quantity of steel shall be recovered from the interim payment at the penal rate specified in the tender.</b></p>								
3.4	<b>ISSUE OF STEEL:</b>								
3.4.1	<b>The steel shall be issued to the contractor on the following basis:</b> i. Reinforcement Steel: Weighment basis (Unit-MT)								
3.4.2	<p>All the steel (reinforcement) issued by BHEL shall be properly accounted for. The total quantity of steel required for the work will be calculated from the approved Bar Bending schedule, fabrication drawings, approved laps, chairs and lugs etc. The measurement for payment as well as for accounting shall be based on the sectional weights as indicated in the following IS/BS/EN specifications.</p>								
3.4.3	<table><tr><th>Sr No</th><th>Name of Standard</th><th>Name of Section</th></tr><tr><td>1</td><td>IS: 1786 or grade -1 of IS432 (Part-I)</td><td>Rounds including deformed high yield strength bars.</td></tr></table>	Sr No	Name of Standard	Name of Section	1	IS: 1786 or grade -1 of IS432 (Part-I)	Rounds including deformed high yield strength bars.	<p>In case any such sectional weights are not available in the above documents, the manufacturer recommendation/BHEL instruction shall be binding.</p>	
Sr No	Name of Standard	Name of Section							
1	IS: 1786 or grade -1 of IS432 (Part-I)	Rounds including deformed high yield strength bars.							
3.4.4	<p>The steel issued to the contractor shall be mainly in standard length and sections as received from the supplier. However, the contractor shall be bound to accept the steel in length as available in the project stores and no claims for extra payment because of issue of non-standard length will be entertained.</p>								



3.4.5	The contractor shall satisfy himself of the quality and quantity of the materials at the time of taking delivery from BHEL stores. No claims whatsoever will be entertained by BHEL because of quality or quantity after the materials are taken by the contractor from BHEL stores.
3.4.6	The contractor shall submit to BHEL well in advance of before Three month from requirement, a statement indicating estimated quantity of cement and steel required during a quarter. In addition, the contractor shall also furnish the estimated requirement of steel during a month by the third week of the previous month indicating his requirement.
3.4.7	<p>Bidders shall ensure that no lamination material is taken over by them from BHEL.</p> <p>The contractor must note that cement and steel required for the contractor's enabling job like store/ site office/batching plant/temporary works etc. shall be arranged by the contractor at his own cost.</p> <p>All temporary structures constructed/installed/erected are to be dismantled and removed as per instruction of BHEL</p>
3.4.8	Bidder to give requirement of Material in BHEL Scope well in advance of before Three month from requirement. Any delay in raising the requirement of these item leading to delay in placement of order, will be Contractor responsibility and its attributable delay in erection will be responsibility of Bidder only.
3.5	<b>ISSUE OF CEMENT</b>
3.5.1	The cement issued by the BHEL shall be properly accounted (issue and reconciliation). Cement as received from the manufacturer/ stockiest will be issued free of cost to the contractor.
3.5.2	The cement shall be provided normally in bulkers and shall be unloaded in the silos to be installed by the bidder nearer to their batching plants. Silos Capacities shall be finalized mutually. Cement unloading arrangements to silo or stores, in case of cement bags and necessary assistance & manpower support shall be provided by the bidder at his own cost.
3.5.3	On advance request of the bidder, the cement shall be supplied in 50kg tamper proof sealed Bags for other than RCC works like masonry, flooring works, etc. The theoretical weight of each bag of cement for issued purposes will be considered as 50kg, the contractor shall be accountable for the cement issued to the contractor on this notional weight only. No claim whatsoever will be entertained because of difference between theoretical and actual weight of the bags of cement.
3.5.4	The empty cement bags duly accounted for against issue shall be the contractor's property and the same shall be disposed as per statutory regulation prevailing in the project.
3.5.5	The contractor shall satisfy himself of the quality and quantity of supplied cement at the time of taking delivery from BHEL stores. No claims whatsoever will be entertained by BHEL because of quality or quantity after the materials are taken by the contractor from BHEL stores.
3.5.6	Contractor will be responsible for sampling and testing of cement as per Indian Standard/ Specification/ approved quality plan in the testing laboratory established by the contractor.
3.5.7	Contractor will be responsible for unloading the cement as soon as the storage of cement in the weather proof cement storage sheds/ Silo's having dense impervious bituminous or concrete floors which shall be kept swept clean at all times. The storage arrangements shall be fully completed and approved by the owner before any cement is delivered to site. The construction of cement storage sheds as per the requirement of BHEL, unloading of cement bags, stacking properly in the storage sheds, removal of the sheds after the completion of the work are in the scope of bidder. Though the cement is unloaded directly at the contractor storage shed, it will be deemed to be considered that the cement was issued from BHEL stores. Necessary documents are to be submitted by the contractor to the BHEL stores for having received cement.
3.5.8	No cement will be issued on free basis for bought out item like Hume pipe, Interlocking Paver block, Fly ash brick etc. However, cement for mortar for fixing of these items if required will be issued on free basis.

3.5.9	The contractor shall submit to the engineer, a statement indicating estimated quantity of cement required during a quarter, at least two months in advance of the quarter. In addition, the contractor shall also furnish the estimated requirement of cement during a month by the third week of the previous month indicating his requirement.
3.5.10	One month shall be the limit for the maximum quantity of BHEL issued cement that would be with the contractor at any point of time when work is in progress (excluding what has already been incorporated in the works).
<b>4.0</b>	<b>RETURN OF MATERIALS (BHEL Free Issued Material)</b>
4.1	<b>Return of Cement:</b> Sealed cement bags remaining unused and in perfectly good condition at the time of completion or termination of the contract shall be returned promptly, (within 15 days from assessment) if BHEL/ engineer is satisfied of the physical condition of the cement. Return of such cement to the project stores / place as identified within the project area by engineer/ BHEL will not entitle contractor to handling and incidental charges. Surplus sealed and good conditioned cement bags will be taken back on weighment basis.
4.2	<b>Return of Reinforcement Steel including Scrap:</b> All surplus steel and all wastage materials will be taken back on weighment basis. Surplus, unused and untampered steel shall be sorted section-wise and returned separately at a place directed by BHEL/Engineer within the project area. For return of such materials, contractor will not be entitled to any handling and incidental charges. All wastage / scrap (including melting scrap, wastage, and unusable scrap) shall be promptly returned to the stores and a receipt obtained for material accounting purposes.
4.3	<b>SCRAP AND SERVICEABLE MATERIALS:</b>  All TMT measuring 3 Meter and above in length shall be treated as <b>serviceable material</b> provided they are in good acceptable condition. TMT in less than 3 Meter shall be treated as scrap.
4.4	<b>CEMENT, STEEL CONSUMPTION AND WASTAGE:</b>
4.4.1	<b>Cement Consumption:</b> The theoretical consumption of cement shall be based on the following: <ul style="list-style-type: none"> <li>a. For design mix concrete as per approved design mix.</li> <li>b. For nominal mix concrete work, as per minimum cement as specified or as approved by engineer-in-charge.</li> <li>c. For item of works, where volume mix is permitted in writing by the BHEL, for masonry works, plaster other miscellaneous items, the cement consumption shall be governed by the "Statement of cement consumption" attached to the latest version of Delhi Schedule of Rates (DSR) unless otherwise specified in the specifications or the drawing of contract or mutually agreed by engineer-in-charge and the contractor.</li> <li>d. Actual consumption = Issue – Surplus/ unused quantity of cement returned in good condition by the contractor to store. (No sweep cement will be taken back by BHEL).</li> </ul>

4.4.2

Cement Wastage:

a. **Allowable wastage:** One and half percent (+1.5%) of theoretical consumption of cement.

b. For any material issued by BHEL to the contractor free of cost, and which is not accounted for by the contractor to BHEL, then recovery for such material shall be affected at penal rates.

Sl no.	Cement consumption	Basis of issue & penal recovery
C1	Theoretical consumption (without considering any wastage or loss).	Free
C2	Actual consumption being Limited to one and half percent (+1.5%) of aforesaid theoretical consumption towards allowable wastage.	Free
C3	Actual consumption beyond one and half percent (+1.5%) of above (C1).	Penal rate

4.4.3

Reinforcement Steel Consumption

The theoretical consumption of various sections and/or diameter of reinforcement and earthing rod steel shall be based on approved construction drawing and bar bending schedule. Weight shall be calculated considering the sectional weights as per Indian standards. No extra cost shall be payable to the contractor for any deviation in weights for the different procedures adopted for issue and calculation of the theoretical consumption including rolling tolerances.

a. Actual consumption = Issue – Surplus.

b. Surplus = un-tampered, unused, uncut QTY of steel **including serviceable material** returned by the contractor to BHEL store along-with relevant documents.

c. Wastage = Actual consumption – Theoretical consumption.

4.4.4

**Reinforcement Steel Wastage**

a. **Allowable Wastage:** (+3%) of the theoretical consumption shall be considered as allowable wastage.

Wastage and scrap shall be as per actual weighment basis.		
Sl. no.	Reinforcement steel	Basis of issue & penal recovery
R1	Theoretical consumption (without considering wastage and scrap or loss)	Free
R2a	Wastage limited to plus three percent (+3%) of aforesaid theoretical consumption (R1) towards allowable wastage and returned to BHEL Store.	Free
R2b	Wastage limited to plus three percent (+3%) of aforesaid theoretical consumption (R1) towards allowable wastage but not returned to BHEL Store.	Penal Rate
R3	Wastage beyond <b>THREE</b> percent (+3%) of the theoretical consumption above (R1).	Penal rate

4.5

**RECONCILIATION OF MATERIALS:**

a. The contractor shall submit a reconciliation statement of cement and steel issued to the contractor with each RA Bill.

b. At the time of submission of bills, the contractor shall properly account for the material issued to him as specified herein to the satisfaction of BHEL certifying that the balance material is available in the contractor custody at site.

c. At the time of submission of bills, if it is noticed by BHEL that the wastage is high and calls recovery at the penal rate, then, BHEL will proceed for recovery for the excess wastage as per penal recovery rates as specified.

d. If at any point of time, BHEL finds there is a difference in physical and theoretical balance, where the contractor fails to provide necessary reconciliation, the decision of penal recovery/withhold of amount at penal rate by BHEL shall be final and binding to the contractor till proper records are submitted to and verified by BHEL.

e. The reference drawings for actual material consumption to be used for the purpose of reconciliation shall be drawings prepared by the BHEL and drawings approved by BHEL for fabrication works and such other drawings approved by BHEL. This shall also include the bar bending schedule prepared by the contractor and approved by BHEL.

4.6

**RECOVERY OF MATERIALS (PENAL RATES):**

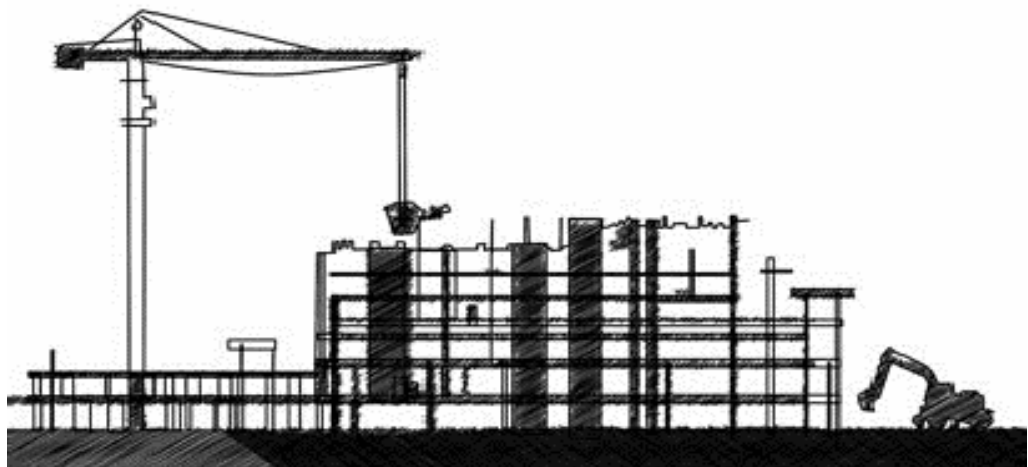
If wastage exceeds the specified limit, the recovery of excess wastage shall be made from monthly RA Bills as per following penal rates (excluding GST):

Sl. No.	Materials	Penal Rate (Rs.)
1	Cement	Rs 5,581/- per Ton
2	Reinforcement Steel	Rs 58,037/- per Ton

Penal rate will be 1.05 times the rate mentioned above.

**HSEP14**

# Health, Safety & Environment Plan for Site Operations by Subcontractors



## INDEX OF CONTENTS

SN	Description	Page No.
<b>SECTION A: CRITICAL RESOURCES FOR HSE IMPLEMENTATION</b>		
1	SHARING OF OPERATING COSTS OF FACILITIES	5
2	RESOURCES TO BE SOLELY PROVIDED BY CONCERNED SUBCONTRACTOR	5
3	ESTABLISHMENT OF COMMON FACILITIES	5
4	CRITICAL REQUIREMENTS W.R.T. EQUIPMENT & PPES	6
5	HSE PERSONNEL TO BE SOLELY PROVIDED BY THE SUBCONTRACTOR	8
6	COMPETENCY OF OPERATORS/ DRIVERS OF CRANE, WINCH, LIFTING/ CONSTRUCTION EQUIPMENT ETC.	11
7	STRINGENT REQUIREMENT OF BHEL'S CUSTOMER	11
8	REFERENCES	11
9	BHEL POWER SECTOR HSE MANAGEMENT SYSTEM	12
10	CLEARANCE OF MONTHLY RUNNING BILLS SUBJECT TO SAFETY COMPLIANCE	13
11	HSE PERFORMANCE EVALUATION	13
12	HSE PENALTIES	13
13	PUNITIVE ACTIONS ON WORKERS FOR CRITICAL SAFETY VIOLATIONS	16
14	LEGAL IMPLICATIONS	17
15	HSE REVIEW MEETING	17
16	OTHER REQUIREMENTS	18
17	MEMORANDUM OF UNDERSTANDING	19
<b>SECTION B: OPERATIONAL REQUIREMENTS</b>		
1	PURPOSE	22
2	SCOPE	22
3	OBJECTIVES AND TARGETS	22
4	BHEL HEALTH, SAFETY & ENVIRONMENT POLICY	23
5	ILLUSTRATIVE HSE RESPONSIBILITIES OF VARIOUS SUBCONTRACTOR OFFICIALS	24
6	HSE PLANNING BY SUBCONTRACTOR	27
7	MOBILIZATION OF MACHINERY/EQUIPMENT/TOOLS BY SUBCONTRACTOR	28
8	MOBILIZATION OF MANPOWER BY SUBCONTRACTOR	28
9	PROVISION OF PERSONAL PROTECTIVE EQUIPMENT (PPES)	29
10	ARRANGEMENT OF INFRASTRUCTURE	31
11	HSE TRAINING & AWARENESS	35
12	HSE COMMUNICATION AND PARTICIPATION	39
13	SAFETY DURING WORK EXECUTION	40

14	ENVIRONMENTAL CONTROL & SOCIAL RESPONSIBILITY	43
15	HOUSEKEEPING	44
16	WASTE MANAGEMENT	44
17	TRAFFIC MANAGEMENT SYSTEM	45
18	EMERGENCY PREPAREDNESS AND RESPONSE	48
19	HSE INSPECTION	49
20	TERMS AND DEFINITIONS	52
	<b>ANNEXURES</b>	
A	ANNEXURE A: Specification of Ambulance	
A.1	ANNEXURE A.1: Typical calculation for sharing of operational cost of common facilities	
B	ANNEXURE B: Specifications of HSE Displays	
C	ANNEXURE C: HSE Tools, Equipment and Devices to be Provided by the Subcontractor	
D	ANNEXURE D: Specifications of Rest Sheds	
E	ANNEXURE E: Minimum Requirements of Labor Accommodation/ Colony	
F	ANNEXURE F: Specifications & Availability for Toilets at Site	
G	ANNEXURE G: Specifications for Numbers and Types of Fire Extinguishers	
H	ANNEXURE H: HSE Compliance Certificate Sample	
I	ANNEXURE I: Detailed Safety Requirements/ Precautions for Various Hazardous Activities/ Conditions	
J	ANNEXURE J: Details & Contents of First-Aid Box	
K	ANNEXURE K: Vertigo Test Procedure	



# **SECTION A**

## **CRITICAL RESOURCES FOR HSE IMPLEMENTATION**

## 1. SHARING OF OPERATING COSTS OF FACILITIES

**TABLE A.1**

SN	FACILITY
1	Ambulance with 24 hr. First Aid Trained Driver (Specs in Annexure A)
2	Operation of Medical center, Nurses, Medical Consumables etc. (Specs in Annexure A)
3	Training Center Consumables
4	Water sprinkling for dust suppression
	(Others:)

**Note:**

- Responsibility of operation of above facilities shall rest with BHEL
- Operating cost of the above shall be deducted from subcontractors on 'proportional to contract' value basis. Sample deduction table enclosed as Annexure A.1
- "Contract value" defined above & subsequently in the document shall be considered as "Awarded contract value".
- No overhead cost/ enabling cost of BHEL shall be levied on the contractors for common facilities.
- These running costs shall be recovered from all the available subcontractors at site for the complete operational duration of the site
- No overheads shall be charged on shared operating costs

## 2. RESOURCES TO BE PROVIDED SOLELY BY THE SUBCONTRACTOR

**TABLE A.2**

SN	ITEM	SPECIFICATIONS
1.	HSE DISPLAYS, Posters and signage	Annexure B
2.	HSE Tools/ Equipment/ Devices	Annexure C
3.	Rest Sheds for Workers	Annexure D
4.	Labor Colony	Annexure E
5.	Toilets (Latrines & Urinals) - in Site and Labor Colony	Annexure F
6.	Fire Extinguishers	Annexure G

**Note:**

In case subcontractor fails to provide the required resources, same will be procured and deployed by BHEL with applicable overhead on total procurement cost

## 3. ESTABLISHMENT OF COMMON FACILITIES

In green field projects BHEL shall arrange and provide the following facilities which shall be used by all subcontractors for their employees and workers. These shall be

- Medical Centre
- Safety park with facilities of audio-visual training & vertigo test center.
- No cost shall be deducted from the subcontractors for the structure part only.
- The running cost with basic inputs already mentioned at Point 1 above shall be shared by all contractors.
- The sub-contractors shall be required to ensure participation in trainings, medical checkup and vertigo test as per the guidelines laid in this document and required as per statutory HSE requirements.

- vi. However, in projects where in these facilities are not provided by BHEL, subcontractors shall ensure the training, medical/ vertigo test of all workers at site in consultation and guidance of BHEL HSE team at site in line with provisions of this document.
- vii. The overall onus of compliance to HSE practices pertaining to training, medical checkup including vertigo test shall lie on the subcontractor only.

#### 4. CRITICAL REQUIREMENTS W.R.T. EQUIPMENT & PPES

- i. Conventional Hydra crane with carriage in front shall not be permitted. Pick & carry tyre mounted Front Cabin mobile crane (FX or TRX/ NextGen series of 'ESCORT' or equivalent make) shall only be permitted.
- ii. Any Heavy equipment (cranes, winch machines, etc.) shall be deployed only after pre-safety Inspection by safety dept. Valid AMCs/ Fitness/ other statutory clearances as per local rules shall be required to be submitted before mobilizing the equipment at site.
- iii. All other Hand tools and power tools should not be older than 5 years.
- iv. For Chimney passenger lift, winch to have double drum rope for passenger and double safety devices must be used. Winch should not more than 3 years old and winch rope must be inspected with valid certificate from competent authority within 6 months and should meet the IS standard 9507 provision of OLR and push back button arrangement or dead man switch.
- v. Gate pass for all the lifting T&Ps and construction machinery/ equipment shall be made after obtaining written acceptance (Pre-entry Safety Clearance) from BHEL Site Safety Department after physical verification and checking all requisite documents/ compliance to Safety norms
- vi. All motor vehicles should have valid registration certificate, insurance, Pollution under control (PUC) and fitness certificate as per Motor Vehicle Act 2020. The certificates should be pasted in the glass from inside.
- vii. PPEs shall be from reputed manufactures viz. 3M, Udyogi, Karam, Frontier, Freedom, Honeywell, Liberty, Bata, Nomex, Acme, Unicare, Life Gear or equivalent. In case Subcontractor recommends any other name the same can be approved at site level by the Construction manager & Site HSE
- viii. For height work, where fall could result in death or disability, a secondary means of fall protection (Safety Net, Retractable Fall Arrestor etc.) shall be mandatorily provided by the subcontractor, failing which, a penalty of INR 10000 per case will be imposed. In addition, there should be constant supervision for such critical height work. Any non-erection activities at height eg. Housekeeping etc. shall also fall under the category of height work
- ix. **Scaffold Tagging**

Scaffolds being erected, modified or dismantled must be tagged as suitable for use. Tagging shall be done with standard tag holder. Scaffolding tag should be certified by scaffolding inspector having valid certificate.

- **GREEN** scaffold tag- shall be fixed when scaffold is complete and safe for use, signed and dated by the scaffolding competent person daily.
- **RED** scaffold tag – to be fixed if scaffold is in some way defective and cannot be used or is still under erection.
- **YELLOW** scaffold tag – to be fixed if scaffold is in under construction/ maintenance.



**FIG. A.4.1 SAMPLE SCAFFOLD TAGS AND TAG HOLDER**

x. **T&P Color Coding:**

- a. Inspections and tests shall be documented by means of color coding which shall verify that inspections or testing are current and that all receptacles, portable Power tools, Lifting Tools & Tackles have been inspected and tested as required. The color codes used on the project shall be:

GREEN	BLUE	YELLOW	PURPLE
January	April	July	October
February	May	August	November
March	June	September	December

**TABLE. A.4.2: T&P COLOR CODES**

- b. The cycle of colors shall be Quarterly as a minimum or as decided by BHEL. The color code tape / Sticker shall be clearly visible to designate the period for which the inspections and tests were conducted.
- c. Following the initial inspection, the equipment must be color-coded quarterly as per color-coding instructions that will be issued by the subcontractor.
- d. Fire extinguisher with the current month color-coding inspection sticker must be provided and secured in the platform.
- e. All slings shall be regularly inspected in accordance with the requirement of the project for frequent and periodic inspections and discard immediately if they fail to meet the minimum requirements of the project.
- f. The Subcontractor's HSE Officer shall ensure that all PPE is inspected prior to its issue. He is to ensure all subcontractor personnel are using safe and proper PPE equipment. Regular

inspections on the PPE shall be carried out and personnel not adhering to those inspections shall be removed immediately from the site.

- g. A Ten (10) day interval period shall be given into each monthly color code change. During this Ten (10) day period either color shall be acceptable.

xi. **T&P Tagging:**

All deployed Wire Rope Slings, Chain Pulley Blocks, Hooks, slings etc. shall be Tagged using aluminum or any other metal tag with punching.

## 5. HSE PERSONNEL TO BE PROVIDED SOLELY BY THE SUBCONTRACTOR

### 5.1. NUMBERS OF HSE PERSONNEL (APPLICABLE FOR EACH WORK SHIFT)

Number of HSE Officers and Supervisors shall be in proportion to number of workers as per Table A.6 below

**TABLE A.5**

No. of Workers	No. of HSE Supervisors	No. of HSE Officers
Up to 100	1	1
101 to 250	2	1
251 to 500	4	1
501 to 1000	6	2
1000 to 2000	6+ One additional supervisor up to every additional 250 workers	3
2000-3000	10+ One additional supervisor up to every additional 250 workers	4
3000-4000	14+ One additional supervisor up to every additional 250 workers	5

#### 5.1.1. DEPLOYMENT PLAN

- Above requirement is for every shift for each unit.
- The dynamic deployment plan of Safety manpower at various locations containing names, areas, time periods, shifts etc. shall be submitted to BHEL for approval by subcontractor
- BHEL may modify the deployment plan based on nature and volume of jobs, Risks and hazards associated etc.
- For less than 20 workers HSE Officer is not mandatory. In case the number of workers exceed 20 for 3 consecutive months, HSE Officer is to be engaged. The HSE Officer shall be deployed for a minimum period of 6 months even if the number of workers fall below 20 in any month subsequent to deployment. If within that 6-month period, the number of workers is more than 20 for at least 3 months, the deployment duration of HSE Officer will extend further 6 months after completion of previous 6-month period.
- For Site Material Management/ Handling (Loading/ Unloading) contracts, 1 no. HSE Officer shall be required irrespective of the total manpower deployed.
- HSE Officers/Supervisors of all the vendors may be required to report directly to BHEL HSE Officer at site & shall comprise as a total team for handling all HSE issues. However, each safety officer/ agency shall be individually responsible for the safe execution of work in their respective areas.

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## 5.2. QUALIFICATION & EXPERIENCE REQUIREMENTS OF HSE PERSONNEL

### 5.2.1. HSE OFFICER

First HSE Officer to be mandatorily as per Option I as under and shall be designated Senior HSE Officer. In case of non-availability of HSE Officers with Option I configuration, the subsequent HSE Officers can be as per Option II below with recorded reasons and approval of Site Construction Manager of BHEL. All these deviations should be reported to Region HSE and PSHQ HSE.

#### A. Option I

- i. possesses a recognized degree in any branch of engineering or technology or architecture and had a practical experience of working in a building or other construction work in a supervisory capacity for a period of not less than two years or possesses a recognized diploma in any branch of engineering or technology and has had practical experience of building or other construction work in a supervisory capacity for a period of not less than five years;
- ii. possesses a recognized degree or diploma in industrial safety with at least one paper in construction safety (as an elective subject/ part thereof);
- iii. has adequate knowledge of the language spoken by majority of building workers from the construction site in which he is to be appointed.

#### B. Option II:

Graduation Degree in Science with Physics & Chemistry and degree or diploma in Industrial Safety (All Degrees/ Diploma from any Indian institutes recognized by AICTE or State Council of Technical Education of any Indian State) with practical experience of working in a building, plant or other construction works (as HSE Officer, in line with Indian Factories Act, 1958 or BOCW Act, 1996) for a period of not less than five years

#### Note:

- i. HSE Officer as per Option II shall be valid only on availability of Senior HSE Officer as per Option I at site.
- ii. In case of resignation of the Senior HSE Officer, the same has to be replaced within 15 days else all subsequent HSE Officers as per Option II (in case of multiple HSE Officers with a single agency) shall not be considered as valid.
- iii. The penalty shall be deducted considering non-availability of any HSE Officer at site.

### 5.2.2. HSE SUPERVISOR: EITHER OF X OR Y BELOW

X. Recognized Degree in any branch of Engineering OR Diploma in any branch of engineering with at least one-year construction experience

OR

Y. A recognized graduation Degree in Science (with Physics & Chemistry) or a recognized diploma in Engg. or Tech.

Additional requirements for option (Y) above

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- i. Trained in fire-fighting as well as in safety / occupational health related subjects, with:
- ii. Minimum Two years of practical experience in construction work environment or in the field of safety and

**Note:**

- i. Option a above is by default, b is under special approval from Site HSE & Construction manager
- ii. In both cases the candidate should possess requisite skills to deal with construction & fire safety related day-to-day issues.

**5.3. HSE IN-CHARGE**

In case there is more than one HSE Officer with any subcontractor, one of them, who is senior most by experience & meets qualification as per option 1 as mentioned in clause 2.1 A above (in HSE discipline), may be designated as HSE In-charge who will be the nodal point of contact on HSE matters.

**5.4. SUPPORTING STAFF TO HSE TEAM**

- i. Supporting Staff shall include scaffolders, scaffolding inspectors, riggers, skilled and unskilled manpower
- ii. Subcontractor shall provide adequate number of workers as and when required, in order to attend and comply to Safety observations raised by BHEL/ Customer.

**5.5. AVAILABILITY AND PENALTY FOR NON-DEPLOYMENT**

- i. The subcontractor shall submit the certificates of qualification & experience of HSE manpower before deployment for BHEL to assess suitability as per requirement detailed in this document
- ii. In case of rejection, subcontractor shall arrange additional candidates and submit resume to BHEL. Penalties will be applicable during the period of non-deployment in such cases as well.
- iii. Subcontractor shall ensure physical availability of safety personnel at the place of specific work locations.
- iv. The Subcontractor shall deploy the HSE Officers as per the site's requirement. Non-deployment shall lead to stoppage of the work and final decision shall rest with Site HSE & Construction manager.
- v. The Subcontractor shall prepare an organization chart identifying the areas of operations, responsibilities and reporting structure of all safety personnel for each shift and submit the same to BHEL.
- vi. The subcontractor shall deploy sufficient HSE Officers, supervisors, as per numbers & qualifications mandated in this Section since mobilization of first batch of manpower and add more in proportion to the added strength in work force. Any delay in deployment will attract a penalty at following rates:

Non-deployment of HSE Officer –	Rs. 75,000 per man-month
Non-deployment of HSE Supervisor –	Rs. 50,000 per man-month

- vii. Penalty shall be collected for the period of non-availability of safety personnel after allowing a grace period of 15 days for finding a replacement. The same shall be deducted on pro-rata basis till the required manpower is deployed.
- viii. In case of abnormal delay & frequent rejections of candidates proposed by the subcontractor, BHEL shall exercise the right to deploy the safety manpower & deduct the amount from subcontractor's running bill with applicable overheads. In such cases also, the provision of logistics, transportation, food and other logistical support to the HSE personnel shall be in the scope of subcontractor in addition to the salary. After deployment of manpower by BHEL, the penalty for non-deployment specified above shall not be applicable.

## 6. COMPETENCY OF OPERATORS/ DRIVERS OF CRANE, WINCH, LIFTING/ CONSTRUCTION EQUIPMENT ETC.

- i. The Operators/ Drivers of crane, winch, construction/ lifting equipment etc. shall be experienced and have valid driving license for the class of vehicle / machinery as applicable (like Crane/ Forklift/ Rig, Construction equipment driving license etc.).
- ii. Minimum HMV driving license is required for all heavy equipment/ heavy vehicle (trailer/ Hyva /dumper /TM) operators at site.
- iii. The subcontractor shall certify competence of these persons in writing as and when they are posted at site.
- iv. Crane, Winch, Construction & lifting equipment operator should have certificate on subject course or experience certificate in employer letterhead.
- v. Where state is providing license for operating crane, tractor and other construction vehicles, same to be ensured.

**Note:** In case the statutory requirements i.e. State or Central Acts and / or Rules as applicable like the Building and Other Construction Workers' Regulation of Employment and Conditions of Service- Act,1996 or State Rules (wherever notified), the Factories Act, 1948 or Rules (wherever notified), etc. are more stringent than above, the same shall be followed.

- 7. In case of any stringent requirement of BHEL's customer over and above the specifications mentioned in current document, the same shall also be required to be complied at site by subcontractor.

## 8. REFERENCES

The Safety Rules for Construction & Erection as outlined hereunder, while setting out a broad parameter of safety norms, are not exhaustive. The subcontractor and his agencies are advised to refer to the following statutory provisions as amended from time to time for details and strict compliance therewith.

### 8.1.FOR GREENFIELD PROJECTS



- a) Building and Other Construction Workers (regulation of employment and conditions of service) Act, 1996 (briefly referred to as BOCW Act),
- b) Building and other construction workers (regulation of employment and conditions of service) Central Rules, 1998 (briefly referred to as BOCW Rules) as adopted by the various State Governments,

## 8.2. FOR EXPANSION, MODIFICATION, ALTERATION AND, OR CONSTRUCTION ACTIVITY WITHIN AN EXISTING PLANT OPERATING AS PER APPROVED SITE PLAN UNDER THE FACTORIES ACT

- a) Factories Act, 1948,
- b) Factories Rules, as adopted by the various State Governments
- c) BOCW Act
- d) BOCW Rules
- e) In case a new act/ statutory guideline/ modification/ consolidation of acts is implemented the same shall be required to be adhered by the subcontractor.
- f) The latest amendment of the above-mentioned acts/ rules shall be followed at site.

## 9. BHEL POWER SECTOR HSE MANAGEMENT SYSTEM

The Systems and procedures of BHEL Power Sector HSE Management System shall be implemented by the subcontractor, including:

- HSE PROCEDURE FOR REGISTER OF OHS HAZARDS AND RISKS
- HSE PROCEDURE FOR REGISTER OF ENVIRONMENTAL ASPECTS AND IMPACTS
- HSE PROCEDURE FOR REGISTER OF REGULATIONS
- HSE PROCEDURE FOR TRAINING AND AWARENESS
- HSE PROCEDURE FOR EMERGENCY PREPAREDNESS AND RESPONSE PLAN
- HSE PROCEDURE FOR PERMIT TO WORK
- HSE INSPECTION AND OTHER FORMATS

### Note:

- i. BHEL reserves the right to revise/ update these systems and procedure as per requirement to address any changing HSE needs
- ii. BHEL will provide hard / soft copies of applicable HSE Procedures, Work Permits, Operational Control Procedures, Inspection/ Other Formats etc. that are necessary for ensuring safe work to the successful bidder at Site. It is the responsibility of the subcontractor to ensure availability of these documents before commencing work at site.
- iii. The subcontractor can get soft copies of these documents from respective Region SCT/ HSE for reference. The signed hard copies of the same shall not be required to be submitted along with tender document
- iv. Subcontractor shall use the Digital (Web & App-Based) HSE management Software Systems provided by BHEL whenever provided. In case not provided, hard copy systems will continue to be used. All information technology resources (Computers, mobile phones, mobile data, internet access etc.) for the use of such systems shall be ensured by the subcontractor.

## 10. CLEARANCE OF MONTHLY RUNNING BILLS SUBJECT TO SAFETY COMPLIANCE

- The monthly running Bills of the subcontractor shall be released subject to compliance to HSE requirements as per checklist in Annexure H
- BHEL site HSE Head and Package In-charge shall be authorized to issue the clearance
- Site Construction Manager of BHEL shall be the final authority on the matter.

## 11. HSE PERFORMANCE EVALUATION

- Subcontractor shall be assessed on monthly basis for HSE Compliance by BHEL Safety In-charge at site.
- The HSE evaluation shall be based on HSE Performance Evaluation System of BHEL covering the contractual, statutory and regulatory requirements of HSE.
- BHEL shall reserve the right to use these performance scores for evaluating bidder's capacity for future tenders
- If safety record of the subcontractor in execution of the awarded job is to the satisfaction of safety department of BHEL, issue of an appropriate certificate to recognize the safety performance of the subcontractor may be considered by BHEL after completion of the job, provided the execution performance is satisfactory.

## 12. HSE PENALTIES

- Nonconformity of safety rules and safety appliances will be viewed seriously and BHEL has right to impose fines on the subcontractor for every instance of violation noticed.
- As per contractual provision HSE penalties shall be imposed on subcontractors for non-compliance on HSE requirement as per following format.
- Following are the applicable penalties for various Safety violations:

### Sub: MEMO for Penalty for non-compliances in Safety

Following lapse (tick marked) was observed and penalty (in Rs.) is imposed as stated at the bottom of this memo. It is requested that such occurrences be please avoided in future.

S. No	Nature of Non - Compliance	Penalty (in INR)	Remarks
<b>A. System Violations</b>			
1	Working without valid Work Permit/ HIRA/ Method Statement / JSA	2000	Per case
2	Controls as per Work Permit/ HIRA/MS/JSA not ensured	2000	Per case
3	Reported Safety Violations Not Closed within Stipulated Time	1000-10000	Per case
4	Absence of required Subcontractor Officials (Site Head, HS Head) in Safety Reviews/Meetings	5000	Per case
5	Not providing required PPEs (Safety Harness, Lifeline, Safety Net, Fall arrestor, Safety Helmet, Gloves, Shoes etc.) for the work by subcontractor	2000	Per case
<b>B. Competency/ Training/ Induction Violations</b>			

1	Incompetent personnel deployed for specialized jobs like height work, hot work, rigging, vehicle operation etc. (without valid license/ certificate etc.)	3000	Per case
2	Work without induction training & medical check	2000	Per case
3	Height Work without Vertigo Test and height work training	2000	Per case
<b>C. PPE Violations – Height Work</b>			
1	Not wearing/ hooking Double Lanyard Safety Harness while working at height (> 1.2 meters) or not anchoring to lifeline	1000	Per case
2	Not Providing Lifeline for height work	3000	
3	Unsafe platforms – without Top, Mid Rails and Toe-Guards for Height Work	3000	
4	Not providing secondary means of fall protection for height work (Safety Nets, Retractable Fall Arrestors etc.)	3000	Per case
<b>D. PPE Violations – General</b>			
1	Not wearing safety helmet	1000	Per case
2	Wearing of helmets without chin straps	1000	Per case
3	Not Wearing safety shoes	500	Per case
4	Not wearing gloves	500	Per case
6	Not using grinding goggles/ face shield during grinding/ cutting	2000	Per case
<b>E. Electrical Safety Violations</b>			
1	Broken/ exposed wires/ cables	2000	Per case per day
2	Electrical plug not used for connection/ hand machines	1000	Per case per day
3	Not using proper ELCBs for electrical equipment	2000	Per case per day
4	Improper earthing of welding & Other electrical machines (Lack of double earthing, improper/ untested earth pit etc.)	2000	Per case per day
5	Not using 24 V supply for lighting in confined spaces	2000	Per case
6	Cables haphazard/ blocking way/ not organized properly	1000	Per case per day
<b>F. Lifting &amp; Rigging Violations</b>			
1	Using Sling/ Chain Pulley Block and other Small T&Ps without proper, traceable Tag and Test Certificate	2000	Per T&P per day
2	Using damaged slings or not slinging properly	2000	Per T&P per day
3	Use of lifting equipment without having valid Test certificate	5000	Per equipment per seven days
4	Lifting hooks used without latches	2000	Per hook per day
5	Not effectively barricading area below lifting activity	5000	Per case
6	Using untrained/ unqualified rigger	5000	Per case
<b>G. Housekeeping</b>			
1	Non-removal of scrap from platforms	5000	Per Event Per location per 7 days
2	Not conducting scheduled housekeeping drives	5000	Per drive
<b>H. Hot Work Safety Violations</b>			
1	Gas cutting without flash back arrestor at both ends	5000	Per machine per incidence
2	Gas cutting at height without fire blanket	2000	Per event

3	Not keeping gas cylinders vertically	2000	Per event
4	Lifting cylinders without cage or rolling of cylinders	2000	Per incidence
5	Leakage in gas cylinder	2000	Per incidence
<b>I. Vehicle Safety/ Operation</b>			
1	Not having valid driving license for the type of vehicle/ T&P	2000	Per driver per incidence
2	Two-wheeler entry in construction area	2000	Per vehicle
3	Using Hydra for material movement at site in unsafe manner	2000	Per case
4	Using Two Hydra in Tandem for material movement without proper precautions as per OCP	2000	Per case
5	Vehicles, Hydras, Cranes, Dumpers and Earth Movers not having automatic back horns linked to gear	2000	Per Equipment per day
6	Not providing proper hard barricades around excavations/ unpermitted areas	5000	Per location per day
7	Not using guide rope while transporting material using Hydra or Cranes	2000	Per event
8	Over speeding	5000	Per case
9	Using Conventional Hydra crane	50000	Per day /crane
<b>J. Accidents/ Incidents/ Near Misses</b>			
1	Non-reporting of Near Miss/ Incident	20000	Per case
2	Major Accident – Worker unable to resume work within 48 hrs	100000	Per incident
3	Fatal Accident	500000	Per incident
<b>K. Miscellaneous</b>			
1.	Not providing the facility (drinking water, rest shed, labor colony etc. as per the specifications/ requirement)	5000	Per month per violation
2.	Not nominating the required number of workers for training as per plan	5000	Per incidence
3.	Lack of proper arrangement for disposal of sewage/ waste water/ effluents etc.	10000	Per incidence

Details (if any) related to non- compliance (Name of persons, Nature of deficiency, etc.):

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Penalty Amount:

1. Rate as per above chart
2. No. of Persons/ machine/ event/ labor
3. No. of times the same error is repeated: Repetition factor
4. Total Penalty= 1. X 2. X 3. =

**Witnessed by:**

(Sub- Subcontractor representative)  
representative)

(BHEL

Signature

---

Name

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**Bharat Heavy Electricals Limited, Power Sector**

Regd. Office: BHEL House, Siri Fort, New Delhi-110049

Distribution: 1 Copy: to Sub- subcontractor Site In-charge,  
1 Copy to Site Construction Manager (BHEL)  
1 Copy to Site Finance

**Note:**

- i. In case the amount of penalty imposed by BHEL's Client on BHEL for Safety violation/ incident due to or in the area of the subcontractor is more than those indicated above, same shall be imposed back-to-back on the subcontractor. However, in case such an amount is less than the specified above, penalty amount indicated above shall be imposed on the subcontractor.
- ii. For same violation only one penalty (higher of the two mentioned below) shall be applicable
  - a. Penalty imposed by BHEL's Customer over BHEL.
  - b. Penalty as indicated in current document.
- iii. For repeated violation for the same equipment/ location, the penalty would be double of the previous penalty. Date of "Repeated violation" will be counted from subsequent days.
- iv. For repeated fatal incident in the same Unit incremental penalty shall be imposed: The subcontractor will pay 2 times the previously paid penalty in case there is repeated major/ fatal incident under the same subcontractor for the same package in the same unit.
- v. Any other non-conformity noticed not listed above will also be fined as deemed fit by BHEL. The decision of BHEL engineer is final on the above.
- vi. If principal customer/statutory and regulatory bodies impose some penalty on HSE due to the non-compliance of the subcontractor the same shall be passed on to them.
- vii. The penalty amount shall be recovered by BHEL Finance department from subcontractors from the RA/Final bill.

**13. PUNITIVE ACTIONS FOR "CRITICAL SAFETY VIOLATIONS":****"Critical Safety Violations" include:**

- i. Not wearing required PPEs when provided and not following safe work procedure
- ii. Taking unnecessary risks especially in height work, hot work, radiation work, lifting activity
- iii. Coming to work under influence of sedatives like alcohol, drugs etc.
- iv. Coming to work without ID Card/ Gate Pass (if provided)
- v. Intimidating/ threatening at work
- vi. Using cell phones during height work, hot work, lifting activity, driving.

In case any worker carries out any of the critical safety violations as above, BHEL reserves the right to enforce punitive action in following manner:

<b>First Offence:</b>	1 Punch on Gate Pass/ Induction Card/ ID Card etc. and 1-hour HSE Training. With one day off from duty
<b>Second Offence:</b>	2 Punches and 2-hours HSE Training with one day off from duty

<b>Third Offence:</b>	3 Punches and the worker will be dismissed. Gate pass to be confiscated
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In case any employee of subcontractor carries out any of the critical safety violations as above, subcontractor Site In-charge shall issue warning letter to concerned employee with copy to BHEL

**Note:**

- i. For above violations, guilt of the worker/ employee has to be established through appropriate evidences and records maintained.
- ii. If worker/ employee has not been given the required PPEs and safety equipment by the agency and/or not facilitated by the agency to follow safety rules, he/ she will not be considered liable but the agency will be penalized as per penalty provision in this document. In such cases, the subcontractor shall not pass the penalty over to the worker/ employee through wage deduction etc.
- iii. These critical safety violations and their consequences shall be shared with all workers and employees during induction and other training programs/ meetings, toolbox talks etc.
- iv. Gate Pass shall have provision of Tagging as indicated above
- v. The appellate authority (only for final dismissal) in this case shall be the BHEL Site In-charge whose decision shall be final on the matter and binding on all parties.

## 14. LEGAL IMPLICATIONS

Any legal Costs incurred by BHEL, on account of accidents taking place in the activities of the subcontractor, shall be debited to the subcontractor on actual cost basis.

For any accident occurring at site to any worker/ employee of the subcontractor leading to legal implications to BHEL Employee/ Management shall be safeguarded by BHEL legal department. All legal expenses incurred by BHEL on this account shall be recovered from the subcontractor. The accident also includes fire, loss of property or life at site.

## 15. HSE REVIEW MEETING

- i. Subcontractor Site In-charge and HSE In-charge shall attend the HSE Review Meeting as and when called by BHEL.

The indicative agenda points are given below:

- a) Implementation of earlier MOM points
- b) Compliance Status of HSE Observations
- c) Incidents & Near Misses, their Root Causes and Actions Taken
- d) HSE performance review
- e) HSE inspection findings
- f) HSE audit and CAPA
- g) HSE training
- h) Health check-up camp
- i) HSE planning for the erection and commissioning and installation activities in the coming month

- j) HSE reward and promotional activities
- ii. MOM on the discussion along with HSE observations will be circulated to the subcontractor for action.
- iii. The subcontractor shall close the observations to the satisfaction of BHEL within stipulated time frame

## 16. OTHER REQUIREMENTS

- i. If the subcontractor fails to improve the standards of safety in its operation to the satisfaction of BHEL after being given reasonable opportunity to do so and/or if the subcontractor fails to take appropriate safety precautions or to provide necessary safety devices and equipment or to carry out instruction regarding safety issued by BHEL, BHEL shall have the right to take corrective steps and the cost shall be debited to the subcontractor with applicable overheads.
- ii. If the subcontractor succeeds in carrying out its job in time without any fatal or disabling injury incident and without any damage to property BHEL may, at its sole discretion, favorably consider to reward the subcontractor suitably for the performance.
- iii. In case of any damage to property due to lapses by the subcontractor, BHEL shall have the right to recover the cost of such damages from the subcontractor after holding an appropriate enquiry.
- iv. The subcontractor shall take all measures at the sites of the work to protect all persons from incidents and shall be bound to bear the expenses of defense of every suit, action or other proceeding of law that may be brought by any persons for injury sustained or death owing to neglect of the above precautions and to pay any such persons such compensation or which may with the consent of the subcontractor be paid to compromise any claim by any such person, should such claim proceeding be filed against BHEL, the subcontractor hereby agrees to indemnify BHEL against the same.
- v. The subcontractor 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 are employed on the work of lead painting, overalls shall be supplied by the subcontractor to the workmen and adequate facilities shall be provided to enable the working painters to wash during the cessation of work.
- vi. The subcontractor shall notify BHEL of his intention to bring to site any equipment or material which may create hazard.
- vii. BHEL shall have the right to prescribe the conditions under which such equipment or materials may be handled and the subcontractor shall adhere to such instructions.
- viii. BHEL may prohibit the use of any construction machinery, which according to the organization is unsafe. No claim for compensation due to such prohibition will be entertained by BHEL.

## 17. MEMORANDUM OF UNDERSTANDING:

After award of work, subcontractors are required to enter into a memorandum of understanding as given below:



### Memorandum of Understanding

BHEL, Power Sector Region is committed to Health, Safety and Environment Policy (HSE Policy).

M/s.....do hereby also commit to comply with the same HSE Policy while executing the Contract Number \_\_\_\_\_

M/s.....have gone through and understood all the HSE requirements of the contract including HSE manpower, tools & equipment, systems & procedures, and agree to fulfill the same as a minimum. Any additional resources and support required for ensuring fulfillment of HSE Objectives shall be provided by subcontractor at no extra cost.

M/s..... agree that in case they fail to comply to the HSE requirements as stipulated in the contract, BHEL shall have the right to implement the same and the cost shall be recovered from the subcontractor with applicable overheads.

M/s..... shall ensure that safe work practices as per the HSE plan. Spirit and content therein shall be imbibed in all workers and supervisors for compliance.

In addition to this, M/s.....shall comply to all applicable statutory and regulatory requirements which are in force in the place of project and any special requirement specified in the contract document of the principal customer.

M/s.....shall co-operate in HSE audits/inspections conducted by BHEL /customer/ third party and ensure to close any non-conformity observed/reported within prescribed time limit.

M/s..... agree that the subcontractor shall seek HSE clearance as per BHEL format before each RA bill as mentioned in clause no. 9. The penalty amounts for not providing Safety manpower and various Safety violations have also been reviewed and agreed.

M/s..... agree to share the HSE Costs (running costs) of common facilities created by BHEL on proportional to contract value basis as calculated at Site by BHEL.

Signed by authorized representative of M/s -----

Name :

Place & Date:

## **SECTION B**

# **OPERATIONAL REQUIREMENTS**

## 1. PURPOSE:

- 1.1. The purpose of this HSE Plan is to provide for the systematic identification, evaluation, prevention and control of general workplace hazards, specific job hazards, potential hazards and environmental impacts that may arise from foreseeable conditions during installation and servicing of industrial projects and power plants.
- 1.2. This document shall be followed by BHEL's subcontractors at all installation and servicing sites. In case customer specific documents are to be implemented, this document will be followed in conjunction with customer specific documents in complementary manner.
- 1.3. Although every effort has been made to make the procedures and guidelines in line with statutory requirements, in case of any discrepancy wherein the relevant statutory guidelines supersedes this document, the same shall be followed.
- 1.4. In case there's any specific HSE requirement from BHEL's Client, not explicitly indicated in this document the same shall be required to be fulfilled as per the decision of BHEL Site construction manager.

## 2. SCOPE:

The document is applicable to BHEL's Subcontractors at all installation / servicing activities of BHEL Power Sector as per the relevant contractual obligations

## 3. OBJECTIVES AND TARGETS:

- i. To achieve "Zero Incident at Site"
- ii. 100% compliance to all legal/statutory requirements related to EHS.
- iii. 100% Health, Safety and Environmental Induction training attendance for all workers.
- iv. 100% High Risk activities to be carried out only after approved Method Statement, HIRA / Aspect-Impact / JSA / OCP and Permit to Work are implemented.
- v. 100% PPEs compliance in high and medium risk activities.
- vi. 100% incident reporting, recording and reviewing for corrective actions.
- vii. Regular Safety Reviews to assess HSE program compliance and closure of any recognized gaps to improve safety management and incident prevention
- viii. Prevent injury and ill health of all workers at site ('Workers' refers to all personnel including managerial, supervisory, professional, technical, clerical and other workers including contract laborers)
- ix. Prevent pollution to environment
- x. Ensure the Health and Safety of all persons at work site is not adversely affected by the work.
- xi. Ensure protection of environment of the work site.
- xii. Comply at all times with the relevant statutory and contractual HSE requirements.
- xiii. Provide trained, experienced and competent personnel. Ensure medically fit personnel only are engaged at work.
- xiv. Provide and maintain plant, places and systems of work that are safe and without risk to health and the environment.

- xv. Provide all personnel with adequate information, instruction, training and supervision on the safety aspect of their work.
- xvi. Effectively control, co-ordinate and monitor the activities of all personnel on the Project sites including subcontractors in respects of HSE.
- xvii. Establish effective communication on HSE matters with all relevant parties involved in the Project works.
- xviii. Ensure that all work planning considers all persons that may be affected by the work.
- xix. Ensure fitness testing of all T&Ps/Lifting appliances like cranes, chain pulley blocks etc. are to be certified by competent person.
- xx. Ensure timely provision of resources to facilitate effective implementation of HSE requirements.
- xxi. Ensure continual improvements in HSE performance.
- xxii. Ensure conservation of resources and reduction of wastage.
- xxiii. Capture the data of all incidents including near misses, process deviation etc. Investigate and analyze the same to find out the root cause.
- xxiv. Ensure timely implementation of correction, corrective action and preventive action.  
The subcontractor shall also comply with HSE Targets stipulated by BHEL from time to time.

#### **4. BHEL HEALTH, SAFETY & ENVIRONMENT POLICY:**

In BHEL, Health, Safety and Environment (HSE) responsibilities are driven by our commitment to protect our employees and people we work with, community and environment. BHEL believes in zero tolerance for unsafe work/non-conformance to safety and in minimizing environmental footprint associated with all its business activities. We commit to continually improve our HSE performance by:

- ❖ Developing safety and sustainability culture through active leadership and by ensuring availability of required resources.
- ❖ Ensuring compliance with applicable legislation, regulations and BHEL systems.
- ❖ Taking up activities for conservation of resources and adopting sound waste management by following Reduce/Recycle/Reuse approach.
- ❖ Continually identifying, assessing and managing environmental impacts and Occupational Health & Safety risks of all activities, products and services adopting approach based on elimination/ substitution/reduction/control.
- ❖ Incorporating appropriate Occupational Health, Safety and Environment criteria into business decisions, design of products & systems and for selection of plants, technologies and services.
- ❖ Imparting appropriate structured training to all persons at workplace and promoting awareness amongst customers, subcontractors and suppliers on HSE issues.
- ❖ Reviewing periodically this policy and HSE Management Systems to ensure its relevance, appropriateness and effectiveness.
- ❖ Communicating this policy within BHEL and making it available to interested parties.

**Chairman & Managing Director/ BHEL**

**Bharat Heavy Electricals Limited, Power Sector**

Regd. Office: BHEL House, Siri Fort, New Delhi-110049

## 5. ILLUSTRATIVE RESPONSIBILITIES OF SUBCONTRACTOR EMPLOYEES

### 5.1 HSE - A LINE RESPONSIBILITY

- i. HSE is a "Line Responsibility".
- ii. The term "Line" includes management, Executives, Supervisors, Foremen, and Workers who are part of the workforce. Line is to be fully involved in HSE Planning & Implementation with the aid and advice of HSE organization.
- iii. "Line", having control of resources and manpower is responsible for overall implementation of HSE Systems and closure of HSE observations.

### 5.2 SITE IN -CHARGE:

- i. Shall sign Memorandum of Understanding (MoU)
- ii. Shall ensure availability of all necessary resources required for implementation of HSE at Site
- iii. Shall engage qualified HSE Officer(s) and supervisors (s)
- iv. Shall adhere to the rules and regulations mentioned in this code, practice very strictly in area of work in consultation with concerned engineer and the safety coordinator.
- v. Shall screen all workmen for health and competence requirement before engaging for the job and periodically thereafter as required.
- vi. Shall not engage any employee below 18 years.
- vii. Shall arrange for all necessary PPEs like safety helmets, belts, full body harness, shoes, face shield, hand gloves etc. before starting the job.
- viii. Shall ensure that all T&Ps engaged are tested for fitness and have valid certificates from competent person.
- ix. Shall ensure closure of all HSE non-conformities reported by BHEL or observed during internal inspection by providing appropriate resources in a timely manner.
- x. Shall ensure the implementation of provisions of applicable acts and rules pertaining to HSE.
- xi. Shall ensure availability of updated (Hazard Identification and Risk Assessment) Register for the area of activity
- xii. Shall ensure availability of Method Statements & Job Safety Analysis for all hazardous activities
- xiii. Shall ensure necessary controls to minimize risk in all applicable hazardous activities including Height Work, Hot Work, Lifting & Rigging, Confined Space, Maintenance, excavation, Radiography, Loading/ Unloading, Drilling/ Blasting etc.
- xiv. Shall ensure implementation of HSE requirements mentioned in this document and as specified in the BHEL HSE management System including training, inspection, awareness, reporting etc.
- xv. Shall ensure that person working above 2.0 meter should use Safety Harness tied to a life line/stable structure.
- xvi. Shall ensure a secondary means of fall protection (Safety Net, Retractable Fall Arrestor etc.) for preventing fall from height
- xvii. Shall ensure that materials are not thrown from height. Cautions to be exercised to prevent fall of material from height.

- xviii. Shall report all incidents (Fatal/Major/Minor/Near Miss) to the Site engineer /HSE officer of BHEL.
- xix. Shall ensure that Horseplay is strictly forbidden.
- xx. Shall ensure that adequate illumination is arranged during night work.
- xxi. Shall ensure that all personnel working under subcontractor are working safely and do not create any Hazard to self and to others.
- xxii. Shall ensure display of adequate signage/posters on HSE.
- xxiii. Shall ensure that mobile phone is not used by workers while working.
- xxiv. Shall ensure conductance of HSE audit, mock drill, medical camps, induction training and training on HSE at site.
- xxv. Shall ensure full co-operation during HSE audits.
- xxvi. Shall ensure submission of look-ahead plan for procurement of HSE equipment's and PPEs as per work schedule.
- xxvii. Shall ensure good housekeeping.
- xxviii. Shall ensure adequate valid fire extinguishers are provided at the work site.
- xxix. Shall ensure availability of sufficient number of toilets (preferably bio-toilets) /restrooms and adequate drinking water at work site and labor colony.
- xxx. Shall ensure adequate emergency preparedness.
- xxxi. Shall be member of site HSE committee and attend all meetings of the committee
- xxxii. Power source for hand lamps shall be maximum of 24 v.
- xxxiii. Temporary fencing should be done for open edges if Hand – railings and Toe-guards are not available
- xxxiv. To record all incidents including near miss and report to BHEL and to ensure analysis & corrective actions for the same
- xxxv. Shall conduct weekly Safety Walks in the work area and record the findings.
- xxxvi. Construction of Canteen at Site, Office Infrastructure: Printer, PC, Fire Extinguishers etc.
- xxxvii. Shall analysis HSE Performance regularly in work area and take steps to improve the same
- xxxviii. Shall ensure stoppage of work in case of unacceptable Safety hazards

### 5.3 HSE OFFICER:

- i. Carry out safety inspection of Work Area, Work Method, Men, Machine & Material, P&M and other tools and tackles.
- ii. Facilitate inclusion of safety elements into Work Method Statement and creation of Job Safety Analysis (JSA)
- iii. (HSE Head) To prepare deployment plan of HSE personnel for all shifts, so as to ensure constant supervision of all areas. The plan to be submitted to BHEL
- iv. Highlight the requirements of safety through Tool-box / other meetings.
- v. Help concerned HOS to prepare Job Specific instructions/ JSA for critical jobs.
- vi. Conduct investigation of all incident/dangerous occurrences & recommend appropriate safety measures.
- vii. Advice & co-ordinate for implementation of HSE Systems & Procedures.
- viii. To stop work in case of any critical safety violation until the violation is cleared
- ix. Convene HSE meeting & minute the proceeding for circulation & follow-up action.

- x. Plan procurement of PPE & Safety devices and inspect their healthiness.
- xi. Report to BHEL on all matters pertaining to status of safety and promotional program at site level.
- xii. Facilitate administration of First Aid
- xiii. Facilitate screening of workmen and safety induction.
- xiv. Conduct fire Drill and facilitate emergency preparedness
- xv. Design campaigns, competitions & other special emphasis programs to promote safety in the workplace.
- xvi. Apprise BHEL on safety related problems.
- xvii. Notify site personnel non-conformance to safety norms observed during site visits / site inspections.
- xviii. Recommend to Site In charge, immediate discontinuance of work until rectification, of such situations warranting immediate action in view of imminent danger to life or property or environment.
- xix. To decline acceptance of such PPE / safety equipment that do not conform to specified requirements.
- xx. Encourage raising Near Miss Report on safety along with, improvement initiatives on safety.
- xxi. Shall work as interface between various agencies such customer, package-in-charges, subcontractors on HSE matters.

#### 5.4 HSE SUPERVISOR:

- i. All requirements as per 5.1
- ii. To monitor allotted area for Safety violations, take required action and inform the concerned Safety Supervisor / Officer
- iii. To assist HSE Officer

#### 5.5 PACKAGE IN-CHARGES, ENGINEERS & ALL EMPLOYEES:

- i. To be aware of, get involved in and ensure implementation of all HSE related Systems and Procedures including but not limited to:
  - a. BHEL HSE Management System including HSE Procedures and OCPs, HIRA, JSA etc.
  - b. Work Permit System
  - c. Emergency Preparedness Response Plans
  - d. Contractual HSE requirements
  - e. Legal Requirements
  - f. Penalty System
  - g. Training requirements
- ii. To ensure that the persons engaged in respective area follow the safety rules like using appropriate PPEs.
- iii. To develop Method Statements and ensure availability of Job Safety Analysis for all activities in scope
- iv. To ensure that the reported HSE non-conformities in the work area are resolved immediately before resuming work
- v. To record all incidents including near miss and report to BHEL.

- vi. To adopt safe working practices at all times and act as role model for Safety
- vii. To take immediate corrective action actions in case any non-conformity is observed on product / process / system with respect to Occupational Health, Safety and Environment.
- viii. In case any particular activity / work has extremely high consequential risk or high environmental impact, same shall be brought to the notice of BHEL Package In-charge before starting the work.
- ix. To interfere/ stop work as & when identified unsafe.
- x. To maintain & promote improved level of house-keeping all the time at site.
- xi. To support/co-operate with audit team members as & when safety audits are carried out.
- xii. To involve in investigation, if any incident occurs in his work area.
- xiii. To participate in safety promotional programs
- xiv. To attend the safety committee meeting, if member/invitee
- xv. To ensure that only fit T&Ps and qualified persons are engaged for all activities.
- xvi. Shall ensure that person working above 2.0 meter should use Safety Harness tied to a life line/stable structure.
- xvii. Shall ensure that materials are not thrown from height. Cautions to be exercised to prevent fall of material from height.
- xviii. Shall ensure that all T&Ps engaged are tested for fitness and have valid certificates from competent authorities.

## **6. HSE PLANNING BY SUBCONTRACTOR:**

### **6.1 HAZARD ANALYSIS & RISK ASSESSMENT (HIRA), METHOD STATEMENT (MS) & JOB SAFETY ANALYSIS (JSA):**

- i. Subcontractor shall identify all OHS Hazards and Risks applicable to all activities in scope and plan & implement the required control measures. HIRA Register shall be maintained.
- ii. Subcontractor shall develop Method Statements & Job Safety Analysis documents for all hazardous activities in scope and ensure the required control measures. Job Safety Analysis is to be attached along with any Work Permit request

### **6.2 REGISTER OF REGULATIONS:**

Subcontractor shall prepare a register of applicable rules and regulations in the scope and plan to ensure compliance.

HIRA Register, Method Statements, Job Safety Analysis and Register of Regulations are dynamic documents and shall be revised (as applicable):

- i. At fixed frequency of 3 months
- ii. Addition/ deletion/ modification of a process/ activity
- iii. After an accident/ incident
- iv. After any change in applicable rules/ regulations/ laws.

### **6.3 MONTHLY HSE PLAN COVERING THE FOLLOWING AS A MINIMUM SHALL BE PREPARED AND SUBMITTED TO BHEL FOR APPROVAL:**



- i. HSE Trainings covering all activities/ hazards/ workers
- ii. HSE Inspection Plan covering all areas/ activities/ equipment/ hazards
- iii. HSE Activities: Safety walks, Awards, housekeeping, reviews etc.

**Note:** Online/ App-based system shall be used for HSE Planning and Implementation/ Update whenever provided by BHEL otherwise Hard-copy based system shall continue

## 6.4 MONTHLY HSE PLANNING & REVIEW OF HSE ACTIVITIES ALONG WITH BHEL:

Monthly planning and review of HSE activities shall be carried out by subcontractor as per provided **format** jointly along with BHEL

## 7. MOBILIZATION OF MACHINERY/EQUIPMENT/TOOLS BY SUBCONTRACTOR:

- i. Subcontractor shall notify the engineer, of his intention to bring on to site any equipment or any container, with liquid or gaseous fuel or other substance which may create a hazard. The Engineer shall have the right to prescribe the condition under which such equipment or container may be handled and used during the performance of the works and the subcontractor shall strictly adhere to such instructions. The Engineer shall have the right to inspect any construction tool and to forbid its use, if in his opinion it is unsafe. No claim due to such prohibition will be entertained.
- ii. As a measure to ensure that machinery, equipment and tools being mobilized to the construction site are fit for purpose and are maintained in safe operating condition and complies with legislative and owner requirement, inspection shall be arranged by in-house competent authority for acceptance as applicable. Inspection by Third Party competent person shall be arranged:
  - a. Before first time use at site
  - b. After carrying out any modification
  - c. After repairs subsequent to involvement in any accident/ incident
- iii. As a further measure to ensure that machinery, equipment and tools being mobilized to the construction site are fit for purpose and are maintained in safe operating condition and comply with legislative and owner requirement, inspection as per provided format shall be arranged by in-house expert / competent authority (preferable) for acceptance. The equipment considered for this purpose shall include all those in the T&P list in the tender document.

## 8. MOBILIZATION OF MANPOWER BY SUBCONTRACTOR:

- i. As a measure to ensure that manpower being mobilized to the construction site is fit and competent for safe working, screening arrangement shall be made by the sub-subcontractor to ensure competency and fitness through following measures:
  - a) **Medical Checkup:** Examination of medical fitness shall be conducted through qualified medical professional for all workers to be deployed as per provided **format**. For height workers, vertigo (height phobia) test to be carried out as qualification criteria as per Annexure K and recorded in provided **format**.

- b) **Induction Training:** Induction training of all workers to be ensured as per **provided procedure and format**. Training evaluation to be carried out and training to be repeated if not passed
- c) Only on successfully meeting above criteria, permanent gate passes to be issued
- ii. The subcontractor shall arrange induction and regular health check of their employees as per schedule VII of BOCW rules by a registered medical practitioner.
- iii. The subcontractor shall take special care of the employees affected with occupational diseases under rule 230 and schedule II of BOCW Rules. The employees not meeting the fitness requirement should not be engaged for such job.
- iv. Ensure that the regulatory requirements of excessive weight limit (to carry/lift/ move weights beyond prescribed limits) for male and female workers are complied with.
- v. Appropriate accommodation to be arranged for all workmen in hygienic condition.
- vi. Cost of contractual, statutory and regulatory requirements like Training, medical checks, PPEs etc. shall not be transferred to the workers and such activities shall be considered as part of the job.

## 9. PROVISION OF PERSONAL PROTECTIVE EQUIPMENT (PPEs):

- i. Personnel Protective Equipment (PPEs), shall be provided by the subcontractor to all workers as per requirement of the job.
- ii. The choice of PPEs to ensure multiple (at least more than 1) means of protection against any hazard. All applicable safety precautions for a job shall be ensured notwithstanding the duration or perceived importance of the task.
- iii. The applicability of PPEs shall be as per the concept of Hierarchy of controls, i.e.:
- iv. Elimination->Substitution->EngineeringControls->AdministrativeControls-PPEs
- v. Relying solely on PPEs without ensuring necessary controls to be strictly avoided.
- vi. The following matrix recommends usage of minimum PPEs against the respective job.

Activity	Type of Protection						Remarks, if any
	Hand	Eye	Ear	Body	Respiratory	Others	
Gas Welding & Cutting	LG	WG	-	LA	*SCBA/ OLBA	-	* for confined space
Electric Arc Welding	LG	HMWS	-	LA	*SCBA/ OLBA	-	* for confined space
Rigging	CG	SG	-				--
Working at Height	-	SG	-	DLCBH	-	*FAS	* for vertical columns
Grinding & Chipping	CG	FS / SG	-	LA	-	-	--
Working in High Noise	-	-	EP / EM	-	-	-	--
Handling of Cement Concrete	RG	SG	-	-	DM	-	

Blasting	CG	SG	EP*	-	-	-	* at noise area
Excavation	CG	SG	-	-	DM	-	*Gum boot in place of Safety shoe for foot
Chemical Handling	PVCG	CSG	-	PVCA	-	-	*Full body rubber suit with hood
Electrical and C&I	ERG*	SG	-	-	-	-	*For high voltages
Sand/shot blasting	CG	-	EP/EM	CA	SAMH	-	

**ABBREVIATIONS:** FS: Face Shield, CSG: Chemical splash goggles, HMWS: Helmet mounted welder's shield, GB: gum boot, DLFH: Double lanyard full body harness, SG: Safety goggles, DM: Dust mask, SAMH L Supplied air mask/hood, EP/EM: Ear plug/Ear Muff, CG: Cotton hand gloves, LG: Leather hand gloves, LA: Leather apron, RG: Rubber gloves, PVCG: PVC Gloves, PVCA: PVC Apron, SCBA: Self-contained breathing apparatus, WG: Welding goggles, ERG: Electrical Rubber Gloves. OLBA: Online breathing apparatus

The list is not exhaustive. Additional PPEs to ensure Safe Work may need to be deployed as per the requirement of the task at no additional cost.

- vii. The PPEs shall conform to the relevant standards as below (illustrative list) and bear ISI mark.

#### RELEVANT IS-CODES FOR PERSONAL PROTECTION

PPEs	IS Codes
Industrial Safety Helmets.	IS: 2925 – 1984
Rubber gloves for electrical purposes.	IS: 4770 – 1968
Industrial Safety Gloves (Leather & Cotton Gloves).	IS: 6994 – 1973 (Part-I)
Leather safety boots and shoes.	IS: 1989 – 1986 (Part-I-II)
Industrial and Safety rubber knee boots.	IS: 5557 – 1969
Code of practice for selections care and repair of Safety footwear.	IS: 6519 – 1971
Leather Safety footwear having direct molding sole.	IS: 11226 – 1985
Eye protectors.	IS: 5983 – 1978
Ear protectors.	IS: 9167 – 1979
Eye & Face protection during welding	IS: 1179-1967
Industrial Safety Belts and Harness	IS: 3521 – 1983
Guide for selection of industrial Safety equipment for body protection	IS: 8519 -1977
Respiratory Protective Devices	IS: 9473-2002, 14166-1994, 14746-1999

- viii. Where workers are employed in sewers and manholes, which are in use, the subcontractor shall ensure that the manhole covers are opened and ventilated at least for an hour before the workers are allowed to get into manhole, and the manholes so opened shall be cordoned off with suitable railing and provided with warning signals or boards to prevent incident to the public

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- ix. All the personnel and visitors shall mandatorily use safety helmet (with company logo), safety shoe and reflective vests, in addition to any other PPEs as deemed appropriate for the area of work/ visit.
- x. Following Color scheme for Helmets shall be followed:
  - a. Workmen: Yellow
  - b. Safety staff: Green or white with green band
  - c. Electrician: Red
  - d. Others including visitors: White
  - e. For height workers, special marking on helmets besides indication on Gate Pass/ ID Card
- xi. The subcontractor shall maintain register for issue and receipt of PPEs.
- xii. All the PPEs shall be checked for quality before issue and the same shall be periodically re-checked. The users shall be advised to check the PPEs themselves for any defect before putting on. The defective ones shall be replaced.
- xiii. The Helmets shall have logo or name (abbreviation of agency name permitted) affixed or printed on the front.
- xiv. The body harnesses shall be serial numbered.

## **10. ARRANGEMENT OF INFRASTRUCTURE:**

### **10.1 DRINKING WATER:**

- i. Drinking water shall be provided and maintained at suitable places at different elevations such that minimum quantity of 5 liters is available for each worker during the day.
- ii. Drinking water tank shall be so installed so as to be available within 200 meters of each working area
- iii. Container should be labeled as “Drinking Water” in languages understood by the workers
- iv. Cleaning of the container shall be ensured at least once in a week. Mild cleaning detergents as used for cleaning vessels shall be applied and scrubbers (3M or equivalent) shall be used for removing scales and deposits on the inside surface. The tank shall be thoroughly cleaned with potable water only before it is refilled (also applicable to labor colony).
- v. Suitability of water source for drinking to be tested as per IS10500 at least once in six months.

### **10.2 WASHING FACILITIES:**

- i. In every workplace, adequate and suitable facilities for washing shall be provided and maintained.
- ii. Separate and adequate cleaning facilities shall be provided for the use of male and female workers. Such facilities shall be conveniently accessible and shall be kept in clean and hygienic condition and dully illuminated for night use.
- iii. Water suitable for washing and not for drinking shall be clearly indicated as “Not for Drinking” in language understood by workers.
- iv. Overalls shall be supplied by the subcontractor to the workmen and adequate facilities shall be provided to enable the painters and other workers to wash during the cessation of work.

### 10.3 LATRINES AND URINALS:

- i. Latrines and urinals shall be provided in every work place as indicated in Section A
- ii. Urinals shall also be provided at different elevations.
- iii. They shall be adequately lighted and shall be maintained in a clean and sanitary condition at all times, by appointing designated person.
- iv. Separate facilities shall be provided for the use of male and female worker if any.

### 10.4 PROVISION OF REST SHEDS FOR WORKERS DURING REST PERIOD:

Proper Rest Shed (s) with shelter shall be provided for rest during break so as to accommodate all workers as indicated in Section A

### 10.5 MEDICAL FACILITIES:

#### 10.5.1 GENERAL

- i. Provision of Medical Center, Ambulance etc. shall be as per Section A of this document
- ii. Medical waste shall be disposed as per prevailing legislation (Bio-Medical Waste – Management and Handling Rules, 1998)
- iii. Every injury shall be treated, recorded and reported.
- iv. All First Aid injuries shall be recorded as per provided Format
- v. List of qualified first aiders and their contact numbers to be displayed at conspicuous places.

#### 10.5.2 FIRST AIDER/ FIRST AID BOX

- i. The first aider along with facilities should be available at a point nearest to the work location wherein majority of the workers are working.
- ii. The subcontractor shall provide necessary first aid facilities as per schedule III of BOCW. At every work place first aid facilities shall be provided and maintained.
- iii. The first aid box shall be kept by first aider who shall always be readily available during the working hours of the work place. His name and contact no to be displayed on the box.
- iv. The first aid boxes should be placed at various elevations so as to make them available within the reach and at the quickest possible time.
- v. The first aid box shall be distinctly marked with a Green Cross on white background.
- vi. Details of contents of first aid box is given in Annexure J
- vii. A slip of contents shall be pasted on the First Aid Box with following details
- viii. Monthly inspection of First Aid Box shall be carried out by the owner as per provided format
- ix. The subcontractor should conduct periodical first –aid classes to keep his supervisor and Engineers properly trained for attending to any emergency.

#### 10.5.3 HEALTH CHECK UP

The persons engaged at the site shall undergo health check-up as per provided format before induction. In addition, the persons engaged in the following works shall undergo health check-up at least once in a year:

- i. Height workers
- ii. Drivers/crane operators/riggers
- iii. Confined space workers
- iv. Shot/sand blaster
- v. Welding and NDE personnel

#### 10.5.4 HEIGHT PHOBIA/ VERTIGO TEST:

- i. The persons engaged in working at heights (above 2 meters) to be assessed for Vertigo and associated conditions and recorded as per provided format. Suggested Vertigo Test Procedure is given in Annexure K
- ii. Such workers are to be allowed only on successful completion of test, otherwise shall be allocated ground-based jobs.
- iii. IDs / Height passes shall be issued to such workers, besides special markings on helmets for easy identification.

#### 10.5.5 PROVISION OF CANTEEN FACILITY:

- i. Canteen facilities shall be provided for the workmen of the project inside the project site where worker strength is 250 or more.
- ii. Proper cleaning and hygienic condition shall be maintained.
- iii. Proper care should be taken to prevent biological contamination.
- iv. Adequate drinking water should be available at canteen.
- v. Fire extinguisher shall be provided inside canteen.
- vi. Regular health check-up and medication to the canteen workers shall be ensured as per applicable regulations.
- vii. Canteen waste to be disposed of in hygienic manner

#### 10.6 PROVISION OF ACCOMMODATION/LABOR COLONY FOR WORKFORCE:

- i. Proper accommodation for workforce to be provided in line with minimum requirements indicated in Section A
- ii. Labor colony shall be inspected each week by HSE Officer and report submitted to BHEL as per provided format

#### 10.7 PEST CONTROL:

Regular pest control should be carried out at all offices, mainly laboratories, canteen, labor colony and stores.

#### 10.8 SCRAPYARD:

- i. In consultation with customer, scrapyard shall be developed to store metal scrap, wooden scrap, waste, hazardous waste.
- ii. Scrap/Waste shall be segregated as Bio-degradable and non-bio-degradable and stored separately.

## 10.9 ILLUMINATION:

- i. The subcontractor shall arrange at his cost adequate lighting facilities e.g. flood lighting, hand lamps, area lighting etc. at various levels for safe and proper working operations at dark places and during night hours at the work spot as well as at the pre-assembly area.
- ii. Lamp (hand held) shall not be powered by mains supply but either by 24V or dry cells.
- iii. Lamps shall be protected by suitable guards where necessary to prevent danger, in case of breakage of lamp.
- iv. Emergency lighting provision for night work shall be made to minimize danger in case of main supply failure.
- v. Adequate and suitable light shall be provided at all work places & their approaches including passage ways as per IS: 3646 (Part-II).

SUITABLE ILLUMINATION LEVELS FOR VARIOUS AREAS SHALL BE DECIDED BASED ON BROAD GUIDELINES INDICATED BELOW:

S. No.	Location	Lux Level (lumens/sqm)
<b>A.</b>	<b>Construction Site</b>	
1	Outdoor areas like store yards, entrance and exit roads	20
2	Platforms	50
3	Entrances, corridors and stairs	100
4	General illumination of work area	150
5	Rough work like fabrication, assembly of major items	150
6	Medium work like assembly of small machined parts	300
7	Fine work like precision assembly, precision measurements etc.	700
8	Sheet metal works	200
9	Electrical and instrument labs	450
<b>B.</b>	<b>Office</b>	
1	Outdoor area like entrance and exit roads	20
2	Entrance halls	150
3	Corridors and lift cars	70
4	Lift landing	150
5	Stairs	100
6	Office rooms, conference rooms, library reading tables	300
7	Drawing table	450
8	Manual telephone exchange	200

- vi. Illuminations shall be inspected on weekly basis as per provided **format** using a calibrated lux meter.



## 11. HSE TRAINING & AWARENESS:

### 11.1 TRAINING PLAN:

- i. All training programs to be carried out in a planned manner. Monthly/ Annual Training Calendar to be submitted to BHEL for approval and shall cover HSE Training requirements of all activities, workers, hazards applicable to the area(s) of work.
- ii. Subcontractor shall nominate workers as per the schedule of specific training plan, failing which, penalty shall be imposed.
- iii. Training records of all workers along with attendance, signatures, faculty details etc. shall be maintained in soft/ hard copy as per provided **formats**.
- iv. Each labor should undergo at least 0.5% of total man-hours worked in HSE training.

### 11.2 HSE INDUCTION TRAINING

- i. All persons entering into project site shall be given HSE induction training by the HSE officer of BHEL /subcontractor before being assigned to work.
- ii. The induction training shall be imparted through audio-visual medium (Classroom specialized training), and shall be minimum of 1 Complete Day.
- iii. Evaluation to be carried out after training and training shall be repeated in case of failure.
- iv. Safety Induction Card shall be printed by Subcontractor and provided to all trained workers. A Safety induction book shall also be printed and issued to each worker after induction training (Format for the same may be provided by BHEL).
- v. Induction training subjects shall include but not limited to:
  - a. Briefing of the Project details.
  - b. Safety objectives and targets.
  - c. Site HSE rules.
  - d. Critical Safety Violations and consequences
  - e. Site HSE hazards and aspects.
  - f. First aid facility.
  - g. Emergency Contact No.
  - h. Incident & Near Miss reporting.
  - i. Fire prevention and emergency response.
  - j. Rules to be followed in the labor colony (if applicable)
  - k. Accident case studies
- vi. General:
  - a. Proper safety wear & gear must be issued to all the workers being registered for the induction (i.e., Shoes/Helmets/Goggles/Leg guard/Apron etc.)
  - b. They must arrive fully dressed in safety wear & gear to attend the induction.
  - c. Any one failing to conform to this safety wear& gear requirement shall not qualify to attend.



- d. On completing attending subcontractor's in-house HSE induction, each employee shall sign an induction training form to declare that he had understood the content and shall abide to follow and comply with safe work practices.
- e. They may only then be qualified to be issued with a personal I.D. card, for access to the work site subject to clearing the medical fitness test.

<b>SAFETY INDUCTED</b>	
<b>Name :</b>	
<b>Date :</b>	
<b>Sign By Trainer :</b>	

ABOVE STICKER SHALL BE PASTED ON HELMET OF WORKERS AFTER SAFETY INDUCTION TRAINING

### 11.3 JOB-SPECIFIC SKILL BASED HSE TRAINING

The contracting agency shall also impart job specific skill-based safety training to all its employees (Minimum one day) on various related safety topics using internal/external safety professionals/consultants as per the matrix given below. Record of such trainings and attendance particulars shall be maintained in a register for ready reference to statutory authorities/engineer-in charge as per provided format.

**TRAINING MATRIX**

Name of topic	Executives	Supervisors	Skilled Workmen	Other Workers
Safety Induction	Y	Y	Y	Y
Accident_ Causes, factors, cost	Y	Y	Y	-
Industrial hazards & Accident Prevention	Y	Y	Y	-
Investigating, reporting, records	Y	Y	-	-
Personal Protective Equipment	-	Y	Y	Y
Construction Safety & Role of Supervisory personnel	-	Y	-	-
Permit to Work (PTW)	-	Y	Y	y
Statutory Provisions (BOCW Act/Rules, Factories Act 1948 etc.)	Y	Y	y	y
Material handling	-	y	Y	Y
Emergency Management	Y	Y	Y	-
Electrical Safety	-	Y	Y	-
Fire safety	Y	Y	Y	Y
First Aid & CPR (cardio pulmonary resuscitation)	-	Y	Y	Y (Selected)
Safety in Welding & Cutting	-	-	Y	-
Safety Audit	Y	Y	-	-
Safety in Lifting Tools & Tackles	-	Y	Y	y

Safety in Working at height	-	Y	Y	Y
Safety in Confined space work	-	Y	Y	Y
Defensive Driving	-	Y*	Y*	Y*

\*for construction vehicle operators, helpers & crane operators

Y=YES

**Note:**

- Subcontractor shall prepare a training plan/ matrix covering all hazards and implement the same after approval of BHEL.
- It is to be ensured that every worker undergoes Job-Specific training once every 3 months.
- Records of training programmes along with attendance shall be maintained by the subcontractor
- Each worker to be issued a Card indicating the types of trainings undergone.

#### 11.4 HSE TOOL-BOX TALK:

- HSE tool Box talk shall be conducted by frontline foreman/supervisor of subcontractor to specific work groups prior to the start of work and shall be randomly attended by subcontractor engineers/ officials. The agenda shall consist of the following:
  - Details of the job being intended for immediate execution.
  - The relevant hazards and risks involved in executing the job and their control and mitigating measures.
  - Specific site condition to be considered while executing the job like high temperature, humidity, unfavorable weather etc.
  - Recent non-compliances observed.
  - Appreciation of good work done by any person.
  - Any doubt clearing session at the end.
- Tool box talk to be conducted before start of work in every shift.
- During toolbox talk, visual check-up of workers regarding health, any signs of fatigue, intoxication etc. shall be conducted and any suspected workers to be acted upon.
- Record of Tool box talk shall be maintained as per provided **format**

#### 11.5 TRAINING ON HEIGHT WORK:

- Training on height work shall be imparted to all workers working at height by in-house/external faculty at least once every 3 months.
- For Height Workers Separate pass shall be provided by the subcontractor.
- The training shall be of minimum 2-hour duration, through audio-visual medium and followed by evaluation. In case of poor scoring, training shall be repeated.
- The training shall include following topics:
  - Proper use of PPEs – safety harness, lanyard, fall arrester, retractable fall arrester, life line, safety nets etc.
  - Provision of secondary means of fall protection

- c. Safe climbing through monkey ladders.
- d. Inspection of PPEs.
- e. Medical fitness requirements.
- f. Mock drill on rescue at height.
- g. Dos & Don'ts during height work.
- h. Accident case Studies

## 11.6 RE-INDUCTION TRAINING

The induction training shall be repeated for every worker after at least 1 year and shall be a pre-requisite for renewal of Gate Pass/ ID card.

## 11.7 PENALTY TRAINING

The personnel involved in Safety Violations/ Incidents shall mandatorily undertake penalty training pertaining to the violation/ incident. Penalty training shall be at least half-day duration.

## 11.8 HSE PROMOTION-SIGNAGE, POSTERS, COMPETITION, AWARDS ETC.:

- i. HSE Displays shall be installed as indicated in Section A
- ii. Contracting agencies shall arrange for display of safety hoardings depicting suitable safety cartoons/messages/ cautionary notices at appropriate places of project site to remind the workers to perform their duties safely.
- iii. Apart from safety hoardings, each agency should maintain a safety bulletin board at all their work locations. Such safety bulletin boards should depict the activities being planned for the day, good practices, permit details etc.
- iv. Safety suggestion boxes shall be kept at each subcontractor's office at site for obtaining safety suggestions from the workers. Best suggestions should be implemented and may be rewarded suitably to encourage the workers for safety.
- v. Safety awareness campaigns, competitions, plays, movie shows, songs etc. to be organized for workers at Site and Labor colony from time to time to enhance Safety Awareness

## 11.9 HSE REWARDS & INCENTIVE SCHEME

Subcontractor shall implement a reward & incentive scheme for workers & supervisors displaying adherence to safety principles. Such workers shall be felicitated in a monthly function, attended by Subcontractor top management and BHEL representatives. Suitable gift shall be given to such workers for encouragement.

## 11.10 HSE AWARENESS PROGRAM FOR OFFICIALS:

Subcontractor shall arrange monthly HSE awareness program on different topics including medical awareness for all engineers/ supervisors / officials working at site. This program can be part of progress/ safety review meetings.

## **12. HSE COMMUNICATION AND PARTICIPATION:**

### **12.1 HSE INCIDENT REPORTING, INVESTIGATION & CORRECTIVE ACTION:**

- i. All incidents (near misses, property damage, first-aid cases, minor, major and fatal incidents) shall be reported to BHEL as they happen immediately through SMS and Hard/Soft copy as per provided format
- ii. All incidents including near miss, minor, major and fatal incidents shall be recorded
- iii. All incidents shall be investigated for Root Causes and corrective actions ensured to prevent recurrence shall be implemented.
- iv. Work shall be put on hold in the area till corrective actions are verified by BHEL
- v. The Root Cause Analyses and Corrective actions taken shall be recorded

### **12.2 HSE EVENT REPORTING:**

- i. Important HSE events like HSE training, Medical camp etc. organized at site shall be reported to BHEL site management in detail with photographs for publication in different in-house magazines
- ii. Celebration of important days like National Safety Day, World Environment Day etc. shall also be reported as mentioned above.

### **12.3 MONTHLY HSE REPORTING:**

- i. All routine and non-routine HSE activities shall be reported to BHEL on monthly basis by the subcontractor as per provided format. The reporting medium can be hard/soft as per BHEL requirement.
- ii. The period of reporting shall be 25th of the preceding month to 24th of the present month and shall be submitted by the end of the calendar month.
- iii. Report shall include good quality images of HSE Activities

### **12.4 DAILY HSE ACTIVITY REPORTING:**

Daily HSE activities shall be reported by subcontractor to BHEL as per provided format

### **12.5 HSE SUGGESTIONS:**

All workers and employees shall be encouraged to provide suggestions for improvement in Health, Safety & Environment performance at site. The suggestions shall be recorded in a "Suggestions Register" as per provided format. Suggestions found suitable for implementation shall be implemented and recognition / reward to be given to the submitter.

Suggestion Register to be placed at Site and Labor Colony and shall be reviewed on periodic basis

## 12.6 CLIENT COMMUNICATION:

All HSE related communication from BHEL, customer / external statutory and regulatory agencies to be handled on priority. Same to be recorded and issues to be resolved in expeditious manner

## 13. SAFETY DURING WORK EXECUTION:

Safety during work execution shall be ensured by following appropriate Safety Rules, providing adequate resources, deploying competent and trained manpower, regular training & inspection and non-conformity resolution. Main aspects are indicated as under:

### 13.1 OPERATIONAL CONTROL PROCEDURES:

In order to reduce the risk associated with hazardous activities, applicable OCPs (Operational control procedures) will be followed by subcontractor as per BHEL instructions, outcomes of Hazard Analysis & other requirements. This will be done as part of normal scope of work. Illustrative list of reference OCPs is given below.

**TABLE 13.1 ILLUSTRATIVE LIST OF REFERENCE OCPs**

No.	Topic	No.	Topic	No.	Topic
0	General Safety	22	Steam blowing	44	Material preservation
1	Handling of chemicals	23	Working in confined area	45	Electro-resistance heating
2	Electrical safety	24	Operation of passenger lift, material hoists & cages	46	Blasting
3	Energy conservation	25	Vehicle/ Crane maintenance	47	Transformer charging
4	Welding and gas cutting operation	26	Radiography	48	Handling of battery system
5	Fire safety	27	Waste disposal	49	DG set
6	Use of hand tools	28	Handling & storage of mineral wool	50	Sanitary maintenance
7	First aid	29	Working at night	51	Piling rig operation
8	Food safety at canteen	30	Computer operation	52	Passivation
9	Use of cranes	31	Storage in open yard	53	EDTA Cleaning
10	Storage and handling of gas cylinders	32	Drilling, reaming and grinding(machining)	54	Chemical cleaning of Pre boiler system
11	Manual arc welding	33	Stress relieving	55	Boiler Light up
12	Use of helmets	34	Hydraulic test	56	Rolling and Synchronization
13	Good house keeping	35	Trial run of rotary equipment	57	Loading of Unit

14	Safe excavation	36	Batching	58	Air compressor
15	Working at height	37	Cable laying/tray work	59	Hydra Operation
16	Filling of hydrogen in cylinder	38	Spray insulation	60	Duct Pre-assembly
17	Illumination	39	Compressor operation	61	Resumption of construction activities after lockdown and prevention of coronavirus infection during site operations
18	Handling and erection of heavy metals	40	Gas distribution test		
19	Acid cleaning	41	Cleaning of Hot well / Deaerator		
20	Oil flushing	42	Electrical maintenance	61A	Prevention of Covid-19 infection in labour colony
21	Alkali boil out	43	O&M of control of AC plant & system	62	Truss/ Structure fit-up and alignment

- The reference OCPs shall be suitably modified by subcontractor as per specific requirements to control the hazards.
- In case any other OCP is found to be applicable during the execution of work at site, then subcontractor will prepare and follow those as well.

### 13.2 WORK PERMIT SYSTEM:

- The following activities shall be carried out by the subcontractor strictly after obtaining Permit to Work from BHEL
  - Height working
  - Hot working
  - Confined space Work
  - Excavation more than 2-meter depth
  - Radiography
  - Heavy / Complex / Critical Lifting Activity
  - Night / Holiday Work
  - Material Loading / Unloading
  - Grating, Safety Net, Safety Facility Removal
  - Live Electrical Maintenance etc. - Lockout / Tagout
  - Beam / truss/ duct/ structure alignment
- The Work Permit Formats shall be provided by BHEL at Site. It is the responsibility of the subcontractor to ensure their availability
- The above list is not exhaustive. BHEL reserves right to introduce additional Permits or modify requirements for usage of existing Permits. The conditions for using the Permit are specified in the Format (General Requirements).
- Where customer is having separate Work Permit System the same shall be followed in conjunction / merged to ensure all activities and checks are covered in all systems.
- Details of working Group to be attached along with work permit request.

- vi. All the Permits along with JSA/HIRA must be initiated by Agency Execution Team
- vii. Permit applicant shall apply for work permit of particular work activity at particular location before starting of the work with Job Hazard Analysis.
- viii. All Permit signatories (including subcontractor's package in-charge and HSE Officer) shall physically visit the work area and check that all the safety control measures necessary for the activity are in place. Only then the permit shall be issued.
- ix. Signatory shall physically visit the area of work and ensure all required safeguards before signing the Permit
- x. Signatory shall periodically visit the area to confirm the availability of required safeguards throughout the currency of the permit
- xi. In case any Permit requirement is not available, work will be stopped till it is made available
- xii. Permit holder shall implement and maintain all control measures during the period of permit. The permit will be closed after completion of the work.
- xiii. Online Work Permit System shall be used whenever provided by BHEL, otherwise hard copy shall be used

### 13.3 ACTIVITY-SPECIFIC PRECAUTIONS/ CONTROLS

Detailed HSE precautions for various activities undertaken at Site by the subcontractors are specified in **Annexure I**. Same are to be ensured by the Sub-subcontractor while carrying out respective activities at Site

Index of **Annexure I** is given as under

SN	Description	Page No.
1.	General	2
2.	Work at height	2
2.1	Personnel fall protection system must include	3
2.2	Working Platform	4
2.3	Scaffolding	5
2.4	Ladder Safety	7
3.	Excavation & Civil Works	8
3.1	Excavation	8
3.2	Piling	9
3.3	Batching Plant Operation	9
3.4	Mobile Plant	10
3.5	Concrete Vibrators	11
3.6	Concrete Mixers	11
4.	Welding & Gas Cutting Safety (Hot Work)	11
5.	Lifting & Rigging Safety	13
5.1	Cranes & Hoisting Equipment	15
6.	Demolition Work	20
7.	T&Ps General	20
8.	Chemical Handling	20
9.	Electrical Safety	20

10.	Use of Hand Tools and Power-Operated Tools	25
11.	Start Up, Commissioning and Testing:	27
12.	Fire Safety	27
13.	Painting	28
14.	Hazardous Energy” Control Procedure/ Lockout/Tagout (LOTO)	29
15.	Risk Assessment	36
16.	HSE Preparedness for Adverse Climates and Weather	37
16.1	Summer	37
16.2	Monsoon	38
16.3	Emergency Weather Conditions	40
16.4	Prevention of Covid-19 At Project Site & Labor Colony	41
16.5	Noise Mitigation	43

## 14. ENVIRONMENTAL CONTROL & SOCIAL RESPONSIBILITY

- i. Environment protection has always been given prime importance by BHEL. Environmental damage is a major concern of the principal subcontractor and every effort shall be made, to have effective control measures in place to avoid pollution of Air, Water and Land and associated life. Banned substances like asbestos and Chlorofluorocarbons such as carbon tetrachloride and trichloroethylene shall not be used. Waste disposal shall be done in accordance with the guidelines laid down in the project specification.
- ii. Any chemical including solvents and paints, required for construction shall be stored in designated bonded areas around the site as per Material Safety Data Sheet (MSDS).
- iii. In the event of any spillage, the principle is to recover as much material as possible before it enters drainage system and to take all possible action to prevent spilled materials from running off the site. The subcontractor shall use appropriate MSDS for clean-up technique
- iv. All subcontractors shall be responsible for the cleanliness of their own areas
- v. Regular dust suppression using sprinklers shall be carried out in respective area
- vi. The subcontractors shall ensure that noise levels generated by plant or machinery are as low as reasonably practicable. Where the subcontractor anticipates the generation of excessive noise levels from his operations the subcontractor shall inform to Construction Manager of BHEL accordingly so that reasonable & practicable precautions can be taken to protect other persons who may be affected.
- vii. It is imperative on the part of the subcontractor to join and effectively contribute in joint measures such as tree plantation, environment protection, contributing towards social upliftment, conversion of packing woods to school furniture, enhancing good relation with local populace etc.
- viii. The subcontractor shall carry out periodic air and water quality check and illumination level checking in his area of work place and take suitable control measure.



## 15. HOUSEKEEPING

- i. Keeping the work area and access roads clean/ free from debris, removed scaffoldings, scraps, insulation/sheeting wastage /cut pieces, temporary structures, packing woods etc. will be in the scope of the subcontractor. Such cleanings have to be done by subcontractor within quoted rate, on daily basis.
- ii. If such activity is not carried out by subcontractor / BHEL is not satisfied, then BHEL may get it done by other agency and actual cost along with BHEL overheads will be deducted from subcontractor's bill. Such decisions of BHEL shall be binding on the subcontractor
- iii. Dedicated Housekeeping gangs shall be deployed, who shall be provided all required PPEs and safety training
- iv. Mass housekeeping shall be carried out for half a day in a week
- v. Proper housekeeping to be maintained at work place and the following are to be taken care of on daily basis.
- vi. All surplus earth and debris are removed/disposed off from the working areas to identified locations.
- vii. Unused/Surplus cables, steel items and steel scrap lying scattered at different places/elevation within the working areas are removed to identified locations.
- viii. All wooden scrap, empty wooden cable drums and other combustible packing materials, shall be removed from workplace to identified locations.
- ix. Sufficient waste bins shall be provided at different work places for easy collection of scrap/waste. Scrap chute shall be installed to remove scrap from high locations.
- x. Access and egress (stair case, gangways, ladders etc.) path should be free from all scrap and other hindrances.
- xi. Workmen shall be educated through tool box talk about the importance of housekeeping and encourage not to litter.
- xii. Labor camp area shall be kept clear and materials like pipes, steel, sand, concrete, chips and bricks, etc. shall not be allowed in the camp to obstruct free movement of men and machineries.
- xiii. Fabricated steel structures, pipes & piping materials shall be stacked properly.
- xiv. No parking of trucks/trolleys, cranes and trailers etc. shall be allowed in the camp, which may obstruct the traffic movement as well as below LT/HT power line.
- xv. Utmost care shall be taken to ensure over all cleanliness and proper upkeep of the working areas.

## 16. WASTE MANAGEMENT

- i. Take suitable measures for waste management and environment related laws/legislation as a part of normal construction activities. Compliance with the legal requirements on storage/ disposal of paint drums (including the empty ones), Lubricant containers, Chemical Containers, and transportation and storage of hazardous chemicals will be strictly maintained.
- ii. Details of E-Waste, Hazardous Waste, biomedical waste etc. and their disposal plan, shall be submitted to BHEL every 6 months as per provided **formats**.

## 16.1 BINS AT WORK PLACE

- i. Sufficient rubbish bins shall be provided close to workplaces.
- ii. Bins should be painted yellow and numbered.
- iii. Sufficient nos. of drip trays shall be provided to collect oil and grease.
- iv. Sufficient qty. of broomsticks with handle shall be provided.
- v. Adequate strength of employees should be deployed to ensure daily monitoring and service for waste management.

## 16.2 STORAGE AND COLLECTION

- i. Different types of rubbish/waste should be collected and stored separately.
- ii. Paper, oily rags, smoking material, flammable, metal pieces should be collected in separate bins with close fitting lids.
- iii. Rubbish should not be left or allowed to accumulate on construction and other work places.
- iv. Do not burn construction rubbish near working site.

## 16.3 SEGREGATION

- i. Earmark the scrap area for different types of waste.
- ii. Store wastes away from building.
- iii. Oil spill absorbed by non-combustible absorbent should be kept in separate bin.
- iv. Clinical and first aid waste stored and incinerated separately.

## 16.4 DISPOSAL

- i. Sufficient containers and scrap disposal area should be allocated.
- ii. All scrap bin and containers should be conveniently located.
- iii. Provide self-closing containers for flammable/spontaneously combustible material.
- iv. Keep drainage channels free from choking.
- v. Make schedule for collection and disposal of waste.

## 16.5 WARNING AND SIGNS

- i. Appropriate sign to be displayed at scrap storage area
- ii. No toxic, corrosive or flammable substance to be discarded into public sewage system.
- iii. Waste disposal shall be in accordance with best practice.
- iv. Comply with all the requirements of Pollution Control Board (PCB) for storage and disposal of hazardous waste.

# 17. TRAFFIC MANAGEMENT SYSTEM

## 17.1 SAFE WORKPLACE TRANSPORT SYSTEM

- i. Traffic routes in a work place shall be suitable for the persons or vehicles using them. This shall be sufficient in number and of sufficient size. This shall reflect the suitability of traffic routes for vehicles and pedestrians.

- ii. Where vehicles and pedestrians use the same traffic routes there shall be sufficient space between them. Where necessary all traffic routes must be suitably indicated. Pedestrians or vehicles must be able to use traffic routes without endangering those at work. There must be sufficient separation of traffic routes from doors, gates and pedestrian traffic routes.
- iii. For internal traffic, lines marked on roads / access routes and between buildings shall clearly indicate where vehicles are to pass.
- iv. Temporary obstacles shall be brought to the attention of drivers by warning signs or hazard cones.
- v. Speed limits shall be clearly displayed for each kind of vehicle.
- vi. Speed ramps preceded by a warning signs or marker are necessary.
- vii. The traffic route should be wide enough to allow vehicles to pass and re-pass oncoming or parked traffic and it may be advisable to introduce on-way system or parking restrictions.
- viii. Safest route shall be provided between places where vehicles have to call or deliver.
- ix. Avoid vulnerable areas/items such as fuel or chemicals tanks or pipes, open or unprotected edges and structures likely to collapse
- x. Safe areas shall be provided for loading and unloading.
- xi. Avoid sharp or blind bends. If this is not possible hazards should be indicated e.g. blind corner.
- xii. Ensure road crossings are minimum and clearly signed.
- xiii. Entrance and gateways shall be wide enough to accommodate a second vehicle without causing obstruction.
- xiv. Set sensible speed limits which are clearly sign posted.
- xv. Where necessary ramps should be used to retard speed. This shall be preceded by a warning sign or mark on the road.
- xvi. Forklift trucks shall not pass over road hump unless of a type capable of doing so.
- xvii. Overhead electric cable, pipes containing flammable hazardous chemical shall be shielded by using goal posts height gauge posts or barriers.
- xviii. Road traffic signs shall be provided on prominent locations for prevention of incidents and hazards and for quick guidance and warning to employees and public. Safety signs shall be displayed as per the project working requirement and guideline of the state in which project is done. Vehicles hired or used shall not be parked within the 15m radius of any working area. Any vehicle, that is required to be at the immediate/near the vicinity, shall be approved by the person in-charge of the site.

## 17.2 TRAFFIC ROUTE FOR PEDESTRIANS

- i. Where traffic routes are used by both pedestrians and vehicles road shall be wide enough to allow vehicles and pedestrians safely.
- ii. Separate routes shall be provided for pedestrians to keep them away from vehicles. Provide suitable barriers/guard at entrances/exit and the corners or buildings.
- iii. Where pedestrian and vehicle routes cross, appropriate crossing shall be provided.

- iv. Where crowd is likely to use roadway e.g. at the end of shift, stop vehicles from using them at such times.
- v. Provide high visibility clothing for people permitted in delivery area.

### 17.3 WORK VEHICLE

Work vehicle shall be as safe stable efficient and roadworthy as private vehicles on public roads. Site management shall ensure that drivers are suitably trained. All vehicle e.g. heavy motor vehicle forklift trucks dump trucks mobile cranes shall ensure that the work equipment conforms to the following:

- i. A high level of stability.
- ii. A safe means of access/egress.
- iii. Suitable and effective service and parking brakes.
- iv. Windscreens with wipers and external mirrors giving optimum all round visibility.
- v. Provision of horn, vehicle lights, reflectors, reversing lights, reversing alarms.
- vi. Provision of seat belts.
- vii. Guards on dangerous parts.
- viii. Driver protection - to prevent injury from overturning and from falling objects/materials.
- ix. Driver protection from adverse weather.
- x. No vehicle shall be parked below HT/LT power lines.
- xi. Valid Pollution Under Control certification for all vehicles
- xii. Wheel stopper shall be use during the parking of vehicle
- xiii. Helper to be deployed in each vehicle as per site requirement.

### 17.4 DAILY CHECK BY DRIVER

1. There should also be daily safety checks containing below mentioned points by the driver before the vehicle is used.

Brakes	Mirrors	Warning signals
Tires	Windscreen waters	Specific safety systems i.e. controls & interlocks
Steering	Wipers	

2. Management should ensure that drivers carry out these checks.

### 17.5 TRANSPORTATION OF PERSONNEL AND MATERIALS BY VEHICLES

- i. All drivers shall hold a valid driving License for the class of vehicle to be driven and be registered as an authorized BHEL driver with the Administration Department.
- ii. Securing of the load shall be by established and approved methods, i.e. chains with patented tightening equipment for steel/heavy loads. Sharp corners on loads shall be avoided when employing ropes for securing.
- iii. All overhangs shall be made clearly visible and restricted to acceptable limits
- iv. Load shall be checked before moving off and after traveling a suitable distance.
- v. On no account is construction site to be blocked by parked vehicles Drivers of vehicles shall only stop or park in the areas designate by the stringing foreman.

- vi. Warning signs shall be displayed during transportation of material.
- vii. All vehicles used by BHEL shall be in worthy condition and in conformance to the Land Transport requirement.
- viii. Wheel stopper shall be use during the parking of vehicle
- ix. Helper to be deployed in each vehicle as per site requirement.

## 17.6 MAINTENANCE

All Vehicles used for transportation of man and material shall undergo scheduled inspections on frequent intervals to secure safe operation. Such inspections shall be conducted in particular for steering, brakes, lights, horn, doors etc. Site management shall ensure that work equipment is maintained in an efficient, working order and in good repair. Inspections and services carried out at regular intervals of time and or mileage. No maintenance shall be carried below HT/LT power lines.


## 18. EMERGENCY PREPAREDNESS AND RESPONSE

- i. Emergency preparedness and response capability of site shall be developed as per Emergency Preparedness and Response plan issued by BHEL
- ii. Availability of adequate number of first aiders and fire warden shall be ensured with BHEL and its subcontractors
- iii. All the subcontractor's supervisory personnel and sufficient number of workers shall be trained for fire protection systems. Enough number of such trained personnel must be available during the tenure of contract. Subcontractor should nominate his supervisor to coordinate and implement the safety measures.
- iv. Assembly point shall be earmarked and access to the same from different location shall be shown
- v. Fire exit shall be identified and pathway shall be clear for emergency escape.
- vi. Appropriate type and number of fire extinguisher shall be deployed as per Fire extinguisher deployment plan and validity shall be ensured periodically through inspection
- vii. Adequate number of first aid boxes shall be strategically placed at different work places to cater emergency need. Holder of the first aid box shall be identified on the box itself who will have the responsibility to maintain the same.
- viii. First aid center shall be developed at site with trained medical personnel and ambulance
- ix. Emergency contact numbers (format given in EPRP) of the site shall be displayed at prominent locations.
- x. Tie up with fire brigade shall be done in case customer is not having fire station.
- xi. Tie up with hospital shall be done in case customer is not having hospital.
- xii. Disaster Management group shall be formed at site
- xiii. Mock drill shall be arranged at regular intervals. Monthly report of the above to be given to BHEL HSE Officer as per prescribed BHEL formats
- xiv. Mock drill shall be conducted on different emergencies periodically to find out gaps in emergency preparedness and taking necessary corrective action

## 19. HSE INSPECTION

Inspection on HSE for different activities being carried out at site shall be done to ensure compliance to HSE requirements. The subcontractor shall maintain and ensure necessary safety measures as required for inspection and tests HV test, Pneumatic test, Hydraulic test, Spring test, Bend test as applicable, to enable inspection agency for performing Inspection. If any test equipment is found not complying with proper safety requirements then the Inspection Agency may withhold inspection, till such time the desired safety requirements are met.

Online/ App-based HSE Inspection system shall be used for inspection whenever provided by BHEL otherwise Hard-copy based system shall continue

 <input type="checkbox"/> <b>OK</b>	<input type="checkbox"/> <b>NOT OK</b>
Contractor Name:	
Equipment Identification No :	
Inspection Date :	
Next Inspection Date :	
Inspected By :	

**Every Inspected Equipment shall display above sticker**

### 19.1 INSPECTION PLAN

Subcontractor shall prepare an inspection plan covering all areas/ activities/ equipment/ hazards and implement the same after getting approval of BHEL. Responsibility to ensure coverage of all areas/ activities rests with the subcontractor.

All Inspections shall be witnessed by BHEL – only then they shall be considered as valid

### 19.2 INSPECTION REPORTS

Monthly inspection reports as per plan shall be submitted to BHEL HSE Head

### 19.3 NON-CONFORMANCES

Any non-conformances identified during inspection observed shall be addressed on priority.

The responsibility of resolution shall rest with the Subcontractor Site In-charge

In case immediate closure of non-conformities is not possible:

- work to be halted in the area
- non-conformance to be generated and submitted to responsible person and BHEL
- non-conformance to be resolved through responsible agency / person

Only after closure of non-conformances, work to be allowed to resume

### 19.4 DAILY HSE CHECKS

Both the Site Supervisors and HSE Officer of Subcontractor are to conduct daily site Safety inspection around work activities and premises to ensure that work methods and the sites

are maintained to an acceptable standard. The following are to form the common subjects of a daily safety inspection:

- i. Personal Safety wears & gear compliance.
- ii. Complying with site safety rules and permit-to-work (PTW).
- iii. Positions and postures of workers.
- iv. Use of tools and equipment etc. by the workers.

The inspection should be carried out just when work starts in beginning of the day, during peak activities period of the day and just before the day's work ends.

## 19.5 INDICATIVE LIST OF INSPECTIONS AND PERIODICITIES

Indicative list & periodicity of Inspections is given as under. It is the responsibility of the subcontractor to develop an inspection plan covering all areas & activities in the scope.

SL. No.	Format Name	Frequency of check (if applicable)
01	Inspection of First Aid Box	Weekly
02	Inspection of PPE	Weekly
03	Inspection of T&Ps	Monthly
04	Inspection of Cranes	Monthly
05	Inspection of Winches	Monthly
06	Inspection on Height Working	Weekly
07	Inspection on Welding & Gas Cutting	Monthly
08	Inspection on Electrical Installation	Monthly
09	Inspection on Elevator	Weekly
10	Inspection of Excavation	Weekly
11	Inspection of Labor Colony	Monthly
12	Inspection of Illumination Levels	Weekly

The checklists shall be provided by BHEL at Site. It is the responsibility of the subcontractor to ensure their availability before start of work

### 19.5.1 INSPECTION OF PPE

- i. PPEs shall be inspected by HSE officer at random once in a week as per provided **format** for its compliance to standard and compliance to use and any adverse observation shall be recorded in the PPE register.
- ii. The applicable PPEs for carrying out particular activities are listed below.

### 19.5.2 INSPECTION OF TOOLS & PLANTS (T&Ps)

- i. A master list of T&Ps shall be maintained by each subcontractor in provided **format**.
- ii. All T&Ps being used at site shall be inspected by HSE officer once in a month as per provided **format** for its healthiness and maintenance.
- iii. The T&Ps which require third party inspection shall be checked for its validity during inspection. The third-party test certificate should be accompanied with a copy of the concerned competent person's valid qualification record.



- iv. BHEL shall be given advance intimation of Third-Party Inspection. BHEL shall associate with Inspection as per discretion.
- v. The validity of T&P shall be monitored as per provided **format**

### 19.5.3 INSPECTION OF CRANES AND WINCHES

- i. Cranes and winches shall be inspected by the operator through a daily checklist for its safe condition (as provided by the equipment manufacturer) before first use of the day.
- ii. Cranes and Winches shall be inspected by HSE officer once in a month as per provided **format** for healthiness, maintenance and validity of third-party inspection.
- iii. The date of third-party inspection and next due date shall be painted on cranes and winches.
- iv. The operators/drivers shall be authorized by sub-subcontractor based on their competency and experience and shall carry the I-card.
- v. The operator should be above 18 years of age and should be in possession of driving license of HMV man & goods), vision test certificate and should have minimum qualification so that he can read the instructions and check list.

### 19.5.4 INSPECTION OF HEIGHT WORKING

- i. Any activity carried out at more than 2 m height is classified as height work.
- ii. Inspection of height working shall be conducted daily by Supervisors before start of work to ensure safe working condition including provision of
  - a. Fall arrestor
  - b. Lifelines – connected to rigid & independent structure
  - c. Safety nets deployed below all height work activities
  - d. Fencing and barricading
  - e. Warning signage
  - f. Covering of opening
  - g. Proper scaffolding with access and egress.
  - h. Illumination
- iii. For full duration of height work, constant supervision to be maintained by dedicated HSE personnel
- iv. Inspection on height working shall be conducted once in a week by HSE officer as per provided **format**.
- v. Medical fitness of height worker shall be ensured.
- vi. Height working shall not be allowed during adverse weather.

### 19.5.5 INSPECTION OF WELDING AND GAS CUTTING OPERATION

- i. Supervisor shall ensure that no flammable items are available in near vicinity during welding and gas cutting activity.
- ii. Gas cylinders shall be kept upright.
- iii. Use of Flash back arrestor shall be ensured at both ends.



- iv. Inspection during welding and gas cutting operations shall be carried out by HSE officer once a month as per provided **format**.
- v. Use of fire blanket to be ensured to avoid falling of splatters during welding or gas cutting operation at height.
- vi. Availability of fire extinguisher at vicinity shall be ensured.

#### 19.5.6 INSPECTION OF ELECTRICAL INSTALLATION / APPLIANCES

- i. Ensure proper earthing in electrical installation
- ii. Use ELCB at electrical booth
- iii. Electrical installation shall be properly covered at top where required
- iv. Use appropriate PPEs while working
- v. Use portable electrical light < 24 V in confined space and potentially wet area.
- vi. Inspection shall be carried out as per provided **format**.

#### 19.5.7 INSPECTION OF ELEVATOR

- i. Elevators shall be inspected by concerned supervisors once in a week as per provided **format**
- ii. All elevators shall be inspected by competent person and validity shall be ensured.
- iii. The date of third-party inspection and next due date shall be painted on elevator.

#### 19.5.8 INSPECTION OF EXCAVATION

Excavation activities shall be inspected as per provided **format**

#### 19.5.9 INTERNAL/ EXTERNAL HSE AUDITS/INSPECTIONS

- i. All non-conformities and observations on HSE identified during internal or external HSE audit shall be disposed of by site in a time bound manner and reported back the implementation status.
- ii. Corrective action and Preventive action on HSE issues raised by certification body issued by BHEL shall be implemented by site and reported to Site management.

### 20. TERMS AND DEFINITIONS:

#### 1. Incident

Work- related or natural event(s) in which an injury, or ill health (regardless of severity), damage to property or fatality occurred, or could have occurred.

#### 2. Near Miss:

An incident where no ill health, injury, damage or other loss occurs, but it had a potential to cause, is referred to as "Near-Miss".

#### 3. Man-Hours Worked:

The total number of man hours worked by all employees including subcontractors working in the premises. It includes managerial, supervisory, professional, technical, clerical and other workers including contract labors. Man-hours worked shall be calculated from the payroll or time clock recorded including overtime. When this is not feasible, the same shall be estimated by multiplying the total man-days worked for the

period covered by the number of hours worked per day. The total number of workdays for a period is the sum of the number of men at work on each day of period. If the daily hours vary from department to department separate estimate shall be made for each department and the result added together.

**4. First Aid Cases:**

First aids are not essentially all reportable cases, where the injured person is given medical treatment and discharged immediately for reporting on duty, without counting any lost time.

**5. Lost Time Injury:**

Any work injury which renders the injured person unable to perform his regular job or an alternative restricted work assignment on the next scheduled work day after the day on which the injury occurred.

**6. Medical Cases:**

Medical cases come under non-reportable cases, where owing to illness or other reason the employee was absent from work and seeks Medical treatment.

**7. Type of Incidents & Their Reporting:**

The three categories of Incident are as follows:

**8. Non-Reportable Cases:**

An incident, where the injured person is given medical help and discharged for work without counting any lost time.

**9. Reportable Cases:**

In this case the injured person is disable for 48 hours or more and is not able to perform his duty.

**10. Injury Cases:**

These are covered under the heading of non-reportable cases. In these cases, the incident caused injury to the person, but he still continues his duty.

**11. Total Reportable Frequency Rate**

Frequency rate is the number of Reportable Lost Time Injury (LTI) per one Million Man hours worked. Mathematically, the formula read as:

$$\text{Number of Reportable LTI} \times 1,000,000 / \text{Total Man Hours Worked}$$

**12. Severity Rate:**

Severity rate is the Number of days lost due to Lost Time Injury (LTI) per one Million Man hours worked. Mathematically, the formula reads as:

$$\text{Days lost due to LTI} \times 1,000,000 / \text{Total Man Hours Worked}$$

**13. Incidence Rate:**

Incidence Rate is the Number of LTI per one thousand manpower deployed. Mathematically, the formula reads as:

$$\text{Number of LTI} \times 1000 / \text{Average number of manpower deployed}$$

**14. HIRA:**

Hazard Identification and Risk Assessment (HIRA) is a process of identifying Hazards in work area and then assessing them properly

**15. Method Statement:**

A method statement is prepared by the Execution/ Engineering Department detailing the steps, equipment, competencies and safety precautions required for carrying out any activity

**16. Job Safety Analysis:**

A job safety analysis (JSA) is a procedure which helps integrate accepted safety and health principles and practices into a particular task or job operation. In a JSA, each basic step of the job is to identify potential hazards and to recommend the safest way to do the job. Other terms used to describe this procedure are job hazard analysis (JHA) and job hazard breakdown.

**17. Safety Walk:**

It's conducted periodically by an official - it's a walk through a portion or whole of a site as a HSE officer who notes down HSE observations, speak to concerned workmen and supervisor on observation, get the same corrected with personal follow up- this sends out a strong message on Management's commitment to safety.

**18. Heavy & Complex Lifting:**

A heavy and complex lifting activity includes:

1. Lifting above 20 Tons
2. Tandem Lifting using multiple cranes  
Total load exceeding 75% of capacity of crane. Depending up the condition of cranes, hydra cranes, winch machines & other lifting accessories
3. Lift of unusual difficulty or geometry or rigging
4. Lift over operating units
5. Any other lift as decided by site HSE / Erection

**19. Safety Committee:**

As per the BOCW, Safety Committee shall be constituted if there are more than five hundred or more construction workers are employed at any site. As per the Factories Act, 1948 it is for 250 workers. It shall be represented by equal number of representatives of employer and construction workers.

**20. Night Work:**

Work conducted after sunset when only a fraction of total manpower is available





ANNEXURES



## ANNEXURE A

Medical Centre & Ambulance

## A. Medical Centre

1. Paramedical staff
    - a. When < 500 workers, 1 Trained Male Nurse (round the clock deployment)
    - b. When >=500 workers\*:
      - i. Registered Medical Practitioner (Qualified MBBS) to be deployed for at least 8 hours in a day, 5 days per week
      - ii. 2 Trained Male Nurses (round the clock deployment)
  2. All articles as per Schedule IV of BOCW Central Rules, 1998 to be made available in the Medical Centre (given under for convenience)
  3. Basic Facilities/ Requirements to be provided as per location eg. Refrigerator, Air Conditioner, Anti Venom Serums etc.
  4. Tie-ups with speciality hospitals to be ensured for referring serious patients
- \* In case the number of workers is envisaged to exceed 500, a medical practitioner is to be engaged.

### SCHEDULE IV (BOCW CENTRAL RULES, 1998) ARTICLES FOR AMBULANCE ROOM [SEE RULE 226 (C)]

- i. A glazed sink with hot and cold water always available.
- ii. A table with a smooth top at least 180 cm x 105 cm.
- iii. Means for sterilising instruments.
- iv. A couch.
- v. Two stretchers.
- vi. Two buckets or containers with close fitting lids.
- vii. Two rubber hot water bags
- viii. A kettle and spirit stove or other suitable means of boiling water.
- ix. Twelve plain wooden splints 900 cm x 100 cm x 6 cm.
- x. Twelve plain wooden splints 350 cm x 75 cm x 6 cm.
- xi. Six plain wooden splints 250 cm x 50 cm x 12 cm.
- xii. Six woollen blankets.
- xiii. Three pairs of artery forceps.
- xiv. One bottle of spiritus annemia aremations (120 ml).
- xv. Smelling salt (60 gm).
- xvi. Two medium size sponges.
- xvii. Six hand towels.
- xviii. Four kidney trays.
- xix. Four cakes of toilet, preferably antiseptic soap.
- xx. Two glass tumblers and tow wine glasses.
- xxi. Two clinical thermometers.
- xxii. Two tea spoons.
- xxiii. Two graduated (120 ml) measuring glasses.
- xxiv. Two minimum measuring glasses.
- xxv. One wash bottle (1000 cc) for washing eyes.
- xxvi. one bottle (one litre) carbolic lotion 1 to 20.
- xxvii. Three chairs.
- xxviii. One screen.
- xxix. One electric hand torch.
- xxx. Four first-aid boxes or cupboards stocked to the standards prescribed in
- xxxi. An adequate supply of tetanus toxide.
- xxxii. Injections—morphia, pethidine, atrophine, adrenaline, coramine, novocaine (6 each).
- xxxiii. Cramine liquid (60 ml).
- xxxiv. Tablets—antihistaminic antispasmodic (25 each).
- xxxv. Syringes with needles—2 cc, 5 cc, 10 cc and 500 cc.

- xxxvi. Three surgical scissors.
- xxxvii. Two needle holders, big and small.
- xxxviii. Suturing needles and materials.
- xxxix. Three dissecting forceps
- xl. Three dressing forceps
- xli. Three scalpels.
- xlii. One stethoscope and a B. P. apparatus.
- xliii. Rubber bandage—pressure bandage.
- xliv. Oxygen cylinder with necessary attachments.
- xlv. Atropine eye ointments.
- xlvi. I. V. Fluids and sets 10 nos.
- xlvii. Suitable, foot operated, covered, refuse containers.
- xlvi. Adequate number of sterilised, paired, latex hand gloves.

## B. Ambulance

1. When number of workers is <500:  
If the distance to a major hospital capable of handling critical injuries expected at Site is ≤ 50 KM from Site, then 1 BLS (Basic Life Support)/ Type B Ambulance otherwise ALS\* (Advanced Life Support)/ Type D Ambulance
2. If no. of workers increases to >2000 workers one additional BLS Ambulance to be deployed
3. Minimum Articles as per Schedule V of BOCW Central Rules to be ensured in each Ambulance. (given under for convenience)

\*Final call to be taken at Site in consultation with all the contractors

### SCHEDULE V (BOCW CENTRAL RULES, 1998) CONTENTS OF AMBULANCE VAN OR CARRIAGE [SEE RULE 227]

The Ambulance Van shall have equipment prescribed as under:

- a) General—a portable stretcher with folding and adjusting devices with the Head of the stretcher capable of being tilted upward. Fixed suction unit with equipment. Fixed oxygen supply with equipment. Pillow with case, sheets, blankets, towels, emergency bag, bed pan, urinal glass.
- b) Safety Equipment—Flaros with life of three thousand minutes, floor lights, flash lights, fire extinguishers (dry power type), insulated guntlets.
- c) Emergency Care Equipment—
  - i. **Resuscitation**—Portable suction unit, portable oxygen unit, bag valve mask, hand operated artificial ventilation unit, airways, mouth gag tracheostomy adapters, short spine board, I.V. FLUIDS with administration unit, B. P. manometer cuff stethoscope.
  - ii. **Immobilisation**—Long and short padded boards, wire ladder splints, triangular bandage—long and short spine boards.
  - iii. **Dressing**—Gauze pads—100 m x 100 mm universal dressing 250 x 1000 mm, roll of aluminium foils—soft roller bandages 150 mm x 5 mm yards adhesive tape in 75 mm roll safety pins, bandage sheets, burn sheets.
  - iv. **Poisoning**—Syrup of Ipecac, activated charcoal pre packeted dose, snake bit kit, drinking water.
  - v. **Emergency Medicines**—As per requirement (under the advice of construction Medical Officer).





## ANNEXURE A.1

Sample calculation for deduction of operational cost of facilities

**Annexure A.1****Cost Calculation Methodology of Operation of Facilities (Data is indicative only)**

(Period of 48 months is considered - shall be on actual basis)

**A. Project Info:**

Total time of Project	48 months
Project cost	1000 Crore
No. of packages	10 (A1-A10)

**B. Item-wise Calculation:**

Item	Nos.	Rate	Unit	Amount
Ambulance with Driver	2		Monthly/Unit	170000
Nurse/First aider	2 X 2 shifts	15000	Per month	30000
Training center one time cost	1	100000	Once	100000
Medical center one time cost	1	200000	Once	200000
Medicines at medical center	1	10000	Monthly	10000
Dust suppression water tank	2	2000	Monthly	4000
Doctor	1	70000	Monthly	70000
Cleaning staff	1	12000	Monthly	12000
Recurring monthly expenditure				296000
Total one-time expenditure				300000

**C. Package-wise Deduction Plan for a period of 48 months**

Period (In Months)	6	36	6
	For 1-6 months	For 7-42 months	For 43-48 months
Cost to be incurred from contractors	7%	81%	12%
	1.17% per month	2.25% per month	2.00% per month

### D. Calculation For One-Time Running Cost

Packages/ Contracts	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10				
Contract Values (in Thousands)	100000	250000	2000000	200000	500000	1500000	1000000	1000000	250000	200000	7000000			
Share of common facilities one time running cost (in Thousands)	4	11	86	9	21	64	43	43	11	9	Individual Pkg value X Total one time running cost / All Pkg award values			
Timeline of work	1-6	1-8	2-48	6-36	7-15	10-48	6-48	7-40	40-48	41-48				
Month Count of work	6	8	47	31	9	39	43	34	9	8				
Deduction per month (in Thousands)	1	1	2	0	2	2	1	1	1	1	Total of One time Running cost (in thousands)	% deduction share of one time running cost per month	Nos. of active packages in month	
Month No.														
1	1	1									2	1%	2	
2	1	1	2								4	1%	3	
3	1	1	2								4	1%	3	
4	1	1	2								4	1%	3	
5	1	1	2								4	1%	3	
6	1	1	2	0			1				5	2%	5	
7		1	2	0	2		1	1			8	3%	6	
8		1	2	0	2		1	1			8	3%	6	
9			2	0	2		1	1			7	2%	5	
10			2	0	2	2	1	1			8	3%	6	
11			2	0	2	2	1	1			8	3%	6	
12			2	0	2	2	1	1			8	3%	6	
13			2	0	2	2	1	1			8	3%	6	
14			2	0	2	2	1	1			8	3%	6	
15			2	0	2	2	1	1			8	3%	6	
16			2	0		2	1	1			6	2%	5	
17			2	0		2	1	1			6	2%	5	
18			2	0		2	1	1			6	2%	5	
19			2	0		2	1	1			6	2%	5	
20			2	0		2	1	1			6	2%	5	
21			2	0		2	1	1			6	2%	5	
22			2	0		2	1	1			6	2%	5	
23			2	0		2	1	1			6	2%	5	
24			2	0		2	1	1			6	2%	5	
25			2	0		2	1	1			6	2%	5	
26			2	0		2	1	1			6	2%	5	
27			2	0		2	1	1			6	2%	5	
28			2	0		2	1	1			6	2%	5	
29			2	0		2	1	1			6	2%	5	
30			2	0		2	1	1			6	2%	5	
31			2	0		2	1	1			6	2%	5	
32			2	0		2	1	1			6	2%	5	
33			2	0		2	1	1			6	2%	5	
34			2	0		2	1	1			6	2%	5	
35			2	0		2	1	1			6	2%	5	
36			2	0		2	1	1			6	2%	5	
37			2			2	1	1			6	2%	4	
38			2			2	1	1			6	2%	4	
39			2			2	1	1			6	2%	4	
40			2			2	1	1	1		7	2%	5	
41			2			2	1		1	1	7	2%	5	
42			2			2	1		1	1	7	2%	5	
43			2			2	1		1	1	7	2%	5	
44			2			2	1		1	1	7	2%	5	
45			2			2	1		1	1	7	2%	5	
46			2			2	1		1	1	7	2%	5	
47			2			2	1		1	1	7	2%	5	
48			2			2	1		1	1	7	2%	5	
Total	4	11	86	9	21	64	43	43	11	9	300	100%		

### D. Calculation For Recurring Running Cost

Packages/ Contracts	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10		
Contract Values (in Thousands)	100000	250000	2000000	200000	500000	1500000	1000000	1000000	250000	200000	7000000	
Timeline of work	1-6	1-8	2-48	6-36	7-15	10-48	6-48	7-40	40-48	41-48	Total of Recurring cost (in thousands)	Nos. of active packages in month
Month No.	6	8	47	31	9	39	43	34	9	8		
1	85	211									296	2
2	13	31	252								296	3
3	13	31	252								296	3
4	13	31	252								296	3
5	13	31	252								296	3
6	8	21	167	17			83				296	5
7		15	120	12	30		60	60			296	6
8		15	120	12	30		60	60			296	6
9			126	13	31		63	63			296	5
10			95	10	24	72	48	48			296	6
11			95	10	24	72	48	48			296	6
12			95	10	24	72	48	48			296	6
13			95	10	24	72	48	48			296	6
14			95	10	24	72	48	48			296	6
15			95	10	24	72	48	48			296	6
16			104	10		78	52	52			296	5
17			104	10		78	52	52			296	5
18			104	10		78	52	52			296	5
19			104	10		78	52	52			296	5
20			104	10		78	52	52			296	5
21			104	10		78	52	52			296	5
22			104	10		78	52	52			296	5
23			104	10		78	52	52			296	5
24			104	10		78	52	52			296	5
25			104	10		78	52	52			296	5
26			104	10		78	52	52			296	5
27			104	10		78	52	52			296	5
28			104	10		78	52	52			296	5
29			104	10		78	52	52			296	5
30			104	10		78	52	52			296	5
31			104	10		78	52	52			296	5
32			104	10		78	52	52			296	5
33			104	10		78	52	52			296	5
34			104	10		78	52	52			296	5
35			104	10		78	52	52			296	5
36			104	10		78	52	52			296	5
37			108			81	54	54			296	4
38			108			81	54	54			296	4
39			108			81	54	54			296	4
40			103			77	51	51	13		296	5
41			120			90	60		15	12	296	5
42			120			90	60		15	12	296	5
43			120			90	60		15	12	296	5
44			120			90	60		15	12	296	5
45			120			90	60		15	12	296	5
46			120			90	60		15	12	296	5
47			120			90	60		15	12	296	5
48			120			90	60		15	12	296	5
Total	143	388	5676	329	235	3102	2334	1772	132	96	14208	



## ANNEXURE B

HSE Displays

**A. Types of Displays****1. Based on Content**

SN	Type
1.	<b>HSE Hazards &amp; Precautions</b> Height Work, Housekeeping, Fire Safety, PPEs, Hot Work, Lifting & Rigging Activity, Site-specific Hazards – eg. for Refineries, Nuclear plants etc.; COVID Precautions; Environment Protection etc.
2.	<b>Other Displays, Signage etc.</b> HSE Policy, ISO Certificate, Safety Statistics, Assembly Area Location/ Route, Emergency Contact Numbers, Site Safety Rules & Regulations, Speed Limit, Work in Progress, Lock-Out Tag-Out (LOTO) Boards etc.

**2. Based on Mounting**

[Type 1]	[Type 2]	[Type 3]
Flex Sign Boards of Wooden Frame – directly mounted on Structures (walls, stairs, railings etc.)	Flex Sign Boards with Wooden Frame – mounted on metallic/ wooden legs – preferably double-sided	Coloured weather-proof Paintings on Walls (after due concurrence of BHEL/ Customer – Type 1 in case of no concurrence/ space)

**B. General Requirements:**

- Displays should be weather-proof as per installation location, i.e. rain-proof, wind-proof and sun-proof.
- Installation location and size to ensure visibility for the intended viewers (workers and moving personnel)
- Displays to have at least 50% graphical elements preferably (as applicable). Language should be understandable by majority of the workers
- Displays to be relevant to the hazards in the area
- Proper installation to ensure boards don't obstruct activities and should not be prone to fall so as to pose danger
- In case of multiple elevations (eg. Boiler, Power-house etc.), each elevation to have displays for applicable hazards including Height-Work, Housekeeping
- For temporary work locations, posters/ boards may be erected and shifted after task is over
- Minimum size of displays should be A1 unless otherwise specified
- In case of damage, displays shall be reviewed and repaired/ replaced
- In areas where night work is envisaged, fluorescent displays shall be installed and these should comprise of at least 20-30% of total displays
- Total Number of displays to be not less than 1 per 10 workers and are to be dynamically updated based on number of workers

## C. Area-wise Displays

Below is list of Area-wise displays that are to be installed at Sites (Numbers, locations may be adjusted for specific requirements)

SN	Area	Suggested Subjects	Minimum Size	Minimum Quantity	Locations
1	<b>Walls/ Foundations/ Cement Structures etc. belonging to the package area</b>	Safety Hazards Prevention and other HSE Awareness content	<b>[Type 3]</b>	As per BHEL assessment from time to time	
2	<b>Site Interior Roads belonging to the package area</b>	At least every 20 meters: 1. Speed Limit Indication, Safe Driving board 2. Boards for hazard awareness	1.As needed <b>[Type 2]</b> 2. A1 or equivalent each <b>[Type 2]</b>	As indicated	Sides of Roads; Height to ensure good visibility
3	<b>Specific Package Areas</b>	<b>A. Common</b> At entry to respective Package/ Work Area, each contractor to put up daily updated board with following for each shift: <ol style="list-style-type: none"> <li>1. Scope of work and start date</li> <li>2. Emergency Contact Numbers</li> <li>3. Emergency Assembly Location, Escape Plan</li> <li>4. Locations and supervisors of various gangs in the area,</li> <li>5. Current Work permit Details</li> <li>6. Safety Supervisor Location assignments - Names, Mobile Nos., Assigned Locations</li> <li>7. Details (Name, Contact No. etc.) of Package In-charge - Contractor &amp; BHEL</li> <li>8. Details (Name, Contact No. etc.) of Safety In-charge - Contractor &amp; BHEL</li> <li>9. LTI Free Man-days &amp; details of last LTI also to be indicated</li> </ol> In addition, Area-Specific Displays as indicated in Table 1	<b>A0 [Type 2]</b>	1 per Package Area	Entry/ Ground Level

**Table 1**  
**(Area/ Package-wise HSE Display Plan – As applicable)**

Prepared By (Subcontractor)				
S. No.	Area	Suggested Minimum No. of Displays & Types	Type	Numbers Installed
1	Boiler	3 per working elevation	[Type 1]	
2	Powerhouse	5 per elevation	[Type 1]	
3	ESP	5 Per Pass	[Type 1]	
4	Buildings	5 per elevation	[Type 1]	
5	Cooling Tower (NDCT/ IDCT/ ACC)	20 per Structure	[Type 1]	
6	Chimney	20 per Structure	[Type 1]	
7	Fabrication Yard	10 per Yard	[Type 2]	
8	Batching Plant	5 per Plant	[Type 1]	
9	Material Storage Yard – Open	20 per Yard	[Type 2]	
10	Material Storage Shed – Semi-Closed/ Closed	10 per Shed	[Type 1]	
11	Electrical Booths	2 per booth + Line diagram, Emergency contact details	[Type 1]	
12	Medical & First Aid Centre	2 per Centre	[Type 1]	
13	Rest Shed	2 per Shed	[Type 1]	
14	Canteen	2 per Canteen	[Type 1]	
15	Drinking Water Area	1 Per Outlet	[Type 1]	
16	Washing Water Area	1 Per Outlet	[Type 1]	
17	Training Centre	10 per room	[Type 1/2]	
18	Assembly Area	5	[Type 1/2]	
19	Stairs	1 per landing elevation	[Type 1]	
20	Cylinder Storage Area	5 + Signage: Type of Gas, Empty, Filled etc.	[Type 1/2]	
21	Labor Colony	Electrical Safety with Distribution Plan/ Line Diagram - 1 COVID Precautions Posters – 5 Safety Awareness Posters – 10 Hygiene awareness posters - 2	[Type 1]	
22	Others	As per requirement	[Type 1/2]	

Date:

Sign (Contractor)

Sign (BHEL)





## ANNEXURE C

HSE Tools/ Equipment/ Devices

Following equipment conforming to relevant IS/ISO/BS Codes/ Standards in indicated quantities shall be ensured by subcontractor. This list is tentative, not exhaustive. Quantity and date/ period of deployment shall be as per site requirement.

#### A. HSE Tools/ Equipment/ Devices

SN	Item
1	Lifelines
2	Retractable Fall Arrestors
3	Safety Nets (10m X 5m) fire proof double mesh
4	Sky Climbers
5	Fire Blanket
6	Honey Bee Removal Suit & Kit
7	Scaffolding Pipes
8	Flashback Arrestors
9	Barricading Tape
10	Binoculars
11	Walkie-Talkies
12	LOTO kit
13	24-Volt light
14	Sand Buckets
15	Hard barricading Pipes
16	Standby Fire kits
17	Hand-held Megaphone
18	Small Public Address System
19	Foldable Stretcher
20	Height Rescue Kit (Non-Motorized)
	(Others:)

#### B. Test & Measurement Devices

SN	Device
1	ELCB Tester
2	Multi meter (Light cables)
3	Earth Resistance Meter
4	Lux Meter
5	Sound Meter
6	Anemometer
7	Breath Analyzer (Alcohol)
8	Multi-gas dozi-meter/ detector
9	Gas leakage detector / alarm
10	Gas monitor (confined space)
11	Radiation meter & Badges
12	Blood Pressure Monitor
13	Fire detectors
14	Hand held signaling light
	(Others:)



## ANNEXURE D

Rest Sheds

## 1. Determining the Number, Sizes and Locations of Rest Shelters

### i. **Numbers:**

The number of rest shelters shall be determined based on maximum number of workers at any one time (across all shifts). Formula is:

$W_{max}$  = Maximum number of workers at any time in the Site

Space per worker = 1.1 sq meter

Total space required,  $T_{space} = W_{max} \times 1.1$

Based on total space requirement calculated above, the number of rest sheds can be decided according to availability of locations and concentration of workers – so as to ensure the required space.

### ii. **Locations:**

The rest sheds should be so located so as to minimize the distance to be travelled by the workers from their locations of work considering all the practical constraints

### iii. **Other:**

The Rest shelter should be fenced so that it cannot be used as parking area.

## 2. Design & Construction of Rest Sheds

### a. **Permanent/ Long duration Rest Sheds**

- i. For locations where, permanent rest sheds can be constructed without possibility of removal for relatively long period of time, a semi-closed shed can be constructed covered with tin roof and supported with well-grouted beams. The floor of the shed to be preferably cemented/ solidified.
- ii. Adequate structural requirements suitable to the local weather (wind/ rain etc.) to be ensured.
- iii. The design of the rest shed to be approved by Civil Engineering Department of BHEL Site before commencing work

### b. **Temporary/ Movable/ Portable Rest Sheds**

- i. For locations where, permanent rest sheds cannot be constructed either due to non-availability of permanent location or other reasons, temporary rest shed shall be constructed.
- ii. Temporary rest sheds shall comprise of Tent arrangement carried out by professional agencies

## 3. Amenities in Rest Sheds

### a. **Essential Amenities**

Following amenities shall be essentially ensured in a rest shed:

- i. Hygienic environment with regular cleaning and housekeeping (with records)
- ii. Adequate illumination
- iii. Adequate ventilation/ heating as per weather conditions
- iv. Clean Drinking water source
- v. Hand Washing area
- vi. Toilets & Urinals
- vii. Benches/ mats for sitting/ lying
- viii. Any other essential requirement deemed necessary by the Site
- ix. Dust bins of sufficient quantity/ size that are vacated each day/ as per requirement

### b. **Additional/ Optional Amenities**

Following amenities are optional but are recommended to enhance the level of satisfaction of work force:

- i. Hot/ Cold drinks (Tea, Coffee, Glucose etc.) as per requirement
- ii. Snacks
- iii. Fans/ Coolers/ Heating arrangements as per requirement and weather conditions
- iv. A nice, welcoming interior design, music etc.
- v. Water cooler

#### 4. Health & Safety Requirements of Rest Sheds

Use of asbestos in construction is banned and shall not be used.

In addition, following essential Safety features shall be ensured in Rest sheds:

- i. Availability of Fire extinguishers (preferably CO2 type)
- ii. Display of Safety Posters
- iii. Pest/ reptile protection
- iv. Mosquito prevention measures

#### 5. Note:

Any suitable closed spaces/ newly constructed buildings etc. available at project may also be used for the purpose of rest shed with due concurrence of BHEL



## ANNEXURE E

Labor Colony

1. These Guidelines suggest minimum requirements. However, additional requirements based on feasibility and circumstances, while adhering to directions of GOI/District Administration/Local Authority guidelines to be considered
2. Norms for social distancing, training/ awareness, face masks, disinfection, sanitization, gate entry, quarantine, medical, action in case of suspect cases of COVID and other communicable diseases etc. to be followed as per Govt. and BHEL guidelines issued from time to time
3. Labor colony to be developed as close to the Site as possible to avoid lengthy commute
4. A "Suggestion Register" shall be made available at the labor colony for residents. The feedback shall be reviewed on weekly basis and acted upon by concerned Contractor. Same shall be reviewed periodically by authorized BHEL Site Official.
5. **Canteens, Latrines & Urinals, Washing Facilities, Creches, Residential Accommodation and other infrastructure/ facilities:**  
Numbers/ Quantities and Features of these facilities shall be in line with the following as applicable:
  - a. BOCW Act & State Rules
  - b. The Inter-State Migrant Workmen (Regulation of Employment and Conditions of Service) Act & State Rules
  - c. Factories Act & State Rules
  - d. Other Relevant Acts & Rules
6. **Cleanliness & Hygiene/ Housekeeping:**
  - a. Regular cleaning of the labor colony to be ensured.
  - b. Daily cleaning of Sanitary facilities.
  - c. Proper drainage system to prevent water-logging
  - d. Regular fogging to prevent spread of mosquitoes
  - e. Prevention of foul smell through necessary interventions
  - f. Dust suppression as per requirement
  - g. Cutting of Grass at regular intervals and other necessary measures to prevent pests & reptiles
  - h. Stray animals to be banned from labor colony.
  - i. Outside every common facility, eg. Toilet, washroom, food hall/ canteen etc., provision of washbasin with flowing water and soap (preferably liquid soap) to be ensured
7. **Power Supply Layout:**  
Electrical supply Layout of Labor Colony shall have the provision of Safety devices like MCBs, ELCBs etc. and to be clearly displayed
8. **Washing & Drinking Water Availability**
  - a. Adequate water to be provided in line with: "Estimation of Water Requirements for Drinking and Domestic Use (Source: National Building Code 2016, BIS)"
  - b. Drinking water tank to be cleaned every week and sticker for the same pasted on the tank
  - c. Drinking water source should be tested as per IS 10500
9. **Waste Disposal:** Separate bins for dry, wet and biomedical waste to be installed. These bins to be evacuated regularly
10. **Training & Awareness/ Displays**
  - a. **HSE Awareness Displays:** Posters/ banners/ boards to be displayed in labor colony. Subjects of displays shall be precautions for applicable hazards at work site.
  - b. **Emergency Contact Numbers** including that of Doctor, Hospital, Labor Colony Supervisor, HSE Officials to be displayed prominently

**11. Doctor Visits:**

Regular and need-based visits by Doctors to be ensured through tie-ups etc.

**12. Inspection & Review:** Regular inspection of labor accommodation to be carried out by the Contractor as per prescribed format. Last inspection date, inspector and next due date to be prominently indicated near main gate**13.** Provision of a Fair Price shop in the premises to be ensured as per requirement**14.** Adequate arrangements to be ensured in case of children/ families





## ANNEXURE F

Toilets

Toilets (Latrines and urinals shall be ensured at Site and Labor Colony in accordance with the Inter-State Migrant Workmen Act, 1979 as given below:

LATRINES	URINALS
<p>1. Latrines shall be provided in every establishment on the following scale, namely: -</p> <ol style="list-style-type: none"> <li>Where females are employed, there shall be at least one latrine for every 25 females;</li> <li>Where males are employed, there shall be at least one latrine for every 25 males:</li> </ol> <p>Provided that where the number of males or females exceeds 190, it shall be sufficient if there is one latrine for 25 males or females, as the case may be, up to the first 100, and one for every 30 thereafter</p> <p>2. Every latrine shall be under cover and so partitioned off as to secure privacy, and shall have a proper door and fastenings.</p>	<p>1. There shall be at least one urinal for male workers up to fifty and one for female up to fifty employed at a time:</p> <p>Provided that where the number of male or female workmen, as the case may be, exceeds 500 it shall be sufficient if there is one urinal for every fifty females up to the first 500 and one for every 100 or part thereof thereafter.</p> <p>2. The urinals shall be designed and located so as to ensure privacy.</p>

Important:

- Where workers of both sexes are employed there shall be displayed outside each block of latrine and urinal a notice in the language understood by the majority of the workers '**For Men Only**', or '**For Women Only**', as the case may be.
- The notice shall also bear the figure of a man or of a woman, as the case may be.
- The latrines and urinals shall be conveniently situated and accessible to workers at all times at the establishment.
- The latrines and urinals shall be adequately lighted and shall be maintained in a clean and sanitary condition at all times.
- Latrines and urinals other than those connected with a flush sewage system shall comply with the requirements of the public health authorities.
- Water shall be provided by the means of tap or otherwise so as to be conveniently accessible in or near the latrines and urinals.
- At Site, on ground, **Modular Bio-toilets** as per industry standard specifications and regular professional cleaning shall be ensured. The toilets should be sufficient in number and easily accessible to workers from every work area
- At Site, in various elevations, suitable urinals with proper drainage to be ensured at each elevation in line with IS 2064 (1993). Same to be cleaned regularly



## ANNEXURE G

### Fire Extinguishers

SN	Type of Fire Risk (Class of Fire)	Extinguishing Medium & Relevant INDIAN STANDARD	Scale of Equipment (Minimum recommended)
1.	<b>CLASS 'A'</b> Fires involving ordinary combustible materials like wood, paper, textiles, rubber etc. (Ordinary hazard or low fire load)	WATER Soda acid type, water type (gas pressure) and water type (constant air pressure) IS: 934 -1976; IS: 940 -1976; IS: 6234 -1971	For every 600 square meter floor area or part, one 9-litre capacity. Minimum 4 numbers per floor or room; should not be required to travel more than 15 meter to reach any extinguisher.
2.	<b>CLASS 'A'</b> (Extra hazard & high fire load)	-do	-do – (Also, consult local fire authority).
3.	<b>CLASS 'A'</b> (Special hazards)	-do	-do – Extra provision For every 100 square meter floor area or part, one 4.5 Kg. CO <sub>2</sub> ; minimum 2 numbers per room; should not be required to travel more than 10 meter to reach any extinguisher.
4.	<b>CLASS 'B'</b> (Fires in flammable liquids like oils, solvents, petroleum, products, varnishes, paints, etc. where blanketing effect is essential) (Storage and handling in small quantities)	FOAM / CARBON DIOXIDE / DRY CHEMICAL POWDER IS: 933 -1976; IS: 2878 1976; IS: 2171 1976; IS: 4308 -1982	For every 50 square meter floor area or part, 2 numbers 9 -liters foam or 5 kg dry powder; should not be required to travel more than 10 m in the area of storage to reach any extinguisher.
5.	<b>CLASS 'B'</b> (Bulk storage other than in tank form))	-do -	-do- (but minimum 3 numbers per room)
6.	<b>CLASS 'C'</b> (Fires involving gaseous substances under pressure where it is necessary to dilute the burning gas at a very fast rate with an inert gas or powder) (storage and handling of gas cylinders)	CARBON DIOXIDE / DRY CHEM. POWDER. The best way to extinguish such fire is by stopping the flow of fuel gas to the fire. Container is kept cool with water spray. IS: 2878 1976; IS: 2171 -1976; IS: 4308 -1982	For every 100 square meter floor area or part; 2 numbers, 10 kg powder extinguisher or 6 kg CO <sub>2</sub> ; minimum 3 nos. per room; should not be required to travel more than 10 meter to reach any extinguisher.
7.	<b>CLASS 'D'</b> Fires involving metals like magnesium, aluminum, zinc, potassium etc. where the burning metal is reactive to water and which require special extinguishing media or technique	SPECIAL DRY POWDER IS: 2171 -1976 IS: 4861 -1968	For every 50 square meter floor area or part, 2 nos. 5 kg special dry powder; minimum 3 nos. per room; should not be required to travel more than 10 meter to reach any extinguisher.
8.	<b>MIXED OCCUPANCY</b> (electrical); Generators; Transformers; etc.	CARBON DIOXIDE DRY POWDER, IS: 2878 1976; IS: 2171 -1976	For every 100 square meter floor area or part one 10 kg CO <sub>2</sub> . Minimum 2 numbers for every location should not be required to travel more than 10 meter to reach an extinguisher.

**Note:** Due to peculiarities of the power plant construction sites, there would be locations in the construction areas of Boiler, Turbine, Generator, Transformer, etc. where different types of fire risk (classes of fire) may co-exist. Special care shall be taken while selecting and installing portable fire extinguishers for such locations so that all types of fire risk that may co-exist, are adequately covered. Similar special care shall be taken for storage areas.

a. All Electrical welding booths shall be equipped with appropriate Fire Extinguisher

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- b. Appropriate Fire Extinguishers shall be made within easy reach of all welding operations
- c. Fire extinguishers shall be regularly tested and last checked date to be indicated on each. Master list shall be prepared with location and details
- d. Providing appropriate fire-fighting equipment at designated work place and nominate a fire officer/warden adequately trained for his job.
- e. Subcontractor shall provide enough fire protecting equipment of the types and numbers at his office, stores, temporary structure in labour colony etc. Such fire protection equipment shall be easy and kept open at all times.
- f. The fire extinguishers shall be properly refilled and kept ready which should be certified at periodic intervals. The date of changing should be marked on the Cylinders.
- g. All other fire safety measures as laid down in the “codes for fire safety at construction site” issued by safety coordinator of BHEL shall be followed.
- h. Non-compliance of the above requirement under fire protection shall in no way relieve the subcontractor of any of his responsibility and liabilities to fire incident occurring either to his materials or equipment or those of others.
- i. Emergency contacts nos. must be displayed at prominent locations
- j. Tarpaulin being inflammable should not be used (instead, only non-infusible covering materials shall be used) as protective cover while preheating, welding, stress relieving etc. at site.



## ANNEXURE H

HSE Compliance Certificate

Bill Ref no: \_\_\_\_\_ Date: \_\_\_\_\_

NAME OF THE AGENCY: \_\_\_\_\_ Work-Area/Package: \_\_\_\_\_

Sl. No.	Description	Remarks
1	<b><u>HOUSE KEEPING:</u></b>	
1.1	All working areas at site (specific to the agency) are free from garbage's, scraps & any other undesired non-plant materials. There is no encroachment in safe passage of man, material & T&P to carry out activities safely	
1.2	All the plant materials under the custody of the agency are stacked & stored properly.	
2	<b><u>GENERAL ILLUMINATION:</u></b>	
2.1	ALL the working areas at site & office of the agency including passages are having proper & sufficient illumination.	
3	<b><u>STATUTORY &amp; REGULATORY REQUIREMENT:</u></b>	
3.1	Sufficient water for drinking & other purposes and sanitation in work area and labour colony are available.	
3.2	Periodical Medical check-up of workers & staff done regularly & report submitted to BHEL	
3.3	Regular EYE testing is done for Crane operators/Welders and data's are available with agency	
3.4	All the T&P, Cranes etc used by the agency are having proper T.Cs & Fitness certificate available from competent authority.	
4	<b><u>SAFETY COMPLIANCE:</u></b>	
4.1	Number of Tool box meetings between Safety officers, erection staff & workers of the agency held in this month with location mentioned	
4.2	All precautions & Safety measures including PPE compliances are taken before working at HEIGHT	
4.3	Permit for working at Height is taken & complied accordingly	
4.4	ELCB is used in Construction Power Supply source by the agency & Proper Distribution board and electrical cabling has been used by the agency and regularly checked by electrician & safety officer of the agency	
4.5	Unsafe areas barricaded properly & unsafe opening closed properly	
4.6	Proper Platforms & Hand-rails used In areas earmarked earlier	
4.7	Proper safety signage's, Slogans & Emergency contact phone numbers including FIRE contact nos. are made available by the agency in locations mentioned	
5	Whether any penalty imposed by BHEL towards non-compliance of above points.	

<b><u>VENDOR'S SIGNATURE</u></b>	
Erection Engineer	
HSE Officer	
Site-in-Charge	

<b><u>BHEL'S SIGNATURE</u></b>	
Erection Engineer	
HSE Officer	
Package-in-Charge	



## ANNEXURE I

Activity-Specific Safety Precautions/ Controls



**INDEX OF CONTENTS**

<b>S. No.</b>	<b>Description</b>	<b>Page No.</b>
1.	General	2
2.	Work at height	2
2.1	Personnel fall protection system must include	3
2.2	Working Platform	4
2.3	Scaffolding	5
2.4	Ladder Safety	7
3.	Excavation & Civil Works	8
3.1	Excavation	8
3.2	Piling	9
3.3	Batching Plant Operation	9
3.4	Mobile Plant	10
3.5	Concrete Vibrators	11
3.6	Concrete Mixers	11
4.	Welding & Gas Cutting Safety (Hot Work)	11
5.	Lifting & Rigging Safety	13
5.1	Cranes & Hoisting Equipment	15
6.	Demolition Work	20
7.	T&Ps General	21
8.	Chemical Handling	21
9.	Electrical Safety	21
10.	Use Of Hand Tools And Power-Operated Tools	25
11.	Start Up, Commissioning And Testing:	27
12.	Fire Safety	27
13.	Painting	28
14.	Hazardous Energy” Control Procedure/ Lockout/Tagout (LOTO)	30
15.	Risk Assessment	37
16.	HSE Preparedness For Adverse Climates And Weather	38
16.1	Summer	38
16.2	Monsoon	39
16.3	Emergency Weather Conditions	41
16.4	Prevention Of Covid-19 At Project Site & Labor Colony	42
16.5	Noise Mitigation	44

## General

The philosophy of hierarchy of controls as below shall be followed

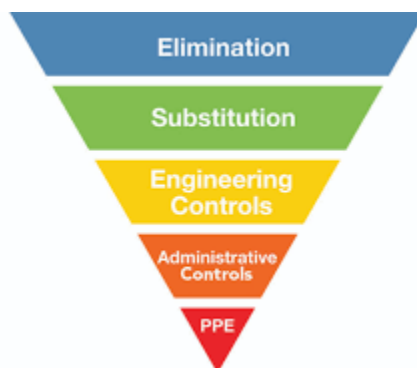


Fig. 1.1

It shall be ensured that there are multiple protections against any accident/ incident. For example, for height work there shall be safe platforms and walkways, Safety Nets and Lifelines for hooking double lanyard Safety harness by workers.

Monitoring and modifying worker behavior shall be part of ensuring safety. All personnel should be competent and trained for the job

Brief Safety guidelines for various hazardous activities are indicated below, besides the mandatory requirements based on Hazard Identification studies, HSE Procedures, Operational Control Procedures, Work Permits, applicable Indian Standard Codes and other provisions detailed in this document. Constant supervision at all times to be maintained by Execution & Safety Team to ensure implementation of these provisions.

### 1. WORK AT HEIGHT:

- a. All work at height above 2 meter above ground level without complete platforms, handrails and other related fall protection shall require a work permit in the prescribed form. This shall require approval by the competent authority. The HSE officer of sub-contractors shall follow the checklist religiously by physically verifying the condition of the work area before recommending for approval.
- b. Prior to the start of work at elevation, the HSE Officer involved with the work must meet the work supervisor to review the scope of work, and must review all the possible fall hazards and effective safety responses. The evaluation / analysis must be documented and kept on file and on site by the HSE Officer.
- c. Whenever a fall hazard or other exposure exists for working at heights more than 2.0m/6ft, the nature and scope of work will be evaluated for conditions and environmental factors before selecting the appropriate fall protection system (active, passive or a combination of measures, as appropriate).
- d. All Engineering and Administrative Controls including barricading, safe platform, Safety Nets etc. shall be made available at work location. Under no circumstances, there shall be total reliance on PPEs only
- e. **Safety Nets**
  - i. Contractor shall maintain sufficient stock of Safety Nets for deployment
  - ii. Safety Nets as per IS: 11057:1984 should be used extensively for prevention / arrest men and materials falling from height.
  - iii. The safety nets shall be fire resistant, duly tested and shall be of ISI marked.

- iv. Safety Nets shall be deployed below all platforms where height work is envisaged. Duration of work, delay shall be no excuses for non-installation of Safety Net
- f. Reaching beyond barricaded area without lifeline support, moving with support of bracings, walking on beams without support, jumping from one level to another, throwing objects and taking shortcut must be discouraged.
- g. Monkey Ladder shall be fitted with cages. Rope ladder should be discouraged.
- h. In case of pipe-rack, persons should not walk on pipes and walk on platforms only.
- i. In case of roof work, walking ladder/ platform should be provided along with lifeline and/ or fall arrestor.
- j. For chimney or structure painting, both hanging platform and men should be anchored separately to a firm structure along with separate fall arrestor.
- k. The procedures for the safety response to identified fall hazards developed and rescue plans must be reviewed with all individuals exposed to the hazards.
- l. The HSE Officer must establish an inspection process of fall protection systems. Some equipment requires documented inspections by its manufacture on a regular schedule. Such equipment must have evidence of the inspection and re-certification process on it. This information must be reviewed before the equipment is actually used. Individuals must visually inspect the fall protection equipment before each use. Failure to complete this inspection process could result in serious injury or death.
- m. Immediately remove from service any fall protection equipment that is identified as defective, damaged, or has been subjected to an impact. Damaged fall protective equipment must be destroyed to prevent re-use and not be discarded into trash containers, as the worn or damaged equipment could be unintentionally re-used.
- n. Aerial lifting devices, excluding scissor lifts require the use of full body harnesses and lanyards in any elevated position.
- o. Where Height related works are applicable then rescue team (consist of 5- 10 person) shall be identified and trained for potential rescue.

### 1.1 Personnel fall protection system must include:

#### a. Safety Harness

All height workers must use Full Body Safety harness with double lanyards with shock absorber (only). The primary lanyard is never unhooked until the secondary lanyard is secure. The design of the working platform should be such that under no circumstances, worker should have both lanyards unhooked while at height.

#### b. Lanyard

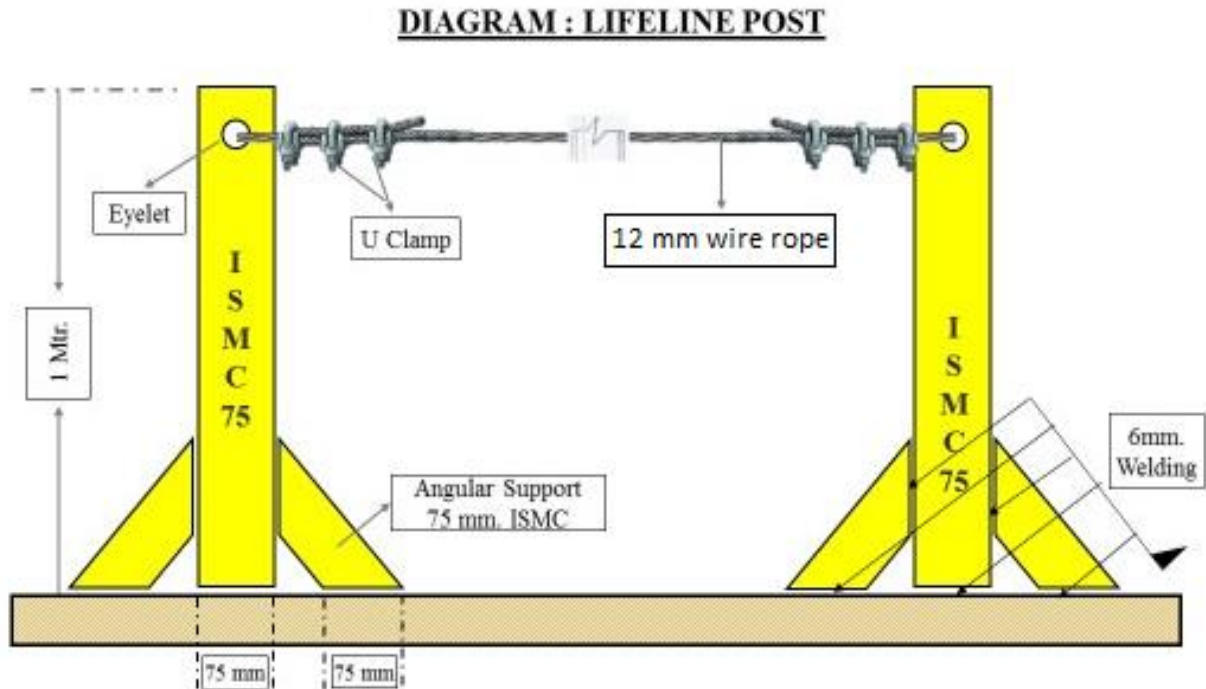
- i. The type of work and the environment conditions determine lanyard and lifeline selection. If welding, chemical cleaning that may damage lanyards, connectors or lifelines, sandblasting, etc., either protect the components or use more appropriate type of system.
- ii. Lanyards and lifelines must incorporate, or be used with, an appropriate deceleration (shock absorbing) device. Deceleration devices include rope grabs, rip-stitch lanyards, specially woven lanyards, tearing, or deforming lanyards, automatic self-retracting lifelines and lanyards which dissipate or limit the energy imposed on the employee during fall arrest.
- iii. Once in use, the system's effectiveness is to be monitored. In some cases, a program for cleaning and maintaining the system may be necessary. Lanyard and lifelines must use locking snap hooks only and under

no circumstances must two lanyard snap hooks be connected.

**c. Lifeline**

All lifelines in general are to be made of min 12mm dia. steel rope (plastic coated) and tied to columns with 3 clamps at each end. Wherever columns are not available to tie the lifelines, the vertical posts as per the design below are to be provided after carrying out drop load test initially. A load of 240kg to be dropped off the mid-point of lifeline in this test.

**d. Lifeline Post**



**Fig. 2.1 Lifeline Post**

- i. The support at vertical post shall be fixed at end-to-end (welded/ bolted). The maximum length of one end to another end shall be 6 meters
- ii. If the length of a lifeline is more than 6 meters, then intermediate vertical post(s) are to be used. Such intermediate post(s) will act as supports and the lifeline rope should simply pass through the eyelets (holes) of such supports without being anchored
- iii. The lifeline need not be wrapped / clamped to any intermediate post
- iv. Such intermediate posts must be used at an interval of every 6 meters
- v. The post(s) in which the original lifeline is to be installed should be capable of sustaining a tensile stress of 2268 Kgs.
- vi. In a horizontal lifeline installation, maximum allowable sagging is 500-600 mm
- vii. For a single spun lifeline, no more than 3(Three Nos.) persons are allowed to work; for more than two workers, another lifeline should be installed
- viii. Horizontal lifeline should be so installed that it does not impede safe movement of workers
- ix. All the installation work must be carried out by competent person with adequate knowledge

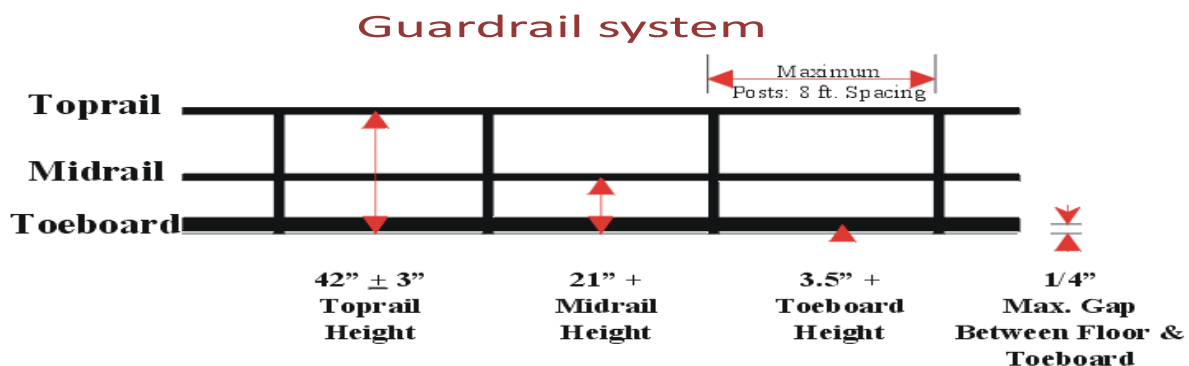
**1.2 Working Platform**

- a. Working platforms, gangways and stairways shall be so constructed that they do not sag unduly or unequally and if the height of the platform gangways provided is more than 3.6 m above ground level or

floor level, they shall be closely boarded and shall have adequate width, which shall not be less than 750 mm and be suitably fenced.

**b. Precautions against the fall of Materials, Persons and Collapse of Structures:**

- i. Every opening in the floor or a building or in a working platform shall be suitably barricaded to prevent the fall of persons by providing suitable fencing or railing whose minimum height shall be 90 cm.
- ii. Adequate precautions should be taken such as the provision of fencing, or barriers to protect any person who might be injured by the fall of materials, or tools or equipment being raised or lowered. Hard barricading shall be made at such places made of scaffolding pipe & clamps covered with reflective net. Cradle may be used for lifting materials - however this shall be made of MS angles and flats only and duly certified by the HSE officer. Operators may also use designed containers for lifting small tools.
- iii. Guardrails (including scaffolding) erected over/adjacent working areas must have the guardrails screened (opening < 0.5), to prevent material from falling outside the platform/decking.
- iv. Guardrails must be able to withstand a 200-pound force exerted in any one direction.
- v. Where necessary to prevent danger, guys, stays or supports should be used or other effective precautions should be taken to prevent the collapse of structures or parts of structures that are being erected, maintained, repaired, dismantled or demolished.
- vi. All openings through which workers are liable to fall should be kept effectively covered or fenced and indicated in the most appropriate manner.
- vii. Guardrails and toe-board/barricades and sound platform conforming to IS: 4912-1978 and other Indian laws and regulations as depicted below should be provided.



**Fig. 2.2 Guard Rail System**

- viii. Guardrails shall be provided to protect workers from falling from elevated work places. The rails are generally made of MS pipes of suitable dia. Rebar shall not be used for any handrails, ladder or cover purpose. Wherever the guard-rails and toe-boards cannot be provided:
  - a. adequate safety nets or safety sheets shall be erected and maintained; or
  - b. adequate safety harnesses shall be provided and used and / or
  - c. adequate fall arrestor shall be provided and used.

As mentioned under PPE clause, all these PPEs shall be defect free and regularly inspected for any defect. The full body safety harness shall have double lanyard only with max 1.8m length.

- ix. The monkey ladders shall have sufficient fall arrestors. Adequate lifelines of 8mm steel wire rope shall be provided across the work area.
- x. The HSE officer shall recommend appropriate PPEs after analyzing hazards and risks involved.

### 1.3 Scaffolding

All scaffolds shall be conformant to the relevant standards including IS 3696 and IS 4014 as applicable. A sketch of the scaffolds proposed to be used shall be prepared and approval of the BHEL Engineer obtained prior to construction / use. Only cup lock type scaffoldings will be allowed in site. Where cup lock type scaffolding arrangement is not feasible by the virtue of the location, in that case only pipe and clamp type scaffolding will be allowed.

- a. The scaffolding work must be carried out by a competent person, who shall train the scaffold users on safety aspects
- b. All scaffolds shall be erected / dismantled by scaffolding crew under direct supervision of competent scaffolding supervisors.
- c. All scaffolds shall be capable of supporting 4 times maximum intended load and erected on sound, rigid footing, capable of carrying the maximum intended load without settling or displacement. Bamboo scaffolding is not permitted for use on site.
- d. Each employee on the scaffold shall use an approved safety harness attached to an independent lifeline. The lifeline is to be securely attached to substantial members of the structure (not the scaffold itself) or to securely rigged lines, which shall safely suspend a worker in event of a fall.
- e. Guard rails and toe boards shall be installed on all open sides and ends of platforms more than (2) meters above ground or floor
- f. Scaffold planks must be at least 5 cm x 25 cm (2" x 10") full thickness lumber scaffold grade or better.
- g. Scaffold planks shall not span distances greater than 2.5 meters (8 feet).
- h. Scaffold planks shall extend over end supports not less than 6 inches nor more than 12 inches and be secured to the scaffold. Scaffolding and accessories with defective parts shall be immediately repaired or replaced.
- i. All scaffolding must be a minimum of two planks wide. No one may work from a single plank.
- j. Scaffold planks must be inspected before use. Planks that have been damaged must be removed from the site.
- k. Access ladders must be provided for each scaffold. Climbing the end frames is prohibited unless the design incorporates an approved ladder.
- l. Adequate mudsills or other rigid footing capable of withstanding the maximum intended load must be provided.
- m. Scaffolds more the 6 meters (20 feet) in height must be tied to the building or structure at intervals which do not exceed 4 meters (13 feet) vertically and 6 meters (20 feet) horizontally.
- n. Do not overload scaffolds. Material should be brought up as needed. Scaffolding must not be loaded in excess of its rated capacity.
- o. Barrels, boxes, kegs, blocks or similar unstable object must never be used as work platforms or to support scaffold.
- p. Where persons must work under or pass under a scaffold then a 18 gauge wire mesh screen must be installed between the toe board and guard rail.
- q. Employees exposed to overhead hazards while working on a scaffold will be protected by 5 cm (2") thick planks.
- r. Wooden/bamboo ladders shall not be allowed at any cost. Ladder's rungs shall be fitted /welded



properly. Before every use the rungs should be checked for safe use.

- s. Wooden scaffolds shall not be used in areas where fire / fire products are expected
- t. Ropes made of jute / Plastic and other fire prone material shall not be used to tie up scaffolding components together
- u. The platform should have permanent hand rail and mid rail with Toe board without fail.
- v. All platforms are to be tightly planked for the full width of the scaffold, except as may be necessary for entrance openings. Platforms shall be secured in place.
- w. On suspension scaffolds designed for a working load of 500 pounds, no more than two workers are permitted to work on the scaffold simultaneously. On suspension scaffolds with a working load of 750 pounds, no more than three workers are permitted on the scaffold simultaneously.

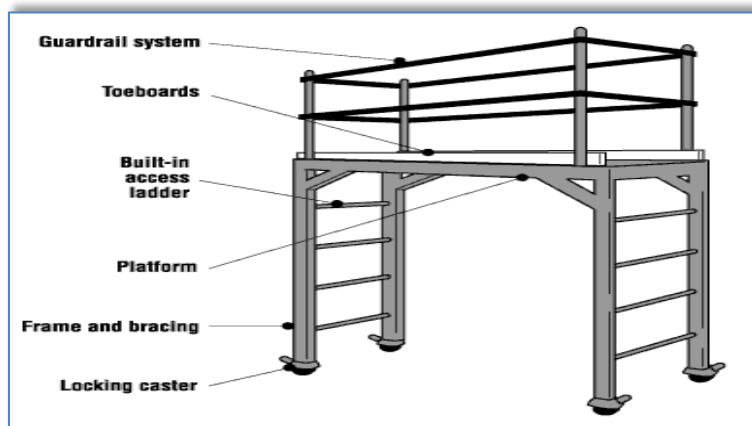
**x. Requirements for different types of Scaffolds:**

**A. Suspended Scaffold**

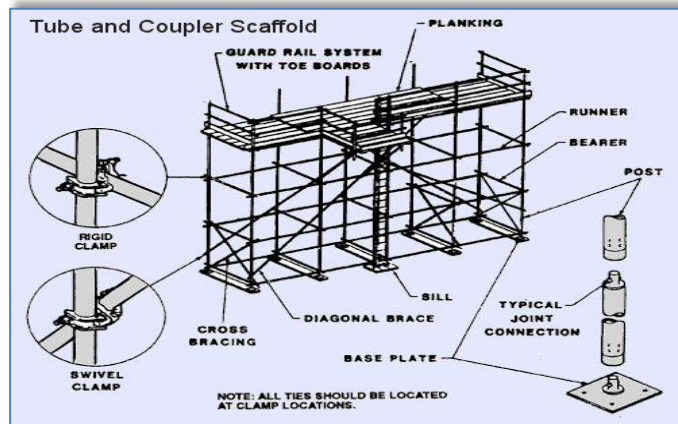
- i. Suspended scaffolds are platforms suspended by ropes, or other non-rigid means, from an overhead structure.
- ii. Requirements for use are to be preapproved by HSE Head, under a specific Permit to Work.

**B. Rolling Scaffolds**

- i. The height of rolling scaffolds shall not exceed three times the minimum base dimension.
- ii. The minimum base dimension of rolling scaffold will be 1.25 meters (4 feet).
- iii. Adequate help must be provided when moving a rolling scaffold.
- iv. Secure or remove all loose materials, equipment and tools before moving a rolling scaffold.
- v. No one is permitted to ride a rolling scaffold when it is being moved. Castor brakes must be locked-on when the scaffold is not being moved.



**Rolling Scaffold**



**Tube & Coupler Scaffold**

**Fig. 2.3 Types of Scaffolds**

## 1.4 Ladder Safety

A sketch of the ladders proposed to be used shall be prepared and approval of the BHEL Engineer obtained prior to construction / use

**a. Safe Use of Ladders:**

- i. Fall protection is required when working on a ladder above 2 meters and when climbing above nearby guardrails.

- ii. Ladders must be inspected prior to use and by a competent person quarterly, with documentation.
- iii. Use portable ladders for height up to 4 M only
- iv. Provide fixed ladders for height above 4 M
- v. Place the ladder at an angle of 75 degrees (approx.) from the horizontal (1:4)
- vi. Extend ladder at least 1 M above the top landing
- vii. Secure top and bottom of the ladder firmly to prevent displacement- anti skid lining at the bottom
- viii. Ensure that the width of the ladder is not less than 300 mm and distance between rungs is not more than 300 mm
- ix. Provide landings of minimum size 600 x 600 mm at intervals not more than 6 M for fixed ladders. Check the ladders daily for any defects
- x. Ensure that the areas around base and top of the ladder are clear. Getting on and off the ladder is more hazardous than using it. Use a mudsill if the ladder is to rest on soft, loose or rough soil
- xi. Do not use ladders of conducting material near power lines, and only use ladders near power line or other energized system with exposed parts if they are confirmed locked-out and de-energized.
- xii. Stand no higher than the fourth rung from the top for carrying out any job standing on a ladder.
- xiii. Never reach out from a ladder to perform work where your belt buckle protrudes past the ladder rung.
- xiv. Always face the ladder while climbing up or down
- xv. Maintain three-point contact while climbing up or down a ladder i.e. two hands and one foot or two feet and one hand on the ladder at all the times.
- xvi. Avoid climbing up or down a ladder while carrying anything in hands. Lift tools, equipment and materials with a rope.
- xvii. Work from portable and extension ladders near guardrail where fall exposure exists over the guardrail regardless of height, and above 2.0 mtr. heights from the working/walking surface will require the use of personal fall arrest equipment

## **2. EXCAVATION & CIVIL WORKS**

All safety precautions shall be taken for foundation and other excavation works as per IS-3764.

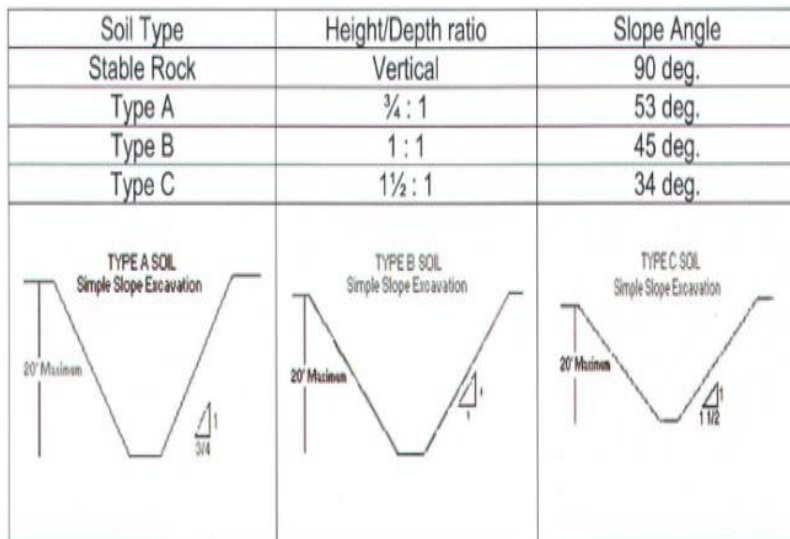
### **2.1 Excavation**

The following safety measures are to be ensured before and during excavation:

- a. All Excavation activities more than with depth of 1.22 meter or more shall require an Excavation Work Permit
- b. Check for underground utilities like electrical / telephone cables, sewage, water lines and proper care has to be exercised to protect and prevent damage to it.
- c. Electrical cables and service lines to be identified using cable detector/locator device before carrying out the excavation work
- d. Proper and adequate slope is maintained while excavating
- e. Adequate shoring or sheeting is done wherever required to prevent soil sliding
- f. Safe access through ladder or steps for exit & entry to excavation
- g. No material /excavated soil is kept within one meter from the edge
- h. Safe way is planned and provided for movement of HEM /transport equipment near excavation
- i. Safety helmet and shoes/gum boots are provided and worn by the workmen at excavation works



- j. Dewatering arrangement is made where water seepage is prevailed.
- k. Stop blocks are provided to avoid vehicles reversing into the excavated trenches
- l. Danger signs /Caution boards are displayed at work spot
- m. Hard Barricading is provided at excavated pits. It should be made of scaffolding pipe and clamp with reflective nets.
- n. All Excavated area of depth 3mtr or more is to be hard barricaded with pipe.



Determining Soil Type		
Type	Description	Examples
A	Cohesive soils with an unconfined compressive strength of 1.5 tons per square foot or greater.	Clay, silty clay, sandy clay, clay loam and in some cases: silty clay loam and sandy clay loam.
B	Cohesive soils with unconfined compressive strength greater than 0.5 tsf but less than 1.5 tsf.	Angular gravel (similar to crushed rock), silt, silt loam, sandy loam and, in some cases silty clay loam and sandy clay loam.
C	Cohesive soils with unconfined compressive strength greater than 0.5 tsf or less.	Granular soils such as gravel, sand and loamy sand; submerged soil or soil from which water is freely seeping; submerged rock that is not stable.

**Fig. 3.1 Excavation Reference**

## 2.2 Piling

Ensure the following precautionary measures before starting piling works:

- a. Inspection of piling equipment by responsible person for its condition before initiating piling operation.
- b. Checklist and OCP for piling to be prepared using manufacturer's instructions and used
- c. Testing and its certification wire rope, slings, D-shackles, chain pulley blocks using in the process of piling work by competent person
- d. Adequate support and secured foundation of the piling equipment to avoid toppling
- e. Hoses should be lashed and adequately secured
- f. Proper work platform is to be provided on piling frame
- g. Safe work procedures and close supervision to prevent unsafe acts of operators/any unsafe conditions that may arise
- h. Only experienced and trained operators are engaged for the piling operation
- i. Provision of Personal Protective Equipment (PPE) like safety shoes/gumshoes/safety helmet/safety belt etc. and its use by their workmen.
- j. Special care and precautions If work is near electrical live cables/ electrical equipment
- k. Cordoning of work area to prevent un authorized entry
- l. Guarding of revolving parts
- m. Specific measures to prevent over turning of pile driver/missing of hammer/ hammer movement out of range

## 2.3 Batching Plant Operation

Following Safety considerations for batching plant are to be ensured:

1. Modern type batching plant should be used in which all the moving parts are protected and emergency

and safety features are incorporated.

2. Installation of external Electric moto-vibrators in the feeding hopper of all batching plants to reduce human intervention.
3. Installation of safety devices like pull-chord on both the sides of conveyor for stopping the conveyor in emergency
4. Workers carrying cement / sand to be given appropriate PPEs like respiratory masks & gloves.
5. Conveyor belt/rotating parts must be guarded properly.
6. Safety awareness shall be inculcated in workmen about the risk involved in rotating parts.
7. The agency shall ensure to erect the batching plant as per drawing including installation of all safety devices as provided by manufacturer and witnessed by BHEL Engineer in charge before starting of machine in future.
8. Safety audit to also focus on Batching plant.
9. The site shall impose penalty on the agency who has violated the safety norms as per contract.

#### **2.4 Mobile Plant**

Mobile plant includes tractors, trailers, dumpers, excavators, bulldozers, road rollers etc. for earthmoving purpose and concrete mixers, concrete transit mixtures, concrete pumps etc for concreting purpose. Due to the very nature of their function and movement in difficult terrains, congested areas, working in tandem with manual work and other operations the danger is inherent.

Automatic reverse camera with reverse horn connected with reverse gear is compulsory for all moving machineries.

##### **Following Safety measures to be ensured for Mobile Plant:**

- a. Where movement around site is involved, routes should be planned, obstruction free and well maintained
- b. Observe specified speed limits
- c. Operating personnel should be aware of associated risks and its preventive measures
- d. Only experienced, trained and authorized persons with valid license (wherever applicable) should operate the mobile equipment/vehicles
- e. Provide and use Warning lights and reverse horn for cautioning the people around
- f. Operation should be on level and stable ground with adequate working clearance.
- g. Loading of out riggers/stabilizers should be well within safe ground bearing capacity
- h. No person should be on equipment or vehicle during loading and unloading of material
- i. Operators should be protected by warning barriers or switching off power when working in close proximity of overhead power lines
- j. The equipment /vehicles should be well maintained and provided with effective brake system and other safety devices (wherever require)
- k. Rotating parts of equipment should be adequately guarded
- l. Provide necessary personal protective appliances and ensure its use by the operating personnel Ensure effective measures at source to control harmful emissions, dust, fumes contaminating atmosphere and cause health hazards to the operators and people in the vicinity.
- m. No overloading/over stressing of vehicles/plant is allowed
- n. Hoses, pipes, receivers, gauges and valves involved in carrying out hydraulic fluid/ compressed air should be checked for leaks and tested prior to operation.

- o. Adequate safe clearance for swing and movement is to be judged during operation of Concrete mixer
- p. Setting of machines on firm and level ground with wheel locked to prevent movement of machine
- q. Proper instructions and Special precautions are to be ensured to prevent entry in to the danger zone of projectile of bucket while dropping bucket
- r. Operator leaving work spot should ensure that the equipment/vehicle is kept in neutral position and place on firm and level ground.
- s. The hand brake should be kept in position and block road wheels as additional safety measure
- t. Blades/buckets should be kept low while moving
- u. The dozer blades should not be used as brakes except in emergency
- v. The ground should be examined for its bearing capacity and general safety especially when operating road roller at the edges of slopes, embankments.
- w. The roller should not be moved downhill with the engine out of gear
- x. If operating near excavations the following precautionary measures are to be ensured
- y. Barricading, edge protection to prevent fall of persons/vehicles over running while reversing etc.
- z. Suitable support system and adequate allowance to avoid the danger of side collapsing
- aa. Experienced signaller /attendant should be always accompanied with operator/driver for proper direction /signal and also to caution others in the working Zone during operation of mobile plant

### **2.5 Concrete Vibrators**

- a. Revolving parts/belt drives should be adequately guarded and Vibrating unit shall be completely enclosed and have suitable overload relays and effectively earthed
- b. Ensure sufficient length of cable to the Vibrator.
- c. Ensure electric starters and other accessories are firmly fixed adequately supported
- d. Ensure locking of needle load while inserting needle in to the vibrator,
- e. Ensure periodical lubrication and maintenance

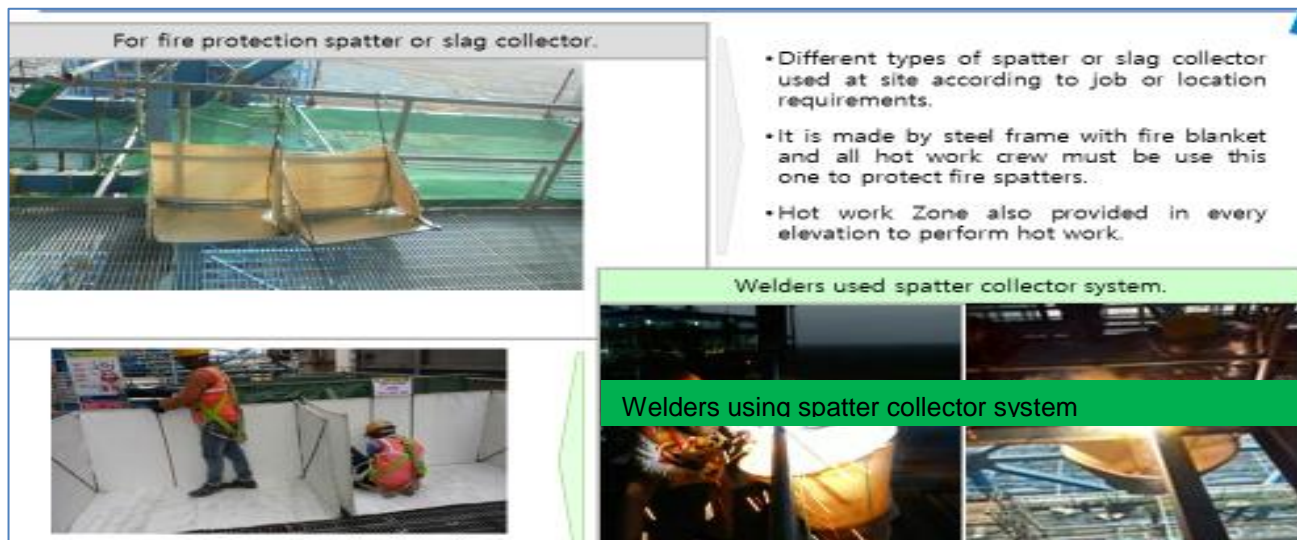
### **2.6 Concrete Mixers**

- a. Setting of machines on firm and level ground with wheel locked to prevent movement of machine
- b. Proper instructions and Special precautions are to be ensured to prevent entry in to the danger zone of projectile of bucket while dropping bucket

## **3. WELDING & GAS CUTTING SAFETY (HOT WORK)**

- a. All Hot Work shall require a Hot Work Permit
- b. Inbuilt Voltage Reduction Device (VRD) equipped arc welding machine will only be allowed for work.
- c. There shall be flash-back arrestors conforming to IS-11006 at both cylinder and burner ends. Damaged tube and regulators must be immediately replaced.
- d. All safety precautions shall be taken for welding and cutting operations as per IS-818.
- e. When possible, items to be welded, cut, heated, etc. shall be moved to a safe location free of combustible or flammable material. If this is not possible, then all combustibles/ flammables that can be removed from the area shall be removed within a 35-foot circumference and a positive means of confining arcs and sparks generated by the process shall be ensured and additional person(s) shall be stationed as fire-watch for the area(s) still exposed, along with obtaining the Hot Work Permit as applicable.
- f. Appropriate fire-fighting equipment is to be available in close proximity of any welding and gas cutting operations at all times suitable for the type of Fire.

- g. Drums, tanks, and similar containers that have contained flammable or toxic material shall not be welded, cut, or heated until they have been made safe by water filling, thorough cleansing or similar accepted practices. The container shall also be ventilated during the welding, cutting, or heating process.
- h. Proper ventilation is required for any welding or torch operations performed in a confined space.
- i. Any welding or gas cutting operations performed on metals of toxic compounds or coating such as zinc, stainless steel, lead, cadmium, chromium, and beryllium shall be properly ventilated and/or proper respiratory protection shall be worn by any person that could be exposed to fumes, vapors, and gasses created by the welding and gas cutting processes.
- j. Wherever it is practical, all arc welding operations shall be shielded to prevent direct light rays or sparks from contacting persons in the vicinity or from reaching areas normally used to travel through or into the vicinity. Where this is not practical, persons who shall be in the area are to use proper eye and skin protection. Other persons who are not participating in the welding or gas cutting operations are not to be allowed into the hazard zone.
- k. Welders and other employees who are exposed to arc welding radiation shall wear suitable clothing and protective apparel to prevent burns and other types of ultraviolet radiation damage to the skin.
- l. Arc welding machines shall be shut down when being moved or when they are not in continuous use. Electrode holders left unattended shall have electrodes removed and shall not be left where they might contact employees or conducting objects.
- m. Arc welding power supply cable shall be of proper rating and material, e.g. copper.
- n. Welders shall guard against allowing materials adjacent to or behind them to reflect radiation back toward them or towards others in the area. Reflected radiation can cause skin burns and eye flash burns.
- o. Valve caps shall be in place when cylinders are not in use. Valve caps shall never be used for lifting the cylinder vertically.
- p. Torches shall only be lit by approved strikers; never with matches, cigarette lighters, or hot-work.
- q. **Splatter / Slag Collector:**



**Fig. 4.1 Splatter / Slag Collector**

While carrying out job at height, the sparks or molten slag shall be prevented from falling down by putting a fire-resistant (non-asbestos) sheet or patter/ slag collector or even MS Sheet. The passage of falling sparks

or molten slag shall be barricaded till ground floor and any cable/ tubes/ any other objects interfering in the passages shall either be removed or covered with Fire-resistant sheet or MS Sheet.

**r. COMPRESSED GAS**

- i. All cylinder valves shall be closed when any work is finished and when any Cylinders are empty or being moved. Valve protection caps shall be placed and secured properly before gas cylinders are transported, moved or stored.
- ii. Compressed gas cylinders shall be secured in an upright position with chain or appropriate means during storage & use. However, a trolley shall be used for transportation.
- iii. Compressed gas cylinders shall always be secured from tipping or falling, whether in use, in storage or in transit. The cylinders shall always be secured upright, except during times when actually being hoisted or carried.
- iv. When cylinders are transported by powered vehicle they shall be secured in a vertical position.
- v. Regulators shall be removed when cylinders are not in use or are in transit, unless the cylinder is firmly secured on a special carrier designed for this purpose.
- vi. Gas cylinders are not allowed to be used in man-basket when occupied.
- vii. Cylinders containing oxygen or fuel gasses shall not be taken into confined spaces.
- viii. Oxygen cylinders shall be stored a minimum of 6 meters from fuel gas cylinders or shall have an approved firewall between them.
- ix. All cylinders shall be kept at a safe distance from welding or cutting operations or shielded from arc/sparks / slag.
- x. All cylinders shall be placed where they cannot become part of the electrical circuit.
- xi. Oxygen and acetylene shall not be stored together. Oxygen must be separated from acetylene (or ANY fuel gas) or combustible material by at least 20ft or a barrier with a 30-minute fire resistance rating.
- xii. All Cylinders should be stored upright in a designated area with labels for the type of gas. All applicable precautions to be ensured during storage
- xiii. Oxygen and fuel gas regulators, hoses and associated equipment shall not be altered and shall be in proper working order while in use.
- xiv. Compressed air can be extremely dangerous if allowed to penetrate the skin. As such, the use of compressed air to clean off yourself or other workers shall be strictly prohibited.
- xv. All gas cylinders shall be stored in upright position. Suitable trolley shall be used for cylinder movement, the design of which shall be submitted to BHEL Engineer for approval.
- xvi. No of cylinders shall not exceed the specified quantity as per OCP
- xvii. Cylinders shall be moved by tilting and rolling them on their bottom edges. They shall not be intentionally dragged, struck or permitted to strike each other violently.
- xviii. All cylinder should be kept only in cylinder trolley.
- xix. Cylinder shall be transported in upright vertical position by suitable mean.

**4. LIFTING & RIGGING SAFETY**

- a. All Heavy / Complex Lifting operations as defined in Clause 6.12 shall require a Lifting Work Permit. A written rigging procedure and plan must be prepared for all individual heavy/ complex lifting operations.



- b. All the cranes and lifting tools & tackles shall be inspected on daily / weekly basis as well as monthly by expert as per applicable formats.
- c. In addition, inspection / certification as mandated by law shall be carried out wherein these shall be tested and certificates of fitness shall be obtained from 3rd party State Govt. approved competent agency before deploying at site and later periodically. BHEL shall be given advance intimation of any such inspections
- d. The last date of Third-Party Inspection and the next Due date shall be conspicuously displayed on all cranes. A copy of certificate shall be pasted on operator's cabin of all the lifting equipment.
- e. Specifically designed heavy steel plates lifting clamps shall be used for lifting heavy metal sheets. Manmade lifting clamp chapa shall not be used for lifting/shifting of plates.
- f. Following requirements shall be mandatorily followed, wherever applicable:
  - i. The manufacturer's instruction for maintenance shall also be followed. All safety measures shall be followed.
  - ii. All tools tackles, lifting appliances; material-handling equipment etc. used by the subcontractor shall be of safe design and construction.
  - iii. The operators, slingers and signalers shall be qualified as per IS 13367 (part-1):2003 "Safe use of cranes- code of practices".
  - iv. There shall be a person responsible for co-ordination among cranes where multiple cranes are used, and lifting over load chart of the crane to be avoided.
  - v. Mobile phone should be banned for crane operator and lifting operation. Only walkie talkie shall be allowed in rigging/Lifting purpose.
- g. Lifts/Movements between 5 Tons and 20 Tons:
  - i. Shall include a rigging plan, detailing schematic representation of the handling/lifting operations that must be included on the Method Statement.
  - ii. When performing similar lifts of identical items, only one rigging plan need be prepared, provided each of the lifts can be performed in accordance with the rigging plan.
- h. Lifts/Movements Less Than 5 Tons:
  - i. An equipment rigging plan is not required for lifts less than 5 tons, safety measures are covered in the JSA. This could change as per BHEL requirement

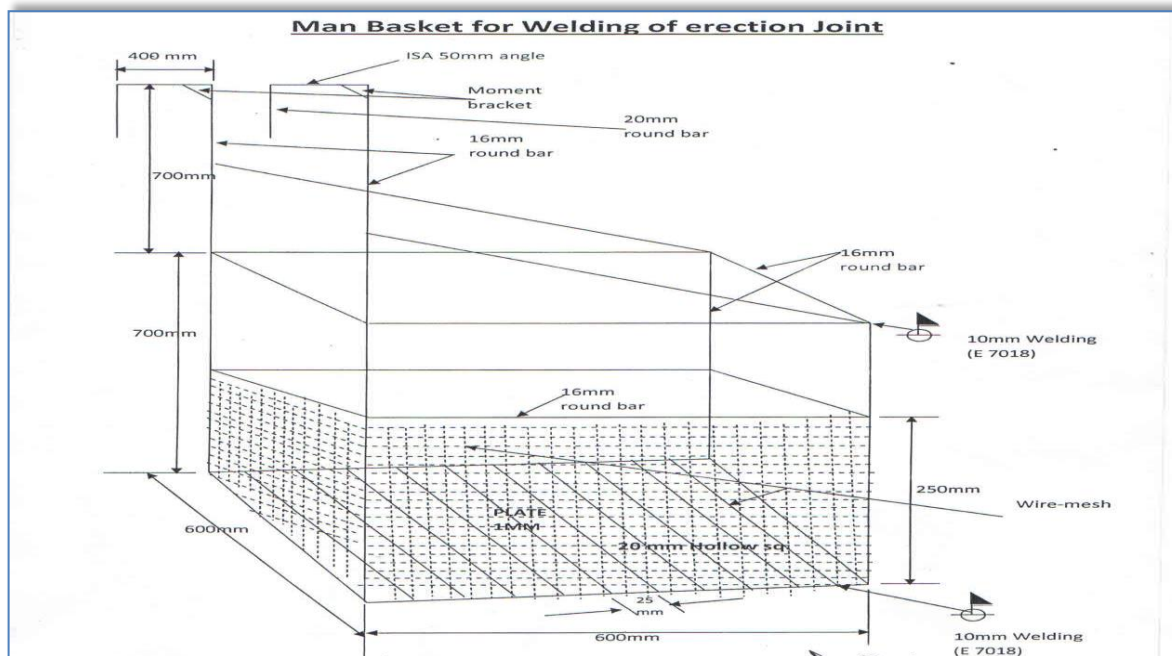
**i. Personnel Lifts (Man-Basket / Jhoola):**

The design of personnel man basket shall be submitted to BHEL Engineer for approval before use. Relevant permit (Height work & others as applicable) shall be completed prior to lifting any people, along with a rigging plan.

- i. A separate Lifeline / fall arrestor anchored to a fixed structure outside of Jhoola shall be provided for the workers inside the basket. All occupants of the basket shall have Safety Harnesses equipped with rope grabs, which are to be hooked to the vertical lifeline.
- ii. Man-basket shall be used where access through ladders or scaffolding is not feasible.
- iii. Man-baskets shall be designed and engineered by a manufacturer (job made man-baskets are not allowed, unless designed and tested by a certified engineer), and built robust with MS Angles and flats or plates or channels only.
- iv. Guard rails top and mid, must be in place and screened-in to avoid material from falling out of

basket. The factor of safety shall be 200%.

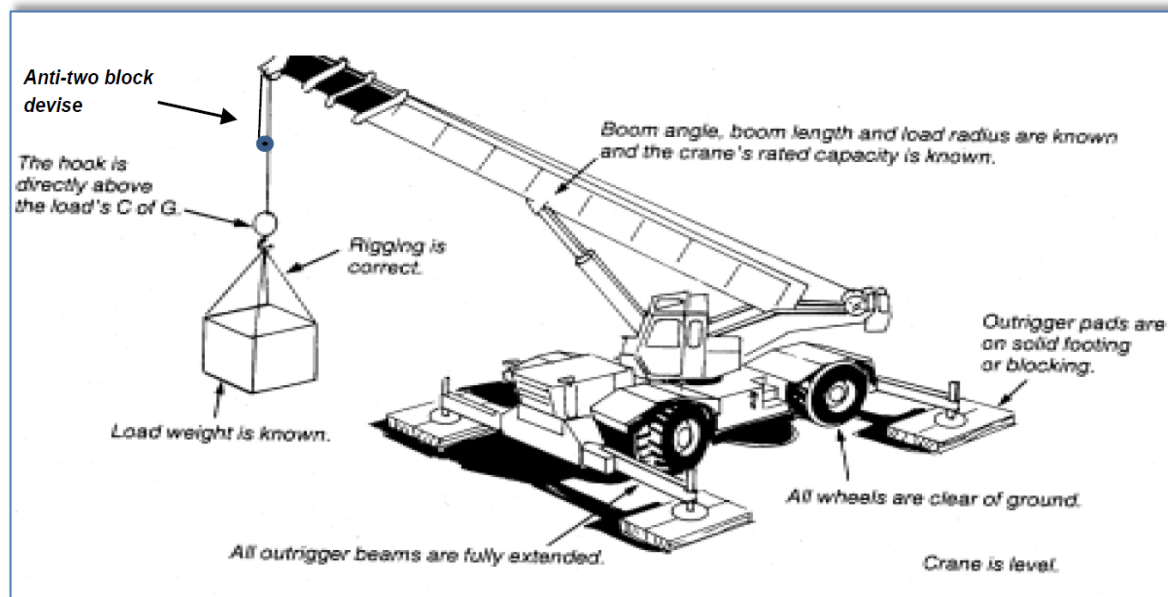
- v. It shall have a door with double latches and shall open inside. Anchor points shall be identified within the man-basket.
- vi. The man-basket shall be thoroughly inspected and load tested and a trial run performed without personnel before being put to job.
- vii. It shall be treated as a lifting tool (T&P Item) and shall undergo same certification cycle and inspection as other lifting equipment.
- viii. An additional sling of required lifting capacity shall be fixed the man-basket main lifting point and attached to the crane above the ball or block.
- ix. While lifting man-basket, the crane shall maintain a uniform speed of lift without any swing.
- x. Once man-basket reaches the destination, the lift brakes shall be locked as long as the basket
  - a. remains at that point. The same care shall be taken in its descent.
- xi. As for hanging man-basket, the same shall be hung off a rigid structure with help U-shaped handle welded to man-basket. This shall be tested once in a year by a competent person.
- xii. Use of Rebar steel for making and monkey-ladder must be avoided.



**Fig. 5.1 Man Basket for Welding Erection Joint**

#### 4.1 Cranes & Hoisting Equipment:

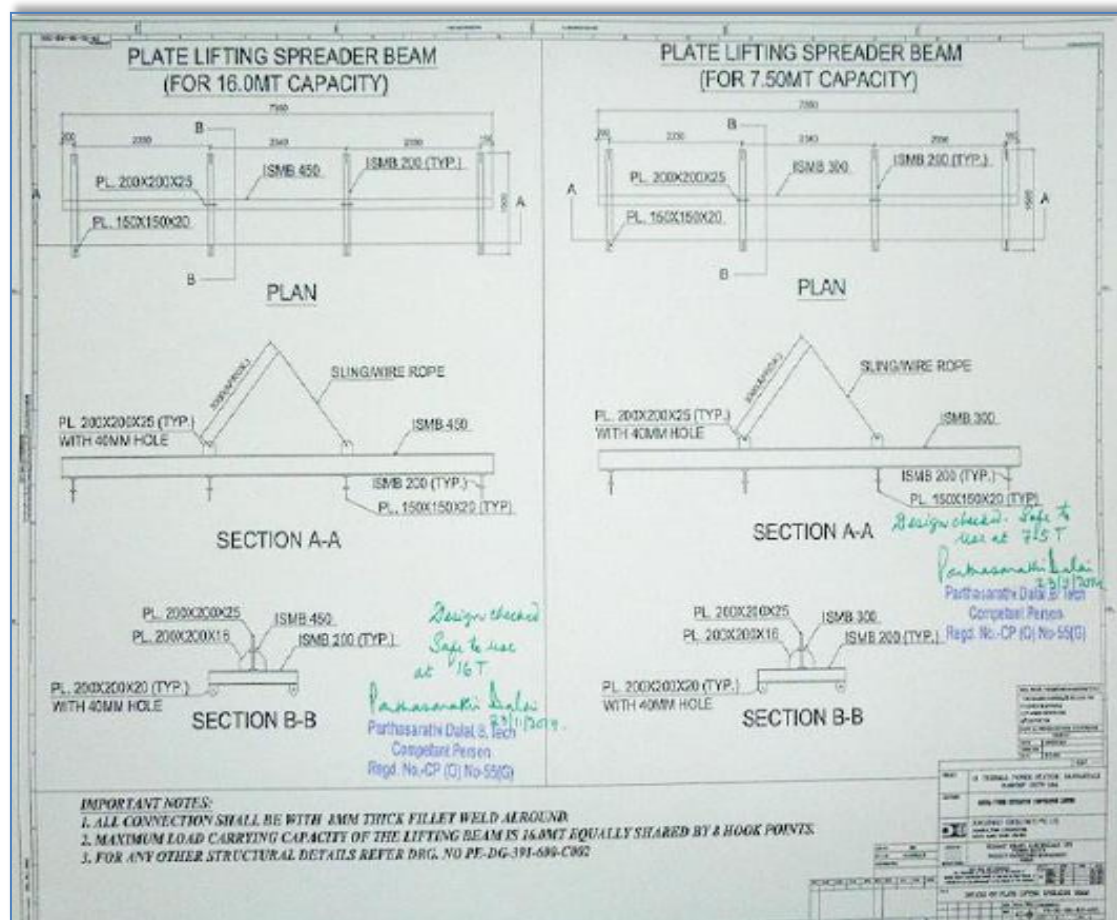
This section provides the guidelines to ensure proper rigging and lifting activities are accomplished safely and in accordance with applicable specifications, codes, and regulations.



**Fig. 5.2 Proper Crane Setup**

- a. On every crane or piece of hoisting equipment notices of all rated load capacities, recommended operating speeds, and any hazard warnings or special instructions shall be conspicuously posted. All instructions and warning shall be visible from the equipment operator's station.
- b. Cranes shall have an Anti-Two-block safety device installed
- c. All mobile cranes shall have overload and backup alarms, load angle indicators and limit switches
- d. All areas within swing radius of cranes that are potentially accessible by pedestrian, vehicular, or equipment movement shall be barricaded to prevent anyone or any vehicle or equipment from being struck by the crane or hoisting equipment, or its load(s).
- e. No part of the lifting equipment or its load shall be within the distance as specified in the Indian Electricity Act from an energized power line
- f. Cranes shall have annual certified third-party inspection and be inspected before use by the operator. Any defects shall be corrected before use. Logs of crane inspection shall be kept with the crane.
- g. Make certain that the rigging personnel, material, and equipment have the necessary capabilities for the job and are in safe condition.
- h. Communicate with person(s) directly responsible for accomplishing the work and / or work area to establish requirements/responsibilities and make certain that all preparatory work is complete.
- i. Mats/Pads must be used on all lifting equipment, equipped with out riggers.
- j. Pick and carry must have the load secured to the rig in front.
- k. Only BHEL Approved Plate Lifting Spreader Beam configuration shall be used (Sample in Fig. 11.3.5.3)
- l. Crane operators must follow the following:
  - i. Pass an annual Operator's Physical examination
  - ii. Carry a valid training certification card at all time while operating issued by the Govt. or other recognized institute.





**Fig. 5.3 Typical Plate Lifting Spreader Beam Configuration for 7.5 MT and 15 MT Loads**

**m. Safe Rigging Practices**

- Review the planned operation and requirements with the operator and rigging crew.
- Ensure a pre-lift meeting is conducted with crane operator, tagline operator, signal personnel, and Safety Manager.
- Designate a qualified person from the rigging crew to observe clearance of the equipment and give timely warning for all operations where it is difficult for the operator to maintain the desired clearance by visual means.
- Clear the lift area of all unnecessary personnel.
- Hydras shall only be allowed for loading & unloading works & shall not be allowed to move with load

**n. Rules for Safe Rigging**

- Use loops, thimbles and corner pads to prevent damage to slings when used around corners or on cutting edges.
- Never allow wire rope to lie on the ground for any length of time or on rusty steel or near solvents, chemicals or corrosive substances.
- Slings must not be pulled from between or under loads with load resting on the sling.
- Keep all rope away from flame cutting or welding operations.
- Never use rope as sling material.
- Never wrap a wire rope completely around a hook.

- vii. Do not bend wire rope near any attached fitting.
- viii. The sling must be selected to suite the most heavily loaded leg rather than the total weight when using multi-legged sling to lift loads in which one end is heavier than the other.
- ix. When using 3 and 4-legged sling configurations, any two legs must be capable of supporting the entire load.
- x. Where possible, wire rope choker hitches must include a shackle with the eye around the shackle pin to prevent breaking wires of the choke. The choker hitch must be “snugged down” prior to lifting, not after tension is applied.
- xi. Unless authorized by the hook manufacturer when more than two rope eyes are placed over a hook, install a shackle, pin resting in the hook, and place the rope eyes in the bowl of the shackle.
- xii. Properly rig all loads to prevent dislodgment of any part.
- xiii. Use guide ropes or tag lines to prevent the rotation or uncontrolled motion of the load when necessary.
- xiv. Loads must be safely landed and properly blocked before being unhooked and unslung. Tag lines must not be used in situations that jeopardize the safety of the lift.
- xv. Lifting beams must be plainly marked with their weight and designed working load and must only be used in the manner for which they were designed.
- xvi. The hoist rope or chain must never be wrapped around the load. The load must be attached to the hook by slings or other rigging devices that are adequate for the load being lifted.
- xvii. Multiple part lines must not be twisted around each other.
- xviii. The hook must be brought over the center of gravity of load before the lift is started.
- xix. If there has been a slack rope condition, determine that the rope is properly seated on the drum and in the sheaves prior to lifting.
- xx. Keep hands away from pinch points as the slack is being taken up.
- xxi. Leather gloves are recommended when handling wire rope.
- xxii. Avoid impact loading caused by sudden jerking when lifting or lowering. Lift the load gradually until the slack is eliminated.
- xxiii. Never ride on a load that is suspended.
- xxiv. Avoid allowing the load to be carried over the heads of any personnel.
- xxv. Never work under a suspended load until the load has been adequately supported from the floor and all conditions have been approved by the supervisor in charge of the operation.
- xxvi. Never leave a load suspended unless emergency evacuation is required.
- xxvii. Never make temporary repairs to sling.
- xxviii. The capacity of a sling is determined by its angle, construction, type of hitch and size.
- xxix. Never lift loads with one leg of a multi-leg sling until the unused legs are made secure.
- xxx. Never point load a hook unless it is especially designed and rated for such use.
- xxxi. Make certain that the load is broken free before lifting and that all legs are taking the load.
- xxxii. When using two or more slings on a load make certain all slings are made from the same materials.
- xxxiii. Lower the loads on to adequate blocking to prevent damage to the slings.
- xxxiv. Materials and equipment being hoisted must be loaded and secured to prevent any movement which could create a hazard in transit.

- xxxv. The weight of the hook, load block and any material handling devices must be included when determining crane capacity.
- xxxvi. Calculated weights cannot exceed load chart without written approval.
- xxxvii. Personnel must be completely clear of loads being picked up or set down by crane. Tag lines will be used to control the loads. Loads must not be touched by hand while placing/ moving.

**o. Slings**

The following are rules for safe use of synthetic slings:

- i. Synthetic slings must be marked to show the rated capacity for each type of hitch and type of web material.
- ii. Nylon web slings must not be used where fumes, vapors, sprays or mists or liquids of acids or phenolic are present. Web slings with aluminum fittings must apply in this category.
- iii. **Synthetic web slings must be removed from service and destroyed if any of the following conditions are present:**
  - a. Acid or caustic burns
  - b. Melting or charring of any part of the sling surface
  - c. Snags, punctures, tears or cuts
  - d. Broken stitches
  - e. Distortion of fittings
  - f. Synthetic web slings of polyester or nylon must not be used at or come in contact with temperatures in excess of 82°C
  - g. Polypropylene web slings must not be used at or come in contact with temperatures in excess of 93°C
  - h. Insulated hooks must be tested yearly to ensure insulation integrity to at least manufacturer's specifications.

**p. Wire Rope Slings must be removed from service and destroyed if any of the following conditions are present:**

- i. In (10) randomly distributed wires broken in one (1) rope lay, or five (5) broken wires in one (1) strand in one (1) rope lay.
- ii. Wear or scraping of one-third the original diameter of outside wires.
- iii. Kinking, crushing, bird caging or any other damage resulting in distortion of the wire rope structure such as:
- iv. Evidence of heat damage.
- v. End attachments that are cracked, deformed worn.
- vi. Corrosion of the rope or end attachments.

**q. Metal mesh slings must be immediately removed from service if any of the following conditions are present:**

- i. A broken weld or broken brazed joint along the sling edge.
- ii. Reduction in wire diameter of 25 percent due to abrasion or 15 percent due to corrosion.
- iii. Lack of flexibility due to distortion or corrosion.

**r. Requirements of Plate Clamps:**

- i. The rated load of the plate clamp must be marked on the main structure.

- ii. Care must be taken to make certain the load is correctly distributed for the plate clamp being used.
- iii. Do not allow load or plate clamp to come into contact with any obstruction.
- iv. The plate clamp must not be used for side pulls or sliding the load.
- v. When lifting stainless steel or special alloys, ensure plate clamp is designed for use on the specific metal.

**s. Signaling Practices:**

- The "slinger" is responsible for attaching and detaching the load to and from the crane. He shall:
  - have received appropriate training on general safe lifting operations;
  - be capable of selecting lifting gears suitable for the loads;
  - liaise with the operator and direct the movement of the crane safely.
- The "signaller" is responsible for relaying the signal from the slinger to the crane operator. He shall:
  - have received appropriate training on general safe lifting operations;
  - be able to direct the movement of the crane and loads.

**Suggested hand signals**



**Note:** During the lifting operation, either the slinger or signaller shall communicate with the operator. Other communication methods (e.g., wireless walkie-talkies, telephones, etc.) may also be used.

**Fig. 5.4 Recommended Signaling Practices**

**5. DEMOLITION WORK**

Before any demolition work is commenced and also during the process of the work the following shall be ensured, besides using the Work Permit:

- a. All roads and open areas adjacent to the work site shall either be closed, suitably protected or restricted for movement
- b. No electric cable or apparatus which is liable to be a source of danger nor a cable or an apparatus used by the operator shall remain electrically charged.



- c. All practical steps shall be taken to prevent danger to persons employed from the risks 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 them unsafe.

**6. T&PS GENERAL**

- a. All T&Ps/ MMEs should be of reputed brand/appropriate quality & must have valid test /calibration certificates bearing endorsement from competent authority of BHEL.
- b. Subcontractor to also submit monthly reports of T&Ps deployed and validity test certificates to BHEL safety Officer as per the format/procedure of BHEL.
- c. Tagging and punching in all lifting tool is compulsory with SWL, sr. no. and due date.
- d. All T&Ps shall be inspected by authorized Third Party agency as per applicable frequency. BHEL shall be kept informed of any such scheduled inspection
- e. All T&Ps shall be internally inspected in each quarter and colour coded.

**7. CHEMICAL HANDLING**

- a. Displaying safe handling procedures & MSDS for all chemicals such as lube oil, acid, alkali, sealing compounds etc. at work place.
- b. Where it is necessary to provide and/or store petroleum products or petroleum mixture & explosives, the subcontractor shall be responsible for carrying out such provision / storage in accordance with the rules & regulations laid down in the relevant petroleum act, explosive act and petroleum and carbide of calcium manual, published by the chief inspector of explosives of India. All such storage shall have prior approval if necessary from the chief inspector of explosives or any other statutory authority. The subcontractor shall be responsible for obtaining the same.
- c. The used containers of chemicals shall be segregated and disposed of suitably
- d. In case the used containers need to be re-used, all traces of the chemical to be removed by thorough cleaning with detergents etc. under trained supervision

**8. ELECTRICAL SAFETY**

- a. Only electricians licensed by appropriate statutory authority shall be employed by the subcontractor to carry out all types of electrical works. The subcontractor shall maintain adequate number of qualified electricians to maintain his temporary electrical installations.
- b. No PDB or any other distribution board shall be more than 03 (three) years of purchase. Only modern PDB with industrial sockets as shown in layout below to be allowed to use at site.
- c. Power supply to all equipment at site to be routed through MCBs of appropriate rating. A 'Power Supply Distribution Plan' shall be prepared and submitted to BHEL Engineer for approval
- d. All power supplies through cables shall be underground or overhead with height > 3mtrs.
- e. All power distribution boxes shall be locked and the key controlled by site management of concerned subcontractor.
- f. All individual equipment & tools at site shall be powered through Earth Leakage Circuit Breakers of 30 mA sensitivity.
- g. These MCBs and ELCBs shall be regularly tested as per Clause 14
- h. All fuses and fuse wires shall be of standard size and rating.
- i. All electrical appliances used in the work shall be in good working condition and shall be properly double earthed other than armour earthing.

- j. All extension boards shall have separate switches for all sockets / connections.
- k. All portable electric tools used by the subcontractor shall have safe plugging system (industrial top & socket) to source of power and be appropriately earthed.
- l. Providing adequate no. of 24 V sources and ensure that no hand lamps are operating at voltage level above 24 Volts especially in confined spaces like inside water boxes, turbine casings, condensers etc.
- m. Electrical appliance shall have proper earthing and for appliances equal to & more than 415V shall have two separate earthing (as per IS-3043-1987)

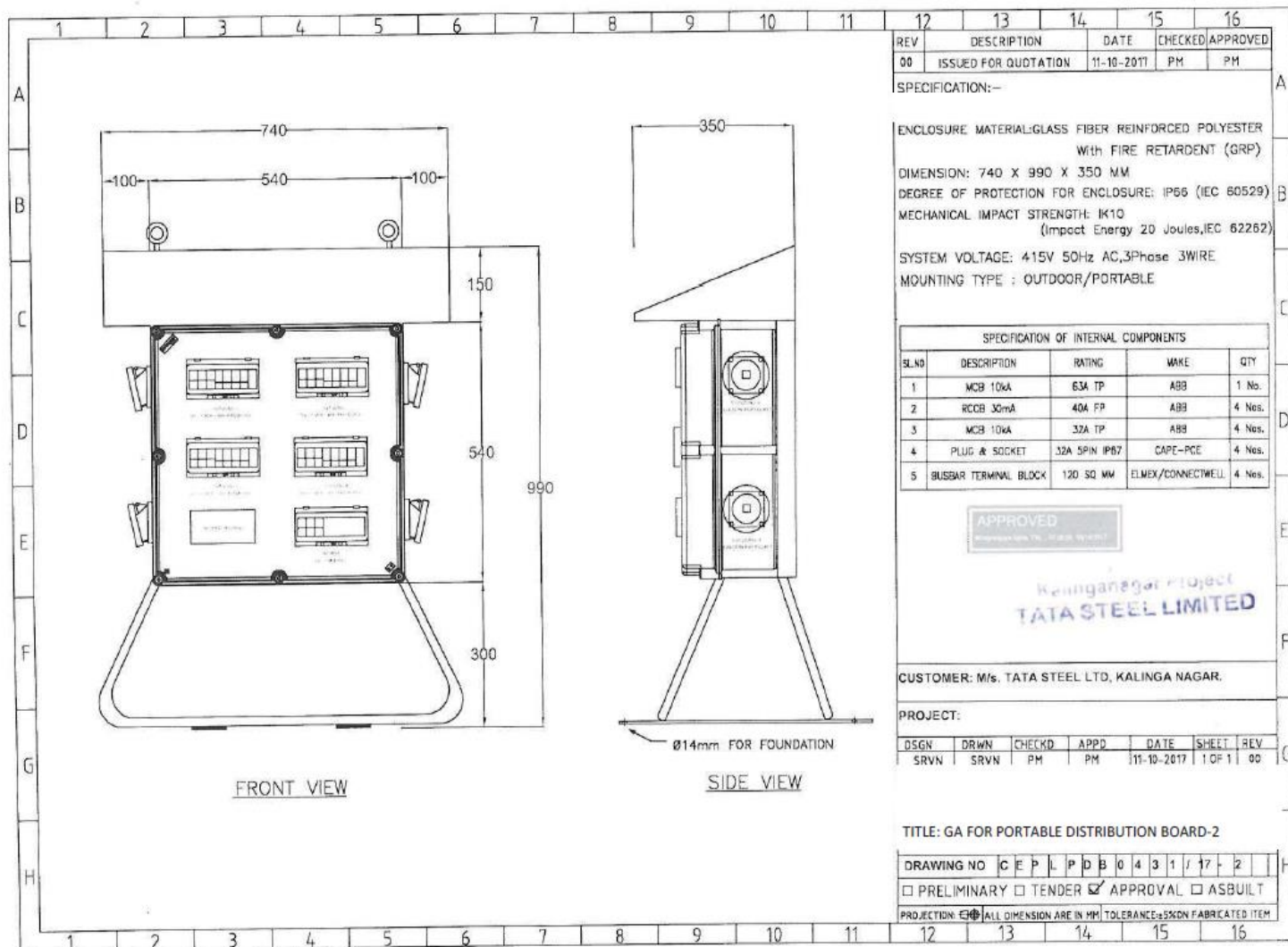
**n. Portable Electric Lights**

- i. Portable electric lights used in wet or potentially wet locations must be either low voltage type (24 volts or less) or protected by a GFI (ground fault interrupter).
- ii. They must be visually checked before each use and periodically while in use to assure their original integrity is maintained.
- iii. Cords with cuts, breaks, deep abrasions, etc. shall be taken out of service immediately.
- iv. Repairs to extension cords shall only be performed by qualified/ licensed electricians.
- v. Must not be allowed to lie in wet or potentially wet areas.

**o. Underground Cables:**

- i. Every electric line or cable of unknown origin that is discovered or exposed during a digging, drilling, probing, or similar operation is to be considered as energized and life threatening.
  - ii. The senior company employee on the site will ensure that all necessary safety precautions are taken in order to isolate the line from all workers and the public.
  - iii. Such precautions may include halting the operation if appropriate.
  - iv. The senior company employee on the site is to then contact the proper authorities to have the line identified and either confirmed to be abandoned and/or made safe for continuing the work.
  - v. Any and all underground lines that are discovered or become severed must be considered energized on both sides, and be treated accordingly.
- p. Details of earth resource and their test date to be given to BHEL safety officer as per the prescribed formats of BHEL
- q. The subcontractor shall use only properly insulated and armoured cables and conform to the requirement of Indian Electricity Act and Rules for all wiring, electrical applications at site.
- r. BHEL reserves the right to replace any unsafe electrical installations, wiring, cabling etc. at the risk & cost of the subcontractor.
- s. No maintenance work shall be carried out on live equipment
- t. Adequate precautions shall be taken to prevent danger for 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 the public
- u. The subcontractor shall carefully follow the safety requirement of BHEL/ the purchaser with the regard to voltages used in critical areas.
- v. Wiring and Branch Circuits Must be protected by a proper amperage over-current device such as a HRC fuse or circuit breaker. Such installations must be located so as to prevent physical damage to the wire conductors & panels.

- w. The sub-contractor shall supply modern power distribution board of different combination (1-phase & 3-phase). All the distribution of power should be through modern PDB. Equipment drawing is mentioned below.



**Fig. 9.1 Layout of a modern Power Distribution Board**

**x. General Electrical Safety**

- In general, equipment or machinery being moved or transported must maintain minimum clearances of 25 ft. to all power lines.
- TAG IN/ TAG OUT must be in force in Switch Room and all Distribution Boxes for live power line. The authorized person's name and contact no shall be displayed
- Ensure "double insulated" three - core cables and three pin connectors are used and are properly ground "all insulated" types, all electrical tools and appliances must be manufactured for industrial use.
- All connections shall be electrically and mechanically sound and properly insulated. Taped joints are not permitted. Connections to socket outlets must be made with proper plugs (industrial top and socket).
- Splices in electrical cords are not permitted. Repairs must be made at the socket connection and retain the same mechanical and dielectric condition of the original connection.

- vi. Damaged or defective electric tools, equipment and extension cords, etc. must not be used and shall be tagged out of service, removed from the work area and taken back to stores.
- vii. Only licensed electricians are authorized to repair and work on electrical equipment. Tampering with electric tools or equipment by others could result in termination.
- viii. Temporary electric cabling should be elevated 2.2 meters above the floor/ground or covered for protection. It must be kept clear of walkways and other locations where it may be exposed to damage or create a tripping hazard.
- ix. Energized wiring in junction boxes, circuit breaker panels and similar places must be covered and locked at all times.
- x. Areas with live high voltage wires or terminals must be barricaded against entry and warning signs posted Danger – High Voltage and Authorized Personnel Only.
- xi. Personnel should never work on energized equipment, de-energizing (lockout/tag out) the equipment is always the first requirement.
- xii. The lockout and tag out procedure will be used when testing or working on, or around, energized installation.
- xiii. Working around energized equipment should never be done alone. A second electrician must always be available for assistance.
- xiv. If lockout/tag out of the work is infeasible (must be demonstrated), work on energized electrical circuits must be approved by the Site In-charge. All safety precautions necessary must be taken, PPE use must be evaluated per the exposure and used, i.e high/low voltage gloves, insulated shoes, overcoats/aprons, face shields, and other protective equipment like insulated tools, blankets, mats, etc. must be used.
- xv. The welding machines earth leads shall be properly fixed without loose contacts. The earth cable only has to be used. No steel members shall be used as earth leads.
- xvi. Electrical crews must be qualified for the equipment and tools they work on, including being trained in Cardio-Pulmonary Resuscitation (CPR) methods and First Aid for rendering help in the event of electric shock.

**y. Qualified Persons for Electrical Works**

(One who is trained and wiremen licensed to Govt. of Respective State and familiar with the construction, operation and safety hazards of the equipment upon which they are permitted to work.)

- i. Qualified persons are intended to be only those who are well acquainted/experienced with and thoroughly conversant in the electric equipment and electrical hazards involved with work being performed.
- ii. Only qualified persons may be permitted to work on or near exposed energized parts. Such persons are required to have been trained in three specific areas:
- iii. Qualified persons must be capable of working safely on energized circuits;
- iv. Must be familiar with the proper use of special precautionary techniques and procedures bases on equipment and exposure; and
- v. Must be familiar with required personal protective equipment, insulating and shielding materials, and insulated tools.



- vi. Qualified persons are expected to be able to evaluate unknown situations and adjust their activities in such a way that only safe work practices are used. Such behavior is the responsibility of the qualified person.
- vii. It is possible and likely for an individual to be 'qualified' with regard to certain equipment in the work place, and unqualified on other equipment they must know their limitation and stop work if not qualified on what equipment they were to work on.
- viii. An employee who is undergoing on-the-job training, who, in the course of such training, has demonstrated an ability to perform duties safely at his or her level of training, and who is under the direct supervision of a qualified person is considered to be a qualified person for the performance of those duties. The process must be documented as proof.

**z. Mandatory PPEs of electrical work on LV & HV**

- i. HV arc flash suit with protective hood (for protection of face and head) as specified for hazard risk category-4 in NFPA-70E or similar IS specification for working on HT switch gear (for all voltage >690 V) to the concerned licensed electrician or competent person.
- ii. LV arc flash jacket/FR as specified for hazard risk category-4 in NFPA-70E or similar IS specification having ATPV rating of 8.5 to 9 cal/cm<sup>2</sup> for working on LV (>260V and ≤690V) to the concerned licensed electrician or competent person.



- iii. The LV arc flash jacket as shown above shall be worn continuously while working on LV (>260V and ≤690V). The color specification of LV arc flash jacket should be blue.
- iv. Electrical hand gloves should have following specification: Flame resistance, arc flash and cut protection of voltage rating (>260V and ≤690V).
- v. Electrical safety over shoe of relevant IS make for foot protection of licensed electrician or competent person while working in HV & LV line or equipment.

**9. USE OF HAND TOOLS AND POWER-OPERATED TOOLS**

**a. General Provisions**

- i. All hands and power tools and similar equipment, shall be maintained in safe condition.
- ii. When power operated tools are designed to accommodate guards, they shall be equipped
- iii. with such guards, when in use;
- iv. Belts, gears, shafts, pulleys, sprockets, spindles, drums, fly wheels, chains and other reciprocating, rotating or moving parts of the equipment shall be similarly guarded;
- v. Personnel using hand and power tools and exposed to the hazard of falling, flying, abrasive, and splashing objects, or exposed to harmful dusts, fumes, mists, vapors, or gases shall be provided with the particular personal protective equipment necessary to protect them from the hazards;

- vi. All hand-held powered platen sanders, grinders, grinders with wheels of 5 cm or less, routers, planers, laminate trimmers, nibblers, shears, scroll saws and jigsaws with blade shanks of 0.5 cm wide or less shall be equipped with only a positive on-off control.
- vii. All hand-held powered drills, tappers, fastener drivers, horizontal, vertical or angle grinders with wheels greater than 5 cm in diameter, disc sanders, belt sanders, reciprocating saws, saber saws and other operating powered tools shall be equipped with a momentary contact on control provided that turnoff can be accomplished by a single motion of the same finger or fingers that turn it on.

**b. Hand Tools**

- i. The subcontractor shall not issue or permit the use of unsafe hand tools;
- ii. Wrenches including adjustable pipe end and socket wrenches shall not be used when saws are sprung to the point that slippage occurs;
- iii. Impact tools such as drift pins, wedges and chisels shall be kept free of mushroomed heads;
- iv. The wooden handles of tools shall be kept free of splinters or cracks and shall be kept tight on the tools.

**c. Power Operated Tools**

- i. Electric power operated tools shall be either of the approved double-insulated type or shall be grounded;
- ii. The use of electric cords for hoisting or lowering loads shall not be permitted;
- iii. Pneumatic power tools shall be secured to the hose or whip by some positive means to prevent the tool from becoming incidentally disconnected;
- iv. Safety clips or retainers shall be securely installed or maintained on pneumatic impact (percussion) tools to prevent attachments from being incidentally expelled;
- v. All pneumatically riveting machine staplers and other similar equipment provided with automatic fastener feed, which operate at more than 7 kg/cm<sup>2</sup> pressure at the tool a safety device on the muzzle to prevent the tool from ejecting the fasteners unless the muzzle is in contact with the work surface;
- vi. Compressed air shall not be used for cleaning purposes except when the pressure is reduced to less than 2 kg/cm<sup>2</sup> and that too with effective chip guarding. The 2 kg/cm<sup>2</sup> pressure requirement does not apply to concrete form, mill scale and similar cleaning purposes;
- vii. The manufacturer's safe operating for hoses, pipes, valves, filters and other fittings shall not be exceeded;
- viii. Only personnel who has been trained in the operation of the particular tool shall be allowed to operate power-actuated tools;
- ix. The tool shall be tested each day before loading to see that the safety devices are in proper working condition. The method of testing shall be accordance with the manufacturer's recommended procedure;
- x. Any tool found not in proper working order, or that which develops a defect during use, shall be immediately removed from service and not used until properly repaired;
- xi. Tools shall not be loaded until just prior to the intended firing time. Neither loaded nor empty tools are to be pointed at any other person. Hands shall be kept clear of the open barrel end;
- xii. Loaded tools shall not be left unattended;
- xiii. Fasteners shall not be driven into very hard or brittle materials including, but not limited to, cast iron, glazed tiles, surface hardened steel, glass block, live rock, face brick or hollow tiles;

- xiv. Driving into materials that can be easily penetrated shall be avoided unless backed by a
- xv. substance that will prevent the pin or fastener from passing completely through and creating a flying missile hazard on the other side;
- xvi. No fastener shall be driven into a palled area caused by an unsatisfactory fastening;
- xvii. Only non-sparking tools shall be used in an explosive or flammable atmosphere;
- xviii. All tools shall be used with the correct shield, guard or attachment as recommended by the manufacturer.

**d. Abrasive Wheels and Tools**

- i. All grinding wheel must be ISO certified only.
- ii. All grinding machines shall be supplied with sufficient power to maintain the spindle speed at safe levels under all conditions of normal operation;
- iii. Grinding machines shall be equipped with suitable safety guards;
- iv. The maximum angular exposure of the grinding wheel periphery and sides shall not be more than 900, except that when the work requires contact with the wheel below the horizontal plane of the spindle, the angular exposure shall not exceed 1200. In either case, the exposure shall begin not more than 8.650 above the horizontal plane of the spindle. Safety guards shall be strong enough to withstand the bursting of the wheel;
- v. Floor and bench-mounted grinders shall be work-rests, which shall be rigidly supported and readily adjustable. Such work-rests shall be kept at a distance not to exceed 5 mm from the surface of the wheel;
- vi. Cup type wheels used for external grinding shall be protected by either revolving cup guard or a band type guard;
- vii. When safety guards are required, they shall be mounted as to maintain proper alignment with the wheel and the guard and the guard and its fastening shall be adequate strength to retain the fragments of the wheel in case of incidental breakage. The maximum angular exposure of the grinding wheel periphery and sides shall not exceed 1800;
- viii. Portable abrasive wheel used for internal grinding shall be provided with suitable safety flanges;
- ix. When safety flanges are required, they shall be used only with wheels designed to fit the flanges. Only safety flanges, of a type and design and properly assembled so as to ensure that the pieces of the wheel will be retained in case of incidental breakage, shall be used;
- x. All abrasive wheels shall be closely inspected and ring tested before mounting to ensure that they are free from cracks or defects;
- xi. Grinding wheels shall fit freely on the spindle and shall not be forced on. The spindle nut shall be tightened only enough to hold the wheel in place;
- xii. All employees using abrasive wheels shall be protected by suitable eye protection equipment.

**e. Wood Working Tools**

- i. All fixed power-driven woodworking tools shall be provided with a disconnect switch that can either be locked or tagged in the off-position;
- ii. The operating speed shall be attached or otherwise permanently marked on all circular saws over 0.5 m in diameter or operating at over 3000 peripheral rpm. Any saw so marked shall not be operated at a speed other than that marked on the blade. When a marked saw is re-tensioned for a different speed,

the marking shall be corrected to show the new speed;

- iii. Automatic feeding devices shall be installed on machines wherever the nature of the work will permit. Feeder attachments shall have the feed rolls or other moving parts covered or guarded so as to protect the operator from hazardous points;
- iv. All portable power-driven circular saws shall be equipped with guards above and below the base plate or shoe. The upper guard shall cover the saw to the depth of the teeth, except for the minimum arc required to permit the base to be tilted for bevel cuts. The lower guard shall cover the saw to the depth of the teeth, except for the minimum arc required to allow proper retraction and contact with the work. When the tool is withdrawn from the work, the lower guard shall automatically and instantly return to the covering position.

#### **10. START UP, COMMISSIONING AND TESTING:**

There are various activities involved prior to commissioning- the major ones are -Hydraulic Test, Steam Blowing, Transformers Charging, Boiler Light Up, Rolling and Synchronisation and Full loading of unit.

- a. These activities shall be personally supervised by the site executive along with the commissioning engineer.
- b. Appropriate Work Permits shall be taken as applicable
- c. The readiness of upstream and downstream system shall be ensured before taking up.
- d. These shall be handled strictly by the authorized persons only and the team shall be suitably briefed about the activity including hazards & risks involved and control plan by the concerned executive-in-charge before start.
- e. Entry of persons to the area of activity shall be suitably restricted and the emergency functions like Ambulance, first aid center and Fire station shall be intimated about the plan well in advance.
- f. Tag-in/ Tag-out shall be in place while charging transformer and whenever necessary.
- g. Electricians with valid wiremen license only shall be permitted to work on power lines.
- h. The area and the passage shall be adequately illuminated.

#### **11. FIRE SAFETY**

- a. The Fire Prevention, Protection and Preparedness Program is an integral part of the overall HSE Program. Effort and consideration must be given to safety, life and potential for delays in construction schedules and plant startup, as well as protection of property on a given project. The purpose of which is to prevent
  - i. Inception of fire
  - ii. Loss of life or personal injury
  - iii. Loss of Property
  - iv. Interruption of operations
- b. Site-in-charge / Safety Officer will make periodical review of the site Fire Protection, Prevention Preparedness Programme, Site conditions and available fire protection equipment. It is very imperative that the Sub-contractors along with BHEL to establish good contact with Local fire station for availability of Fire tender in case of emergencies, in addition to their own fire equipment.
- c. Fire Protection, Prevention and Preparedness Inspections - The Contractor /Sub-Contractor will be required to make frequent fire prevention inspections of his work site and operating facilities. Deficiencies will be corrected at once.
- d. Area where Hot work activities are carried out (Gas cutting / Welding/ any other spark producing work)

above a working spot, a GI / fire-resistant non-asbestos sheet or suitable material shall be placed to prevent the fall of hot sparks. A bucket of water shall be kept nearby while doing hot work

- e. Hot work shall be preferably carried out in a designated area with a standing Hot Work Permit, to be renewed monthly. The designated area shall have fire extinguishers.
- f. Any hot work outside designated area shall require a Hot Work permit and fire watch. No flammable material shall be stored within 35 feet from any fire load.

## 12. PAINTING:

- a. Requirements provide a detailed procedure to be implemented by all concerned employees and sub-contractors involved in painting activities.
- b. Significant Environmental Hazards:
  - i. Chemical hazard due to inhalation of lead fumes (lead containing paint)
  - ii. Chemical hazard due to inhalation of VOC's from painting operations
  - iii. VOC's from painting and coating operation
  - iv. Disposal of paints and coats drums
- c. Control Procedure for Painting:
  - i. Chemical products used in painting and coating operation shall have proper MSDS sheet in place. Whenever any doubt arises with respect to handling and safety point of view it should be accessed to all concerned.
  - ii. Toxic substances and hazards relate the toxic chemicals shall be identified.
  - iii. Proper PPE shall be used including plastic gloves appropriate overall etc.,
  - iv. Arrangement for cleaning of spillage shall be ensured
- d. Only trained workers shall be allowed and proper training should be imparted to the works.
- e. Exposure limits of the toxic substances shall be checked before starting the work and nobody shall be allowed to carry the work beyond the permissible limit.
- f. Ventilation or exhaust facility shall be provided at place where painting and coating operations are carried out.
- g. Overalls shall be supplied by the contractors/subcontractors to the workmen and adequate facilities shall be provided to enable the painters to wash at the cessation of work.
- h. Smoking, open flames or sources of ignition shall not be allowed in places where paints and other flammable substances are stored.
- i. A caution board in national /regional language "**smoking strictly prohibited**" shall be displayed in the vicinity.
- j. Suitable fire extinguishers/sand buckets shall be kept available at places where flammable paints are stored, handled or used.
- k. In case of indoor painting or painting in confined spaces, exhaust ventilating shall be provided. If adequate ventilation is not provided a proper respirator shall be provided and used by persons who are trained and fit tested.
- l. The VOC's from painting and coating operations shall not exceed the permissible level of CPCB/ SPCB norms. The paints and coats must be selected as per the guidelines.
- m. Workers shall thoroughly wash their hands and feet before leaving the work.

**13. “HAZARDOUS ENERGY” CONTROL PROCEDURE/ LOCKOUT/TAGOUT (LOTO)**

Hazardous Energy Control Procedures, known as "Lockout/Tagout (LOTO)" refers to specific practices and procedures to safeguard employees from the unexpected energization or startup of machinery and equipment, or the release of hazardous energy during service or maintenance activities.

Contractors must develop and submit a written LOTO program. This requires that a designated qualified individual turns off and disconnects the machinery or equipment from its energy source(s) before performing service or maintenance and that the authorized employee(s) either lock and tag the energy- isolating device(s) to prevent the release of hazardous energy and test the machine or equipment to verify that the energy has been isolated effectively.

**a. Minimum Requirements:**

The following are minimum requirements that must be included in the Contractor’s LOTO program:

- i. Inspection of equipment by a trained individual who is thoroughly familiar with the equipment operation and associated hazards.
- ii. Identification and labeling of lockout devices. Purchase of locks, tags, and blocks. Development of a standard written operating procedure, permitted through a controlling authority that is followed by all workers.

**b. General Requirements**

The following steps must be taken to protect workers that install or service equipment and systems:

Follow the hazardous energy procedures and statutory regulations. Follow the manufacturer’s service/repair instructions. Identify and label all sources of hazardous energy. Before beginning work, accomplish the following:

- i. De-energize all sources of hazardous energy:
- ii. Disconnect or shut down engines or motors.
- iii. De-energize electrical circuits.
- iv. Block fluid (gas or liquid) flow in hydraulic or pneumatic systems.
- v. Block or secure machine parts against motion.
- vi. Block or dissipate stored energy.
- vii. Discharge capacitors.
- viii. Release or block springs that are under compression or tension.
- ix. Vent fluids from pressure vessels, tanks, or accumulators—but never vent toxic, flammable, or explosive substances directly into the atmosphere.
- c. Lockout and tag out all forms of hazardous energy including electrical breaker panels, control valves, etc. Make sure that only one key exists for each of your assigned locks and that access to the key is controlled. Verify by test and/or observation that all energy sources are de- energized.
- d. After completion of the work, accomplish the following:
  - i. Inspect repair work before removing the lock and activating the equipment.
  - ii. Make sure that only the worker that installed the lock removes his/her assigned lock.
  - iii. Make sure that all workers are clear of danger points before re-energizing the system.

**e. LOTO Procedure****PURPOSE AND SUMMARY**

This procedure provides the requirements and responsibilities of Hazardous Energy Control and the process for Lockout / Tag out (LOTO) of energy isolating devices (valves, circuit breakers, disconnect, etc.). Its use



shall ensure that machinery, equipment, or systems are isolated from all potentially hazardous energy to prevent unexpected energization, startup, or release of stored energy which may cause personnel injury or property damage.

This procedure applies to all BHEL personnel and subcontractors working on the WBPDC (1X660MW) STAGE-III projects where equipment must be taken out of service for the performance of work activities such as installation, maintenance, repair, construction, or equipment removal. The procedure may also be used to isolate equipment of which the energization or operation may present danger to personnel or property. Lockout / tag out are not required for electrical equipment that can be unplugged from the source and the person performing the work has control of the plug.

This procedure shall be applied to prevent injury or damage caused by the unexpected release of active or stored energy. Hazardous energy sources could be in the form of the following:

- Electrical
- Hydraulic
- Chemical
- Thermal
- Mechanical
- Pneumatic

Preplanning of work activities includes the identification of all potential hazardous energy sources so that they may be properly controlled and isolated, locked, and tagged out.

Prior to initiating work activities on or around locked out / tagged out equipment, the equipment must be tested and tried by or in the presence of the person(s) performing the work activities.

#### **RESPONSIBILITIES**

- The Engineers in Charge is responsible for implementing and enforcing this procedure and approving lockouts /tag outs that impact the operation of the project.
- The Engineer in Charge is responsible for authorizing Lockout /Tag out Requests.
- The Lockout / Tag out Coordinator is responsible for maintaining the Lockout / Tag out Log. Each shift should have a designated Lockout / Tag out Coordinator.
- The Isolator is responsible for determining the proper isolation devices and device positions required to isolate all potential energy sources so that the work stated on the Lockout /Tag out Request Permit may be safely performed. The Isolator must be familiar with the equipment and energy type(s) that require isolation. For this reason, in some cases the Isolator may be more than one person (i.e. Engineer, System Operator and/or Electrician). The Isolator shall position the specified device points, and apply locks and tags, and sign the tags and the LOTO Permit isolation point blocks.
- The Safety Manager is responsible for conducting an annual audit that is documented to ensure all procedures and requirements are current and being followed as written.

#### **DEFINITIONS**

##### **Affected Employee: -**

An employee whose job requires him/her to operate or use machinery or equipment on which servicing or maintenance is being performed under a lock out/tag out procedure or whose job requires him/her to work in an area in which servicing or maintenance is being performed under a lockout/tag out procedure

##### **Authorized Employee: -**

An employee who implements a lockout/tag out procedure on machinery, equipment, or systems in order that servicing or maintenance may be performed. Often an authorized employee and an affected employee may be the same person.

**Danger “Do Not Operate” Tag**

A tag used to identify energy isolation devices and specify the required position of the device. The tag should be affixed to the isolation device such that it is in plain view of anyone attempting to operate the device. The tags shall be sequentially numbered and shall specify the lockout/ tag out request number. The tag shall also state the purpose, and the expected duration of the lockout /tag out

**Isolation Device**

A device that is designed and intended to prevent the passage of energy. These devices, usually located at the energy source, are typically valves, circuit breakers, etc. Isolation devices should have a means of being locked in position

**Lockout Device**

A device that uses a positive physical means such as a lock, either key or combination type to maintain an energy isolation device in the safe position and prevent the inadvertent energization of machinery, equipment, or systems. Device locks should serve no other purpose other than hazardous energy control isolation

**Lockout Tag out Request Permit**

A pre-numbered form used to request that machinery, equipment or systems be taken out of service. A Lockout/Tagout Request Permit may be initiated by any one requiring energy isolation for work activities or for taking faulty equipment out of service

**Lockout / Tag out Request Log**

A record of all Lockout /Tag out Request Permits shall be maintained by the Lockout /Tag out Coordinator.

**PROCEDURE****1. REQUESTING A LOCKOUT / TAGOUT PERMIT**

When machinery, equipment, or systems are partially or completely taken out of service for work activities or equipment protection, a lockout / tag out shall be requested. The requestor shall be familiar with scope of work required and shall provide a brief description of the work on the Lockout / Tag out Request Permit. The requestor shall also provide the proposed start time and estimated duration of lockout / tag out. If familiar with the machinery, equipment, or system to be taken out of service, the requestor may identify the devices that are required to be isolated. The LOTO Request Permit shall be forwarded to the Authorized Lockout / Tag out Coordinator for reviewed and signature, along with Permit to Work number to be entered on the LOTO Request Permit.

- a. The Lockout / Tag out Coordinator shall record the necessary information on the Lockout / Tag out Request Log and forward the request to the Engineer in Charge for approval.
- b. The Safety Manager or Engineer in Charge shall review the Lockout / Tagout Request Permit for impact on project operations. Project operations could be impacted by the equipment being taken out of service or by the required isolation to take the equipment out of service. If project operations are impacted by the Lockout / Tagout, the request shall be forwarded to the Engineer in Charge for approval.
- c. The Engineer in Charge shall provide the lockout / tag out isolation points necessary to perform the task stated on the request. The device identification, device location, device position, and locking mechanism



shall be entered into the appropriate blocks on the Lockout / Tag out Request Permit.

- d. The Engineer in Charge indicates approval of the Lockout / Tagout Request Permit by signing in the appropriate space on the request. If the Lockout /Tag out Request Permit is rejected, the Engineer in Charge shall return it to the requestor, via the Lockout / Tagout Coordinator with a written explanation of the rejection.
- e. Once approved, the Lockout / Tag out Request Permit shall be forwarded to the Lockout / Tag out Coordinator to assign tags and locks.
- f. The log shall show current status of all Lockout / Tag out Request Permits from submittal to approval, through lifting of locks and tags to final closeout. The log shall be maintained by the Lockout / Tag out Coordinator in their office.

## 2. PLACEMENT OF LOCKS AND TAGS

- a. The tags shall be filled out to match the information on the LOTO Request Permit. Appropriate locks for the types of isolation devices specified shall be collected and placed with the tags and the Lockout / Tag out Request Permit.
- b. The isolator(s) shall take the device locks, tags, and the Lockout / Tagout Request Permit to position the specified isolation devices, sign and hang the tags, and place the locks. If the isolator does not agree with or understand the Lockout / Tagout Request Permit, or has a problem performing the isolation, the problem should be brought to the attention of the Safety Representative or Area Supervisor immediately and the lockout / tag out should be postponed until the situation is resolved.
- c. Once the Isolator has placed all “locks” on isolation points, they will “test ”and “try” the machinery, equipment, or system to ensure all hazardous energy has been completely removed and the isolation is one totally accomplished, and has initialed and signed the Lockout /Tag out Request Permit indicating all isolation points have been confirmed. Examples of “lock”, “test” and “try”:
  - by checking that all locks on the LOTO Request Permit have been applied and are in the specified position open/closed, on/off, etc.; metering test of electrical circuits, opening of drain valves, checking pressure gauges or indicators; and try by pushing start buttons and on/off switches, etc.
  - Testing shall be performed by person(s) knowledgeable of the energy source(s) being isolated (e.g., an electrician should meter electrical circuits).
- d. A copy of the completed Lockout /Tag out Request Permit shall remain with the Work Package and used as part of the daily Pre-Job Briefings

## 3. WORKING UNDER A LOCKOUT / TAGOUT REQUEST

- a. Prior to starting the work activity, the person(s) performing the work shall review the Lockout / Tag out Request Permit and place the necessary tags and personal locks on the identified isolation devices. Personal locks may be placed only on devices that have already been locked and tagged in accordance with the Lockout / Tag out Request Permit.
  - All personal locks shall be accompanied by a tag that is signed and dated by the worker(s) and specifies the work activity being performed.
  - Personal locks should be of a different color than device locks for ready identification.
- b. Verification of the effectiveness of the isolation by the Isolator shall be performed for Worker’s working under the lockout / tag out, by demonstrating the checks on “lock”, “test” and “try”,
- c. When the work activity is finished, personal locks and tags shall be removed and the Safety Representative

shall be notified that the Lockout / Tagout is no longer required. If work under a lockout / tag out is to be delayed or interrupted for a period in excess of 24 hours, personal locks shall be removed until the work restarts. Personal locks shall be removed prior to the worker(s) leaving the project at the end of shift unless the key(s) are maintained at the project.

#### **4. REMOVAL OF LOCKS AND TAGS**

- a. When the lockout / tag out is no longer required, the Safety Representative or Area Supervisor shall obtain the Lockout / Tagout Request Permit from the work package for LOTO removal. Prior to removing locks or tags that may allow equipment to be energized, a check shall be made to verify that the equipment is free to safely operate (i.e., will not cause damage or injury). The locks and tags shall be removed and returned to the Lockout / Tagout Coordinator. Isolation devices may be repositioned at the discretion of the Engineer in Charge according to operational requirements. The Isolator shall complete the Lockout / Tagout Request Permit indicating each lock and tag has been removed and the Safety Representative or Area Supervisor forward to the Lockout / Tagout Coordinator.
- b. The Lockout / Tagout Coordinator shall discard the tags and maintain the completed Lockout / Tagout Request Permit for future reference.
- c. In the event that an employee leaves the job site without removing the personal lock I tag, the following measures shall be taken and documented. The measures listed below are a minimum set of guidelines and under all circumstances, refer to the site-specific safe work plan for detailed procedures:
  - Attempt calling / contacting the employee to return to the site for removal.
  - In the event an employee cannot be contacted, the Site Manager and Safety Manager shall sign an Emergency Lockout/Tagout Removal Form, which has been completed by the Area Supervisor.
  - Employee shall be notified upon returning to the site, prior to beginning any work.

#### **5. INTERRUPTION OF A LOCKOUT / TAGOUT**

##### **Operational Emergency**

The Engineer in Charge / Safety Manager /Area Supervisor may deem it necessary to temporarily remove the locks and tags from isolation devices, prior to the end of the work activity. The standard procedure for removal of locks and tags shall be followed. Extreme caution shall be taken by the Isolator removing the locks and tags to prevent personnel injury.

##### **Testing**

When the performance of a work activity requires the functional testing of a machine, component, or system, the locks and tags may be temporarily removed in accordance with the tag removal, to perform the test. As a result of the testing, if it is determined that the equipment needs further work, the locks and tags shall be positioned back on to the device. If it is not necessary to replace all the locks and tags, then the unnecessary locks and tags may be returned to the Lockout / Tagout Coordinator. The Engineer in Charge shall initial the Lockout / Tag out Request Permit in the removal block to indicate that these locks and tags have been removed. When testing has been satisfactorily completed, the locks and tags shall be removed.

##### **ISOLATION DEVICES**

- In most industrial applications, there are isolation devices that were not designed to accommodate a locking device. In these instances, an acceptable alternative that physically obstructs or prevents the use of the isolation device shall be found. Chains shall be placed on valves or electrical panels. Wires shall be determinate, pulled back, taped, and secured.

- If an isolation device does not accept a lock, a tag only is acceptable; however, all possible precautions shall be undertaken to provide a level of safety for the workers. The tag shall be readily visible to anyone attempting to operate the device.
- If more than one Lockout / Tagout Request Permit requires that a single isolation device be locked and tagged, a lock and tag for each request shall be placed. Each lock in itself prevents the inadvertent operation of the device.

### **GROUP / COMPLEX LOCKOUT**

In a multiple lockout / tag out procedure, each person working on the machinery or equipment must place a lock or tag on the energy isolating device. If the energy isolating device will not accept multiple locks or tags, a hasp (a multiple lockout device, may be used. The locks or tags must be placed in such a way that energy cannot be restored to the machinery or equipment until every lock or tag is removed. As each employee involved no longer needs to maintain lockout / tag out protection that employee removes his - her lock and/or tag. The employee attaching the lock or tag is the only person authorized to remove the lock or tag.

## **6. TRAINING**

The training must include recognition of hazardous energy source, type and magnitude of energy available, methods and means necessary for energy isolation and control. Each authorized employee shall receive adequate training. The training should address that all affected employees are instructed in the purpose and use of the energy control procedure. There should be training provisions included for any other employee whose work operations are or may be in an area where energy control procedures may be utilized. The employee training should also address when tag out systems are used including the limitations of a tag (tags are warning devices and do not provide physical restraint). The training should also include that a tag is not to be removed without authorization. The tag is never to be ignored or defeated in any way. Retraining is required when there is a change in job assignments, in machines, a change in the energy control procedures, or a new hazard is introduced. All training and I or retraining must be documented with employee's name and dates of training.

## **7. PROGRAM REVIEW**

The lockout / tag out program must be reviewed at least annually. The review must ensure that procedures are being followed and that they are effective. A documented review of the inspection must include the date, the equipment, employees involved & the inspector. The inspector must be someone other than those actually using the lockout / tag out in progress.

### **ATTACHMENTS**


#### **#1. Danger (DO NOT OPERATE) Tags**



## #2. Device &amp; Personal Locks and Multi Lock Hasp:



## #3. Lockout / Tagout Request Permit

		<b>LOCKOUT / TAGOUT REQUEST PERMIT</b>			LOTO Request Permit No.: Work Permit No.:		
Equip. Out of Service:	LOTO Date Required by: ____/____/____	Estimated Duration:		<b>LOTO Requested</b> Date:			
Scope of Work:				<b>LOTO Authorization</b> Signed by: Date:			
				<b>LOTO Removal Authorization</b> Signed by: Date:                      Time:			
Tag No.	Device to be Tagged / Locked I.D. No.	Device Location	Device Position OPEN / CLOSE D -	Lock No.	Tag/Lock Placed by Print/Sign - Date/Time		Tag /Lock Removed by Print/Sign - Date/Time
Comments Instructions: <b>Attachment 3.Lockout / Tag out Request Permit:</b>							

## #4. Lockout / Tag out Request Log

LOTO Permit No.	Request or Name	Equipment & Location	Est. Work Completed Date	Approval Date	LOTO Placed Date	LOTO Removed Date	Comments

## 14. RISK ASSESSMENT

### Risk and Hazard Analysis

In order to produce an overall Project EHS Plan, a project must be assessed for its risks. There are two components to the risk and hazard analysis. The procedure used to examine and plan for the identified risks and hazards is called a General Hazard and Risk Assessment.

### JSA/HIRA review

Prior to commence the following activities Method statement and JSA/HIRA to be prepared by the concern engineer in coordination with EHS officer and submit to the client for review and approval. After getting approval the work will be started under PTW after clearance. For HIRA and criteria for the defining the high, medium & low risk the relevant annexure be referred. In case any deviations required in the approved method statement the concerned engineer/supervisor has to prepare additional HIRA/JSA to cover the new activities and associated risk. Following activities to be covered,

- Deep excavation (more than 5 feet)
- Significant concrete pouring (like heavy foundation, TG deck, Slab casting etc.)
- Confined entry
- Blasting
- Working on electrical/ energized equipment's
- Steel erection more than 5-Ton weight
- Working at height prior to completion of stairs/ladders/hand railing etc.

### **Definition:**

**HAZARD** - Any potential or present danger to persons or property within the project site, e.g., oil on the floor is a hazard.

**INCIDENT** - An unintended happening that may result in injury, loss or damage, e.g., Slipping on the oil is an Incident.

**INJURY** – Physical harm, the result of an Incident, e.g., a sprained wrist from the fall would be an injury.

### **Hazard Analysis Document**

- For high risk and dangerous work identified, the Applicant shall complete and submit a Hazard Analysis Document together with the PTW request. It will be a JSA (Job Safety Analysis) or Preliminary Hazard Analysis Checklist. And it shall be reviewed and approved by respective Construction and HSE Representatives.
- Issues such as work interface, coordination, drawings, toolbox meetings and work type/duration shall be detailed and included with supporting documentation for the Applicant's request for PTW.
- If applicable, Hazard Analysis Document shall be used as the foundation for development of Safe Work Method Statement. Each hazard identified shall be addressed in the Safe Work Method Statement and be submitted as part of the Applicant's submittal package.

### Evaluation of Sub-contractor Risk Assessments includes

- Experience and expertise in performing similar type work.
- Duration of work performed
- Location of the work to be performed.

- Nature of the work to be performed.
- Potential for a subcontractor performing the work to expose themselves, other persons or employees, to hazards.
- Potential for exposure to work site hazards.

#### **Review of Subcontractor specific issues**

Preventive and protective measures must be introduced according to the following order of priority

- Eliminating the hazard by removing the activity from the work process. Examples include substitution with less hazardous chemicals, using different manufacturing processes, etc.
- Controlling the hazard at its source through use of engineering controls. Examples include local exhaust ventilation, isolation rooms, machine guarding, acoustic insulating, etc.
- Minimizing the hazard through design of safe work systems and administrative or institutional control measures. Examples include job rotation, training safe work procedures, lock-out and tag-out, workplace monitoring, limiting exposure or work duration, etc.
- Providing appropriate personal protective equipment (PPE) in conjunction with training, use, and maintenance of the PPE.

### **15. HSE PREPAREDNESS FOR ADVERSE CLIMATES AND WEATHER**

All Preventive and Precautionary measures to ensure Health & Safety of workers in all possible adverse weather conditions based on the analysis of the local area conditions to be taken by the subcontractor

#### **15.1 SUMMER**

1. The Working Time and Lunch Hour will be as per instruction of Statutory Authorities (no work between 11am to 3:30pm). However, in case temp comes down due to rain/cloudy weather work will continue as per normal routine.
2. During long lunch break, worker will be allowed to go back home for rest. Those who will like to stay back will avail at the facility of rest shed or other designed area.
3. They will be allowed to take small break during work as per their need.
4. Water sprinkling will be done on roads to reduce dust concentration.
5. Workers will be provided with adequate cool drinking water and Butter milk/Lemon water etc.
6. Adequate ORS stock will be made available at the work location in the First-Aid Box for use as needed and at First-aid Centre for emergency need.
7. Fire prevention shall be on high alert, with removal of dry grass and bushes, etc, inside and outside the surrounding work areas. No smoking, and control of open flame/sparks shall be maintained and monitored.
8. Worker will be informed about the Do's and Don'ts to be followed during summer in the Pre Job Brief.

#### **Dos & Don'ts**

1. Drink plenty of cool water and other non-alcoholic fluid and keep body well hydrated.
2. Eat salt in food to replenish loss of salt through sweating.
3. Avoid over physical exercise.
4. Have adequate sleep at night.
5. Eat light and less spicy food
6. Avoid eating food which was cooked long time ago.



7. Nobody should use small water bodies such as pits, running rain water through crevices etc. for drinking and cleaning purpose as it may be unhygienic.

**Emergency Handling**

In case of emergency due to heat disorder:

1. Rescue the victim from workplace and place under shed.
2. If to be rescued from height, use stoke basket or rescue kit.
3. Inform Ambulance immediately.
4. If nearby any air conditioned room/shed is available, place him inside the room/shed.
5. Administer First aid by trained First aider for Heat Disorder
6. If conscious, give him ORS solution to drink.
7. If required send the victim hospital immediately.

**15.2 MONSOON****A. Height Work & Structural Safety:**

1. Ensure that all height work platforms are barricaded and avoid any highly hazardous
2. Height work.
3. Ensure that all personnel have good quality and intact safety shoes
4. Stop all dangerous height work during rain
5. Explain Do's and Don'ts to workers during Tool Box Meetings
6. Ensure that there are no weak structures, boards etc. that can fall during high winds
7. Do not allow any loose material (e.g. GI sheet, Ply board, empty cement bag, aluminium foil, foam sheets etc.) on roof sheds or top of structures.
8. Do not permit any one to ride up or come down scaffolds frame work during heavy wind or rain.
9. Provide "anchor" of adequate strength to scaffolds and other high-rise structures.
10. All rest sheds and GI sheds will be anchored into the round and wall and roof panels will be secured with J hook to prevent shed from blowing over or parts/pieces becoming airborne. Proper earthing per IS standard is also to be installed.
11. Do not go alone nor permit anyone to stay at tower-tops, roof-tops, high structures or on electrical poles during the course of stormy weather or heavy rain.

**B. Electrical:**

1. All electrical connections / loads have to be routed through ELCB / RCCB (residual current circuit breaker) whose rating should be 30mA.
2. RCCB operational checks need to be done DAILY / WEEKLY during monsoon season.
3. Avoid joints on power cables which need to be laid over-head or under-ground, better not to have any joint at all. In case joints become essential, such cables must be housed rigidly and insulation must be provided as per approved standard. The joint shall be suitable for outdoor use.
4. All electrical distribution board shall be properly covered at top and sides to protect from rain water. Extension boards shall be protected from rain water.
5. Ensure proper "earthing" for each and every electrical appliance.
6. Double earthing need to be provided for 3-phase power supply and for voltage more than 220V.

7. Provide lightening arrestors at the top of Boiler 3 and boiler 4 and rest sheds which are not covered by existing lightening arrestor of other installation.

**C. Others:**

1. Maintain smooth flow on open drains. i.e. no obstruction or blockade shall be made on storm water drains. If required, make temporary drains.
2. Arrange back-filling of excavated pits on war-footing basis.
3. Arrange bringing down booms of all cranes, hydra machines during stormy weather (wind speed 40-50 km/hr)
4. Confirm that all gantry cranes are effectively choked to prevent rolling and toppling.
5. Do not forget to deep ready a dew battery operated lights at site-offices during rainy season.
6. Avoid using wet damp clothes.
7. Hard Barricade excavated zone filled with water with scaffolding pipe & clamp with reflective net
8. Engage diesel operated water pump to dewater work area. For electrically operated water pump, the starter shall be protected from rain water. All rotating parts shall be guarded. Ensure availability of sufficient water pumps.

**D. Health and hygiene:**

1. Monsoon reduces the immunity of our body and makes us vulnerable to many diseases which are commonly associated with this season. It is time for us to keep our body challenging against disease by boosting our immunity and taking safety measures against these diseases.
2. The diseases associated with monsoon are Malaria, Jaundice, Gastro-intestinal infections, like typhoid, cholera etc. apart from these viral infections like cold and cough also make their presence felt. Majority of above said diseases are on account of:
3. Puddle of water formed due to rain become breeding grounds for mosquitoes which spread disease like, malaria and dengue fever. As a precautionary measure against mosquito-bite disease one can use mosquito net around the end which is better choice to mosquito repellents like mats and coils.
4. Pollution of drinking water during monsoon is very common. It is very necessary to drink clean and pure water when water-borne monsoon diseases like diarrhoea and gastro-intestinal infections threaten us.
5. Walking in dirty water during rainy season leads of numerous fungal infection which affect toes and nails. Diabetic patients have to take a special care about their feet. Keeping feet always dry and clean is very necessary. Avoid walking in dirty water. Keep shoes socks and raincoats dry and clean.

**E. Workmen will be made aware of following Do's and Don'ts:**

1. Do not sleep in daytime.
2. Avoid over physical exertion.
3. During lightning and thunder storm, do not take shelter under tree. Take shelter inside rest shed or store room.
4. Wash vegetables with clean water and steam them well to kill germs.
5. Avoid eating un-cooked foods and salads should be washed properly before consumption.
6. Drink plenty of water and keep body well-hydrated.
7. Always keep the surrounding area dry and clean. Don't allow to get water accumulated around.
8. Keep body warm as viruses attack immediately when body temperature goes down.



9. Do not enter air conditioned room with wet hair and damp cloths.
10. Dry your feet and webs with soft dry cloth whenever they are wet.
11. Eat light and less spicy food.
12. Avoid eating food which was cooked long time ago.
13. Eat salt in food to replenish loss of salt through sweating.

### **15.3 EMERGENCY WEATHER CONDITIONS**

#### **Cyclone/Severe thunder storm**

In the event of Cyclone/Severe thunder storm, alert will be issued by subcontractor on notification received by Govt. authorities/Metrological departments Customer or BHEL.

#### **The actions required during cyclone/rough weather:**

1. Check and advice subcontractors to clean-up work area. Pick up all loose and unused material of respective supervisor's area.
2. Tie to secure all gas cylinders to avoid displacement and unsafe conditions which could be due to wind pressure.
3. Secure portable electricity generating sets and other equipment, pumps, hoses etc.
4. Make preparation for removal of water logging.
5. Take review of work activity and make preparation for removal of equipment and material from vulnerable areas.
6. Isolate/turn off all electrical power form the main panel/switches. Secure and anchor panels properly.
7. Recheck anchorage/tie of all temporary structures/sheds, tall objects, cranes, rigs, scaffolds etc. to avoid toppling due to wind force.
8. Cranes boom shall be secured, either locked or lowered the booms as reasonably and practicably possible and rigs to safe position for the safety point of view.
9. Group up all trash barrels, wooden pallets, forms; wooden decks etc. and anchor properly.
10. Welding machines, air compressors and such equipment are to be grouped together and secured to the stable objects. Welding leads, electrical cables, hoses are to be rolled up and secured properly.
11. Set on site vehicles on high ground in the site area with brakes set firmly.
12. Anchor all tanks, vessels, gas cylinders that may be moved by high wind and water.
13. Evacuate job site.

#### **Personnel Evacuation:**

1. Personnel Evacuation will be required if predicted wind speed and storm surge heights are beyond acceptable limits as per the instructions from Govt. Authorities/ Metrological departments or Customer.
2. Once the warning is received for personnel evacuation, an emergency response team shall be formed. The team will work with local authorities and other agencies formed/deployed to evacuate and transport all personnel involved in the project to the cyclone shelter.
3. Cyclone may be followed by the calm "EYE", be aware of it. If the wind suddenly drops, don't assume the cyclone is over. Violent wind may resume from the opposite side direction. Wait for the official "All clear Signal".

4. After the cyclone, do not go outside until officially communicated about safe situation outside. Use recommended routes for returning. Do not panic or rush while returning.
5. Checking of gas leaks and well-being of electrical appliances is essential before leaving the site.
6. Follow local communications for official warning and advice. The construction Manager shall also obtain updates from customer/metrological departments and communicate to the personnel on project site.

#### **15.4 PREVENTION OF COVID-19 (COVID-19 HERE TO BE READ AS COVID-19 AND OTHER PANDEMICS/ COMMUNICABLE DISEASES) AT PROJECT SITE & LABOUR COLONY:**

Resumption of Construction Activities after Lock Down and Prevention of Coronavirus Infection during Site Operations and OCP 61A: Prevention of COVID-19 Infection in Labor Colony will be strictly followed.

##### **A. Preventive measures at project site:**

- BHEL and Agencies shall nominate COVID Marshalls, who will be responsible for monitoring the COVID prevention measures and apprising management on the same.
- Mandatory health check-up for every worker/ official joining the site
- All activities to be carried out using least amount of paperwork and physical proximity as far as possible.
- **HSE Observer App** to be used to monitor HSE Activities and follow up with agencies for closure of non-conformities.

##### **a. Strict Control at the Gate/ Banning Entry to Anyone Not Wearing Masks**

- i. Security personnel at the gate may erect a barricade preferably approx. 10 meters from the gate and only allow personnel who are wearing proper masks inside.
- ii. Public address system may be used to warn any non-compliant visitors
- iii. Near entry gate, round markers at minimum 1-meter distance to be ensured so that distancing is ensured
- iv. A hand-wash or hand sanitiser facility is preferable at the gate to allow entry after hand wash or hand sanitisation. These are also to be provided at key locations to enable hand wash / hand sanitisation before starting work, before eating, etc.
- v. Gutkha, Paan, tobacco etc. to be banned from the site. Spitting to be strictly prohibited.

##### **b. Screening at Gate with Contactless Thermometer & Action on Suspected Cases**

- i. Security Personnel at the Gate to screen each person entering the premises using a non-contact infrared thermometer, which is duly serial numbered and calibrated.
  - ii. In case any site worker/ official is found to have fever more than 99 Degrees Fahrenheit or found coughing/ sneezing, he/she may be advised rest till recovery and entry to be permitted after obtaining clearance from medical officer/assistance/attendants.
- Parcel to be collected from gate by concerned person preferably with provision of Special Box
  - Any construction material received at site, unless properly sanitized, to be kept undisturbed for at least 3 days and to be used only after that period.
  - During Toolbox Talks, minimum 1-meter distance between any two workers to be ensured

##### **c. During site execution activities:**

For all site execution activities, social distancing is to be maintained. In case this is not possible due to nature of work, speciality of work, etc, ensure sensitisation of the labour/staff involved and use of appropriate PPEs, especially mandatory face mask. In any case, close working to be allowed only in special

circumstances and ensuring these activities are preferably time staggered to the extent possible

**d. In office premises:**

- i. Sharing of items like pens, water bottles etc. in office premises to be avoided
- ii. Doors preferably to be in open condition to avoid contact
- iii. All common touch points to be frequently disinfected in a day.

**e. Regular disinfection of all Areas, Equipment and facilities**

- i. A dedicated disinfectant gang to be identified for the task by each agency. The disinfectant gang to be provided full body suits for the task.
- ii. All areas (including office premises, site areas, chairs, tables, furniture etc.), tools & equipment to preferably be disinfected by dedicated gang every day before resumption of work.
- iv. Common touch points like handrails, lift buttons, door/window knobs or handles, vehicle door handles, taps, conference room & dining hall tables/chairs, common sofas/chairs, visitor sofa/chairs, files & folders, etc to preferably be disinfected regularly at frequent intervals every day.
- v. Pool vehicles, to be disinfected after every use. Social distancing to be maintained inside the common pool vehicles as per Govt./ statutory body guidelines.

**f. Disinfecting the operator/driver touch points of Vehicles/cranes, T&Ps etc.**

Disinfection to also be carried out for all Cranes, Vehicles, Equipment, consoles, T&Ps etc. which come into contact with operating personnel.

**g. Posters on COVID-19**

Sufficient Posters on COVID-19 to be ensured across the site in languages understood by most workers.

**h. Brief guidelines for hand washing are as below:**

- i. Soap to be provided at each wash basin and replenished regularly.
- ii. Washing with soap for at least 20 seconds is recommended.
- iii. As a general guideline, for every 100 workers, 1 wash-basin may be provided at site areas.
- iv. Close queue to be avoided near wash-basins and 1-meter distance to be maintained. Round markers at 1-meter distance can be ensured as guidance

**Composition of Disinfectant:**

- i. Readily available 1% hypochlorite solution or 4%
- ii. Liquid chlorine-1% solution
- lii. Surgical spirit-95% alcohol content
- iv. Hand sanitizer should have: Isopropyl alcohol-75%, Glycerol-1.45%, Hydrogen Peroxide-0.125%

**B. Prevention of COVID-19 Infection in Labor Colony:**

- Spacing of minimum 2 meters between living areas of workers inside a room may be maintained. Preferably, the living area of each worker may be partitioned using sheet of cloth, plastic etc.
- Rooms to be properly ventilated as far as possible
- Sanitation to be given prime importance and personal hygiene to be promoted
- Face masks shall be worn by everyone inside the colony premises
- Spitting of Pan. Gutkha etc. inside the colony and urinating etc. outside the toilets to be strictly avoided
- Regular visits by Doctors to the labor colony can be arranged on non-working day for check-up of all workers
- **Identification of "COVID Wardens" (CWs) by each agency for maintaining the following:**
  - i. Keeping an eye on the health of workers and report any suspected cases of fever, coughing etc. to the

management

- ii. Keeping an eye on the social distancing measures in the labor colony and report any non-conformances to the management.
- iii. Educate the workers about social distancing and COVID prevention measures.
- Training/ Awareness regarding COVID-19 to be provided to workers regularly.
- Workers to be instructed to maintain social distancing of minimum 1 m at all time
- **Posters on COVID-19:** Sufficient Posters on COVID-19 to be ensured across the labor colony in languages understood by most workers.
- All workers to be instructed to inform any suspected cases of illness (individual or others) to an emergency contact number of CW, the emergency contact numbers and CW contact numbers to be displayed at prominent locations
- **Inspection & Review**
  - i. Daily Inspection by concerned COVID Wardens and reporting to Agency
  - ii. Regular inspection by Agency & BHEL

### 15.5 Noise Mitigation

High noise is harmful to the human health and it can cause impairment if exposed for long duration at regular intervals, and also cause disruption in nearby communities.

- Noise monitoring shall be carried out in all construction locations periodically.
- Use of silent DG is allowed at site during construction.
- Low noise generation equipment's to be preferred.
- Work areas where noise levels exceed the 85db shall be posted as hearing protection required.
- Use of PPEs / ear plug/ear muff for personnel entering into high noise area.
- Activities generation High noise will be planned in day shift.

#### **Noise Level Chart**

Parameter	Night Noise level dBA	Daytime Noise Level dBA
At 1-meter from each piece of equipment	85	85
At Property boundary	70	70



## ANNEXURE J

First-Aid Box

**Details & Contents of First Aid Box as per Contract Labor (Regulation & Abolition Act), Central Rules, 1971**

- (1) The first-aid box shall be distinctively marked with a Red Cross on a white background and shall contain the following items, namely:

**(a) For establishments in which the number of contract labor employed does not exceed fifty, each first aid box shall contain the following equipment:**

(i)	6 small sterilized dressings
(ii)	3 medium size sterilized dressings
(iii)	3 large size sterilized dressings
(iv)	6 pieces of sterilized eye pads in separate sealed packets.
(v)	6 roller bandages 10 cm wide.
(vi)	6 roller bandages 5 cm wide.
(vii)	One tourniquet
(viii)	A supply of suitable splints
(ix)	Three packets of safety pins.
(x)	Kidney tray.
(xi)	3 large sterilized burn dressings.
(xii)	1 (30ml) bottle containing a two percent alcoholic solution of iodine
(xiii)	1 (30 ml) bottle containing Sal volatile having the dose and mode of administration indicated on the label
(xiv)	1 snake bite lancet
(xv)	1 (30gms) bottle of potassium permanganate crystals.
(xvi)	1 pair scissors
(xvii)	1 copy of the First-Aid leaflet issued by the Director General, Factory Advice Service and Labor Institutes, Government of India.
(xviii)	A bottle containing 100 tablets (each of 5 grains) of aspirin
(xix)	Ointment for burns
(xx)	A bottle of suitable surgical anti-septic solution

**(b) For establishment in which the number of contract labor exceeds fifty each first-aid box shall contain the following equipment:**

(i)	12 small sterilized dressings
(ii)	6 medium size sterilized dressings
(iii)	6 large size sterilized dressings.
(iv)	6 large size sterilized burn dressings
(v)	6 (15 grams) packets sterilized cotton wool
(vi)	12 pieces of sterilized eye pads in separate sealed packets.
(vii)	12 roller bandages 10 cm wide.
(viii)	12 roller bandages 5 cm wide.
(ix)	One tourniquet.
(x)	A supply of suitable splints.
(xi)	Three packets of safety pins.
(xii)	Kidney tray.
(xiii)	Sufficient number of eye washes bottles filled with distilled water or suitable liquid clearly indicated by a distinctive sign which shall be visible at all times.
(xiv)	4 per cent Xylocaine eye drops, and boric acid eye drops and soda by carbonate eye drops.
(xv)	1 (60ml) bottle containing a two percent alcoholic solution of iodine
(xvi)	One (two hundred ml) bottle of mercurochrome (2 per cent) solution in water.
(xvii)	1 (120ml) bottle containing Sal volatile having the dose and mode of administration indicated on the label.
(xviii)	1 roll of adhesive plaster (6 cmX1 meter)
(xix)	2 rolls of adhesive plaster (2 cmX1 meter)
(xx)	A snake bite lancet.
(xxi)	1 (30 grams) bottle of potassium permanganate crystals.
(xxii)	1 pair scissors
(xxiii)	1 copy of the First-Aid leaflet issued by the Director-General, Factory Advice service and labor Institutes, Government of India.
(xxiv)	a bottle containing 100 tablets (each of 5 grains) of aspirin
(xxv)	Ointment for burns
(xxvi)	A bottle of a suitable surgical anti septic solution.

- (2) Adequate arrangement shall be made for immediate recoupment of the equipment when necessary.



## ANNEXURE K

Vertigo Test

**Vertigo Test Procedure/ Guidelines**

This document specifies minimum requirements for vertigo test. These may be supplemented by any additional requirements deemed fit by the medical examiner/ HSE department)

Fear of height may be physiological or psychological. Therefore, to rule out any possibility of physiological factor, detailed medical check-up of workers is carried out before vertigo test. Medical check-up of workers includes the following:

history of past illnesses (like epilepsy, drug allergy, diabetics/ hypertension, unconsciousness etc.), general physical examination (like height, weight, BMI, build and nourishment etc.), measurement of pulse rate, Blood Pressure, respiratory rate.

After this check-up, those who are found suitable for height work by examining doctor, are allowed to undergo vertigo test.

During this health check-up, psychology of workers is also studied. If any worker finds it extremely difficult/ frightening to climb the monkey ladder & walk on the beam, during/after performing vertigo test or even before performing, then he is treated as disqualified.

As per standard, during vertigo test, worker is allowed to climb on a foundation through monkey ladder, walk on a beam, then steps down at the other end of beam, through monkey ladder. Height of the beam should be at least six feet from ground level. All necessary safety precautions are taken during this test. Worker has to wear full body harness with double lanyard. A horizontal lifeline is run parallel to the beam and worker has to put his lanyards into the lifeline. Additionally, a safety net is also put below the beam for rescue of the victim in case of a fall from beam.

**Following activities are suggested to be carried out during testing:****1. Walking Bench Training:**

- a. Person should walk over the channel. He should maintain balance & walk without much problem.
- b. If the person has problem to balances himself on repeated chances, he may be having flat foot or some other problem. So, he may not be fit for height work.

**2. Rope Climb Training:**

Person should be able to climb the rope up to the top channel for ensuring that in case of fall, a person hanging on the safety harness, will be able to safely climb back to the platform within minimum time period before the safety harness start breaking down under the load.

**3. Height Work Training:**

Person should walk freely on the middle channel while holding the top channel with the help of safety harness.

**4. Ladder for Vertical fall arrestor Training:**

Vertical fall arrestor rope is fixed from top to bottom of the ladder. It will ensure:


- Usage of vertical fall arrestor.
- Usage of two lanyards of a safety harness.
- Ensure 3-point contact on the ladder while climb.

**5. Chair for work at height Training:**

- Climb though vertical ladder with two lanyard ropes.
- Hooking of two lanyard ropes to life line. With this safe arrangement, he can walk to chair.
- Sits in the chair safely, comes out & walks back to the vertical ladder & come down from vertical ladder. After completion of vertigo test, blood pressure of worker is again measured. If it is not within acceptable limits for any worker, concerned worker is denied height pass.

Only those who pass the above training are to be considered as fit for height work.



	<b>BHARAT HEAVY ELECTRICALS LIMITED (BHEL)</b>	<b>GENERAL CONDITIONS OF CONTRACT GCC – BOP</b>  <b>Revision no. 00</b>	<b>ANNEXURES</b>
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## **ANNEXURE– VIII**

### **INTEGRITY PACT**

#### **Between**

Bharat Heavy Electricals Ltd. (BHEL), a company registered under the Companies Act 1956 and having its registered office at "BHEL House", Siri Fort, New Delhi – 110049 (India) hereinafter referred to as "The Principal", which expression unless repugnant to the context or meaning hereof shall include its successors or assigns of the ONE PART

#### **and**

\_\_\_\_\_, (description of the party along with address), hereinafter referred to as "The Bidder/ Contractor" which expression unless repugnant to the context or meaning hereof shall include its successors or assigns of the OTHER PART

#### **Preamble**

The Principal intends to award, under laid-down organizational procedures, contract/s for

\_\_\_\_\_. The Principal values full compliance with all relevant laws of the land, rules and regulations, and the principles of economic use of resources, and of fairness and transparency in its relations with its Bidder(s)/ Contractor(s).

In order to achieve these goals, the Principal will appoint Independent External Monitor(s), who will monitor the tender process and the execution of the contract for compliance with the principles mentioned above.

#### **Section 1 – Commitments of the Principal**

1.1 The Principal commits itself to take all measures necessary to prevent corruption and to observe the following principles: -

1.1.1 No employee of the Principal, personally or through family members, will in connection with the tender for, or the execution of a contract, demand, take a promise for or accept, for self or third person, any material or immaterial benefit which the person is not legally entitled to.


1.1.2 The Principal will, during the tender process treat all Bidder(s) with equity and reason. The Principal will in particular, before and during the tender process, provide to all Bidder(s) the same information and will not provide to any Bidder(s) confidential / additional information through which the Bidder(s) could obtain an advantage in relation to the tender process or the contract execution.

1.1.3 The Principal will exclude from the process all known prejudiced persons.

1.2 If the Principal obtains information on the conduct of any of its employees which is a penal offence under the Indian Penal Code 1860 and Prevention of Corruption Act 1988 or any other statutory penal enactment, or if there be a substantive suspicion in this regard, the Principal will inform its Vigilance Office and in addition can initiate disciplinary actions.

#### **Section 2 – Commitments of the Bidder(s)/ Contractor(s)**

2.1 The Bidder(s)/ Contractor(s) commit himself to take all measures necessary to prevent corruption. He commits

	<b>BHARAT HEAVY ELECTRICALS LIMITED (BHEL)</b>	<b>GENERAL CONDITIONS OF CONTRACT GCC – BOP</b>  <b>Revision no. 00</b>	<b>ANNEXURES</b>
---	--	---	------------------

himself to observe the following principles during his participation in the tender process and during the contract execution.

2.1.1 The Bidder(s)/ Contractor(s) will not, directly or through any other person or firm, offer, promise or give to the Principal or to any of the Principal's employees involved in the tender process or the execution of the contract or to any third person any material, immaterial or any other benefit which he / she is not legally entitled to, in order to obtain in exchange any advantage of any kind whatsoever during the tender process or during the execution of the contract.

2.1.2 The Bidder(s)/ Contractor(s) will not enter with other Bidder(s) into any illegal or undisclosed agreement or understanding, whether formal or informal. This applies in particular to prices, specifications, certifications, subsidiary contracts, submission or non-submission of bids or any other actions to restrict competitiveness or to introduce cartelization in the bidding process.

2.1.3 The Bidder(s)/ Contractor(s) will not commit any penal offence under the relevant IPC/ PC Act; further the Bidder(s)/ Contractor(s) will not use improperly, for purposes of competition or personal gain, or pass on to others, any information or document provided by the Principal as part of the business relationship, regarding plans, technical proposals and business details, including information contained or transmitted electronically.

2.1.4 Foreign Bidder(s)/ Contractor(s) shall disclose the name and address of agents and representatives in India and Indian Bidder(s)/ Contractor(s) to disclose their foreign principals or associates. The Bidder(s)/ Contractor(s) will, when presenting his bid, disclose any and all payments he has made, and is committed to or intends to make to agents, brokers or any other intermediaries in connection with the award of the contract.

2.2 The Bidder(s)/ Contractor(s) will not instigate third persons to commit offences outlined above or be an accessory to such offences.

2.3 The Bidder(s)/ Contractor(s) shall not approach the Courts while representing the matters to IEMs and will await their decision in the matter.

### **Section 3 – Disqualification from tender process & exclusion from future contracts**

If the Bidder(s)/ Contractor(s), before award or during execution has committed a transgression through a violation of Section 2 above, or acts in any other manner such as to put his reliability or credibility in question, the Principal is entitled to disqualify the Bidder(s)/ Contractor(s) from the tender process or take action as per the separate "Guidelines on Banning of Business dealings with Suppliers/ Contractors". framed by the Principal.


### **Section 4 – Compensation for Damages**

4.1 If the Principal has disqualified the Bidder from the tender process prior to the award according to Section 3, the Principal is entitled to demand and recover the damages equivalent Earnest Money Deposit/Bid Security.

4.2 If the Principal has terminated the contract according to Section 3, or if the Principal is entitled to terminate the contract according to section 3, the Principal shall be entitled to demand and recover from the Contractor liquidated damages equivalent to 5% of the contract value or the amount equivalent to Security Deposit/Performance Bank Guarantee, whichever is higher.

### **Section 5 – Previous Transgression**

5.1 The Bidder declares that no previous transgressions occurred in the last 3 years with any other company in any country conforming to the anti-corruption approach or with any other Public Sector Enterprise in India that could justify his exclusion from the tender process.

	<b>BHARAT HEAVY ELECTRICALS LIMITED (BHEL)</b>	<b>GENERAL CONDITIONS OF CONTRACT GCC – BOP</b>  <b>Revision no. 00</b>	<b>ANNEXURES</b>
--	--	---	------------------

5.2 If the Bidder makes incorrect statement on this subject, he can be disqualified from the tender process or the contract, if already awarded, can be terminated for such reason.

#### **Section 6 – Equal treatment of all Bidders/ Contractors/ Sub-contractors**

6.1 The Principal will enter into agreements with identical conditions as this one with all Bidders and Contractors. In case of sub-contracting, the Principal contractor shall be responsible for the adoption of IP by his sub-contractors and shall continue to remain

responsible for any default by his sub-contractors.

6.2 The Principal will disqualify from the tender process all bidders who do not sign this pact or violate its provisions.

#### **Section 7 – Criminal Charges against violating Bidders / Contractors / Sub-contractors**

If the Principal obtains knowledge of conduct of a Bidder, Contractor or Subcontractor, or of an employee or a representative or an associate of a Bidder, Contractor or Subcontractor which constitutes corruption, or if the Principal has substantive suspicion in this regard, the Principal will inform the Vigilance Office.

#### **Section 8 –Independent External Monitor(s)**

8.1 The Principal appoints competent and credible Independent External Monitor for this Pact. The task of the Monitor is to review independently and objectively, whether and to what extent the parties comply with the obligations under this agreement.

8.2 The Monitor is not subject to instructions by the representatives of the parties and performs his functions neutrally and independently. He reports to the CMD, BHEL.


8.3 The Bidder(s)/ Contractor(s) accepts that the Monitor has the right to access without restriction to all contract documentation of the Principal including that provided by the Bidder(s)/ Contractor(s). The Bidder(s)/ Contractor(s) will grant the monitor, upon his request and demonstration of a valid interest, unrestricted and unconditional access to his contract documentation. The same is applicable to Sub-contractor(s). The Monitor is under contractual obligation to treat the information and documents of the Bidder(s)/ Contractor(s) / Sub-contractor(s) with confidentiality in line with Non-disclosure agreement.

8.4 The Principal will provide to the Monitor sufficient information about all meetings among the parties related to the contract provided such meetings could have an impact on the contractual relations between the Principal and the Contractor. The parties offer to the Monitor the option to participate in such meetings.

8.5 The role of IEMs is advisory, would not be legally binding and it is restricted to resolving issues raised by an intending bidder regarding any aspect of the tender which allegedly restricts competition or bias towards some bidders. At the same time, it must be understood that IEMs are not consultants to the Management. Their role is independent in nature and the advice once tendered would not be subject to review at the request of the organization.

8.6 For ensuring the desired transparency and objectivity in dealing with the complaints arising out of any tendering process, the matter should be examined by the full panel of IEMs jointly as far as possible, who would look into the records, conduct an investigation, and submit their joint recommendations to the Management.

8.7 The IEMs would examine all complaints received by them and give their recommendations! views to CMD, BHEL, at the earliest. They may also send their report directly to the CVO and the Commission, in case of suspicion of serious

	<b>BHARAT HEAVY ELECTRICALS LIMITED (BHEL)</b>	<b>GENERAL CONDITIONS OF CONTRACT GCC – BOP</b>  <b>Revision no. 00</b>	<b>ANNEXURES</b>
---	--	---	------------------

irregularities requiring legal/ administrative action. IEMs will tender their advice on the complaints within 10 days as far as possible.

8.8 The CMD, BHEL shall decide the compensation to be paid to the Monitor and its terms and conditions.

8.9 IEM should examine the process integrity, they are not expected to concern themselves with fixing of responsibility of officers. Complaints alleging mala fide on the part of any officer of the organization should be looked into by the CVO of the concerned organization.

8.10 If the Monitor has reported to the CMD, BHEL, a substantiated suspicion of an offence under relevant Indian Penal Code/ Prevention of Corruption Act, and the CMD, BHEL has not, within reasonable time, taken visible action to proceed against such offence or reported it to the Vigilance Office, the Monitor may also transmit this information directly to the Central Vigilance Commissioner, Government of India.

8.11 The number of Independent External Monitor(s) shall be decided by the CMD, BHEL.

8.12 The word 'Monitor' would include both singular and plural.

#### Section 9 – Pact Duration

9.1 This Pact shall be operative from the date IP is signed by both the parties till the final completion of contract for successful bidder and for all other bidders 6 months after the contract has been awarded. Issues like warranty/ guarantee etc. should be outside the purview of IEMs.

9.2 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 as above, unless it is discharged/ determined by the CMD, BHEL.

#### Section 10 – Other Provisions


10.1 This agreement is subject to Indian Laws and jurisdiction shall be registered office of the Principal, i.e. New Delhi.

10.2 Changes and supplements as well as termination notices need to be made in writing. Side agreements have not been made.

10.3 If the Contractor is a partnership or a consortium, this agreement must be signed by all partners or consortium members.

10.4 Should one or several provisions of this agreement turn out to be invalid, the remainder of this agreement remains valid. In this case, the parties will strive to come to an agreement to their original intentions.

10.5 Only those bidders/ contractors who have entered into this agreement with the Principal would be competent to participate in the bidding. In other words, entering into this agreement would be a preliminary qualification.

  
 \_\_\_\_\_  
 For & On behalf of the Principal  
 (Office Seal)

\_\_\_\_\_  
 For & On behalf of the Bidder/ Contractor  
 (Office Seal)

Place\_\_\_\_\_

Date\_\_\_\_\_

Witness:   
 (Name & Address) \_\_\_\_\_

Witness: \_\_\_\_\_  
 (Name & Address) \_\_\_\_\_

## To be given on Letter head of Bidder

Ref: .....

Date: .....

To,

Bharat Heavy Electricals Limited  
PEM, PPEI Building,  
Plot No 25, Sector -16A  
Noida (U.P)-201301

Reference:

Order no-F6/18/2019-PPD dated 23.07.2020 issued by Ministry of Finance.

Tender Enquiry No-.....

Offer No-.....

Name of Package: .....

Dear Sir,

I have read the clause regarding restriction on procurement from a bidder of a country which shares a land border with India. I hereby certify that Company name, is not from such a country and is eligible to be considered.

Thanking You,

Yours faithfully,

(Company director seal and signature)

**To be given on statutory auditor / cost auditor of the company (in the case of companies) / from a practicing cost accountant / practicing chartered accountant Letter head**

Ref: .....

Date: .....

To,  
Bharat Heavy Electricals Limited  
PEM, PPEI Building,  
Plot No 25, Sector -16A  
Noida (U.P)-201301

Reference: Tender Enquiry No-.....

Name of Package: .....

Dear Sir,

We hereby certify that items of .....(Package name) for.....(Project Name) offered by M/s .....(bidder's name) having its works/office at ..... has local content of .....%. Further, it is also certified that the local content percentage (%) certified above is in line with definition of local content given in point no 2 of Public Procurement (Preference to Make in India), Order 2017- revision, having ref. no. P-45021/2/2017-PP(BE-II)-Part(4) Vol.II dated 04.06.2020 & 19.07.2024 an M/s..... qualifies as Class-I/Class-II (strike out whichever is not applicable) local supplier.

Further, cost of locally imported items (inclusive of taxes) sourced locally from resellers/ distributors is Rs ..... and cost of licence/royalty paid/technical expertise cost etc. source from outside of India is Rs.....

Details of the location(s) at which the local value addition-

Yours very truly

..... (Signing Authority Name & Sign)

..... (Firm Name)

# The Odisha Gazette

EXTRAORDINARY  
PUBLISHED BY AUTHORITY

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No.2280, CUTTACK, THURSDAY, DECEMBER 15, 2016/MARGASIRA 24, 1938

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## STEEL & MINES DEPARTMENT

### NOTIFICATION

The 14th December, 2016

### ODISHA MINOR MINERAL CONCESSION RULES, 2016

**S.R.O. No. 601/2016**— In exercise of the powers conferred by sub-section (1) of Section 15 of the Mines and Minerals (Development and Regulation) Act, 1957 (67 of 1957) and in supersession of the provisions contained in the Odisha Minor Mineral Concession Rules, 2004, except as respects things done or omitted to be done before such supersession, the State Government hereby makes the following rules for regulating the grant of mineral concessions in respect of minor minerals and for the purposes connected therewith, namely:—

#### CHAPTER-I PRELIMINARY

**1. Short title and commencement:**— (1) These rules may be called the Odisha Minor Mineral Concession Rules, 2016.

(2) They shall come into force on the date of their publication in the *Odisha Gazette*.

**2. Definitions:**— (1) In these rules, unless the context otherwise requires,—

- (a) “Act” means the Mines and Minerals (Development and Regulation) Act, 1957;
- (b) “Additional charge” means the amount payable by a successful bidder on unit quantity of minerals towards auction money in addition to other charges leviable under these rules;
- (c) “Authorized Officer” means the Director of Mines or Director of Geology or any officer of the Directorate of Mines or Directorate of Geology duly authorized by the Government in writing for the purpose;
- (d) “Captive use” means use of the entire quantity of mineral(s) extracted from the mining lease in a mineral processing unit or mineral beneficiation unit owned by the lessee excluding the mineral of substandard quality or mineral rejects;
- (e) “Collector” means the Chief Officer-in-Charge of the revenue administration of a district and also includes the Additional District Magistrate;

- (f) “Competent Authority” means officer of the concerned Department of Government mentioned in columns (3) and (4) of Schedule IV for the purpose and jurisdiction specified against each of them in Columns (2) and (1) respectively thereof;
- (g) “Controlling Authority” means officers mentioned in the column (2) of Schedule III for the purpose and jurisdiction specified against each of them in column (1) thereof;
- (h) “Decorative Stone” means all types of granites as defined in the Granite Conservation and Development Rules, 1999 and any other rock suitable for decorative or export purpose including dimension stone;
- (i) “Deputy Director” means the Deputy Director of Mines, Odisha;
- (j) “Director” means the Director of Mines, Odisha;
- (k) “Form” means Form appended to these rules;
- (l) “Government” means the Government of Odisha;
- (m) “GramaPanchayat” means the Executive Committee of the “GramaSasan” established under section 7 of the Odisha Gram Panchayat Act, 1964;
- (n) “Granite” means dolerites, granite gneisses, migmatites, gabbros, anorthosites, rhyolites, syenites, leptynites, charnockites and other igneous and orthometamorphic rock types which are —
- (i) amenable to be recovered as dimensional stone,
  - (ii) capable of taking polish, and
  - (iii) commercially exploitable;
- (o) “Joint Director” means the Joint Director of Mines, Odisha;
- (p) “Minimum guaranteed quantity” means, in respect of sources for which the mining plan has been approved, the quantity of extraction approved for the year concerned as per the mining plan and in respect of sources for which mining plan has not been prepared and approved, such extractable quantity as may be assessed by the Competent Authority with approval of the Controlling Authority as the reasonable quantity that may be extracted from the source considering its potential.
- (q) “Mining lease” means a lease granted under these rules for specified minor minerals over a compact area;
- (r) “Mining Plan” in relation to specified minor minerals means a mining plan prepared under the ‘Granite Conservation and Development Rules, 1999’ and in relation to all other minor minerals means a mining plan prepared under these rules;
- (s) “Own Industry” means an industry of which the lessee is the owner or in which he holds not less than fifty percent of controlling interest.



- (t) “Prospecting license-*cum*-mining lease” means a two stage concession granted for the purpose of undertaking prospecting operation in respect of specified minor minerals followed by mining operation over a compact area;
  - (u) “Quarry lease” means a lease granted on tenure basis for extraction, collection and/or removal of minor minerals other than specified minor minerals over a compact area;
  - (v) “Quarrying operation” means any operation undertaken for the purpose of winning any minor mineral other than specified minor minerals and shall include erection of machinery, laying of tramways, construction of roads and other preliminary operations for the purpose of quarrying;
  - (w) “Quarry permit” means a permit granted for extraction, collection and/or removal of any specified quantity of minor minerals other than specified minor minerals under Chapter V of these rules;
  - (x) “Recognised person” means a qualified person granted recognition under these rules for preparation of mining plan;
  - (y) “Schedule” means a Schedule appended to these rules;
  - (z) “Scheduled Areas” means the Scheduled Areas as referred to in Clause (1) of Article 244 of the Constitution of India;
  - (aa) “Specified minor minerals” means all minor minerals including decorative stones other than the minor minerals listed at serial No. 1(ii) of Schedule-III;
  - (bb) “Sub-Collector” means the officer-in-charge of a Revenue Sub-division; and
  - (cc) “Tahasildar” means the officer so appointed by the Government and includes an Additional Tahasildar.
- (2) Words and expressions used herein but not defined in these rules shall have the meanings as respectively assigned to them in the Act, and rules made thereunder.

**3. Restriction on prospecting or mining or quarrying operation:—** (1) No person shall undertake any prospecting operation or mining operation or quarrying operation for minor minerals in any area except under and in accordance with the terms and conditions of a prospecting license-*cum*-mining lease or a mining lease or a quarry lease or a quarry permit, as the case may be, granted under these rules:

Provided that extraction, collection and/or removal of minor minerals by a person from his own land for normal agricultural operations or other bonafide domestic consumptions shall not be construed as mining or quarrying operation:

Provided further that nothing in this sub-rule shall affect any prospecting or mining or quarrying operation undertaken in any area in accordance with the terms and conditions of a

prospecting license or mining lease or quarry lease or quarry permit before commencement of these rules which is in force at such commencement:

Provided also that nothing in this rule shall apply to prospecting operations undertaken by any agency or organization of the State or the Central Government.

(2) No person shall transport or store or cause to be transported or stored any minor mineral for the purpose of selling or trading otherwise than in accordance with these rules.

(3) In the interest of mineral development, preservation of natural environment, prevention of pollution or to avoid danger to public health or communication or to ensure safety to buildings, monuments or other structures or to protect national security or for such other purposes, the Competent/Controlling Authority may, by an order in respect of any minor mineral, make premature termination of prospecting license-*cum*-mining lease or mining lease or quarry lease or quarry permit after giving the holder of license or lease or permit a reasonable opportunity of being heard:

Provided that the Deputy Director of Mines or Mining Officer or Tahasildar or Divisional Forest Officer having jurisdiction, may in an emergent situation or in case of irreparable loss, pass necessary orders as deemed proper in the interest of mineral development, preservation of natural environment, prevention of pollution, protection of national security, or to avoid danger to public health or communication or to ensure safety to buildings, monuments or other structures or for such other purposes.

**4. Restriction on grant of prospecting license-*cum*-mining lease or mining lease or quarry lease or quarry permit:**— (1) Notwithstanding anything contained in these rules, the State Government may, by an order, declare that no prospecting license-*cum*-mining lease or mining lease or quarry lease or quarry permit shall be granted in any area or in respect of any minor mineral(s) except on such terms and conditions as may be specified from time to time.

(2) No prospecting license-*cum*-mining lease or mining lease or quarry lease or quarry permit shall be granted to any person other than an Indian citizen and without prior approval of the Competent Authority.

(3) No prospecting license-*cum*-mining lease or mining lease or quarry lease or quarry permit shall be granted over areas which, in the opinion of the State Government are of historical, cultural, archaeological and scientific importance.

(4) No prospecting license-*cum*-mining lease shall be granted for a specified minor mineral over any area unless it is satisfied that the reconnaissance survey (G4 level) has been carried out over the area applied for to establish availability of mineral therein or evidence of mineral in the area has been established otherwise:

Provided that this provision shall not be applicable for areas in which mining has been carried out in the past under a mining lease.

(5) No mining lease shall be granted over any area for a specified minor mineral unless it is satisfied that the prospecting operations (G3 level) has been carried out over the area applied for to establish availability of mineral therein or evidence of mineral in the area has been established otherwise.

(6) No prospecting license-*cum*-mining lease or mining lease or quarry lease shall be granted in Scheduled Areas without recommendation of the concerned Grama Panchayat.

(7) No prospecting license-*cum*-mining lease or mining lease or quarry lease or quarry permit shall be executed in any forest land without prior approval of the Government of India as required under the Forest (Conservation) Act, 1980.

(8) No quarry lease or quarry permit for brick earth shall be granted for manufacture of clay bricks or tiles or blocks for use in construction activity within a radius of fifty kilometers from coal based thermal power plant unless an undertaking is furnished to the effect that at least twenty-five percent of ash (fly ash, bottom ash or pond ash) shall be used with brick earth on weight to weight basis.

(9) No prospecting license-*cum*-mining lease or mining lease or quarry lease or quarry permit shall be granted to a person who is a defaulter in payment of Government dues under the Act and the rules made thereunder, unless recovery of such dues has been stayed by any Court or an Authority, before whom an appeal is pending under sub-rule (1) of rule 46 of these rules.

(10) No quarry lease or quarry permit for road metals including ballast and ordinary boulders shall be granted within the area for which a license-*cum*-lease or lease has been granted for specified minor minerals.

(11) No prospecting license-*cum*-mining lease or mining lease or quarry lease or quarry permit shall be granted to any person over any private land unless consent of the land owner in the form of a duly sworn in affidavit is obtained by the Controlling Authority before initiating the procedure for grant of such concession.

(12) All applications for prospecting license and mining lease for specified minor minerals received prior to the date of commencement of these rules shall become ineligible.

(13) Notwithstanding anything contained in sub-rule (12), the following applications shall remain eligible for grant of mining lease under these rules:

(a) Where before the commencement of these rules, a prospecting licensee has been granted in respect of any land for any specified minor mineral, the licensee shall have the right to obtain mining lease in respect of that mineral in that land, if the State Government is satisfied that the licensee,

- (i) has undertaken prospecting operations to establish the existence of mineral contents in such land in accordance with the provisions applicable during the period of license,
- (ii) has not committed any breach of the terms and conditions of the license,
- (iii) has not become ineligible for grant of mining lease,
- (iv) has not failed to apply for grant of mining lease within a period of three months after the expiry of prospecting license or such further period as may be extended by the State Government.

(b) Where the State Government has communicated order (terms and conditions) to grant a mining lease before commencement of these rules, the mining lease shall be granted subject to fulfillment of terms and conditions of the grant order within the time stipulated in the grant order or such further time, not exceeding two years, as may be extended by the State Government.

**5. Maximum area for which a prospecting license-cum-mining lease or a mining lease may be granted:—** No person by himself or with any person having joint interest shall hold:—

- (a) one or more prospecting license-cum-mining lease covering a total area of more than five square kilometers (five hundred hectares) for specified minor minerals:

Provided that the area granted under a single prospecting license-cum-mining lease shall not exceed one square kilometer (one hundred hectares);

- (b) one or more mining leases for specified minor minerals covering a total area of more than five square kilometers (five hundred hectares):

Provided that the area granted under a single mining lease shall not exceed one square kilometer (one hundred hectares).

(2) For the purpose of this rule, a person acquiring, by or in the name of another person, a prospecting license-cum-mining lease or mining lease which is intended for him shall be deemed to be acquiring it himself.

(3) For the purpose of determining the total area referred to in sub-rule (1) the area held under a prospecting license-cum-mining lease or mining lease by a person as a member of a co-operative, society, company or other corporation or a Hindu Undivided Family or a partner of a firm shall be deducted from the area referred to in sub-rule(1) so that the sum total of the area held by such person under a prospecting license-cum-mining lease or mining lease, whether as such member or partner of individually, may not, in any case, exceed the total area specified in sub-rule (1).

**6. Minimum area for which a prospecting license-*cum*-mining lease or mining lease may be granted:—**The minimum area that may be granted under prospecting license-*cum*-mining lease or mining lease shall not be less than one hectare:

Provided that the State Government, if it is satisfied on the basis of proposed production level, geological or topographical conditions may, for the reasons to be recorded in writing, grant prospecting license-*cum*-mining lease or mining lease over an area more than the maximum area as specified in rule 5 or less than the minimum area as specified in this rule.

**7. Boundaries below the surface:—** The boundaries of the area covered by a prospecting license-*cum*-mining lease or a mining lease or quarry lease shall run vertically downwards below the surface towards the centre of earth.

**8. Periods for which prospecting license-*cum*-mining lease, mining lease and quarry lease be granted for the specified minor minerals –**

- (1) On and from the commencement of these rules, all prospecting license-*cum*-mining leases for specified minor minerals shall be granted in two stages, namely, prospecting license for one year followed by mining lease for thirty years.
- (2) On and from the commencement of these rules, all mining leases for specified minor minerals shall be granted for a period of thirty years.
- (3) On the expiry of the lease period, the lease shall be put up for auction as per the procedure specified under these rules.
- (4) The maximum period for which a quarry lease may be granted shall not exceed ten years and shall be subject to such terms and conditions as may be specified by the Competent Authority:

Provided that the minimum period for which any such lease may be granted shall be five years.

## CHAPTER-II

### GRANT OF PROSPECTING LICENSE-CUM-MINING LEASE FOR SPECIFIED MINOR MINERALS

**9. Procedure for grant of prospecting license-cum-mining lease:—**(1) The State Government shall notify the areas over which prospecting license-cum-mining lease shall be granted for any specified minor mineral, the terms and conditions subject to which such prospecting license-cum-mining lease shall be granted and any other relevant conditions.

(2) The State Government shall invite applications in Form-A for grant of prospecting license-cum-mining lease while issuing notification under sub-rule (1) and the notification shall be published in two daily newspapers, at least one of which is of State level and the other having wide publicity in the area where the area is located and such notification shall be published at least thirty days before the intended date of receipt of application and shall contain the date and time within which the application shall be received. The State Government shall prescribe the terms and conditions and procedure subject to which the auction shall be conducted. The terms and conditions may include parameters such as extent of value addition, captive use and such other conditions as the State Government may consider necessary for mineral development.

(3) The persons selected through competitive bidding shall execute the prospecting license deed in Form B or in a form as near thereto as circumstances in his case may require, within three months of the order issued by the State Government or within such further period as the State Government allow in this behalf.

(4) If no such deed is executed within the said period due to any default on the part of the person selected, the State Government may revoke its decision for grant of prospecting license-cum-mining lease and in that event the earnest money as deposited by the auction holder shall be forfeited to the State Government.

(5) The holder of prospecting license shall be required to complete the prospecting operations satisfactorily within a period of one year or such other period as may be allowed by the State Government.

(6) The holder of prospecting license shall send to the Government, Director of Mines and Deputy Director of Mines or Mining Officer concerned under whose jurisdiction, the area is located, an intimation in Form-C of the commencement of prospecting operation so as to reach them within a period of fifteen days from the date of such commencement.

(7) The holder of a prospecting license, who completes the prospecting operations successfully and establishes the existence of mineral contents in the area (up to at least G3 level) in conformity with the United Nations Framework Classification (UNFC) system, shall be required to

apply for a mining lease in Form D for such area and shall have the right to get the mining lease and thereafter undertake mining operations.

(8) On receipt of the application for mining lease the Government shall take decision to grant precise area for the said purpose and communicate such decision to the applicant and on receipt of communication from the Government of the precise area to be granted, the applicant shall submit a duly approved mining plan within a period of six months or such other period as may be allowed by the Government.

(9) On being satisfied with the submissions made by the applicant in respect of approved mining plan and such other documents or clearances or approvals, as desired by the Government, the mining lease shall be granted in favour of the applicant and a deed to that effect shall be executed in Form E.

**10. Procedure for auction of prospecting license-cum-mining lease:—**(1) The State Government may auction a prospecting license-cum-mining lease over an area where general exploration up to G4 level (as per UNFC guidelines) has been carried out.

(2) For the purpose of granting prospecting license-cum-mining lease, the State Government shall select, through auction by a method of competitive bidding, including e-auction, an applicant who fulfils the conditions prescribed under this rule.

(3) The auction shall be conducted as per the terms and conditions, as specified under sub-rule (1) and (2).

(4) The applicant having a net worth of less than 10% of the value of mineral resource shall not be eligible for participating in the auction process for grant of a prospecting license-cum-mining lease.

*Explanation:—*

- (i). *The net worth of an individual shall be the value of the immovable property as reflected in the solvency certificate.*
- (ii). *In case of a company the net worth shall be the sum of the paid up share capital and the free reserves as per the audited balance sheets of the immediately preceding financial year.*
- (iii). *In case of a partnership firm the net worth will be the sum of net worth of all partners individually.*

(5) The value of estimated mineral resource under sub-rule (4) shall be calculated by multiplying the quantity of estimated mineral resource with the average ex-mine price of the mineral for the preceding one year as fixed by the Director of Mines.

(6) The quantity of the estimated mineral resource for the purpose of sub-rule (5) shall be the quantity of mineral resource as assessed through geological investigation, or in the case of an area covered under the proviso to sub-rule (4) of rule 4, the actual average annual production of the

area during the period in which the mine was in operation (in any year in past covering a period of ten years) multiplied by thirty.

(7) The minimum amount of additional charge for the auction shall be specified by the State Government in the notice inviting applications for grant of prospecting license-*cum*-mining lease and in case the prospecting license-*cum*-mining lease is considered for more than one mineral, uniform minimum additional charge shall be applicable for all the minerals in the lease area.

(8) The additional charge as mentioned in sub-rule (7) shall be bid as a percentage of actual sale value during the relevant time of actual sale of mineral (s).

(9) The intending applicants participating in the auction shall submit the following documents in a sealed cover along with the Form specified for the purpose duly filled in:—

- (i) treasury challan showing deposit of the application fee as decided by the State Government;
- (ii) an affidavit stating that no mining due payable under the Act and the rules made thereunder, is outstanding against the applicant;
- (iii) proof of payment of earnest money as to be specified by the Government;
- (iv) a solvency Certificate reflecting a minimum net worth of the amount prescribed in sub-rule (4).
- (v) an affidavit stating that the applicant is not convicted for any offence committed for violation of any of the provisions of the Mines and Minerals (Development and Regulation) Act, 1957 and rules made thereunder.

(10) Subject to the provisions of these rules, the prospecting license-*cum*-mining lease shall be granted in favour of the applicant who has quoted the highest rate of additional charge:

Provided that if more than one applicant have quoted the highest rate of additional charge, then the applicant shall be selected by draw of lots.

(11) The selected bidder shall be intimated by the Government within seven days in Form-F about the selection and terms and conditions of the prospecting license-*cum*-mining lease.

(12) The selected bidder shall, convey his acceptance of the terms and conditions within fifteen days from the date of such intimation and deposit one lakh rupees towards part of security deposit which along with the earnest money, shall be held as, interest-free security deposit for due observance of the terms and conditions of the prospecting license-*cum*-mining lease.

(13) In the event of default by the selected bidder, the Competent Authority may issue an intimation as specified in sub-rule (11) to the next highest bidder who shall then be required to convey his acceptance and to make the security deposit as specified in sub-rule (12).



(14) If the second highest bidder does not convey the acceptance within the time stipulated for such acceptance, fresh notice inviting applications for auction shall be issued by the Government.

(15) Immediately after compliance of the selected bidder, the earnest money of the unsuccessful bidders shall be refunded.

(16) Security deposit shall be refunded after expiry of the license-cum-lease period, if the applicant has fulfilled all conditions of prospecting license-cum-mining lease and in case of violation of any of the conditions of prospecting license-cum-mining lease, the security deposit shall be forfeited in whole or in part, as directed by the Competent Authority.

(17) The State Government shall have power to cancel the bid duly recording the reasons thereof, if it is considered expedient to do so.

(18) Where the applicant, who quoted the highest rate of additional charge, dies after deposit of the amount specified under sub-rule (12) or after execution of prospecting license-cum-mining lease deed by him, such deposit or agreement shall be deemed to have been made or executed by the legal heir or legal representative, if they so like.

(19) Notwithstanding anything contained in these rules, the State Government may earmark an area for grant of prospecting license-cum-mining lease to be allocated only to such applicants who have set up value addition facilities for processing the minerals won from the area for a particular end-use as may be specified in the auction notice or who undertake to set up such facilities within a stipulated time period and only such applicants who satisfy these conditions shall be eligible to participate in the auction.

(20) The prospecting license-cum-mining lease granted under sub-rule (19) shall be liable to be determined if the selected bidder fails to set up the value addition facility for the specified end-use within the stipulated period for which he has submitted an undertaking under sub-rule (19).

(21) The selected bidder who has been granted prospecting license-cum-mining lease for the area earmarked under sub-rule (19) shall not be allowed to sell or dispose or transfer directly or indirectly any unprocessed mineral obtained from the area and shall utilize the entire production only for captive use.

**11. Prospecting operation:—** (1) Every holder of a prospecting license-cum-mining lease shall submit to the Director of Mines and concerned Deputy Director of Mines or Mining Officer under whose jurisdiction the area is located, a scheme of prospecting within a period of sixty days from the date of execution of the prospecting license-cum-mining lease indicating the manner in which he proposes to carry out the prospecting operation in the area.

(2) The Scheme shall incorporate the following, namely:—

- (i) particulars of the area;
- (ii) the scale of the plan and the area of geological mapping;
- (iii) the number of pits, trenches and boreholes which he proposes to put in the area and the locations thereof;
- (iv) the particulars of the machines to be used;
- (v) the details of the exploratory mining, if any, proposed to be undertaken;
- (vi) the number of samples proposed to be drawn and analyzed or tested;
- (vii) baseline information of prevailing environmental conditions before the beginning of the prospecting operations;
- (viii) the beneficiation studies, if any, proposed to be undertaken;
- (ix) steps proposed to be taken for protection of environment which will include prevention and control of air and water pollution, progressive reclamation and rehabilitation of the land disturbed by the prospecting operations, a scheme for plantation of trees and such other measures, as may be directed by the Director of mines from time to time for minimizing the adverse effect of prospecting operations on the environment;
- (x) any other matter relevant for the preparation of a scheme as directed by the Director of Mines or any officer authorized by him from time to time.

(3) The holder of a prospecting license-*cum*-mining lease shall submit to the State Government within two months of expiry of prospecting period or abandonment of operations or termination of prospecting license-*cum*-mining lease, whichever is earlier, a full report of work done by him and all information relevant to mineral resources acquired by him in course of prospecting operation.

(4) The final prospecting report shall be evaluated by the State Government or any officer authorized in this behalf and if it is found satisfactory, the holder of the prospecting license-*cum*-mining lease will be required to prepare a mining plan based on the prospecting report and in case the report is found unsatisfactory, the prospecting license-*cum*-mining lease shall be cancelled:

Provided that no such order will be passed without giving the holder of prospecting license-*cum*-mining lease an opportunity of being heard.

(5) The holder of prospecting license-*cum*-mining lease shall submit to the Director and Deputy Director or Mining Officer concerned reports of prospecting operations in Form G.

**12. Mining operation:—** (1) The holder of prospecting license-*cum*-mining lease shall commence mining operation in the area, if he has obtained:—

- (a) Mining plan duly approved by the authorised officer,
  - (b) Clearance under the Forest (Conservation) Act, 1980 in case the area contains forest land;
  - (c) Environment Clearance as applicable under the provisions of the Environment (Protection) Act, 1986 and rules made thereunder;
  - (d) Consent to establish and consent to operate such mine under the Air (Prevention and Control of Pollution) Act, 1981 and the Water (Prevention and Control of Pollution) Act, 1974 and the rules made thereunder; and
  - (e) Permission for surface operations from the concerned District Collector.
- (2) No mining plan shall be approved, unless it is prepared by a qualified person recognized in this behalf as specified under rule 19.
  - (3) Grant of recognition of qualified person for preparation of mining plan shall be in accordance with rule 20:
  - (4) Submission of mining plan to the authorised officer for approval shall be undertaken by the holder of prospecting license-*cum*-mining lease in accordance with rule 22.
  - (5) Submission of approved mining plan to the State Government shall be in accordance with rule 23.
  - (6) The holder of a prospecting license-*cum*-mining lease shall send to the Director and Deputy Director of Mines or Mining Officer concerned, under whose jurisdiction the area is located and Director of Mines Safety, Bhubaneswar an intimation in Form-H of the opening or reopening of the mine so as to reach them within a period of fifteen days from the date of such commencement.

**13. Termination or surrender of prospecting license-*cum*-mining lease:—** (1) (a) Where the State Government is of the opinion that it is expedient in the interest of regulation of mines and minerals development, preservation of natural environment, control of floods, prevention of pollution, or it is felt necessary to avoid danger to public health or communications or to ensure safety of building, monuments or other structures or for such other purposes, as the State Government may deem fit, it may, by an order, in respect of any minor mineral, make premature termination of prospecting license-*cum*-mining lease with respect to the area or any part thereof covered thereunder.

(b) If the holder of a prospecting license-*cum*-mining lease makes any default in the payment of royalty or dead rent as required under rule 32 or commits a breach of any of the conditions of the prospecting license-*cum*-mining lease, the State Government shall give notice to the lessee requiring him to pay the royalty or dead rent or remedy the breach, as the case may be, within sixty days from the date of the receipt of the notice and if the royalty or dead rent is not paid or the

breach is not remedied within the said period, the State Government may, without prejudice to any other proceedings that may be taken against him, determine the prospecting license-*cum*- mining lease and forfeit whole or part of the security deposit.

(c) No order making a premature determination of a prospecting license-*cum*-mining lease shall be made without giving the holder of the prospecting license-*cum*- mining lease a reasonable opportunity of being heard.

(2) The lessee shall not surrender the prospecting license-*cum*-mining lease or part thereof except after notice in writing of not less than six calendar months to the State Government.

(3) The State Government may, by an order, allow such surrender subject to the following conditions, namely:—

- (i) the area is barren or the deposits of minerals have since exhausted or depleted to such an extent that it is no longer economical to work such area;
- (ii) the leasehold area to be surrendered has been properly surveyed and demarcated and is contiguous;
- (iii) the lessee has adopted closure of the mine or part thereof in line with the provisions prescribed for major minerals and obtained a certificate to this effect from the authority competent to approve the mining plan;
- (iv) the lessee has paid all dues payable by him to the Government under the prospecting license-*cum*- mining lease up to the date of application; and
- (v) the application for surrender is accompanied by a document showing deposit of Rs.1000/- for meeting the expenditure of survey and demarcation of the area to be surrendered.

**14. Conditions of a prospecting license-*cum*-mining lease:—** (1) The holder of a prospecting license-*cum*-mining lease shall pay in advance, the prospecting fee at the rate of one thousand rupees per hectare of land or part thereof covered by the prospecting license-*cum*-mining lease for each year or part of a year of the period for which the holder of the prospecting license-*cum*-mining lease shall carry out prospecting operation.

(2) The holder of a prospecting license-*cum*-mining lease may win and carry for the purpose other than commercial purposes ten cubic meter of decorative stones or ten metric tonne of specified minor minerals other than decorative stones during the period of prospecting on payment of advance royalty with permission from the Deputy Director or Mining Officer:

Provided that if the quantity of the minor minerals won, is in excess of the quantity specified above and is carried away, the Deputy Director or Mining Officer concerned may recover from the holder of the prospecting license-*cum*-mining lease the value of such excess quantity.

(3) With the written approval of the Director, the holder of a prospecting license-*cum*-mining lease may carry away quantities of specified minor mineral(s) in excess of the limits specified in sub-rule (2), on payment of advance royalty for testing purposes during the period of prospecting.

(4) The holder of prospecting license-*cum*-mining lease shall report to the Director, the discovery of any other specified minor mineral not specified in the license-*cum*-lease within a period of thirty days from the date of such discovery and consequent upon such reporting, the newly discovered specified minor minerals shall be allowed to be included in the prospecting license-*cum*-mining lease;

Provided that, if any major minerals other than the specified minor mineral is discovered in course of prospecting of the area, the holder of prospecting license-*cum*-mining lease shall not be entitled to any preference for the purpose of obtaining a prospecting license-*cum*- mining lease or mining lease for such major mineral by reason only of the lands being included in his prospecting license-*cum*- mining lease for specified minor minerals and in such cases the prospecting license-*cum*- mining lease shall be determined without payment of any compensation to the holder of prospecting license-*cum*-mining lease:

Provided further that, if any minor mineral other than the specified minor minerals is discovered in course of prospecting operation of the area, the holder of prospecting license-*cum*-mining lease shall be preferred for grant of a quarry lease in respect of such newly discovered minor minerals and in such case if the holder of prospecting license-*cum*-mining lease refuses to avail a quarry lease for the said minor mineral, then a quarry lease for the newly discovered minor mineral may be granted by the Competent Authority in accordance with rule 34, subject to the condition that neither of the lessees shall cause any hindrance to the other lessee in respect of mining operations therein.

(5) The holder of prospecting license-*cum*-mining lease shall not pay a wage less than the minimum wage prescribed by the Central Government or the State Government from time to time under the Minimum Wages Act, 1948.

(6) The holder of prospecting license-*cum*-mining lease shall observe the provisions of the Mines Act, 1952.

(7) The holder of prospecting license-*cum*-mining lease shall take immediate measures for planting in the same area or any other area selected by the State Forest Department not less than ten times the number of trees destroyed in course of prospecting operation, and will ensure survival of at least eighty per cent of the trees planted at the end of three years from planting.

(8) The holder of prospecting license-*cum*-mining lease shall comply with the provisions of the Granite Conservation and Development Rules, 1999 in respect of decorative stone.

(9) The holder of prospecting license-*cum*-mining lease shall allow reasonable facilities of access to other bona fide concessionaires;

(10) The holder of prospecting license-*cum*-mining lease shall obtain prior permission of the Competent Authority of the Forest Department to carry on any operation in forest land as required under the provisions of the Forest (Conservation) Act, 1980.

(11) The holder of prospecting license-*cum*-mining lease shall pay to the State Government compensation for all damages, injuries or disturbances which have been caused by in the course of operating the prospecting license-*cum*-mining lease and shall indemnify Government against all claims which may be made by third parties in respect of such damages, injuries or disturbances.

(12) The holder of prospecting license-*cum*-mining lease shall carry out the prospecting operations in accordance with the scheme for prospecting operation submitted or with such modifications in the scheme as directed by the Director or any officer authorized by him in this behalf.

(13) The holder of prospecting license-*cum*-mining lease shall keep correct account of specified minor mineral raised during the course of prospecting operation and submit yearly report of prospecting operation carried out in Form-I to the Director and the Deputy Director or Mining Officer having jurisdiction within two months of the closure of the period to which it relates or abandonment of prospecting operations whichever is earlier.

(14) The holder of prospecting license-*cum*-mining lease shall afford reasonable facilities for inspection of the area, accounts and records pertaining to prospecting operation to the Controlling Authority, Competent Authority and Director or any other officer authorized by any of them and such authority or officer may issue directions to the holder of the prospecting license-*cum*-mining lease for systematic and scientific prospecting operation and shall ensure observance of the provisions of the rules and directions, within a period not exceeding sixty days from the date of issue of such direction.

(15) The holder of prospecting license-*cum*-mining lease shall carry out prospecting operations with appropriate environmental safeguards.

(16) The holder of prospecting license-*cum*-mining lease shall not carry on or allow to be carried on, any prospecting operation at any point within a distance of —

- (a) one hundred meters from any railway line except under and in accordance with the written permission of the Railway Administration concerned, and in case of National Highway, State Highway or any reservoir; except in accordance with the previous permission of the Collector.

(b) fifty meters from any tank, canal, road (other than a National or State Highway or other public works of buildings or inhabited sites), except in accordance with the previous permission of the Collector.

(17) The Railway Administration or the Collector, as the case may be, may grant the permission as required under clause (a) or (b) of sub-rule (16) on such conditions as may be specified.

(18) The State Government or Central Government shall have the right to construct any road, railway, canal, reservoir or to lay electric or telephone lines or over the lands held under the prospecting license-*cum*-mining lease:

Provided that the holder of the prospecting license-*cum*-mining lease shall be given at least thirty days prior notice before the right is exercised and the area thus utilized shall be excluded from the area held under the prospecting license-*cum*-mining lease.

(19) The holder of prospecting license-*cum*-mining lease shall, at his own expense, erect and at all times maintain and keep in good condition boundary marks and pillars necessary to delineate the area.

(20) The holder of prospecting license-*cum*-mining lease shall abide by the provisions of all laws for the time being in force, relating to prospecting and mining operations, matters affecting safety, health and convenience of the employees and public and shall also obey all existing laws of way, water and other easement and shall not use power cutter or other machineries in laterite quarries.

(21) All accidents involving injury or loss of life or loss or damage to property shall be reported forthwith to the Collector of the District and the Director.

(22) In the case of breach of any condition of prospecting license-*cum*-mining lease, the Government may give notice of sixty days to the holder of the prospecting license-*cum*-mining lease to rectify the defects and if the holder of the prospecting license-*cum*-mining lease fails to rectify the defects within the specified time, the Government may, by order in writing, cancel the prospecting license-*cum*-mining lease, and forfeit, in whole or part, the amount deposited by the holder of the prospecting license-*cum*-mining lease towards security deposit:

Provided that no such order shall be made without giving the holder of the prospecting license-*cum*-mining lease a reasonable opportunity of being heard.

(23) The Government may, impose such further conditions in the prospecting license-*cum*-mining lease, it may think necessary, in the interest of mineral development and protection of environment.

(24) The holder of prospecting license-*cum*-mining lease shall abide by the provisions prescribed under rule 17 and Rules 19 to 26.

### CHAPTER-III

#### GRANT OF MINING LEASE FOR SPECIFIED MINOR MINERALS

**15. Procedure for grant of mining Lease:—** (1) In areas where existence of specified minor minerals is established, the State Government shall notify such areas for grant of mining lease indicating the terms and conditions subject to which such mining lease shall be granted.

(2) For the purpose of granting a mining lease in such areas, the State Government shall select, through auction by the method of competitive bidding, including e-auction, an applicant who fulfils the specified eligibility conditions.

(3) The State Government shall specify the terms and conditions, and procedure, subject to which the auction shall be conducted, including the bidding parameters for the selection which may include any payment linked to the royalty payable, size and area of mineral deposits, or any other relevant parameters.

(4) The Government shall grant a mining lease for specified minor mineral to an applicant selected in accordance with the procedure laid down in this rule in any notified area subject to submission of mining plan duly approved by the authorized officer and forest clearance under the provisions of the Forest (Conservation) Act, 1980, if required.

(5) The persons selected through competitive bidding shall execute the mining lease deed in Form-E, within three months from the date of the issue of the order by the State Government or within such further period as the State Government allow in this behalf and if no such deed is executed within the said period due to any default on the part of the person selected, the State Government may cancel the mining lease and in that event the earnest money shall be forfeited to the State Government.

(6) Any holder of a mining lease granted, where mineral is used for captive purpose, shall have the right of first refusal at the time of auction held for such lease after the expiry of the lease period.

(7) Notwithstanding anything contained in this rule,

(a) where before the commencement of these rules a prospecting license has been granted in respect of any land for any specified minor mineral, the holder of the prospecting license shall have a right for obtaining a mining lease in respect of that minor mineral in that land, if the Government is satisfied that the licensee,—

(i) has undertaken prospecting operations to establish the existence of mineral contents in such land in accordance with such parameters as was prescribed by the Government;

(ii) has not committed any breach of the terms and conditions of the prospecting license;



(iii) has not become ineligible under the provisions of the rules which were in force before commencement of these rules; and

(iv) has not failed to apply for grant of mining lease within a period of three months after expiry of the prospecting license;

(b) where order for grant of mining lease has been issued by the Government for grant of mining lease, before the commencement of these rules, the mining lease may be granted subject to the condition that the applicant has fulfilled all conditions for the grant in terms of the said grant order within the period specified therein, or such further period as may be allowed for the reasons to be recorded in writing.

**16. Procedure for auction of mining lease:—** (1) The State Government may auction a mining lease over an area where general exploration up to G3 level (as per UNFC guidelines) has been carried out.

(2) The State Government shall invite applications to be submitted in Form D for grant of mining lease while issuing notification under sub-rule (1) of rule 15 and the notification shall be published in two daily newspapers, at least one of which shall be State level and the other having wide publicity in the area where the area is located and such notification shall be published thirty days before the intended date of receipt of application and shall contain the date and time within which the application shall be received.

(3) The applicant having a net worth of less than ten percentum of the value of estimated mineral resources shall not be eligible for participating in the auction process for grant of a mining lease.

*Explanation:—*

(a) *In case of an individual, the net worth shall be the value of the immovable property as reflected in the solvency certificate.*

(b) *In case of a company, the net worth shall be the sum of the paid up share capital and the free reserves as per the audited balance sheets of the immediately preceding financial year.*

(c) *In case of a partnership firm, the net worth shall be the sum of net worth of all partners individually.*

(4) The value of estimated mineral resource under sub-rule (3) shall be calculated by multiplying the quantity of estimated mineral resources as per exploration report with the average ex-mine price of the mineral for the preceding one year as fixed by the Director of Mines.

*Explanation:—Ex-mine price should represent the sale value of the mineral at the pit head. In case of sale affected on F.O.R or F.O.B or any other basis, the Ex-mine price should be arrived at after deducting all the expenses incurred from mine to railway station or port or other point of sale, as the case may be (such as expenses on transportation, loading and unloading, railway freight, sampling and analysis, port handling, export duty, cess etc.).*

(5) The quantity of the estimated mineral resource for the purpose of sub-rule (4) shall be the quantity of mineral resource as assessed through geological investigation, or, in the case of an area covered under the proviso to sub-rule (4) of rule 4, the actual average annual production of mineral in the area during the period in which the mine was in operation (in any year in past covering a period of ten years) multiplied by thirty.

(6) (a) The minimum amount of additional charge for the auction shall be specified by the State Government in the notice inviting applications for grant of mining lease.

(b) In case the mining lease is considered for more than one mineral, uniform minimum additional charge shall be applicable for all the minerals in the lease area.

(c) The additional charge shall be bid as a percentage of sale value during the relevant time of actual sale of mineral.

(7) The intending applicants participating in the auction shall submit the following documents in a sealed cover along with the specified form duly filled in, namely:—

(i) treasury challan showing deposit of the application fee as decided by the State Government;

(ii) an affidavit stating that no mining due payable under the Act and the rules, made thereunder, is outstanding against the applicant;

(iii) proof of payment of earnest money as to be specified by the Government;

(iv) a solvency Certificate reflecting a minimum net worth of the amount prescribed in sub-rule (3); and

(v) an affidavit stating that the applicant is not convicted for any offence committed for violation of any provision of the Act, and the rules made thereunder.

(8) Subject to the provisions of these rules, the mining lease shall be granted in favour of the applicant who has quoted the highest rate of additional charge, as a percentage of sale value during the relevant time of actual sale of mineral.

Provided that, if more than one applicant have quoted the highest rate of additional charge, then the applicants shall be selected by draw of lots.

(9) The selected bidder shall be intimated by the State Government within seven days in Form-F about the selection and terms and conditions of the mining lease.

(10) The selected bidder shall, convey his acceptance of the terms and conditions within fifteen days of such intimation and deposit two lakh rupees towards part of security deposit and such deposit along with the earnest money, shall be held as, interest-free security deposit for due observance of the terms and conditions of the mining lease.

(11) In the event of default by the selected bidder, the Competent Authority may issue intimation as specified in sub-rule (9) to the next highest bidder who shall then be required to convey his acceptance and to make the security deposit as specified in sub-rule (10).

(12) If the second highest bidder does not convey the acceptance within the time stipulated for such acceptance, fresh notice inviting applications for auction shall be issued by the State Government.

(13) Immediately after compliance of the selected bidder, the earnest money of the unsuccessful bidders shall be refunded.

(14) Security deposit shall be refunded after expiry of the lease period if the lessee has fulfilled all conditions of mining lease and in case of violation of any of the conditions of mining lease, the security deposit shall be forfeited in whole or in part, as directed by the Competent Authority.

(15) The State Government shall have power to cancel the bid duly recording the reasons thereof, if it is considered expedient to do so, on the grounds that the publicity, participation of bidders and amount of additional charge quoted is less than the minimum additional charge.

(16) Where the applicant, who quoted the highest rate of additional charge, dies after deposit of the amount specified under sub-rule (10) or after execution of lease deed by him, such deposit or the lease deed shall be deemed to have been made or executed by the legal heir or legal representative, if they so like.

(17) Notwithstanding anything contained in these rules, the State Government may earmark an area for grant of a mining lease to be allocated only to such applicants who have set up value addition facilities for processing the minerals won from the area for a particular end-use as may be specified in the auction notice or who undertake to set up such facilities within a stipulated time period and only such applicants who satisfy these conditions shall be eligible to participate in the auction.

(18) The mining lease granted under sub-rule (17) shall be liable to be determined, if the selected bidder fails to set up the value addition facility for the specified end-use within the stipulated period for which he has submitted an undertaking under sub-rule (17).

(19) The selected bidder who has been granted a mining lease for the area earmarked under sub-rule (17) shall not be allowed to sell or dispose of any unprocessed mineral obtained from the area and shall utilize the entire production only for captive use.

**17. Mining operation:—** (1) No mining operation shall be undertaken by the holder of a mining lease unless he obtains:

- (a) Mining plan duly approved by the authorized officer;

- (b) Forest clearance under the provisions of the Forest (Conservation) Act, 1980; if applicable,
- (c) Environmental clearance as applicable under the provisions of the Environment (Protection) Act, 1986 and rules made thereunder,
- (d) Order of consent to operate issued by the State Pollution Control Board under the provisions of the Air (Prevention and Control of Pollution) Act, 1981 and the Water (Prevention and Control of Pollution) Act, 1974; and
- (e) Permission for surface operations from the concerned District Collector.

(2) The holder of a mining lease shall send to the Director and Deputy Director of Mines or Mining Officer concerned, under whose jurisdiction the area is located and Director of Mines Safety, Bhubaneswar, an intimation in Form H of the opening/reopening of the mine so as to reach them within a period of fifteen days from the date of such commencement.

**18. Termination or surrender of mining lease:—** (1) (a) Where the State Government is of the opinion that it is expedient in the interest of regulation of mines and minerals, development, preservation of natural environment, control of floods, prevention of pollution, or, to avoid danger to public health or communications or to ensure safety of buildings, monuments or other structures or for such other purposes, as the State Government may deem fit, it may, by an order, in respect of any minor mineral, make premature determination of mining lease with respect to the area or any part thereof.

(b) If the holder of a mining lease makes any default in the payment of royalty or dead rent as required under rule 25 or commits a breach of any of the conditions of the mining lease, the State Government shall give notice to the lessee requiring him to pay the royalty or dead rent or remedy the breach, as the case may be, within sixty days from the date of the receipt of the notice and if the royalty or dead rent is not paid or the breach is not remedied within the said period, the State Government may, without prejudice to any other proceedings that may be taken against him, take steps to determine the mining lease and forfeit the whole or part of the security deposit.

(c) No order making a premature determination of a mining lease shall be made without giving the holder of the mining lease a reasonable opportunity of being heard.

(2) (a) The lessee shall not surrender the lease or part thereof, except after notice in writing of not less than twelve calendar months to the State Government.

(b) The State Government may, by an order, allow such surrender subject to the following conditions, namely:—

- (i) the area is barren or the deposits of minerals have been exhausted or depleted to such an extent that, it is no longer economical to work such area;

- (ii) the leasehold area to be surrendered has been properly surveyed and demarcated and is contiguous.
- (iii) the lessee has adopted closure of the mine or part thereof in line with the provisions prescribed for major minerals under rule 23C, 23D, 23E & 23F of the Mineral Conservation and Development Rules, 1988;
- (iv) the lessee has paid all dues payable by him to the Government under the lease up to the date of application; and
- (v) the application for surrender is accompanied by a document showing the deposit of Rs.1000/- for meeting the expenditure of survey and demarcation of the area to be surrendered.

**19. Mining plan to be prepared by a recognized person:—** (1) No mining plan shall be approved, unless it is prepared by a qualified person recognized in this behalf by the Director under these rules.

(2) No person shall be granted recognition for the purpose of sub-rule (1) by the Director unless the person holds:—

- (i) a degree in mining engineering or a post graduate degree in Geology granted by a university established or incorporated by or under an Act of Parliament or any institution recognized by the University Grants Commission established under Section 4 of the University Grants Commission Act, 1956 (3 of 1956) or any qualification equivalent thereto; and
- (ii) possesses professional experience of five years of working in a supervisory capacity in the field of mining or mineral administration after obtaining the qualification required under clause (i).

(3) A person recognized to prepare a mining plan may also carry out modifications of an existing mining plan.

**20. Grant of recognition for preparation of mining plan:—**

- (1) Any person, possessing the qualification and experience required under sub-rule (2) of rule 19, may apply for recognition to the Director for the purpose.
- (2) The Director, after making such enquiry, as it deems fit, may grant or refuse to grant recognition and where recognition is refused, the Director shall record reasons in writing and communicate the same to the applicant.
- (3) Recognition shall be granted for an initial period of ten years and may be renewed for further periods not exceeding ten years at a time:

Provided that the Director may refuse to renew the recognition for reasons to be recorded in writing, after giving an opportunity of hearing to the person concerned.

**21. Preparation of mining plan:—** (1) The mining plan shall incorporate:—

- (i) the plan of the area showing the nature and extent of the ore body, spot or spots where the excavation is to be done in the first year and its extent, a detailed cross-section and detailed of spots of excavation based on the prospecting data gathered by the applicant, a tentative scheme of mining for the first five years of the lease;
- (ii) details of the geology and lithology of the area including ore reserves of the area;
- (iii) the extent of manual mining or mining by the use of machinery and mechanical devices;
- (iv) the plan of the area showing natural water course, limits of reserved and other forest areas and density of trees, if any, assessment of impact of mining activity on forest, land surface and environment including air water pollution, details of scheme for restoration of the area by afforestation, land reclamation, use of pollution control devices and of such other measures as may be directed by the Central or the State Government from time to time;
- (v) annual programme and plan for excavation on the precise area from year to year for five years;
- (vi) annual plan and programme for stacking of non-saleable or sub-grade minerals from year to year for five years;
- (vii) progressive mining closure plan in line with the provisions of rule 23B of the Mineral Conservation and Development Rules, 1988 with financial assurance for rupees twenty-five thousand for every hectare of area or part thereof proposed to be put to use subject to a minimum amount of two lakh rupees; and
- (viii) any other matter which the authorized officer may require the applicant to provide in the mining plan.

(2) Every mining plan under sub-rule (1) shall be accompanied by a non-refundable fee of one thousand rupees for every ten hectares or part thereof of mining area covered under the mining lease.

(3) The Director may issue guidelines from time to time, prescribing the procedure for site inspection, format for mining plan or scheme of mining and procedure for approval in respect of specified minor minerals.

**22. Procedure for approval of mining plan and scheme of mining and modifications thereof:—** (1) On receipt of communication from the State Government of the precise area to be granted, the applicant shall submit mining plan for specified minor minerals within a period of one month of the date of receipt of such communication to the officer authorized in this behalf for approval.

(2) The authorized officer may approve the mining plan submitted under sub-rule (1) or may require modification to be carried out in the plan after due scrutiny and the applicant shall resubmit the mining plan after carrying out necessary modifications, so desired, for approval.

(3) The authorized officer shall, within a period of ninety days from the date of receipt of the mining plan or the modified mining plan, convey approval or disapproval to the applicant and in case of disapproval, the authorized officer shall also convey the reasons for disapproving the mining plan or the modified mining plan.

(4) If no decision is conveyed within the period stipulated under sub-rule (3), the mining plan or the modified mining plan, as the case may be, shall be deemed to have been provisionally approved and such approval shall be subject to the final decision whenever communicated.

(5) The owner, agent, mining engineer or manager of every mine shall review the approved mining plan and submit a scheme of mining for the next five years of the lease to the authorized officer at least one hundred twenty days before the expiry of the five years period, for which it was approved on the last occasion.

(6) The provisions of sub-rule (2), (3) and (4) shall apply to the scheme of mining in the same way as they are applicable to the mining plan.

(7) A holder of a prospecting license-*cum*-mining lease or a mining lease, desirous of seeking modifications in the approved mining plan or scheme of mining as are considered expedient, in the interest of safe and scientific mining, conservation of minerals or for protection of environment, shall apply to the authorized officer setting forth the intended modifications and explaining the reasons for such modifications.

(8) The authorized officer may approve the modifications or with such alteration as he may consider expedient within a period of ninety days and in case the authorized officer disapproves the modifications so intended, he shall convey the reasons for such disapproval to the holder of a prospecting license-*cum*-mining lease or a mining lease, as the case may be.

**23. Submission of mining plan to the State Government:—** The applicant shall submit the mining plan, duly approved by the authorized officer, within six months from the date of

receipt of the communication under sub-rule (8) of rule 9, to the State Government to grant the mining lease over that area.

**24. Mining plan to be submitted by the existing lessee:—** Where mining operation for specified minor minerals has been undertaken before the commencement of these rules without an approved mining plan, the lessee shall submit a mining plan duly approved by the authorized officer within a period of six months from the date of commencement of these rules and such operations shall be undertaken in accordance with the duly approved mining plan.

**25. Liability for payment of royalty, dead rent, amount for District Mineral Foundation, additional charge etc.:—** (1) The holder of prospecting license-*cum*-mining lease or a mining lease shall be liable to pay dead rent, surface rent, royalty, additional charge, amount for District Mineral Foundation, an amount towards Environment Management Fund and fees for compensatory afforestation.

(2) The holder of a prospecting license-*cum*-mining lease or a mining lease shall pay to the State Government every year the dead rent and surface rent at the rates specified in Schedule-I for all the areas included in the lease deed.

(3) The rates specified in Schedule I may be revised by the Government from time to time by an amendment made to the said Schedule, but no such revision shall be made before the expiry of three years from the date when the rates were last fixed.

(4) Where the holder of the prospecting license-*cum*-mining lease or a mining lease becomes liable for payment of royalty for any minor mineral removed or consumed by him or his manager and employees or the contractor from the leased area, he shall be liable to pay either such royalty or the dead rent in respect of that area, whichever is higher.

(5) Royalty shall be payable on minor minerals removed from the leased area at the rates specified in Schedule-II.

(6) The rates of royalty may be revised by the State Government, from time to time, by amendment made to the said Schedule but no such revision shall be made before the expiry of three years from the date when the rates were last fixed.

(7) The lessee shall pay, in addition to the surface rent, dead rent, or royalty, as the case may be, an amount towards the fund for District Mineral Foundation of the District as specified in sub-rule (6) of rule 26 in which the mining operations are carried on.

(8) The lessee shall pay an amount towards Environment Management Fund as stipulated in sub-rule (2) of rule 49 and fees for compensatory afforestation at rates as may be specified by the State Government from time to time.



(9) The lessee shall pay the additional charge for each unit quantity of mineral removed or consumed by him or his manager and employees or the contractor from the leased area at the rate finalized in the auction process along with the royalty payable by him.

(10) Every mine owner, his agent, manager, employee, contractor or sub-lessee shall compute the amount of royalty on minor minerals as mentioned in sub-rule (11), where such royalty is charged on *ad valorem* basis.

(11) The sale price of the minor minerals sold in the domestic market or consumed in captive plants or exported by the mine owners shall be the sale price as published by the Director every month which shall be the basis for computation of royalty in respect of any minor mineral dispatched anytime during a month and the royalty shall be computed as per the formula given below:—

$$\text{Royalty} = \text{Sale price of minor mineral (grade-wise, wherever applicable) published by the Director} \times \text{Rate of Royalty (in percentage)} \times \text{Total quantity of mineral (grade-wise, wherever applicable) dispatched.}$$

**26. Conditions of mining lease:—** (1) The lessee shall pay to the State Government surface rent within a fortnight of the execution of the lease-deed for the remaining period of the year and thereafter pay such rent on or before 15th January of every year.

(2) The lessee shall pay dead rent for the remaining period of year within a fortnight of the execution of the lease-deed and thereafter pay yearly dead rent on or before 15th January of every year.

(3) An account of the royalty payable by the lessee shall be kept by the Deputy Director or Mining Officer concerned and as soon as the royalty payable by him becomes equal to or in excess of the dead rent already paid by him, he shall remove the specified minor minerals only after payment of the royalty in advance.

(4) Advance dead rent paid by the lessee shall be deemed to have been merged into the amount of royalty he was liable to pay.

(5) No permission for removal of specified minor minerals shall be issued unless all the Government dues in respect of the lease are paid.

(6) The lessee shall pay an amount for District Mineral Foundation of the District in which the mining operations are carried on as prescribed under rule 9 of the Odisha District Mineral Foundation Rules, 2015.

(7) The lessee shall pay to the Government compensation for all damages, injuries or disturbance which has been caused in course of mining operation and shall indemnify Government against all claims which may be made by third parties in respect of such damage, injury or disturbances.

(8) The lessee shall commence mining operations within two years from the date of execution of the lease deed which shall be carried on in a proper, skillful and workman-like manner in accordance with the duly approved mining plan which shall remain valid for the entire lease period.

(9) If the lessee does not work upon the lease for a continuous period of two years, the lease shall be liable to be cancelled, unless prior permission has been granted by the Competent Authority for such stoppage on reasonable grounds:

Provided that the Competent Authority may, on an application made by the lessee, before it is cancelled and on being satisfied that it will not be possible for the lessee to undertake mining operations or to continue such operations for reasons beyond his control, make an order within a period of three months from the date of receiving such application and subject to such conditions as may be specified, to the effect that such lease shall not be cancelled:

Provided further that the State Government may, on an application made by the lessee within a period of six months from the date of its cancellation and on being satisfied that such stoppage of mining operation was due to reasons beyond the control of the lessee, revive the lease within a period of three months from the date of receiving the application from such prospective or retrospective date as it thinks fit, but not earlier than the date of cancellation of the lease:

Provided also that no lease shall be revived for more than twice during the entire lease period.

(10) The lessee shall allow reasonable facilities of access to other bonafide concessionaires.

(11) The lessee shall not carry on or allow to be carried on, any mining operation at any point within a distance of —

- (a) one hundred meters from any Railway line, except in accordance with the written permission of the Railway Administration concerned and in case of National Highway, State Highway, monuments, heritage sites or any reservoir; except in accordance with the previous permission of the Collector.
- (b) fifty meters from any tank, canal, road, other than National or State Highway or other public works or buildings or inhabited sites except in accordance with the previous permission of the Collector.

(12) The Railway Administration or the Collector, as the case may be, may grant permission as required under clause (a) or (b) of sub-rule (11) on such conditions as may be specified.

(13) The State or Central Government shall have the right to construct any road, railway or canal or reservoir or to lay electric or telephone lines in or over the lands held under the lease:

Provided that the lessee shall be given at least thirty days prior notice before the right is exercised and the area thus utilized shall be excluded from the area held under the lease.

(14) The lessee may erect on the area granted to him any building and structure required for the purpose of mining operations, without violating any lawful orders issued by the officer or authority competent to issue such orders.

(15) The lessee shall, at his own expense, erect and at all times maintain and keep in good condition boundary marks and pillars necessary to delineate the leased area.

(16) The lessee shall obtain permission of the Competent Authorities of the Forest Department, Odisha to carry on any operations in forest areas.

(17) The lessee shall abide by the provisions of all laws for the time being in force, relating to the working of mines and matters affecting the safety, health and convenience of the persons employed for mining and of the public and he shall also obey all existing laws of way, water and other easements and shall not use power cutter and other machinery in laterite quarries.

(18) The lessee shall keep correct accounts of specified minor minerals mined and dispatched and shall furnish a monthly and a half-yearly return in Form-J and annual return in Form-K to the Deputy Director or the Mining Officer having jurisdiction and also to the Director.

(19) The lessee shall afford reasonable facilities for inspection of the mines, accounts and records pertaining to the mining operation to the Competent Authority and Director or any other officer authorized by any of them and such officer may issue directions to prevent wasteful extraction of minerals and to ensure observance of the provisions of rules and specify the time limit within which the directions shall be complied with.

(20) If the lessee does not allow the inspecting officer reasonable facilities for inspection or fails to comply with the directions within the specified time-limit not exceeding sixty days, the Competent Authority may forfeit the whole or part of the security deposit paid by the lessee or impose penalty not exceeding rupees fifty thousand and may cancel the lease and forfeit the security deposit.

(21) The lessee shall report about all accidents involving injury or loss of life or loss or damage to property forthwith to the Collector of the District and the Director.

(22) If any Government dues payable under the lease deed remain unpaid for one month beyond the date fixed in the lease deed for such payment, the Competent Authority or any officer authorized by him may enter into the leased area and seize all or any of the specified minor minerals or other movable properties and may dispose of such seized minor minerals or properties towards sufficient satisfaction of the Government dues and all costs and expenses occasioned by the non-payment thereof and if any such government dues remain unpaid over two months beyond the date fixed in the lease deed for such payment, the Competent Authority may determine the

lease and take possession of the leased area on re-entry without prejudice to such action as may be taken under the provisions of the Odisha Public Demands Recovery Act, 1962 for recovery of such dues.

(23) The Controlling Authority shall have the right to pre-emption at current market rates over all specified minor minerals extracted or collected by the lessee and shall be indemnified by the lessee against the claims of any third parties in respect of such minerals.

(24) The lessee shall remove all specified minor minerals extracted before the end of the lease period or its determination, if it is determined earlier, and all other materials and structures within such reasonable period not exceeding two months or as the Competent Authority may allow.

(25) All minor minerals, machineries, buildings and other structures, left in the leased area after the date-line fixed or time allowed by the Competent Authority shall be deemed to be the property of the Government and such property may be disposed of by public auction and the sale proceeds shall be credited to the Government account.

(26) If any minor mineral not specified in the lease is discovered in the leased area, the lessee shall report it forthwith to the Competent Authority and the Director and the lessee shall not win or dispose of any such minor mineral unless such minor mineral is included in the lease or a separate prospecting license-*cum*-mining lease or mining lease or quarry lease, as the case may be, is granted in favour of the lessee.

(27) If he fails to apply for a prospecting license-*cum*-mining lease or mining lease or quarry lease, as the case may be, to extract the newly discovered minor mineral within three months from the date of discovery or if he declares his intention not to work upon the discovered minor mineral, the State Government or the Competent Authority, as the case may be, may grant prospecting license-*cum*-mining lease or mining lease or quarry lease in respect of that minor mineral to any other person after observing the procedure prescribed under these rules for the purpose.

(28) If the mineral discovered is not a minor mineral, the lessee shall not be entitled to any preference for the purpose of obtaining a lease for the new mineral, by reason only of the lands being included in his earlier lease for extraction of minor mineral.

(29) If any mineral other than the minor minerals is found in the area in course of mining operations for specified minor minerals, the lessee shall intimate in writing the fact to the Competent Authority and the Director within thirty days of such discovery and the lease shall be determined without payment of any compensation to the lessee.

(30) The lessee shall ensure proper maintenance of hill slopes so as to prevent major erosion and observe all such safeguards as provided in the Mines Act, 1952, and the rules and regulations framed thereunder.

(31) The lessee may dispose of waste materials generated in course of mining operations for specified minor minerals on payment of royalty and other Government dues prescribed for road metals including ballast-ordinary boulders, as the case may be.

(32) The lessee shall carry out mining activities with appropriate environmental safeguards and shall take such steps for reclamation and raising of plantations in the lease area.

(33) The lessee shall keep the Government indemnified from any liabilities, compensation, damage etc. arising out of his acts or omissions as a lessee during the subsistence of the lease.

(34) The lessee shall submit all returns and notices to Director as provided under provisions of the Granite Conservation and Development Rules, 1999 in respect of decorative stones and for specified minor minerals other than decorative stones, as prescribed under these rules.

(35) The lessee shall not without any previous consent of the State Government –

- (a) assign, sublet, mortgage, or in any other manner, transfer the mining lease, or any right, title or interest therein; or
- (b) enter into or make any agreement, contract or understanding whereby the lessee will or may be directly or indirectly financed by any person or body of persons other than the lessee.

(36) In case the lessee, selected through auction by the method of competitive bidding, is a person other than the holder of prospecting license over the area, the lessee shall pay to the holder of the prospecting license, the amount spent by the licensee for carrying out prospecting operation before execution of mining lease.

(37) The lessee shall furnish financial assurance as specified under clause (vii) of sub-rule (1) of rule 21 to the authorized officer in the form of a Bank Guarantee before approval of the mining plan.

(38) All mineral transaction within the State in respect of specified minor minerals shall be carried out as per the provisions of the Odisha Minerals (Prevention of Theft, Smuggling and Illegal Mining and Regulation of Possession, Storage, Trading and Transportation) Rules, 2007.

(39) The owner, agent or manager of every mine shall send a notice in Form-L to the Government and the Director intimating of any change in the name of mine within thirty days of such change:

Provided that no change in the name of owner of the mine shall be effected without prior permission from the State Government.

(40) The State Government may impose such further conditions in the lease as it may think necessary in the interest of mineral development and protection of environment.

## CHAPTER – IV

### GRANT OF QUARRY LEASES

**27. Grant of quarry lease:—** (1) The area of the quarry lease shall be delineated and notification inviting application(s) for grant of quarry lease(s) through auction shall be published in two daily newspapers, at least one of which shall be a State level and other having wide publicity in the area, where the lease is located and such notification shall be published at least fifteen days before the intended date of inviting applications and shall contain the date and time within which applications shall be received.

(2) The notice inviting applications for grant of quarry lease shall be issued by the Competent Authority and shall specify the minimum guaranteed quantity of the minor mineral to be extracted in a year by the applicant and the minimum amount of additional charge payable for the same as determined under sub-rule (14).

(3) In case the mining plan or Environment Clearance for the proposed lease has been obtained by the Competent Authority, this fact, along with the cost of obtaining thereof shall be recoverable from the selected bidder which shall also be mentioned in the notice.

(4) Subject to other provisions of these rules for settlement of quarry lease, the intending applicant may apply to the Competent Authority in a sealed cover for grant of quarry lease for such area or areas in Form-M in triplicate accompanied by the following documents and particulars, namely:—

- (i) Treasury challan showing deposit of one thousand rupees (non-refundable) towards the application fee;
- (ii) An affidavit stating that no mining due payable under the Act and the rules made thereunder, is outstanding against the applicant;
- (iii) Proof of payment of earnest money equivalent to five percentum of the minimum amount of additional charges specified in the notice and the amount of royalty, both calculated on the basis of minimum guaranteed quantity for one whole year for the minimum guaranteed quantity of minor mineral to be extracted in one full year; and
- (iv) a solvency Certificate or Bank guarantee valid for a period of eighteen months for an amount not less than the amount of additional charge offered and the royalty payable for the minimum guaranteed quantity for one whole year and a list of immovable properties from the Revenue Authority.

(5) Subject to the provisions of these rules, the quarry lease shall be granted in favour of the applicant who has quoted the highest rate of additional charge:

Provided that, if more than one applicant have quoted the highest rate of additional charge, then the applicant shall be selected by draw of lots.

(6) The selected bidder shall be intimated by the Competent Authority within seven days in Form-F about the selection and terms and conditions of the lease.

(7) Within fifteen days of such intimation, the selected bidder shall be required to convey his acceptance of the terms and conditions and to deposit an amount which shall be calculated in such a way that it shall be equivalent to one-fourth of the total amount of royalty and additional charge and the amount of contribution payable to the District Mineral Foundation on the annual minimum guaranteed quantity, taken together, reduced by the amount of earnest money, which, along with the earnest money, shall be held as interest-free security deposit.

(8) The selected bidder shall also deposit the costs of obtaining the mining plan and environmental clearance approvals, in case those have been obtained by the Competent Authority (non-refundable) before executing the lease deed.

(9) In the event of default by the selected bidder, the Competent Authority may issue intimation as specified in sub-rule (6) to the next highest bidder who shall then be required to convey his acceptance and to make the security deposit calculated in the manner mentioned in sub-rule (7).

(10) If the second highest bidder has quoted unusually low price in comparison to the highest bidder of the same source or other sources in the vicinity, the competent authority may bring it to the notice of the Controlling Authority, who after proper verification and with due justification may cancel the bid and direct for fresh auction.

(11) If the second highest bidder does not convey the acceptance within the time stipulated for such acceptance, or if the Controlling Authority has cancelled the bid under sub-rule (10), fresh notice inviting application for grant of quarry lease shall be issued with the approval of the next higher authority.

(12) Immediately after compliance of the foregoing provisions by the selected bidder, the earnest money of the unsuccessful bidders shall be refunded and the bank guarantees, if any, furnished by them, shall stand discharged.

(13) The selected bidder shall be required to execute quarry lease in Form-N within three weeks from the date of intimation of his selection, if the approval of the mining plan and environment clearance has been obtained before auction, and in other cases, three months from the date of intimation, failing which, the intimation shall stand cancelled and the security deposit shall stand forfeited:

Provided that the Controlling Authority may, for genuine and sufficient reasons, extend the said period, if it is satisfied that the delay in execution of lease deed is not due to reasons attributable to the selected bidder.

(14) Security deposit shall be refunded after expiry of the lease period if the lessee has fulfilled all conditions of lease and in case of violation of any of the conditions of lease, the security deposit shall be forfeited in whole or in part by the Competent Authority.

(15) The minimum amount of additional charge to be quoted shall be such as the Competent Authority, in consultation with the Controlling Authority, decide and specify in the notice inviting applications for grant of quarry lease:

Provided that the minimum amount of additional charge so fixed should not be less than 5% of the rate of royalty.

(16) The Collector or the Conservator of Forest, as the case may be, shall have power to cancel the bid duly recording the reasons thereof, if he is not satisfied with the publicity, participation of bidders and amount of additional charge quoted.

(17) Where the lessee, who has quoted the highest rate of additional charge, dies after deposit of the amount specified under rule 42 or after execution of lease deed by him, such deposit or deed shall be deemed to have been made or executed by the legal heir or legal representative, if they so like.

**28. Mining plan as a pre-requisite to the grant of quarry lease:—** (1) No quarry lease shall be granted by the Competent Authority unless there is a mining plan prepared by the recognized person and duly approved by the authorized officer for the development of the mineral deposits in the area concerned.

Provided that the recognized person shall not charge any amount in excess of the ceiling on fees specified by the Director.

(2) The Competent Authority may cause the mining plan to be prepared and approved.

(3) In case the approval under sub-rule (2) has not been obtained by the Competent Authority, the selected bidder shall cause a mining plan to be prepared from a recognized person and approved by the authorized officer having jurisdiction.

(4) The recognized person shall prepare the mining plan in Form-O within thirty days from the date of receipt of communication from the selected bidder or Competent Authority and submit the same to the authorized officer for approval.

(5) The authorized officer shall, after receipt of the mining plan from the recognized person, approve the same within thirty days from the date of receipt of the mining plan or its modification (s), if any, desired by him.



(6) The mining plan for quarry lease shall contain,—

- (i) the plan of area showing the nature and extent of the mineral body, spot or spots where the mining operations are proposed to be carried out by the applicant;
- (ii) details of mineral reserve of the area;
- (iii) the extent of manual mining or mining by the use of machinery and mechanical devices on the area;
- (iv) the plan of the area showing natural water course, limits of reserve and other forest areas and density of trees, if any, assessment of impact of mining activities on forest, land surfaces in the vicinity of the spot of mining, details of the scheme of restoration of the area by afforestation, if required, land reclamation and use of pollution control devices;
- (v) annual programme and plan for excavation on the area; and
- (vi) a progressive mines closure plan.

(7) The selected bidder shall bear the cost for preparation of the mining plan.

(8) A holder of a quarry lease desirous of seeking modification in the approved mining plan for quarry lease as considered expedient in the interest of safe and scientific mining, conservation of minerals, or for the protection of the environment, shall apply to the authorized officer, setting forth the intended modifications and explaining the reasons for such modifications.

(9) The authorized officer may approve the modifications under sub-rule (8) within a period of thirty days from the date of receipt of the application.

(10) The modification of the mining plan for quarry lease shall remain valid for the remaining period of the quarry lease.

**29. Environment clearance for grant of quarry lease: –**

- (1) No quarry lease for minor minerals other than the specified minor minerals shall be granted without the approval of the appropriate authority under the provisions of the Environment (Protection) Act, 1986.
- (2) The Competent Authority may apply for and obtain the environmental clearance.
- (3) In case the clearance under sub-rule (2) has not been obtained by the Competent Authority, the selected bidder shall obtain the environmental clearance before executing the lease deed.
- (4) The lessee shall be responsible for obtaining environment clearance and implementing the environment management plan.

**30. Grant of quarry lease for river bed sand mining:—** (1) In case of grant of quarry leases for river bed sand mining, specific river stretches shall be identified and quarry lease shall be granted stretchwise.

(2) The depth of the quarry shall be restricted to three meters or water level, whichever is less.

(3) The Competent Authority, in consultation with the local official not below the rank of Assistant Engineer of Water Resources Department shall work out appropriate safety zone taking into account the structural parameters, locational aspects, flow rate etc. for carrying out mining operation in proximity with any bridge or embankment.

(4) No mining operation shall be carried out in the safety zone so worked out.

**31. Adoption of cluster approach in small quarries:—** (1) Individual quarries covering an area less than five hectares and in total not more than one hundred hectare in a development block may be clubbed and declared as cluster by the Competent Authority.

(2) For a cluster of mineral concession, an environment management plan shall be got prepared by the Competent Authority and submitted to the appropriate authority authorized to grant the environmental clearance under the provisions of the Environment (Protection) Act, 1986.

(3) After obtaining environmental clearance for the entire cluster of sources, the whole source may be leased out as a single source or individual sources within a cluster may be leased out separately, as will be decided by the Competent Authority. However, the terms and conditions provided in the environmental clearance have to be obeyed by all the lessees.

**32. Liability for payment of royalty, dead rent, surface rent, additional charge, amount of contribution payable to the District Mineral Foundation, amount of contribution payable to the Environment Management Fund:—**

(1) All the lessees for minor minerals other than specified minor minerals shall be liable to pay royalty or dead rent, surface rent, additional charge, amount of contribution payable to the District Mineral Foundation, amount of contribution payable to the Environment Management Fund and fees for compensatory afforestation.

(2) The lessee shall pay to the State Government every year dead rent and surface rent at the rates specified in Schedule-I for all the areas included in the lease deed and royalty at the rates specified in Schedule-II:

Provided that the rates specified in Schedule-I and Schedule-II may be revised by the Government, from time to time, by an amendment made to the said Schedules, but no revision shall be made before the expiry of three years from the date when the rates were last fixed:

Provided further that where the lessee becomes liable for payment of royalty for any minor mineral removed or consumed by him or his agent, manager and employees or the contractor from the leased area, he shall be liable to pay either such royalty or the dead rent whichever is higher.

(3) In addition to the surface rent, dead rent or royalty, as the case may be, the lessee shall be liable to pay additional charge, amount of contribution payable to the District Mineral

Foundation and an amount of contribution payable to the Environment Management Fund in advance, on annual basis on the minimum guaranteed quantity of minor minerals even if the actual extraction falls short of such quantity.

(4) In case the actual extraction exceeds the minimum guaranteed quantity, such mineral may be removed from the lease area only after payment of royalty, additional charge, amount of contribution payable to the District Mineral Foundation and an amount of contribution payable to the Environment Management Fund on pro-rata basis.

(5) The royalty, additional charge, amount of contribution to the District Mineral Foundation and amount of contribution payable to the Environment Management Fund for the period up to commencement of the next year shall be paid on a pro-rata basis before the execution of lease deed.

(6) For the purpose of determination of minimum guaranteed quantity in the cases where the lease has been executed on or after the 1st April, the minimum guaranteed quantity for the first financial year shall be equal to the minimum guaranteed quantity divided by twelve and multiplied by the number of months remaining in the first year of the lease, treating part of any month as full month.

(7) The lessee shall pay, in addition to the surface rent, dead rent or royalty, additional charge, amount of contribution payable to the District Mineral Foundation and to the Environment Management Fund, fees for compensatory afforestation at rates as may be specified by the Government from time to time.

**33. Conditions of quarry lease:—** (1) The lessee shall pay to the State Government surface rent before the execution of the lease-deed for the remaining period of the year and thereafter pay such yearly rent on or before the 15th January of every year.

(2) The lessee shall pay dead rent for the remaining period of the year before the execution of the lease deed and thereafter pay yearly dead rent on or before the 15th January of every year and an account of the royalty payable by him shall be kept by the Competent Authority and as soon as the royalty payable by him becomes equal to or in excess of the dead rent already paid by him, he shall remove the minor minerals only after payment of the royalty and in such cases advance dead rent paid by him shall be deemed to have been merged into the amount of royalty he was liable to pay.

(3) The lessee shall pay to the Government, compensation for all damages, injuries or disturbance which has been caused by him in the course of mining operation and shall indemnify the Government against all claims which may be made by third parties in respect of such damage, injury or disturbances.

(4) The lessee shall commence quarrying operations within three months from the date of execution of the lease deed which shall be carried on in a proper, skilful and workman-like manner and the lessee shall send to the Director and Deputy Director or Mining Officer concerned, under whose jurisdiction the area is located and to the Director of Mines Safety, Bhubaneswar an intimation in Form H of the opening or reopening of the quarry so as to reach them within a period of fifteen days from the date of such commencement.

(5) If the lessee does not work upon the quarry for a continuous period of six months, the lease shall be liable to be cancelled, unless prior permission has been granted by the Competent Authority for such stoppage on reasonable grounds:

Provided that the Competent Authority may, on an application made by the lessee before it is cancelled and on being satisfied that it will not be possible for the lessee to undertake mining operations or to continue such operations for reasons beyond his control, make an order within a period of one month from the date of receiving such application and subject to such conditions as may be specified to the effect that such lease shall not be cancelled.

(6) The lessee shall allow reasonable facilities of access to other concessionaires of major and minor minerals, as may be directed by the competent authority.

(7) If any minor mineral not specified in the lease deed is discovered in the leased area, the lessee shall report it forthwith to the Competent Authority and the Director and the lessee shall not win or dispose of any such minor mineral unless such minor mineral is included in the lease deed or a separate prospecting license-cum-mining lease or mining lease or quarry lease, as the case may be, is granted in favour of the lessee. If he fails to apply for a prospecting license-cum-mining lease or mining lease or quarry lease, as the case may be, to extract the newly discovered minor mineral within three months from the date of discovery or if he declares his intention not to work upon the discovered minor mineral, the State Government or the Competent Authority, as the case may be, may grant prospecting license-cum-mining lease or mining lease or quarry lease in respect of that minor mineral to any other person after observing the procedure specified under these rules for the purpose:

Provided that, if the mineral discovered is not a minor mineral, the lessee shall not be entitled to any preference for the purpose of obtaining a lease for the new mineral, by reason only of the lands being included in his earlier lease for extraction of minor mineral.

(8) The lessee shall not carry on or allow to be carried on, any quarrying operation at any point within a distance of:—

- (a) one hundred meters from any Railway line (except under and in accordance with the written permission of the Railway Administration concerned) and in case of

National Highway, State Highway, monuments, heritage sites, or any reservoir; except in accordance with the previous permission of the Collector.

- (b) fifty meters from any tank, canal, road (other than a National or State Highway or other public works or buildings or inhabited sites), except under in accordance with the previous permission of the Collector.

(9) The Railway Administration or the Collector, as the case may be, may grant such permission as required under clause (a) or (b) of sub-rule (8) on such conditions as may be specified.

(10) The State or Central Government shall have right to construct any road, railway or canal or reservoir or to lay electric or telephone lines in or over the lands held under the lease:

Provided that the lessee shall be given at least sixty days prior notice before the right is exercised and the area thus utilized shall be excluded from the area held under lease.

(11) The lessee, with prior written permission of the competent authority, can erect at his own cost, temporary structures including buildings required for the purpose of quarrying operation within the leased area, without violating any law or obstructing any natural flow, community access or without causing damage to any embankment or public property, which shall be dismantled by the lessee at his own cost on completion of the lease term or on determination of the lease. The competent authority can pass orders to dismantle such structures if found erected illegally or causing damage to public.

(12) The lessee shall, at his own expense, erect and at all times maintain and keep in good condition boundary marks and pillars necessary to delineate the leased area.

(13) The lessee shall obtain permission of the competent authorities of the Forest Department, Odisha to carry on any operation in forest area.

(14) The lessee shall abide by the provisions of all laws for the time being in force, relating to the working of quarries and matters affecting the safety, health and convenience of the persons employed for quarrying and of the public and he shall also obey all existing laws of way, water and other easements and shall not use power cutters and other machinery in case of laterite quarries.

(15) The lessee shall keep correct accounts of minor minerals other than specified minor minerals quarried and dispatched and shall furnish a quarterly return in Form-P and annual return in Form-K to the Competent Authority and the Director.

(16) The lessee shall afford reasonable facilities for inspection of the quarries, accounts and records pertaining to quarrying operation, to the Competent Authority and Director or any other officer authorized by any of them and such officer may issue directions to prevent wasteful extraction of minerals and to ensure observance of the provisions of rules and specify the time limit not exceeding sixty days within which the directions shall be complied with.

(17) If the lessee does not allow the inspecting officer reasonable facilities for inspection or fails to comply with the directions within the specified time limit, the Competent Authority may forfeit the whole or part of the security deposit paid by the lessee or impose penalty not exceeding rupees fifty thousand and may cancel the lease and forfeit the security deposit.

(18) The lessee shall report about all accidents involving injury or loss of life or loss or damage to property forthwith to the concerned Competent Authority and Collector of the District.

(19) If any Government dues payable under the lease deed remain unpaid for one month beyond the date fixed in the lease deed for such payment, the Competent Authority or any officer authorized by him may enter into the leased area and seize all or any of the minor minerals or other movable properties and may dispose of such seized minor minerals or properties towards sufficient satisfaction of the Government dues and all costs and expenses occasioned by the non-payment thereof and if any such government dues remain unpaid over two months beyond the date fixed in the lease agreement for such payment, the Competent Authority may determine the lease, and take possession of the leased area on re-entry without prejudice to such action as may be taken under the provisions of the Odisha Public Demands Recovery Act, 1962 for recovery of such dues.

(20) The Controlling Authority shall have the right to pre-emption at current market rates over all minor minerals extracted or collected by the lessee and shall be indemnified by the lessee against the claims of any third party in respect of such minerals.

(21) The lessee shall remove all minor minerals extracted before the end of the lease period or of its determination, if it is determined earlier, and all other materials and structures within such reasonable period not exceeding two months or as the Competent Authority may allow.

(22) All minor minerals, materials, machineries, buildings and other structures, left in the leased area after the date-line fixed or time allowed by the Competent Authority shall be deemed to be the property of the Government and the Competent Authority may dispose of such property by public auction and the sale-proceeds shall be credited to Government account with the approval of Controlling Authority.

(23) If any mineral other than minor mineral is found in the area in course of quarrying of minor minerals, the lessee shall intimate in writing the fact to the Competent Authority and the Director forthwith and the lease shall be determined without payment of any compensation to the lessee.

(24) The lessee shall ensure proper maintenance of hill slopes so as to prevent major erosion and observe all such safeguards as provided in the Mines Act, 1952 and the rules and regulations framed thereunder from time to time.

(25) The lessee shall carry out quarrying operation with appropriate environment safeguards and shall take such steps for reclamation and raising of plantations in the lease area in line with the prescriptions under rules 29 to 37 of the Granite Conservation and Development Rules, 1999.

(26) The lessee shall keep the Government indemnified from any liability, compensation damage etc., arising out of his acts or omissions as a lessee during the subsistence of the lease.

(27) No rejected/off grade major mineral shall be removed on payment of royalty as minor mineral, under this rule.

(28) The Competent Authority may include such other conditions in the lease deed with the approval of the Controlling Authority.

(29) The lessee shall abide by the provisions of the Mines Act, 1952 and rules and regulations framed thereunder, the Explosives Act, 1884 and rules made thereunder for development of the source of minor minerals in workman like manner and for avoidance of any danger arising out of such winning of minor mineral.

## CHAPTER – V

### GRANT OF QUARRY PERMITS

**34. Application for quarry permit:**— An application for grant of quarry permit shall be made to the Competent Authority in Form-Q and shall be accompanied by:—

- (a) treasury challan showing deposit of rupees two hundred (non-refundable) towards application fee;
- (b) description of the land shown in a plan from which the mineral is to be extracted and removed;
- (c) consent of the owners of the land, if a private land permitting diversion of his land for extraction of minor mineral is proposed to be removed; and
- (d) an undertaking by the applicant to the effect that he agrees to abide by the conditions governing extraction and removal of minor minerals under a quarry permit:

Provided that no quarry permit shall be granted to anybody other than the State Agencies or Project Proponents for public purposes.

*Explanation I.* - “State Agency” shall mean any Department of the State or Central Government or company or corporation under the control of the State or Central Government and shall include any Government organization as defined in sub-rule (3) of rule 39.

*Explanation II.* - “Project Proponent for public purposes” shall mean any person or firm or company executing any Government project and shall include schematic beneficiaries under Government scheme like IAY, RAY etc.

**35. Authority to grant quarry permit:**— (1) The Competent Authority or any officer authorized by him may grant quarry permit in Form-R for extraction and removal from any specified land, any minor mineral not exceeding one thousand cubic meters under any one permit on payment of dues such as surface rent and royalty calculated at the rates specified in Schedule-I and Schedule-II and compensatory afforestation fees, contribution to District Mineral Foundation and Environmental Management Fund, as prescribed, in advance.

Provided that the Competent Authority may grant quarry permit in excess of one thousand cubic meters for any minor mineral when used for public work.

(2) If the application is rejected, the Competent Authority shall inform the applicant, stating the reasons of such rejection.

**36. Duration of quarry permit:**—The period of a quarry permit shall not exceed three months at a time.



**37. Conditions of quarry permit:—** (1) The holder of a quarry permit shall obey the following conditions, namely:—

- (a) The depth of the quarry below the surfaces shall not exceed six meters;
- (b) The quarry permit shall be non-transferable;
- (c) Minor mineral, other than that for which quarry permit has been granted, shall not be excavated or removed without prior approval of the Competent Authority;
- (d) If any mineral other than minor mineral is found during quarrying operations, the holder of the quarry permit shall report the matter to the Competent Authority and the Director forthwith and the quarry permit shall be determined without payment of any compensation to the holder of the quarry permit;
- (e) The holder of the quarry permit shall maintain complete and correct accounts of the minor mineral excavated and quantity removed from the area;
- (f) The holder of the quarry permit shall immediately report all accidents to the Competent Authority and the Collector of the district;
- (g) The holder of the quarry permit shall have no right over the quarried material and other properties lying in the permit area after expiry of the validity of the quarry permit;
- (h) The holder of the quarry permit shall not undertake any operation in forest area without obtaining the permission from the Competent Authority of the Forest Department, Odisha;
- (i) The permit holder of the quarry permit shall not carry on the quarrying operation within a distance of fifty meters from any public roads, public buildings, temples, reservoirs, dams, burial grounds, railway track monuments, heritage sites, etc. and shall not cause any damage to any public and private properties.

(2) The holder of the quarries shall allow the Director, Controlling Authority and Competent Authority or any officer authorized by any of them to inspect the quarrying operations and to check the accounts and verify the details of dispatches from the registers maintained by him.

(3) If any minor mineral is removed in excess of the quantity permitted, such material shall be confiscated and the holder of the quarry shall be liable for punishment under the provisions of the Indian Penal Code 1860, Act and these rules.

(4) As soon as removal of the mineral granted under the permit is completed, the holder of the quarry permit shall surrender the permit to the Competent Authority and furnish the particulars of permit contained in Form-S indicating the quantities of minor minerals removed and other information as may be required by the Competent Authority.

**38. Register of quarry permit:—**The Competent Authority shall maintain a register of quarry permits in Form-T.

## CHAPTER – VI

### SPECIAL PROVISIONS FOR GOVERNMENT ORGANISATIONS

**39. Reservation of mines for Government organizations:—** (1) Notwithstanding anything contained in these rules, the State Government may, by a written order, reserve any area for prospecting operation or mining operation or quarrying operation by a Government organization, subject to such terms and conditions as may be specified in the said order.

(2) Upon such reservation, prospecting license-*cum*-mining lease or mining lease or a quarry lease as the case may be, for the area so reserved, shall be granted to the Government organization in whose favour the reservation has been made subject to such terms and conditions, as may be decided by the Government.

(3) Government organization, for the purpose of these rules, shall mean Government, a Corporation established by any Central, State or Provincial Act or a Government Company within the meaning of Clause (45) of Section 2 of the Companies Act, 2013 and includes State level apex cooperatives, such other agencies, authorities or organization controlled substantially by the Government, as may be decided by the Government.

(4) The prospecting license-*cum*-mining lease or the mining lease, as the case may be, granted under this rule shall be granted for a period not exceeding thirty years and may be renewed for such period not exceeding twenty years at a time, as may be decided by the Government.

(5) The lessee, to whom a lease has been granted under this rule, shall pay to the Government all amounts payable by a lessee under these rules and such additional charges as may be decided by the Government from time to time.

## CHAPTER – VII

### MISCELLANEOUS

**40. Status of grant on death of applicant for prospecting license-cum-mining lease or mining lease or quarry lease:—** (1) Where a successful bidder, for grant of prospecting license-cum-mining lease or mining lease or quarry lease, dies before the order of such grant is passed, such order shall be passed in the name of his legal heir or representatives.

(2) Where a successful bidder, in respect of whom an order granting a prospecting license-cum-mining lease or mining lease or quarry lease is passed, dies before the lease deed is executed, the order shall be deemed to have been passed in the name of legal heir or representative of the deceased and such legal heir or representative shall have the right to execute the deed required for the purpose.

**41. Survey of the area licensed or leased:—** Arrangement shall be made by the Competent Authority at the expense of the grantee for survey and demarcation of the area granted under prospecting license-cum-mining lease or mining lease or quarry lease, on receipt of fees for the purpose at the rate of rupees one hundred per hectare or part thereof.

**42. Security deposit:—** The successful bidder shall deposit rupees fifty thousand for a prospecting license-cum-mining lease, fifty thousand for mining lease and ten thousand for quarry lease before the deed is executed as security for due observance of the terms and conditions of prospecting license-cum-mining lease, or mining lease, or quarry lease, as the case may be.

**43. Execution and registration of license or lease:—** (1) A prospecting license-cum-mining lease, mining lease and quarry lease shall be executed in its specified form as mentioned in sub-rule (3) of rule 9, sub-rule (9) of rule 9, sub-rule (5) of rule 15 and sub-rule (13) of rule 27 respectively within three months of the order for granting such lease or within such further period as may be allowed by the Controlling Authority.

(2) The date of commencement of the period for which a prospecting license-cum-mining lease or mining lease or quarry lease is granted shall be the date on which a duly executed deed is registered.

(3) If no deed for prospecting license-cum-mining lease or mining lease or quarry lease is executed within the time specified, due to any default on the part of the selected bidder, the Controlling Authority may revoke the grant order and forfeit the security deposit, if any.

(4) No minor mineral shall be extracted or removed before registration of the lease deed except with prior approval of the Controlling Authority.

(5) The Director shall maintain register for prospecting license-cum-mining lease in Form-U, for mining lease in Form-V and the Competent Authority shall maintain register for quarry lease in Form-W.

**44. Submission of report and information to Indian Bureau of Mines:—** The holder of prospecting licensee-*cum*-lessee or the holder of a mining lease for decorative stone shall furnish to the Indian Bureau of Mines, all reports, returns and information, in respect of the areas as specified under the Granite Conservation and Development Rules, 1999.

**45. Transfer of license or lease:—** (1) Where a prospecting license-*cum*-mining lease or mining lease or quarry lease has been granted through auction, the holder thereof may transfer the same in the manner mentioned hereinafter.

(2) Any transfer as mentioned in sub-rule (1) may be made with prior approval of the Controlling Authority, to any person eligible to hold a prospecting license-*cum*-mining lease or mining lease or quarry lease in accordance with the Act and these rules, subject to the following conditions, namely:—

- (i) The transfer shall be valid only for the unexpired portion of the validity of the prospecting license-*cum*-mining lease or mining lease or quarry lease, as the case may be.
- (ii) The transferee shall make a fresh security deposit himself for the purpose of transfer.
- (iii) The Controlling Authority shall not give the approval for such transfer of the prospecting license-*cum*-lease or mining lease or quarry lease unless the transferee has accepted all the conditions and liabilities, which the transferor was having in respect of such prospecting license-*cum*-mining lease or mining lease or quarry lease, as the case may be:

Provided that prior approval of the Controlling Authority shall not be necessary, if the prospecting license-*cum*-mining lease or mining lease or quarry lease is mortgaged to a Nationalized Bank or Government Industrial Corporation or Government Financial Corporation or Government Financial Institutions to obtain financial assistance, and such period of mortgage shall be co-terminus with the period of prospecting license-*cum*-mining lease or mining lease or quarry lease and right of the State Government to collect Government dues from the lessee shall be the first charge on the mortgaged property.

(3) A transfer deed for the prospecting license-*cum*-mining lease or mining lease or quarry lease, in a form as near to the original executed deed as possible, shall be executed within three months from the date of approval of the Controlling Authority registered under the Registration Act, 1908.

(4) The Controlling Authority may, by an order in writing, terminate any prospecting license-*cum*-mining lease or mining lease or quarry lease, as the case may be, at any time if the lessee has transferred any lease or any right, title or interest therein otherwise than in accordance with sub-rule (2).

**46. Procedure for filing appeal:—** (1) Any person aggrieved by an order of the Competent Authority, may, within one month from the date of communication of the order, prefer an appeal in Form-X against such order, to the Sub-Collector, if the order is passed by the Tahasildar, to the Collector, if the order is passed by the Sub-Collector, to the Revenue Divisional Commissioner, if the order is passed by the Collector, to the Conservator of Forests, if the order is passed by the Divisional Forest Officer, to the Joint Director, if the order is passed by the Mining Officer or Deputy Director, to the Director, if the order is passed by the Joint Director and to the State Government in the Department of Steel and Mines, if the order is passed by the Director:

Provided that in case of matters related to specified minor minerals, the State Government may review its order on receipt of review petition from any aggrieved person or *suo moto* within ninety days of communication of such order and correct or modify their order.

(2) No appeal shall be admitted unless the amount, if any, assessed in accordance with the provisions of these rules as per the orders, has been deposited.

(3) The Appellate Authority mentioned under sub- rule(1) may call for relevant records and other information from the concerned authority and may, if considered necessary, stay the operation of the order of the authority in any particular case till the appeal is finally disposed or until further orders are passed, as the case may be.

(4) Every application for appeal shall be accompanied by a non-refundable fee of rupees one thousand.

(5) In the event of any dispute relating to the area, conditions, the dues payable or any other matters under the prospecting license-*cum*-mining lease or mining lease or quarry lease executed for the purpose, the suits or appeals shall be filed only in the civil courts in whose jurisdiction such area falls.

**47. Interest on delayed payment:—** If the holder of prospecting license-*cum*-mining lease or mining lease or quarry lease fails to make payment of royalty, rent, fee or any sum payable by him under these rules within the due time, simple interest at the rate of twenty four percentum per annum on such dues shall be charged until payment of such dues is made.

**48. Disposal of minor mineral:—**Any minor mineral won illegally and seized, or deemed to be property of the Government after expiry or termination of prospecting license-*cum*-mining lease or mining lease or quarry lease or won in course of executing public work, shall be disposed of through public auction by the authority competent for grant of permit as specified in Schedule-IV and in accordance with the provisions of the Code of Criminal Procedure, 1973.

**49. Environment Management Fund:—** (1) The Environment Management Fund shall be created at the State level for reclamation, and rehabilitation of mined out areas of minor minerals and conservation of environment thereof.

(2) An amount equal to five percentum of the royalty payable shall be collected from the lessee and shall be paid to the Environment Management Fund in such manner, as may be specified in the notification, issued by the Government and such amount shall be realized along with the royalty.

(3) The Environment Management Fund shall be utilized for following objects, namely:—

- (i) restoration;
- (ii) repair, reclamation and rehabilitation work required to be undertaken for adjoining or external damage, outside the quarry, caused by mining activities:

Provided that any casualty by the lessee due to his negligence or non-compliance of conditions made in the lease deed shall be compensated or rehabilitated by the lessee;

- (iii) provision of common facilities for the benefit of community in and around the areas where mining activities are undertaken;
- (iv) development of infrastructure facilities for orderly growth of the mining operations and allied activities e.g. roads, stone crusher estates, water supply etc;
- (v) funding of the studies commissioned or activities related to the mining sector e.g. survey, exploration and prospecting operation of minerals, procurement of equipment and machinery required to support such activities;
- (vi) education, awareness and training of the lessees and the Staff of the Department through field visits and exposure to the best mining practices;
- (vii) funding of expenditure incurred on implementation of any scheme of incentives that the Government may frame for recognition and awards for scientific mining operation undertaken with the highest regard to mineral conservation, rehabilitation measures, along with environment safeguards and other measures; and
- (viii) any other objects which the Government may consider appropriate.

(4) The Environment Management Fund shall be managed by such officer, authority or organization as may be specified in the notification issued by the Government.

**50. Revenue assessing authority:**— The assessment and demand of rents, royalty, fee or any such due payable under these rules shall be made by the Deputy Director or Mining Officer, or Tahasildar or Divisional Forest Officer having jurisdiction.

**51. Penalties:**— (1) (i) Whenever any person is found extracting or transporting any minor mineral or on whose behalf such extraction or transportation is being made otherwise than in accordance with these rules, shall be presumed to be a party to the illegal extraction or removal of such minor minerals and every such person shall be punishable with simple imprisonment for a term which may extend to two years or with fine which may extend to five lakh rupees or with both and in case of a continuing contravention, with an additional fine which may extend to five

thousand rupees for every day during which such contravention continues after conviction for the first such contravention.

- (ii) The Collector or Sub-Collector or Tahasildar or Director or Joint Director or Deputy Director or Mining Officer or Senior Inspector of Mines or Divisional Forest Officer or Assistant Conservator of Forest or Range Officer or Police Officer not below the rank of Sub-Inspector of Police may seize the minor minerals and its products together with all tools, equipments and vehicles used in committing such offence within their respective jurisdiction.
- (iii) No court shall take cognizance of any offence punishable under these rules except upon complaint in writing made by such officer or authority mentioned under clause (ii) of this sub-rule having jurisdiction.
- (iv) Where the offender agrees in writing to compound the offence punishable under these rules, the Tahasildar or Deputy Director or Mining Officer or Divisional Forest Officer, within their respective jurisdiction, shall, either before or after filing the complaint, compound the offence on payment of such sum, as determined by the officers mentioned under clause (ii), not exceeding the maximum amount of fine prescribed under these rules and value of the mineral and other properties seized and on payment of such fine and value, the seized mineral and properties shall be released forthwith:
 

Provided that the accused shall be liable to furnish an undertaking or bond to the effect that he shall not commit such offence in future:

Provided further that, in case the offender fails to pay the value of mineral and any other property, such properties shall be confiscated to Government and disposed of through public auction.
- (v) Where an offence under these rules is compounded, no proceeding or further proceeding, as the case may be, shall be initiated against the offender in respect of the offence so compounded and the offender, if in custody, shall be released forthwith.
- (vi) If no person claims the mineral and other property, if any, so seized within a period of thirty days, the authority competent to compound the offence may confiscate the same to the State and dispose of the same through public auction.

(2) Whenever any person trespasses into any land in contravention of the provisions of these rules, such trespasser may be served with an order of eviction by the Tahasildar or Sub-Collector or Collector or Deputy Director or Mining Officer or Assistant Mining Officer or Divisional Forest Officer or Assistant Conservator of Forest or Range Officer within their respective jurisdiction and

such Government Officer, if necessary, may obtain the help of the police to evict the trespassers from the land.

(3) Any mineral, tool, equipment, vehicle or any other things seized under these rules in respect of which complaint has been filed under clause (iii) of sub-rule (1), shall be liable to be confiscated by an order of the court competent to take cognizance of the offence and shall be disposed of in accordance with the directions of such court.

(4) Whenever the person wins, without any lawful authority, any mineral from any land, the Tahasildar or Mining Officer or Deputy Director or Divisional Forest Officer, as the case may be, may recover from such person the mineral so won, or, where such mineral has already been disposed of, the price thereof, and may also recover from such person, rent, royalty or tax, as the case may be, for the period during which the land was occupied by such person without any lawful authority.

(5) If the person committing an offence under these rules is a company, every person, who at the time the offence was committed, was in charge of and was responsible to the company for the conduct of business of the company, shall be deemed to be guilty of the offence and shall be liable to be proceeded against and punished as per the provisions of the Act and these rules:

Provided that nothing contained in this sub-rule shall render any such person liable to any punishment, if he proves that the offence was committed without his knowledge or that he exercised all due diligence to prevent the commission of such offence.

(6) Notwithstanding anything contained in sub-rule (5), where an offence under these rules has been committed with the consent or connivance of any Director, Manager, Secretary or other officer of the company, such Director, Manager, Secretary or other officer shall be deemed to be guilty of that offence and shall be liable to be proceeded against and punished accordingly.

*Explanation: – For the purposes of this rule –*

- (a) “Company” means anybody, corporate and includes a firm or other association of individuals;
- (b) “Director” in relation to a firm means a partner in the firm.

(7) In case of breach of any condition of the lease deed, the Competent Authority may give notice of sixty days to the lessee to rectify the defects within the time specified and if the lessee fails to rectify the defects within the specified time, the Competent Authority may cancel the lease and/or levy a penalty not exceeding rupees fifty thousand.

(8) In case of breach of any condition mentioned in rule 37 of these rules and other conditions which the Competent Authority might have specified while granting a quarry permit, the Competent Authority may impose a penalty which may extend to rupees five thousand per day and in the event of continuing contravention, the Competent Authority may cancel the permit and in



such case the minerals lying on the land from which the same are extracted shall thereafter become the property of the Government and be disposed of by public auction.

**52. Payment of compensation to owner of surface rights etc.:—** (1) The holder of a prospecting license-*cum*-mining lease or mining lease or quarry lease shall be liable to pay to the occupier of the surface of the land over which he holds the prospecting license-*cum*-mining lease or mining lease or quarry lease, as the case may be, such annual compensation as may be determined by an officer appointed by the State Government by notification in this behalf in the manner provided in sub-rules (2) to (4).

(2) In the case of agricultural land, the amount of annual compensation shall be worked out on the basis of the average annual net income from the cultivation of similar land for the previous three years.

(3) In the case of non-agricultural land, the amount of annual compensation shall be worked out on the basis of the average annual letting value of similar land for the previous three years.

(4) The annual compensation referred to in sub-rule (1) shall be payable on or before the 1st July of every year.

**53. Assessment of compensation for damage:—** (1) After the termination of a lease, the State Government shall assess the damage, if any done to the land by the prospecting or mining or quarrying operations, as the case may be, and shall determine the amount of compensation payable by the lessee, as the case may be, to the occupier of the surface land.

(2) Every such assessment shall be made within a period of one year from the date of determination of the lease and shall be carried out by an officer appointed by the State Government, by notification, in this behalf.

**54. Search for mineral, document or thing:—** If the Tahasildar or Sub-Collector or Collector or Mining Officer or Deputy Director or Assistant Mining Officer or Director or Joint Director or Deputy Director (Head Qrs.) or Divisional Forest Officer or Assistant Conservator of Forest or Range Officer has reasons to believe that any mineral has been won in contravention of the provisions of these rules or any document or thing in relation to such mineral is kept in any place or vehicle, he may search for such mineral, document or thing and the provisions of the Section 100 of the Code of Criminal Procedure, 1973 shall apply to every such search.

**55. Power to rectify apparent mistakes:—**Any clerical or arithmetical mistake in any order passed by the Government or any other authority under these rules and any error arising therein from accidental slip or omission, may, within six months from the date of issue of the order, be corrected by the Government or the authority, as the case may be:

Provided that no order prejudicial to any person shall be passed unless such person has been given a reasonable opportunity of being heard.

**56. Removal of minor mineral from an area leased out for major mineral:—** (1) If any minor mineral is found in an area leased out for major mineral, the minor mineral can be removed with permission of the Government in the Steel & Mines Department in the case of specified minor minerals and with the permission of the concerned Deputy Director or the Mining Officer in the case of other minor minerals, on payment of advance royalty and other dues prescribed for the said minor mineral.

(2) In case of any doubt whether any particular mineral is a minor mineral or otherwise, the matter shall be referred to the Director for the decision and in case of any doubt whether a minor mineral can be used as decorative stone or for industrial and prescribed purpose or for export, the Competent Authorities of the Revenue & Disaster Management Department and the Forest & Environment Department would obtain the specific views of the concerned Mining Officer or Deputy Director of the District or Circle.

**57. Power of entry and inspection:—** (1) The Controlling Authority, Competent Authority or any officer authorized in this behalf, shall have the power to –

- (a) enter and inspect any area granted under a prospecting license-*cum*-mining lease or mining lease or quarry lease;
- (b) survey and take measurements in any such workings;
- (c) examine the registers showing the quantity of minor minerals extracted and removed and other documents, records connected with grant of license-*cum*-lease or lease or permit and order production of any or all such records and take extracts from such documents, records and registers; and
- (d) weigh and take measurements of the stocks of minor minerals lying in any quarry, in the process of removal or transit.

(2) The Director or any officer authorized by him shall have the power to inspect any area held under a prospecting license-*cum*-mining lease or mining lease or quarry lease so as to –

- (a) ensure systematic, scientific and safe prospecting operation or mining operation;
- (b) prevent extraction and removal of major minerals in the guise of minor mineral;
- (c) ensure observance of rules and devices for storage and use of explosives, if any; and
- (d) examine registers, documents, records and order production of any or all such records and take extracts from such registers, documents, records connected with grant of the lease.

(3) In case any deficiency is observed as a result of inspection conducted as per sub-rule (2), the lessee shall be intimated, not to carry out any operation in the area under lease unless the deficiencies are made good which shall be brought to the notice of the Competent Authority, Controlling Authority or the Director, as the case may be by the Inspecting Officer.

**58. Miscellaneous:**— (1) No holder of prospecting license-cum-mining lease or mining lease or quarry lease or quarry permit or auction purchaser shall despatch any minerals from an area without a valid transit pass in Form-Y issued by –

(a) the Deputy Director or Mining Officer having jurisdiction in case of specified minor minerals; and

(b) the Competent Authority in case of other minerals.

(2) The transit pass should be printed and machine numbered in the Government Press and supplied by the respective authority as aforesaid on payment of the cost thereof as fixed by the Director of Mines with the approval of the Government.

(3) The Government may impose such restrictions on sale of minor minerals to places outside the State as it may consider expedient in the public interest.

(4) No authority in charge of execution of public work shall pass any bill for reimbursement of royalty paid on any minor mineral unless, the person claiming such reimbursement produces the transit pass referred to in sub-rule (1).

(5) The provisions of sub-rule(2) shall apply *mutatis mutandis* to cases for any bill claiming the reimbursement of the cost for purchase of any minor mineral and is submitted before any authority in charge of execution of public work and such authority shall not pass the bill unless the receipts of the amount so paid is produced.

Provided that in case the executant fails to produce transit pass and money receipt in support of payment of royalty, the public works authority shall deduct the royalty and the cost of mineral and remit it to Government account in the Government Treasury.

(6) Where an authority referred to in sub-rule (4) or sub-rule (5) is requested by a Competent Authority or Controlling Authority to furnish information on quantity of minor minerals supplied to him, he shall furnish such information without delay.

(7) The concerned Deputy Directors and Mining Officers in case of specified minor minerals, and respective Competent Authorities in case of other minor minerals, shall send an annual return in Form-Z showing mineral-wise production and despatch of minor minerals and the revenue earned there from to the Controlling Authority and the Director to enable him to assess the total income derived by the State and to furnish such information to the Indian Bureau of Mines.

(8) With a view to check illegal mining, transportation and storage of minor mineral, the State Government may impose restrictions on such activity, if necessary, and may also issue guidelines for the purpose.

**59. Prospecting license-cum-mining lease or mining lease or quarry lease obtained in contravention of the Act and rules:**— Any prospecting license-cum-mining lease or mining lease or quarry lease granted, renewed or acquired in contravention of the provisions of the Act or any rules or orders made thereunder shall be void and of no effect.

**60. Action taken in good faith:—** No suit, prosecution or other legal proceedings shall lie against any person for anything which is, in good faith, done or intended to be done under these rules.

**61. Head of accounts for payments:—**All payments made under these rules shall be credited to the following Head of Account, namely:—

“0853-Non-ferrous Mining and Metallurgical Industries-102-Mineral Concession Fees, Rents and Royalties-”

**62. Recovery of the amount due to Government:—**All dues payable to the Government under these rules, if remain unpaid, shall be recoverable as an arrear of land revenue.

**63. Refund of revenue:—**Any amount paid in excess of the amount payable by the holder of a prospecting license-*cum*-mining lease or mining lease or quarry lease or quarry permit under these rules shall be refunded to him within the following financial year by the Competent Authority with prior approval of the Controlling Authority.

Provided that the holder of a prospecting license-*cum*-mining lease or mining lease or quarry lease or quarry permit under these rules claiming such refund shall submit an application for the said refund to the Competent Authority within a period of six months from the date of such excess payment failing which the prayer for refund of such excess payment shall not be entertained.

Provided further that in case the holder of a prospecting license-*cum*-mining lease or mining lease or quarry lease prays for refund of any excess payment made by him, the Competent Authority may adjust such excess payment towards the dues payable by him during subsequent period of mining/quarrying operations.

**64. Power of the Government to relax the rules:—**The Government may, in the interest of mineral development, relax any of the provisions of these rules in deserving cases in such manner as they deem proper.

**65. Power to issue instructions:—** The Government may issue instructions not inconsistent with the provisions of the Act and these rules from time to time, with a view to remove difficulties.

**66. Transitory provisions:—**(1) Notwithstanding anything contained in these rules, the existing lessees of such of the specified minor minerals which were major minerals on the date of coming into force of the Mines and Minerals (Development and Regulation) Amendment Act, 2015 (11 of 2015) shall be eligible for extension of the validity period of lease for such period and subject to such conditions as provided in Section 8A of the Mines and Minerals (Development and Regulation) Act, 1957.

(2) Notwithstanding anything to the contrary contained in these rules, the applicants for mineral concessions in respect of such of the specified minor minerals, which were major minerals on the date of coming into force of the Mines and Minerals (Development and Regulation)

Amendment Act, 2015 (11 of 2015), and whose applications have remained eligible under the provisions of the sub-section (2) of Section 10A of the Act, shall remain eligible for grant of mineral concession for such period as prescribed under rule 8 of these rules subject to satisfaction of conditions prescribed in sub-rule (13) of rule 4 of these rules.

**67. Special provisions:—**Notwithstanding anything to the contrary contained in these rules, the applicants who have been granted prospecting license-*cum*-mining lease or mining lease or quarry lease, shall be entitled to execute the deed of license, or as the case may be, lease within the period specified in the grant order or within such further period as may be allowed by the Controlling Authority.

\* \* \* \*

## FORM - A

“To be submitted in Triplicate”

Received

At.....

(place) on.....

(Date)

Initial of Receiving Officer

GOVERNMENT OF ODISHA  
Application for Prospecting license-cum-Mining lease  
[See rule 9(2)]

Dated day of 200

To

The ..... to Government of Odisha,

Steel &amp; Mines Department, Bhubaneswar.

Through the Deputy Director/Mining Officer.....

Sir,

1. With reference to the Government of Odisha, Steel & Mines Department Notification No..... dated....., I/We request that a prospecting license-cum-mining lease under the Odisha Minor Mineral Concession Rules, 20.... may be granted to me/us.

2. A sum of Rs...../- (Rupees ..... only) being application fee (non-refundable) under rule 10 (9) (i) has been deposited in the Government Treasury..... and original receipted challan bearing No. .... dated..... is enclosed.

3. The required particulars are given below:

(i) Name of the applicant with complete address:

(Permanent and present)

(ii) In case the applicant is:

(a) an individual, his nationality,

(Nationality Certificate shall be enclosed)

(b) a company, an attested copy of the Certificate of Registration of the company along with a copy of Memorandum and Article of Association of the company shall be enclosed,

(c) a partnership firm, the nationality of all partners and a copy of Partnership Deed shall be enclosed.

(iii) Profession of the applicant:

(iv) No. and Date of valid Mining Dues Clearance Certificates (copy attached) or an affidavit to this effect (enclosed):

(v) Mineral or minerals which the applicant intends to prospect:

(vi) Period for which the prospecting operation is intended:

(vii) Extent of the area the applicant wants to prospect:

(viii) Details of the area supported by a plan in cadastral village map, boundary description and land schedule (The plan should be on the relevant portion of the cadastral village map with scale and should contain natural features, landmarks or other features to enable identification of the area in the field, the nearest railway station or any other place of importance):

(ix) Particulars of the area in the State duly supported by an affidavit for which the applicant or any person having joint interest with him:

- (a) already holds under prospecting license-*cum*-mining lease,
  - (b) has already applied for but not granted and,
  - (c) being applied for simultaneously,
  - (d) nature of joint interest, if any,
  - (x) Attested copy of the document showing payment of earnest money:
  - (xi) An affidavit stating that the applicant is not convicted for any offence committed for any violation of any provision of Mines and Minerals (Development & Regulation) Act, 1957 and rules made thereunder:
  - (xii) Where the land applied for belongs to private person(s) written consent of such tenant(s) for grant of prospecting license-*cum*-mining lease to be attached.
  - (xiii) Has the applicant possess any technical qualification and experience in prospecting and quarrying operations for specified minor minerals? If so, details thereof along with documentary be furnished.
  - (xiv) Has the applicant already set up an industry for processing of specified minor minerals or has a definite plan to put up such industry in the State? If so, details thereof along with documentary evidences.
  - (xv) Financial resources of the applicant in support of which:
    - (a) Copy of solvency Certificate and list of immovable properties from the concerned Revenue Authority in case the applicant is an individual:
    - (b) Copy of audited balance sheet of the immediately preceding financial year in case the applicant is a company:
    - (c) Copy of the documents showing net worth of all partners individually in case the applicant is a partnership firm:
  - (xvi) Total investment in operations anticipated—
  - (xvii) Qualification, technical knowledge of, or experience in prospecting and mining operation for specified minor minerals, machinery the applicant possesses—
  - (xviii) Any other particular, if any such as nature and quality of the technical staff employed or to be employed by the applicant, etc.
4. Additional charge quoted (higher than the minimum additional charge fixed vide Govt. Notification No.....dt.....):
- I/We do hereby declare that the particulars furnished above are correct and undertaken to furnish any other details including accurate plans, etc. as may be required by you.

Place:

Yours faithfully,

Date:

Signature of the applicant.

**N.B.:**— If the application is signed by an authorized agent of the applicant, the power of attorney shall be attached.

## FORM - B

## Form of Prospecting license

[See rule 9(3)]

THIS INDENTURE made this.....day of.....20.....between the Governor of Odisha ..... (hereinafter called the “Lessor”) of the one part and (Name of person).....of (address and occupation)..... (hereinafter called the “licensee-cum-lessee” which expression shall where the context so admits be deemed to include his heirs, executors, administrators, assignees) of the other part.

WHEREAS, the licensee-cum-lessee has applied to the Competent Authority concerned for a prospecting license-cum-mining lease for..... (specified minor mineral) in accordance with the provisions of the Odisha Minor Minerals Concession Rules, 20..... (hereinafter called the “Rules”), in respect of the lands described in Part-I of the Schedule and has deposited a sum of Rs.....as security.

WHEREAS, the licensee-cum-lessee shall be required to carry out and complete prospecting operation satisfactorily within a period of ..... (year / month) under the provisions of sub-rule (5) of rule 9 of Odisha Minor Mineral Concession Rules, 20....

AND, WHEREAS, the Competent Authority has communicated his approval to the grant of license-cum-lease on the terms, covenants and conditions hereinafter contained.

NOW THIS INDENTURE witnesses as follows:

The less or hereby demises to the licensee-cum-lessee, the land described in Part-I of the Schedule hereunder written and delineated in the map hereunto annexed.

The said demised piece(s) of land shall be held by the licensee-cum-lessee for a term of..... (year / month) for carrying out prospecting operations from the date on which this executed deed is registered under Indian Registration Act and Odisha Registration Manual subject to the terms, covenants hereinafter provided.

IN WITNESS WHEREOF these presents have been executed in manner hereunder appearing the day and year first above written.

The schedule above referred to



## PART-I

Location and area of the prospecting license-*cum*-mining lease

Village Plot Nos.  
Village/Forest Block  
Tahasil/Forest Range  
Area (in hectares)/

As per plan annexed and bounded  
On the North by  
On the South by  
On the East by

And on the West by hereinafter called as “said laws”

## PART II

Terms and conditions of the prospecting license-*cum*-mining lease

This prospecting license-*cum*-mining lease is subject to the conditions laid down in rule 14 and also all other conditions pertaining to the license-*cum*-lease as provided in the Rules.

## PART III

Liberties, powers and privileges to be exercised and enjoyed by  
the licensee-*cum*-lessee

1. To enter upon and use the said lands, described in Part-I of the Schedule during the term hereby demised to search for, bore, dig, drill for, dress, process or otherwise work all or any.....(name of the specified minor minerals) lying within, under or through the said lands.
2. To make roads, tram ways, install machineries, lay electric and telephone line, on and over the said lands.
3. To use water from streams, watercourses and springs in and upon the said lands in natural state or by means of impounding with the written permission of the Collector of the district.

## PART IV

Restrictions and conditions as to the exercise of liberties,  
powers and privileges in Part-III

1. No land shall be used for surface operations if objection is raised by the Competent Authority or the Collector of the district to the effect that use of the land will be detrimental to public interest.
2. The licensee-*cum*-lessee shall not cut or injure any tree in the licensed-*cum*-leased area falling within Reserved/Protected forest without prior permission of the Divisional Forest Officer or the officer authorized by him in this behalf and upon payment of royalty and fees for compensatory afforestation as may be specified.

3. The licensee-*cum*-lessee shall undertake prospecting operation only in accordance with the scheme of prospecting or modifications thereof.

#### PART-V

##### Liberties, powers and privileges reserved to the State Government

The State Government or any officer or persons authorized by it in that behalf has the liberty and power to enter into and upon the licensed-*cum*-leased area to carry on any operation in connection with survey, sampling, testing, quarrying, processing, stacking and transportation of mineral, as may be, deemed necessary.

#### PART-VI

##### Provisions regarding Rents and Royalties

1. The licensee-*cum*-lessee shall, during the subsistence of this license-*cum*-lease pay to Government advance prospecting fee at the rate of one thousand rupees per hectare or part thereof of land covered under license-*cum*-lease for each year or part of the year for the entire period of license-*cum*-lease and royalty in respect of any specified minor mineral removed by him from the license-*cum*-leased area at the rates prescribed in Schedule-II and surface rent at the rate prescribed in Schedule-I.
2. All payments relating to rents, royalties, fees, etc., as provided under these rules shall be paid to the State Government free from all deductions, at the District Treasury/ Sub-Treasury and in such manner as the Competent Authority may prescribe.
3. For the purposes of computing the royalty, the licensee-*cum*-lessee shall keep correct account of the mineral, produced, stacked and removed from the license-*cum*-lease area and furnish such information and submit a monthly return to the Competent Authority and Director in FORM-J and other relevant records to the concerned Deputy Director of Mines/ Mining Officer.
4. The licensee shall pay royalty in advance and the different amount if any, on computation shall be paid within fifteen days of completion of transportation of permitted quantity of specified minor minerals.
5. The lessee shall pay surface rent in advance and not later than the 15th January and the 15th July of each year.

Signed by.....

For and on behalf of Government of Odisha, in the presence of

1.

2.

Signed by.....Licensee in the presence of

1.

2.

## FORM – C

## Intimation for commencement of Prospecting operation

[See rule 9(6)]

To

1. (a) The Deputy Director of Mines/ Mining Officer..... (location).  
 (b) The Director of Mines, Odisha, Bhubaneswar.  
 (c) The Collector ..... (District).  
 (d) The Director of Mines Safety, Bhubaneswar/ Chainbasa.
2. Name of the mineral or minerals for which the prospecting license-*cum*-mining lease has been granted.  
 (a)..... (b).....  
 (c)..... (d).....
3. Name and address of the licensee-*cum*-lessee.  
 .....  
 PIN.....
4. In case of licensee-*cum*-lessee is a company or partnership firm or Co-operative, please indicate:
  - (i) Name and address of the Director-in-charge  
 .....  
 PIN.....
  - (ii) Address of the Registered Office  
 .....  
 PIN.....
5. Particulars of prospecting license-*cum*-mining lease:
  - (i) Date of Execution: .....
  - (ii) Period: ..... Years, From..... To.....
  - (iii) Area under Licence: .....hectares.
6. Location :
  - (i) Topo Sheet Number: .....
  - (ii) Cadastral Survey of Khasra Number: .....
  - (iii) Village: .....
  - (iv) (a) Post Office: .....  
 (b) Police Station: .....
  - (v) (a) Tahasil: .....  
 (b) District: .....  
 (c) State: .....
  - (vi) (a) Nearest Railway Station: .....  
 (b) The distance there from: .....
  - (vii) (a) Nearest Rest House / DakBungalow: .....  
 (b) Its distance from  
     (1) The Railway Station: ..... (kilometres)  
     (2) The Prospecting Area: ..... (kilometres)
7. Particulars of Geologists or Mining Engineer employed  
 For the prospecting license-*cum*-mining leasearea:
  - (i) Name and Address  
 .....  
 PIN.....

- (ii) Qualifications: .....
- (iii) Date of Appointment: .....
- (iv) Nature of Appointment: Whole time or Part time: .....

8. Date of commencement of prospecting operation: .....

Place.....

Signature.....

Date.....

Name in Full.....

Designation.....

Owner/Agent/Mining Engineer/Manager

**N.B:—** This Form, duly filled in must reach the concerned authorities within fifteen days of the commencement of prospecting operations.

### FORM – D

#### Application for Mining Lease

[See rule 9(7), 16(2)]

To

The.....to Government of Odisha

Steel & Mines Department, Bhubaneswar.

Through the Deputy Director/Mining Officer.....

Sir,

1. I/We submit an application for a mining lease for ..... (mineral) under Odisha Minor Mineral Concession Rules, 20..... may be granted to me/us.
2. A non-refundable sum of Rs..... (Rupees..... only) being the fees in respect of the application payable under rule 16 (7) (i) of the said rules has been deposited (vide enclosed original receipt challan no.....dated.....of the State Bank of India/Treasury.....)
3. The required particulars are given below:-
  - i. Name of the applicant-
  - ii. Address-(Present).....  
(Permanent).....
  - iii. In case the applicant is
    - (a) An individual, his nationality  
(Nationality certificate to be enclosed)
    - (b) A company, an attested copy of the certificate of registration of the company along with copy of Memorandum and Article of Association of the Company shall be enclosed.

(c) A firm, nationality of all the partners and partnership deed to be attached.

iv. Profession or nature of business of the applicant.

v. Particulars of documents appended:

(a) Valid mining due clearance certificate issued by the Director of Mines to be enclosed, or

(b) An affidavit in lieu of mining due clearance Certificate subject to its production within one month of making application, or

(c) In case the applicant does not hold and has not held any mineral concession for major and minor minerals in the State, furnishing of an affidavit to that effect will suffice:

(d) Attested copy of up to date VAT clearance Certificate

vi. Period for which mining lease is required.

vii. Extent of area applied for mining lease.

viii. Details of the area applied for mining lease.

(a)

District	Tahasil	Village/Forest Range	Survey No.	Area in hectares
----------	---------	-------------------------	---------------	---------------------

(b) A plan in cadastral village map along with a key plan in Survey of India topo sheet in scale 1:50,000, boundary description and land schedule of the area applied for to enclosed:

(The plan should be on the relevant portion of the cadastral village map with scale and should contain natural feature. Land marks or other feature to enable identification of the area in the field or any other place of importance).

ix. (a) If the applicant has surface right over the area or he is the owner of land applied for, document in support of surface right or patta of land, as the case may be, shall be attached.

Or

(b) where the land applied for being to private persons written consent of such tenant(s) for undertaking mining operation to be filed.

Or

(c) In case the applicant is the rayat of the land applied for, attested copies of documents to establish this.

x. An affidavit stating particulars of areas which the applicant himself or any person joint interest with him.

- a) Already holds under mining lease.
- b) Has already applied for but not granted.
- c) Being applied for simultaneously
- xi. Attested copy of the document showing payment of earnest money:
- xii. An affidavit stating that the applicant is not convicted for any offence committed for any violation of any provision of Mines and Minerals (Development & Regulation) Act, 1957 and rules made thereunder:
- xiii. Nature of joint interest
- xiv. Financial resources of the applicant:  
(supported document to be enclosed)
  - a) Copy of the solvency Certificate and list of immovable properties from the concerned Revenue Authority,
  - b) A recent certificate from the banker of the applicant stating the extent of his credit worthiness.
- xv. Technical knowledge or experience in mining operation for specified minor minerals of the applicant (supporting document to be attached).
- xvi. If the applicant is the rayat of the land applied for, an attested copy of the patta of the land.
- xvii. Has the applicant already set up or has a definite plan to put up an industry based on specified minor minerals? If so, the detail thereof along with documentary evidences.
- xviii. In case of application for mining lease of specified minor minerals over the area held under prospecting license-*cum*-mining lease:  
Does the applicant hold a prospecting license-*cum*-mining lease over the area applied for ? If so,
  - i) Number and date of grant order, date of execution and registration, date on which it is due to expire.
  - ii) The report of prospecting operation carried out to be enclosed.
  - iii) Broad parameters of ore body/ bodies such as strike length, average width, dip, geological disturbance (a geological plan of the area showing details of geology and lithology to be attached) and related geological, economical and feasibility parameters of the deposit:

xix. In case of application is made for mining over the area earlier held under mining lease for specified minor minerals by person other than the applicant:

- a) Number of existing quarry pits with dimension:
- b) Dimension of rock exposed in the pit (location of old working are to be shown on the geological plan)
- c) Details of rock exposed in the virgin area coming within area applied for.
- d) Whether information generated from the working pits and exposed rocks are sufficient to establish the existence of specified minor minerals content therein and to prepare a mining plan.

xx. Method of working of the area applied for in brief:

xxi. Anticipated yearly financial investment in mining operation.

xxii. Manner in which the specified minor minerals raised to be utilized.

- a) i) If for captive use, the location of the industry
- ii) If for sale for indigenous consumption
- b) If for export to foreign country, name of the countries:

xxiii. Name, qualification and experience of technical personnel available or to be employed for supervision of the mines.

xxiv. Any other information, if any:

4. Additional charge quoted (higher than the minimum additional charge fixed vide Govt. Notification No.....dt.....):

I/We do hereby declare that the particulars furnished above are correct and am/are ready to furnish any other details including documents and security deposit as may be required by you before the grant of mining lease.

Yours faithfully

Signature of the applicant

Place:

Date:

**N.B.:**— If the application is signed by an authorized agent of the applicant, the power of attorney should be attached.

## FORM - E

## Form of Mining Lease

[See rule 9(9), 15(5)]

THIS INDENTURE made this.....day of.....20.....between the GOVERNOR OF ODISHA (hereinafter called the “Lessor”) of the one part and ..... (Name of the person) ..... of (Address and occupation)..... ( hereinafter called the “Lessee” which expression shall where the context so admits be deemed to include his heirs, executors, administrators, assignees) of the other part.

WHEREAS, the lessee has applied to the Competent Authority concerned for a mining lease for..... (specified minor mineral) in accordance with the provisions of Odisha Minor Mineral Concession Rules, 20..... (hereinafter referred to as ‘Rules’) in respect of the lands described in Part I of the Schedule and has deposited a sum of Rs.....as security.

AND, WHEREAS, the Competent Authority has communicated his approval to the grant of lease on the terms, covenants and conditions hereinafter contained.

NOW THIS INDENTURE witnesseth as follows:—

The lessor hereby demises to the lessee the land described in Part I of the Schedule hereunder written and delineated in the map hereunto annexed.

The said demised pieces of land shall be held by the lessee for a term of.....years from the date on which this executed deed is registered under Indian Regulation Act and Odisha Registration Manual , subject to terms, covenants, conditions hereinafter provided.

IN WITNESS WHEREOF these presents have been executed in manner hereunder appearing the day and year first above written.

The schedule above referred to

## PART-I

**Location and area of the lease**

Village Plot Nos.  
Village/Forest Block  
Tahasil/Forest Range  
Area (in hectares)/

As per plan annexed and bounded  
On the North by  
On the South by  
On the East by  
And on the West by

hereinafter called as “said lands”



## PART-II

**Terms and conditions of the lease**

This lease is subject to the conditions laid down in rule 26 and also all other conditions pertaining to lease as provided in the Rules.

## PART-III

**Liberties, powers and privileges to be exercised and enjoyed by the lessee**

1. To enter upon and use the land, described in part I of the Schedule during the term hereby demised to carry on all operations necessary for extraction, collection, stacking, processing, transport or disposal of specified minor mineral/ minerals leased in natural or in processed/converted form.
2. To make roads, tram ways, install machineries, lay electric and telephone line, on and over the said lands.
3. To use water from streams, watercourses and springs in and upon the said lands in natural state or by means of impounding with the written permission of the Collector of the District.

## PART-IV

**Restrictions and conditions as to the exercise of liberties, powers and privileges in Part-II**

1. No land shall be used for surface operations if objection is raised by the Competent Authority or the Collector of the District to the effect that use of the land will be detrimental to public interest.
2. Before using for surface operations any land which has not already been used for such operations, the lessee/lessees shall give to Deputy Commissioner/Collector of the District two calendar months previous notice in writing specifying the name or other description of the situation and the extent of the land proposed to be so used and the purpose for which the same is required and the said land shall not be so used if objection issued by the Deputy Commissioner/Collector within two months after the receipt by him of such notice unless the objections so stated shall on reference to the State Government be annulled or waived.
3. The lessee shall not cut or injure any tree in the leased area falling within Reserved/Protected forest without prior permission of the Divisional Forest Officer or the officer authorized by him in this behalf and upon payment of royalty and fees for compensatory afforestation as may be specified.
4. The lessee shall undertake mining operation only in accordance with approved mining plan or scheme of mining, as the case may be.
5. The lessee shall not transport or store or cause to be transported or stored any specified minor mineral for the purpose of selling or trading otherwise than in accordance with these Rules and as may be specified under Odisha Minerals (Prevention of Theft, Smuggling and Illegal Mining and Regulation of Possession, Storage, Trading and Transportation) Rules, 2007.

## PART-V

**Liberties, powers and privileges reserved to the State Government**

1. The State Government or any officer, or persons authorized by it in that behalf has the liberty and power to enter into and upon the leased area to carry on any operation in connection with survey, sampling, testing, mining, beneficiation/ processing, stacking and transportation of mineral, as may be, deemed necessary.

2. Liberty and power for the State Government, or to any lessee or persons authorised by it on that behalf to enter into and upon the said lands and to search for, win, dig, raise, dress, process, convert and carry away minerals other than the said minerals and any other substances and for those purposes carry out any operation as may be deemed necessary or convenient.

Provided that in the exercise of such liberty and power, no substantial hindrance or interference shall be caused to or with the liberties, powers and privileges of the lessee/lessees under these presents and that fair compensation (as may be agreed upon and in the event of disagreement as may be decided by the Government) shall be made to the lessee/lessees for all loss or damage sustained by the lessee/lessees on such account.

## PART -VI

**Provisions regarding Rents and Royalties**

1. The lessee shall, during the subsistence of this lease pay to Government royalty in respect of any minor mineral removed by him from the leased area at the rates prescribed in Schedule II and surface rent at the rate prescribed in Schedule I.
2. All payments relating to rents, royalties, fees, etc., as provided under these rules shall be paid to the State Government free from all deductions, at the District Treasury/Sub-Treasury and in such manner as the Competent Authority may prescribe.
3. For the purposes of computing the royalty, the lessee shall keep correct account of the mineral, produced, stacked and removed from the lease area and furnish such information and submit a monthly return to the Competent Authority and Director in Form-J and other relevant records to the concerned Deputy Director of Mines/Mining Officer.
4. The lessee shall pay royalty in advance and the differential amount, if any, on computation shall be paid by the end of the first fortnight of each half-yearly period during the subsistence of the lease.
5. The lessee shall pay surface rent in advance and not later than the 15<sup>th</sup> January and the 15<sup>th</sup> July of each year.

Signed by.....

For and on behalf of Governor of Odisha, in the presence of

- 1.
- 2.

Signed by.....Lessee in the presence of

- 1.
- 2.

FORM - F  
Intimation to Successful Bidder  
[See rule 10(11), 16(9), 27(6)]

Letter No. \_\_\_\_\_

Dated \_\_\_\_\_

From

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

To

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Sub: Intimation to successful bidder.

Sir/Madam,

This is to intimate that you have been selected as the successful bidder for the prospecting license-*cum*- mining lease/mining lease/ quarry lease (strike off the lease not intended for) described below, namely:—

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

(Name of lease, area, period of lease) based on your application for the said lease. The amount of additional charge bid by you and accepted is Rs. \_\_\_\_\_ per tonne/cubic metre (strike off whichever is not applicable).

The mining plan and the environment clearance for the said lease has been obtained/ has not been obtained (strike-off whichever is not applicable). The tentative selection is subject to the provisions of the OMMC Rules, 20..... and to the terms and conditions annexed with this letter.

You are directed to convey your acceptance to the terms and conditions and to deposit an amount as prescribed under rule 10(12) & (13)/ 16(10) & (11)/ 27(7) & (9) (strike-off whichever is not applicable). Proof of deposit of the aforesaid amount along with acceptance should reach the undersigned within fifteen days of the date of issue of this letter failing which this intimation shall stand automatically revoked without any further notice and the earnest money shall stand forfeited.

You are also directed to execute deed in respect of the prospecting license-*cum*-mining lease/ mining lease/ quarry lease (strike-off whichever is not applicable) for the aforesaid area within the period specified in sub-rule (1) of rule 43 of the Odisha Minor Mineral Concession Rules, 20.....

Yours faithfully

\_\_\_\_\_  
\_\_\_\_\_

(Name/ Designation)  
(Competent Authority)

## FORM – G

## Final Report of Prospecting operation

[See rule 11(5)]

To

1. (a) The Deputy Director of Mines/ Mining Officer..... (location).  
 (b) The Director of Mines, Odisha, Bhubaneswar.  
 (c) The ..... (Secretary) to Government, Department of Steel & Mines,  
 Odisha, Bhubaneswar.
2. Name of the Mineral or minerals  
 For which prospecting licence has been granted.  
 (a).....(b).....  
 (c)..... (d).....
3. Name and address of the Licensee  
 .....  
 .....  
 PIN.....
4. Particulars of prospecting license-*cum*-mining lease:  
 (i) Date of Execution: .....  
 (ii) Period: ..... Years, From..... To.....  
 (iii) Area under Licence: .....hectares.
5. Location :  
 (i) Topo Sheet Number: .....  
 (ii) Cadastral Survey of Khasra Number: .....  
 (iii) Village: .....  
 (iv) (a) Post Office: .....  
 (b) Police Station: .....  
 (v) (a) Tahasil: .....  
 (b) District: .....  
 (c) State: .....
6. Number and date assigned by State Government to  
 prospecting license-*cum*-mining lease.  
 (a) Number.....  
 (b) Date .....
7. Particulars of the Geologists /Mining Engineer-in-charge of prospecting operations:  
 (i) Name and Address.....PIN.....  
 (ii) Qualifications.....  
 (iii) Date of Appointment .....  
 (iv) Nature of Appointment ..... (Whole time/ Part time)
8. Date of completion of prospecting operation or abandonment .....
9. Total surface area covered by prospecting work ..... (hectares).
10. Completion of prospecting work:  
 (a) Pitting  
 (i) Number of Pits .....  
 (ii)Depth (metres): Average.....  
 Maximum.....  
 Minimum.....  
 (b)Trenching  
 (i) Number of Trenches.....  
 (ii) Length (metres): Average.....

Maximum.....

Minimum.....

- (c) Drilling:
- |                                   | Surface | Underground |
|-----------------------------------|---------|-------------|
| (i) Number of boreholes completed | .....   | .....       |
| (ii) Total Drilling (metres)      | .....   | .....       |
- (d) Particulars of Drilling Machine:
- | Type  | Make  | Capacity | Number of Drills |
|-------|-------|----------|------------------|
| ..... | ..... | .....    | .....            |
- (e) Exploratory mining, if any:
- (1) Number of Levels.....
  - (2) Total Development (metres).....
  - (3) Mode of Entry .....
  - (4) Quantity of ore produced with grade.....
- (f) Number of samples analyzed: .....
- (1) Main constituent (please specify): .....
  - (2) Complete Analysis of all samples: .....
11. Parameters of the ore body identified:
- (a) Number of bands/ seams:
  - (b) Dip:
  - (c) Strike:
  - (d) Structural details, if any (folds, faults, joint & fracture pattern etc.):
  - (e) Percentage of recovery of ore & sub-grade mineral:
  - (f) Ore: Waste ratio:
12. Reserves assessed (In UNFC format):

Place.....

Signature.....

Date.....

Name in Full.....

Designation.....

Owner/Agent/Mining Engineer/Manager

Note: - Please enclose a geological report describing the prospecting operations undertaken so far along with the detailed geological plans and sections showing locations of (a) boreholes, (b) pits, (c) trenches, (d) shafts, (e) Underground exploratory workings, (f) outcrops, (g) ore zones, (h) faults, (i) folds and other geological features.

The report shall contain in the borehole logs and interpretation and the inference drawn as a result of the study of the geology of the areas and the interpretation of the borehole cores, pits, trenches, assay data, reserves ago ore and contain results of complete analysis of at least two representative samples of ore and the blocks proposed for mining operations. The report shall also contain the results of any beneficiation study carried out on the ores or minerals of the area.

## FORM - H

Intimation of opening/reopening of the mine/quarry  
[See rule 12(6), 17(2) & 33(4)]

To

1. (a) The Deputy Director of Mines/ Mining Officer..... (location).  
(b) The Director of Mines, Odisha, Bhubaneswar.  
(c) The ..... (Secretary) to Government, Department of Steel & Mines, Odisha, Bhubaneswar.  
(d) The Collector..... (District).  
(e) The Director of Mines Safety, Bhubaneswar/ Chainbasa.
2. (i) Name of the mineral :  
(ii) Name(s) of other minerals if any, for which lease has been granted :
3. Name of the Mine/Quarry :
4. Name and address of the Lessee /Owner:
5. Ownership of the mine  
(a) Public Sector (b) Joint Sector (c) Private Sector
6. Date of Opening /Reopening of Mine/Quarry .....
7. In case of Reopening, date of discontinuation.....
8. Particulars of the Mining Lease (ML)/ Quarry Lease (QL):  
(i) Date of Execution:  
(ii) Period \_\_\_\_\_ years, from \_\_\_\_\_ To \_\_\_\_\_  
(iii) Areas under Lease \_\_\_\_\_ hectares.
9. Location of the Mining Lease /Quarry Lease:  
(i) Village \_\_\_\_\_ Dist \_\_\_\_\_ Tahasil \_\_\_\_\_  
(ii) Post Office \_\_\_\_\_ P.S. \_\_\_\_\_ Dist \_\_\_\_\_  
(iii) Nearest Railway Station \_\_\_\_\_ Distance \_\_\_\_\_
10. Name and address of the Previous Owner, if any, and the date of abandonment:
11. Particulars of Agent:  
Name and Address:
12. Particulars of Mining Engineer employed in the mines:  
(i) Name and Address:  
(ii) Qualification:  
(iii) Date of Appointment:  
(iv) Status of Employment: (Whole time or Part Time)
13. Particulars of the Mines Manager:  
Name and address:  
Certificate of Competency (1<sup>st</sup> Class/2<sup>nd</sup> Class/ Permit):
14. Letter No. And date through which the mining plan was approved  
Letter No. \_\_\_\_\_ Date: \_\_\_\_\_

Place:

Date:

Signature

Name in Full:

Designation: Owner/Agent/Mining  
Engineer/Manager

## FORM – I

## Yearly report of Prospecting operation

[See rule 14(13)]

1. Type of specified minor minerals for which prospecting license-*cum*-mining lease has been granted:
  - (a)
  - (b)
2. Name and address of the licensee-*cum*-lessee:
3. Particulars of the prospecting license-*cum*-mining lease:
  - i) Date of execution:
  - ii) Period :        Years:        From:        To:
  - iii) Area under license-*cum*-lease:        Hectares
4. Location of the area under prospecting license-*cum*-mining lease:
  - i) Toposheet No:
  - ii) Village:
  - iii) Post office:
  - iv) Tahasil:
  - v) District:
  - vi) Nearest railway station        Distance (Km.)
5. Particulars of the Geologist or Mining Engineer employed, if any,
  - i) Name and address:
  - ii) Qualification :
  - iii) Date of appointment:
  - iv) Status of employment:        Whole time        Part time
6. Status of prospecting operation –        In progress:
 

Completed:

Abandoned:
7. Total surface area covered by prospecting work (hectare):
8. Prospecting work completed during the year:
  - a. Geological mapping: Area (hectare):        Scale:
  - b. Pitting (i) Number of pits:
    - ii) Grid pattern:
    - iii) Depth (m) Average:
 

Maximum:

Minimum:

- c. Trenching    i) Number of trenches (with interval):  
                     ii) Length (m)    Average:  
    Maximum:  
    Minimum:
- d. Number and size of samples:
- e. Drilling:  
     i)      Number of boreholes completed during the year (with size of core):  
     ii)      Number of boreholes in progress:  
     iii)      Total yearly drilling (m):
- f. Particulars of drilling machine –    Type:  
    Make:  
    Capacity:  
    Number of drills:
- g. Details of samples tested:  
     i)      Number of samples tested:  
     ii)      Complete report:

Place:

Signature

Date:

Name in full:

Designation:

**Note:-** Please enclose a geological report describing the prospecting operations undertaken so far accompanied by the detailed geological plans and sections showing structural details such as joints, fractures, folds, faults, grain size, texture, etc. and also showing location of (a) boreholes, (b) pits, (c) trenches, (d) sampling positions, etc. The report shall also contain borehole logs and the inferences drawn as a result of the study of the geology of the area and the interpretation of the borehole cores, pits, trenches, reserves of specified minor minerals and complete report of at least two representative samples indicating quality and suitability of the mineral for mining operations.



## FORM - J

Monthly & Half yearly Return by the licensee-*cum*-lessee/ lessee

[See rule 26(18)]

For the month/half year ending.....20.....

Name(s) of the mineral:

## 1. Name and location of the

Prospecting license-*cum*-mining lease/Mining lease:

(a) Name of the Mine/Prospect:

(b) Village:

Taluka/Tahasil:

District:

State:

## 2. Name and address of Concessionaire:

Name:

Address:

## 3. Area in hectare:

Date of Execution:

Period (years):

Date of starting of operations:

## 5. Number of days for which the mine/prospect was under operation during the month/half-year:

## 6. Indicate reasons(s) for work stoppage

due to strike, lock-out, monsoon, non-availability of labour, less demand etc. and number of days of work stoppage for each of these factors.

## 7. Production of mineral, dispatches, stocks and pit's mouth value (Unit: cubic meter/ tonne):

Items	Total	Grade-wise/Size-wise break-up
-------	-------	-------------------------------

Opening Stock:

Production:

Despatches:

Direct exports

Domestic sale/ testing purpose

Closing Stock:

Pit's Mouth Value (Rs):

Waste and Rejects (Unit: cubic meter/ tonne)			
Item		During the month/half year	
(a) Quantity of waste generated as overburden (b) Quantity of incidental waste generated (c) Quantity of waste generated as mineral rejects. (d) Despatches of waste and rejects (in accordance with above classification)			
8. Mining Machinery used during the month/half-yearly period			
Type of Machinery	No. Of units	Engine Horse Power of each unit	No of hours worked
(a)			
(b)			
(c)			
(d)			

9. Details of prospecting operation, if any, undertaken during the month/half-yearly period:

- (a) Pitting :
- (b) Trenching :
- (c) Drilling :
- (d) Others :

10. Details of processing activity undertaken, if any:

11. Export of the mineral, if any :

	Quantity (MT)	Value (Rs.)
During the month		
During the half-yearly period		

12. Domestic sale of the mineral :

	Quantity (MT)	Value (Rs.)
During the month		
During the half-yearly period		

13. Reasons for increase/decrease in production during the current month/ half-year as compared to the preceding month/ half-year:

I certify that the information furnished above is correct and complete in all respects.

Place:

Signature

Date:

Name (in full):

Designation-Owner/ Agent/

Mining Engineer/ Manager.

(For the year 1st April, 20... to 31st March, 20...)

1. Name of mineral/ minerals :
2. Name and location of the mine/quarry:  
Name of the mine/quarry:  
Village:  
Tahasil:  
District:  
State:
3. Name and address of lessee/mine/quarry owner:  
Name:  
Address:
4. Lease details  
Area in hectares:                      Date of Execution:  
Period (Years):                      Date of starting mining operations:
5. Number of days the mine/quarry worked during the year:
6. Indicate reason(s) for work stoppage: Reason                      No. of days  
Due to strike lock-out, monsoon,  
non-availability of labour less demand  
etc. and number of days of work stoppage  
for each these factors.

7.1	Number of Technical and Supervisory Staff:		
	Description	Fully Employed	Party Employed
	a. Mines Manager b. Graduate Mining Engineer c. Diploma Mining Engineer d. Other Technical Officer, if any e. Geologist f. Other administrative, clerical and technical supervisory staff :		
7.2	Labour Employment :		
	Male:	Female:	Total:
	a. Average Daily Employment : b. Man-days worked : c. Wages(Rs.) :		

8. Production, Dispatches, Stock and Pit's Mouth Value:

## 8.1. Production of raw blocks during the year, dispatches, stocks and Pit's mouth value

(Unit: tonne/cum)

Items	Total	Grade-wise/Size-wise break-up
Opening Stock		
Production		
Despatches		
Direct Exports		
Domestic Sale		
Closing Stock		
Pit's Mouth Value (Rs.)		

## 8.2. Cumulative Production:

(Since opening of quarry in cum/tonne)

## 8.3. Sub-grade/ Presently non-saleable Ore:(Unit: cum/tonne)

Item	During the year	Cumulative Total
(a) Opening Stock		
(b) Quantity of sub-grade/ Presently non-saleable Ore generated		
(c) Dispatches of sub-grade/ Presently non-saleable Ore, if any.		
(d) Closing Stock		

## 8.4 Waste and Rejects (Unit: cum/tonne)

Item	During the year	Cumulative Total
(a) Quantity of waste generated as overburden		
(b) Quantity of waste generated incidental to mining		
(c) Dispatches of waste and rejects, if any		

## 9. Mining Machinery used during the year:

Type of Machinery	No. of units	Engine Horse Power of each unit	No.of hours worked
(a)			
(b)			
(c)			
(d)			

10. Reserves (in UNFC format):
11. Quantity and cost of material consumed during the year:
  - (i) Fuel (Lt.)
  - (ii) Electricity (KWH):
  - (iii) Other Material:
12. Amount of rent and royalty paid (Rs.)
13. Annual Production (Last three years) (Quantity in tonne/cubic meter)
14. Exports (Last three years) (Quantity in tonne/cubic meter):
15. Reasons for increase/decrease in production during the current year as compared to the preceding year :

I certify that the information furnished above is correct and complete in all respects.

Place:

Signature

Date:

Name (in full):

Designation-Owner/Agent/Mining

Engineer/Manager

Note:-

- (a) In case there is stoppage of work indicate reasons for what stoppage and numbers of days of work stoppage.
- (b) Average daily employment is obtained by dividing the number of man-days worked by the number of working days.
- (c) Wage includes all cash payment including bonuses, employer's contribution to provident fund, welfare activities etc. Concessions in kinds should not be included in wages.
- (d) The Pit's Mouth Value should represent the sale value of the granite at the pit-head. In case of sales effected on F.O.B. or any other basis, pit head sale value should arrived at after deducting all the expenses incurred from quarry/mine to railway station or port or other point of sale, as the case may be (such as expenses on transportation, loading and unloading charges, railway freight, sampling and analysis post handing, export duty and cess.)

## FORM - L

## Notice of change in the name of mine

[See rule 26(39)]

To

1. (a) The Deputy Director of Mines/ Mining Officer..... (location).  
 (b) The Director of Mines, Odisha, Bhubaneswar.  
 (c) The ..... (Secretary) to Government, Department of Steel & Mines,  
 Odisha, Bhubaneswar.  
 (d) The Collector..... (District).
2. (i) Name of the mineral :  
 (ii) Name(s) of other minerals if any, for which lease has been granted:
3. (i) Name of the Mine :  
 (ii) Change in the name of mines, if any:  
 (Indicate old name and reason of change)
4. Name and address of the Lessee /Owner:
5. Ownership of the mine  
 (a) Public Sector      (b) Joint Sector      (c) Private Sector
6. Date of Opening /Reopening of Mine .....
7. In case of Reopening, date of discontinuation.....
8. Particulars of the Mining Lease (ML):  
 (i) Date of Execution:  
 (ii) Period \_\_\_\_\_ years, from \_\_\_\_\_ To \_\_\_\_\_  
 (iii) Areas under Lease \_\_\_\_\_ hectares.
9. Location of the Mining Lease:  
 (i) Village \_\_\_\_\_ Dist \_\_\_\_\_ Tahasil \_\_\_\_\_  
 (ii) Post Office \_\_\_\_\_ P.S. \_\_\_\_\_ Dist \_\_\_\_\_  
 (iii) Nearest Railway Station \_\_\_\_\_ Distance \_\_\_\_\_
10. Name and address of the Previous Owner, if any, and the date of abandonment:
11. Particulars of Agent:  
 Name and Address:
12. Particulars of Mining Engineer employed in the mines  
 (i) Name and Address:  
 (ii) Qualification:  
 (iii) Date of Appointment:  
 (iv) Status of Employment: (Whole time or Part Time)
13. Particulars of the Mines Manager:  
 Name and address:
14. Letter No. And date through which the mining plan was approved  
 Letter No.                      Date:

Place:

Date:

Signature

Name in Full:

Designation: Owner/Agent/Mining  
Engineer/Manager

FORM – M  
Application for grant of Quarry Lease  
[See rule 27(4)]

To .....

Dated ..... the ..... 20.....

Sir,

1. I/We submit an application for a quarry lease for.....(mineral) for a term of ..... years over.....hectares of land in the area specified in the *Annexure* given below:-
2. A sum of Rs..... payable as fee (Non-refundable) for grant of such lease under sub-rule (4) of rule 27 of the Odisha Minor Mineral Concession Rules, 20..... has been paid in the Government Treasury at.....and a receipted challan bearing No..... dated.....is enclosed.
3. The required particulars are given below:-
  - i) An affidavit stating that no mining due payable under the Act and Rules made there under is outstanding against the applicant.
  - ii) Where land belongs to private persons, consent of all such persons for grant of quarry lease.
  - iii) Solvency certificate and list of immovable property from the Revenue Authority.
4. (i) Name and address of the applicant.....
  - (ii) Nationality of the applicant.....
  - (iii) Profession of the applicant.....
  - (iv) Particulars of the areas, mineral wise, within the State for which the applicant or any person having joint interest with him.....
    - a) Already holds a quarry lease.....
    - b) Has already applied for a quarry lease but not granted .....
    - c) Being applied for simultaneously.....
    - d) Nature of joint interest, if any.....
  - (v) Means by which the minor minerals is/are to be raised, i.e. whether manual or mechanical.....
  - (vi) Manner in which the minor mineral raised to be utilized-
    - (a) For manufacture.....
    - (b) For sale.....
    - (c) Any other purpose.....
  - (vii) Details of the plan boundary description and land schedule of the area applied for to be enclosed.

- (viii) Has the applicant any previous experience in quarrying/mining? If yes, details should be given.....
  - (ix) Financial Resources of the applicant.
    - (a)
    - (b)
  - (x) Total investment in the operations anticipated.....
  - (xi) Any other particulars which the applicant wishes to furnish:
    - (a) Name of the village/Forest Block
    - (b) Whether the area belongs to Scheduled Area.
    - (c) Details of the area applied for in each Survey Number
    - (d) Full description of the area applied for with regard to nature features
    - (e) District.....
5. Rate of additional charge (per cubic meter) quoted-

**N.B:** The application shall be summarily rejected if the rate of additional charge quoted is less than the rate of additional charge specified in the notification.

I/We hereby declare that the particulars furnished above are correct and undertake to furnish any other details, plan, etc., as may be required by you.

Yours faithfully,

Place.....

Date.....

Signature of the applicant

**N.B:** If the application is signed by an authorised agent of the applicant, the power of attorney should be attached.



FORM - N  
Form of Quarry Lease  
[See rule 27(13)]

THIS INDENTURE made this ..... day of .....20.....between the GOVERNOR OF ODISHA..... (hereinafter called the “Lessor”) of the one part and (Name of person) .....of (address and occupation)..... (hereinafter called the “lessee” which expression shall where the context so admits be deemed to include his heirs, executors, administrators, assignees) of the other part.

WHEREASE the lessee has applied to the Competent Authority concerned for a quarry lease for .....(minor mineral) in accordance with the provisions of the Odisha Minor Minerals Concession Rules, 20..... in respect of the lands described in Part I of the Schedule and has deposited a sum of Rs.....as security.

AND WHEREAS the Competent Authority has communicated his approval to the grant of lease on the terms, covenants and conditions hereinafter contained.

NOW THIS INDENTURE witnesseth as follows:

The lessor hereby demises to the lessee the land described in Part I of the Schedule hereunder written and delineated in the map hereunto annexed.

The said demised pieces of land shall be held by the lessee for a term of .....years from the date on which this executed deed is registered under Indian Registration Act and Odisha Registration Manual, subject to the terms, covenants, conditions hereinafter provided.

IN WITNESS WHEREOF these presents have been executed in manner hereunder appearing the day and year first above written.

The schedule above referred to

**PART-I**

**Location and area of the lease**

Village Plot Nos.  
Village/Forest Block  
Tahasil/Forest Range  
Area (in hectares)

As per plan annexed and bounded  
On the North by  
On the South by  
On the East by  
And on the West by

hereinafter called as “said lands”

## PART- II

**Terms and conditions of the lease**

This lease is subject to the conditions laid down in rule 33 and also all other conditions pertaining to lease as provided in the Rules.

## PART-III

**Liberties, powers and privileges to be exercised and enjoyed by the Lessee**

1. To enter upon and use the land, described in Part I of the Schedule during the term hereby demised to carry on all operations necessary for extraction, collection, stacking , processing, transport and disposal of minor mineral/minerals leased in natural or in processed/converted form.
2. To make roads, tram ways, install machineries, lay eclectic and telephone line, on and over the said lands.
3. To use water from streams, watercourses and springs in and upon the said lands in natural state or by means of impounding with the written permission of the Collector of the district.

## PART-IV

**Restrictions and conditions as to the exercise of liberties, powers and privileges in****Part-II**

1. No land shall be used for surface operations if objection is raised by the Competent Authority or the Collector of the district to the effect that use of the land will be detrimental to public interest.
2. The lessee shall not cut or injure any tree in the leased area falling within Reserved/Protected forest without prior permission of the Divisional Forest Officer or the officer authorized by him in this behalf and upon payment of royalty and fees for compensatory afforestation as may be specified.
3. The lessee shall undertake mining operation only in accordance with approved mining plan or scheme of mining, as the case may be.
4. The lessee shall not transport or store or cause to be transported or stored any specified minor mineral for the purpose of selling or trading otherwise than in accordance with these Rules and as may be specified under Odisha Minerals (Prevention of Theft, Smuggling and Illegal Mining and Regulation of Possession, Storage, Trading and Transportation) Rules, 2007.

## PART-V

**Liberties, powers and privileges reserved to the State Government**

The State Government or any officer, or persons authorized by it in that behalf has the liberty and power to enter into and upon the leased area to carry on any operation in

connection with survey, sampling, testing, quarrying, processing, stacking and transportation of mineral as may be deemed necessary.

#### PART-VI

##### **Provision regarding Rents and Royalties**

1. The lessee shall, during the subsistence of this lease pay to Government royalty in respect of the minor mineral removed by him from the leased area at the rates prescribed in Schedule II and surface rent at the rate prescribed in Schedule I.
2. All payments relating to rents, royalties, fees, etc., as provided under these rules shall be paid to the State Government free from all deductions, at the District Treasury/Sub-Treasury and in such manner as the Competent Authority may prescribe.
3. For the purpose of computing the royalty, the lessee shall keep correct account of the mineral produced, stacked and removed from the lease area and submit a return to the Competent Authority and Director in Form K & Form P.
4. The lessee shall pay royalty in advance and the differential amount, if any, on computation shall be paid by the end of the first fortnight of each half yearly period during the subsistence of the lease.
5. The lessee shall pay surface rent in advance and not later than 15<sup>th</sup> January and 15<sup>th</sup> July of each year.

Signed by.....

For and on behalf of Governor of Odisha, in the presence of

- 1.
- 2.

Signed by .....Lessee in the presence of

- 1.
- 2.

FORM - O  
Preparation of Mining Plan for Quarry Lease by RQP

[See rule 28(4)]

MINING PLAN FOR WINNING OF \_\_\_\_\_ (RIVER SAND/LATERITE SLABS/MORRUM/ORIDINARY/ROADMETAL etc.) FROM \_\_\_\_\_ (NAME OF THE VILLAGE/FOREST etc.) UNDER \_\_\_\_\_ PANCHAYAT, TAHASIL OF \_\_\_\_\_ DISTRICT.

[CATEGORY : \_\_\_\_\_ ( B1/B2)  
As specified by MoEF vide Notification  
No. J-13012/12/2013-IA-II (I) dated 24.12.2013]

1. Name & Address of the lessee:
2. Particulars of the Area (Acreage, Boundary Description & Land Schedule): (Attach location map and surface plan showing the existing features of the area with contours at 2m interval):
3. Status of the Lessee: (Private Individual/ Private Company/Public Sector Undertaking/ Joint Sector Undertaking / Others):
4. Period of the concession : (from\_\_\_\_\_ to\_\_\_\_\_)
5. Mineral intended to be won :
6. Name, Address & Registration No. of RQP preparing the mining plan with validity of recognition:
7. Order No. & date of Competent Authority granting the concession : (copy of the order to be attached) :
8. If, forest area, whether forest clearance obtained: (Attached copy of forest clearance)::
9. Reserves :  
(Estimation to be based on the exploration, if any, carried out in the area or on the local parameters)
10. Mining :
  - (a) Whether manual or semi-mechanized or mechanized :
  - (b) If semi-mechanized, number, type and capacity of machines to be used :
  - (c) Whether drilling and blasting will be made use of , if yes, state monthly quantity of explosives to be consumed :
  - (d) Benching pattern (Height x Width) :
  - (e) Face lay out (attached development plan) :

- (f) Quarry Floor level (RL) at the end of each year and at the end of period of the concession :
- (g) Quantity of mineral to be won (Annual Level of Production) :
- (h) Quantity of overburden to be removed(Show location of such disposal in development plan) :
- (i) Whether heavy blasting to be adopted if yes, location of nearest habitation (to be shown in the surface plan) :
- (j) Safety precautions to be adopted :
- (k) Brief description on method of procurement and storage of explosive :
- 11. Waste Disposal : :
- (a) Location (show it in the development plan)
- (b) Area covered :
- (c) Environment safeguards for such disposal :
- 12. Mine Drainage: :
- (Give details of total make of water during dry and rainy season and its method of handling) :
- 13. Mineral Processing : :
- (Give details processing including sizing, sorting, generation of Reject/fines etc. :
- 14. (a) No. of trees to be uprooted due to mining operation :
- (b) Programme of Plantation :
- 15. Manpower : :
- (a) Supervisory : :
- (inclusive of statutory personnel) :
- (b) Non-Supervisory (skilled, semi-skilled & unskilled) :
- (c) OMS :
- 16. Use of Mineral: :
- (Specification and monthly quantity to be dispatched to be furnished):
- (a) For domestic use :
- (b) For export :

## 17. Mine Closure Plan:

(a) Describe the process/activities to be undertaken for  
reclamation and rehabilitation in respect of the following :

- i) Mined out land :
- ii) Waste/reject dump :
- iii) Top-soil stack and its utilization :

(b) Financial Assurance :

(To be furnished as a bank guarantee in respect of the area  
to be put to use at the rate of Rs. \_\_\_\_\_ per hectare) :

## 18. Certificate

I/We, the holder of \_\_\_\_\_ (type of concession) for \_\_\_\_\_ (mineral)  
over \_\_\_\_\_ hecets., in \_\_\_\_\_ (village/forest)  
under \_\_\_\_\_ Panchayat, \_\_\_\_\_ Tahasil of \_\_\_\_\_ District hereby solemnly  
affirm that the plans and programmes in this mining plan will be scrupulously implemented by  
me/us and I/we will be strictly held responsible for any deviation thereof, I/We also hereby certify  
that the provisions of Mines and Minerals (Development & Regulation) Act, 1957, and the Mines  
Act, 1952 and Rules and Regulations made under these Acts, along with the provisions of Odisha  
Minor Mineral Concession Rules, 20.... will be strictly adhered to while implementing this mining  
plan and wherever specific permissions will be required, I/We will approach the concerned  
authorities of Directorate General of Mines Safety and the State Government, as the case may be.

(Signature of the Concessionaire)

## FORM - P

Quarterly return of Minor minerals other than specified minor minerals

[See rule 33(15)]

For the quarter ending.....20.....

1. Name of the mineral:
2. Name and location of the Quarry:  
 Name of the Quarry:  
 Village:  
 Post office:  
 Tahasil:  
 District:
3. Name and address of lessee/Quarry owner:  
 Name:  
 Address:
4. Lease details:  
 Area in hectares:                      Date of Execution:  
 Period (Years):                      Date of starting quarrying Operations:
5. Number of days the quarry worked during the quarterly period:
6. Indicate reason(s) for work stoppage:  
 Number of days:  
 Reasons: (i)  
                  (ii)
7. Production, despatches, Stocks and Pit's mouth value (Unit: tonne/cubic meter):

Items	Total in the quarter
Opening Stock	
Production	
Despatches	
Closing Stock	
Pit's Mouth Value (Rs.)	

8. Quantity of waste and rejects generated, if any, (Unit: cubic meter)
9. Quantity consumed in the quarry lease area, if any. (Unit: cubic meter)
10. Particulars of machineries equipments used:
11. Particulars of explosives used, if any

12. Average number of persons employed daily:

Male:                  Female:                  Total:

13. Rents and royalty paid (Rs.):

14. Dimension of the quarry (in meter)

Length:                  Width:                  Depth (Maximum):

15. Any other information:

I certify that the information furnished above is correct and complete in all respects.

Place:

Signature

Date:

Name (in full):

Designation-Owner/Agent/Manager

*Note:* The return shall be furnished by the 15th of the month succeeding the quarter.



## FORM - Q

## Application for Quarry Permit

[See rule 34]

Dated the .....20.....

To

.....  
 .....

Sir,

1. I/We submit an application for quarry permit for..... (mineral) a term of ..... months over.....hectares of land in the area specified in item 3(viii) below.
2. A sum of Rs..... (rupees ..... only) (non-refundable) payable as fee for grant of such permit under rule 34 of OMMC Rule, 20.... has been paid in the Government Treasury at..... and the receipted challan is enclosed.
3. The required particulars are given below.
  - (i) Name and address of the applicant:
  - (ii) Nationality of the applicant:
  - (iii) Profession of the applicant:
  - (iv) Quantity of minor mineral required to be extracted and removed (in tonnes/ cubic metres):
  - (v) Minor mineral is to be raised manually or mechanically:
  - (vi) Manner in which the minor mineral raised is to be utilised:
  - (vii) Particulars of the receipted treasury challan for the fee :
  - (viii) Plan in 16"=1 mile scale (Cadastral village map) and Land Schedule of the area from which the minor mineral are to be extracted and removed is to be enclosed :
  - (ix) If the land applied for belongs to private land owners, written consent of the owners permitting diversion of his land for extraction of minor mineral under quarry permit to be enclosed :
  - (x) An undertaking by the applicant that he agrees to abide by the conditions governing extraction and removal of minor mineral under a quarry permit to be enclosed :
  - (xi) Any other particulars which the applicant wishes to furnish:

I/We hereby declare that the particulars furnished above are correct and undertake to furnish any other details, plan etc., as may be required by you.

Place:

Yours faithfully,

Date:

Signature of the applicant

*N.B.* - If the application is signed by an authorized agent of the applicant, the power-of-attorney should be attached.

FORM - R  
Grant of Quarry Permit  
[See rule 35(1)]

Quarry Permit No.....

Date.....

Whereas, Shri..... applied for grant of quarry permit for extraction and removal of .....tonne/cubic metre of .....(minor mineral) from Plot No.....of .....Village/Forest Division under rule 34 of the Odisha Minor Mineral Concession Rules, 20..... and has paid an application fee of Rs....., permission is hereby granted to quarry, collect and remove.....tonne/cubic metre of .....(mineral) from the aforesaid area or areas indicated on the plan annexed hereto on the following condition and on payment of advance royalty amounting to Rs .....calculated at the rate of Rs.....per tonne/cubic metre (as specified in Schedule I to the Odisha Minor Mineral Concession Rules, 20.....

- (1) The permit shall be valid for..... months/days from.....to.....
- (2) The permit holders shall abide by the conditions provided in rule 37 of the Odisha Minor Minerals Concession Rules, 20.....

Signature of the Competent Authority/authorized officer.

To

Shri.....

Copy to-

The Director of Mines, Odisha, Bhubaneswar

The Collector.....district,

The Divisional Forest Officer.....

## FORM - S

## Particulars of Quarry Permit

[See rule 37(4)]

1. Quarry Permit No. Date:
2. Name of the Permit Holder(s) with address:
3. Name of mineral:
4. Quantity of mineral permitted for extraction and removal in cubic meter/tonne:
  - (a) Permitted Quantity:
  - (b) Removed Quantity:
5. Period of validity of the permit: Form dt.: To dt.:
6. Production of mineral in cubic meter/tonne:
7. Despatch of mineral in cubic meter/tonne:
8. Royalty and Surface Rent due for payment (in Rs.):
9. Details of payment of royalty with treasury challan No. and date:
10. Number of man-days worked for production:
11. Pit's Mouth Value (Rs. Per cum/tonne.):
12. Sale Price at quarry site (Rs. Per cum/tonne.):
13. Date of surrender of the permit to the Competent Authority:

I/We declare that the above information are correct.

Place:

Signature of the permit holder

Date:

*Note-* The particulars shall be furnished to the Competent Authority and authorized officer on his behalf.

FORM - T  
Register of Quarry Permit  
[See rule 38]

Sl. No.	Name and address of Permit Holder	Date of application	No. and date of order of grant	Mineral/ Minerals	S.No. / S.Nos.	Village/Forest Ranges	Tahasil
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Quantity Permitted		Details of royalty received	Date of expiry of Permit	Quantity removed under the Permit	Whether all dues have been recovered	Remarks	Signature of officer
(9)		(10)	(11)	(12)	(13)	(14)	(15)

## FORM – U

Register of Prospecting license-*cum*-Mining lease

[See rule 43(5)]

Sl. No.	Name and address of the licensee- <i>cum</i> -lessee	Date of application	No. and date of grant order	Date of execution	Date of registration	Period of Prospecting	Mineral/Minerals
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)

[illegible]

## FORM - V

## Register of Mining Lease

[See Rule 43(5)]

Sl.No.	Name and address of the lessee	Date of application	No. and date of grant order	Date of Execution	Date of registration	Period of lease	Mineral/ Minerals
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)

Village/ Forest Range	Tahasil/ Sub- division/ District	Area in Hects.	Details of security deposit	Date of commence ment of mining operations	Date of expiry/Sur render/Det ermination of lease	Transfer of Mining Lease		Details of refund of security Deposit	Signatu re of Officer	Remark
						Date	Name and address of the transfer ee			
(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)

## FORM - W

## Register of Quarry lease

[See rule 43(5)]

[illegible]

## FORM - X

## Form of Appeal

[See rule 46(1)]

(To be submitted in triplicate)

1. Name and address of the individual /firm/company .....
2. (a) Full details of the order and the authority passing the order against which the appeal or revision application is made (certified copy to be enclosed) .....  
(b) Date of communication of the above order:
3. Minerals/Minerals forming the subject matter of the appeal.....
4. Details of the area in respect of which the appeal is filed (A plan of the area to be attached).

Sl. No.	District/ Forest Division	Tahasil/Forest Range	Village/Forest Block

5. Is the appeal filed within one month of the date of the order of the Competent Authority/Controlling Authority?
6. If not, the reasons for not presenting it within the prescribed time.
7. (a) Name and complete address of the party/parties impleaded.  
(b) Reasons for impleading him/ them shall be mentioned.  
(c) An additional copy of the appeal application for each impleaded party is to be submitted.
8. Has the applicant deposited the amount, if any, assessed in accordance with provisions of Odisha Minor Mineral Concession Rules, 20.....as per the orders appealed ? If so, the details thereon.
9. If the application is signed by an authorized agent of the applicant, an attested copy of power of attorney shall be attached.
10. Whether application fee of rupees one thousand has been deposited ? If so, original receipted challan no.....dated.....of the State Bank of India/Treasury.....is enclosed.

Place:

Date:

Signature and designation of the applicant



FORM - Y  
GOVERNMENT OF ODISHA  
.....DEPARTMENT  
Transit Pass for Minor Minerals

[See rule 58(1)]

Book No..... Pass No.....  
Date.....

Name of the Mining Lease/ Quarry Lease.....

Name of the licensee-*cum*-lessee /lessee/Permit

Holder.....

Destination.....Route.....

Minor Mineral

Quantity Permitted (Cum /Tonne)

Measurement of Mineral in

The Carrier	Length (m)	Breadth(m)	Height(m)
-------------	------------	------------	-----------

Cubic Content (Cum.)

Weight of the Vehicle (Tonne)	Gross	Tare
-------------------------------	-------	------

Weight of Mineral (Tonne)

Signature of the person  
Issuing with date

Signature of the carrier  
driver with date

Signature of the  
checking staff with date

Signature of the person  
Receiving with date

Signature of the supervising  
officer/Competent Authority  
With date

Office Seal

## FORM - Z

Annual return by the Competent Authority and Deputy Director or Mining Officer

[See rule-58(7)]

For the year 1st April 20.....to 31st March, 20.....

District:

Sub-Division:

Tahasil:

Forest Division:

Mining Circle:

(For each revenue district separate forms shall be used)

Sl. No.	Item	Name of minor minerals (Use one column for each mineral)					
		Specified minor minerals	Sand	Laterite			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)

1. No. of grant of
  - (a) Mining Leases
  - (b) Quarry Leases
  - (c) Quarry permit
2. No. of subsisting
  - (a) Mining Leases
  - (b) Quarry Leases
  - (c) Quarry permit
3. Production (cum/tonne)
  - (a) Mining Leases
  - (b) Quarry Leases
  - (c) Quarry permit

-----

Total

-----

## 4. Despatches (cum/tonne)

## (a) Mining Leases

- (i) For export
- (ii) For domestic use

## (b) Quarry Leases

## (c) Quarry permit

---

Total

---

## 5. Revenue (Rs.)

## (a) Mining Leases

- (i) Dead Rent/Royalty
- (ii) Additional charge
- (iii) Amount towards District Mineral Foundation

## (b) Quarry Leases

- (i) Dead Rent/Royalty
- (ii) Additional charge
- (iii) Amount towards District Mineral Foundation

## (c) Quarry permit (Royalty)

## (d) Surface Rent

## (e) Application fee

## (f) Miscellaneous

---

Total

---

## 6. Average number of persons employed daily during the year

## 7. Pit's Mouth Value

Signature of the Competent Authority/  
Deputy Director/Mining Officer

## SCHEDULE - I

[See Rule 25(2) and 32(2)]

## Surface rent

For all minerals	Rs.360.00
Dead rent	
	Per hectare
	Per annum
(a) Specified minor minerals	
(i) Specified minor minerals other than decorative stone	Rs.5000.00
(ii) Black granite	Rs.53,500.00
(iii) Coloured and multi-coloured granite	Rs.35,500.00
(iv) Other stones/rocks like khondalite, Sandstone, limestone other than classified as major minerals used for Decorative and monumental purposes	Rs.28, 500.00
(b) All other minor minerals except specified minor minerals	
(i) Boulders, metals, chips, ballast, sandstone, laterite, slab and other rocks and minerals used in civil construction and stone crushers for sizing; limestone lime shell and lime kankar other than classified as major mineral; bentonite, fuller's earth, stone used for household utensils	Rs.18,000.00
(ii) Ordinary clay, silt, ordinary sand, rehmatti, brick-each, Ordinary earth, moorum, quartzite, slate shale, shingles, gravels, pebbles and chalcedony	Rs.10,500.00

## SCHEDULE - II

[See Rule 25(5) and 32(2)]

## Royalty

## Rate of Royalty

Per tonne/cubic meter

1. Agate	Twelve percent of average sale price on ad valorem basis
2. Ball Clay	
Crude	Eight percent of average sale price on ad valorem basis
Processed	Twelve percent of average sale price on ad valorem basis
3. Barytes	Six and half percent of average sale price on ad valorem basis
4. Calcareous Sand	Twelve percent of average sale price on ad valorem basis
5. Calcite	Fifteen percent of sale price on ad valorem basis
6. Chalk	Twelve percent of sale price on ad valorem basis
7. China clay	
Crude	Eight percent of average sale price on ad valorem basis
Processed	Twelve percent of average sale price on ad valorem basis
8. Clay (Others)	Rupees seventy per cubic metre
9. Corundum	Twelve percent of average sale price on ad valorem basis
10. Diaspore	Twelve percent of average sale price on ad valorem basis
11. Dolomite	Seventy five rupees per tonne
12. Dunite or Pyroxenite	Thirty rupees per tonne
13. Felsite	Twelve percent of average sale price on ad valorem basis
14. Feldspar	Fifteen percent of average sale price on ad valorem basis
15. Fireclay	Twelve percent of average sale price on ad valorem basis
16. Fuschite Quartzite	Twelve percent of average sale price on ad valorem basis
17. Gypsum	Twenty percent of average sale price on ad valorem basis
18. Jasper	Twelve percent of average sale price on ad valorem basis
19. Kaolin	
Crude	Eight percent of average sale price on ad valorem basis
Processed	Twelve percent of average sale price on ad valorem basis
20. Laterite	
Non-metallurgical grade (Other than in shape of slabs)	Twenty five percent of average sale price on ad valorem basis
Metallurgical grade (Other than     price chargeable on the contained aluminium metal in ore produced for those despatched for use in alumina and aluminium metal in shape of slabs) extraction.	Zero point six zero percent of London Metal Exchange laterite

21. Limekankar (Other than that used in kilns for manufacture of lime used as building material)	Rupees one hundred thirty per tonne
22. Mica	Four percent of average sale price on ad valorem basis
23. Ochre	Twenty four rupees per tonne
24. Pyrophyllite	Twenty percent of average sale price on ad valorem basis
25. Quartz	Fifteen percent of average sale price on ad valorem basis
26. Quartzite	Twelve percent of average sale price on ad valorem basis
27. Sand (Others)	Rupees seventy per tonne
28. Shale	Eighty rupees per tonne
29. Silica Sand	Ten percent of average sale price on ad valorem basis
30. Slate	Forty five rupees per tonne
31. Steatite or Talc or Soapstone	Eighteen percent of average sale price on ad valorem basis
32. Ordinary sand	Rupees thirty five per cubic meter
33. Ordinary clay,slit, rehmatti, brick-earth, ordinary earth,moorum	Rupees thirty five per cubic meter
34. Sandstone, Laterite and Slate in shape of slabs and tiles	Rupees one hundred and eighty per cubic meter
35. Bentonite,Fuller'earth	Rupees four hundred and forty five per cubic meter
36. Chalcedony,shingles, gravels,pebbles of all types	Rupees one hundred and eighty per cubic meter
37. Ordinary boulders used for road and civil constructions.	Rupees one hundred and thirty per cubic meter
38. Road materials including ballast and chips.	Rupees one hundred and thirty per cubic meter
39. Bajri and crusher fines	Rupees thirty five per cubic meter
40. Stones used for household utensils	Rupees two hundred and seventy per cubic meter
41. Limestone and limekankar used in kilns for manufacture of lime used as building material and limeshell	Rupees one hundred and eighty per cubic meter
42. Stones chips and bajri other than of marble used as mosaic in flooring	Rupees two hundred and fifteen per cubic meter
43. (a) Marble blocks and slabs	Rupees one thousand and six hundred per cubic meter
(b) Marble chips and power	Rupees two hundred and seventy per cubic meter

## 44. Decorative stone:

- |       |   |  |
|-------|---|--|
| (i)   | Black granite exceeding 0.50 cum.   | Rupees three thousand nine hundred and twenty five per cubic meter |
| (ii)  | Coloured and multi-coloured granite exceeding 0.50 cum.                     | Rupees three thousand two hundred and fifteen per cubic meter      |
| (iii) | Cut or dressed granite blocks useful for tiles for size less than 0.50 cum. | Rupees one thousand four hundred and thirty per cubic meter        |
| (iv)  | All other rocks when used for decorative and monumental purposes.           | Rupees five hundred and thirty five per cubic meter                |
| (v)   | Limestone other than classified as major minerals.                          | Rupees one thousand and seventy per cubic meter                    |

## SCHEDULE - III

[See rule 2(g)]

Minerals	Controlling Authority
<p>1. (i) Specified minor minerals</p> <p>(ii) Ordinary clay, silt, rehmatti, ordinary sand other than used for industrial and prescribed purposes, brick-earth, ordinary earth, moorum, laterite slabs, ordinary boulders, road metals including ballasts, chips, bajri and rock fines generated from stone crushers, gravels of ordinary stones and river shingles and pebbles.</p>	<p>Government in Steel &amp; Mines Department</p>
(a) When occurring in non-forest land	Collector of the District
(b) When available in any forest area	<p>Principal Chief Conservator of Forests, Odisha</p>
<p>2. Minor mineral other than those specified in item (i) above regardless of location and all minor minerals occurring in areas granted under mining lease for major minerals.</p>	<p>Director</p>



## SCHEDULE – IV

[See rule 2(f), 48]

Jurisdiction (1)	Power to be Exercised (2)	Competent Authority (3)	Department (4)
1. Specified Minor Minerals	(a) For Mining Lease	Deputy Director of Mines/Mining Officers of respective jurisdiction	Steel & Mines
	(b) For Prospecting License-cum- Mining Lease	Deputy Director of Mines/Mining Officer of respective jurisdiction	Steel & Mines
2. Minor Minerals other than Specified Minor Minerals	(a) For Quarry lease		
	(i) when occurring within village. Boundaries	Tahasildar	Revenue Deptt.
	(ii) when occurring within the Forest Officer area	Divisional Forest Officer	Forest & Environment Deptt.
	(b) For Quarry Permit	Deputy Director Mines/ Mining Officer of Respective jurisdiction	Steel & Mines

[No.10221/2016/SM.]

By Order of the Governor

R. K. SHARMA  
Principal Secretary to Government

### **PRICE ADJUSTEMENT-PVC payment terms and conditions**

The price adjustment provisions shall be applicable separately for **EACH ORDER** price components relating to Supply of Equipment / Mandatory spares, Civil and E&C Works, as per price break-up furnished by the Contractor in price schedule.

Price adjustment amounts towards aforesaid components of Contract Price shall be paid in the respective currencies of Contract (INR).

Vendor shall submit L2 schedule along with BID and detailed L3 schedule after award of work. PVC payment shall be linked to approval of L3 schedule.

PVC shall be applicable only, during the extended period of contract (if any) after contractual completion period and for the portion of work delayed / backlog for the reasons not attributable to the Contractor.

The total amount of PVC payable shall not exceed 10 % of the BASIC contract value for respective order.

Negative price variation (without any limit) shall be passed on to BHEL.

#### **A) PRICE ADJUSTMENT FORMULA FOR SUPPLY AND MANDATORY SPARES –**

The amount of price adjustment towards variable portion payable/recoverable on each shipment/despatch shall be computed as under:

$$EC = EC1 - EC0$$

EC1 will be computed as follows:

$$EC1 = EC0 \{ F + a \times A_1 / A_0 + L_b \times L_1 / L_0 \}$$

Above formula, is further expressed as follow considering all component.

$$EC1 = EC0 \{ F + a \times (0.4 \times AP_1 / AP_0 + 0.4 \times AS_1 / AS_0 + 0.2 \times AE_1 / AE_0 + L_b \times L_1 / L_0) \}$$

Where

EC = Adjustment to Ex-Works supply and mandatory spare Price Component expressed in the currency of The Contract (INR) payable to the contractor for each shipment/despatch.

EC1 = Adjusted Amount of Ex-Works supply and mandatory spare Price Component expressed in the currency of the Contract (INR) payable to the Contractor for each shipment/despatch.

EC0 = Ex-Works supply and mandatory spares Price expressed in the currency of the Contract (INR), shipment/despatch wise.

- “F” shall be fixed portion of the Ex-Works Component of the Contract and shall be considered as 0.15.

- “a” shall be co-efficient of major materials/items involved in the Ex-Works Component of the Contract Price and shall be considered as 0.55.

- 'AP, AS, AE', shall be published price indices of corresponding major materials/items. For this purpose, indices available for Plastics, Steel and Electrical equipment, based RBI bulletin Whole Price Index ([https://www.rbi.org.in/Scripts/BS\\_ViewBulletin.aspx?Id=22418](https://www.rbi.org.in/Scripts/BS_ViewBulletin.aspx?Id=22418)).

and

'L' shall be per Other consumer price index number for industrial workers (All India Monthly Average) as published ([https://www.rbi.org.in/Scripts/BS\\_ViewBulletin.aspx?Id=22416](https://www.rbi.org.in/Scripts/BS_ViewBulletin.aspx?Id=22416))

**Price Indices to be considered (As per RBI)**

Material	RBI Index
Plastics-AP	Table No 21, Sl.no 1.3.12.3
Steel -AS	Table No 21,Sl.no 1.3.14.3
Electrical equipment - AE	Table No 21, Sl.no 1.3.17
Industrial labour -L	Table No. 19, Sl. no.1

- 'Lb" shall be co-efficient for labour component in the Ex-Works Component of the Contract Price which shall be considered as 0.30.

**For the indices, subscript '0' refers to indices of the month immediate after expiry of contractual delivery period.**

**Subscript '1' refers to indices as on month before actual delivery date/month of Shipment / despatch.**

## **B) PRICE VARIATION COMPENSATION FOR ERECTION & COMMISSIONING**

1. Formula for calculation of price variation:

$$ER = ER1 - ER0$$

ER1 will be computed as follows

$$ER1 = ER0 (0.15 + 0.85 L1/L0)$$

Where,

ER = Adjustment to Erection & commissioning component of contract price expressed in the currency of contract (INR) payable to the contractor for each billing.

ER1 = Adjusted amount of Erection & commissioning component of contract price expressed in the currency of contract (INR) at the time of billing to the Contractor.

ER0 = Value of the Erection & commissioning work in INR done.

L: Labour indices shall be Other consumer price index number for industrial workers (All India Monthly Average) as published by Labour Bureau, RBI.

([https://www.rbi.org.in/Scripts/BS\\_ViewBulletin.aspx?Id=22416](https://www.rbi.org.in/Scripts/BS_ViewBulletin.aspx?Id=22416))

**For the indices, subscript '0' refers to indices of the month immediate after expiry of contractual completion period.**

**Subscript '1' refers to indices as on month of execution of E&C work.**

### **Price Indices to be considered (As per RBI)**

<b>Material</b>	<b>RBI Index</b>
Industrial labour	Table No. 19, Sl. no.1

### **C. PRICE VARIATION COMPENSATION FOR CIVIL WORKS**

1. In order to take care of variation in cost of execution of work on either side, due to variation in the index of LABOUR, HIGH SPEED DIESEL OIL, MATERIALS, Price Variation Formula as described herein shall be applicable (only for works executed during extended period, if any, subject to other conditions as described in this section).
2. 85% component of Contract Value shall be considered for PVC calculations and remaining 15% shall be treated as fixed component. The basis for calculation of price variation in each category, their component, Base Index, shall be as under.

<b>S. No.</b>	<b>Category</b>	<b>Index</b>	<b>Percentage component ('k') for civil works</b>
i)	LABOUR (ALL CATEGORIES)	(a) MONTHLY ALL-INDIA AVERAGE CONSUMER PRICE INDEX NUMBERS FOR INDUSTRIAL WORKERS' published by Labour Bureau, Ministry of Labour and Employment, Government of India. (Website: labourbureau.nic.in)	0.20
		(b) Arithmetical average of minimum wages of Unskilled, Semi-skilled, Skilled and Highly skilled workers as applicable at project site location (50% weightage out of component 'K')	0.20
ii)	HIGH SPEED DIESEL OIL	Name of Commodity: HSD Commodity Code: 1202000005 (See Note below)	5
iii)	ALL OTHER MATERIALS (Other than Cement & Steel)	Name of Commodity: ALL COMMODITIES Commodity Code:1000000000 (See Note below)	40

**Note:** As per the 'MONTHLY WHOLE SALE PRICE INDEX' for the respective Commodity and Type, published by Office of Economic Adviser, Ministry of Commerce and Industry, Government of India. (Website: eaindustry.nic.in). Revisions in the index or commodity will be re-adjusted accordingly.

3. Payment/ recovery due to variation in index shall be determined on the basis of the following notional formula in respect of the identified COMPONENT ('K') viz. LABOUR, HIGH SPEED DIESEL OIL, MATERIALS.

$$P = K \times R \times (X_N - X_o)/X_o$$

Where,

P = Amount to be paid/ recovered due to variation in the Index for Labour, High Speed Diesel Oil and Materials

K = Percentage COMPONENT ('K') applicable for Labour, High Speed Diesel Oil and Materials

R = Value of work done for the billing month (Excluding Taxes and Duties)

X<sub>N</sub> = Revised Index for Labour, Revised Average Minimum Wages for Labour, Revised Index for High Speed Diesel Oil and Materials for the billing month under consideration

X<sub>o</sub> = Index for Labour, Average Minimum Wages for Labour, Index for High Speed Diesel Oil and Materials as on the Base date

4. For the indices, subscript 'o' refers to indices of the month immediate after expiry of contractual completion period. Subscript 'N' refers to indices as on the respective month in which work is done.
5. PVC shall not be payable for the ORC amount.
6. The contractor shall furnish necessary monthly bulletins in support of the requisite indices from the relevant websites along with his Bills.
7. The contractor will be required to raise the bills for price variation payments on a monthly basis along with the running bills irrespective of the fact whether any increase/decrease in the index for relevant categories has taken place or not. In case there is delay in publication of bulletins (final figure), the provisional values as published can be considered for payments and arrears shall be paid/recovered on getting the final values.
8. PVC shall be applicable only, during the extended period of contract (if any) after the contractual completion period and for the portion of work delayed/ backlog for the reasons not attributable to the contractor.

<b>1</b>	<b>ROYALTY/ SEIGNIORAGE CHARGES</b>
<b>1.1</b>	<p><b>ROYALTY/ SEIGNIORAGE CHARGES FOR EXCAVATION INSIDE PROJECT PREMISES AND FOR EXCAVATION OF OVERBURDEN EARTH FROM TALABIRA MINES</b></p> <ul style="list-style-type: none"> <li>i. The contract price shall be excluding Royalty for excavation inside Project premises, if any and for excavation of overburden earth from Talabira mines. The Bidder need not quote for the same in his price.</li> <li>ii. Royalty/ seigniorage charges (if any) for excavation inside project premises and for excavation of overburden earth from Talabira mines, if it becomes applicable, as per Govt. of Odisha Notification shall be reimbursable to the bidder by BHEL for the quantum of earth work done on submission of necessary documentary evidence as proof of payments/ challans as required by BHEL for reimbursement by the contractor for making such payments as per statutory provisions and this reimbursement shall be over and above the contract price.</li> <li>iii. If there is a demand by statutory bodies at a later date from the contractor for payment of royalty for excavation inside project premises and for excavation of overburden earth from Talabira mines, the same will be reimbursed to the contractor at actual against submission of documentary evidence and any penalty levied by the statutory bodies in this regard will be to contractor's account.</li> </ul>
<b>1.2</b>	<p><b>ROYALTY FOR CONSTRUCTION MATERIALS</b></p> <ul style="list-style-type: none"> <li>i. The enclosed THE ODISHA GAZETTE NOTIFICATION dated 14th December, 2016 issuing the ODISHA MINOR MINERAL CONCESSION RULES, 2016 VIDE S.R.O. No. 601/2016 are the indicative rates towards royalty or seigniorage charges applicable as on date.</li> <li>ii. The contract price shall be including all applicable Royalty for Construction materials as per the rates in clause no. 7.4.2 i and the Bidder to quote their price accordingly. The Royalty amount will not be reimbursed by BHEL.</li> <li>iii. In the event of there being a statutory increase in the rates of royalty charges/ fresh levy of royalty on materials, the increase/ fresh levy shall be reimbursed to the Contractor upon submission of original challan of having made the payments at revised rates and necessary proof of payments as required by M/s NLCIL for reimbursement and realization of reimbursement from NLCIL to BHEL.</li> <li>iv. In the event of there being a decrease in such rates, the decrease shall be recovered from the Contractor.</li> <li>v. The increase or decrease in Royalty shall be w.r.t the rate as per enclosed notification as referred in Clause no. 7.4.2 i above.</li> <li>vi. The total reimbursement of increase or decrease in royalty charges or new levies (positive or negative) as specified above, to be paid or recovered, shall however be calculated on the quantity of materials actually considered while making the royalty payments to the concerned authorities, or the theoretical consumption of these materials (calculated on the basis of the volume of concrete or fill accepted for payment), whichever is less, and on the basis of documentary evidence of Govt. Notification.</li> <li>vii. However, the Contractor will settle claims, if any, on account of over charge by the State Authorities.</li> </ul>

	<p>viii. If there is a demand by statutory bodies at a later date from BHEL/ contractor for payment of royalty for construction materials, the same will be paid by contractor or recovered from Contractor and paid by BHEL. BHEL's decision regarding modality of payment for the demand is with BHEL &amp; binding on the Contractor. Any penalty levied by the statutory bodies in this regard or any other reason on account of royalty/ seigniorage fee for Construction materials will be to contractor's account.</p> <p>ix. The challan of payment/ deposit of royalty/ seigniorage charges for construction materials viz. coarse aggregates, fine aggregates, borrowed earth, etc. made by contractor shall be submitted to BHEL along with every RA bill.</p> <p>x. In the absence of production of challan, the actual prevailing rate for royalty/ seigniorage fee as per the Odisha Government Gazette Notification shall be withheld from RA bill/ final bill and on production of challan, payment of relevant portion will be released.</p>
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**NLC Talabira Thermal Power Plant (NTTPP)**

**IDCT Civil works**

Below given Nos are tentative for planning purposes by the bidder. At the time of start of work, BHEL and contractor shall jointly make MOM about deployment period of each of following T&P

<b>Sl. No.</b>	<b>Description of T&amp;P</b>	<b>Minimum Quantity</b>
1	Automatic Concrete Batching Plant (60 Cum/Hr.) (with printing facility & DG back up) with three Nos. of Silos of 100 MT capacity each	2 Nos
2	Tower Crane of suitable capacity & height & radius	2 Nos. for each IDCT (Total 6 Nos.)
3	Concrete Transit Mixer	9 Nos.
4	Concrete Pumps of Suitable Capacity with sufficient lift	3 Nos.
5	Hydraulic Excavator	3 Nos.
6	Back hoe loader	As per requirement
7	Dumper	8 Nos.
8	Concrete Boom placer with sufficient boom length	3 Nos.
9	Dozer	As per requirement
10	Earth Compactor - 3MT Capacity	As per requirement
11	Vibro roller	As per requirement
12	Vibrators (electrical/diesel) with needle	As per requirement
13	Self-priming Dewatering pump of various capacity (Diesel/Electric) From 5 HP to 15 HP	9 Nos.
14	Curing pump – 1.5 / 2 HP	As per requirement
15	Pneumatic rock breaker with jack hammer	As per requirement
16	Ply Shuttering board with adequate supporting structure (Old steel shuttering plates will not be allowed).	As per requirement
17	Steel Shuttering	As per requirement
18	Pick & carry crane (10/ 12 T cap) *Note- Hydra is not allowed at project site	As per requirement
19	Trailer (20MT Capacity)	As per requirement
20	Tractor with Trolley	As per requirement
21	Reinforcement bending machine	As per requirement
22	Reinforcement cutting machine	As per requirement



<b>Sl. No.</b>	<b>Description of T&amp;P</b>	<b>Minimum Quantity</b>
23	Ply cutting machine	As per requirement
24	Total Station with adequate no. of Surveyors & support staff	As per requirement
25	Auto level & staff	As per requirement
26	Optical/Laser Plumb	As per requirement
27	Water Tanker with sprinkler attachment	As per requirement
28	All equipments for area Lightning like LED/Halogen bulbs and Portable light Towers etc.	As per requirement
29	DG Set of 125 KVA Capacity	As per requirement
30	Pipe Scaffolding, Clamps/ Swivel Couplers (One/Two Way), Props, Jacks, Screw Heads, MS Pipes, Wooden Battens, Planks, Bullies, H Frames, Tie Rods with Nuts, Adjustable Achro Span (Considering Individual Areas)	Adequate quantity as per requirement
31	Electrical Winches of required capacity	As per requirement
32	Welding machine with all accessories	As per requirement
33	Welding Rectifier	As per requirement
34	Steel ladders for approach	As per requirement
35	Steel jolly for temporary working platform	As per requirement
36	Construction Cable and Water Pipe Line	As per requirement

Secured Mobilization advance of 5% can be paid against deployment & installation of Sl. No. 1,2 and 8.



## VENDOR CREDENTIALS SUMMARY SHEET

(TO BE FILLED BY BIDDER AND SUBMITTED WITH BID)

<b>i.</b>	<b>Item/Scope</b>					
<b>ii.</b>	<b>Address of the registered office</b>			<b>Details of Contact Person</b>		
				<b>(Name, Designation, Mobile, Email)</b>		
<b>iii.</b>	<b>Name and Address of the proposed vendor's works where item is being manufactured</b>			<b>Details of Contact Person:</b>		
				<b>(Name, Designation, Mobile, Email)</b>		
<b>iv.</b>	<b>Annual Production Capacity for proposed item</b>					
<b>v.</b>	<b>Annual production for last 3 years for proposed item</b>					
<b>vi.</b>	<b>Details of proposed works</b>					
<b>1.</b>	<b>Year of establishment</b>					
<b>2.</b>	<b>Factory Registration Certificate</b>			<b>Details attached at Annexure – F2.1</b>		
<b>3.</b>	<b>Overall organization Chart with Manpower Details (Design/Manufacturing/Quality etc.)</b>			<b>Details attached at Annexure – F2.2</b>		
<b>4.</b>	<b>After sales service set up in India, in case of foreign sub-vendor(Location, Contact Person, Contact details etc.)</b>			<b>Applicable / Not applicable</b>		
				<b>Details attached at Annexure – F2.3</b>		
<b>5.</b>	<b>Sources of Raw Material/Major Bought Out Item</b>			<b>Details attached at Annexure – F2.4</b>		
<b>6.</b>	<b>Quality Control exercised during receipt of raw material/BOI, in-process, Final Testing, packing</b>			<b>Details attached at Annexure – F2.5</b>		
<b>7.</b>	<b>Manufacturing facilities (List of machines, special process facilities, material handling etc.)</b>			<b>Details attached at Annexure – F2.6</b>		
<b>8.</b>	<b>Testing facilities (List of testing equipment)</b>			<b>Details attached at Annexure – F2.7</b>		
<b>9.</b>	<b>Supply reference list including recent supplies (Preferably of reputed, well known clients to whom the vendor has supplied the material and are of quantum of item/scope at point (i) above)</b>			<b>Reputed client name (s).....</b>		
				<b>Details attached at Annexure – F2.8 (as per format given below)</b>		
<b>Project/ package</b>	<b>Customer Name</b>	<b>Supplied Item (Type/Rating/Model /Capacity/Size etc)</b>	<b>PO ref no/date</b>	<b>Supplied Quantity</b>	<b>Date of Supply</b>	



**VENDOR CREDENTIALS SUMMARY SHEET**  
**(TO BE FILLED BY BIDDER AND SUBMITTED WITH BID)**

10.	Product satisfactory performance letter/certificates/End User Feedback	Attached at annexure - F2.9
11.	Average annual turnover for last three years with documentary proof.	
12.	Summary of Type Test Report (Type Test Details, Report No, Agency, Date of testing) for the proposed product (similar or higher rating) Note:- Reports need not to be submitted	Applicable / Not applicable  Details attached at Annexure – F2.10 (if applicable)
13.	Copy of ISO 9001 certificate (if available)	Attached at Annexure – F2.11
14.	Product technical catalogues for proposed item (if available)	Details attached at Annexure – F2.12
Name		Desig
		Sign:
		Date
		:

**Company's Seal/Stamp:-**