

## MAHARASHTRA INDUSTRIAL DEVELOPMENT CORPORATION

### Item Specification

**Work Name: M&R to WSS at Jalgaon Industrial Area.... Repairs and over hauling of Lamella Clarifier, SMFT and MGF @ wash water recycling plant @ WTP, Sakegaon**

#### **Sub Estimate:Sub Estimate**

#### **1 Removal of filter media sand, pebbles and gravels from the Multigrade pressure sand filter manually**

##### **Specification:**

The scope of item includes removing all filter media like sand, grit, all types of gravels including necessary lifting, stacking as per direction of Engineer – In- Charge with required lead at suitable location. The filter sand is proposed to be re-graded in one time so as to run the filtration plant efficiently. Item also includes necessary scaffolding, dewatering pump set etc if required for removing filter media from filter bed. The site and filter bed area shall be cleaned properly after removing of filter media complete.

Mode of Measurement: Executed quantity shall be measured on the basis of per Cubic Meter.

#### **2 Screening of filter media pebbles and gravels from the filter media sand and again laying in proper gradation in the sand filter**

##### **Specification:**

The scope of item includes screening as per size all filter media like sand, grit, gravels including necessary lifting, stacking as per direction of Engineer – In- Charge with required lead at suitable location. The screening of filter media is proposed to be re-graded in minimum of time so as to run the filtration plant efficiently. Item also includes necessary scaffolding, dewatering pump set etc if required for removing filter media from filter bed. The site and filter bed area shall be cleaned properly after removing of filter media complete.

Mode of Measurement : Executed quantity shall be measured on the basis of per Cubic Meter.

#### **3 Dismantling of lateral pipes and replacing of damaged pipes by new one in MGF from existing location by removing of flanged ends, gas cutting of bolts if necessary etc complete.**

##### **Specification:**

The scope of item includes removing all lateral pipes of the pressure sand filter including necessary cutting of rusted nut bolts and fittings, and stacking the dismantled material at a required location as per the direction of engineer in charge with required lead at suitable location. The lateral pipes are to be fitted in a proper manner so as not to disturb the actual designed flow rate of the pressure sand filter and it will be the sole responsibility of the contractor

to achieve the flowrate as per the capacity of the plant. The pressure sand filter shall be cleaned properly after completion of the work prior to rearranging of filter media.

Mode of Measurement : Executed quantity shall be measured on the basis of per Job.

#### **4 Replacement of damaged air vent pipe of the MGF along with the valve assembly.**

##### **Specification:**

The scope of item includes removing all damaged and rusted air vent pipe of the pressure sand filter including necessary cutting of rusted nut bolts and fittings, and stacking the dismantled material at a required location as per the direction of engineer in charge with required lead at suitable location. The air vent pipe is to be fitted in a proper manner so as not to disturb the actual designed flow rate of the pressure sand filter and it will be the sole responsibility of the contractor

to achieve the flowrate as per the capacity of the plant.

Mode of Measurement : Executed quantity shall be measured on the basis of per Job.

#### **5 Servicing of butterfly valves and replacement of 2 BF valves for inlet and backwash side for MGF.**

##### **Specification:**

The scope of item includes removing the damaged butterfly valves and replacing it with the new ones as per IS specification and of approved make. Other Butterfly valves which are to be repaired, will be done so with all material spares and labor work. All required nut bolts and gaskets required are included in the offer. All labor work and gas cutting charges are also included in the offer and dismantled material is to be stacked at a required location as per the direction of engineer in charge with required lead at suitable location. The butterfly valves are to be fitted in a proper manner so as not to disturb the actual designed flow rate of the pressure sand filter and it will be the sole responsibility of the contractor to achieve the flowrate as per the capacity of the plant.

Mode of Measurement : Executed quantity shall be measured on the basis of per Job.

#### **6 Replacement of Lamella plates damaged due to weathering effect.**

##### **Specification:**

The scope of item includes removing all damaged and cracked / broken Lamella plates of FRP and replacing them with new ones. Removing the damaged plates and stacking the dismantled material at a required location as per the direction of engineer in charge with required lead at suitable location. The new lamella plates are to be procured of proper specification of 3 mm min thickness with a collar at the top so as to lay the plates in the lamella equipment properly.

Lamella

plates are to be of accurate dimensions and have to be fitted in a proper manner so as not to disturb the actual designed flow and flow rate of the lamella clarifier so as not to disturb the water quality and the flow rate. Achieving the water quality and flow rate of the system shall be the sole

responsibility of the contractor.

Mode of Measurement : Executed quantity shall be measured on the basis of per Job.

**7 Replacement of sludge sampling valves along with the pipes to collect sludge samples.**

**Specification:**

The scope of item includes removing the damaged sampling valves and replacing it with the new ones as per IS specification and of approved make. Replacement of sampling valves will be done so with all material spares and labor work. All required nut bolts and fastening clamps, gaskets and other misc items required are included in the offer. All labor work and gas cutting charges are also included in the offer and dismantled material is to be stacked at a required location as per the direction of engineer in charge with required lead at suitable location. The sampling valves are to be fitted in a proper manner so as not to disturb the actual designed flow rate of the lamella clarifier and no leakages are observed.

Mode of Measurement : Executed quantity shall be measured on the basis of per Job.

**8 Labour charges for retro fitting of the MGF... with new set of gaskets for top and bottom, hydra charges, nut bolts etc complete.**

**Specification:**

The scope of item includes removing the man hole of the pressure sand filter by either gas cutting of the nut bolts or using the power tool to remove the nut bolts, and replacing it with the new ones as per IS specification and of approved make. All required nut bolts and gaskets are included in the offer. All labor work and gas cutting charges are also included in the offer and dismantled material is to be stacked at a required location as per the direction of engineer in charge with required lead at suitable location. All the fitting has to be done in a proper manner so as not to disturb the actual designed flow rate of the pressure sand filter and it will be the sole responsibility of the contractor to achieve the flowrate as per the capacity of the plant without observing any leakages.

Mode of Measurement : Executed quantity shall be measured on the basis of per Job.

**9 Repairs to Reduction gear box and stirrer of SMFT and balancing of SS shaft**

**Specification:**

The scope of item includes removing the reduction gear box and the motor. Both this equipment's needed to be electro mechanically serviced properly with replacing any necessary damaged items as per IS specification and of approved make. All required nut bolts, gaskets and bearings along with other spares are included in the offer. The SS shaft of the stirrer also needs to be dynamically balanced from the work shop. All labor work and gas cutting charges are also included in the offer and dismantled material is to be stacked at a required location as per the direction of engineer in charge with required lead at suitable location. The reduction gear box and motor are to

be fitted in a proper manner so as not to disturb the actual designed flow rate of the system and it shall be the sole responsibility of the contractor to achieve the flowrate and water quality as per the capacity of the plant.

Mode of Measurement : Executed quantity shall be measured on the basis of per Job.

#### **10 Replacement of Shaft socket of SMFT**

##### **Specification:**

The scope of item includes removing the damaged and worn-out shaft socket by using mechanical tool. The contractor will not be allowed to use the gas cutter for removal of this socket. This equipment is needed to be procured from principal manufacturer ION EXCHANGE (I) Ltd. All required nut bolts, gaskets and bearings along with other spares are included in the offer.

Mode of Measurement : Executed quantity shall be measured on the basis of per Job.

#### **11 Provision of 1 HP high pressure pump and 100 mtr of flexible pipe for cleaning of Lamella plates and preparation of dosing chemical solution.**

##### **Specification:**

The scope of item includes supply and fitting of 1HP high pressure pump with flexible pipe. All required nut bolts, gaskets and other spares are included in the offer. Use of this pressure pump is to clean the lamella plates once a week to remove the deposition of the sludge.

Mode of Measurement : Executed quantity shall be measured on the basis of per number.

#### **12 Online Chemical dosing pump @12 ltr / hr @ 4 Kg pressure**

##### **Specification:**

The item includes providing, erecting, commissioning & testing at site the chemical dosing pump of suitable capacity to discharge max dosing of 12 ltrs / hr online. It also includes 25m length copper cable & all related accessories. The work shall be carried out as per manufacturer's specifications.

Mode of Measurement : Executed quantity shall be measured on the basis of per number.

#### **13 Making surface completely chemical free from soaked chemicals by NF cleaner 9111 of BELZONA make to receive new cement plaster as per detail specifications and as directed by engineer in charge etc. complete.**

##### **Specification:**

Under the item the agency has to Make surface completely chemical free from soaked effluent/algae/oil / chemical by using bio chemicals and NF cleaner 9111 of BELZONA make to make surface ready for application of BELZONA 5811 Magma Immersion Grade coating as per detail specifications and as directed by engineer in charge etc. complete. The scope of item includes making surface completely chemical free from soaked chemicals by using NF cleaner 9111 of BELZONA make to receive BELZONA 5811. The work shall be carried out under the supervision of engineer in charge etc. complete. The work shall be carried out without

damaging the existing structure.

Mode of Measurement : Executed quantity shall be measured on the basis of per SqM.

**14 Providing and applying final well mixed BELZONA 5811 DW2 Magma Immersion Grade two coats by mixing solidifier with base material as per detail specifications and as directed by engineer in charge etc. complete.**

**Specification:**

The scope of item includes providing and applying well mixed BELZONA 5811 DW2 Magma Immersion Grade two coats by mixing solidifier with base material on concrete surface of existing filter backwash collection tank at WTP .

Technical details of the BELZONA 5811 DW2 Immersion Grade product areas under.

**Base Component**

1. Appearance - Viscous liquid
2. Color - Cream or grey
3. Density – 1.56 to 1.60 g/cum cm.

**Solidifier Component**

1. Appearance - clear mobile liquid
2. Color - Dark brown
3. Density – 0.96 to 1.00 gm per cubic centimeter

**Mixed Tests**

1. Mixing ratio by weight (Base- solidifier) - 4: 1 2.
2. Mixing ratio by volume (Base- solidifier) – 2.5: 1

**Coverage**

Each 1.00 liter unit applied at recommended film thickness of 250 microns will cover approximately 4.00 sq. mtrs.

**Compressive strength**

The compressive yield strength of the material when tested to ASTM D 695 shall be 5700 PSI Flexural strength The flexural strength of the material when tested to ASTM D 790 shall be 6040 psi.

Mode of Measurement : Executed quantity shall be measured on the basis of per SqM.

**15 Providing and applying epoxy primer grey a two component primer containing pigments having good adhesion**

**Specification:**

EPOXY PRIMER GREY to be used @ 8 Sq. Mtr./ltr. and two coats needs to be applied. The work of this item shall be carried out as per the manufactures direction. No extra claim will be entertained. The contractor shall produce the challans of material used for providing this treatment for working out the consumption of material.

Application: Preparation: It is essential that adequate preparation is carried out prior to the application of EPOXY PRIMER GREY. The steel surface must be clean and firm and completely free from loose particulars of paints, dust, rust, grease, etc.

Mixing: The product cannot be mixed by hand. Both the components should be poured into a 25 Ltr. Plastic drum. The mixing is with a spiral paddle attachment on a slow speed electric drill.

Mode of Measurement : Executed quantity shall be measured on the basis of per SqM.

**16 Providing and applying two coats of EP-NPC-555 which is a special formulated high performance heavy**

**Specification:**

Cost of HIGH BUILD PHENOLIC EPOXY COATING . The HIGH BUILD PHENOLIC EPOXY EPNPC-555 to be used @ 6 Sq. Mtr / ltr and two coats need to be applied. The work of this item shall be carried out as per the manufacturer's direction. No extra claim will be entertained. The contractor shall produce the challans of material used for providing this treatment for working out the consumption of material. Application Preparation: To clean the surface from contaminants like grease, oils, dust, mortar etc. Depending on level of contamination the metal surface can be cleaned by sand papering, chipping, scrapping, wire brushing or sand blasting. Prepared surface must not be kept unprimed for too long. The recommended primer to be applied at the earliest.

Mixing & application: Once the surface is prepared as per the instructions, the surface should be primed with primer coat, Stir the individual contents and then mix them thoroughly before use. Mix the Resin & Hardener thoroughly before starting application in a Plastic drum with a spiral paddle attachment on a slow speed electric drill. Allow primer to tack dry for about 2 hours and then commence applying the first coat of of HIGH BUILD PHENOLIC EPOXY Inter-coating interval should not exceed more than 8 hours.

Mode of Measurement : Executed quantity shall be measured on the basis of per SqM.

**17 Supplying , erecting, testing and commissioning L.T. cubical panel suitable for ON-OFF operation of pumps including all accessories like MCCB as incomer , 6 Nos MCCB for outgoing starters, capacitor , Star delta starters etc complete as per detailed specification**  
**Specification:**

Under the item the agency have to Supply , erect, test and commission L.T. cubical panel suitable for ON-OFF operation of pumps including all accessories etc complete as per detailed specification. Under the item the agency have to Supply, erect, test and commission L.T. cubical panel suitable for ON-OFF operation of pumps including all accessories like MCCB as incomer , MCCB for outgoing starters, capacitor, Star delta starters etc complete. The scope of work includes designing M.S. sheet cubical type panel board to incorporate all the accessories mentioned below.

MCCB for Incomer -- 1 Nos , 63 A

Motor. Feeder - 4 Nos

63A Aux feeder --- 2 Nos

Providing all material M.S. sheet, M.S. angle, channels etc. and fabricating the panel, providing and erecting all the accessories mentioned above in panel board, transporting the same, loading unloading and erection at site of work and testing and commissioning the same. The design of

panel board shall be prepared by the contractor as per standard installation practice. The contractor shall consult with Engineer-in-charge and as per the instructions, suggestions the design shall be prepared. Adequate space to facilitate working for removing cable connection, replacement of accessories etc. shall be kept while designing. Accordingly the complete drawing of dimensional details of cubical box, inside partitions, erection Fabrication of panel shall be done in 14 gauge CRCA sheet with necessary cutting, bending, welding, drilling etc. The compartments viewing from front side shall be kept separately for switch fuse unit, MCCB, MCB & Starter for housing measuring instrument shall generally be kept separate however the same may be permitted to install in the compartments of respective switch gear where the measurements are to be taken.. Inside partitions for isolating the compartments shall be fabricated out of CRCA sheets and Bakelite sheet shall be provided for isolating electrical contacts. Continuous Bakelite insulating sheets shall be provided with nuts, bolts for the entire length of Busbars to separate the three phases from each other and from neutral. Necessary angle irons, channel irons, M.S. flats of required size and lengths shall be provided and erected inside / outside panel board for strengthening, fixing accessories, bus-bar supports etc. The scope also includes cutting required size and numbers of opening at bottom for cable entries The foundation channel M.S. of adequate size and length shall be provided and erected for installation of the panel board necessary cement concrete work ,if required along with plastering with cement plaster shall be provided for mounting the panel board. Powder coating shall be provided from inside and outside of panel board, rubber gaskets for panel doors, bus-bar extension opening shall be provided to ensure proper safety. All the switchgears, SFU, MCCB , MCB shall be suitably mounted for operation on front side of panel. Arrangement shall be made in such away that when the switchgear is ON, the panel door couldn't be opened.

A) INCOMING FEEDERS- 1 nos a) 200 AMP, 4 pole, 50KA 440 volts MCCB for incomers with under voltage, thermal overload & short circuit Release -- 1 Nos

b) 200 Amp, 4 pole, 440 volts switch fuse units -- 1Nos

d) (0-500) voltmeter with selector switch with required PT - 1sets

e) class1.5 Ammeter with selector switch & required CT-- 1 sets

f) Indicating lamps --- 3 sets

g) 200Amp, copper Bus bar for RYB for Neutral & Linking Bus Bars of size suitable size-- Lumpsum

B) Outgoing feeder for 63 A Motor Feeder -- 4 Nos & 63A Auxiliary load--- 2 NOs

a) (0-100) Amp Ammeter with CT's & selector switches -- 4 sets

b) 63 A TPN MCCB 50 K , 440 volts, MCCB for Motor feeder -- 4 Nos

c) DOL / Star Delta starter --- 4 Nos

d) 63A TPN, 440 volts, MCCB for auxiliary load -- 2 Nos

e) (0-100) Amp Ammeter with CT's & selector switches -- 4 sets

f) Capacitor of suitable capacity

All the measuring instruments, indicating lamps shall be erected flush mounted. The identification numbering for the switchgear, measuring instruments and indicating lamps etc. shall be made. The item also includes all the cables required for

connections up to pumps & other equipment.

Mode of Measurement : Executed quantity shall be measured on the basis per Set.