

DETAIL SPECIFICATION

15 FC Year 2025-26

15 FC Year 2025-26 Construction of Toilet Block at
Village Malkhet - Nogama Dungri Primary School Ta
Umargam Dist Valsad

SPECIFICATION

**Item
No. 1**

Excavation for foundation up to 1.5 M depth including sorting out and stacking of useful materials and disposing of the excavated stuff up to 50 meter lead.(B) Dence or hard soil.

1.0. General

1.1. Any soil which generally yields to the application of pickaxes and shovels, phawaras rakes or any such ordinary excavating implement or organic soil, gravel silt, sand turf loam, clay, peat etc., fall under this category

2.0. Clearing the site

2.1. The site on which the structure is to be built shall be cleared, and all obstructions loose stone, materials and rubbish of all kind bush wood and trees shall be remove! as directed The materials so obtained shall be property of the Government and shall be conveyed und stacked as directed within 50 m lead. The roots of the trees coming in the sides shall be cut and coated with a hot asphalt

2.2. The rate of side clearance is deemed to be included in the rate of earth work for which no extra will be paid.

3.0. Setting out After clearing the site the centre lines will be given, by the Engineer-in-charge. The contractor shall assume full responsibility for alignment, elevation and dimension of each and all 'parts of the work. Contractor shall supply labours materials, etc. required for setting out the reference marks and bench 'marks and shall maintain them as long as required and directed.

4.0. Excavation The excavation in foundation shall be carried out in true line and level and shall have the width and depth as shown in the drawings or as directed. The contractor shall do the necessary shoring and shutting or providing necessary slopes to a safe angle, at his own cost. The payment for such precautionary measures shall be paid separately it not specified. The bottom of the excavated area shall be leveled both longitudinally and transversely as directed by removing and watering as required No. earth filling will be allowed for brining it to level If by mistake or any excavation is made deeper or wider than, that shown on the plan or directed. The extra depth or width shall be made up with concrete of same proportion as specified for the foundation concrete at the cost of the contractor. The excavation up to 1.5 m depth shall be measured under this item.

5.0. Disposal of the excavated stuff

5.1. The excavated stuff of the selected type shall be used in filling the trenches and plinth or leveling the ground in layers including ramming and watering etc.

5.2. The balance of the excavated quantity shall be removed by the contractor from the site of work to a place as directed with lead up to 50 M. and all lift.

6.0. Mode of measurements & payment

6.1. The measurement of excavation in trenches for foundation shall be made according to the sections of trenches shown on the drawing or as per sections given by the Engineer-m-charge. No payment shall be made for surplus excavation made in excess of above requirements or due to stopping and sloping back as found necessary on account of conditions of soil and requirements of safety

6.2. The rate shall be for a unit of one cubic meter

**Item
No. 2**

Providing and laying cement concrete 1:3:6 (1-Cement : 3- coarse sand : 6- Graded stone aggregates 40 mm nominal size) and curing complete excluding cost of formwork in (A) Foundation and Plinth (upto 10 ton)

The relevant specification shall be followed as per General Technical specification for Building work booklet It.No.5.3.14(A) P.No.38.

For form work the relevant specification shall be followed as per General Technical specification for Building work booklet It.No.9.1 (A) P.No.63.

**Item
No. 3**

Providing and laying cement concrete M.200 and curing complete excluding the cost of formwork and reinforcement for reinforced concrete work in (A) Foundations, footings, Base of columns and Mass concrete (upto 10 ton)

1.0. Materials & Workmanship

1.1. The relevant specifications of item No. 5.3.13 shall be followed except that the work shall be carried out for reinforced concrete work for work as specified in item 1.2. In addition, the following stipulations shall be followed for: (a) The bars shall be kept in position by the following methods :

(i) In case of beam and slab construction, sufficient number of precast cover blocks in cement mortar 1:2 (1 cement : 2 coarse sand) about 4 cms. x 4 cms. section and of thickness equal to the specified cover shall be placed between the bars and shattering as to secure and maintain the requisite cover of concrete over the reinforcement. In case of cantilevered or doubly reinforce beams or slabs, the main reinforcing bars shall be held in position by introducing chain spacers or supports bars at 1.0 to 1.2 meter centers. (ii) In case of columns and walls, the vertical bars shall be kept in position by means of timber templates with slots accurately cut in them, the templates shall be removed after concreting has been done below it. The bars may be also be suitably tied by means of annealed steel wires to the shuttering to maintain their position during concreting.

1.2. AH bars projecting from pillars, columns, beams, slabs etc, to which other bars and concrete are to be attached or bounded to later on, shall be protected with a coat of thin neat cement mortar, if the bars are not likely to be incorporated with succeeding mass of concrete within the following 10 days. This coat of thin neat cement shall be removed before concreting.

2.0. Mode of Measurement & Payment

2.1. The relevant specifications of item No. 5.3.13 shall be followed.

2.2. The volume Occupied by reinforcement shall not be deducted from R.C.C. work.

2.3. The rate shall be for a unit of one cubic meter.

**Item
No.4**

Providing and laying cement concrete M.200 with curing etc. complete including the cost of formwork but excluding the cost of reinforcement for R.C.C. work in (B) COLUMNS:(i) Having cross-sectional area 0.12 to 0.18 Sq.M

1.0. Materials & Workmanship

1.1. The relevant specifications of item No. 5.4.1. shall be followed for concrete work and item No. 9.1. shall be followed for form work and centering work. The finishing shall be done in cement mortar 1:3 (1 cement: 3 fine sand) as per item No. 17.59(1). The cross sectional area of beam shall be specified in item.

2.0. Mode of measurement & payment

2.1. The relevant specification of item No. 5.4.1. shall be followed but the form work and centering work shall be included in the item.

2.2. The rate shall be for a unit of one cubic meter.

**Item
No.5**

Providing and laying cement concrete M.200 with curing etc. complete including the cost of formwork but excluding the cost of reinforcement for R.C.C. work in (A) BEAMS : (i) Having cross-sectional area 0.12 to 0.18 Sq.M

1.0. Materials & Workmanship

1.1. The relevant specifications of item No. 5.4.1. shall be followed for concrete work and item No. 9.1. shall be followed for form work and centering work. The finishing shall be done in cement mortar 1:3 (1 cement: 3 fine sand) as per item No. 17.59(1). The cross sectional area of beam shall be specified in item.

2.0. Mode of measurement & payment

2.1. The relevant specification of item No. 5.4.1. shall be followed but the form work and centering work shall be included in the item.

2.2. The rate shall be for a unit of one cubic meter.

**Item
No. 6**

Brick work using common burnt clay building brick having crushing strength not less than 35Kg/Sq.Cm. In foundation and plinth in cement mortar 1:6 (1 Cement : 6 fine sand) (B) Conventional

The relevant specification shall be followed as per General Technical specification for Building work booklet It.No.6.13 (B) P.No.51 + It.No.6.19 (B) P.No.53 except that fly ash bricks of conventional size shall be used instead of conventional burnt clay bricks. The proportion of cement mortar shall be in 1:6

**Item
No. 7**

Filling available excavated earth (excluding rock in trenches plinth, sides of foundations etc. in layers not exceeding 20 cm in depth consolidating each deposited layer by ramming and watering).

1.0. Workmanship

1.1. The earth to be used for filling shall be free from salts, organic or other foreign matter. All clods of earth shall be broken.

1.2. As soon as the work in foundation has been completed and measured the site of foundation shall be cleared of all debris, brick bats, mortar dropping etc., and filled with earth in layers not exceeding 20 cms. Each layer shall be adequately watered, rammed and consolidated before the succeeding layer is laid. The earth shall be rammed with iron rammers where feasible and with the butt ends of crow-bars, where rammer cannot be used.

1.3. The plinth shall be similarly filled with earth in layers not exceeding 20 cms. adequately watered and consolidated by ramming with iron or wooden rammers. When filling reaches finished level the surface shall be flooded with water for at least 24 hours and allowed to dry and then rammed and consolidated.

1.4. The finished level of filling shall be kept to shape intended to be given to floor.

1.5. In case of large heavy duty flooring like factory flooring, the consolidation may be done by power rollers, where so specified. The extent of consolidation required, shall also be as specified.

1.6. The excavated stuff of the selected type shall be allowed to be used in filling the trenches and plinth. Under no circumstances black cotton soil be used for filling the plinth.

2.0. Mode of Measurements & Payment

2.1. The payment shall be made for filling in plinth and trenches. No deduction shall be made for shrinkage or voids, if consolidated as instructed above.

2.2. The rate shall be for a unit of one cubic meter.

**Item
No.8**

Filling in foundation and plinth with murrum or selected soil in layers of 20cm thickness including watering ramming and consolidating etc. complete

The relevant specification shall be followed as per General Technical specification for Building work booklet It.No.4.0.0.4 P.No.35

**Item
No. 09**

Providing and laying cement concrete 1:3:6 (1- Cement : 3- Coarse sand : 6- crushed stone aggregates 20 mm nominal size) and curing complete including cost of formwork in Plinth Slab

The relevant specification shall be followed as per General Technical specification for Building work booklet It.No.5.3.14(A) P.No.38.

For form work the relevant specification shall be followed as per General Technical specification for Building work booklet It.No.9.1 (A) P.No.63.

**Item
No. 10**

Brick work using comon burnt clay building brick having crushing strength not less then 35Kg/Sq.Cm. In foundation and plinth in cement mortar 1:6 (1 Cement : 6 fine sand) in super structure above plinth level up to floor two level (B) Conventional

1.0. Materials

Water shall conform to M-1. Brick shall conform to M-15. Cement mortar shall be conform to M-11.

2.0. Workmanship

2.1. The relevant specification of item No. 6.12(A) shall be followed except that the proportion of cement mortar shall be cement mortar 1:8 and bricks used shall be conventional bricks.

3.0. Mode of measurements & payment

3.1. The relevant specification of item No. 6.12(A) shall be followed.

3.2. The rate shall be for a unit of one cubic meter.

**Item
No. 11**

Providing and laying ordinary cement concrete M200 for R.C.C. Lintel including finishing smooth with curing etc. complete including the cost of formwork but excluding the cost of reinforcement.

The relevant specification shall be followed as per General Technical specification for Building work booklet It.No.5.00.5 P.No.48.

For form work the relevant specification shall be followed as per General Technical specification for Building work booklet It.No.9.1 (A) P.No.63

**Item
No.12**

Providing and laying cement concrete M200 for reinforced concrete CHAJJAS not excceding 10cm thickness up to floor two level including finishing the exposed surface with cement mortar 1:3 (1 cement : 3 fine sand to give a smooth and even surface centering and formwork and curing compelete excluding cost of reinforcement

The relevant specification shall be followed as per General Technical specification for Building work booklet It.No.5.4.4 P.No.44.

For form work the relevant specification shall be followed as per General Technical specification for Building work booklet It.No.9.1 (A) P.No.63.

**Item
No.13**

'Providing and fixing 35mm thick shutters doors of pine wood ply laminate / FRP DOOR with FRP Frame including Black Granite frames in two parts including Edge polish and molding and fixtures and fastening etc. complete as directed by Engineer incharged

1.0. Materials.

1.1. Wood for shutter shall conform to M-29. 2. Glass shall conform to M-38. 3. Anodised aluminum butt hinges shall conform to M-43.

2.0. Workmanship

2.1. The item covers the requirement of preparation of shutters for doors, windows, clerestory windows, their supply and fixing.

2.2. Shutters:

2.2.1. Paneled shutters shall be constructed in the form of timber frame work of styles and rails with panel inserted of type as specified in the detailed drawings. Panel shall be fixed by providing grooves in the style and rails. The styles and rails shall be joined to each other by mortise and tenon joints at right angles.

2.2.2. All members of the shutters shall be straight without any warp or bow and shall have smooth, well planed faces at right angles to each other.

2.2.3. The size of styles and rails shall be as per drawings or as directed. Styles and rails of shutters shall be made of one piece only.

2.3. Timber paneling:

2.3.1. Thickness of the panel shall be as specified in the item as shown in the drawing or as directed. If the panel is made from more than one piece the pieces shall be finished as shown in the detailed drawings and shall be joined with continuous groove with specified size. The end pieces of the panel and the top and bottom of the panel shall be provided with continuous tongue to frame into groove of the frame shutter. An air space of 1.5 mm. shall be left in the groove of frame of shutter while framing the panels in it.

2.3.2. The faces of the panel as well as various pieces of the panel shall be- closely fitted to the sizes of the grooves.

2.3.3. Finishing of the corners of raised panel edges shall be done as shown in drawings or as directed.

2.3.4. The thickness specified shall be finished thickness and no tolerance will be permitted.

2.5. Fixtures and Fastenings:

2.5.1. The rate shall include anodised butt hinges including fixing with iron screws. The size and number of hinges shall be as per table given in annexure-1.

3.0. Mode of measurement and payment

3.1. The rate for shutter includes cost of providing block and cleat for keeping the shutter in open position if directed.

3.2. The dimension of the shutter shall be measured clear size of the shutter in close position between the grooves of the frame.

3.3. The rate shall be for a unit of one sq. meter.

**Item
No. 14**

Providing and fixing Jindal or similar brand two track sliding window of 18mm x 38mm section with one way glass of 6mm thickness including Granite frame inclusive of edge polish and molding, sealant and transparent silicon between the glass and the window frame and also including fixtures and fastening etc complete as directed by Engineer incharged

General

Providing and fixing Jindal or similar brand two track sliding window with one way glass of 6mm thickness including Granite frame inclusive of edge polish and molding, sealant and transparent silicon between the glass and the window frame and also including fixtures and fastening etc complete as directed by Engineer incharged for window.

MATERIAL

Aluminum standard section

Specification no M-31 from specification booklet for Building works

The size of the bottom member shall be as mentioned in description of the item

Outer frame sections shall be of **three track**

Transparent bronze colour tinted float glass

Specification no M-38/p.18 from specification booklet for Building works for Glass shall be applied for this item except the glass shall be transparent bronze colour tinted float glass of approved brand and colour and thickness

The glass shall be of approved make having thickness of 5 mm the glass shall be **transparent bronze colour tinted** and free from scratches and cracks the glass shall be provided on the top

Glassing clips

Glazing clips shall be of specified size and shall be Free from any scratches or holes or any damages on surface. All section shall have finished luster surface on all sides

Rubber Gasket

Rubber gasket shall be of approved make. Shall be Free from any scratches or holes

or any damages on surface. And shall have finished luster surface on all sides

Fixtures

Specification no M-43 from specification booklet for Building works for fixture and fastening shall be applied for this item

Handles

Handles shall be of approved make. Shall be Free from any scratches or holes or any damages on surface. And shall have finished luster surface on all sides

Bolts

All bolts shall be of approved make. Shall be Free from any scratches or holes or any damages on surface. And shall have finished luster surface on all sides

WORKMANSHIP

The Work of aluminum Window shall be done with extreme finishing. The Glass shall be fixed in shutters as directed by Engineer in charge using glazing clips and rubber gaskets as required all the fixtures and fastenings shall be fitted at right place and as directed by Engineer in charge

Mode of Measurement and Payment

The payment will be made on **square Meter** basis of the finished work.

All necessary labour materials Equipment tools and plant, conveyance including loading and unloading etc shall be provided by the Contractor as directed by the Engineer in charge

The item shall be measured for its **length and width** limiting dimensions to those specified on plan or as directed.

The rate shall be for a unit of **one square meter**.

**Item
No. 15**

Providing 15mm thick cement plaster in single coat on brick/concrete wall for interior plastering upto floor two level finished even and smooth in (i) Cement mortar 1:3 (1 cement : 3 sand) with one smooth cement neat finished last layer.(Smooth finished)

1.0. Materials

1.1. Water shall conform to M-1. The cement mortar of proportion 1:3 shall conform to M-13.

2.0. Workmanship

2.1. Scaffolding:

Wooden bullies, bamboos, planks, trestles and other scaffolding shall be sound. These shall be properly examined before erection and use. Stage scaffolding shall be provided for ceiling plaster which shall be independent of the walls.

2.2. Preparation of back-ground :

2.2.1. The surface shall be cleaned of all dust, loose mortar droppings, traces of algae, efflorescence and other foreign matter by water or by brushing. Smooth surface shall be toughened by wire brushing if it is not hard and by hacking if it is hard. In case of concrete surface, if a chemical retarded has been applied to the form work, the surface shall be roughened by wire brushing and all the resulting dust and loose particles cleaned off and care shall be taken that none of the readers if left on the surface. Trimming of projections on brick/concrete surfaces where necessary shall be carried out to get an even surface.

2.2.2. Raking of joints in case of masonry where necessary shall be allowed to dry out for sufficient period before carrying out the plaster work.

2.2.3. The work shall not be soaked but only damped evenly before applying the plaster. If the surface becomes dry, such area shall be moistened again.

2.2.4. For external plaster, the plastering operation shall be started from top floor and carried downwards. For internal plaster, the plastering operations may be started wherever the building frame and cladding work are ready and the temporary supports of the ceiling resting on the wall of the floor have been removed. Ceiling plaster shall be completed before starting plaster to walls.

2.3. Application of plaster:

2.3.1. The plaster about 15x15 cms. shall be first applied horizontally and vertically at not more than 2 meters intervals over the entire surface to serve as gauge. The surfaces of these gauges shall be truly in plane of the finished plastered surface. The mortar shall then be applied in uniform surface slightly more than the specified thickness, then brought to a true surface by working a wooden straight edge reaching across the gauges with small upward and sideways movements at a time. Finally, the surface shall be finished off true with a trowel or wooden float according as a smooth or a smooth or a sandy granular texture is required. Excessive troweling or overworking the float shall be avoided. All corners, arises, angles and junctions shall be truly vertical or horizontal as the case may be and shall be carefully finished. Hounding or chamfering, corners, arises junctions etc. shall be carried out with proper templates to be size required.

2.3.2. Cement plaster shall be used within half an hour after addition of water. And mortar or plaster which is partially set shall be rejected and removed forthwith from the site.

2.3.3. In suspending the work at the end of the day, the plaster shall be left out clean to the line both horizontally and vertically, when recommencing the plaster, the edges of the old work shall be scraped clean and wetted with cement putty before plaster is applied to the adjacent areas to enable the two to properly join together. Plastering work shall be closed at the end of the day on the body of the wall and nearer than 15 cm. to any corners or arises. It shall not be closed on the body of features such as plaster bands and cornices not at the corners or arises. Horizontal joints in plaster work shall not also occur on parapet tops and copings as these invariably lead to leakage. No portion of the surface shall be left out initially to be packed up later on.

2.3.4. Each coat shall be kept damp continuously till the next coat is applied or for a minimum period of 7 days. Moistening shall commence as soon as plaster is hardened sufficiently. Soaking of walls shall be avoided and only as much water as can be readily absorbed shall be used, excessive evaporation on the sunny or windward side of building in hot air or dry weather shall be prevented by hanging matting or gunny bags oh the outside of the plaster and keeping them wet.

3.0. Mode of measurements & payment

3.1. The rate shall include the cost of all materials, labour and scaffolding etc. involved in the operations described under workmanship.

3.2. All plastering shall be measured in square meters unless otherwise specified. Length breadth or height shall be measured correct to a centimeter.

3.3. Thickness of the plaster shall be exclusive of he thickness of the key i.e. grooves or open joints in brick work, stone work etc. or space between laths. Thickness of plaster shall be average thickness with minimum 10 mm. at any point on this surface.

3.4. This item includes plastering up to floor two level.

3.5. The measurement of wall plastering shall be taken between the walls or partition (dimensions before plastering being taken) for length and from the top of floor or skirting to ceiling for height. Depth of cover of cornices if any shall be deducted.

3.6. Soffits of stairs shall be measured as plastering on ceilings, following soffits shall be measured separately.

3.7. For jambs, soffits, sills etc. for openings not exceeding 0.5 sq. met each in area for ends of joints beams, posts, girders, steps etc. not exceeding 0.5 sq. mt each in area and for openings exceeding 0.5. sq. mt and not exceeding 3.00 sq. mt. in each area deductions and additions shall be made in the following manners.

(a) No deductions shall be made for ends of joints, beams, posts etc. and openings not exceeding 0.5 sq. mt each and no addition shall be made for reveals, jambs, soffits, sills etc. of these openings, for finish to plaster around ends of joints, beams posts etc.

(b) Deduction for openings exceeding 0.5 sq. mt but not exceeding 3 sq.mt. each shall be made as follows and no addition shall be made for ravels, jambs, soffits, sills etc. of these openings, (i) When both faces of all wall are plastered with same plaster, deduction shall be made for one face only, (ii) When two faces of wall are plastered with different types of plasters or if one face is plastered and the other pointed, deductions shall be made from the

plaster or pointing on the side of frame for door, window etc. on which width of reveals is less than that on the other side but no deductions shall be made on the other side. Where width of reveals on both faces of all are equal, deductions of 50% of area of

opening on each face shall be made from areas of plaster and / or pointing as the case may be.

3.8. For openings having door frames equal to or projecting beyond the thickness of wall, full deduction for opening shall be made from each plastered face of the wall.

3.9. In case of openings of area above 3 sq. mt. each, deduction shall be made for openings but jambs, soffits and sills shall be measured.

3.10. The rate shall be for a unit of One sq. meter.

**Item
No.16**

20mm thick sand faced cement plaster on wall up to height 10meters above ground level consisting of 12mm thick backing coat of C.M. 1:3 (1 cement : 3 sand) and 8mm thick finishing coat of C.M. 1:1 (1 cement : 1 sand) etc. complete

1.0. Materials

1.1. Water shall conform to M-1. Cement mortar shall conform to M-11.

2.0. Workmanship

2.1. The work shall be carried out in the coats. The backing coat (base coat) shall be 12 mm. thick in C.M. 1:3. The relevant specifications of item No. 17.58(I) shall be followed except that the thickness of back coat shall be 12 mm. average. Before the first coat hardens its surface shall be beaten up by edges of wooden tapers and close dents shall be made on the surface. The subsequent coat shall be applied after this coat has been allowed to set for 3 to 5 days, depending upon the weather conditions. The surface shall not be allowed to dry during this period.

2.2. The second coat shall be completed to 8 mm. thickness in C.M. 1:1 as described above, including raising sand facing by bushing. The sample of sand face shall be got approved before the work is started. The whole work shall be carried out uniformly as per sample approved.

2.3. Curing :

The curing shall be started overnight after finishing of plaster. The plaster shall be kept wet for a period of 7 days. During this period, it shall be protected from all damages.

3.0. Mode of measurement & payment

3.1. The relevant specifications of item No. 17.58 shall be followed except that the sand face plaster on outside up to 10 m. above ground level shall be measured under this item.

3.2. The rate shall be for a unit of One sq. meter.

**Item
No. 17**

'Providing and laying Vitrified tiles 8 to 10 mm thick , 24" x 24" in n flooring treads of steps and landing on 12mm thick cement mortar 1:3 (1-cement : 3-coarse sand) finishing with flush pointing in white cement.

The item shall be executed as per the relevant specification of General Technical Specification for Building works Booklet It. No. 14.44 Page No. 99.

**Item
No.18**

'Providing and laying Vitrified tiles 8 to 10 mm thick , 24" x 24" in skirting risers of steps and dedo on 10mm thick cement plaster 1:3 (1-cement : 3-coarse sand) and jointed with white cement slurry

1.0. Materials

Water shall conform to M-1 Cement mortar shall conform to M-11 White glazed tiles shall conform to M-55

2.0. Workmanship

2.1. Preparation of Surface:

In case of brick masonry wall, the joints shall be raked out to a depth of least 15 mm.

while the masonry is being laid. In case of concrete wall the surface shall be chiseled and roughed with wire brushes. The surface shall be cleaned and wetted thoroughly before commencing the laying work.

2.2. Laying ;

2.2.1. The wall surface shall be covered with 10 mm. thick plaster of cement mortar 1:3 mix and allowed to harden. The plaster shall be roughened with wire brushes both way. The back of tiles shall be floated with grey cement slurry set and edges with white cement slurry in bedding mortar. The tiles shall be gently tapped in position on after the other keeping the joints as thin as possible. Top of skirting or dedo shall be truly horizontal and the joints vertical or as per required pattern.

2.2.2. Risers of steps, skirting and dedo shall rest on top of treads or flooring. Where full size tiles cannot be fixed, They shall be cut to the required size and the edges be smoothened.

2.2.3. The joints shall be cleaned and flush pointed with white cement. The surface shall be kept wet for seven days. After curing the surface shall be washed clean.

3.0. Mode of measurements and payment

3.1. The rate shall include the cost of all materials and labour required for various operations described above. Risers of steps: skirting and dedo shall be measured in square meters, length and height shall be measured along the finished face of the skirting or dedo including curves, where special such as covers. internal and external angles, etc., used. The length and height shall be measured correct lo the centimeter except in case of risers and skirting where height shall be measured correct to 3 mm

3.2. The rate shall be for a unit of one sq. meter.

**Item
No.19**

Providing and laying ordinary cement concrete M200 and finishing smooth with curing etc. complete including the cost of formwork but excluding the cost of reinforcement of R.C.C. work in (iii) Slab having more than 10cm and up to 13cm thickness

The relevant specification shall be followed as per General Technical specification for Building work booklet It.No.5.007 P.No.49.

For form work the relevant specification shall be followed as per General Technical specification for Building work booklet It.No.9.1 (A) P.No.63.

**Item
No.20**

Providing T.M.T. Fe-500 bar reinforcement for R.C.C. work including bending, binding and placing in position complete up to floor two level

1.0. GENERAL

This work shall consist of furnishing and placing **TMT Fe-500D Conforming to IS 1786 2008** reinforcement, bars (intentioned) of the shape and dimensions shown on the drawings and conforming to these Specifications or as approved by the Engineer in charge.

2.0. MATERIAL

2.1. TMT Bars

Reinforcements may be either **TMT Fe-500D** tensile steel, high strength deformed bars. They may be uncoated or coated with epoxy or with approved protective coatings.

2.2. T.M.T. bars reinforcement for R C C work shall conform IS 432 (Part II) 1966 and shall be of tested quality. It shall also comply with relevant part of IS 456-1966

2.3. All reinforcement shall be clean and free from dirt, paint, grease or oil, all scale or loose or thick rust at the time of placing

2.4. All steel shall be procured form original producers no re-rolled steel shall be incorporated in the work

2.5. Only new steel shall be delivered to the site every bar shall be inspected before placing to its position and defective brittle or burnt bar shall be discarded cracked ends of bars shall be discarded

3.0. Pitch

3.1. Distance between bars shall be as specified in drawings and as directed by the Engineer in Charge all bars shall be placed at an accurate distance from each other and shall be bind tightly to maintain the desired pitch Suitable means shall be provided for holding bars securely in position

4.0. Binding wire

4.1. Mild steelbinding wire shall be of 1.63 mm or 1.22 mm (16 to 18 gauge diameter and shall conform IS 280-1972

4.2. The use of black wire will be permitted for binding reinforcement bars. It shall be free from dirt, paint, grease or oil, oil scale or loose or thick rust and any other undesirable coating which may prevent adhesion of cement mortar at the time of binding

4.3. Only new binding wire shall be delivered to the site all binding wire shall be inspected before binding to its position and defective brittle, rusted, used wire, shall be discarded

5.0. PROTECTION OF REINFORCEMENT

5.1. Uncoated reinforcing steel shall be protected from rusting or chloride contamination. Reinforcements shall be free from rust, mortar, loose mill scale, grease, oil or paints. This may be ensured either by using reinforcement fresh from the factory or thoroughly cleaning all reinforcement to remove rust using any suitable method such as sand blasting, mechanical wire brushing, etc. as directed by the Engineer. Reinforcements shall be stored on bricks, racks or platforms and above the ground in a clean and dry condition and shall be suitably marked to facilitate inspection and identification.

5.2. Portions of uncoated reinforcing steel and dowels projecting from concrete shall be protected within one week after initial placing of concrete with a brush coat of neat cement mixed with water to a consistency, of thick paint. This coating shall be removed by lightly tapping with a hammer or other tool not more than one week before placing of the adjacent pour of concrete. Coated reinforcing steel shall be protected against damage to the coating. If the coating on the bars is damaged during transportation or handling and cannot be repaired, the same shall be rejected.

6.0. Workmanship

6.1. The work shall consist of furnishing and placing reinforcement to the shape and dimensions shown as on the drawings or as directed by The Engineer in charge.

6.2. Reinforcing steel shall conform accurate to the dimensions given in the bar bending schedules shown on relevant drawing

7.0. BENDING OF REINFORCEMENT

7.1. Bar bend g schedule shall be furnished by the Contractor and got approved by the Engineer before start of work.

7.2. Reinforcing steel shall conform to the dimensions and shapes given in the approved bar bending Schedules.

7.3. Bars shall be bent cold to the specified shape and dimensions or directed by the Engineer using a proper bar bender operated by hand power to obtain the correct radius of bends and shape.

Bars shall not be bent or straightened in a manner that will damage parent material or the coating bars bent during transport or handling shall, be straightened before being used on work and shall not be heated to facilitate straightening.

8.0. PLACING OF REINFORCEMENT

8.1. The reinforcement cage should generally be fabricated in the yard at ground level, and then shifted and placed in position. The reinforcement shall be placed strictly, in accordance with the drawings and shall be assembled in position, only when structure is otherwise ready for placing of concrete. Prolonged time gap, between assembling of

reinforcements and casting of concrete, which may result in rust formation on the surface, shall not be permitted.

8.2. Reinforcement bars shall be placed accurately in position as shown on the drawings. The bars, crossing one another shall be tied together at every intersection with binding wire (annealed), conforming to IS 280 to make the skeleton of the reinforcement rigid such that the reinforcement does not get displaced during placing of concrete, or any other operation. The diameter of binding wire shall not be less than 1 mm.

8.3. Bars shall be kept in position usually by the following methods

In case of beam and slab construction, industrially produced polymer cover blocks of thickness equal to the specified cover shall be placed between the bars and formwork subject to Satisfactory evidence that the polymer composition is not harmful to concrete and reinforcement. Cover blocks made of concrete may be permitted by the Engineer, provided they have the same strength and specification as those of the member.

8.4. In case of dowels for Columns and walls the vertical reinforcement shall be kept in position by means of timber templates with slots in them accurately, or with cover blocks tied to the Reinforcement Timber templates shall be removed after the concreting has progressed up to a level just below their location.

8.5. Layers of reinforcements shall be separated by spacer bars at approximately One meter intervals. The minimum diameter of spacer bars shall be 12 mm or equal to maximum size of main reinforcement or maximum size of coarse aggregate, whichever is greater. Horizontal reinforcement shall not be allowed to sag between supports.

8.6. Necessary stays, blocks, metal chairs, spacers, metal hangers supporting wires etc, or other subsidiary, reinforcement shall be provided to fix the reinforcements firmly in its correct position.

8.7. Use of pebbles, broken stone, metal pipe, brick, mortar or wooden blocks etc as devices for positioning reinforcement shall not be permitted.

8.8. Bars coated with epoxy or any other approved protective coating shall be placed on supports that do not damage the coating. Supports shall be installed in a manner such that planes of weakness are not created in hardened concrete. The coated reinforcing steel shall be held in place by use of plastic or plastic coated binding wires especially manufactured for the purpose.

8.9. Placing and fixing of reinforcement shall be inspected and approved by the Engineer before concrete is deposited.

9.0. Lapping

9.1. All reinforcement shall be furnished in full lengths as indicated on the drawing. No splicing of bars, except where shown on the drawing; will be permitted without approval of the Engineer. The lengths of the splice shall be as indicated on drawing or as approved by the Engineer. Where practicable, overlapping bars shall not touch each other, and shall be kept apart by 25 mm or 1 1 1 4 times the maximum size of coarse aggregate, whichever is greater, If this is not feasible, overlapping bars shall be bound with annealed steel binding wire, not less than 1 mm diameter and twisted tight in such a manner as to maintain minimum clear cover to the reinforcement from the concrete surface. Lapped splices shall be staggered or located at points, along the span where stresses are low.

10.0. Welding

10.1 Splicing by welding of reinforcement will be permitted only if detailed on the drawing or approved by the Engineer. Weld shall develop an ultimate strength equal to or greater than that of the bars connected.

10.2. While welding may be permitted for T.M.T. reinforcing bars conforming to IS 432, welding of deformed bars conforming to IS 1786 shall in general be prohibited. Welding may be permitted in case of bars of other than S 240 grade including special. Welding grade of S 415 grade bars conforming to IS 1786, for which necessary chemical analysis has been secured and the carbon equivalent (CE) calculated from the chemical composition using the formula

$$CE = C + \frac{Mn}{6} + \frac{Cr + Mg + V}{5} + \frac{Ni + Cu}{15}$$

is 0.4 or less.

10.3. The method of welding shall conform to IS 2751 and IS 9417 and to any supplemental specifications to the satisfaction of the Engineer

10.4. Bars shall be bent cold to the specified shape and dimensions or as directed by Engineer in charge using the proper bender tool, operated by hand or power to attain proper radius of bends. Bars shall not be bent or straightened in a manner that will injure the material. Bars bent during transport or handling shall be straightened before being used in the work. Bars shall not be heated to facilitate bending

10.5. Unless otherwise specified a 'U' type hook at the end of each bar shall invariably be provided to main reinforcement. The radius of the bend shall not be less than twice the diameter of the round bar and the length of the straight part of the bar beyond the end of the curve shall be at least four times of the diameter of the round bar. In case of bars which are not round and in case of deformed bars, the diameter shall be taken as the diameter of circle having an equivalent effective area. The hooks shall be suitably encased to prevent any spilling of the concrete

10.6. All reinforcement bars shall be accurately placed in exact position shown on the drawings and shall be securely held in position during placing of concrete by annealed binding wire not less than 1 mm in size and by using say blocks or metal chairs spacers, metal hangers, supporting wires or other approved devices at sufficiently close intervals. Bars shall not be allowed to sag between supports not displaced during concreting or any other operations of the work. All devices used for positioning shall be of non-corrodible material. Wooden and metal supports shall not extend to the surface of the concrete, except where shown in drawings. Placing bars on layers of freshly laid concrete as the work progresses for adjusting bar spacing shall not be allowed. Pieces of broken stone or brick and wooden blocks shall not be used. Layers of bars shall be separated by spacer bars, pre-cast mortar blocks or other approved devices. Reinforcement after bending placed in position shall be maintained in a clean condition until completely embedded in concrete. Special care shall be exercised to prevent any displacement of reinforcement in concrete already placed. To prevent reinforcement from corrosion, concrete cover shall be provided as indicated on drawings. All bars protruding from concrete and to which other bars are to be lapped and which are likely to be exposed for a period exceeding 10 days shall be protected by a thick coat of neat cement grout

10.7. Bars crossing each other where required shall be secured by binding wire (annealed) of size not less than 1 mm in such a manner that they do not slip over at the time of fixing and concreting.

As far as possible bars of full length shall be used. In case this is not possible, overlapping of bars shall be done as directed by the Engineer in charge. When practicable overlapping bars shall not touch each other, but be kept apart by 25 mm. Where not feasible overlapping bars shall be bound with annealed wires not less than 1 mm thick twisted tight. The overlaps shall be staggered for different bars and located at points along the span where neither shear nor bending moments are maximum.

10.8. Whenever indicated on drawing or desired the Engineer in charge bars shall be jointed by coupling which shall have a cross section sufficient to transmit the full stresses of bars. The end of the bars that are jointed by coupling shall be upset for sufficient length so that the effective cross section at the base of threads is not less than the normal cross section of the bar. Threads shall be standard threads. Steel for coupling shall conform to IS 226

10.9. When permitted or specified on the drawings joints of reinforcement bars shall be butt-welded so as to transmit their full stresses. Welded joints shall preferably be located at points where steel will not be subject to more than 75 percent of the maximum

permissible stresses and welds so staggered that at any one section not more than 20 percent of the rods are welded Only electric are welding using a process which excludes air form the molten metal and conforms to any or other special provisions for the work shall be accepted Suitable means shall be provided for holding bars securely in position during welding It shall be ensured that no voids are left in welding and when welding is done in two or three stages previous surface shall be cleaned properly Ends of bars shall be cleaned of all loose scale rust stages paint and other foreign matter before welding Only competent welders shall be employed on the work. The M S electrodes used for welding shall conform IS 814 Welded pieces of reinforcement shall be tested. Specimen shall be taken form the actual site and their number shall frequency to test shall be as directed by the Engineer in charge

11.0 MODE OF MEASUREMENTS and PAYMENT

For the purpose of payment the bar shall be measured correct up to 10 mm length and weight payable works out at the rate specified below

Sr. No	Diameter of steel	weight of steel per running meter	Sr. No	Diamete r of steel	weight of steel per running meter
1	6 mm	0.22 Kg Rmt	8	20 mm	2.47 Kg Rmt
2	8 mm	0.39 Kg Rmt	9	22 mm	2.98 Kg Rmt
3	10 mm	0.62 Kg Rmt	10	25 mm	3.85 Kg Rmt
4	12 mm	0.89 Kg Rmt	11	28 mm	4.83 Kg Rmt
5	14 mm	1.21 Kg Rmt	12	32 mm	6.31 Kg Rmt
6	16 mm	1.58 Kg Rmt	13	36 mm	7.99 Kg Rmt
7	18 mm	2.00 Kg Rmt	14	40mm	9.86 Kg Rmt

Excess consumption over 5% willbe charged at penal rate.

Reinforcement shall be measured in length including hooks, if any, separately for different diameters as actually used in work, excluding overlaps. From the length so measured, the weight of reinforcement shall be calculated in tonnes on the basis of IS 1732. Wastage, overlaps, couplings, welded joints, spacer bars, chairs, stays, hangers and annealed steel wire or other methods for binding and placing shall not be measured and cost of these items shall be deemed to be included in the rates for reinforcement..

The contract unit rate for coated uncoated reinforcement shall cover the cost of material, fabricating, transporting, storing, bending, placing, binding and fixing in position as shown on the drawings as per these specifications and as directed by the Engineer, including all labour, equipment, supplies, incidentals, sampling, testing and supervision.

The unit Rate for coated reinforcement shall be deemed to also include cost of all material, labour, tools and plant, royalty, transportation and expertise required to carry out the work. The rate shall also cover sampling, testing and supervision required for the work. **No Payment shall be given for Lap.**

The rate shall be for a unit of **One Kg.**

Item No.21

Providing and fixing M.S. Grills of required pattern to wooden frames of window etc. with M.S. Plate at required spacing & frame around, squre or rouhnd bar with rounded headed bolts & nuts or by screws, coated with necessary red oxide and three coats of oil paint of shaded approved by engineer in charged (A) Plain grill

1.0. Materials

The structural steel shall conform to M-22

2.0. Workmanship

2.1. The M.S. Grill shall be prepared as per the drawing or as directed for fixing to

wooden frames of windows etc.

2.2. The grill shall be fabricated to the designs and patterns shown in the drawings and the weight shall be as directed, and the joints shall be reverted or welded as shown in the plan or as directed. The grill so formed shall be fixed into the frames of the windows etc. before they are erected in position. The outside strip frame of the grill shall be housed to its full thickness into the recess cut into the frame of the windows etc. The grill shall be fixed to the frame with number of bolts and nuts or screws viz. bolt nut/screw per 30 cm. of the length of outer strip subject to minimum of 2 Nos. on each side of the frame or as indicated in the drawing or as directed.

2.3. The bolts and nuts or screws shall be counter sunk and shall be fixed with the top of their heads flush with the face of the frame strips.

3.0. Mode of measurements & payment

3.1. No payment shall be made for weight of screws, bolts nuts etc. only weight of grill shall be paid.

3.2. The rate shall be for a unit of one kg.

Item No. 22

Wall painting with plastic emulsion paint of approved brand and manufacture after application of two coats of Birla or Equivalent brand putty, and a coat of primer of approved brand and after rubbing the surface and making the surface levelled by application of lappy, on undecorated wall surface to give an even shade including thoroughly brushing the surface free from mortar droppings and other foreign matter and sand papered smooth. (Inner side Plaster)

The item shall be executed as per the relevant specification of General Technical Specification for Building works Booklet It. No. 18.57 Page No 136 + 18.60 Page 137 +18.59 P. 137.

Item No.23

Finishing wall with Asian Paint Apex or Equivalent (two coats) after application of Exterior Wall primer of approved brand on wall surface to give an required shape even shade after thoroughly brushing the surface to remove all dirt, and remains of loose powdered materials.etc complete. (Outer side Plaster)

1. Materials :-

1.1 The water shall conform to M-1

The paint shall be 100 % weather proof exterior emulsion paint of Apcolite Apex 'or' its Equivalent make like I C I.

2.0 Workman ship :-

2.1 Scaffolding :-

The relevant specification of Item No. 18.11 / P - 125 shall be followed.

2.2 Preparation of Surface :-

The relevant specification of item No. 18.11 / P - 125 shall be followed except that, the Item shall be carried out for 100% acrylic exterior Apex paint for all floor level. The surface shall be thoroughly wetted with clean water before applying exterior paint surface to be painted should be free from chalking. All dust, grease and loose paint, loose powder particles, fungus / algee needs to completely removed. Remove entirely the previous growth of fungus and algee, if any, by vigorous wire burshing and cleaning with water. This treatment should be done with greater care on the top of the awnings. sunshades, parapets and other horizontal surfaces where water is likely to accumulate during monsoon.

Previously painted surface with oil paints, should be sanded thoroughly to remove loose particles and made dull and matt for better adhesion. Exterior rough surfaces previously coated with cement paint should be wire brushed and washed with water thoroughly and allowed to dry.

The exterior surface should not be affected by any water seepage of by constant dampness. In case of painting during the rains Allow for 2 - 3 days of total sunshine for the surface to dry out completely before commencing painting.

Application of putty 'or' filling compound should be avoided while painting on exterior

surfaces. Cracks should be filled up using a cement and sand mixture in the ratio 1:3.

3.0 Application : -

No conventional primer / putty is recommended on the exterior surface. Interior cement primer usage is to be strictly avoided for exteriors. Apply two coats of finish paint by thinning 1 liter of paint with 400 ml. of water (i.e. add 8 liters of water to 20 liters drum of required paint).

Precautions :

Do not over thin or overextend the brush. It is essential to use at least 1.75 litres of required paint for every 100 sq. ft. for a repainting job stir well & strain before use. Do not use Apcolite universal stainers 'or' any other colourants.

Mode of Measurement and payment :

The Item shall be measured and paid on 'square meter' basis.

**Item
No. 24**

Providing And laying broken china mosaic flooring for terrace using 12mm to 20mm broken pieces of glazed tiles to be laid over cement mortar 1:3 to plain or slope and to be tempered to bring mortar out upto surface using white cement including rounding off junctions and extending them upto 30 cm along the wall in smooth Curves, clearing with water or oxalic acid etc. over the brickbat water proofing with water proofing chemical carried out as directed by Engineer In-charged.

General

This work shall consist of furnishing and placing **Proving and laying water proofing treatment with china mosaic tiles flooring over average 40 mm thick cc 1:2:4 bedding** of the shape and dimensions shown on the drawings and conforming to these Specifications or as approved by the Engineer in charge.

Material

Water Shall confirm Material Specification no M- 1

Cement Shall confirm Material Specification no M- 3

Sand Shall confirm Material Specification no M- 6

Crushed stone aggregates Shall confirm Material Specification no M- 12

New Glazed tiles Brocken in 12 to 20 mm size pieces Shall confirm Material Specification no M- 55

White Cement Shall confirm Material Specification no M- 4

Water proofing compound shall be done as per Specification no 17.70 Page No. 121

Chemicals and compounds of approved shall be of approved quality and make . The proportion of the compound shall be of specified proportion as specified by the manufacturer

Workmanship

50 mm thick cement concrete flooring for bedding shall confirm specification no 14.71 (B) Page 101 of specification booklet for building works

The flooring shall be laid in proper slope as directed by Engineer in charge

Mixing of water proofing material shall confirm specification no 17.70 Page no 121 of specification booklet for building works

The waterproofing material of approved quality shall be mixed with the cement slurry as per specified proportion as directed by the manufacturer of the compound and as directed by The engineer in charge the mixture shall be applied uniformly to the surface in required coats as directed by the engineer in charge

Laying of white or colour glazed tiles pieces shall confirm specification item no 14.29 Page o 96 of specification booklet for building works

broken pieces of tiles shall be of ceramic/glaze tiles in one or more colour as directed and shall be not more than 12mm to 20mm in size

20 mm thick layer of cm 1:5 shall confirm Specification no 17.61 A Page 120 of specification booklet for building works

Water proofing compound shall be done as per Specification no 17.70 Page No.

Laying of white glazed tile pieces shall confirm Specification no 14.29 Page 96 of specification booklet for building works

Mode of Measurement & Payment :

The Item shall be measured for its **breadth and height** limiting dimensions to those specified on plan or as directed. The rate shall be for a unit of one square meter.

The payment will be made on square Meter basis of the finished work.

The rate shall be for a unit of **one square meter**.

**Item
No. 25**

Providing and fixing PVC Rain water spout of 50mm dia and 60cm length

1.0. Materials : PVC. type of 50 mm. dia. shall conform to M-56.

2.0. Workmanship

2.1. The PVC pipe of 30 cms. fixed as rain water pipe as directed. The pipe shall be fixed about 1/4 dia. below the floor level so as to make approach of water easy. The inlet of pipe shall be rounded off for easy entry of rain water pipe. The pipe shall be fixed in C.M. 1:3.

3.0. Mode of measurements & payment

3.1. The rate includes of all labour and materials required for satisfactory completion of this item.

3.2. The rate shall be for a unit of One number.

**Item
No.26**

Constructing septic tank of 2.00 mt. x 1.50 mt. x 1.20 mt. size with necessary out side wall and two partition walls of brick masonry making two parts of the tank, plastering tha walls in cement mortar 1:4 making all connection of pipe line and covering of the top with R.C.C. slab of cement concrete 1:2:4 with necessary reinforcement etc. complete and providing necessary earth work on it as directed.

The relevant specification shall be followed as per General Technical specification for Building work booklet It.No.24.44 (II) P.No.184.

**Item
No.27**

Providing sock pit of 5.0 Cu.M. volume including excavating sand filling brick bats with dry masonry work at top for 5cm height including covering the top with stone including providing vatas in C.M. 1:3 with finishing curing etc. complete as directed

The relevant specification shall be followed as per General Technical specification for Building work booklet It.No.24.44 (II) P.No.184.

**Item
No. 28**

'Providing laying and jointing in true line and level 15mm dia. U.P.V.C. Pipe (SCH-40) for cold water including fittings as approved by Engineer In Charge. Pipe shall be fixed on the wall with the help of clamp at every two metre C/C or shall be concealed as directed including necessary fittings etc. including testing of pipe and joints and fixing the same with adhesive solvent, including cost of all materials.

1.0. Materials & Workmanship : The relevant specifications of item 33 shall be followed except that the that diameter of pipe shall be 150 mm. dia. **2.0. Mode of measurements and payment** **2.1.** The relevant specifications of item No, 24.1. (A) shall be followed. **2.2.** The rate shall be for a unit of One running mete

2.0.

**Item
No. 29**

'Providing laying and jointing in true line and level 25mm dia. U.P.V.C. Pipe (SCH-40) for cold water including fittings as approved by Engineer In Charge. Pipe shall be fixed on the wall with the help of clamp at every two metre C/C or shall be concealed as directed including necessary fittings etc. including testing of pipe and joints and fixing the same with adhesive solvent, including cost of all materials.

1.0. Materials

(I) Water shall conform to M-1(2) Cement mortar of proportion 1:1 shall conform to M-11. (3) 100 mm. dia.

glazed stoneware pipe shall conform to M-71.

2.0. Workmanship

2.1. The trenches for UPVC Pipe shall be carried out as per relevant specifications of item No. 23.4 (A)

except that the work is for stoneware pipes of 100 mm. dia.

2.2. Laying:

2.2.1. The pipes shall be laid accurately and perfectly true to line, levels and gradients, Great care shall be taken to prevent sand etc. from entering the pipes. The pipes between two manholes shall be laid truly in a straight line without vertical or horizontal undulation. All junctions and changes in direction and diameter shall be made inside manholes by

means of curved tapered channels formed in Cement concrete finished smooth and benched on both sides. The body of the pipe shall rest for its entire length, on a even level bed grips being made or left on the bed to receive the sockets of the pipes.

2.3. Jointing:

2.3.1. Tarred gask in or yarn soaked in neat cement slurry shall first be placed around the spigot to each pipe and the spigot shall then be placed well home into the socket of the pipe previously laid. The pipe shall then be adjusted and fixed in the correct position and gaskin caulked home so as to fill not more than 1/4th of the total depth or (13 mm.

in depth) of the socket.

2.3.2. The remainder of the sockets shall be filled with stiff mixture of cement mortar in proportion of one part of cement and one part of sharp sand. When the socket is fillet, a filled shall be formed round the joints with a trowel, forming an angle of 45° with the barrel of the pipe.

2.3.3. The mortar shall be mixed as necessary for immediate use.

2.3.4. After the joint is made, any extraneous materials shall be removed from the inside of the joints with a suitable scraper or "badger". The newly made joints shall be protected, until set, from the sun, dry winds, rain or frost, sacking or other suitable materials which shall be used for the purpose.

2.3.5. The mortar shall be cured for 10 days.

2.4. Testing of Joints:

2.4.1. If any leakage is visible the defective part of the work shall be made good at no extra cost. The pipe line shall be tested as directed.

2.4.2. A slight amount of sweating which is uniform may be overlooked, but excessive sweating from a particular pipe or joints shall be watched for and taken as indicating a defect to be made good.

3.0. Mode of measurements and payment

3.1. Pounding or buttering of the fit trenches bed to the lower part of the pipe and "Grips" dug to take socket, collars etc. are included in the rate of laying the pipes.

3.2. The measurements shall be net without any allowance for cutting, and waste. The length of bends, junctions, and other connections shall be included in the total length of the drain pipes. Nothing extra shall be paid for the same.

The rate includes necessary excavation refilling trenches etc. complete,

3.3. The rate shall be for a unit of One running meter.

**Item
No. 30**

Providing and fixing S.W. gully trap with C.I. Grating brick masonry chamber and water tight C.I. cover with frame of 300mm x 300mm size (inside) with standard weight (i) Square mouth traps (C) 150mm x 100mm size - P type

The relevant specification shall be followed as per General Technical specification for Building work booklet It.No. 24.17.(I)(A) / P.No.182

**Item
No.31**

Providing and fixing cast iron (spun) Nahni trap of the following nominal diameter of self cleaning design with C.I. Screwed down of hinged grating including cost of cutting and making good the walls and floors 100mm inlet and 50mm outlet

The relevant specification shall be followed as per General Technical specification for Building work booklet It.No.23.87 P.No.164.

Item No. 32 Providing and fixing wash down water closet (indian type or baby European type W.C. Pan) with integral P or S trap including jointing the trap with soil pipe in cement mortar 1:1 (1 cement : 1 fine sand) including fixing plastic seat & cover for wash down water closer with C.P. brass hinges & rubber buffer including jet wash facilities (A) vitreous china pattern (i) white color

The relevant specifications of Building Booklet It. No.23.112 (A)(I) / Page No.165 shall be followed including CP brass hinges and rubber buffers back plastic seat

Mode of measurement

The item shall be measured and paid on **Number basis** of consolidated item of work

Item No. 33 Providing and fixing wash basin with single hole for pillar tap with C.I. or M.S. brackets painted white including cutting holes and making good the same including fixing C.P brass waste and M.I fisher union for washbasin or sink including fixing chromium plated bottle trap with necessary couplings. (A) 32 mm. dia. (A) Vitreous China , (ii) Flat Back washbasin 550 mm. x 400 mm. size. (i) In white colour,

1.0. Materials

1.1. The white glazed earthenware wash basin shall be 550 mm. x 400mm. of 1st quality and make as approved by the Engineer-in-charge. The wash basin shall-conform to M-59.

2.0. Workmanship

2.1. The washbasin shall be fixed on the wall as and where directed. The wash basin shall be supported on a pair of M.S. or C.I. brackets fixed in C.M. 1:3 (1 cement : 3 sand). The bracket shall conform to I.S. : 775-1962. The wall plaster on the rear shall be cut to rest the top edge of the washbasin. After fixing the basing, plaster shall be made good and surface finished to match the existing one.

2.2. The brackets shall be painted white with ready-mixed paint.

2.3. The C.I. brass trap and union shall be connected to 32 mm. dia. waste pipe which shall be suitably bent towards the wall and which shall discharge into an open drain leading to a gully trap or direct in to gully-trap on the ground floor and shall be connected to a waste pipe through a floor trap on the upper floors. C.P. brass trap and union may not be provided where the surface drain or a floor trap is placed directly under the basin and the waste is discharged in to vertically.

2.4. The height of the front edge to the wash basin from the floor level shall be 80 cms.

2.5. The necessary inlet, outlet connections and fittings such as pillar cocks, CP dress waste trap waste pipe, stop cock, chain wish rubber plug etc. shall be fixed.

2.6. The payment of fittings shall be made separately under separate items.

3.0. Mode of measurements & payment

3.1. The rate includes cost of all labour, materials, tool3 and plant etc. required for satisfactory completion of this item as specified in workmanship.

3.2. The rate shall be for a unit of One number.

1.0. Materials & Workmanship

1.1. The relevant specifications of item 23.135 (A) shall be followed except that the diameter of C.P. brass waste is 40 mm dia.

2.0. Mode of measurements & payment

2.1. Thu rate shall be for a unit of One number.

1.0. Materials and Workmanship

1.1. The relevant specifications of item No. 23, 136 (A) shall be followed except that the diameter of M I fisher union shall be 40 mm. dia.

2.0. Mode of measurements of payment

2.1. The rate shall be for a unit of One number

1.0. Material: The rubber plug for sink or wash hand, basin shall be best quality and make as approved by the Engineer-in-charge.

2.0. Workmanship -

2.1. The rubber plug with plain shall be fixed in wash basin or sink as directed.

3.0. Mode of measurements and payment

3.1. The rate shall be for a unit of One number.

Item No. 34 Providing laying and jointing in true line and level 50mm dia. U.P.V.C./P.V.C. Pipe (SCH- 40) for cold water including fittings as approved by Engineer In Charge. Pipe shall be fixed on the wall with the help of clamp at every two metre C/C or shall be concealed as directed including necessary fittings etc. including testing of pipe and joints and fixing the same with adhesive solvent, including cost of all materials.

The relevant specifications of Building Booklet It. No.23.8.(D)/P No.162 shall be followed expect use level 40mm dia. U.P.V.C. Pipe (SCH- 40) for cold water including fittings make Pipe shall be fixed on the wall with the help of clamp at every two metre C C or shall be concerned as directed as approved by Engineer In Charge and instead of 6 kgs sq.cm. working pressure polythene pipes of 50mm dia

Item No.35 Providing laying and jointing in true line and level 110mm dia. U.P.V.C./P.V.C. Pipe (SCH- 40) for cold water including fittings as approved by Engineer In Charge. Pipe shall be fixed on the wall with the help of clamp at every two metre C/C or shall be concealed as directed including necessary fittings etc. including testing of pipe and joints and fixing the same with adhesive solvent, including cost of all materials.

The relevant specifications of Building Booklet It. No.23.8.(B) / P No.162 shall be followed expect use level 25mm dia. U.P.V.C. Pipe (SCH- 40) for cold water including fittings make Pipe shall be fixed on the wall with the help of clamp at every two metre C C or shall be concerned as directed as approved by Engineer In Charge and instead of 6 kgs sq.cm. working pressure polythene pipes of 25mm dia.

Item No.36 Providing and fixing in position cowl vent to pipes (1) 75mm

The P.V.C. cowl vent shall be suitable for 75 mm diameter pipe. The cowl vent be true to shape, smooth, cylindrical with inner and outer surfaces being as nearly as practicable concentric. It shall be sound and nicely cast and shall be free from cracks, or other imperfections and shall be neatly fixed in position
The item shall be measured and paid on number basis.

Item No. 37 Providing and fixing gun metal check or non return full way wheel valve (C) 25mm dia

The relevant specification shall be followed as per General Technical specification for Building work booklet It.No.23.99 P.No.171 except approved quality and brand of fully wheel valve shall be used.

Item No. 38 Providing and fixing gun metal check or non return full way wheel valve (A) 15mm dia

The relevant specification shall be followed as per General Technical specification for Building work booklet It.No.23.99 P.No.171 except approved quality and brand of fully wheel valve shall be used.

Item Providing and fixing screw down bib taps of following size (B) Brass Chromium

No.39 **plated screw down bib tap (i) 15mm dia**

The relevant specification shall be followed as per General Technical specification for Building work booklet It.No.23.99 P.No.171 except approved quality and brand of fully wheel valve shall be used.

Item **Providing and fixing ball cock of approved quality as directed (A) Copper metal (i)**
No. 40 **25mm dia**

The relevant specification shall be followed as per General Technical specification for Building work booklet It.No.23.00.5 (A)(II) /P.No.173 for 25 mm.

Item **'Constructing Brick masonry road gully chamber 500mm x 450mm x 600mm**
No. 41 **including 500mm x 450mm C.I. horizontal grating wih frame complete.**

The item shall be executed as per the relevant specifications of General Technical specifications for Building works Booklet Item No. 20.40 / Page 182. The Item shall be measured & paid as finished work in Nos.

Item **'Providing and fixing Urinal of approved quality including**
No.42 **connection with trap and with integral longitudinal flush pipe.(A)**
Squatting plate pattern white earthenware 550mm x 300mm. ,
Providing and fixing C.P. brass waste for washbasin or sink. (A)
32mmdia.,Providing and fixing pillar tap, capstan head, screw down
high pressure with screws, shanks and back nuts. (i) 15mm
,Providing and fixing brass screw down stop tap.(A) 15mm dia.

The item shall be executed as per the relevant specifications of General Technical specifications for Building works Booklet Item No. 23.122[A] / Page 172. The Item shall be measured & paid as finished work in Nos.

Item **Providing, erecting & fixing double coated Syntex or equivalent PVC (ISI) water**
No.43 **tank of required capacity each with all necessary fittings & conection etc.**
completed on tarrace.

1.0 MATERIAL

1.1. PVC Water tank PVC Water tank of specified capacity and of I.S.I. mark of approved in litters of approved make and quality

Net capacity shall be net volume of water stored between the lowest level of overflow and lowest specified level.

1.2. Nipple Galvanize pipe nipple shall be of approved make and of best quality

1.3. Ball valve Ball valve shall be of approved make and of best quality

1.4. Connections shall be of approved make and of best quality

2.0 WORKMAN SHIP

2.1. Tank shall be approved quality and as per IS standard make. Material used in manufacturing tank shall be confirmed to relevant IS code. The material of tank and lead and fittings which may come in contact of water should be such that it does not impart any taste, colour or odour. It does not have any toxic effect and it does not contaminate the water. Thereby making it unpotable.

2.2. The tank shall be fixed properly in a level position and making all required necessary correction like inlet outlet flushing overflow and air vent. Tank shall be satisfying the standards of public health.

3.0. MODE OF MEASUREMENT & PAYMENT:

3.1. The unit rate PVC tank shall include the cost of all materials, tools and plant required for lifting to required height with all lead and lift, placing & fixing in position, all required specials and jointing adhesive compound, finishing as per direction of the Engineer-in-charge, and all other incidental expenses for producing PVC water tank work of specified diameter to complete the structure or its components as shown on the drawings and according to these specifications. They shall also include the cost of making, fixing and removing of all scaffolding and forms required for the work.

3.2. The number and capacity of water tank shall be decided by engineer-in-charge.

3.3. The payment will be made on litter basis of the finished work.

Deputy Executive Engineer
Panchayat (R&B) Sub Division
Umargam

Executive Engineer
Panchayat (R&B) Division
Valsad

SCHEDULE FOR TESTING OF MATERIALS :-

For ensuring quality control and workmanship Various tests prescribed below for materials shall be taken at periodical intervals as stipulated below. The materials shall be got tested at Government recognized Laboratory (R&B) or field Laboratory of GERI (R&B) for which 1% of the estimated amount put to tender shall be recovered from the contractor from the RA bills and final bills and the testing charges shall be paid to the GERI by the Government . However if the charges increase over 1% no excess recovery shall be made from the contractor as per resolution of B & C department dated 10th May 1985 vide TNC/ 1085/ (4)/ S

It. No. as per schedule "B"	Brief description of materials to be tested	Qty of material	Prescription of test which shall be carried out	Frequency at which test shall be carried out	Total No of test to be taken.
1]	Coarse Aggregate		- Gradation test - Impact value - Flakiness and elongation	1 to 100 cm 1 test 100 to 500 cm 3 test 500 to 1500 cm 5 test 1500 to 5000 cm 7 test Minimum 1 test/ work	
2]	Grit		- Stripping value	As above	
3]	Granular materials		- Gradation - Atterbeg limits	As above	
4]	Murum		- P I Value	One test per 50 cum.	
5]	Sand/ quarry spall		- Silt content - Gradation - CBR test	One test per work/ season One test per 200 cmt. One test per work	
6]	Asphalt		1 Penetration test as per IS 1203 2 Ductility test as per IS 1208 3 Specific gravity test as per IS 1202 4 Softening point test as per IS 1204 5 Viscosity test as per IS 1206	1 to 10 tanker 1 test 11 to 20 tanker 2 test 21 to 50 " 3 test 51 to 100 " 4 test Remaining every 50" 1 test	
7]	Cement		- Consistency - Setting time - Compressive strength - Fineness - Chemical analysis - Soundness	Up to 50 MT 1 test 100 MT 2 test 200 MT 3 test 300 MT 4 test 500 MT 5 test 800 MT 6 test 1300 MT 7 test and 8 test for larger consignment	
8]	CC Cubes		- Compressive Strength (I.S. 519 – 1959)	1 to 5 cms 1 No 6 to 15 cms 2 No 16 to 20 cms 3 No 21 to 50 cms 4 No 51 and above 4 + 1 (For each additional 50 m ³ or part thereof)	
9]	Water		- Chemical test	Once for approval of source of supply	
10]	Steel		- Tensile Strength - Yield Stress - Elongation - Size	1 test/ 40 tonnes/ per category	
11]	Bricks		- Water absorption - Efflorence	1 test per 50,000 bricks	

			<ul style="list-style-type: none"> - Size - Compressive Strength 		
12]	Prime coat/ Tack coat		<ul style="list-style-type: none"> - Quality of binder - Binder temperature for application - Rate of spread of binder 	<p>Number of samples per lot and test as per IS:73 At regular close intervals</p> <p>Two test per 500 m² and not less than two test per day</p>	
13]	Carpet and Seal coat mix/ B.M/ M.S.S.		<ul style="list-style-type: none"> - Quality of binder - Grading - Temperature of binder - Binder content vide 45 IMD 2172 - Rate of spread of mix materials 	<p>Number of samples per lot and test as per IS:73 1 test on individual contents and mix aggregate from the dryer for each 100 tonnes of mix subject to minimum of two test per plant per day At regular close intervals</p> <p>One test for each 100 tonnes of mix subject to mini. of Two per day Regular control through checks on layer thickness</p>	
14]	Granular Sub-base	*****	<ul style="list-style-type: none"> - Gradation - Atterberg limits - Moisture content prior to compaction - Density of compacted layer - Deleterious constituents - C.B.R. 	<p>As mentioned under serial number 3</p> <p>As mentioned under serial number 3</p> <p>As mentioned under serial number 3</p> <p>One test per 500 m²</p> <p>As required</p> <p>As required</p>	
15]	Wet Mix Macadam		<ul style="list-style-type: none"> - Aggregate Impact Value - Grading - Flakiness and Elongation Index - Atterberg limits of portion of aggregate passing 425 micron sieve - Density of compacted layer - 	<p>As mentioned under serial number 1</p> <p>As mentioned under serial number 1</p> <p>As mentioned under serial number 1</p> <p>As mentioned under serial number 3</p> <p>One test per 500 m²</p>	
16]	Water Bound Macadam		<ul style="list-style-type: none"> - Aggregate Impact Value - Grading - Flakiness Index and Elongation index - Atterberg limits of binding material - Atterberg limits of portion of aggregate passing 425 micron sieve 	<p>As mentioned under serial number 1</p> <p>As mentioned under serial No.1 As mentioned under serial number 1</p> <p>As mentioned under serial number 1</p> <p>As mentioned under serial number 1</p>	
17]	Earthwork		<ul style="list-style-type: none"> - Sand Content [IS: 2720 (Part-4)] - Plasticity Test[IS:2720 (Part-5)] 	<p>2 tests per 3000 cubic metres of soil</p> <p>2 tests per 3000 cub. metres of soil.</p> <p>2 tests per 3000 cubic metres of soil.</p>	

			<ul style="list-style-type: none"> - Density Test [IS:2720 (Part-8)] - Moisture Content Test [IS :2720 (Part-2)] - CBR Test 	<p>One test for every 250 cubic meters of soil.</p> <p>One CBR test for every 3000 cum. at least or closer as and when required by the Engineer.</p>	
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The Number of tests will be as per Manual of quality control or latest Govt. G.R./Circular and it will be considered final

The contractor shall have to pay 1% of the estimated cost put to tender towards all testing of materials and the same shall be deducted from their bills for the works.

Testing charges of GERI shall be borne by Govt. No refund be made nor extra charges over 1% shall be recoverable from the contractor.

If directed by the Engineer in charge, the materials intended to be used for the work but not included in the above schedule shall also be got tested at Government recognized Laboratory or field Laboratory.

Deputy Executive Engineer,
Panchayat (R&B) Sub Division
Umargam

Executive Engineer,
Panchayat (R&B) Division
Valsad

Signature of the contractor

