

TERMS OF REFERENCE

Expansion of Freedom Primary school, Women Resource Center, and additional wards at Pariang Main Hospital at Pariang Payam.

1. PROJECT INFORMATION

1.1. Background

International Organization for Migration (IOM), South Sudan Mission, is implementing the Enhancing Community Resilience and Local Governance Project (ECRP). ECRP is providing training to boma and Payam level development committees which have prioritized infrastructure for selected Payam in eight Counties and two Administrative Areas.

IOM South Sudan therefore is seeking contractors to carry out the mobilizing and constructing of the various community infrastructure projects to the required standards of ECRP for construction, quality control, and health, safety, and environmental protection.

IOM requires prompt and immediate action in mobilization of a team for construction. As a result, the Contractor must provide a suitable and experienced team that can quickly and efficiently carry out the required construction work, as well as any required tools and transportation for the team to and from the sites. The Contractor shall furnish all the necessary materials, tools and equipment, labor supervision and other services for the satisfactory and timely completion of the works in accordance with this agreement.

1.2. Project Details

Project Name	Expansion of Freedom Primary school, Women Resource Center, and additional wards at Pariang Main Hospital at Pariang Payam.
Project Site 1	Freedom Primary School, Pariang Payam, Pariang County, Ruweng Administrative Area (RAA)
	GPS: N 9.906749, E 29.982545
	Scope of Work: Construction of 1 block of two classrooms

Project Site 2	Women Resource Center, Pariang Payam, Pariang County, Ruweng Administrative Area (RAA) GPS: N 9.922550, E 29.987002
	Scope of Work: Construction of women resource center block, 1 block of 4 stances latrine and 50mx50 chain link fence at Waukok and Abon-2
Project Site 3	Pariang Main Hospital, Pariang Payam, Pariang County, Ruweng Administrative Area (RAA) GPS: N 9.911666, E 29.982730
	Scope of Work: Construction of additional wards, Incinerator, and placenta pit at Pariang Main Hospital, Guengalath
Schedule	The project is expected to commence in March and be completed within 5 months with a twelve-month warranty period.

2. Supervision

The construction site and construction activities will be supervised by the IOM designated Site Engineer and Project Engineer. A Community Site Supervisor will support the team in monitoring the work daily.

The Lead Engineer is responsible for the overall project management of the contract work with oversight from the ECRP Programme Coordinator.

To avoid double reporting, the Contractor is not allowed to report externally to any other platform of coordination.

3. Scope of Work

These General Specifications are to be used with reference to the following documents:

Annex A.	Design Drawings
Annex B.	Guideline for Standards on Workmanship and Materials
Annex C.	ECRP IOM Project Health and Safety Management Plan (HSMP)
Annex D.	ECRP IOM Quality Management Plan (QMP)
Annex E.	ECRP Environmental and Social Requirement for contractors (ESRC)
Annex F.	ECRP Labour Management Procedure (extract from ESMP)

The following detailed scope of work are supplementary to the design drawings. Any discrepancies between the drawings and these specifications shall be brought to the attention of the Site Engineer for clarification.

Only IOM may approve any changes, modifications, deviations, and substitutions in the scope of work.

Specifications for the one block of two classrooms and PHCU is in Section 3.1.

3.1. SPECIFICATIONS - ONE BLOCK OF TWO CLASSROOMS

3.1.1. Site Layout

Orientation of classroom block: The orientation of the classroom shall be as per the site assigned by the school administration. Confirmation of the orientation shall be part of the initial site inspection.

Measurements: During the setting out, the Contractor shall obtain the correct measurements from the drawings and cross check the diagonals to see if they are equal.

3.1.2. Site Clearance

The Contractor shall clear the site and debris for an area of **308.0** square meters and as shall be guided by the Site Engineer.

3.1.3. Excavation for foundation work

The contractor shall excavate the foundation trenches as per the cross sections specified on the design drawing. The Site Engineer reserves the right to increase the foundation size subject to the exposed soil conditions per the following guidance:

The Contractor shall excavate for Normal soil (hard and gravel soil) to a depth of **800 mm** and width of **800-900 mm** as per the footing and plinth wall layout. In case of sandy soil and water prone areas, the depth should be **1000 mm – 1500 mm** with a width of **800-900 mm**.

3.1.4. Concrete foundation work

The Contractor should provide a weak concrete blinding (1:8:12) of **50 mm thickness** after proper compaction of the soil. Concrete for the foundation shall be C10 (Ratio of 1:3:6) (Cement: Sand: Aggregate). The ratio must be measured properly with a gauge box of 300 mm by 300 mm by 400 mm. After the casting of the foundation the foundation must be cured for 5 days prior to plinth wall construction.

Provide column bases as per the layout drawings:

Columns C1 at **2000 mm x 800 mm x 250 mm** thick to receive columns of size **200mm x 200mm**. For all columns, 4 Y-12 bars shall be installed with stirrup R8 spaced at 175mm C/C with an overlap of 50mm. Y-12 bars shall be used for the footing spaced at 180 C/C in both directions. Refer to C-1 in the drawings for more details on the reinforcement.

CHS columns for the veranda at *400 mm x 400 mm x 400 mm thick*, to receive CHS ϕ 100x3mm Steel Columns to support the roof.

3.1.5. Plinth Wall and Ground Beam

A plinth wall should be constructed to a *height of 500 mm* above the ground level with solid concrete blocks to receive the *200mm x 300mm* thick ground beam. Mortar mix should be 1:3 (Cement: Sand) with wall thickness of *200 mm* for the plinth wall. For the ground beam, C-25 structural concrete shall be used (1:1:2 Cement: Sand: Aggregate). The ground beam shall have depth of 300mm and width of 200mm. For reinforcement details refer to the bar bending schedule for beams on different axes with their respective cross sections. All beams with stirrup R8 and reinforcement bars Y12 on all Axes (A, B, C, 1,2,3,4 &5).

3.1.6. Back Filling the Soil

After completing the foundation work, the back-void spaces must be filled out with selected soil material. The selected material should be put in layers of up to 200 mm with each layer properly compacted. Min. 500mm thick Compacted selected fill to grade is required.

3.1.7. Hardcore Placing

Contractor shall place a 200 mm thick crushed stone/hardcore and compact the layer properly. The void shall be filled with marram, smaller aggregates, or broken bricks.

3.1.8. Concrete Slab

The floor slab will be resting on top of the hardcore stones, with a weak concrete blinding (1:8:12) and damp-proof membrane (i.e., plastic sheeting). It shall be casted monolithically with the ground beam.

A concrete slab must be casted (according to the drawing) with a thickness of 100 mm using concrete grade of C-25 (ratio of 1:1:2). reinforced with wire mesh reinforcement; BS 4483 A98 weighing 1.54 kgs per square meter, resting on spacers at least 50mm high. and should be resting on spacers at least 50mm high.

3.1.9. Walling

The contractor should construct the wall a thickness not less than 200 mm by using good quality burnt clay bricks or concrete blocks, whichever is available, all round the classroom perimeter including partition walls. A damp-proof course must be laid on the floor slab prior to laying mortar for the walls. The length and height of the wall must be constructed according to the drawings. The mortar ratio should be 1:3 (Cement: Sand).

3.1.10. Ring Beam

The contractor shall form the ring beams in situ and provide formwork at the soffits fitted to the door and window openings. The ring beams are *300 mm x 200 mm* C-25 concrete (ratio 1:1:2), reinforced with R8 stirrups spaced at 175mm c/c and 6-Y-12 bars, see reinforcement schedule for details on beam axes A, B, C, 1,2,3, 4, &5.

3.1.11. Roofing Work, Wooden Elements

The contractor shall put complete roofing structure by using wooden roof structure. The contractor may submit a proposal for using a steel frame structure on Form QM06 - Approval for work/materials (AFW/M). Rates inclusive of nails, hoop iron at joints, cutting and application of creosote or other approved wood preservative on the timber surfaces in two coats.

For details and dimensions of the metallic structure elements, refer to the Roof, Beam and Truss Layout and Truss T-1 details in the drawings.

The gable end roof shall have a pitch of 20-degree slope in accordance with the drawings. The contractor should put pre-coated corrugated galvanized iron sheet (28G) as per the specification mentioned in BoQ (Bill of Quantity). The CGI (Corrugated Galvanized Iron) sheet should be joined with the purlin with appropriate screw nails and other necessary accessories. A 25 x 225mm high timber valance board / barge board with approved wood preservative shall be nailed to 100 x 50 rafter: payment includes all joint and placement work to install the fascia board. A gutter shall be installed on the lower side of the roof and connected to the 10,000L water tank using the appropriate accessories and fittings.

3.1.12. Doors and Windows

The contractor should provide all the ironmongery work of good quality, two coats of red oxide primer shall be applied at point of fabrication before delivery.

Steel doors and windows to fit structural opening as per the doors and window schedule. One coat of enamel paint to be applied on site. The finish shall be clean and uniform in color with no blemishes. All surfaces shall be covered uniformly. Adjacent surfaces that have not been painted shall be protected from splashing. Any paint splashes shall be cleaned off at the contractor's expense.

3.1.13. Ramps

The Contractor shall construct ramps for ease of accessibility with 5% slope or ratio of 1:20 for the pedestrian access. The ramps should be equipped with handrails on either side of the ramp as per the drawings and specifications. The ramp shall be constructed with C-20 concrete (ration 1:1.5:3) with BRC mesh A98 with a minimum thickness of 100 mm at all points.

Install two lines of grip friendly handrails using CHS 50 diameter and 2.5 mm thickness on both sides of the ramp. The height of the rails shall be at 30, 60 and 90 cm from the ramp level with vertical support @ 100cm C/C. Horizontal rails shall be parallel to the slope. The edges of the handrails shall have a smooth finish. All iron parts to be painted with two coats of antirust paint and one coat of enamel paint.

3.1.14. Finishing work

For the floor finishing, a 50 mm floor screed should be applied on top of the slab. The ratio of cement to sharp sand should be 1:3.

The contractor shall provide 15 mm thick as plastering and rendering on internal and external sides of the walls. The plastering and rendering mortar ratio should be 1:3 (cement: plaster sand).

All the walls to be painted shall be clean and dry. Any dirt shall be removed through scrubbing. Specified color coats on the BoQ (Bill of Quantity) shall be applied to the satisfaction of the IOM Site Engineer. Spills on the floors, walls and roof shall be avoided and any accidental spillage should be thoroughly cleaned to a state that cannot be seen. The walls shall be painted with 1 coat of emulsion under coat and finished with 3 coats of matte vinyl paint in soft white for internal walls and emulsion weather guard paint in smoked grey for external walls. The wooden fascia board shall be painted with 1 coat of emulsion under coat and finished with 3 coats of an oil-based gloss paint in white. Paint color and where to apply to be coordinated with the IOM Site Engineer.

3.1.15. Drainage and Plumbing works

The contractor shall construct a 600x200mm storm water drainage ditch around the building to drain storm water to an appropriate discharge site. This shall be determined by the Site Engineer based on the site layout. The contractor will also put in place one water tank as per the water tank stand details in the drawing including the compacted earth base, brick walling (min. 225 mm thick, cement mortar 1:3) to hold compacted murram, top slab and 10,000L water tank with all fittings.

The contractor shall install 250x350mmx2mm galvanized metal sheet gutter with all the fittings and accessories (hoppers, delivery pipe, clips, washout pipe and overflow pipe).

4.1 SPECIFICATIONS – WOMEN RESOURCE CENTER AND PHCC WARDS

4.1.1 Site Layout

Orientation of Women Resource Center and PHCC wards: The orientation of the Women Resource center and PHCC wards shall be as per the site assigned by the women group/Hospital Administration. Confirmation of the orientation shall be part of the initial site inspection.

Measurements: During the setting out, the Contractor shall obtain the correct measurements from the drawings and cross check the diagonals to see if they are equal.

4.1.2 Site Clearance

The Contractor shall clear the site and debris for an area of **230.5 square** meters for each site and as shall be guided by the Site Engineer.

4.1.3 Excavation for foundation work

The contractor shall excavate the foundation trenches as per the cross sections specified on the design drawing. The Site Engineer reserves the right to increase the foundation size subject to the exposed soil conditions per the following guidance:

The Contractor shall excavate for Normal soil (hard and gravel soil) to a depth of **800 mm** and width of **800-900 mm** as per the footing and plinth wall layout. In case of sandy soil and water prone areas, the depth should be **1000 mm – 1500 mm** with a width of **800-900 mm**.

4.1.4 Concrete foundation work

The Contractor should provide a weak concrete blinding (1:8:12) of **50 mm thickness** after proper compaction of the soil. Concrete for the foundation shall be C10 (Ratio of 1:3:6) (Cement: Sand: Aggregate). The ratio must be measured properly with a gauge box of 300 mm by 300 mm by 400 mm. After the casting of the foundation the foundation must be cured for 5 days prior to plinth wall construction.

Provide column bases as per the layout drawings:

Columns C1 at **2000 mm x 800 mm x 250 mm** thick to receive columns of size **200mm x 200mm**. For all columns, 4 Y-12 bars shall be installed with stirrup R8 spaced at 175mm C/C with an overlap of 50mm. Y-12 bars shall be used for the footing spaced at 180 C/C in both directions. Refer to C-1 in the drawings for more details on the reinforcement.

CHS columns for the veranda at **400 mm x 400 mm x 400 mm thick**, to receive CHS $\phi 100 \times 3$ mm Steel Columns to support the roof.

4.1.5 Plinth Wall and Ground Beam

A plinth wall should be constructed to a **height of 500 mm** above the ground level with solid concrete blocks to receive the **200mm x 300mm** thick ground beam. Mortar mix should be 1:3 (Cement: Sand) with wall thickness of **200 mm** for the plinth wall. For the ground beam, C-25 structural concrete shall be used (1:1:2 Cement: Sand: Aggregate). The ground beam shall have depth of 300mm and width of 200mm. For reinforcement details refer to the bar bending schedule for beams on different axes with their respective cross sections. All beams with stirrup R8 and reinforcement bars 6-Y12 on all Axes (A, B, C, 1, 2, 3, 4 & 5).

4.1.6 Back Filling the Soil

After completing the foundation work, the back-void spaces must be filled out with selected soil material. The selected material should be put in layers of up to 200 mm with each layer properly compacted. Min. 500mm thick Compacted selected fill to grade is required.

4.1.7 Hardcore Placing

Contractor shall place a 200 mm thick crushed stone/hardcore and compact the layer properly. The void shall be filled with marram, smaller aggregates, or broken bricks.

4.1.8 Concrete Slab

The floor slab will be resting on top of the hardcore stones, with a weak concrete blinding (1:8:12) and damp-proof membrane (i.e., plastic sheeting). It shall be casted monolithically with the ground beam.

A concrete slab must be casted (according to the drawing) with a thickness of 100 mm using concrete grade of C-25 (ratio of 1:1:2). reinforced with wire mesh reinforcement; BS 4483 A98 weighing 1.54 kgs per square meter, resting on spacers at least 50mm high. and should be resting on spacers at least 50mm high.

4.1.9 Walling

The contractor should construct the wall a thickness not less than 200 mm by using good quality burnt clay bricks or concrete blocks, whichever is available, all round the center perimeter including partition walls. A damp-proof course must be laid on the floor slab prior to laying mortar for the walls. The length and height of the wall must be constructed according to the drawings. The mortar ratio should be 1:3 (Cement: Sand).

4.1.10 Ring Beam

The contractor shall form the ring beams in situ and provide formwork at the soffits fitted to the door and window openings. The ring beams are **300 mm x 200 mm** C-25 concrete (ratio 1:1:2), reinforced with R8 stirrups spaced at 175mm c/c and 4-Y-12 bars, see reinforcement schedule for details on beam axes A, B, C, 1,2,3, 4, &5.

4.1.11 Roofing Work, Wooden Elements

The contractor shall put complete roofing structure by using steel frame structure. The contractor may submit a proposal for using a timber structure on Form QM06 - Approval for work/materials (AFW/M). Rates inclusive of bolts, cuttings, welding, screws, and application of two coats of red oxidized primer on the trusses surfaces including purlins.

For details and dimensions of the metallic structure elements, refer to the Roof, Beam and Truss Layout and Truss T-1 details in the drawings.

The gable end roof shall have a pitch of 20-degree slope in accordance with the drawings. The contractor should put pre-coated corrugated galvanized iron sheet (28G) as per the specification mentioned in BoQ (Bill of Quantity). The CGI (Corrugated Galvanized Iron) sheet should be joined with the purlin with appropriate screw nails and other necessary accessories. A 25 x 225mm high timber valance board / barge board with approved wood preservative shall be nailed to 100 x 50 rafter: payment includes all joint and placement work to install the fascia board. A gutter shall be installed on the lower side of the roof and connected to the 10,000L water tank using the appropriate accessories and fittings.

4.1.12 Doors and Windows

The contractor should provide all the ironmongery work of good quality, two coats of red oxide primer shall be applied at point of fabrication before delivery.

Steel doors and windows to fit structural opening as per the doors and window schedule. One coat of enamel paint to be applied on site. The finish shall be clean and uniform in color with no blemishes. All surfaces shall be covered uniformly. Adjacent surfaces that have not been painted shall be protected from splashing. Any paint splashes shall be cleaned off at the contractor's expense.

4.1.13 Ramps

The Contractor shall construct ramps for ease of accessibility with 10% slope or ratio of 1:10 for the pedestrian access. The ramps should be equipped with handrails on either side of the ramp as per the drawings and specifications. The ramp shall be constructed with C-20 concrete (ration 1:1.5:3) with BRC mesh A98 with a minimum thickness of 100 mm at all points.

Install two lines of grip friendly handrails using CHS 50 diameter and 2.5 mm thickness on both sides of the ramp. The height of the rails shall be at 30, 60 and 90 cm from the ramp level with vertical support @ 100cm C/C. Horizontal rails shall be parallel to the slope. The edges of the handrails shall have a smooth finish. All iron parts to be painted with two coats of antirust paint and one coat of enamel paint.

4.1.14 Finishing work

For the floor finishing, a 50 mm floor screed should be applied on top of the slab. The ratio of cement to sharp sand should be 1:3.

The contractor shall provide 15 mm thick as plastering and rendering on internal and external sides of the walls. The plastering and rendering mortar ratio should be 1:3 (cement: plaster sand).

All the walls to be painted shall be clean and dry. Any dirt shall be removed through scrubbing. Specified color coats on the BoQ (Bill of Quantity) shall be applied to the satisfaction of the IOM Site Engineer. Spills on the floors, walls and roof shall be avoided and any accidental spillage should be thoroughly cleaned to a state that cannot be seen. The walls shall be painted with 1 coat of emulsion under coat and finished with 3 coats of matte vinyl paint in soft white for internal walls and emulsion weather guard paint in smoked grey for external walls. The wooden fascia board shall be painted with 1 coat of emulsion under coat and finished with 3 coats of an oil-based gloss paint in white. Paint color and where to apply to be coordinated with the IOM Site Engineer.

4.1.15 Drainage and Plumbing works

The contractor shall construct a 600x200mm storm water drainage ditch around the building to drain storm water to an appropriate discharge site. This shall be determined by the Site Engineer based on the site layout. The contractor will also put in place one water tank as per the water tank stand details in the drawing including the compacted earth base, brick walling (min. 225 mm thick, cement mortar 1:3) to hold compacted murram, top slab and 10,000L water tank with all fittings.

The contractor shall install 250x350mmx2mm galvanized metal sheet gutter with all the fittings and accessories (hoppers, delivery pipe, clips, washout pipe and overflow pipe

5 SPECIFICATIONS - 4 STANCE LATRINE CONSTRUCTION

5.1.1 Site Layout

Orientation of latrine block: The orientation of the latrine block shall be as per the site assigned by the Women Group. Confirmation of the orientation shall be part of the initial site inspection.

Measurements: During the setting out, the Contractor shall obtain the correct measurements from the drawings and cross check the diagonals to see if they are equal.

5.1.2 Site Clearance

The Contractor shall clear the site and debris for an area as specified in the BoQ and as guided by the Site Engineer.

5.1.3 Pit Excavation and Lining

The contractor shall excavate the pit for the block of latrine as per the dimension in the drawing and BoQ. The contractor must ensure that proper shoring of the excavation walls is installed. After the excavation is completed, place a 50mm plain concrete blinding with C-10 concrete (Ratio 1:3:6). The pit wall foundation beams should be formed according to the beam details, *200 mm thick C-25 concrete (ratio 1:1:2) with reinforcement bars* as per the beam schedule. A *100mm thick concrete (C-20 Ratio 1:1.5:3) with BRC mesh* shall be laid as the bottom pit slab.

The 400mm pit walls to be formed with concrete blocks, in filled with $\phi 10 @ 100$ mm steel mesh and cement mortar (ratio 1:3). The contractor shall plaster the lined pit internally to a thickness not exceeding 15mm with mortar ratio of 1:3. At the top of the wall, a RC ground beam with a dimension of 200 mm X 300 mm (breadth and height) should be monolithically casted with the suspended slab using C-25 concrete (ratio of 1:1:2). The concrete cover shall be 25 mm for beams and 20 mm for floor slabs. Refer to bar bending schedule for details of reinforcement.

5.1.4 Excavation for foundation work

Excavate as per the cross sections specified on the design drawing, *a rectangular C-shaped foundation strip on Axis B & C between 1 & 2 and on Axis 1&2 between B&C*. The Site Engineer reserves the right to increase the foundation size subject to the exposed soil conditions based on the following guidance:

The Contractor shall excavate for Normal soil (hard and gravel soil) to a depth of 600 - 1000mm and width of 600mm as per the footing and plinth wall layout.

In case of sandy soil and water prone areas, the depth should be 1000 – 1500 mm with a width of 600 mm.

5.1.5 Concrete foundation work

The Contractor should provide a weak concrete blinding (1:3:6) of 50 mm thickness after proper compaction of the soil. Concrete for the foundation shall be C-20 (Ratio of 1:1.5:3) (Cement: Sand: Aggregate). The ratio must be measured properly with a gauge box of 300 mm by 300 mm by 400 mm. After the casting of the foundation the foundation has be cured for 5 days prior to plinth wall construction.

Provide column bases as per the layout drawings: The column footing shall have 3-Y12 bars, L=600mm with 50 mm cover in both directions. Stirrup R8 shall be used spaced at 175mm c/c

with an overlap of 50mm and 4-Y12 for all columns. Refer to C-1 to C-3 for more details on the reinforcement.

5.1.6 Plinth Wall and Ground Beam

A plinth wall should be constructed to a height of 150 mm above the ground level with 200 mm solid concrete blocks to receive the 200mm x 300mm ground beam. Mortar mix should be 1:3 (Cement: Sand) with wall thickness of 200 mm for the plinth wall. For the ground beam, C-25 structural concrete shall be used (1:1:2 Cement: Sand: Aggregate). For reinforcement details refer to the bar bending schedule for beams on different axes with their respective cross sections. All beams with stirrup R8 and for beams on *Axes 1, 2, A', B and C using Y-12* while the beam on *Axis A using Y-16*.

5.1.7 Back Filling the Soil

After completing the foundation work, the back-void spaces must be filled out with selected soil material. The selected material should be put in layers of up to 200 mm with each layer properly compacted. Minimum 500mm thick compacted selected fill to grade is required.

5.1.8 Hardcore Placing

Contractor shall place a 200 mm thick crushed stone/hardcore and compact the layer properly. The void shall be filled with marram, smaller aggregates, or broken bricks. Place a layer of 50 mm weak concrete blinding (ratio 1:3:6) to receive the damp proof membrane layer.

5.1.9 Concrete Slab

A reinforced concrete slab over the latrine pit (Y-10 mm @ 100 mm c/c both directions) must be casted according to the drawing with a thickness of 150 mm and concrete grade of C-25 (ratio of 1:1:2).

The floor slab of the lobby will be resting on top of the hardcore stones, with a weak concrete blinding and damp-proof membrane (i.e., plastic sheeting). It shall be casted monolithically with the ground beam over the excavated pit. The floor slab for the lobby is reinforced with wire mesh; BS 4483 A98 weighing 1.54 kgs per square meter, resting on spacers at least 50mm high.

The slab over the latrine pit should have openings for 2 squat holes (see drawing detail), 1 manhole of a size 600 mm x 600 mm and one ventilation pipe (PVC 4" diameter).

5.1.10 Walling

The contractor should construct the walls to a thickness of 150 mm by using good quality burnt clay bricks or concrete blocks, whichever is available, for all internal and external walls. A damp-proof course must be laid on the floor slab prior to laying mortar for the walls. The length and height of the wall must be constructed according to the drawings. The mortar ratio should be 1:3 (Cement: Sand).

5.1.11 Ring Beams

The contractor shall form the ring beams in situ with soffits fitted to the door and window openings. The ring beams are 150 mm x 300 mm C-25 concrete (ratio 1:1:2), reinforced with R8 stirrups spaced at 200mm c/c and 4-12Y bars, see reinforcement schedule for details.

5.1.12 Roofing Work, Metallic Elements

Contractor shall put complete roofing structure by using Timber roof structure. The contractor may submit a proposal for using a Metallic frame structure on Form QM06 - Approval for work/materials (AFW/M). The price contains construction of bonding elements for roof timber supporting structure according to the rules of craft using hoop iron, nails/roofing nails, and all according to the design. For details and dimensions of the timber structure elements, refer to the Roof, Beam and Truss Layout and Truss R-1 Detail in the drawings.

The lean-to roof shall be at 6-degree slope in accordance with the drawings. The contractor should put pre-coated corrugated galvanized iron sheet (28G) as per the specification mentioned in BoQ. The CGI sheet should be joined with the purlin with appropriate roofing nails and other necessary accessories. A wooden fascia board, 25mm x 225mm, shall be fixed to the rafters and purlins. A gutter shall be installed on the lower side of the roof and connected to the hand washing tank.

All timber parts of the roof construction shall be protected with 2 coating against termite attack using wood preservative.

5.1.13 Doors and Louvers

The contractor should provide all the ironmongery work of good quality, two coats of red oxide primer shall be applied at point of fabrication before delivery.

Steel doors and windows to fit structural opening as per the doors and window schedule. One coat of enamel paint to be applied on site. The finish shall be clean and uniform in color with no blemishes. All surfaces shall be covered uniformly. Adjacent surfaces that have not been painted shall be protected from splashing. Any paint splashes shall be cleaned off at the contractor's expense.

5.1.14 Ramps

The Contractor shall construct ramps for ease of accessibility with 5% slope or ratio of 1:20 for the pedestrian access. The ramps should be equipped with handrails on either side of the ramp as per the drawings and specifications. The ramp shall be constructed with C-20 concrete (ration 1:1.5:3) with BRC mesh A98 with a minimum thickness of 100 mm at all points.

Install two lines of grip friendly handrails using CHS 40 diameter and 2 mm thickness on both sides of the ramp. The height of the rails shall be at 70 and 90 cm from the ramp level with vertical support @ 100cm C/C. Horizontal rails shall be parallel to the slope. The edges of the handrails shall have a smooth finish. All iron parts to be painted with two coats of antirust paint and one coat of enamel paint.

5.1.15 Finishing work

For the floor finishing, a 50 mm floor screed should be applied on top of the slab. The ratio of cement to sharp sand should be 1:3.

The contractor shall provide 15 mm thick as plastering and rendering on internal and external sides of the walls. The plastering and rendering mortar ratio should be 1:3 (cement: plaster sand).

All the walls to be painted shall be clean and dry. Any dirt shall be removed through scrubbing. Specified color coats on the BoQ shall be applied to the satisfaction of the IOM Site Engineer. Spills on the floors, walls and roof shall be avoided and any accidental spillage should be thoroughly cleaned to a state that can't be seen. The walls shall be painted with 1 coat of emulsion under coat and finished with 3 coats of matte vinyl paint in soft white for internal walls and emulsion weather guard paint in smoked grey for external walls. The wooden fascia board shall be painted with 1 coat of emulsion under coat and finished with 3 coats of an oil-based gloss paint in white. Paint color and where to apply to be coordinated with the IOM Site Engineer.

5.1.16 Drainage and Plumbing works

The contractor should cast a latrine seat that is 400mm high from the floor as per the PSN seat detail. The top and sides of the seat should be finished with tiles. Furthermore, the contractor shall install footrests reinforced with wire mesh for the two standard stances as per the drawing detail.

The contractor shall construct a perimeter drain around the building to collect and convey storm water to an appropriate discharge site. This shall be determined by the Site Engineer based on the site layout.

The contractor will also put in place one hand washing station as per the hand wash tank stand details in the drawing including the foundation, plinth wall, concrete slab, brick wall, compacted murram, top slab and 500L water tank with all fittings.

A 75mm diameter PVC pipe shall be connected from the hand wash station to the soak away pit. In locations where the soil conditions do not allow for effective infiltration, the grey water shall be directed to an appropriate discharge site located away from the facility.

A vent pipe should be installed with a vent cap and fly screen. The height of the vent opening shall be at least 30 cm above the roof height.

6 SPECIFICATION FOR CHAIN-LINK FENCE

6.1 Site Layout

Orientation of Chain-Link Fence: The orientation of the Fence shall be as per the site assigned by the facility administration. Confirmation of the orientation shall be part of the initial site inspection.

Measurements: During the setting out, the Contractor shall obtain the correct measurements from the drawings and cross check the diagonals to see if they are equal.

6.2 Excavation for foundation work

Excavate for sub-columns/Angle column posts as specified in the Bill of Quantity and on the drawing. The Site Engineer reserves the right to increase the foundation size subject to the exposed soil conditions based on the following guidance:

The Contractor shall excavate for Normal soil (hard and gravel soil) to a depth of **500mm-1000mm** and **300mmx300mm bases** for Angle column posts. And **750mmx750mm** footing for concrete Gate Column the depth should be **1000 – 1500 mm** in case of sandy soil and water prone areas.

6.3 Concrete work

The Contractor should provide concrete for the sub-column/post bases and shall be C-20 (Ratio of 1:1.5:3) (Cement: Sand: Aggregate). The ratio must be measured properly with a gauge box of 300 mm by 300 mm by 400 mm. After the casting of the bases, they must be cured for at least 5 days prior to installation of the Chain-Link.

Provide 750mmx750mm, 300mm thick footing for Gate column. The column footing shall have 8-Y-12 bars both ways, L=800mm with 50 mm cover in both directions. Gate Column of 300mmx300mm should be reinforced with Stirrup R8 spaced at 150mm c/c with an overlap of 50mm and 4-Y-12 rebars.

6.4 Posts and Chain- Link

The contractor shall supply and install 50x50x4mm Angle bars for Fence posts spaced at maximum **2.3m c/c**. **50x50x4mm** “Y” crank welded at the top of the posts and razor wire of **0.45m diameter** installed onto. The height of the posts above ground shall be determined by the height of the chain link supplied but should be of minimum **1.9meters**. The poles shall be reinforced with **40x40x3mm** coping angle iron and **2 lines** of tension wire for the chain link and 3 lines running parallel for razor wire on the “Y” crank. Corner posts and posts at an interval of **12.5m** shall be supported by 50x50x4mm diagonal angle bars installed as per the drawing.

6.5 Vehicular Gate

The contractor shall supply, fabricate and fix 3800mm wide and 2000mm high double leafed grided gate, with 1000mm wide by **1900mm** high Pedestrian access embedded on one leaf. Gate of **25x25x2mm** thick intermediate vertical SHS bars fixed to **60x40x3mm** RHS external frame and **40x40x3mm** SHS middle stile; “Y” Crank welded to the top of the gate to hold 3 lines of tension wire and Razor wire including all necessary accessories (anchorage to the columns, heavy duty hinges, bottom lock and socket, barrel locks etc.) shall be installed to Engineer's satisfaction.

Two coats of red oxide primer shall be applied at the point of fabrication before delivery. Two finishing coats of enamel paint to be applied on site. The finish shall be clean and uniform in color with no blemishes. Any paint splashes shall be cleaned off at the contractor's expense.

Apply 15mm thick cement sand rendering (1:3), steel trowelled finish, Paint: 2 coats of emulsion under coat, finish with 2 coats of emulsion weather guard paint in smoked grey.

7.1 SPECIFICATIONS – INCINERATOR AND ASH PIT

7.1.1 Site Layout

Orientation of incinerator and ash pit: The orientation of the incinerator and ash pit shall be as per the site assigned by the PHCC administration. Confirmation of the orientation shall be part of the initial site inspection.

Measurements: During the setting out, the Contractor shall obtain the correct measurements from the drawings and cross check the diagonals to see if they are equal.

7.1.2 Site Clearance

The Contractor shall clear the site and debris for an area of **30.0 square** meters from site and as shall be guided by the Site Engineer.

7.1.3 Excavation for foundation work

The contractor shall excavate the foundation pit as per the cross sections specified on the design drawing. The Site Engineer reserves the right to increase the foundation size subject to the exposed soil conditions per the following guidance:

The Contractor shall excavate for Normal soil (hard and gravel soil) to a depth of **800 mm** and width and length shall be as per the drawing. In case of sandy soil and water prone areas, the depth should be **1000 mm to 1500mm deep** with the width and length as specified in the drawings.

7.1.4 Concrete foundation work

The Contractor should provide a weak concrete blinding (1:8:12) of **50 mm thickness** after proper compaction of the soil. The concrete for the bottom pit slab for ash pit shall be C20 (Ratio of 1:2:3) and shall rest over compacted sand. It shall be reinforced with BRC mesh. The ratio must be measured properly with a gauge box of 300 mm by 300 mm by 400 mm. After the casting of the concrete slab, the concrete slab must be cured for 5 days prior to blocks walling in ash pit.

7.1.5 Ash pit Walling

The pit lining shall be constructed using concrete blocks in 1:3 cement sand mortar and wall width of **200mm**.

7.1.6 Back Filling the Soil

After completing the pit lining for ash pit, the back-void spaces must be filled out with selected soil material.

For incinerator, the selected material should be put in layers of up to 200 mm with each layer properly compacted. Min. 500mm thick Compacted selected fill to grade is required.

7.1.7 Hardcore Placing

Contractor shall place a 200 mm thick crushed stone/hardcore and compact the layer properly prior to casting the ground floor slab for the incinerator. The void shall be filled with marram, smaller aggregates, or broken bricks.

7.1.8 Concrete Slab

The floor slab will be resting on top of the hardcore stones, with a weak concrete blinding (1:8:12) and damp-proof membrane (i.e., plastic sheeting).

A concrete slab must be casted (according to the drawing) with a thickness of 150 mm using concrete grade of C-25 (ratio of 1:1:2). reinforced with Y-10 rebars spaced at 180mm c/c in both directions, resting on spacers at least 50mm high and should be resting on spacers at least 50mm high.

7.1.9 Incinerator Walling

The contractor shall construct the base of the incinerator and layers 1,2,3,4,5,6,7,8,9,10,11,12,13 and 14 with refractory bricks and refractory cement mortar. The outer layer of the incinerator shall be constructed with common burnt bricks in 1:3 cement sand mortar.

. The length and height of the wall must be constructed according to the drawings.

7.1.10 Chimney, Top frame, loading door and ash door.

The contractor shall provide and fit top frame as per the drawing (De Montfort Mark 9) fitting with sand frames, including supply of sand and with steel stiffeners.

The contractor shall also provide and fit loading door 620x620mm, ash door 230x240mm, chimney including chimney support panel with chimney spigot.

7.1.11 Shade

The contractor shall construct a shade over the incinerator as per the drawing. The CH 75x5mm steel columns shall be casted with concrete C25 below and at the columns bases. Refer to the drawing for detail on the superstructure.

For roofing: The contractor shall put complete roofing structure by using steel frame structure. The contractor may submit a proposal for using a wooden roof structure on Form QM06 - Approval for work/materials (AFW/M). Rates inclusive of nails, hoop iron at joints, cutting and application of creosote or other approved wood preservative on the timber surfaces in two coats.

For details and dimensions of the metallic structure elements, refer to the Roof, Beam and Truss Layout and Truss T-1 details in the drawings.

The gable end roof shall have a pitch of 20-degree slope in accordance with the drawings. The contractor should put pre-coated corrugated galvanized iron sheet (28G) as per the specification mentioned in BoQ (Bill of Quantity). The CGI (Corrugated Galvanized Iron) sheet should be joined with the purlin with appropriate screw nails and other necessary accessories.

accessories (hoppers, delivery pipe, clips, washout pipe and overflow pipe)

7 SPECIFICATIONS – PLACENTA PIT

7.1.1 Site Layout

Orientation of placenta pit: The orientation of the placenta pit shall be as per the site assigned by the hospital administration. Confirmation of the orientation shall be part of the initial site inspection.

Measurements: During the setting out, the Contractor shall obtain the correct measurements from the drawings and cross check the diagonals to see if they are equal.

7.1.2 Site Clearance

The Contractor shall clear the site and debris for an area as specified in the BoQ and as guided by the Site Engineer.

7.1.3 Pit Excavation and Lining

The contractor shall excavate the pit for the placenta pit as per the dimension in the drawing and BoQ. The contractor must ensure that proper shoring of the excavation walls is installed. After the excavation is completed, place a 50mm plain concrete blinding with C-10 concrete (Ratio 1:3:6) to receive foundation footing. A *200mm thick concrete footing (C-20 Ratio 1:1.5:3) with Y10 spaced at 150mm c/c* in both directions shall be casted below the pit walling.

7.1.4 Concrete foundation work

The Contractor should provide a weak concrete blinding (1:3:6) of 50 mm thickness after proper compaction of the soil. Concrete for the foundation shall be C-20 (Ratio of 1:1.5:3) (Cement: Sand: Aggregate) for foundation footing of 200mm high. The ratio must be measured properly with a gauge box of 300 mm by 300 mm by 400 mm. After the casting of the foundation the foundation has be cured for 5 days prior to plinth wall construction.

Provide foundation footing as per the layout drawings: The foundation footing shall have Y10 bars spaced at 150mm c/c in both direction, 50 mm cover in both directions. Stirrup R8 shall be used spaced at 175mm c/c with an overlap of 50mm. Refer for more details on the reinforcement.

7.1.5 Pit Wall and Intermediate Beam

A plinth wall should be constructed to a height of 300 mm above the ground level with 200 mm solid concrete blocks to receive 150mm concrete floor slab. Mortar mix should be 1:3 (Cement: Sand) with wall thickness of 200 mm for the plinth wall. For the intermediate beam, C-25 structural concrete shall be used (1:1:2 Cement: Sand: Aggregate). For reinforcement details refer to the drawing

7.1.6 Back Filling the Soil

After completing the foundation work, the back-void spaces must be filled out with selected soil material. The sand filling shall be filled up to 100mm on top of the hard-core backfilling.

7.1.7 Hardcore Placing

The contractor shall place a 100 mm thick crushed stone/hardcore at the bottom of the pit and compact the layer properly. The void shall be filled with marram, smaller aggregates, or broken bricks.

7.1.8 Concrete Slab

A reinforced concrete slab over the placenta pit (Y-10 mm @ 180 mm c/c both directions) must be casted according to the drawing with a thickness of 150 mm and concrete grade of C-25 (ratio of 1:1:2).

The slab over the placenta pit should have two openings for, 1 manhole of a size 300 mm x 400 mm covered with lockable steel plate cover and one ventilation pipe (PVC 4" diameter). See drawing for details.

7.1.9 Steps

The contractor should construct the steps consisting of 150mm rise and 300mm treads using solid concrete blocks or burnt bricks in 1:3 cement sand mortar. mortar for the walls.

8 Role of the Contractor

The Contractor will have to provide for the construction and completion in every detail of the work described in the contract documents. All labor, materials, tools, equipment, transportation, supplies required to complete the work in accordance with the specifications and terms of the contract should be well furnished. The Contractor cannot deviate from the construction designs or specifications without seeking permission and approval from IOM.

IOM reserves the right to reject any materials, equipment, or resources and to delete or reduce any work item, whether in whole or in part and update Annexes, as necessary and a reduced contract price shall be agreed.

If the Contractor is not able to finish the construction works or must abandon the works due to loss of tools, accidents or any unforeseeable circumstances, the Contractor should remove all unused materials from the site. IOM will pay only for the work done as per rates in the filled Bill of Quantities in the contract document.

The ECRP IOM Project Health and Safety Management Plan (HSMP) outlines the Contractor's roles and responsibilities in the management of activities to prevent dangerous acts that could lead to injuries, illnesses or serious incidents in the workplace and damage or loss of assets.

The ECRP Quality Management Plan (QMP) outlines the Contractor's roles and responsibilities for meeting the quality standards expected of this program and the process and procedure for verifying each step.

To complete the task timely and efficiently the Contractor should:

1. Deploy qualified and well experienced managers, site engineers and workers to complete the required tasks.
2. Prepare and submit staff deployment plan/organogram for the project implementation assigning the specific persons in charge of communication and coordination with the project supervisor.
3. Prepare and submit Work Plans, Emergency Preparedness and Response Plan, Waste Management Plan, Labour Management Plan and Environmental and Social Management Plan as per the HSMP
4. Preparation of “Resource Plan” (materials, machine/tools, workforce) in accordance with the submitted Work Plans.
5. Develop Risk Assessments using Form HS05 as per the HSMP
6. Based on the approved work plan, the Contractor shall execute multiple work activities simultaneously to save time.
7. The Contractor shall allow unlimited access to construction sites for the ECRP staff as required.
8. Follow Guideline GHS12 – Site Establishment in the HSMP,
 - A. The Contractor should arrange temporary office/accommodation at each site with necessary facilities for the staff and workers (water, toilets, first aid kits etc.)
 - B. The Contractor is responsible for maintaining pollution/contamination free surrounding environment.
 - C. The contractor should display both work plan and resource plan at each site.
 - D. The debris from any demolition activity and garbage at the construction sites should be removed by the Contractor and disposed in a safe area away from the site.
9. As per the Quality Management Plan (QMP),
 - A. Ensure that materials are properly packed and covered during transportation to ensure that the materials are not damaged.
 - B. Ensure that all materials in particular cement, timber, paints etc. are properly stored on sites to prevent any deterioration of strength by water, moisture, or heat.
 - C. All structural works such as foundation works, erection of columns, beams, support structures etc. shall be executed in the presence of IOM personnel.

9 Health, Safety and Environment

The Contractor is required to comply with the *ECRP IOM Project Health and Safety Management Plan (HSMP)* and the *Environmental and Social Management Plan (ESMP)*. The following information is provided to guide the Contractor in the key aspects of the HSMP only.

The main health and safety legislation and other relevant compliance requirements in South Sudan are described in the *South Sudan Legal Register* (Form HSE03).

Risk assessments for hazard identification and activities are required for safety-critical activities prior to each stage of work commencing. These shall be documented using Form HS05. All IOM personnel have the authority to stop any activity that has the potential to cause injury or damage property until such times as the works are managed in a safe manner.

The Contractor's team leader shall take all reasonable precautions to prevent any death or injury to persons during said undertaken activities. These precautions shall include but not be limited to ensuring the crew wears the protective equipment such as safety helmets, hard-toed boots (safety boots) or gumboots, heavy-duty gloves and ensuring that all tools and equipment are in a safe condition and ensuring that their employees adopt safe working methods as instructed by IOM. No military-looking clothing will be accepted at any time. *Health, Safety, Social and Environmental Inspection Site Reports* shall be carried out weekly on Form HSE05.

The project sites The Contractor's team leader has the obligation and responsibility to safeguard the safety and security of its personnel, the construction crew's equipment and other property, and personnel's personal effects and other property. The Contractor's team leader shall develop an *Emergency Preparedness and Response Plan* in consultation with IOM, including detailed procedures to cover evacuation, personnel, equipment, unlawful interference, and prevention of sabotage.

The Contractor is required to hire skilled and unskilled labour from the local project area to execute the contract. The Contractor shall submit their *Labour Management Plan* in accordance with the guidelines in Annex F on the ECRP *Labour Management Procedures*. Justification must be submitted to IOM for approval before the Contractor can recruit non-local skilled labour.

All selected staff to work as part of the construction crew are to abide by the Code of Conduct in the Construction Contract on the prohibition and prevention of sexual exploitation and abuse (SEA). The crew shall undertake a *PSEA (Prevention of Sexual Exploitation and Abuse) (Prevention of Exploitation and Abuse), 1-day training* with IOM prior to conducting any work.

The Contractor is to ensure that all materials, solid or liquid, are stored in a manner so as not to damage or contaminate any surface by spillage. Further guidance is provided in *Guidelines on Environmental Management*: GEM02 Waste Management & Hazardous Substances, GEM03 Protection of Water, GEM05 Borrow Pit Management, and GEM06 Preservation of Historical, Archaeological and Cultural Remains.

10 Quality Management

The ECRP *Quality Management Plan (QMP)* outlines the Contractor's roles and responsibilities for meeting the quality standards expected of this program and the process and procedure for verifying each step. The following information is provided to guide the Contractor in the key aspects of the QMP only. A more detail guidance on quality of workmanship is provided in Annex B.

Section 5 of the QMP provides the framework for project staff responsibilities during Construction. From IOM, each site will be assigned a Site Engineer and Community Site Supervisor who are supervised by a Project Engineer whose main task is to monitor and report on the performance of works being implemented. The Lead Engineer is responsible for the overall contract management.

The QA (Quality Assurance) process, in brief, starts with approval from the Lead Engineer for a construction activity to proceed (Form QM06). Once approval is obtained, the work can proceed. During the work phase and upon completion, the Contractor must allow testing of materials, inspection of construction activity and survey compliance checks to be performed. For *material*

testing, relevant forms include QM07A Request for Inspection and Testing Results, QM07B Inspection of Materials on Site, and QM09 Inspection and testing plan. For inspection, the Contractor is responsible for submitting *QM10 Daily Logbook*, and *QM11 Weekly/Monthly Progress Report and Summary*.

Any materials or works that do not conform to the technical specifications, design drawings or BoQ shall be rejected with a *Non-Conformance Report (NCR)*. The Contractor will then be responsible for dismantling and removal of the rejected materials from the sites immediately. Rectification and reconstruction of works shall be carried out at the cost of the Contractor prior to continuing with the next phase of work. Refusal of this instruction will lead to immediate termination of the contract.