Annex 1:

– Technical Specifications
1 Earthworks:

- The Contractor shall remove all organic materials, obstacles, or irregularities from the project site, it is the contractor responsibility to remove all existing site obstruction prior commencing earth works.
- The Contractor shall level the site in a way ensures the minimum slope for surface runoff (1%) as instructed by UNICEF’s Engineer using all types of required machineries and leveling works at no extra charge.
- The Contractor shall be responsible to cut and fill the soil up to one (1) meter above and/or below the agreed project level at no extra charge. Whenever the cut and fill works exceed one (1) meter, the Contractor should promptly notify UNICEF before executing the works. UNICEF will not be liable for any costs or additional charges that are not previously agreed with the Contractor in writing.
- The contractor will be responsible to carry out excavation works for a holding tank, the holding tank’s dimensions is W:3m L:2m H:2m, the dimension of the holding tank’s bore shall be more than the holding tank’s surface dimensions by 0.5m minimum.
- Extra material and or gravel embankment should be removed from the site and dumped properly as per the national regulations. In case of need for additional material the contractor shall take the proper procedure to supply to the site the needed quantity of approved quality materials subjects the level difference does not exceed the limits explained above.
- Supply and apply silica sand bed for the holding tank of 20 cm beneath the holding tank.
- Supply and apply Class-A base coarse layer with 15 cm thick after rolling with maximum size of 37.5mm all according to AASHTO (A-1a) specification, the price shall include the layer compaction and water needed for the compaction, using a proper steel compactor machinery to achieve 95% of dry density. Also, to include any surveying works to reach the required level or slope for water drainage purposes. All according to the engineer’s instructions.
- Supply and Implement a hot asphalt surface MC-70 prime coat, with density of 1.5 Kg/m2 by automatic spraying and protect the surface until it becomes dry. And as per engineers’ instructions.
- The contractor shall supply a final layer of good quality, washed basalt key aggregate with maximum size of 1” (25mm), to be spread over the prime coat and compacted with a proper weight roller.

2. Fences and Gates:
2.1. Steel Fence:

- Work to cover the supply and Installation of new steel fence of IPE 100x50x4mm section: 3m height with additional 75cm installation below ground level distributed at 3m spacing. Price includes 21MPa concrete foundation for the poles, IPE 100x50x4mm 50 cm (45 degree angle) top extensions, with 3 supporting steel wires 3 mm With Galvanized 6cm x 6cm (after tension)x4mm wire mesh up to 3m height, strongly tied to 4mm passing wires between sections at every meter height, wire mesh should be casted to the ground with 20cm x 20cm ground beam of 21MPa concrete. The price also to include any extra IPE bracing (on the corner and wherever it is needed). All steel elements should be painted with one layer of primer paint and two layers of mutt river blue RAL5012 enamel paint. As per technical drawing.
2.2. Vehicle Gate:

- The contractor should install a sliding gate vehicles, 5 meter wide made of 8 cm x 4 cm x 2 mm steel tube frame and middle vertical and horizontal beams, interior 4 cm x 4 cm x 2 mm steel tubes should be used at 10 cm clear spacing, with (2 cm x 2 cm) x 30 cm handles and steel angle track and all required pulleys and Three guarding fixed columns with proper rollers and pad lock plates. All elements should be painted with one layer of primer paint and two layers of mutt river blue RAL 5012 enamel paint.

2.3 Pedestrian Gate:

- In addition to the vehicle gate a pedestrian gates should be supplied and installed with the following specification 1 m clear width and 2 m, made of 8 cm x 4 cm x 2 mm steel tube frame and middle horizontal beam, interior 4 cm x 4 cm x 2 mm steel tubes should be used at 10 cm clear spacing, with (2 cm x 2 cm) x 30 cm handles and three heavy duty 10 cm steel hinges and 15 mm diameter sliding bolt with pad lock plates. All elements should be painted with one layer of primer paint and two layers of mutt river blue RAL 5012 enamel paint.

3. Steel Shaded Area

- Provide and install steel shade area (10 mx 12 m), using HSS 100x100x3.7 mm for columns and HSS 100x50x3 mm for trusses, double inclined roof type, the roof shall be covered by corrugated white (eggshell) steel sheets 0.8 mm thickness with minimum slope for storm water drainage. The clear shade's height is 3 m from F.G.L. The connection between the columns and the footing shall be base plate and bolts-mechanical type using proper anchor bolts. The price shall include: The side bracing and top bracing using proper steel section and connection (Welding or Plates) in addition to the top purlins, the structural design showing all calculations including minimum L.L, minimum D.L, S.L and W.L. All required civil works which include columns footing excavation 50x50x50 cm for each footing, concrete for footings 25 Mpa and any other necessary works. Painting all shade's metal parts by one-layer Zinc Rich primer paint and two layers finishing oil-based paint RAL 5012. Providing 2-inch PVC pipes for drainage purposes connected to cladding side gutters. All according the engineer's instruction.

4. Prefab Units:

- All Prefab Units should be stamped with grooved plate at the main entrance showing the Unit Type, Serial Number, Purchase Order Number, Date of Manufacture, Owner and Manufacturer Names.
- The Prefabricated steel structures should be designed to handle the following service loads:
  1. Floor Load of 2.0 kN/m² of Live Load in addition to Self-Weight.
  2. Roof Load of 1.5 kN/m² of Snow Load in addition to Self-Weight.
  3. Structural Stability against Wind Load of 25 m/s (120 km/h).
- The Executed structures should be finalized to even interior dimensions; any irregularity in the used sections' dimensions should be adjusted to the outside of the structure or should be accounted for in the interior finishing.
4.1. 6x7.5m Classroom Prefab Units:

- The sections used for the main skeleton can be of Standard Cold Formed Galvanized Steel Sections or Standard Hot Rolled Steel Sections, the structural capacity and stability can be accounted for by using a truss arrangement consisting of standard Light Gage Steel Sections. Wherever the structural elements are prominent they should be covered with steel sheet flashing.
- The prefab units to be procured should be equipped with base plate at all column endings made of 25cm x 25cm x 5mm thickness painted black steel plate, the structures should be elevated from the ground with clearance of 20cm min.
- All the Skeleton sections and flashings should be painted to River Blue of RAL 5012.
- Walls should be made using low-ribbed sandwich panel boards with total thickness of 40mm and formed of galvanized steel sheets of 0.35mm thickness pre-painted to RAL9002 white and stuffed with polyurethane foam of 38 kg/m3 density with U value of less than 0.46 W/m20c. The panels should be placed using tongue and groove joining system and bolted at all edges to the main skeleton with cold formed galvanized steel U-section of minimum thickness 1.2mm, the bolts should be spaced at 40cm distance.
- The roof should consist of sandwich panels of 40-75/50-80 section formed of galvanized steel sheets of 0.35mm thickness pre-painted to RAL9002 white and stuffed with polyurethane foam of 38 kg/m3 density with U value of less than 0.46 W/m20c.
- The roof panels should be corrugated from the upper side only and low-ribbed from the interior bottom side, the corrugation should be aligned in a manner not stopping the water drainage slope, the boards should be tightened using the panel overlap arrangement bolted at 40cm intervals then each panel bolted to the purlins to assure tightness, the roof should be two slopes with rain water drainage slope of 10% should be maintained at all conditions and directed towards the gutters.
- All joints should be sealed with a high performance one component, gun grade, moisture curing, non-slump elastomeric seal, fast cure, and primer free polyurethane construction sealant, to assure water tightness.
- The interior side of the roof should be covered with horizontally level False Ceiling Tiles 60cm x 60cm x 0.5cm with fine PVC surface, structure and suspension system of galvanized steel hanged using 3mm wires, with exposed surfaces prefinished with polyester paint, the ceiling to be fixed on 2.4-2.2m of F.F.L (Clear Height).
- Gutters should be supplied to All inclined roofs gutters should be supplied with cover sheet flashing to minimize the accumulation of dirt or blockage of water path, also PVC plastic pipe should be supplied to assure water drainage to the ground level.
- While supplying and installing doors the avoidance of sharp edges should be considered during all stages of manufacturing, the doors frames should be painted with two layers of primary coating and three layers of gloss ultramarine blue enamel paint of RAL 5012. The door should be hinged with three 10cm x 4cm x 3mm stainless steel standard duty ball bearing full mortise hinges with 4 screws each as minimum; the hinges should be distributed as needed on the stile. The doors will be supplied with cylindrical lock including three keys and 2 handles with their protection plates. The door frames should be of the same thickness of the finished adjacent wall with lintel, jambs and tightness joints of same door material, finish and colour. Doors dimensions should be as per relative standard drawings and existence of glazed windows should be clarified on the drawing as well. Doors are to be installed straight and plumb and allow for precision opening and closing after painting. The doors sills should have the same level of the interior flooring finish.
Each unit will have 1 No. single leaf door of clear dimension of 2m x 1m at the front of the unit made insulated sandwich panel with extruded aluminum frames, the door frames of the same thickness of the finished wall with lintel and tightness joints and threshold of same door frame material and finish painted to RAL 5012.

Each unit will be equipped with 6 No. windows (100x100cm). Windows should be framed with tightness joints of cold formed galvanized steel frame, the frames should be coated with primary coat and two layers of gloss ultramarine blue of RAL 5012 enamel paint or powder coated with the same colour, white coloured powder coated aluminium frames with tracks for the sliding type and joints for the tilting type and tightness jointed aluminium sashes of the same finish and glazed with 6mm single clear polycarbonate pane and mutt polycarbonate pane for the toilet windows, The sash should include a lock plate confronting a lock pin in the frame with the necessary hardware for the functioning of the window and a system to limit the opening of the window for ventilation purposes, One sash of mosquito net should be provided as minimum.

Prefab units should have plywood flooring of not less than 18mm thickness, topped with PVC rubber flooring of 3mm thickness

The technical specifications for the standard **electrical fixtures** should be as follows (each unit):

- 6 No. Ceiling mounted double fluorescent lamp lighting consisting of 1.2m LED tubes of 36 Watts daylight grade with necessary chassis, accessories reflectors and grilled protection covers.
- 1No. Wall mounted rain type (Water Resistant) lighting globe with one compact fluorescent lamp of 18Watt of daylight grade with necessary chassis, accessories and grilled protection covers.
- Circuit breakers should be of miniature type capable of handling 220V with three poles for 50A or more breakers and one pole for below 50A breakers. The breakers should be of the heavy-duty type and should be all embedded in a strong steel panel of proper size according to the number of breakers in the building.
- Electrical light rocker switches single or double white plastic button of 220V and 13A capacity.
- 6No. Electrical Socket of white plastic safety type outlet with on/off 220V and 16A capacity forming (2P+G).
- All wires used for connecting lighting fixtures should be plastic insulated with the capacity of 220V and cross-section area of 1.5mm2, each couple of wires grouped together by twining.
- All wires used for connecting power sockets should be plastic insulated with the capacity of 220V and cross-section area of 2.5mm2, each 3 relevant wires grouped together by twining.
- All wires for all purposes should be encased in strong PVC plastic electrical conduit of 16mm or 20mm as required by the number of wires including all necessary fittings. The corrugated flexible type of conduits is prohibited in all cases and shall not be used.

**4.2. 6x3m Ablution Disable Prefab Units:**

Supply and Install prefabricated structure to be used as ablution unit for disable with the dimensions 6x3m. The ablution unit will be divided into 4 No. units for non-disabled children including 3 No. child friendly toilet seats and 1 No. child friendly eastern squad seat and 4 child friendly basins (60cm height from F.F.L), one separated unit for disabled children including typical basin and toilet seat for the children with disabilities with all handicap accessories. In addition to small room with separate entrance on the backside of the unit to be used as a store.
The ablution unit side walls will be made of 40mm polyurethane insulated sandwich panel, the panels are covered on both sides with 0.35mm pre-painted hot dipped galvanized steel sheet white color RAL 9002. Corrugated sandwich panels of 40-75mm thickness for the roof.

Skeleton of modular unit will consist of Cold-formed steel beams for bottom skid to the required dimension Bolted together made of painted galvanized steel with 2mm thickness. 2.5mm Thickness of 4-corners made from painted galvanized steel will be connected to steel skid by bolts. The floor will be covered with 18mm cement board and finished with 8mm thick non-slip ceramic tiles.

The ablution unit internal partitions should be made from 40mm thick polyurethane insulated sandwich panel with all the required cold formed galvanized steel U-section of minimum thickness 1.2mm, the bolts should be spaced at 40cm distance to install the partitions.

The ablution unit doors will be a single leaf door made insulated sandwich panel with extruded aluminum frames. the external door sizes will be 90x200cm for the non-disabled entrance and 110x210 for the disabled wash unit the inner ones should be 75x200cm, work should cover all doors accessories and ironmongery.

The ablution unit shall has one large extruded aluminum window 2x1m and one window 1x1m, in addition to swinging windows (60x60cm) for internal units provided with 6” fan.

Work should cover water sprinkler, all required PVC pipes for connection, water mixers, UPVC plumping pipes connection proving at least one outlet and with all latrine accessories. The works include to install 50L electrical heater with its connections and valves.

Work should also cover all the required electrical connections for lighting units, switches and plugs considering circuit breakers and main input, the works include leveling, testing and calibration on site and all accessories to make it safe and operational.

The contractor shall assure that the connections are done from the water tank to the ablution unit and to provide.

The contractor will be responsible for the external connection between the units and the holding tanks, the contractor shall use 6” UPVC medium pressure pipes including all necessary fittings to complete the works.

4.3 Prefabricated Office Units 6x3m:

The sections used for the main skeleton can be of Standard Cold Formed Galvanized Steel Sections or Standard Hot Rolled Steel Sections, the structural capacity and stability can be accounted for by upgrading the used section. Wherever the structural elements are prominent they should be covered with steel sheet flashing.

The prefab units to be procured should be equipped with base plate at all column endings made of 25cm x 25cm x 5mm thickness painted black steel plate, the structures should be elevated from the ground with clearance of 20cm min.

All the Skeleton sections and flashings should be painted to pure white of RAL 9010.

Walls should be made using low-ribbed sandwich panel boards with total thickness of 40mm and formed of galvanized steel sheets of 0.35mm thickness pre-painted to RAL9002 white and stuffed with polyurethane foam of 38 kg/m3 density with U value of less than 0.46 W/m20c. The panels should be placed using tongue and groove joining system and bolted at all edges to the main skeleton with cold formed galvanized steel U-section of minimum thickness 1.2mm, the bolts should be spaced at 40cm distance.
- The roof should consist of sandwich panels of 40-75/50-80mm section formed of galvanized steel sheets of 0.35mm thickness pre-painted to RAL9002 white and stuffed with polyurethane foam of 38 kg/m³ density with U value of less than 0.46 W/m²K.

- The roof panels should be corrugated from the upper side only and low-ribbed from the interior bottom side, the corrugation should be aligned in a manner not stopping the water drainage slope, the boards should be tightened using the panel overlap arrangement bolted at 40cm intervals then each panel bolted to the purlins to assure tightness, the roof should inclined with rain water drainage slope of 10% should be maintained at all conditions and directed towards the gutters.

- All joints should be sealed with a high performance one component, gun grade, moisture curing, non-slump elastomeric seal, fast cure, and primer free polyurethane construction sealant, to assure water tightness.

- While supplying and installing doors the avoidance of sharp edges should be considered during all stages of manufacturing, the doors frames should be painted with two layers of primary coating and three layers of gloss ultramarine pure white paint of RAL 9010. The door should be hinged with three 10cm x 4cm x 3mm stainless steel standard duty ball bearing full mortise hinges with 4 screws each as minimum; the hinges should be distributed as needed on the stile. The doors will be supplied with cylindrical lock including three keys and 2 handles with their protection plates. The door frames should be of the same thickness of the finished adjacent wall with lintel, jambs and tightness joints of same door material, finish and colour. Doors dimensions should be as per relative standard drawings and existence of glazed windows should be clarified on the drawing as well. Doors are to be installed straight and plumb and allow for precision opening and closing after painting. The doors sills should have the same level of the interior flooring finish.

- Each unit will have 1 No. single leaf door 2mx1m of cold formed pre-painted galvanized steel frame and wood frame panel covers with pre-painted galvanized steel sheet of 0.6mm thickness painted to grey white of RAL 9002, the door frames of the same thickness of the finished wall with lintel and tightness joints and threshold of same door frame material and finish pure white paint of RAL9010.

- Each unit will be equipped with 3 windows (100x100cm). Windows should be framed with tightness joints of cold formed galvanized steel frame, the frames should be coated with primary coat and two layers of pure white paint of RAL 9010 enamel paint or powder coated with the same colour, white coloured powder coated aluminium frames with tracks for the sliding type and joints for the tilting type and tightness jointed aluminium sashes of the same finish and glazed with 6mm single clear polycarbonate pane and mutt polycarbonate pane for the toilet windows, The sash should include a lock plate confronting a lock pin in the frame with the necessary hardware for the functioning of the window and a system to limit the opening of the window for ventilation purposes, One sash of mosquito net should be provided as minimum.

- Prefab units should have plywood flooring of not less than 18mm thickness, topped with PVC rubber flooring of 3mm thickness.

- The technical specifications for the standard **electrical fixtures** should be as follows:
  - 2No. Ceiling mounted double fluorescent lighting units consisting of 1.2m LED tube of 36 Watts daylight grade with necessary chassis, accessories reflectors and grilled protection covers.
  - 1No. Wall mounted rain type (Water Resistant) lighting globe with one compact fluorescent lamp of 18Watt of daylight grade with necessary chassis, accessories and grilled protection covers.
  - Circuit breakers should be of miniature type capable of handling 220V with three poles for 50A or more breakers and one pole for below 50A breakers. The breakers should be of the heavy-duty type and should be all embedded in a strong steel panel of proper size according to the number of breakers in the building.
• Electrical light rocker switches single or double white plastic button of 220V and 13A capacity.
• 4No. Electrical Socket of white plastic safety type outlet with on/off 220V and 16A capacity forming (2P+G).
• All wires used for connecting lighting fixtures should be plastic insulated with the capacity of 220V and cross-section area of 1.5mm², each couple of wires grouped together by twining.
• All wires used for connecting power sockets should be plastic insulated with the capacity of 220V and cross-section area of 2.5mm², each 3 relevant wires grouped together by twining.
• All wires for all purposes should be encased in strong PVC plastic electrical conduit of 16mm or 20mm as required by the number of wires including all necessary fittings. The corrugated flexible type of conduits is prohibited in all cases and shall not be used.

4.4 Steel Stairs:
- Steel stairs of folded 0.2mm rough steel plates from GL to the floor level of the prefabs, each stair should not exceed 18 cm high for the riser and the width of the tread should be at least 30 cm, width of the stair is 1.2 m. painted with antirust paint RAL 5012 and double coat of primer paint

4.5 2m³ Water Tank:
- Supply, install, test, and maintain HDPE or PVC Water tank made from 3 layers, U.V proofing and non-bacterial conditions and including supplying distributing and drain opening each with ball valve best quality and venting pipe. Tank shall include a heavy-duty float valve ¾ inch and shall. Capacity 2000 liters. All according to the engineer’s instructions.

4.6 Water Tank Stand:
- Provide and install steel stands for water tanks, made from a suitable steel section (L-Angle or HSS 30x30x2) with 2m minimum height, all parts shall be painted 2 layers of primer and one layer of oil-based paint RAL 5012