METHOD STATEMENT FOR CONSTRUCTION OF CIVIL WORKS

Project No:	

REVISION HISTORY	ISSUE DATE	DESCRIPTION	REVIEW / STATUS
00			

PREPARED BY:	**REVIEWED & APPROVED BY:**
QA QC ENGINEER	PROJECT ENGINEER

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1. PURPOSE

To specify the requirements of civil construction including excavation, filling, and allied activities complying with the contract document, specification, and scope of work and approved drawings/documents. It also includes earthworks associated with trenches for pipelines or service ducts.

2. SCOPE

This Method Statement applies to all the civil works - Excavation including ground preparation, setting out, backfilling, soil compaction, concreting, waterproofing, masonry, plastering, joinery, painting, and GRC works - related to the construction of the building as per project requirements, referring with approved Civil and MEP drawing.

3. ROLES & RESPONSIBILITY

The primary responsibility of carrying out all the activities mentioned in this procedure rests with the site-in-charge unless mentioned otherwise.

3.1. Project Leader:

Overall execution and administration of the project as per contract requirements, specifications, and the PQP. Liaise with the Head (Quality & HSE) for preparation and updating of PQP. Directly control the Site Engineers and Supervisors. He is responsible for ensuring that all the correct procedures are followed and all necessary permits for the works are obtained in advance.

3.2. Site Engineer:

Assess manpower, equipment, or other resources required to ensure timely completion of the project. Monitor availability of all materials as per schedule. Inform the Project Leader for any non-availability of materials to take proper action. Carry out receiving inspection in coordination with the QA/QC Engineer. Ensure that the drawings and documents are up to date and that the latest drawing is available and is being utilized in the project site works. Fill up the check sheet and submit the necessary IR to the QA/QC function when the work is ready for inspection.

3.3. QA/QC Engineer:

Responsible for the monitoring and implementation of quality-related matters and ensuring the works are being executed with the approved Project Quality Plan and requirements of the Contract Documents, sections 1 part 8 of QCS 2010, approved method statement, and ITPs.

3.4. Safety Officer:

Responsible for monitoring and implementation of safety-related matters such as work permits, First Aid, PPE, approval of diversions, and following the safety and traffic regulations by all the workmen during the construction, according to the approved project HSE plan. First Aid boxes are readily available with the HSE officer and other two numbers at site personnel's vehicles for site requirements.

3.5. Supervisor/Foreman:

Plan and obtain required manpower and resources in coordination with the Site Engineer. Carry out all activities as per the planned schedule to achieve target dates. Coordinate with respective disciplines of work and liaise with the site engineer for day-to-day activities. Inform the Discipline Engineer regarding site inspections when it is ready. Ensure pre-task briefing is to be conducted before the start of work at each session.

3.6. Chargehand:

Works shall be executed as per the direction of Supervisors/Foremen for all activities as per the planned schedule to achieve the target. Coordinate with respective disciplines of work and liaise with the Supervisors/Foremen for day-to-day activities. Ensure pre-task briefing is conducted before the start of work at each session.

4. REFERENCE DOCUMENTS

- Contract Document & Bill Of Quantities.
- Civil structural and architectural drawings were issued for construction. QCS 2010 and Project Specifications.

5. ABBREVIATIONS

- Main Contractor To be filled Consultant To be filled Client or Customer To be filled
- Site-in-charge For this procedure, the term Site-In-charge
- Shall mean Project/Site Engineer.

6. INSPECTION & TESTING

- Site inspection/approval shall be by the approved Inspection and Test Plan for all activities in addition to the Quality Control Procedure and Project Quality Plan for the Project.
- All the required site tests shall be conducted as per Section-21, applicable Parts of QCS 2010.

7. WORK PERMITS

- All necessary work permits shall be obtained before the commencement of any activity at the site and shall remain valid throughout the entire duration of the operation.

- Safety Barriers and Site sign boards will be installed before the work commencement.

8. HEALTH, SAFETY, AND ENVIRONMENTAL PROCEDURES

- Requirements of Health, Safety, and Environmental for the project shall be by the approved Project HSE Plan, the contract document, and Part 15 & 19, Section 1 of QCS 2010.
- Before commencing any work, the required and applicable work permits shall be checked, and all requirements of WP are complied with and they are valid until completion of the activity and as per the approved HSE plan.
- All personnel accessing their site will wear the mandatory PPE. All workmen and staff shall wear the mandatory and job-specific Personnel Protective equipment. The pre-task briefing shall be conducted every day before starting the work. Experienced and HSE-inducted workmen shall be deployed for the work. All personnel shall be cautioned while working near any live lines such as power cables, water lines, drainage lines, telecom, etc.
- Before the commencement of work, all workers shall be given a pre-task briefing. Hazards identified for the activity shall be disseminated during pre-task briefing, especially for underground services, slip & trip, improper access, excavation tools handling, no access or
- aggress, vehicle collision, and heat exhaustion, which shall be identified and documented separately by the permit-to-work system as per the approved HSE plan.
- First aid stations complete with all first aid equipment and trained first aiders shall be maintained for the initial care.
- Safety and security procedures shall be implemented as minimal, warning signs and lights, barricades, railing, and other safeguards shall be provided as required by the nature and location of the work.
- The environmental risk assessment and environmental management plans have been reviewed for the work activities proposed in the method statement and found to be suitable and adequate.
- Electrical waste will be segregated at the source and transported to a dedicated segregated waste storage area and not be allowed to accumulate on-site in undesignated areas. Concrete waste will be removed from work areas at regular intervals to designated areas.
- Construction waste will be disposed of as per local laws & client guidelines by licensed carriers to a licensed facility.

9. HOUSEKEEPING

- Housekeeping is the act of keeping the working environment clean from all unnecessary waste materials. The equipment/tools/materials required for the work shall be stored /stacked in such a manner as to give a safe working atmosphere to the workforce at the site.
- All workplace areas shall be maintained clear of debris, waste, and other rubbish, which shall be disposed of in segregated containers for disposal. An adequate number of containers marked with appropriate labels for storage and disposal of waste materials shall be strategically placed throughout the construction areas at all times.
- Any spillages, such as oil or grease shall be immediately cleaned up, by absorption in inert sand or other suitable materials. The materials for the particular work shall be stored at the site so that no obstructions to the work or access to the workforce.

- Debris, waste oil containers, etc shall be stacked and placed in a barricaded location away from the work areas and access routes. Adequate fire precautions shall be in place. Before leaving the site, it shall be ensured by the responsible person that the site area is cleaned and no obstruction is encountered for the next day's work.

10. QUALITY ASSURANCE & CONTROL

- The Quality Assurance and Control for the above-mentioned activities shall be exercised and recorded by the contract documents, applicable to section 1, and part 8 of QCS 2010 for Quality Assurance and the approved Project Quality Plan for the project.
- Quality assurance shall be ensured for workmanship, equipment, and materials conformance to the applicable standards and requirements at every stage of the construction. This shall be monitored by quality control personnel or a designated substitute on the site during the production/operation.
- Quality assurance requirements shall also be imposed upon subcontractors, suppliers, manufacturers, and any other parties associated with and involved in the project. Non-conforming materials shall be notified in writing to correct or remove the defective materials from the work site.
- All inspections and tests shall be conducted by written test procedures as detailed in the Project Quality Plan and Inspection and Test Plan approved by the GEIC Engineer.
- Applicable documents with the latest version such as Inspection & Test Plan, Method
- Statements shall be readily available and used by inspection and test personnel at the time of inspection as referring documents.

11. MATERIALS

- Approval shall be obtained for all the materials concerning the Client’s preferred vendor list, before the commencement of activities.
- Material Inspection Request (MIR) will be submitted to the client upon material arrival at the warehouse.
- All materials must be stored properly as per the manufacturer’s recommendations and QCS.
- The Material shelf life will be monitored as per the Manufacturer’s data sheets.

12. MANPOWER

- Site Engineer Supervisor HSE Inspector
- QA/QC Inspector
- Carpenters Steel Fixers Masons Helpers Painters Operators
- Drivers & Technicians

13. EQUIPMENT & TOOLS

The following equipment and tools shall be used for the various activities.

- Excavators
- Shovels
- JCB

- Self-Loaders
- Bobcat
- Tipper Trucks / Trailers Water Tankers Rollers/Compactors Transit Mixers
- Concrete pump
- Vibrators
- Dewatering pump Mobile crane Angle Grinders Cutters
- Drilling Machines Wheel Barrows Bagger mixer Hand tools

14. WORK PROCEDURE FOR CONSTRUCTION OF SUBSTATIONS

14.1. Initial Survey & Site Checking

- Upon receipt of Job Instruction / Drawing from the Consultant Engineer, an initial site visit is to be made along with the consultant representative to confirm the site and demarcations.
- Proper Safety Fencing and site sign boards will be installed before the construction activities.

14.2. Setting Out.

- The foundation location of the Substation shall be set out and elevations marked by the Land
- Surveyor using steel pins and paint markings.
- In case of any obstruction or existing services, it shall be intimated to the Consultant and necessary modifications shall be carried out after getting approval from the Consultant Engineer.

14.3. Excavation for Foundations.

- Before the commencement of excavation, the location shall be checked to ascertain the type of soil to be excavated and appropriate equipment shall be deployed.
- Excavation for structures shall be as per part 2, section 12 of QCS. Excavation for a building shall be carried out by using an excavator and the excavated soil to be tested for suitability and shall be stockpiled at convenient locations at the site if suitable for backfilling purposes and surplus soil to be loaded into the tippers and unloaded at the designated location later.
- Battered excavation slopes greater than 1.5 m in height shall be supported and in all locations where the excavation extends below the groundwater table, a dewatering system shall be provided which will lower ambient groundwater levels. The resulting groundwater level shall be at a depth that is sufficiently below the excavation level to allow the safe and proper execution of the work.
- Excavated soil shall be piled at least 2.0m away from all the sides of the excavated area and the area shall be protected by barricading and unauthorized entry shall be restricted. For deep excavations more than 1.50m or average man height depth with loose soil, sides shall be protected using temporary shoring and strutting.
- Excavation shall be carried out for a width of at least 500 mm beyond the horizontal outside limits of the building. In narrow spaces, due to confined space conditions suitable safety measures & ventilation shall be arranged.
- On reaching the required level of excavation, the surface shall be leveled and cleaned of all traces of loose material. All excavated areas shall be barricaded and appropriate signs shall be provided as required.

- Over excavation should be provided with SRC 20 concrete to the required level.

14.4. Backfilling and Compaction.

- Backfilling material shall be as per QCS 2002-Section-12-Part 3-Clauses 3.2.2, 3.2.3.
- Backfilling shall be done in layers of not more than 250mm loose thickness as per QCS 2002-Section-12-Part 3.5 and each layer was thoroughly watered and rammed to ensure a Minimum Dry Density of 95%. Testing of compaction will be performed as directed by the engineer.
- Earthwork under the substructure shall be provided with anti-termite treatment for the approval of the Engineer.

14.5. Construction of RCC Foundation, Columns, Grade Beam, Roof Beam and Slab

- The bottom of the excavation shall be compacted and offered for inspection and testing by the consultant Engineer. Over excavation should be provided with SRC 20 concrete to the required Level.
- On approval of the above activity, 75mm thick blinding concrete shall be laid to the required levels and size, supplied by an approved ready mix plant.
- After completing the excavation works, activities for the Foundation are to be carried out first, followed by columns up to slab height completed later plinth and inside room work to be started.

14.5.1. Reinforcing steel

- The engineer's approval will be obtained for reinforcement before use in permanent works. All reinforcement will be stored on racks inside the stores. Different types & sizes will be
- kept separately. All reinforcement will be kept to protect from damage, free from dirt, loose
- mill scale, rust scale paint, oil, or other foreign substances.
- As per the specifications & drawing, the bar bending schedules & bar lists, and cutting schedules for each structure will be prepared by the contractor and will obtain approval from the engineer.
- A manual cutter or mechanical cutter will be used for cutting bars & bending machine will be used for bending of bars.
- All reinforcement will be cleaned by a wire brush or any other means before placing.
- All reinforcement placed should comply with the drawings. Lap length will be taken into account according to the project specification when binding reinforcement bars.

14.5.2. Formwork

- All formwork will be made by using plywood sheets, timber, or metal.
- Supports and scaffolding will be G I pipes, Arco props, sawn timber, or round timber. All surfaces of formwork will be finished smooth and mortar-tight.
- The dimensions & position of formwork will be carefully checked after erection.
- Oil or grease will be used to avoid the adhesion of mortar and to achieve a smooth surface. Before placing concrete all dirt, wood chips, hardened concrete or mortar, and all other
- foreign matter will be removed from the forms.
- Before fixing of form work, a detailed drawing will be submitted to the engineer for approval. Well-qualified foremen will be appointed for fixing formworks & reinforcement work.

14.5.3. Placing of concrete

- The method for placing concrete will be worked out to prevent the segregation of the material
- & Engineer's approval will be taken before concreting begins.
- Before placing concrete all formwork therein will be cleaned of all extraneous material and dust and made free of any standing water.
- In continuing concrete, fresh concrete will be placed before the already placed concrete is less than 20 minutes.
- Concrete of specified grade will be placed & compacted in horizontal layers normally not exceeding 300mm in depth.
- Concrete will not be dropped from a height greater than 1.5m to prevent segregation. Concrete will be free of all rock pockets, honeycombs & voids.
- Complete Records showing the details of placing concrete in each part of the work will be maintained and will be available for inspection at the site.
- Compacting/vibrating of concrete
- Mechanical vibrators will be used for compaction. For this stand-by units will be available in the site during the period of compacting. All operators handling vibrators will be trained in their operation properly.

14.5.4. Curing

- Continuous curing will be carried out in a moist atmosphere for a minimum period of 10 days and a further period is required by the engineer.
- Concrete area will be kept covered with hessian clothes or Polyethylene sheets which will be kept moist throughout the curing period.

14.5.5. Construction joints.

- The surface of the hardened concrete will be cleaned and made free from laitance, and will also have an exposed aggregate finish.
- The fresh concrete will be placed and compacted so that it bonds properly to the prepared surface of the previously laid concrete.
- Laitance on the surface will be completely removed from the concrete to achieve a good bond with fresh concrete.
- Between one and two hours after placing concrete, water will be sprayed gently and laitance will be removed with two brushes, one with soft and the other with hard bristles.
- After finishing this operation, just the tips of the aggregate should be shown.
- If the laitance has hardened, a wire brush will be used to remove it. Clean water will be rinsed to get rid of the dust.
- Water stops in construction joints will be installed & approval for this will be taken from the engineer.

14.5.6. Checking water content & slump test

- Frequent slump tests will be carried out by BS 1881 on samples of concrete taken immediately before placement to determine the consistency of concrete.

- All the test reports will be maintained in the site office & will be available for inspection whenever required.

14.5.7. Testing of concrete

- All necessary arrangements for the sampling & testing of fresh & hardened concrete by the BS 1881 will be taken.
- A crushing test will be carried out on concrete cubes formed in 150mm molds. One set of cubes (2 cubes crushed in 7 days & other in 28 days) will be done to maintain the quality of work.
- Particular care will be taken to ensure that the test cubes are stored under uniform conditions on the site & during any transit between the site & laboratory.

14.6. Waterproofing

- Ensure that all preceding activities or activities completed that cannot be accessed after waterproofing works are inspected, released, and approved.
- Obtain MEP clearance and clearance from other specialist trades which may not be accessible after waterproofing, before commencing waterproofing works.
- Rectify non-conforming conditions before commencing the waterproofing works.

14.6.1. Surface Preparation

- All surfaces to receive waterproofing are to be clean, dry, and free from dirt, dust, oil, and grease. Wall Protrusions that are likely to punch through the waterproofing films to be removed either
- by using a chipping hammer or grinder.
- Prepare and level the concrete surfaces for waterproofing either by chipping, hacking, or scraping the surface.
- Repair the excessive pinholes, and similar imperfections (if any) to eliminate uneven surfaces.
- Barricade the working area to be a non-trafficking passage.
- Raise an inspection request for surface preparation (RFI) before the waterproofing work commences.
- Installation of Accessories and marking of Waterproofing Levels
- Immediately after the inspection use Viscose Elastic type adhesive tape at weak joints and sharp edges.
- Marking of waterproofing application levels can be commenced at this stage.
- Levels should be true, square, and in plumb at locations as indicated on the approved shop drawings/IFC drawings.
- Use suitable fasteners when required.
- Install waterproof level pads also to serve as guides in controlling the final thickness of the waterproof and the finished plane of the waterproofed surface, relative to the accessories installed.

14.6.2. Application and Protection

- Ensure all other trades in the said location are put on hold during the waterproof application to protect and avoid any damage to the waterproofing layers.

- Apply the first coat using a manual brush application uniformly at a workable consistency. Floor application should continue to the vertical wall face up to a minimum of 150mm
- as per the project specifications.
- Ensure all surfaces receive waterproofing fluid Application firmly to achieve good adhesion and to be in one continuous operation.
- Subsequent coats of waterproofing may be commenced immediately after setting of the previous coat approximately 3 to 5 hours and as per the manufacturer's recommendations.
- The second coat should be applied at a right angle to the first coat. Finish coats to be fairly true to the plane with a homogenous finish.
- Approved Bitumen Impregnated Protection Boards should be provided for protection with sufficient lapping as per the manufactures recommendation.
- Footings shall be protected by 4mm thick waterproofing membrane sheets laid on concrete surfaces primed with bitumen primer.
- Laid sheets shall be protected from Damage by using bituminous protection boards or 40mm
- SRC screed concrete as horizontal protection.
- Vertical faces shall be protected against damage from backfilling by using Servipak6 or equivalent protection boards.
- All applications shall be according to manufacturer instructions only.
- Approval shall be obtained from the Engineer before commencing the backfilling works.

14.7. Masonry

- Block works shall be done as per approved drawings and shall comply with QCS.
- All block works executed below ground level are built with S.R C cement and shall built-in
- S.R.C mortar. Normal-weight Hollow Blocks having a minimum compressive strength of 7.0
- N/mm2 shall be used.
- Samples of each type of masonry unit and accessory shall be submitted to the consultant for approval.
- Marking up of exact location of block walls and openings as per approved shop drawings shall be done before commencing the work.
- Block-marked areas shall be cleaned and wet before starting the activity. The mortar mix shall comply with project specifications and QCS.
- One course of block only will be executed for testing and approval by the consultant.
- Walls shall be kept level at all times and carried up uniformly. No part being raised more than 1500mm above any adjacent unbuilt course.
- Angles & Reveals shall be kept true, square, and plumb all the time.
- Horizontal joints shall be leveled all the time and vertical joints in alternate courses shall be plumb and line.
- Opening frames shall be set and maintained square, plumb, true, and furnished with anchors. Install reinforced concrete block lintels or GI steel lintels over openings as per the approved shop drawing or cast in places as per specification.
- Top of block partitions and sides will be supported by using galvanized steel anchors/ties as per approved shop drawings and material submittals.

- Concrete block walls and partitions shall be reinforced horizontally in each second course, last top course, second and third course above lintels, and below sills of opening with the required overlap.
- After completing each section of the walls, cleaning shall be done to the down surfaces and curing will start immediately.
- Final inspection shall be carried out for the entire work for approval of the engineer.

14.8. Plastering

- Prepare surfaces for the smooth or non-absorbent solid surfaces that do not have the suction capability to receive solid plaster bases by chipping, wire brushing, or sandblasting, as appropriate.
- Install beads at their locations plumbed and squared. It will be best achieved by using galvanized nails or small quantities of mortar as per the manufacturer's recommendations.
- Install the corner, control joints, and movement beads at locations indicated in the drawings
- and manufacturer's instructions.
- Prepare plaster in a mechanical mixer, using sufficient water to produce a workable consistency and uniform color shall be used to mix a batch containing one bag of Portland cement, 5 parts aggregate, and an aerating plasticizer as per manufacturer's recommendation for use over the Concrete Unit Masonry.
- Spray water on the wall surface and throw the spatter dash mix (scratch coat) by using a spatter dash machine in a way to form a rough layer 3-5mm thick without any attempt to level or smooth it. The rough surface shall be kept damp with fine water spray or by covering it with a polyethylene sheet until it sets down.
- Apply plaster/render coat after the scratch coat has hardened. Initially, a thin coat is troweled on the scratch coat to ensure a thorough bonding at the surface.
- The remainder of the render coat is then built up using a wooden float to receive a textured finish until the required thickness is met.
- Apply the final thin coat of plastering using a steel trowel on the interior surface to match the Architect's sample as specified.
- The coating thickness shall not deviate more than +/- (6.4mm in 3m) from the trueness of the plastered finish, as measured with a straight edge placed on the surface.
- The newly applied external coatings shall be cured and protected against frost, heat, and rain for the first 48 hours using canvas, cloth, or sheet, hung clear at the plaster surface. Moist curing by applying a fine fog spray of water, generally twice daily in the morning and evening.

14.9. Joinery

- All the Doors & louvers shall be Galvanized Steel (powder coated) as per approved
- Drawings and Kahramaa Specifications.
- Openings should be complete with the necessary reference layout.
- Doors should be distributed according to the layout and door code marking.
- The level should be marked using a proper level instrument showing clearly the floor finish level. Layout of every floor, all areas to receive flooring. Necessary reference lines and elevation shall be reflected using permanent pen marking.

- Ensure the reference labels on delivered doors are correctly reflected from references provided and carefully inspected considering the code/mark per designated location.
- The door is then positioned and with the layout reference string carefully positioned the door on both its horizontal and vertical alignment with the use of level bar plumbs.
- The door frame is then temporarily fixed using a clamp and wedge at the top and bottom of the door opening.
- Screws are drilled into the edges of locations where the frame will be supported until the proper depth into the concrete wall.
- With the frame fixed and pinholes or slots drilled into walls, prepare for the setting of the door following the procedure specified in the installation manual supplied by the door manufacturer.
- The architrave shall be accurately shaped to fit the contour of the door frame surface.
- Clearance around the door shall be +/-3 mm (unless otherwise specified) for the door to open and close without any obstacles by the door frame.
- Protecting the door shall be done using proper cover.
- Cleaning and removal of excess materials at the work area shall be done before the inspection and approval by the consultant.

14.10. Painting

- Samples of all colors/textures and finishes shall be prepared in advance of requirement so as not to delay work and shall be submitted to the Engineer for approval before any work is commenced. Any work done without such approval shall be redone to the Engineer's satisfaction, without additional expense to the Employer. The manufacturer's chart showing all the varieties of paint/texture coating shall be submitted for color/texture selection.
- The Engineer will furnish a schedule of the color/texture of each area and surface. All colors shall be mixed by the manufacturer's selection.
- Approved quality Weather Shield/Weather Coat paint shall be used for painting the exteriors of the structures or other surfaces where specified on the drawings as directed by the Engineer.
- The plastic emulsion paint/vinyl emulsion paint or similar as approved by the Engineer shall be used for interior surfaces.
- Textured coating wherever specified shall be acrylic resin-based coating composed of acrylic copolymers, natural quartz, natural marble chips, metallic oxide, antibacterial and antifungal additives, expanders, foaming, and setting agents and shall be applied by approved manufacturer's recommendations.
- All material shall be delivered to the site in their original unbroken containers or packages & shall bear the manufacturer's name, label, brand & formula & will be mixed and applied according to his directions.
- All oil, grease, dirt, dust, loose mill scale, and any other foreign substance shall be removed from the substrate surface to be painted/coated, polished, and whitewashed by the use of a solvent and clean wiping material. Following the solvent cleaning, the surface shall be cleaned by scraping, chipping, blasting, wire brushing, or other effective means as approved by the Engineer.

- Surfaces of stainless steel, aluminum bronze, and machined surfaces adjacent to metal work being cleaned or painted shall be protected by effective masking or other suitable means, during the cleaning and painting operations.
- All the surfaces to be painted/coated with approved quality paint/coat shall be free from dust, dirt, fungus, lichen, algae, etc. Oil paint, varnish, and lime wash should always be removed by scraping and washing.
- All paints and coating materials shall be in a thoroughly mixed condition at the time of application. All work shall be done in a workman-like manner leaving the finished surface free from drips, ridges, waves, lapse, and brush marks. All paint shall be applied under dry and dust-free conditions unless approved by the Engineer Paint shall not be applied when the temperature of the metal or the surrounding air is below 7 degrees centigrade. The surface shall be free from moisture at the time of painting.
- All primary paint shall be applied by brushing. The first coat of paint shall be applied immediately after cleaning. When paint is applied by spraying, suitable measures shall be taken to prevent segregation of the paint in the container during the painting operation.
- Effective means shall be adopted for removing all free oil and moisture from the air supply lines of the spraying equipment. Each coat of paint shall be allowed to dry or harden thoroughly before the succeeding coat is applied.
- Surface to be painted that will be inaccessible after installation shall be completely painted before installation
- Coats of Weather Shield Coat paint and textured coating shall be applied according to the manufacturer's instructions or as directed by the Engineer.
- For painting, only as much as much material should be mixed as can be used up in one hour. Over-thinning will not be permitted. After the first coat, the surface will be soaked evenly four or five times and the second coat shall be applied after leaving for at least overnight.
- Where shown on drawings all the exterior finishes shall be painted/coated with Weather Shield/weather coat paint or texture coated in approved color/textures as per the manufacturer's specifications. The number of coats shall be shown on the drawings or as directed by the Engineer. Plastic emulsion paint, vinyl emulsion paint, or matt enamel paint of the approved make and shade shall be applied to surfaces as shown on drawings as per the manufacturer's instructions. The number of coats shall be as indicated on drawings or as directed by the Engineer. Inspection Request to be submitted for checking and approval of the Engineer.

14.11. GRC works

- Material Samples as per Project specifications/QCS 2010 shall be submitted for the approval of finish, texture, color, and thickness from the Engineer.
- The GRC panels shall be stored at the site in a dry, clean, and leveled area properly protected from any accidental damage. Before erection, the Site Engineer/Supervisor shall check the panel size as per the approved drawings, the color and texture with the approved sample, and for any damage while loading & unloading. Any major defects, if noted, in any panel will be rejected and sent back to the Factory for replacement.
- Before the start of installation, the lifting equipment i.e. crane, and the access to the site have to be arranged.

- Before the starting of installation, coordinate with the Engineer and make sure that all levels and reference levels are as per the approved Drawings.
- Structural frames are to be checked for their tolerance level. Any discrepancy beyond tolerance is to be brought to the notice of the Engineer.
- Alignment is required for the exterior face of the panel and proper marking with string lines is to be done before the start of installation.
- Based on the confirmation of alignment and marking of fixing points, approved brackets are fixed to the structural frame. The brackets and fixing are to be approved by the Consultant.
- Ensure proper access to the fixing area from the storage area. The GRC panels will be lifted with suitable lifting devices at the points provided at the factory. The GRC panels are set level, plump, square, and true within the allowable tolerances and fixed to the bracket with suitable approved loose fixings.
- After the Engineer checks the finishing of the panels, sealant work is carried out according to the project specifications using the approved sealant and backing rod. Utmost care shall be given to apply the joint sealant to not stain the GRC panels.
- Inspections are carried out by the Consultant Engineer for approval. The inspection of GRC
- elements shall carried out
- After fixing the panel for alignment, plumpness, and squareness (with allowable tolerances).
- After finishing the patching works before sealing the joints.
- After completion of the joint sealants when ready for final hand-over.

15. HEALTH & SAFETY

- Refer to the site safety policy for general safety controls. One of the main aspects of this procedure is Safety and Health Control. This is to control the occurrence of injuries as well as damage to equipment and properties during the entire construction period.
- Toolbox meetings shall be conducted every day before the start of the work. Experienced workmen only shall be deployed for the work.
- All personnel shall be cautioned while working near the pipes/ cables.
- Hazard identification shall be done during toolbox meetings, especially for heat
- To ensure a safe working environment during the entire construction period, the following safety measures will be implemented.

15.1. Machinery and Equipment

- Before the use of any machinery/equipment at the site, it shall be inspected and certified by a qualified person.
- Periodic Preventive Maintenance shall be made on all equipment and machinery.
- All operators and drivers are to be equipped with valid driver's/operator's licenses or permits from the concerned government agency.
- Only authorized drivers or operators will be allowed to operate machinery or equipment. Only authorized signalmen shall be assigned together with the operator or driver.
- All lifting equipment as well as its accessories such as sling wire, nylon sling, shackles, chain blocks, crane hook, and latch shall be inspected periodically.

15.2. Personal Protective Equipment:

- PPE shall be issued to all workers such as safety shoes, hard hats, working gloves, ear plugs, safety goggles and safety belts, and or safety harnesses for workers who will be assigned in elevated places.
- Wearing of the basic PPE shall be enforced fully.

16. EMERGENCY CONTACTS

- Project Manager
- Site Engineer
- Safety officer

17. REFERENCES

https://www.academia.edu/35827911/Method_Statement_for_Construction_Of_Civil_Works

https://www.studocu.com/row/document/jamaa%D8%A9-alsltan-kabos/advance-engineering-mathmatics/5-please/37955650