

PROJECT QUALITY ASSURANCE PLAN

PIC SPECIAL ECONOMIC ZONE – POINTE NOIRE,
REPUBLIC OF CONGO

PICP-SEZ/PN/ROC/QAP/001

PLATEFORMES INDUSTRIELLES DU CONGO SPECIAL ECONOMIC ZONE		
LOCATION: POINTE NOIRE, ROC		PICP-SEZ/PN/ROC/QAP/001
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Monitoring and Measurement of Product (Inspection & Testing)

Inspection and testing activities will be conducted according to the Inspection and Test Plan (ITP), with necessary coordination between the Client and Contractor.

Laboratory / Testing of Construction Materials

The Contractor shall ensure that construction materials, including cement, sand, aggregates, etc., are subject to proper testing. The approved Independent Testing Laboratory will be used for all third-party investigations and testing requirements. All testing procedures and reports will be subject to the Client's approval.

The Contractor is responsible for securing adequate representative samples of materials, ensuring design mixes of concrete/screed are submitted for approval prior to use, and notifying the testing laboratory in advance for any testing operations.

Inspection Coordination Procedure

Inspection and Testing Activities

The Contractor will provide a set of Inspection and Test Plans (ITPs) with relevant check sheets for recording inspections. The ITPs define inspections, testing activities, relevant specifications, and acceptance criteria, as well as the QC Check-Sheets for verification. The Contractor will raise Requests for Inspection (RFI) for all HOLD and WITNESS activities. The Client retains the right to witness any ongoing construction activities as per the contract.

- **H (Hold Point):** The Client and Contractor must jointly perform an inspection/test to verify compliance with specifications. The relevant inspection/test report and quality control Check-Sheet must be signed off before proceeding further.
- **W (Witness Point):** The Client is requested to witness an inspection or test. If the Client attends, they will sign the inspection/test report if results are acceptable.
- **R (Record Review):** The Client is requested to review documents such as inspection reports or mill certificates.
- **S (Surveillance):** The Client may perform random inspections or monitor construction activities/processes.
- **I (Inspection):** The Contractor's QA/QC person will conduct daily inspections, with the Client conducting random inspections.
- **A (Approval):** The party involved must approve the relevant item.

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Request for Inspection (RFI)

For all activities classified as Hold (H) or Witness (W), the Contractor will submit a "Work Inspection Request" (WIR) to the Client for approval. The inspection procedure will include:

1. Call for inspection
2. Inspection
3. Result of inspection (test report/QC check-sheet)

Inspections for ongoing activities (such as formwork or excavation) will be noted in the Daily Site Report or Daily Schedule of Works, but not covered by RFI.

Testing and Test Certificates

Tests will be performed according to the ITP and project requirements, or at the Client's request. Test certificates for construction materials (such as cement, sand, aggregates, etc.) will be provided, and the documented test results will be submitted to the Client for review and approval. All test results will be included in the final project documentation.

The test results will be submitted at the final handover stage to the Client, along with any other necessary documentation.

Control of Non-Conforming Products

Non-conformance, whether identified by the Contractor or the Client, will be handled as per the agreed procedures:

- **Material non-conformance:** Materials found to be non-conforming during vendor inspection or material receipt will be quarantined until corrective actions are completed and verified.
- **Site works non-conformance:** The Contractor will rectify non-conforming work in coordination with the Client. Corrective actions will be implemented immediately and completed within two weeks, unless otherwise justified.
- **Non-conformance during Testing:** Non-conforming results during testing will be reviewed with the Client, and corrective actions will be agreed upon before re-inspection.

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Project Closeout and Handover Documentation

Upon completion of the project, the Contractor, in coordination with the Client, will prepare the project handover document, including all relevant QA/QC documentation, test certificates, and inspection reports. The Client will review and approve the handover package, ensuring that all inspections and tests have been completed and are documented.

The final handover will include:

- As-built drawings
- Operations & Maintenance Manuals
- All QA/QC documentation, including test certificates for materials.

Once the Client approves all required documentation and inspections, a taking-over certificate will be requested.

Contractual Deliverables

The following documents are to be prepared and submitted to the Client for approval:

- QA/QC documents
- Technical deliverables
- MEP deliverables
- As-built drawings
- Operations & Maintenance Manuals

These deliverables will be reviewed and approved by the Client before the final project closeout.

Corrective and Preventive Actions

The Contractor will implement corrective and preventive actions to address non-conformances and prevent recurrence. Corrective actions will be taken immediately after the Client's approval, and preventive actions will be documented to avoid future issues.

All actions will be reviewed during the Management Review of the Project Quality System to ensure the continuous improvement of the quality management process.

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Inspection Test Plan (ITP) based on **NF EN 206** for raw materials, concrete production, and associated works like plastering, brick/blockwork, and painting, involves specifying checks and tests at different stages to ensure compliance with standards. Below is a detailed ITP outline:

1. Raw Material for Concrete

Activity	Inspection/Testing	Frequency	Acceptance Criteria	Reference
Cement	Chemical and physical properties	Per batch/delivery	Conforms to EN 197-1	NF EN 206, EN 197-1
Aggregates	Sieve analysis, shape, cleanliness	Monthly or per source	EN 12620 specifications	NF EN 206, EN 12620
Water	pH, impurities	Quarterly	EN 1008 requirements	NF EN 206, EN 1008
Admixtures	Compatibility, dosage	Per delivery	EN 934-2 specifications	NF EN 206, EN 934-2

2. Concreting Process

Activity	Inspection/Testing	Frequency	Acceptance Criteria	Reference
Batching	Accuracy of proportions	Per batch	As per mix design	NF EN 206
Mixing	Homogeneity	Random checks	Visual consistency	NF EN 206
Workability	Slump or flow table test	Per 50 m ³ or change	Mix design tolerances	NF EN 206
Concrete Strength	Cube/cylinder compressive strength	7, 28 days testing (One test for every 05 cum)	Mix design target values	NF EN 206

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Activity	Inspection/Testing	Frequency	Acceptance Criteria	Reference
Placement	Compaction, segregation, curing	Continuous supervision	No defects, uniform surface	NF EN 206
Curing	Moisture retention methods	Daily checks	As per design	NF EN 206

3. Plastering

Activity	Inspection/Testing	Frequency	Acceptance Criteria	Reference
Material (sand, lime, cement)	Sieve analysis, setting times	Per batch/delivery	As per specifications	Manufacturer specs
Surface Preparation	Bond test	Random check	No delamination	Best practices
Application	Layer thickness	Random check	12-15 mm (as specified)	Site specifications

4. Brick/Block Work

Activity	Inspection/Testing	Frequency	Acceptance Criteria	Reference
Blocks/Bricks	Dimension, strength, water absorption	Per batch/delivery	NF EN 771 requirements	NF EN 771
Mortar	Workability (flow test), strength	Random check	As per mix design	NF EN 998-2
Jointing	Bonding	Random check	No cracks, even joints	Best practices

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5. Painting

Activity	Inspection/Testing	Frequency	Acceptance Criteria	Reference
Surface Preparation	Cleanliness, smoothness	Before application	Dust-free, smooth	NF DTU 59.1
Primer Application	Coverage, adhesion	Random check	Manufacturer's specs	NF DTU 59.1
Paint Coats	Thickness, finish	Every coat	As per specification	NF DTU 59.1

Material and Subcontractor Approval Process

Materials and Subcontractors to be used in the works shall be first submitted for Client approval. Consideration will be given on quality, delivery, reliability, sustainability, price, and service. Criteria for selection of Subcontractors and Suppliers/Vendors besides complying with Specifications and legal/local authority registrations are organizational structure, prior experience, Quality and HSE systems, past performance, previous experience with Company and Departments/Authorities, compliance with sustainability requirements, current workload and adequate expertise/experience in the particular service shall be considered and complied with. If any proprietary items prevent full adherence to the above criteria, the company will provide detailed information to the Client at the time of submission for approval.

Material approvals and deliveries will be closely monitored and reported in the project's progress updates. Materials will be sourced exclusively from approved suppliers. Material requisitions will be submitted from the site, specifying detailed requirements. Additionally, all materials that will be permanently incorporated into the project will undergo receiving inspections by the designated QA/QC Inspector and the Engineer to ensure compliance with quality standards.

Contractor's Material Inspections

When materials are received at the contractor's or supplier's site store, the contractor's QA/QC personnel/ Engineer must notify the client for a joint inspection of the materials and delivery documents. The contractor will prepare the Material Inspection Report (MIR) and submit it to the PICP construction team. The inspection procedure will be followed

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as outlined above, with contractor coordination to facilitate the material inspection

Validation Of Contracted Activities (Outsourced Processes)

Off-Site Inspection & Testing

Any materials where validation of process is required to be verified at the supplier's premises i.e. verification of fabrication process and or testing at supplier's premises is required shall be carried out in the following manner.

- Contractor shall notify in writing to the Client regarding the supplier premises' visit requirements as per the contract at least 3 days before the intended inspection/verification date.
- Contractor shall make arrangements for the Client visit to the supplier premises.
- All testing/inspection and or verifications shall be witnessed by the Client representative.
- A signed report by all parties shall be produced, by Contractor and submitted to Client for their approval.
- The subsequent test results (where applicable) shall be submitted for Client's approval as per the project procedures.
- Only after approval by Client material shall be ordered/delivered to site.

All Sub- Contractors used in the project are subjected to the same project quality assurance requirements as applicable to Contractor. Subcontract agreements are made on a back-to-back basis, thus making all Sub-Contractors bound to the main contract requirements.

Production and Service Provision

Contractor understands the critical operations involved during the construction works. As such, coordination, use of dated and approved drawings/documented information, and strict compliance to safety and sustainability requirements and approved method statement will be ensured.

Control of Production and Service

The construction activities shall be controlled by the use of this Quality Plan, HSE Plan, Master Construction Schedule, Inspection and Test Plans, Project Specific Work Documented Information/Method Statements and Check Sheets together with the contract drawings and specifications.

Familiarity and knowledge of contract specifications/drawings and strict adherence together with the regular interaction/monitoring/in-process inspections will ensure that work is executed to contract requirements.

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The Contractor's Project Manager together with his site team will ensure that the work is executed in line with the relevant documented information (procedures), suitable equipment are used and the work is monitored at various stages as required by specifications and identified in the Inspection and Test Plans and relevant documented information (procedures).

Inspection will be done using calibrated instruments at predefined inspection times as per the Inspection and Test Plans. Contract Requirements on planning, progress reporting, and construction management will be complied with.

Work Progress is monitored on a daily/weekly/monthly basis and progress reporting is done as per contract requirements. Suitable actions shall be taken to accelerate progress and avoid slippages. Where required, the schedules will be modified as agreed with the Client.

Service Provision & Operation and Servicing Manual

Contractor will provide Servicing/Maintenance as agreed in the contract. The mandatory maintenance period after receipt of provisional acceptance (and before final acceptance) is an example of servicing. All contract arrangements for executing works reflect the maintenance clause so as to ensure servicing/product warranty is guaranteed. Records of the correspondence with relevant Sub-contractors during this stage are maintained.

All Operational/Servicing Manual and Spare List and Spares as required for the project (as may be applicable to the Contract), will be submitted to the Client for approval sufficiently in advance of completion and hand-over stage. Client comments will be incorporated, and all submissions will be done accordingly. Training (if any) of Employer Personnel shall be provided as per contract requirements as may be required and as applicable.

Validation of Processes

Mock-ups, factory tests, performance tests and procedures/method statements approved by Client will cover specialized work activities and work will be done accordingly. Project Specific Documented Information (Procedures) will be developed for work activity where absence would affect quality of work. This will be coordinated with the Client.

Product Identification and Traceability

The product is visually identifiable as to the status of work and the numbering as indicated in the approved drawings and the Client preferred numbering system.

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Incoming materials are correctly identified and stored. Most of the construction materials are identifiable by means of labels and packaging by the manufacturer/supplier. Where not available, material will be suitably identified by using coloured markers and or tags. All material coming out of store shall be either traceable by marking/labels, store records, test certificate, etc.

Reinforcing Steel/piping/cables will be traceable by maintaining the Manufacturer's Certificates. Testing will be done as per specification requirements. Mill certificates and steel tags on bundles of steel are used to establish quality of steel received on site. Where fabrication is done off site, necessary inspections will be done as per instructions of Company. In any case off site-fabricated items, these will have the necessary quality documents on steel certificates and final delivery notes.

Client Property

Free Issue Material issued by the Client will be properly identified, checked, stored and handled in full compliance with requirements. These items will be checked for correctness before being accepted for use on site. Any missing items will be indicated to Client. Any surplus material at the end of construction will be returned to Client.

Any material obtained from dismantling/demolition will be considered as Client's property and will be returned/disposed off as per Client's instructions and contract agreement.

Care will be taken of Client's property by complying with all safety and security requirements. Contractor understands the confidentiality of drawings and the property contained therein and will only exchange information as required for the project.

Preservation of Product

Suitable actions are initiated on site to ensure material to be used in the project are handled and stored in accordance with manufacturer's instructions/good engineering practice, so as to avoid damage to material. Any specific contract requirements on storage and handling will be followed.

Material received on site for permanent incorporation in the project, are subject to Receiving Inspection by the dedicated QA/QC Inspector and the respective Engineer/Construction Personnel and Storekeeper. Presence of Client will be as per contract requirements and as indicated in the ITP's. Acceptable materials are listed on the Site Receipts and logged into the database. Store data is continuously updated on receipt and issue to site.

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Handling/Storage will be done as recommended by Manufacturers/Suppliers or as per good engineering practices so as to avoid and minimize damage to material. Necessary preservation activities will be done, such as storage under controlled conditions of temperature for sensitive material and shaded/ventilated areas for volatile material.

Deliveries of construction material to site are unloaded as close to the point of use as possible. This is done to prevent damage and avoid double handling. For more detail on Material Handling,

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