



**BIDDING DOCUMENT**

**FOR**

**UPGRADING OF EXISTING NAEB GIKONDO AVOCADO EXPORT PACKHOUSE AND  
INSTALLATION OF SUPPORTING SYSTEMS IN KIGALI, RWANDA**

**TENDER No.: PRQ20260121**

**VOLUME II OF II – EMPLOYER’S REQUIREMENTS**

**1 SEPTEMBER 2026**



---

## 1. INTRODUCTION

The Employer intends to undertake upgrading works to the existing avocado export packhouse for National Agricultural Export Development Board (NAEB) in order to strengthen operational efficiency, export readiness, cold chain integrity, food safety compliance, traceability, and overall packhouse capacity.

The scope includes civil, architectural, structural, mechanical, electrical, refrigeration, ICT, food safety, water treatment, wastewater treatment, fire protection, operational digitalization and supply/installation of handling equipment and operational systems.

The upgraded packhouse shall support efficient avocado export handling operations compliant with HACCP, GlobalG.A.P., ISO 22000 and applicable international phytosanitary and export requirements.

The Works shall include site assessment and technical surveys, design verification, detailed design development where required, supply, installation, testing, commissioning, training and defects liability obligations.

## 2. OBJECTIVE OF THE ASSIGNMENT

The overall objective is to upgrade the existing NAEB avocado export packhouse into a modern, hygienic and operationally efficient facility capable of supporting:

- Automated avocado grading operations;
- Improved cold chain management;
- Export traceability and operational digitalization;
- Hygienic produce handling;
- Improved loading and dispatch operations;
- Enhanced fire protection and operational safety;
- Improved environmental management;
- Compliance with export certification requirements.

## 3. GENERAL SCOPE OF WORKS

The Contractor shall design (where required), supply, construct, install, test and commission all systems and works necessary for complete operationalization of the upgraded NAEB packhouse.

The scope includes but is not limited to:

- (a) Internal demolition and refurbishment works;
- (b) Upgrading of operational processing areas;
- (c) Epoxy flooring and hygienic finishes;

- 
- (d) Cold room and dock upgrades;
  - (e) Additional cold storage installation;
  - (f) Dispatch and loading dock cold chain improvements;
  - (g) Water purification system;
  - (h) Wastewater treatment system;
  - (i) Firefighting system;
  - (j) Digital traceability and packhouse management system;
  - (k) Electrical and mechanical works;
  - (l) Testing, commissioning and training.

#### **4. SITE VISIT AND PRE-BID MEETING**

The Contractor shall be deemed to have inspected and examined the Site and its surroundings before submission of the Tender.

A recommended site visit and pre-bid meeting shall be organized by the Employer. During the site visit, the Employer and beneficiary shall clarify:

- Existing packhouse conditions;
- Operational constraints;
- Existing utilities and services;
- Exact locations of interventions;
- Access and logistics arrangements;
- Areas requiring demolition;
- Cold room upgrade interfaces;
- Operational continuity requirements;
- Existing operational limitations.

Tenderers shall verify all dimensions, operational conditions, utility interfaces and existing constraints before pricing.

No claims arising from failure to inspect the Site or verify conditions shall be entertained after contract award.

#### **5. GENERAL CONTRACTOR OBLIGATIONS**

The Contractor shall:

- Verify all existing dimensions and site conditions;
- Undertake all detailed measurements necessary for execution of the Works;
- Coordinate all systems and interfaces;
- Ensure compatibility between new and existing installations;
- Provide shop drawings and method statements;



- Obtain all required approvals and permits where applicable;
- Maintain hygienic operational conditions during construction;
- Minimize disruption to ongoing packhouse operations;
- Always ensure safe working conditions;
- Provide temporary protections where necessary;
- Provide all tools, labour, materials, consumables and equipment necessary for completion of the Works.
- Prepare “as built” drawings after construction and upgrade of all systems.

---

## **6. INTERNAL DEMOLITION AND PROCESSING AREA UPGRADE**

### **6.1 Existing Conditions**

The existing packhouse contains internal office partitions and enclosed spaces which reduce operational space required for installation of the automated avocado grading line. These office partitions were installed after original construction and shall be demolished to create a continuous operational processing area.

### **6.2 Scope of Demolition Works**

The Contractor shall:

- Demolish identified non-structural office partitions and associated finishes;
- Remove doors, windows, ceilings, electrical fittings, conduits and redundant services;
- Confirm that all walls proposed for demolition are non-loadbearing;
- Protect existing structural elements during demolition;
- Remove all debris from Site;
- Reinstate all affected surfaces;
- Coordinate demolition works with ongoing operations.

### **6.3 Processing Area Requirements**

The upgraded processing area shall provide:

- Continuous unobstructed operational layout;
- Adequate space for automated grading line installation;
- Adequate circulation for pallets and forklifts;
- Hygienic washable finishes;
- Maintenance access around equipment;
- Food-grade operational environment.

### **6.4 Epoxy Flooring**

The Contractor shall:

- Repair damage concrete surfaces;
- Re-level floors where required;
- Prepare all surfaces through grinding and surface treatment;
- Apply approved industrial food-grade epoxy coating system;
- Provide non-slip hygienic finish;
- Ensure resistance to abrasion, chemicals, moisture and forklift traffic.

The epoxy system shall comply with HACCP and food processing facility requirements.

---

## **7. PROCESSING AREA RECONFIGURATION AND AUTOMATED GRADING LINE READINESS**

### **7.1 General**

The upgraded processing area shall provide a clean, continuous and unobstructed operational layout suitable for installation and operation of an automated avocado grading and packing line.

The Works shall include demolition of internal office partitions, rehabilitation of internal finishes, provision of hygienic food-grade flooring systems and preparation of all operational interfaces required for installation of automated grading equipment.

The proposal intent is to create a hygienic export-grade processing environment supporting efficient operational flow, pallet movement, traceability and export handling activities.

### **7.2 Existing Conditions**

The existing packhouse contains internal office partitions and enclosed spaces which reduce the operational area available for installation of automated grading equipment.

The current operational arrangement restricts:

- Material flow;
- Forklift circulation;
- Grading line installation;
- Operational flexibility;
- Efficient export handling.

### **7.3 Scope of Works**

The Contractor shall:

- Demolish all identified internal office partitions and associated finishes;
- Remove all associated doors, ceilings, electrical and mechanical services connected to demolished areas;
- Verify that all walls proposed for demolition are non-loadbearing prior to demolition;
- Repair and make good all walls, columns, ceilings and affected finishes;
- Provide a clean, continuous and unobstructed operational floor layout;
- Install approved phytosanitary industrial epoxy flooring system compliant with international food safety standards;
- Provide adequate circulation space for forklifts, pallets, operators and maintenance activities;
- Provide shock protection/ safety solutions around the grading line
- Provide service points, power supply interfaces and drainage provisions for future automated grading equipment;
- Ensure all finishes are hygienic, washable and suitable for export packhouse operations.

---

#### **7.4 Automated Avocado Grading Process Flow**

The upgraded facility shall support installation and operation of an automated avocado grading line comprising the following indicative operational stages:

##### **(a) Pallet Infeed**

Bulk avocados arriving from farms shall be delivered in pallets, crates or bins and fed into the grading system using forklifts, pallet handling systems or conveyors.

##### **(b) Washing**

Avocados shall pass through washing and drying systems to remove dirt, field residues and surface contaminants prior to grading.

##### **(c) Fruit waxing**

Brushing machine for waxing with brushes, dripper lines and a wax pump.

##### **(d) Drying waxed fruits**

This is done by a hot air dryer working with a diesel burner, centrifugal fans and a diesel pump. The hot air dryer is made with isolated panels to conserve energy.

##### **(e) Sizing and Grading**

Automated cameras, sensors and weighing systems shall assess fruit size, weight, colour, shape and external defects.

##### **(f) Sorting**

Automated diverters and conveyor systems shall separate fruit into export grades and size categories based on programmed grading parameters.

##### **(g) Packing**

Graded fruits shall be transferred to packing stations for packing into export cartons or trays.

##### **(h) Palletizing**

Packed cartons shall be automatically stacked onto pallets in accordance with the proposed upgraded operational arrangement and operational workflow.

---

**(i) Export Dispatch**

Completed pallets shall be wrapped, labelled and transferred to cold storage or refrigerated dispatch areas for export loading.

**7.5 Flooring and Hygienic Finish Requirements**

The Contractor shall:

- Provide heavy-duty hygienic epoxy flooring suitable for food processing operations;
- Ensure flooring is seamless, non-slip, washable and resistant to chemicals and abrasion;
- Prepare all floor surfaces in accordance with manufacturer specifications;
- Ensure flooring supports pallet traffic, forklifts and grading equipment operations;
- Ensure all completed surfaces are easy to clean and resistant to bacterial growth.

**7.6 Operational and Functional Requirements**

The upgraded processing area shall:

- Support installation of automated grading and packing systems;
- Support smooth pallet and forklift movement;
- Ensure efficient operational material flow;
- Provide hygienic operational conditions;
- Support traceability and export compliance requirements;
- Minimize cross-contamination risks;
- Allow future maintenance access around grading equipment.

**7.7 Applicable Standards**

All works and finishes shall comply with:

- HACCP requirements;
- Codex Alimentarius food hygiene principles;
- ISO 22000 Food Safety Management Systems;
- Applicable local phytosanitary requirements;
- Applicable export market requirements.

**7.8 Contractor Obligations**

The Contractor shall:

- Verify all dimensions and operational conditions during the recommended site visit;

- 
- Coordinate all floor levels, utility interfaces and equipment clearances with the final grading line supplier;
  - Execute works while minimizing disruption to ongoing packhouse operations;
  - Provide temporary protections where required;
  - Allow for phased execution where necessary.

The conceptual sketches and layouts provided by the Employer are indicative only and shall not relieve the Contractor from verifying all site conditions and operational interfaces.

Any omissions necessary for provision of a complete, hygienic and fully operational processing area shall be deemed included in the Contractor's rates.

## **8. COLD ROOM, DISPATCH AND RAW PRODUCE INLET UPGRADES**

### **8.1 General**

The Contractor shall upgrade the cold chain infrastructure to ensure uninterrupted cold chain management from raw produce reception through processing, storage and export dispatch.

The Works shall include construction of temperature-controlled dispatch and inlet dock arrangements integrated with the existing packhouse.

The conceptual sketches issued by the Employer illustrate the intended operational arrangement and performance requirements for:

- Dispatch/export loading area with hydraulic dock leveler;
- Raw produce inlet area;
- Cold chain continuity and shock protections;
- Refrigerated truck interface;
- Temperature-controlled area for loading and offloading operations.

### **8.2 Dispatch Entrance Upgrade**

#### **Existing Conditions**

The existing dispatch area includes a raised veranda and structures which restrict efficient export loading operations and proper cold chain continuity.

#### **Scope of Works**

The Contractor shall:

- Demolish the existing raised veranda and associated structures;
- Construct new insulated dispatch entrance at ground level;



- Provide insulated sandwich panel walls and roof systems;
- Provide hydraulic dock leveler to bridge the height gap between dispatch bay floor and incoming truck beds
- Construct covered and temperature-controlled dispatch entrance connected directly to the packhouse;
- Provide seamless temperature-controlled transition from packhouse to refrigerated trucks;
- Provide hygienic concrete floors with drainage and non-slip finish;
- Provide dock bumpers and truck guide rails;
- Provide strip curtains and/or airlock arrangements where required;
- Ensure hygienic and export-compliant operational conditions.

### **Functional Requirements**

The dispatch area shall:

- Allow refrigerated trucks to reverse directly into the covered dispatch area;
- Maintain uninterrupted cold chain conditions during loading;
- Prevent temperature shock during export loading operations;
- Provide washable hygienic finishes suitable for food export operations.

### **Design Requirements**

The Contractor shall:

- Maintain internal operational temperatures between 2–5°C or as required during detailed design;
- Provide polyurethane insulated sandwich panels with minimum thickness of 100 mm;
- Provide hydraulic dock leveler to bridges composed of base frame, hinge shaft, platform (made in ultra-durable steel panel), lip plate driven by an integrated motor and hydraulic cylinder system, ensuring stable and efficient lifting performance
- Ensure all finishes are food-grade and easy to clean;
- Provide adequate drainage and washdown capability.

---

### 8.3 Raw Produce Delivery Inlet Upgrade

#### Existing Conditions

The existing raw produce delivery entrance contains raised access arrangements and retaining wall structures which limit efficient hygienic produce reception and temperature-controlled unloading operations.

#### Scope of Works

The Contractor shall:

- Remove existing raised veranda and stone retaining wall where required;
- Construct new insulated delivery entrance with covered truck access;
- Provide insulated sandwich panel walls, ceiling and roof systems;
- Provide temperature-controlled produce inlet area integrated with packhouse operations;
- Construct access ramps and level access arrangements;
- Provide dock bumpers and truck guide rails;
- Provide strip curtains and/or airlock systems to minimize temperature loss;
- Provide hygienic washable finishes compliant with food safety requirements.

#### Functional Requirements

The raw produce inlet area shall:

- Support hygienic unloading of fresh produce;
- Allow refrigerated truck access under covered loading arrangement;
- Minimize temperature fluctuations during unloading operations;
- Maintain clean operational separation between external environment and packhouse interior.

#### Design Requirements

The Contractor shall:

- Maintain operational temperatures between 2–5°C or as required during detailed design;
- Provide insulated sandwich panels minimum 100 mm thick;
- Ensure all materials are hygienic, washable and food-grade;
- Coordinate truck turning, manoeuvring and access arrangements with existing site conditions.

### 8.4 Cold Room Upgrades

The Contractor shall:

- Upgrade existing dispatch cold rooms to facilitate export loading without cold chain disruptions;
- Provide enclosed refrigerated staging area directly connected to loading dock;
- Separate entry and exit operational flows using insulated sandwich panel partitions;
- Provide high-speed insulated doors, strip curtains and/or air curtains;
- Cold room safety solutions/shock protections
- Provide temperature monitoring and recording systems;
- Provide hygienic washable finishes.

### **8.5 Additional Cold Room**

The Contractor shall provide one additional cold room complete with:

- Insulated sandwich panel enclosure;
- Refrigeration equipment;
- Insulated floor, walls and ceiling;
- Cold room doors made in insulated panel with accessories;
- Cold room safety solutions/shock protections
- Temperature monitoring and alarm systems;
- Drainage systems;
- Lighting and electrical systems.

The Contractor shall confirm final sizing and refrigeration capacity during detailed design.

### **8.6 Dock and Cold Chain Operational Requirements**

The Contractor shall ensure:

- Continuous cold chain from produce reception to export dispatch;
- Operational temperatures maintained within required limits;
- Minimal temperature fluctuation during loading and unloading;
- Bridges between dispatch floor and incoming truck for efficient loading and lifting performance
- Prevention of condensation and contamination;
- Hygienic and export-compliant operational conditions.

### **8.7 General Technical Requirements**

All cold chain and dock systems shall:

- Use minimum 100 mm insulated sandwich panels with food-grade finish;
- Ensure complete vapour barrier continuity;
- Provide hygienic, washable and easy-clean finishes;

- Comply with HACCP, Codex Alimentarius and ISO 22000 requirements;
- Comply with applicable export market food safety requirements.

## **8.8 Contractor Coordination and Verification**

The Contractor shall:

- Verify all existing dimensions and site conditions;
- Coordinate refrigeration interfaces and truck access arrangements;
- Verify levels and operational clearances;
- Coordinate all structural and drainage interfaces;
- Minimize disruption to ongoing operations during construction.

The conceptual sketches issued by the Employer are indicative only and shall not relieve the Contractor from verifying all operational and dimensional requirements.

Any omissions necessary for provision of complete and operational temperature-controlled loading and unloading systems shall be deemed included in the Contractor's rates.

## **9. WATER PURIFICATION SYSTEM**

### **9.1 Objective**

The Contractor shall provide a complete food-grade water purification system compliant with HACCP and export certification requirements.

### **9.2 Scope**

The system shall include:

- Raw water storage;
- Multimedia filtration;
- Activated carbon filtration;
- UV sterilization;
- Treated water storage;
- Booster pumps;
- Distribution systems;
- Monitoring systems.

### **9.3 General Requirements**

The treated water shall:

- Comply with potable water standards;



- Be suitable for produce washing;
- Be suitable for food-contact operational use;
- Support export certification requirements.

All tanks and pipework shall be food-grade.

## **10. WASTEWATER TREATMENT SYSTEM**

### **10.1 General**

The Contractor shall provide a complete wastewater collection and treatment system for the packhouse.

### **10.2 Scope**

The Works shall include:

- Internal drainage channels;
- Collection systems;
- Screening chambers;
- Sedimentation systems;
- Biological treatment systems;
- Polishing/disinfection systems;
- Sludge handling arrangements;
- Effluent discharge systems.

### **10.3 Performance Requirements**

The system shall:

- Comply with environmental regulations;
- Minimize odours and contamination;
- Prevent stagnant water accumulation;
- Support hygienic operational conditions.

## **11. FIREFIGHTING SYSTEM**

### **11.1 General**

The Contractor shall provide a complete firefighting system for the packhouse.

### **11.2 Scope**

The system shall include:

- 
- 50 m<sup>3</sup> semi-underground firefighting water tank;
  - Fire pump set;
  - Jockey pump;
  - Diesel standby pump;
  - Fire hose cabinets;
  - External hydrants;
  - Fire brigade connection points;
  - Pipework and controls;
  - Pump house.

### **11.3 Performance Requirements**

The system shall:

- Comply with applicable fire standards;
- Provide adequate pressure and flow;
- Support firefighting access by external fire trucks;
- Ensure operational reliability.

## **12. DIGITALIZATION AND TRACEABILITY SYSTEM**

### **12.1 General**

The Contractor shall provide a complete digital traceability and packhouse management system.

### **12.2 Functional Requirements**

The system shall support:

- Produce reception recording;
- Batch traceability;
- Barcode/QR code management;
- Grading records;
- Pallet tracking;
- Dispatch records;
- Export container tracking;
- Inventory management;
- Operational reporting;
- Audit trails.

## **13. ELECTRICAL WORKS**

The Contractor shall undertake all electrical works necessary for complete operationalization of the facility including:



- Power supply upgrades;
- Distribution boards;
- Cable routing;
- Earthing;
- Lighting;
- Emergency lighting;
- Equipment connections;
- Refrigeration electrical systems;
- ICT power systems.

All works shall comply with applicable electrical standards.

---

## 14. TESTING, COMMISSIONING AND TRAINING

The Contractor shall:

- Test all systems;
- Commission all installations;
- Provide operational demonstrations;
- Provide operation and maintenance manuals;
- Provide as-built drawings;
- Train operational personnel.

No system shall be deemed complete without successful commissioning.

## 15. DEFECTS LIABILITY

The Contractor shall remain responsible for defects liability obligations during the Defects Notification Period (DNP) specified in the Contract.

The Contractor shall rectify all defects arising from:

- Poor workmanship;
- Equipment failure;
- Installation defects;
- System malfunction;
- Material defects.

## 16. QUALITY ASSURANCE, STANDARDS AND COMPLIANCE

### 16.1 General

All works, systems, materials, finishes, equipment, installations and operational arrangements shall comply with internationally recognized food safety, industrial, environmental, refrigeration, electrical, mechanical and fire protection standards applicable to export packhouse facilities.

The Contractor shall ensure that all works are executed in accordance with good international industry practice and in compliance with applicable local laws, regulations and permitting requirements.

### 16.2 Food Safety and Hygiene Standards

The upgraded packhouse and all associated systems shall comply with:

- HACCP (Hazard Analysis and Critical Control Points) principles;
- Codex Alimentarius General Principles of Food Hygiene;

- 
- ISO 22000 Food Safety Management Systems;
  - GlobalG.A.P. operational requirements;
  - Applicable export phytosanitary standards;
  - EU food safety and traceability requirements where applicable;
  - Applicable local agricultural export regulations.

The Contractor shall ensure all food-contact and food-processing environments are:

- Hygienic;
- Washable;
- Easy to clean;
- Resistant to mould, bacteria and contamination;
- Suitable for food export operations.

### **16.3 Civil and Structural Standards**

All civil and structural works shall comply with:

- Applicable national building codes;
- Eurocodes or equivalent internationally recognized structural design standards;
- Applicable seismic design requirements where necessary;
- Applicable concrete, reinforcement and masonry standards;
- Occupational safety requirements during construction.

The Contractor shall verify all existing structures before attaching new systems or modifying existing elements.

Any structural modifications shall be supported by structural verification calculations where required.

### **16.4 Cold Room and Refrigeration Standards**

All refrigeration and cold chain systems shall comply with:

- ISO refrigeration standards;
- ASHRAE refrigeration and ventilation standards;
- HACCP cold chain requirements;
- Applicable food storage and produce handling temperature requirements;
- Applicable environmental regulations governing refrigerants.

The Contractor shall:

- Use environmentally acceptable refrigerants;

- 
- Provide energy-efficient refrigeration systems;
  - Provide temperature monitoring and alarm systems;
  - Ensure vapour barrier continuity;
  - Prevent condensation and thermal bridging.

All insulated sandwich panels shall:

- Be minimum 100 mm thick unless otherwise approved;
- Have food-grade internal finish;
- Use polyurethane (PU) or PIR insulation core;
- Provide adequate fire performance and moisture resistance.

### **16.5 Flooring Standards**

All epoxy flooring systems shall:

- Be industrial heavy-duty food-grade systems;
- Be suitable for forklift traffic and pallet movement;
- Be non-slip and abrasion resistant;
- Resist chemicals, detergents and cleaning agents;
- Be seamless and easy to sanitize.

The Contractor shall submit:

- Manufacturer technical datasheets;
- Surface preparation procedures;
- Application methodology;
- Maintenance recommendations.

### **16.6 Fire Protection Standards**

The firefighting system shall comply with:

- NFPA standards where applicable;
- Applicable local fire regulations;
- Applicable industrial fire protection requirements.

The Contractor shall ensure:

- Adequate fire water storage;
- Adequate pump redundancy;
- Accessibility for firefighting operations;
- Adequate hydrant coverage;

- Operational reliability under emergency conditions.

### **16.7 Electrical Standards**

All electrical works shall comply with:

- IEC standards;
- Applicable local electrical installation regulations;
- Industrial safety standards;
- Earthing and lightning protection requirements.

The Contractor shall ensure:

- Proper cable management;
- Electrical protection systems;
- Emergency isolation arrangements;
- Power quality and voltage protection;
- Equipment compatibility.

### **16.8 Water Treatment and Plumbing Standards**

The water purification system shall comply with:

- Potable water standards applicable to food processing facilities;
- HACCP operational requirements;
- Applicable plumbing standards;
- Water quality requirements for produce washing operations.

All pipework, tanks and fittings in contact with treated water shall be food-grade.

### **16.9 Wastewater and Environmental Standards**

The wastewater treatment system shall comply with:

- Applicable environmental discharge regulations;
- Applicable wastewater treatment standards;
- Occupational health and environmental protection requirements.

The Contractor shall:

- Minimize environmental pollution risks;
- Prevent odour nuisance;
- Prevent contamination of surrounding areas;



- Ensure safe sludge handling and disposal.

---

### **16.10 Mechanical Equipment Standards**

All operational equipment including forklifts, pallet handling systems, weighing systems and conveyor systems shall:

- Be industrial-grade;
- Be suitable for continuous operational use;
- Be corrosion resistant where necessary;
- Be suitable for hygienic operational environments.

All stainless steel components shall preferably be minimum Grade 304 unless otherwise approved.

### **16.11 Documentation and Submittals**

The Contractor shall submit for approval:

- Shop drawings;
- Detailed design calculations where applicable;
- Material samples;
- Product datasheets;
- Manufacturer certifications;
- Test certificates;
- Method statements;
- Inspection and testing plans;
- Commissioning procedures.
- Quality assurance plans;
- Safety plans;
- Testing and commissioning procedures;
- As-built drawings;
- Operation manuals.

No material or equipment shall be installed without prior approval by the Employer or the Employer's Representative where required.

## **17. RISK MANAGEMENT AND COST CONTROL REQUIREMENTS**

To minimize variations, disputes and cost overruns, the following requirements shall apply:

### **17.1 Site Verification**

Tenderers shall verify all:

- Existing dimensions;



- Existing services;
- Structural conditions;
- Refrigeration interfaces;
- Electrical capacities;
- Operational constraints.

---

## **17.2 Pricing requirements (Deemed Included)**

All rates shall be deemed to include:

- Labour;
- Materials;
- Transportation;
- Insurance;
- Duties and levies;
- Installation;
- Testing and commissioning;
- Temporary works;
- Contractor overheads and profit;
- Waste disposal;
- Site protection;
- Coordination costs.
- All applicable taxes, including VAT

## **17.3 Contractor Coordination**

The Contractor shall coordinate:

- Equipment interfaces;
- Refrigeration systems;
- Existing utilities;
- Structural interfaces;
- Drainage systems;
- ICT systems.

## **17.4 Variations**

No variations shall be entertained arising from:

- Failure to inspect the Site;
- Failure to verify dimensions;
- Failure to understand operational constraints;
- Failure to verify utility capacities;
- Failure to coordinate interfaces.

## **17.5 Operational Continuity**

The Contractor shall:



- Minimize operational disruptions;
- Coordinate shutdowns with the Employer;
- Maintain safe access;
- Protect operational areas.



### **17.6 Temporary Protection**

The Contractor shall provide:

- Dust control;
- Temporary barriers;
- Temporary drainage arrangements;
- Temporary operational protections.

### **18. COMPLETION REQUIREMENTS**

The Works shall only be considered complete after:

- Completion of all works;
- Successful commissioning;
- Submission of as-built drawings;
- Submission of manuals;
- Staff training;
- Final inspection and acceptance by the Employer.

### **19. CONCEPT SKETCHES AND RESERVED INSERTION SPACE**

The conceptual sketches issued by the Employer form part of the Employer's Requirements and are intended to guide tenderers regarding the intended operational arrangement, workflow, cold chain continuity and performance expectations.

The sketches are conceptual only and shall not relieve the Contractor from verifying all dimensions, levels, interfaces, utilities, structural conditions and operational constraints.

## 19.1 Dispatch Entrance Upgrade Sketch

## 19.2 Raw Produce Inlet Upgrade Sketch

EXISTING PACKHOUSE ENTRANCE (DELIVERY)



PROPOSED DELIVERY ENTRANCE (RAW PRODUCE INLET)



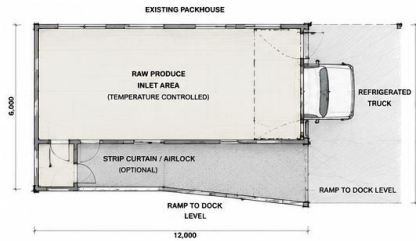
SCOPE OF WORKS

- Remove existing raised veranda and stone retaining wall.
- Construct new insulated delivery entrance at ground level with covered access.
- Provide insulated sandwich panel walls, roof and ceiling.
- Install temperature controlled environment from truck to packhouse.
- Provide dock bumpers and truck guide rails.
- Install strip curtain / airlock to minimise temperature loss.
- Ensure hygienic, washable finishes and food safety compliance.

KEY FEATURES

- Temperature Controlled
- Insulated Sandwich Panels
- Covered Truck Access
- Hygienic, Washable Finishes
- Food Safety Compliant Environment

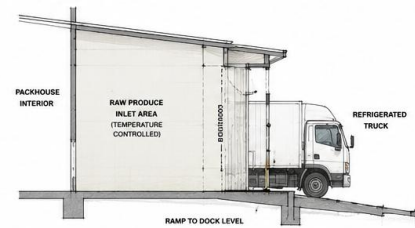
PLAN (TOP VIEW)



FRONT ELEVATION



SECTION (THROUGH ENTRANCE)



### NOTES

- All panels to be polyurethane (PU) insulated, min 100mm thick.
- Maintain internal temp: 2-5°C (typical for avocado handling).
- Provide strip curtain / airlock if required for enhanced temperature control.
- All finishes to be food-grade and easy to clean.
- Comply with all food safety and export standards.



TEMPERATURE  
CONTROLLED



INSULATED  
PANELS



COVERED TRUCK  
ACCESS

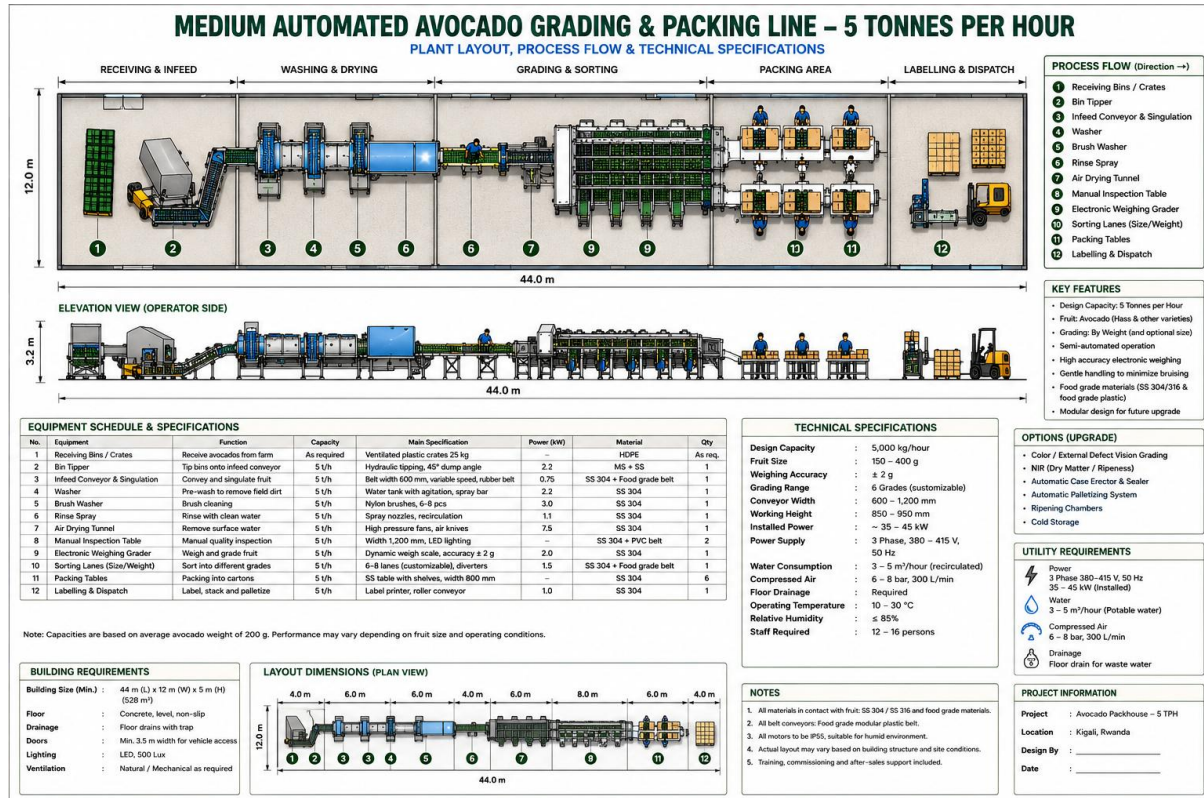


HYGIENIC  
FINISHES



FOOD SAFETY  
COMPLIANT

## 19.3 Additional Concept Sketches



## 20. MINIMUM TECHNICAL RESOURCES REQUIREMENTS

### 20.1 General

Tenderers shall demonstrate that they possess, either directly or through legally binding arrangements, adequate technical personnel, specialist expertise, equipment and operational capacity necessary for successful execution of the Works.

The Employer reserves the right to reject personnel, subcontractors or proposed specialists deemed unsuitable for execution of food-grade export packhouse facilities.

### 20.2 Minimum Key Personnel Requirements – Design Team

The Tenderer shall provide, at minimum, the following key design personnel for design verification, coordination, detailed design review, shop drawing review and construction support.

| Position                            | Minimum No. Required | Minimum Qualification                                                               | Minimum Experience                                                             | Key Responsibilities                                                                                                |
|-------------------------------------|----------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------|
| Team Leader / Lead Architect        | 1                    | Bachelor's Degree in Architecture registered with relevant professional body        | Minimum 10 years in industrial, food processing or export facility projects    | Overall design coordination, architectural review, hygienic facility coordination and multidisciplinary integration |
| Structural Engineer                 | 1                    | Bachelor's Degree in Civil/Structural Engineering registered with professional body | Minimum 8 years in industrial structures, refurbishment and seismic assessment | Structural verification, demolition assessment, structural strengthening review and certification                   |
| Refrigeration / Cold Chain Engineer | 1                    | Mechanical/Refrigeration Engineering Degree                                         | Minimum 8 years in industrial cold rooms and food cold chain systems           | Cold room design review, refrigeration calculations, thermal performance verification and cold chain integration    |
| Electrical Engineer                 | 1                    | Electrical Engineering Degree                                                       | Minimum 8 years in industrial electrical systems                               | Power distribution review, equipment power coordination, lighting and emergency systems                             |
| Mechanical Engineer                 | 1                    | Mechanical Engineering Degree                                                       | Minimum 8 years in industrial mechanical systems                               | Coordination of mechanical systems, pumps, HVAC interfaces and operational                                          |

| Position                        | Minimum No. Required | Minimum Qualification                                 | Minimum Experience                                                  | Key Responsibilities                                                                     |
|---------------------------------|----------------------|-------------------------------------------------------|---------------------------------------------------------------------|------------------------------------------------------------------------------------------|
|                                 |                      |                                                       |                                                                     | equipment integration                                                                    |
| Water and Wastewater Engineer   | 1                    | Environmental/Civil Engineering Degree                | Minimum 8 years in water treatment and wastewater treatment systems | Water purification and wastewater treatment system review and compliance verification    |
| Fire Protection Engineer        | 1                    | Fire Engineering/Mechanical Engineering Qualification | Minimum 5 years in industrial fire systems                          | Fire protection calculations, hydrant and pump sizing review and compliance verification |
| ICT / Digitalization Specialist | 1                    | ICT/Systems Engineering Qualification                 | Minimum 5 years in industrial traceability and management systems   | Traceability systems, networking, CCTV and operational software coordination             |
| Food Safety / HACCP Specialist  | 1                    | Relevant Food Safety/HACCP Qualification              | Minimum 5 years in food processing environments                     | Food hygiene compliance, operational flow review and HACCP coordination                  |
| Quantity Surveyor               | 1                    | Quantity Surveying Degree                             | Minimum 8 years in industrial/commercial projects                   | Cost review, valuation support and contract quantity verification                        |

### 20.3 Minimum Key Personnel Requirements – Construction Team

The Contractor shall provide the following minimum construction personnel throughout execution of the Works.

| Position                 | Minimum No. Required | Minimum Qualification                 | Minimum Experience                                     | Key Responsibilities                                                            |
|--------------------------|----------------------|---------------------------------------|--------------------------------------------------------|---------------------------------------------------------------------------------|
| Project Manager          | 1                    | Engineering/Construction Degree       | Minimum 10 years in industrial projects                | Overall project management, coordination, reporting and contract administration |
| Resident Site Engineer   | 1                    | Civil/Structural Engineering Degree   | Minimum 7 years in industrial construction             | Daily site supervision and technical coordination                               |
| Refrigeration Specialist | 1                    | Relevant Technical Qualification      | Minimum 5 years in cold room installations             | Refrigeration installation and commissioning                                    |
| Electrical Supervisor    | 1                    | Electrical Engineering Diploma/Degree | Minimum 5 years in industrial electrical installations | Electrical installations and testing                                            |
| Mechanical Supervisor    | 1                    | Mechanical Engineering Diploma/Degree | Minimum 5 years in industrial mechanical works         | Mechanical systems installation and coordination                                |
| QA/QC Officer            | 1                    | Relevant Engineering Qualification    | Minimum 5 years in QA/QC systems                       | Inspection, testing and quality control management                              |
| Health & Safety Officer  | 1                    | Certified HSE Qualification           | Minimum 5 years in construction HSE management         | Safety supervision, toolbox talks and compliance monitoring                     |
| Quantity Surveyor        | 1                    | Quantity Surveying Qualification      | Minimum 5 years                                        | Measurement verification and cost monitoring                                    |

| Position                           | Minimum No. Required | Minimum Qualification     | Minimum Experience  | Key Responsibilities                                     |
|------------------------------------|----------------------|---------------------------|---------------------|----------------------------------------------------------|
| Site Foremen (Civil/Architectural) | 2                    | Relevant Qualification    | Minimum 5 years     | Site supervision for civil and finishing works           |
| MEP Foremen                        | 2                    | Relevant Qualification    | Minimum 5 years     | Supervision of mechanical, electrical and plumbing works |
| ICT / Systems Technician           | 1                    | ICT Diploma/Certification | Minimum 3 years     | Traceability systems and ICT installation support        |
| Refrigeration Technicians          | 2                    | Relevant Certification    | Minimum 3 years     | Cold room installation and testing                       |
| Electricians                       | 4                    | Relevant Certification    | Minimum 3 years     | Electrical installation works                            |
| Plumbers                           | 3                    | Relevant Certification    | Minimum 3 years     | Plumbing and drainage works                              |
| Welders / Fabricators              | 4                    | Relevant Certification    | Minimum 3 years     | Steel, piping and fabrication works                      |
| Skilled Labourers                  | 15                   | Relevant experience       | Minimum 2 years     | General skilled installation activities                  |
| General Labourers                  | 20                   | Relevant experience       | Relevant experience | General site operations and material handling            |

## 20.4 Minimum Construction Equipment and Tools

Tenderers shall demonstrate ownership or guaranteed access to the following minimum construction equipment and tools.

| Equipment / Tool                           | Minimum Quantity Required | Minimum Requirement / Specification                             |
|--------------------------------------------|---------------------------|-----------------------------------------------------------------|
| Excavator                                  | 1                         | Minimum 20-ton class suitable for demolition and earthworks     |
| Backhoe Loader                             | 1                         | Suitable for excavation and material handling                   |
| Dump Trucks                                | 2                         | Minimum 10 m <sup>3</sup> capacity                              |
| Concrete Mixer                             | 1                         | Suitable for continuous civil works operations                  |
| Plate Compactors /<br>Compaction Equipment | 1                         | Suitable for floor and external works                           |
| Scaffolding System                         | 1 Lot                     | Adequate for internal and external works                        |
| Welding Machines                           | 2                         | Industrial-grade welding equipment                              |
| Refrigeration Testing<br>Equipment         | 1 Set                     | Pressure gauges, vacuum pumps and refrigerant testing equipment |
| Electrical Testing Equipment               | 1 Set                     | Insulation testers, multimeters and commissioning tools         |
| Industrial Floor Grinding<br>Machines      | 2                         | Suitable for epoxy floor preparation                            |
| Forklift                                   | 1                         | Minimum 3-ton operational support forklift                      |
| Mobile Crane                               | 1 (where required)        | Suitable for equipment lifting and installation                 |
| Power Generators                           | 1                         | Standby site power supply                                       |
| Water Pumps                                | 1 (where required)        | Dewatering and temporary operational support                    |
| Survey Equipment                           | 1 Set                     | Total station and levelling equipment                           |
| Power Tools                                | 1 Lot                     | Complete installation and construction toolset                  |
| Safety Equipment and PPEs                  | 1 Lot                     | Full HSE operational requirements                               |

## 20.5 Contractor Resource Mobilization Requirements

The Contractor shall:

- Mobilize adequate personnel throughout the implementation period;

- 
- Maintain continuity of key personnel unless otherwise approved by the Employer;
  - Replace any underperforming personnel promptly when requested by the Employer;
  - Ensure all operators and technicians are properly trained and certified where required;
  - Provide sufficient supervision during all construction activities;
  - Ensure adequate equipment availability throughout execution.

The Employer reserves the right to verify ownership, lease agreements, employment arrangements and qualifications of all proposed resources.

## **21. MINIMUM EXPERIENCE REQUIREMENTS**

### **21.1 Design Firm Experience**

The Design Firm or Lead Design Specialist shall demonstrate:

- Minimum 10 years' experience in industrial, food processing or cold chain facility design;
- Experience in at least two (2) similar projects involving food processing facilities, cold rooms, packhouses or export facilities completed within the last ten (10) years;
- Demonstrated experience in refrigeration and cold chain systems;
- Demonstrated experience in food-grade hygienic facilities;
- Experience in preparation of detailed technical drawings, specifications and coordination of multidisciplinary systems.

### **21.2 Construction Company Experience**

The Contractor shall demonstrate:

- Minimum 10 years' experience in industrial or commercial construction projects;
- Successful completion of at least two (2) similar projects involving industrial facilities, packhouses, cold rooms or food processing facilities within the last ten (10) years;
- Experience in refurbishment and upgrading of operational facilities;
- Experience in refrigeration and cold chain installations;
- Experience in mechanical, electrical and plumbing coordination;
- Experience in execution of hygienic food-grade environments.

The Employer may request completion certificates, references, photographs and client contact details for verification purposes.

## **22. INDICATIVE IMPLEMENTATION PERIOD**

### **22.1 Design and Review Period**

The indicative period for design verification, detailed design development, shop drawings, approvals and mobilization shall be approximately Twelve (12) Weeks.

---

## **22.2 Construction and Installation Period**

The indicative construction, supply, installation, testing and commissioning period shall be approximately Twelve (12) Months.

The Contractor shall submit a detailed implementation programme indicating:

- Design activities;
- Procurement activities;
- Construction sequencing;
- Equipment delivery schedules;
- Testing and commissioning activities;
- Training activities.

The Contractor shall allow for phased execution and operational continuity requirements.

## **22.3 Defects Notification Period**

The Defects Notification Period (DNP) shall be Twelve (12) Months from the date of Taking-Over Certificate.

During the Defects Notification Period, the Contractor shall:

- Rectify defects promptly;
- Replace defective materials and equipment;
- Correct installation deficiencies;
- Repair workmanship defects;
- Maintain operational reliability of installed systems.

## **23. IMPORTANT NOTE**

The scope and exact intervention requirements shall be further clarified during the mandatory pre-bid meeting and site visit.

Tenderers are therefore advised to carefully inspect the Site and verify all operational conditions before submission of bids.

The Contractor shall be deemed to have fully satisfied himself regarding the nature and extent of the Works and all associated risks prior to submission of the Tender.

## 24. Bills of Quantities

### 24.1 Preamble to the Bills of Quantities

This Bill of Quantities shall be read together with the Employer's Requirements, drawings, conceptual sketches, specifications, contract conditions, site information and all tender documents.

The Contract is a Design and Build Lump Sum Contract. The quantities and descriptions provided herein are indicative and are intended to assist tenderers in pricing the complete Works. The Contractor shall verify all dimensions, quantities, site conditions, interfaces, utilities, operational constraints and design requirements before submitting the tender.

The Contractor's rates and prices shall be deemed to include all design, verification, surveys, labour, materials, equipment, plant, transport, duties, taxes including VAT, insurance, permits, temporary works, testing, commissioning, training, as-built documentation, overheads, profit and all works necessary for complete operationalization of the upgraded packhouse.

No variation shall be entertained arising from failure to inspect the Site, verify dimensions, coordinate interfaces or understand the operational requirements.

### 24.2 Activity schedule

#### Design and Build Lump Sum Contract

| Item No.   | Description of Works                                                                                                                                                       | Unit | Qty | Rate | Amount |
|------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|-----|------|--------|
| <b>1.0</b> | <b>PRELIMINARIES, GENERAL REQUIREMENTS AND CONTRACTOR'S OBLIGATIONS</b>                                                                                                    |      |     |      |        |
| 1.1        | Mobilization, establishment of site offices for hosting project meetings and consultant's site team, temporary facilities, utilities, storage, security and demobilization | LS   | 1   |      |        |
| 1.2        | Site verification, detailed measurements, surveys and verification of existing structures, utilities and operational constraints                                           | LS   | 1   |      |        |
| 1.3        | Project management, supervision, coordination, reporting and contract administration                                                                                       | LS   | 1   |      |        |
| 1.4        | Health, Safety and Environmental management including PPE, temporary barriers, signage and dust control                                                                    | LS   | 1   |      |        |
| 1.5        | Provide for insurances and 10% performance bond                                                                                                                            | LS   | 1   |      |        |
| 1.6        | Environmental and Social (ES) Performance Security: Provide for bank performance guarantee of 1.5% of the total contract amount from a                                     | LS   | 1   |      |        |

| Item No.   | Description of Works                                                                                                                                                                                 | Unit | Qty | Rate | Amount |
|------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|-----|------|--------|
|            | reputable commercial bank tier one valid for the entire construction duration.                                                                                                                       |      |     |      |        |
| 1.7        | Temporary operational protections, phased execution arrangements and maintenance of operational continuity                                                                                           | LS   | 1   |      |        |
| 1.8        | Permits, approvals, inspections and statutory compliance requirements                                                                                                                                | LS   | 1   |      |        |
| 1.9        | Quality assurance, method statements, inspection and testing plans, samples and certifications                                                                                                       | LS   | 1   |      |        |
|            | <b>Sub Total 1</b>                                                                                                                                                                                   |      |     |      |        |
| <b>2.0</b> | <b>DETAILED DESIGN, DESIGN VERIFICATION, SHOP DRAWINGS AND APPROVALS</b>                                                                                                                             |      |     |      |        |
| 2.1        | Site surveys, condition assessment, dimensional verification and confirmation of existing utilities, structures and operational constraints                                                          | LS   | 1   |      |        |
| 2.2        | Design verification of Employer's Requirements, conceptual sketches, operational workflow, cold chain requirements and proposed interventions                                                        | LS   | 1   |      |        |
| 2.2A       | ESIA screening and study, license/permit, and ESMP monitoring (including Health, Safety and Environmental management, PPE, temporary barriers, signage, dust control etc.)                           | LS   | 1   |      |        |
| 2.3        | Detailed architectural design including layouts, hygienic finishes, internal reconfiguration, dock interfaces and operational circulation                                                            | LS   | 1   |      |        |
| 2.4        | Detailed civil and structural design including demolition verification, structural checks, foundations, slabs, drainage, ramps, tank bases and support structures                                    | LS   | 1   |      |        |
| 2.5        | Detailed refrigeration and cold chain design including cold rooms, dispatch/inlet temperature-controlled areas, insulated panels, doors, refrigeration capacity, controls and temperature monitoring | LS   | 1   |      |        |
| 2.6        | Detailed mechanical, plumbing, water purification and wastewater treatment design including pumps, pipework, drainage, treatment systems and equipment interfaces                                    | LS   | 1   |      |        |
| 2.7        | Detailed electrical design including power supply upgrades, distribution boards, cabling, lighting, emergency lighting, earthing, controls and equipment connections                                 | LS   | 1   |      |        |

| Item No.   | Description of Works                                                                                                                                                                                                                | Unit | Qty | Rate | Amount |
|------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|-----|------|--------|
| 2.8        | Detailed fire protection design including fire tank, pump house, pumps, hydrants, hose cabinets, pipework, fire brigade connections and controls                                                                                    | LS   | 1   |      |        |
| 2.9        | Detailed ICT infrastructure design: communications room, containment, power and earthing for ICT, traceability, CCTV and access-control equipment supplied under Tender PRQ20260122, coordinated with the Lot 2 and Lot 3 suppliers | LS   | 1   |      |        |
| 2.10       | Food safety, HACCP, ISO 22000 and GlobalG.A.P. design compliance review, including hygienic zoning, cleanability, contamination control and operational flow                                                                        | LS   | 1   |      |        |
| 2.11       | Preparation and submission of coordinated detailed design drawings, calculations, technical specifications, equipment schedules and material schedules                                                                              | LS   | 1   |      |        |
| 2.12       | Preparation and submission of shop drawings, installation drawings, method statements and manufacturer technical submittals                                                                                                         | LS   | 1   |      |        |
| 2.13       | Design review meetings, revisions, approvals and coordination with Employer, beneficiary, authorities and specialist suppliers                                                                                                      | LS   | 1   |      |        |
|            | <b>Sub Total 2</b>                                                                                                                                                                                                                  |      |     |      |        |
| <b>3.0</b> | <b>INTERNAL DEMOLITION AND PROCESSING AREA RECONFIGURATION</b>                                                                                                                                                                      |      |     |      |        |
| 3.1        | Demolition of identified internal partitions, ceilings, doors, windows and associated finishes                                                                                                                                      | LS   | 1   |      |        |
| 3.2        | Removal and making safe of redundant electrical, plumbing and mechanical services                                                                                                                                                   | LS   | 1   |      |        |
| 3.3        | Protection of existing structural elements, operational areas and utilities during demolition                                                                                                                                       | LS   | 1   |      |        |
| 3.4        | Removal and disposal of demolition debris                                                                                                                                                                                           | LS   | 1   |      |        |
| 3.5        | Repair and reinstatement of affected walls, ceilings, floors and finishes                                                                                                                                                           | LS   | 1   |      |        |
| 3.6        | Reconfiguration of processing area into continuous unobstructed operational layout                                                                                                                                                  | LS   | 1   |      |        |
|            | <b>Sub Total 3</b>                                                                                                                                                                                                                  |      |     |      |        |
| <b>4.0</b> | <b>EPOXY FLOORING AND HYGIENIC INTERNAL FINISHES</b>                                                                                                                                                                                |      |     |      |        |
| 4.1        | Repair, grinding, levelling and preparation of floor surfaces                                                                                                                                                                       | LS   | 1   |      |        |

| Item No.   | Description of Works                                                                                                                                                                                                                                                                                                                                                                                                             | Unit | Qty | Rate | Amount |
|------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|-----|------|--------|
| 4.2        | Supply and application of heavy-duty industrial food-grade resin flooring system (epoxy primer, self-levelling epoxy body coat, anti-slip broadcast where required and seal coat), min. 3 mm generally and min. 6 mm (or PU-cement) in wet and heavy-traffic zones, e.g. Sikafloor-161 + Sikafloor-263 SL or approved equivalent, all in accordance with the Minimum Resin Flooring Specification in the Employer's Requirements | LS   | 1   |      |        |
| 4.3        | Provision of non-slip, seamless, abrasion-resistant and hygienic finishes                                                                                                                                                                                                                                                                                                                                                        | LS   | 1   |      |        |
| 4.4        | Hygienic wall/floor junction treatment, sealing and coving                                                                                                                                                                                                                                                                                                                                                                       | LS   | 1   |      |        |
|            | <b>Sub Total 4</b>                                                                                                                                                                                                                                                                                                                                                                                                               |      |     |      |        |
| <b>5.0</b> | <b>AUTOMATED GRADING LINE READINESS AND OPERATIONAL INTERFACES</b>                                                                                                                                                                                                                                                                                                                                                               |      |     |      |        |
| 5.1        | Preparation of operational layout for automated avocado grading and packing line                                                                                                                                                                                                                                                                                                                                                 | LS   | 1   |      |        |
| 5.2        | Provision of service points, drainage interfaces, power connections and operational clearances                                                                                                                                                                                                                                                                                                                                   | LS   | 1   |      |        |
| 5.3        | Coordination with pallet movement, forklift circulation and grading operations                                                                                                                                                                                                                                                                                                                                                   | LS   | 1   |      |        |
| 5.4        | Hygienic operational preparation and integration with export handling workflow                                                                                                                                                                                                                                                                                                                                                   | LS   | 1   |      |        |
| 5.5        | Design and construction of box folding (carton make-up) and packaging materials area directly linked to the grading-line packing stations, including all civil, structural, architectural, finishes and building services works (area and location as confirmed at the site visit/pre-bid meeting and issued by addendum)                                                                                                        | LS   | 1   |      |        |
|            | <b>Sub Total 5</b>                                                                                                                                                                                                                                                                                                                                                                                                               |      |     |      |        |
| <b>6.0</b> | <b>DISPATCH ENTRANCE UPGRADE AND TEMPERATURE-CONTROLLED LOADING AREA</b>                                                                                                                                                                                                                                                                                                                                                         |      |     |      |        |
| 6.1        | Demolition of existing dispatch veranda and associated structures and walls and other structures                                                                                                                                                                                                                                                                                                                                 | LS   | 1   |      |        |
| 6.2        | Civil and structural works for new dispatch entrance and loading interface                                                                                                                                                                                                                                                                                                                                                       | LS   | 1   |      |        |
| 6.3        | Supply and installation of insulated sandwich panels, walls and roof systems                                                                                                                                                                                                                                                                                                                                                     | LS   | 1   |      |        |

| Item No.   | Description of Works                                                                      | Unit | Qty | Rate | Amount |
|------------|-------------------------------------------------------------------------------------------|------|-----|------|--------|
| 6.4        | Construction of temperature-controlled loading area integrated with packhouse             | LS   | 1   |      |        |
| 6.5        | Hygienic concrete floors, drainage, non-slip finishes and washdown provisions             | LS   | 1   |      |        |
| 6.6        | Dock bumpers, truck guide rails, strip curtains and/or airlock systems                    | LS   | 1   |      |        |
| 6.7        | Refrigeration systems, controls and temperature monitoring systems                        | LS   | 1   |      |        |
|            | <b>Sub Total 6</b>                                                                        |      |     |      |        |
| <b>7.0</b> | <b>RAW PRODUCE DELIVERY INLET UPGRADE</b>                                                 |      |     |      |        |
| 7.1        | Removal of existing raised access arrangements and retaining wall elements where required | LS   | 1   |      |        |
| 7.2        | Civil and structural works for new raw produce inlet area                                 | LS   | 1   |      |        |
| 7.3        | Construction of covered truck access, ramps and operational interfaces                    | LS   | 1   |      |        |
| 7.4        | Insulated sandwich panels, roofing and hygienic washable finishes                         | LS   | 1   |      |        |
| 7.5        | Refrigeration systems, dock bumpers, strip curtains and airlock arrangements              | LS   | 1   |      |        |
|            | <b>Sub Total 7</b>                                                                        |      |     |      |        |
| <b>8.0</b> | <b>COLD ROOM UPGRADES AND ADDITIONAL COLD ROOM</b>                                        |      |     |      |        |
| 8.1        | Upgrade of existing cold rooms and refrigerated staging areas                             | LS   | 1   |      |        |
| 8.2        | Insulated partitions, high-speed insulated doors and cold room accessories                | LS   | 1   |      |        |
| 8.3        | Supply and installation of additional cold room complete with insulated enclosure         | LS   | 1   |      |        |
| 8.4        | Refrigeration equipment, controls, monitoring systems and alarms                          | LS   | 1   |      |        |
| 8.5        | Lighting, drainage, electrical systems and cold room accessories                          | LS   | 1   |      |        |
| 8.6        | Testing, balancing and commissioning of refrigeration systems                             | LS   | 1   |      |        |
|            | <b>Sub Total 8</b>                                                                        |      |     |      |        |
| <b>9.0</b> | <b>WATER PURIFICATION SYSTEM</b>                                                          |      |     |      |        |
| 9.1        | Design, supply and installation of complete food-grade water purification system          | LS   | 1   |      |        |
| 9.2        | Raw water storage, treated water storage tanks and pipework                               | LS   | 1   |      |        |
| 9.3        | Multimedia filtration, activated carbon filtration and UV sterilization systems           | LS   | 1   |      |        |

| Item No.    | Description of Works                                                          | Unit | Qty | Rate | Amount |
|-------------|-------------------------------------------------------------------------------|------|-----|------|--------|
| 9.4         | Booster pumps, controls, monitoring systems and distribution network          | LS   | 1   |      |        |
| 9.5         | Testing, commissioning and training for water purification system             | LS   | 1   |      |        |
|             | <b>Sub Total 9</b>                                                            |      |     |      |        |
| <b>10.0</b> | <b>WASTEWATER TREATMENT SYSTEM</b>                                            |      |     |      |        |
| 10.1        | Design, supply and installation of wastewater collection and treatment system | LS   | 1   |      |        |
| 10.2        | Internal drainage channels, collection systems and screening chambers         | LS   | 1   |      |        |
| 10.3        | Sedimentation, biological treatment and disinfection systems                  | LS   | 1   |      |        |
| 10.4        | Sludge handling arrangements and effluent discharge system                    | LS   | 1   |      |        |
| 10.5        | Testing, commissioning and environmental compliance verification              | LS   | 1   |      |        |
|             | <b>Sub Total 10</b>                                                           |      |     |      |        |
| <b>11.0</b> | <b>FIREFIGHTING SYSTEM</b>                                                    |      |     |      |        |
| 11.1        | Design, supply and installation of complete firefighting system               | LS   | 1   |      |        |
| 11.2        | 50 m <sup>3</sup> semi-underground firefighting water tank                    | LS   | 1   |      |        |
| 11.3        | Fire pump set, jockey pump and diesel standby pump                            | LS   | 1   |      |        |
| 11.4        | Pump house construction and associated civil works                            | LS   | 1   |      |        |
| 11.5        | Fire hose cabinets, external hydrants and brigade connection points           | LS   | 1   |      |        |
| 11.6        | Fire pipework, valves, controls and accessories                               | LS   | 1   |      |        |
| 11.7        | Testing, pressure testing and commissioning of firefighting system            | LS   | 1   |      |        |
|             | <b>Sub Total 11</b>                                                           |      |     |      |        |
| <b>12.0</b> | <b>ELECTRICAL WORKS AND POWER DISTRIBUTION</b>                                |      |     |      |        |
| 12.1        | Electrical power supply upgrades and verification of existing capacities      | LS   | 1   |      |        |
| 12.2        | Distribution boards, switchgear, breakers and protection systems              | LS   | 1   |      |        |
| 12.3        | Cable routing, containment systems, conduits and trunking                     | LS   | 1   |      |        |
| 12.4        | Lighting, emergency lighting and operational electrical installations         | LS   | 1   |      |        |
| 12.5        | Equipment electrical connections and refrigeration electrical systems         | LS   | 1   |      |        |
| 12.6        | Earthing, bonding, surge protection and electrical safety systems             | LS   | 1   |      |        |
| 12.7        | Testing, commissioning and certification of electrical installations          | LS   | 1   |      |        |
|             | <b>Sub Total 12</b>                                                           |      |     |      |        |

| Item No.    | Description of Works                                                                                                                                                                                                                             | Unit | Qty | Rate | Amount |
|-------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|-----|------|--------|
| <b>13.0</b> | <b>MECHANICAL, PLUMBING AND DRAINAGE WORKS</b>                                                                                                                                                                                                   |      |     |      |        |
| 13.1        | Plumbing works, treated water distribution and washdown systems                                                                                                                                                                                  | LS   | 1   |      |        |
| 13.2        | Internal drainage systems, floor drains and wastewater connections                                                                                                                                                                               | LS   | 1   |      |        |
| 13.3        | Mechanical supports, pipe supports and coordination of MEP interfaces                                                                                                                                                                            | LS   | 1   |      |        |
| 13.4        | Testing, flushing, disinfection and commissioning of plumbing systems                                                                                                                                                                            | LS   | 1   |      |        |
|             | <b>Sub Total 13</b>                                                                                                                                                                                                                              |      |     |      |        |
| <b>14.0</b> | <b>TESTING, COMMISSIONING, TRAINING AND HANDOVER</b>                                                                                                                                                                                             |      |     |      |        |
| 14.1        | Testing and commissioning of all civil, MEP, refrigeration, ICT infrastructure and fire systems, and attendance on the PRQ20260122 suppliers during their site acceptance tests                                                                  | LS   | 1   |      |        |
| 14.2        | Cold chain performance verification and temperature monitoring validation                                                                                                                                                                        | LS   | 1   |      |        |
| 14.3        | Water quality and wastewater effluent testing                                                                                                                                                                                                    | LS   | 1   |      |        |
| 14.4        | Training of Employer's personnel and operational demonstrations                                                                                                                                                                                  | LS   | 1   |      |        |
| 14.5        | Submission of as-built drawings, O&M manuals, warranties and certificates                                                                                                                                                                        | LS   | 1   |      |        |
| 14.6        | Final cleaning, inspection support and project handover                                                                                                                                                                                          | LS   | 1   |      |        |
|             | <b>Sub Total 14</b>                                                                                                                                                                                                                              |      |     |      |        |
| <b>15.0</b> | <b>DEFECTS NOTIFICATION PERIOD OBLIGATIONS</b>                                                                                                                                                                                                   |      |     |      |        |
| 15.1        | Rectification of defects during the Defects Notification Period                                                                                                                                                                                  | LS   | 1   |      |        |
| 15.2        | Replacement of defective materials, equipment and workmanship                                                                                                                                                                                    | LS   | 1   |      |        |
| 15.3        | Attendance to operational failures and system malfunctions                                                                                                                                                                                       | LS   | 1   |      |        |
| 15.4        | Final close-out inspection and DNP completion obligations                                                                                                                                                                                        | LS   | 1   |      |        |
|             | <b>During the Defects Notification Period, the Contractor shall rectify any outstanding E&amp;S matters (including preparation of an ESMP implementation closure report) and any defects in the Works at no additional cost to the Employer.</b> |      |     |      |        |
|             | <b>Sub Total 15</b>                                                                                                                                                                                                                              |      |     |      |        |
|             | Add 10% contingency                                                                                                                                                                                                                              |      |     |      |        |
|             | <b>Sub Total 16</b>                                                                                                                                                                                                                              |      |     |      |        |
|             | Add VAT                                                                                                                                                                                                                                          |      |     |      |        |



| Item No. | Description of Works                         | Unit | Qty | Rate | Amount |
|----------|----------------------------------------------|------|-----|------|--------|
|          | <b>GRAND TOTAL CARRIED TO FORM OF TENDER</b> |      |     |      |        |

Notes to Tenderers

1. This BOQ/Activity Schedule shall be priced as a complete Design and Build Lump Sum Contract.
2. All quantities and dimensions shall be verified by the Contractor prior to submission of the Tender.
3. The Contractor shall include all labour, materials, equipment, transportation, testing, commissioning, training, temporary works, overheads, profit and taxes including VAT.
4. The Employer's conceptual sketches are indicative only and shall not relieve the Contractor from verification of all site conditions and operational interfaces.
5. The Contractor shall include all works necessary to provide a complete, operational, hygienic and export-compliant avocado export packhouse facility.
6. No claims for additional payment arising from failure to inspect the Site, verify conditions or coordinate interfaces shall be entertained.
7. **The bidders to include the cost of the following for supervising consultant: Site Office, accommodation, transport, supply of survey equipment and sum for material testing.**

---

## 25. FINAL NOTE

The Employer's Requirements establish the minimum acceptable technical, operational and performance requirements.

Bidders may propose superior solutions provided they meet or exceed the minimum requirements stated herein.

Any item necessary for complete, safe and fully functional operation shall be deemed included in the Supplier's scope and price, whether specifically mentioned or not.

During the design review and approval stage, the following will be taken into consideration :

- Food-grade finishes, including epoxy thickness, slip resistance, chemical resistance, coving, and acceptance tests;
- Cold-room and refrigeration design criteria, including capacity, temperature range, humidity, pull-down time, refrigerant, insulation performance, redundancy, and heat-load calculations (critical for extended storage beyond 12 hours);
- Grading-line performance guarantees, including throughput (if 5ton/hour is this optimal?), grading accuracy, fruit-damage limits, utility consumption, equipment availability, and operator requirements;
- Water and wastewater design parameters, including flow rates, treatment performance, water-quality limits, and effluent standards;
- A clear interface matrix allocating responsibilities between the civil/electrical works, equipment, refrigeration, and digital-system contractors.
- Equipment specifications and guaranteed performance schedules;
- ICT and traceability system specifications;
- Utility and interface schedules; and
- FAT, SAT, commissioning, and acceptance protocols.