

ANNEX D

Owner Supplied Items to Be Installed

The Ministry of Public Works have purchased two (2) 6,000 kg overhead refuse cranes, one (1) 4,000kg grab maintenance crane, and the following equipment which is to be installed in the Tynes Bay Waste to Energy Facility.

Generally the items to be install are as follows:

1. Complete hoist trolley comprising of following items:
 - 1.1. hoist motor, open disk brake, hoist gearbox, rope drum & wire ropes
 - 1.2. traverse wheels & traverse motor with disc brake
 - 1.3. trolley frame with service platform & handrails
 - 1.4. rubber buffers
 - 1.5. upper & lower limit switch
 - 1.6. traversing limit switch
 - 1.7. absolute encoder for positioning
 - 1.8. electric cable for hydraulic grab supply & control
 - 1.9. suspension device for hydraulic grab
 - 1.10. overload protection device
 - 1.11. centralized lubrication points for trolley
2. End carriages with following items:
 - 2.1. traveling wheels
 - 2.2. traveling machineries including motors with disc brakes
 - 2.3. polyurethane buffers
 - 2.4. absolute encoder for positioning
 - 2.5. travelling limit switch
3. Four (4) electro-hydraulic orange peel grab for fuel handling
4. Complete electrical supply and control system for the crane comprising of:
 - 4.1. all electrical panels on the crane are with anti-condensation heaters, panel light and enclosure
 - 4.2. all electrical panels for main switch, hoist, traverse and travel control located in the switchgear/MCC room in the building.
5. Final splits for enclosures to fit in the existing MCC room.
 - 5.1. movable festoon cables system for the hoist trolley
 - 5.2. fixed cables on the crane
 - 5.3. all fixed cables on the crane are laid in cable trunkings or cable trays.
6. Operator's chairs for operating crane functions, located in the building/control room.

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7. Industrial PC based Main User Interface “MUI” and HMI panel for operating crane functions, MUI is located in the building control room and HMI-panel is located in the operators chair or door of electrical cabinets.
8. Radio control for manual service use.
9. All motors with over-heating protection and stand by heating.
10. Semi-automated control including:
 - 10.1. PLC (SIEMENS type) S7 300-series
 - 10.2. All basic encoders and limit switches
 - 10.3. Encoders on the trolley and bridge
 - 10.4. Operators display (HMI) Siemens 7”
 - 10.5. Interface to DCS via profibus
 - 10.6. Remote I/O between the crane, switchgear room and operator’s panel
 - 10.7. DynAPilot sway control Software
 - 10.8. Condition monitoring system
 - 10.9. PLC program
11. Installation of the festoon cable systems for bridge with cables and trolleys, including junction box at runway end.
12. Quality control
13. Crane steel structures including following items:
 - 13.1. double box-girder
 - 13.2. trolley traverse rails
 - 13.3. trolley end stoppers
 - 13.4. walkway (galvanized grid) and handrail on one side
 - 13.5. movable festoon system brackets
14. Installation and assembly of;
 - 14.1. bridge and trolley structures
 - 14.2. triggering actuators of travelling limit switches
 - 14.3. 4,000 kg grab maintenance hoist
15. On site transportation of crane and components
16. Erection Supervision, training and commissioning
17. All documents for the operation, maintenance, installation, testing and commissioning in English

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18. New Runway rail, rail pad & clips, and relocate the 4 end stops.