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PASSENGER RAIL AGENCY OF SOUTH AFRICA

J42000 PRASA EPCM
Durban Lifting Shop Depot Upgrade

Fire and Sprinkler Services Equipment Schedule
Ref: J42000-B-06-05-FIR-SCH-0001-01

Rev 1 – TEDNER
1 May 2024

GIBB
INFRASTRUCTURE & TRANSPORT

J42000-B-06-05-FIR-SCH-0001-01

ALL EQUIPMENT IS EQUAL OR APPROVED

1 Fire System Equipment

1.1 Fire Fighting Equipment

Ref	Description	Manufacturer / Ref [1]	Spec	Controls	Notes
HR/01	Hose Reel Drum 30m		Discharge Rate: 30l/min@300kPa Disc diameter: 575mm	Complete with Control/Isolating Valve installed before the connection of the Hose. c/w pressure gauge	This high quality SABS certified fire hose reel is supplied with a wall-mounted bracket, hose guide, durable nozzle and 30 metres hose: SANS 1086, EN694. Mass without hose: 7.87kg Mass with hose: 19.4kg Height (Bracket): 575mm Wall projection: 290mm Hose: SANS 1086 PVC Hose dimension: ID 20mm x 30m Valve: 25mm BSP CP
HY/01	Fire Hydrant		Discharge Rate: 1200l/min@300kPa Right Angle 80mm Brass	c/w pressure gauge	Installed with thrust block and pipework connections Opening mechanism: Handwheel Inlet thread: 80mm male 3"BSP Outlet type: 65mm (Female) Instantaneous Height: 242mm Weight: 4.72kg Working pressure: 16bar Material: Brass
HY/02	Fire Hydrant – Tamper Proof		Discharge Rate: 1200l/min@300kPa Right Angle, tamper proof – 80mm Brass	c/w pressure gauge	Installed with thrust block and pipework connections Opening mechanism: Tamper Proof Key Inlet thread: 80mm male 3"BSP Outlet type: 65mm (Female) Instantaneous Height: 274mm Weight: 4.22kg Working pressure: 16bar Material: Brass
HYM/01	External hydrant and booster pipe and connection		Pipe and support system on which to mount the hydrant and booster heads		Steel pipe above ground to height as required including threaded end for hydrant head Connection to below ground pipework and transition
HYM/02	External hydrant and booster pipe, connection and concrete surround		Pipe and support system on which to mount the hydrant and booster heads		Steel pipe above ground to height as required including threaded end for hydrant head Connection to below ground pipework and transition Concrete surround

Ref	Description	Manufacturer / Ref [1]	Spec	Controls	Notes
FE/01	(9kg) Dry Chemical Powder Fire Extinguisher		Charge:> 12Sec Working pressure: 1400kPa		To be supplied complete with wooden backing board and mounting bracket. To be tested and recertified at PC
FE/02	(4.5kg) Dry Chemical Powder Fire Extinguisher		Charge:> 12Sec Working pressure: 1400kPa		To be supplied complete with wooden backing board and mounting bracket. To be tested and recertified at PC
FE/03	(10kg) CO2 Fire Extinguisher		Charge:> 12Sec Working pressure: 1400kPa		To be supplied complete with wooden backing board and mounting bracket. To be tested and recertified at PC
FBC/01	80mm Double Booster Connector		Flow : 1200l/min @ To be a twin head booster connection	To have pressure gauge	Its internal valve design provides efficient water flow at all normal operating pressures and its tapered thread overcomes the jointing problems that have always been associated with the installation of Fire Brigade Booster Connector Complete with upstand, concrete surround, Twin booster connector, back flow preventer, pressure gauge and connection to mains with trenching thrust block and backfilling Booster Connection head will be as follows: Materials: Brass and Stainless Steel Thread: 80mm nominal bore pipe thread (tapered 3" B.S.P. to BS 21.173) House Coupling: Male, instantaneous. Weight: 2kg Flow at 200 kPa: 1200 l/min. Test Pressure: 2000 kPa
STC/01	STORZ Connection		Flow : 1200l/min @		To be installed on the suction hydrant upstand. Complete with upstand, concrete surround, storz connector, back, pressure gauge and connection to mains with trenching thrust block and backfilling
HRC/01	Hosereel Cupboard		To cover and protect hosereel and hydrant (if installed)		Fibreglass unit Red Include signage Wall or mounted to HRM/01
HOC/01	Hose Cupboard		Cupboard to house a 30m hose and Nozzle		High impact plastic or fibre reinforced plastic. Red Mounted adjacent to Hydrant heads

Ref	Description	Manufacturer / Ref [1]	Spec	Controls	Notes
FH/01	Fire Hose		30m long Connection at both ends Warp: High tenacity polyester. Weft: Polymide; circular woven embedded reinforcement		Connection to suite hydrants and interconnection of hoses. Tough, durable and abrasion resistant Resistance to oil, fuel and a wide range of chemicals Resistance to heat, UV and ozone Very low friction loss and low elongation No cleaning and drying required Easy to repair Protection against mechanical damage
HRM/01	Mounting system for Hosereels and Hydrants		Floor mounted structure onto which a hosereels, hydrant (if required) and 2 fire extinguishers can be mounted.		To be used if hosereel assembly cannot be installed on a wall or column. Constructed of steel tube/L bar or Unistrut. To be strong enough to handle the how being pulled out. Primed and Painted Signal Red
FST/02	Fire Water Storage		144 000 litres 1.22x1.22 Panels Size as per layouts	Level of water to be monitored by a manual water monitoring system. **Stagnation** A small recirculation pump will be installed that will allow for 1m3 to be circulated over a 1 month period Install a pipe at high level that would allow for 1m3 of water to be tapped off the top of the tank. The pipe will have an isolation valve at low level for ease of operation.	Galvanised Sectional Steel tank– 1220x1220 panels to be used for main structure Flanges to be external To be installed as per manufacturers requirements Divider to split tank into two halves Each of the tank half sections will be installed with the following: • Overflow • ASIB Approved manual level indication system. • Drain valve • Test Tap • Temperature indicator at high level • Temperature indicator at low level • Inlet float valve and isolation valve • Outlet with anti-vortex end piece Sealant and Rubber products non-toxic and non-tainting Tank to be installed elevated off the ground on beams. The structural elements will be designed by the structural engineer. The available height to be a consideration before constructing.

Ref	Description	Manufacturer / Ref [1]	Spec	Controls	Notes
FBS/03	Fire Pump Set for buildings – Electric Pump		40 l/s 5 Bar	Pump to be supplied with control panel and all other control equipment and panels required for a compliant and fully operational fire system.	Liquid Temperature 0 °C to +60 °C Inlet pressure not exceed 16 Bar Motor Protection against overload and stalled condition To be supplied c/w: Electric motor to drive pump base and frame ant-vibration mounts Diesel Tank Battery Control Panels Pumps will be supplied with all the valves, sensors and gauges required for a compliant and operational installation
FBS/04	Fire Pump Set for buildings – Diesel Pump		40 l/s 5 Bar	Pump to be supplied with control panel and all other control equipment and panels required for a compliant and fully operational fire system.	Liquid Temperature 0 °C to +60 °C Inlet pressure not exceed 16 Bar Motor Protection against overload and stalled condition To be supplied c/w: Diesel engine to drive pump base and frame ant-vibration mounts Diesel Tank Battery Control Panels Pumps will be supplied with all the valves, sensors and gauges required for a compliant and operational installation

1.2 Fire Sprinkler Equipment

Ref	Description	Manufacturer / Ref [1]	Spec	Electrical	Controls	Requirements and Notes
FST/01	Fire Sprinkler Water Storage		500 000 litres 1.22x1.22 Panels 12x6x4h panels		Level of water to be monitored by an electronic water level system. See [WLM/01] description.	Sectional Steel/GPR Tank – 1220x1220 panels to be used for main structure Flanges to be external To be installed as per manufacturers requirements Divider to split tank into two halves Each half to have 1220x1220x600 high inlet chamber with supply and float valve Each of the tank half sections will be installed with the following: • Overflow • ASIB approved level indication system. • Drain valve and manual level indicator • Test Tap • Temperature indicator at high level • Temperature indicator at low level • Inlet float valve and isolation valve • Outlet with anti-vortex end piece Sealant and Rubber products non-toxic and non-tainting Tank to be installed a minimum of 5m elevated off the ground. The structural elements will be designed and supplied by the structural engineer.
FBS/01	Fire Pump Set for buildings – Electric Pump		5300 l/min 4.5 Bar	110kW 3Ø 184A	Pump to start when pressure on system drops	Liquid Temperature 0 °C to +60 °C Inlet pressure not exceed 16 Bar Motor Protection against overload and stalled condition To be supplied c/w: Electric Motor to drive pump base and frame ant-vibration mounts Pumps will be supplied with all the valves, sensors and gauges required for a compliant installation
FBS/02	Fire Pump Set for buildings – Diesel Pump		5300 l/min 4.5 Bar	N/A	Pump to start when pressure on system drops	Liquid Temperature 0 °C to +60 °C Inlet pressure not exceed 16 Bar Motor Protection against overload and stalled condition To be supplied c/w: Diesel engine to drive pump base and frame ant-vibration mounts Diesel Tank, Pumps will be supplied with all the valves, sensors and gauges required for a compliant installation

Ref	Description	Manufacturer / Ref [1]	Spec	Electrical	Controls	Requirements and Notes
JPS/02	Jockey Pump Set		Rated at normal leakage rate Pressure to maintain system pressure	1.5kW 3Ø 3.3A	Pump to be controlled to maintain the system pressure.	Liquid Temperature 0 °C to +60 °C Pressure not exceed 12 Bar Cast iron casing, bronze internal and high tensile steel shaft Pumps will be supplied with all the valves, sensors and gauges required for a compliant installation
FICU/01	Standard width fire curtain			Power Supply 230V AC 50Hz	Supplied with motor control unit Battery Backup Power supply unit Volt free contact to fire alarm system Curtain to fail closed under gravity ALARM SIGNAL Normally closed volt-free contacts. Open on activation Batteries 2 x 12V 12A/h lead acid batteries Test Zone Control Panel (ZCP) located on front of Power Supply Unit (PSU) DISPLAY Power ON, Alarm ACTIVE and Alarm OFF status LED's on ZCP	Complete with smoke seal headbox Installed face fixed of soffit fixed Single roller installation up to 5m in width Complete with side guides TO be flush fit or installed on soffit with curtain base flush with ceiling.

Ref	Description	Manufacturer / Ref [1]	Spec	Notes
ICV/01	Control Valve assembly for the Warehouse		All Equipment, Valves and ancillaries are supplied to fit a 200Ø GMS pipe. All Pipework painted red Alarm Valve to ensure that the alarm gong rings once a fire sprinkler system activates. Flow switch on the upstream side to be connected to fire alarm system ALL EQUIPMNET TO BE ASIB APPROVED	Control Valve assembly will be installed c/w • Gear operated wafer-type monitored stop valves, with pointer to indicate whether open or shut • Approved patent automatic alarm valve with special seating designed to retain water in the pipework, and to pass water to the alarm motor under flow conditions • Bourdon type pressure gauges, to indicate water supply and installation pressure respectively. All pressure gauges shall be of the glycerine filled type, and shall have a range of 0-1600 kPa. Each gauge shall be mounted remotely from the main pipe by means of a 100 mm long extension pipe, complete with an isolating ball valve mounted in its line • Hydraulically driven alarm motor and gong assembly, connected to the alarm valves (The alarm valve shall not be connected directly to the isolating stop valve) • Test pipe with flow proving arrangement • Drain pipe • A bypass loop of same diameter as the feed main with stop valves and NRV as per ASIB requirements • One pressure operated micro switch will be provided within the valve chamber, mounted in the alarm gong line • Flow switch to be interfaced with the fire detection system
ICV/02	Control Valve assembly for the Office		All Equipment, Valves and ancillaries are supplied to fit a 150Ø GMS pipe. All Pipework painted red Alarm Valve to ensure that the alarm gong rings once a fire sprinkler system activates. Flow switch on the upstream side to be connected to fire alarm system ALL EQUIPMNET TO BE ASIB APPROVED	Control Valve assembly will be installed c/w • Gear operated wafer-type monitored stop valves, with pointer to indicate whether open or shut • Approved patent automatic alarm valve with special seating designed to retain water in the pipework, and to pass water to the alarm motor under flow conditions • Bourdon type pressure gauges, to indicate water supply and installation pressure respectively. All pressure gauges shall be of the glycerine filled type, and shall have a range of 0-1600 kPa. Each gauge shall be mounted remotely from the main pipe by means of a 100 mm long extension pipe, complete with an isolating ball valve mounted in its line • Hydraulically driven alarm motor and gong assembly, connected to the alarm valves (The alarm valve shall not be connected directly to the isolating stop valve) • Drain pipe • A bypass loop of same diameter as the feed main with stop valves and NRV as per ASIB requirements • One pressure operated micro switch will be provided within the valve chamber, mounted in the alarm gong line • Flow switch to be interfaced with the fire detection system
SPR/01	Sprinkler Head – Internal		Upright Glass Tube 93°C K = 11.5	Standard Spray Fusible Bulb Brass Operating pressure of 350 kPa
SPR/02	Sprinkler Head – external		Upright Glass Tube 93°C K = 11.5	Standard Spray Brass Fusible Bulb Operating pressure of 350 kPa To be supplied with corrosive resistant coating and to be installed with petroleum jelly

Ref	Description	Manufacturer / Ref [1]	Spec	Notes
SMK/01	Smoke and ventilation unit for both smoke vent and normal ventilation		Slope mounted unit 1200 x 2100 Manufacturer to advise on best material for high corrosion application in Durban. (Galvanised or Aluminium)	Bird Guard Fire & natural day-to-day ventilation Standard fusible link operation 93°C Continuous or single modules Minimal maintenance Robust construction c/w 24V DC Electromechanical opening linked to fire and smoke panels
SMK/02	Smoke and ventilation unit for both smoke vent and normal ventilation		Ridge mounted 1200 x 2400 Manufacturer to advise on best material for high corrosion application in Durban. (Galvanised or Aluminium)	Bird Guard Fire & natural day-to-day ventilation Standard fusible link operation 93°C Continuous or single modules Minimal maintenance Robust construction c/w 24V DC Electromechanical opening linked to fire and smoke panels
PLAN	ASIB Approved Plan of sprinkler information			One of block plan (non-fade material), giving all details as per the ASIB requirements of each of the ICVs, supply locations, sprinkler heads etc.
CABINET	ASIB Cabinet for additional parts and maintenance equipment			One of fiberglass / galvanized cabinet, containing spare sprinkler heads and spanner

Item Specification for all of the above as required

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1.1 Pipework

Ref	Description	Manufacturer / Ref [1]	Spec	Requirements and Notes
FPIP/01	Fire Reticulation Pipework		Galvanised Steel	Galvanised steel pipework will be used for potable water and fire water where stated. Galvanised Steel pipes and fittings shall be manufactured in accordance with SANS. The tubes shall be straight, smooth, of true cylindrical bore and free from all flaws. The pipes and fittings shall be jointed by screw fit or flanged connection to suit the pipework material and/or the fitting being connected to. Generally connections will be flanged for all pipes 50mm in diameter or greater with screwed connections for smaller pipes.
FPIP/02	Fire Reticulation Pipework		Galvanised Steel	Galvanised steel pipework will be used for sprinklers where stated. Galvanised Steel pipes and fittings shall be manufactured in accordance with SANS. The tubes shall be straight, smooth, of true cylindrical bore and free from all flaws. The pipes and fittings shall be jointed by screw fit or groove and coupling connection to suit the pipework material and/or the fitting being connected to. Generally connections will be grooved and coupling for all pipes 50mm in diameter or greater with screwed connections for smaller pipes.