NKANGALA DISTRICT MUNICIPALITY

PROJECT NO: 185529

C3	SCOPE OF WORK

PROJECT NO: 185529 SUPPLY, REGISTRATION AND DELIVERY OF (1) FOAM FENDER FOR THEMBISILE HANI FIRE STATION

1 SCOPE

This specification provides for the **SUPPLY, REGISTRATION AND DELIVERY OF (1) FOAM FENDER FOR THEMBISILE HANI FIRE STATION**. The tender scope provides for the vehicle and the supply and mounting of equipment thereon (where applicable).

Critical criteria- Tenderers who fail to submit and/or comply with the following will be automatically disqualified:

- Only single source Manufature ,Importer or Builder (MIB) registered fire truck body builders shall be considered in this instance. Tenderers are required to provide documentary proof of MIB registration with the tender documents.
- **Preference will be given to South African Manufacturers. Tenderers must provide for a factory inspection before the tender is adjudicated and must provide a breakdown of their South African manufacturing facilities with the tender documents.**
- Detailed drawings must be submitted with the tender. The vehicle weight calculations must be clearly indicated as well as centre of gravity, wheelbase, under body clearance, approach and departure angle, length of vehicle, height of vehicle and width of vehicle as a minimum.
- A detailed compliance sheet must be submitted with the tender.

2. EQUIPMENT AND ACCESSORIES:

The successful tenderer(s) shall offer a complete vehicle including all the equipment and accessories where applicable and shall be responsible to have such items supplied and fitted.

3. STATUTORY REQUIREMENTS

The vehicle on offer will meet the following statutory requirements:
Occupational Health and Safety Act
South African National Road Traffic Act
SANS codes where applicable

4. MANUALS:

The successful tenderer shall supply with the vehicle manuals for the vehicle as well as the accompanying equipment. The following shall be applicable:
a) One (1) only operator's manual
b) Individual vehicle service book.
c) One (1) only maintenance manual

5. WARRANTY:

Tenderers shall submit full details of their warranty commitments on the vehicles as well as all new equipment. Tenderers shall also undertake to ensure that satisfactory after sales service and maintenance support is provided. The warranty period shall commence from the official date in service applicable to the vehicle and the minimum warrantee shall be as follows:
Chassis Supplier OEM
Fire Body 3 Years
Paint 3 Years
Plumbing 3 Years
Pump 2 Years
Water and Foam Tanks Lifetime, not 10 years as is generally the norm

6. INSPECTION OF VEHICLES:

Provision shall be made for an inspection on the completed vehicle at the manufacturing plant of the successful tenderer(s).
If the successful tenderer requires any additional inspections it must be clearly indicated in the tender documents. All of the above shall be for the account of the successful tenderer.

7. SPARES:

The successful tenderer shall maintain a spares department to furnish replacement parts and service. Ample stock of individual components and unit replacements shall be carried for as long a period as demand warrants.

8. TESTING:

The following tests must be carried out and certification provided upon delivery where applicable:
Complete operational test

TECHNICAL SPECIFICATIONS:

9. CHASSIS

9.1 CARRYING CAPACITY:

The load ratings of the chassis shall be adequate to carry the mass of the apparatus, fully loaded with foam & water, personnel and miscellaneous equipment as stated
The unequipped personnel mass shall be calculated at 90 kg per person multiplied by the number of seating positions on the apparatus.

A final manufacturer's certification of the load ratings, along with a certification of the gross axle mass ratings, shall be supplied on a stamped or pressed plate affixed to the vehicle.

9.2 CHASSIS:

A chassis suitable for the fire service shall be supplied. The complete chassis/cab of the apparatus on offer shall be fully homologated for South Africa and the vehicles shall be supplied with a SABS Letter of Authority.
Each chassis shall be sturdy and able to carry the specified loads when moving over rough terrain, with negligible deflection.
The chassis will be designed and manufactured for heavy-duty service, with adequate strength, capacity for the intended load to be sustained, and the type of service required.
The wheelbase of the vehicle shall be as short as possible.
All lubrication points shall be provided with good quality grease nipples.
Two front and two rear tow hooks/tow eyes shall be attached to the frame structure to allow towing of the apparatus without damage.
The width of the vehicle shall not exceed 2,500 mm.
The height of the vehicle shall not exceed 4,000 mm
The vehicle offered shall be a 4x2 vehicle.

9.3 STEERING

The steering shall be for right hand drive.
Steering shall be hydraulic power assisted and be speed sensitive. The system shall be able to operate mechanically should the hydraulic system fail.

9.4 SUSPENSION

The vehicle offered shall have a Manufacturer's Gross Vehicle Mass (GVM) rating of no less than 18 000
Kg. Meeting driver's license category – C1

9.5 ENGINE

The vehicle offered shall have a power output of no less than 203 kW and a torque of at least 900 N.m The engine shall be at least a Euro 3 engine. The engine compartment must be easily accessible.

All vehicles with a rated GVM of higher than 10 000kg shall be fitted with an engine governor or electronic fuel control system, which will limit the speed of the engine under all conditions of operations to a maximum governed speed of 110 km/h.

The installation of the engine, transmission, and engine- and transmission-driven accessories shall meet the engine and transmission manufacturer's installation recommendations for the service intended.
The engine's cooling system shall be heavy duty and maintain a temperature in the engine at or below the engine manufacturer's maximum temperature rating under all conditions for which the apparatus is designed. The cooling system shall be protected against corrosion by an approved additive to the cooling water.
A six cylinder 4-Stroke intercooler turbocharged diesel engine with direct injection and pressure lubricated is required.

9.6 TRANSMISSION
The vehicle shall be fitted with a full automatic transmission.

9.7 CAB

A steel two door cab is required. The cab shall be constructed to ensure optimal safety and comfort for the crew.
All seats shall be fitted with SABS approved seat belts.
Grab handles shall be fitted to the sides of the cabin to assist crew when climbing into the cab.
All doors shall be lockable. A safety glass front windscreen shall be fitted. Access to the cab shall be via steps covered with non-slip material.
SABS approved large outer rear mirrors shall be fitted to the cab.
The cab shall be fitted with a heating, and ventilation system. All loose equipment carried in the cab shall be secured. Mud flaps conforming to SABS standards shall be supplied and fitted.

The following firefighting controls shall be installed and positioned in the cab in easy reach of the driver:

- Emergency Lights Controls
- Warning device switch
- Master locker lights on switch
- Battery main isolation switch

10. APPARATUS BODY SUB-FRAME

An apparatus body sub frame shall be manufactured to carry the weight of the superstructure and the foam & water tank and shall be mounted according to the chassis supplier's approval. The entire superstructure shall be manufactured using materials that offer the following features:

- Light weight
- Low maintenance
- Corrosion resistant
- High strength

The body shall be fully enclosed and shall provide sufficient storage for equipment. The design of the vehicle shall take into consideration the need to ensure that all equipment, whether loose or fixed, will remain in a secured position during travel.

11. LOCKER COMPARTMENTS

The firefighting superstructure shall have the following locker layout:

- Two compartments each side one in front of the rear wheels and one behind the rear wheels with horizontally hinged doors.
- One large through locker compartment behind the cab with roller shutter doors on either side of the vehicle

Access handrails shall be provided at all positions where steps or ladders for climbing are located.
Any enclosed external compartment shall be weather resistant, well ventilated and have provision for drainage of moisture. An aluminium drip rail shall be fitted above each compartment opening.
The interior of each compartment shall be illuminated for night work. Each compartment shall be provided with LED strip illumination. The positioning of the lighting shall ensure maximum light distribution within the compartment, and be protected to prevent damage. Users must be able to switch the compartment lights on manually in the cab.

12. FOAM TANK

An oval booster tank with a total capacity of 5000 litres Foam & 1000 litres Water, shall be installed on the vehicle. The booster tank must be recessed in a cradle sub frame on the vehicle. The booster tank shall be manufactured of Stainless steel and must be mounted along the length of the vehicle in the Centre along the chassis rail on suitable flexible mountings**.** The position of the tank will ensure the lowest possible center of gravity.

It shall also be removable without dismounting the fire body.
The tank shall be baffled to minimize water surge during travel and enhance road handling stability and be provided with an anti-vortex plate over the tank to pump connection.
A manhole inspection must be provided. An overflow larger than the filling pipe will be fitted. An overflow pipe terminating behind the rear wheels of the vehicle and below chassis height must be provided.

The tank shall have a drain plug at the lowest point of the tank. A tank to pump feed line connection designed to draw water from the sump, with a nominal diameter of 100mm to supply the pump shall be fitted.
An external fill connection leading directly to the tank shall be fitted. This connection shall be fitted with a 65-mm BS male coupling and a ball valve shut-off. This connection shall permit a minimum filling rate of 1,000 l/min from a source external to the unit.

The tank shall have an inspection opening. The opening shall have a minimum diameter of 450 mm. The opening and the cover shall be assembled in a way that no major parts of the superstructure need to be removed when opening the cover.
The overflow outlets shall be designed to direct any water underneath the vehicle.
Tenderers shall submit a written guarantee and shall outline the tenderers agreement (all costs included) to guarantee the tank for **lifetime** from the date on which the vehicle is accepted into service by the customer.
No Exception
An access ladder to the top of the tank must be supplied and fitted
A walkway shall be provided on top of the Tank

12.1 TANK LEVEL GAUGES

Electronic tank level gauges furnished at the pump operator’s panel are required.

13 REAR MOUNTED PTO DRIVEN FIRE FIGHTING PUMP

The vehicle shall be fitted with a rear mounted PTO driven pump with a delivery of at least 2000l/min at 10 bar. The pump shall be fitted on an open deck configuration at the rear of the vehicle and be easily accessible from ground level.

13.1 PLUMBING & DELIVERIES

The pump shall be securely mounted at the rear-side of the appliance and be driven from the engine chassis via a PTO (Power Take Off) and balanced propeller shaft.
The pump shall have one (1) suction inlet fitted with a blank cap secured with a chain to the pump.
The pump shall also have four (4) 65mm discharges fitted with 65mm female British Instantaneous Couplings (BIC). The discharges shall be plumbed to the side of the vehicle, two each side. Blank caps shall also be fitted to the discharges. The pump shall also have two (2) high pressure discharges for the Hose Reels.
Two HP hose reel outlets must be provided
All rigid piping shall be designed to not cause any obstruction and limit friction and pressure loss to a minimum. The successful tenderer shall ensure that all piping is hot dip galvanized inside and outside.

The pump panel shall feature at least:
Compound Gauge
Normal Pressure Gauge
High Pressure Gauge
Electronic revolution control
Pump hour meter
PTO engaged light
Hose reel controls

13.2 HOSE REELS

Two standard 30m x 25mm internal diameter non-collapsible high pressure electric rewind high pressure hose reels shall be supplied and mounted in the rear compartments one each side of the truck. A back-up manual rewind shall be fitted.
Each hose shall be fitted with an adjustable High Pressure jet/spray branch pipe with foam attachment.

13.3 PLUMBING

All rigid piping shall be designed to not cause any obstruction and limit friction and pressure loss to a minimum. The successful tenderer shall ensure that all piping is high grade stainless steel. A suction valve shall be furnished from the tank to the pump. This valve shall have a flexible connection and be enclosed in the pump compartment.
Provision shall be made for a fill line on the foam & water tank terminating in a male 65mm BIC coupling. Said fill line must be ball valve operated. This must enable users to fill the tank from a hydrant.

14 ELECTRICAL COMPONENTS

The body electrical system shall be designed specifically for the apparatus body. Wiring diagrams will be supplied. All wiring shall run via a clearly marked fuse box indicating the final destination of the wiring. A comprehensive wiring diagram shall be supplied with the vehicle on delivery.
Electrical wiring and cables shall be fastened to the frame or body structure of the apparatus and shall be furnished with protective looms, grommets, and other devices at each point where they pass through body panels or structural members or wherever they lay against a sharp metal edge. Where any through-the-frame connectors are provided, any such connector and/or wiring shall be protected from shearing or tearing.

14.1 ELECTRONIC SIREN AND PA SYSTEM

A siren with Hyper, Yelp and Auxiliary tones, PA system and 200 Watt speaker must be fitted with the controls mounted in the cab within easy reach of the driver and passenger.

14.2 EMERGENCY LIGHTING

The following emergency lighting will be fitted to the vehicle:
1 x Low profile LED light bar on the cab roof
2 x Lower level LED strobe lights at the front of the vehicle
2 x LED strobe lights on each side of the vehicle
2 x LED rotators at the rear of the vehicle

14.3 GROUND LIGHTING

Sufficient ground lights shall be installed around the unit. The scene lights must be able to switch on via a switch in the cabin

15 FINISH

15.1 SLIP-RESISTANT WALKWAY SURFACE

All exterior surfaces designated as stepping, standing, and walking areas shall have an aluminium tread plate slip-resistant finish.

15.2 PAINTING

The complete vehicle shall be painted fire engine red. The color code or a paint sample shall be supplied to the chief fire officer before commencing with the painting of the vehicle.
The following coats of paint shall be applied.
Two coats of primer
One coat of universal primer
Two layers of final coat

15.3 LETTERING AND REFLECTIVE SAFETY STRIPE

Provision must be made by the tenderer to have 3M reflective striping on the vehicle fitted as well as reflective wording of **NKANGALA DISTRICT MUNICIPALITY** on both sides of the tank and it should be according to the client specifications.

16 MISCELLANEOUS

16.1 KEYS

Two (2) sets of keys shall be supplied for the following:

- Ignition
- Cabin doors
- Locker doors

16.2 SIGNS AND LABELS

All labels shall be in English.
A vehicle data plate shall be fixed in the door of the vehicle.
Tyre pressure labels shall be placed above all wheels indicating advised tyre pressure.

16.3 ACCESSORIES

One (1) each of the following accessories shall be supplied.

- Vehicle hydraulic jack with handle
- Wheel wrench
- Pair of reflective triangles

17 EQUIPMENT

The following equipment shall be supplied and fitted to the vehicle:
2 x hard suction hoses
2 x suction spanners

1 x suction strainer
1 x 3 Way Collecting head