

# Tier 4 Main Engine Conversion Gemini Class

21-009

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## Addendum #5

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16 July 2021

SAN FRANCISCO BAY AREA

**WATER EMERGENCY  
TRANSPORTATION AUTHORITY**

## **SCOPE**

This Addendum No. 5 consists of 2 pages and one attachment. It includes the following:

1. Contact information for the MAN engine distributor RDI Marine of Seattle, Washington. One additional contact has been added from what was provided for in the RFP. On June 30, 2021, Northern Lights Acquired RDI. (See <https://www.northern-lights.com/>) Proposers are advised to confirm that their Proposals reflect any ownership change.

### **RDI Marine**

Brian Cook, [bcook@manengines.com](mailto:bcook@manengines.com)

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(206) 286-1230

2225 West Commodore Way

Seattle, WA 98199

2. A copy of the WETA scope of supply from RDI Marine is an attachment to this Addendum. Proposers must coordinate with RDI—or its successor—and will be responsible for the scope of work described in the RFP's technical specifications .

## **ACKNOWLEDGMENT BY BIDDER**

Each bidder is required to acknowledge receipt of all Addenda, including this Addendum No. 5 as specified in the RFP Instructions to Offerers.

## **ISSUED BY:**

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Tim Hanners  
Weta

Date

# QUOTATION

RDI Marine  
2225 West Commodore Way,  
Seattle, WA 98199

Quote #: 0621-716

Tel 206 286 1230  
Fax 206 286 0992  
[www.manengines.com](http://www.manengines.com)

Quotation Prepared For: WETA

Prepared By:- Brian Cook  
Date: 14<sup>th</sup> July, 2021

Ref: WETA "Gemini" Class Repower

We are pleased to quote the following equipment for the repower of a "Gemini" Class Ferry

## Engines:

Two (2) MAN Type D 2862 LE 489 CRM Marine Diesel Propulsion Engines  
Rating: 1,450 ps (1,066 kW) @ 2100 rpm

Rating based on DIN 6271 and ISO 3046/1 with reference conditions  
1 bar (14.5 psi) atmospheric pressure  
32 deg C (90 deg F) sea water temperature  
60% relative humidity

The engine is released for service under MAN's "Medium Duty Operation" guidelines which are  
Max 3,000 operating hours per year  
Max 20% of the time at full load  
Average load is 50%

Exhaust Emission Status EPA Tier 4 / IMO Tier 3 with SCR for Commercial Applications

## ENGINES

basic engine with standard parts with

- individual cylinder heads
- replaceable cylinder liners
- SAE # 1 flywheel housing & marine flywheel
- vibration damper
- engine driven fresh water cooling pump
- engine driven S.W. pump
- engine driven lubricating oil pump
- expansion tank with integral plate type heat exchanger
- intercooler

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- water cooled exhaust gas manifolds
- water cooled exhaust gas turbochargers with waste gates

attached engine oil filters  
attached engine fuel filters - 2 micron  
the engine is set up for heat exchanger cooling

engine exhaust outlet	the engine will be supplied with an exhaust transition piece. The direction of the twin exhaust from the engine will be vertical
fuel injection system	the engine is set up for operation under the latest Common Rail fuel injection system and meets all present and anticipated emission requirements 1 - 10 micron fuel filter with water separator and water content alarm supplied loose for off-engine installation
engine block heater	engines will be supplied with 240vac block heaters installed. Yard will connect power cables to existing power supply
alternators	28 v, 120 A alternator on each engine
electric starter	24v marine starter
lub. oil filters	combined with oil cooler, attached, 1 per side with self drain facility
rear pto	for hydraulic pump drive, max torque 180 Nm,
MAN I-sea System	monitoring and diagnostic system for electronic control, alarm monitoring and engine fault diagnosis combined with engine mounted Electronic Diesel Control (EDC 17 ) engine control Installed in the engine E-Box E-Box has display screen and engine control buttons
engine wiring harness	a) cable with multi pin plug connector to connect engine with E.R. engine control box (E-Box) E-Box to be mounted in the engine room close to the engine  b) CAN Bus cables to connect E.R. engine control box with command station
engine displays (bridge)	MAN standard engine information and alarm display, Type CLC 7" with touch screen 1 per engine, with CAN Bus cables and terminating resistors for mounting at command station
eng. displays (bridge wing)	engine tachometer, with LCD scrollable display for engine operating parameters with CAN Bus cable,
front engine feet	attached
engine support bracket	one bracket per side mounted on flywheel housing with jacking screw to support engine rear in case of problems with the gearbox and/or torsional coupling
resilient mounts	Type Phoenix, 4 per engine and gearbox installation 65 Shore hardness
air filters	MAN / Donaldson air cleaner, attached
painting	the engines & gears will be painted with 2 part DuPont Imron paint, color white.
belt guard	attached
oil & coolant	engine prefilled with MAN approved fully synthetic motor oil and MAN approved coolant

S.C.R Per engine two (2) MAN Selective Catalytic Reduction units (1 per exhaust bank) with DEF dosing unit, supply unit, tank level sensor, all on-unit wiring and sensors to meet the requirements of the U.S. EPA.

These units are supplied for installation by the shipbuilder. The SCR unit for this application is the MAN SCR Variant "C"

The units will be supplied insulated to MAN requirements

#### Shipyard Requirements

the boat builder will be responsible for installation of the SCR units  
supply and installation of the DEF storage tank. The capacity of the tank should be 6% – 9% of the total fuel capacity of the boat. The tank should be made of stainless steel  
all DEF piping between storage tank and the SCR, material stainless steel  
all shipside exhaust piping and insulation as required

#### Controls

##### **MAN Aventix controls per boat to include**

- 1 twin engine Throttle control (4 button) for wheelhouse
- 2 twin engine Throttle control (4 button) for fly bridges
- 3 shielded 29 m CAN bus connecting cables & terminating resistors
- 1 Marine Propulsion Control (MPC) unit installed in each engine E-Box

#### Transmissions

once the ZF type 3050 transmissions are received at RDI Marine from ZF RDI Marine will:-

mount transmissions to engines  
install transmission mounting brackets  
install MAN X3 cable to connect the transmission to the MAN I-Sea monitoring system to monitor transmission oil temperature and oil pressure  
install customer supplied hydraulic pump  
connect engine cooling water supply to the transmission oil cooler  
connect transmission oil sump to the on-engine oil pump out connections  
paint engine and transmission as a unit, color white  
fill transmission with ZF approved oil

#### **All above equipment will be supplied as O.F.E.**

**Engine Commissioning:** MAN will supply technicians to carry out an engine start up and commissioning of the engines and SCR equipment to MAN requirements.

**Delivery:** to your yard to meet WETA's schedule