

Consultants Advice Notice

Project:	LHR114	Our Ref:	
Attn:	Steve Power, Dan Evans (EHS) Neil McCormick (AWS)	Discipline:	Mechanical
To		Date Issued:	16/08/2023
From:	Colin Quinn (Ethos Engineering)	Date Response required:	N/A
Subject:	Diesel Information		

1 Overview

Below information is provided for information to the Environmental Consultants

1.1 Generator Belly Tank

All welding shall conform to minimum ASME or EN Standards for structural members and atmospheric storage tanks. Welding Standards to be applied: EN 1011-1, EN-1090.

Quality Assurance shall include: Material Certification to EN10204 3.1 shall be supplied for tank materials. Minimum standard of Carbon Steel to be EN 10025_2:2004 Grade S275. Steel of a higher strength may be required in extreme climates. Tank manufacturer to confirm steel grade suitability for max/min temperatures of installation location. Plate and members shall be free of defects, distortion and corrosion. Materials will be stored in dry conditions prior to fabrication and surface coating.

Tank Testing

Testing requirements shall be per the tank design code. Belly tank to be factory tested AND site tested to ensure there has been no damage to the belly tank during transit. All belly tank welds to be subject to a Dye Penetrant Inspection test (DPI), this test shall be used to detect any discontinuities such as cracks from fatigue, quenching, and grinding, as well as fractures, porosity, incomplete fusion, and flaws in joints. This test shall be completed prior to painting. In conjunction with the design code the purchaser's requirements shall be:

No painting shall take place on any weld until all inspection and testing is complete. All slag and scale will be removed from welds prior to testing.

Prior to the pressure test a leak test will be performed on each inner tank. The tank will be pressurised with air and a soap bubble test applied to all welds. The inner pressure will remain constant for 30 minutes after 20 minutes of settling time. Primary basin should be pressurized to 5 PSI (35 kPa) air and every weld seam and joint should be checked for possibility of leak. The inner pressure will remain constant for 30 minutes after 20 minutes of settling time.

Pressure testing of tanks shall be witnessed and verified by a representative of the purchaser. Consider inspection of the leak and bubble testing. Vendors shall submit testing procedures for review at bid stage. It is also required to Vacuum test both primary and secondary basin of the tank with 14 in Hg (350 Torr) for at least 12 Hrs. No significant loss (> 3 in Hg, (75 Torr)) of vacuum should be observed.

SCALE 1:10

VIEW IN DIRECTION OF V

TANK BASED 40mm OFF GROUND TO ALLOW INSPECTION UNDERNEATH

VIEW IN DIRECTION OF V

VIEW IN DIRECTION OF X

DETAIL D SCALE 1:15

NOTES:
TANK DESIGNED IN ACCORDANCE WITH BS799 PART 5

USEABLE CAPACITY - 16,000 LT
BRIMFUL CAPACITY - 16,800 LT
EST DRY WEIGHT - 12,600 KG
EST WET WEIGHT - 27,600 KG
COLOUR - RAL 7035 LIGHT GREY
INNER TANK PRESSURE TESTED TO 0.2 BAR
OUTER TANK PRESSURE TESTED TO 0.05 BAR

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16/08/2023

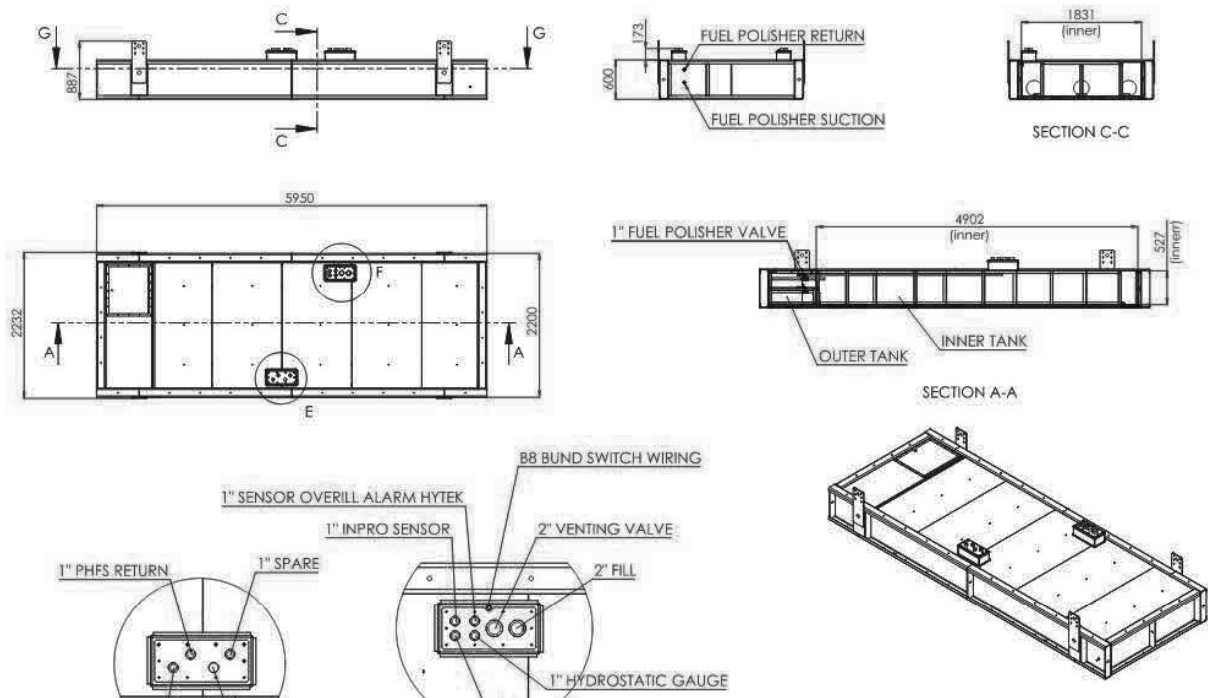
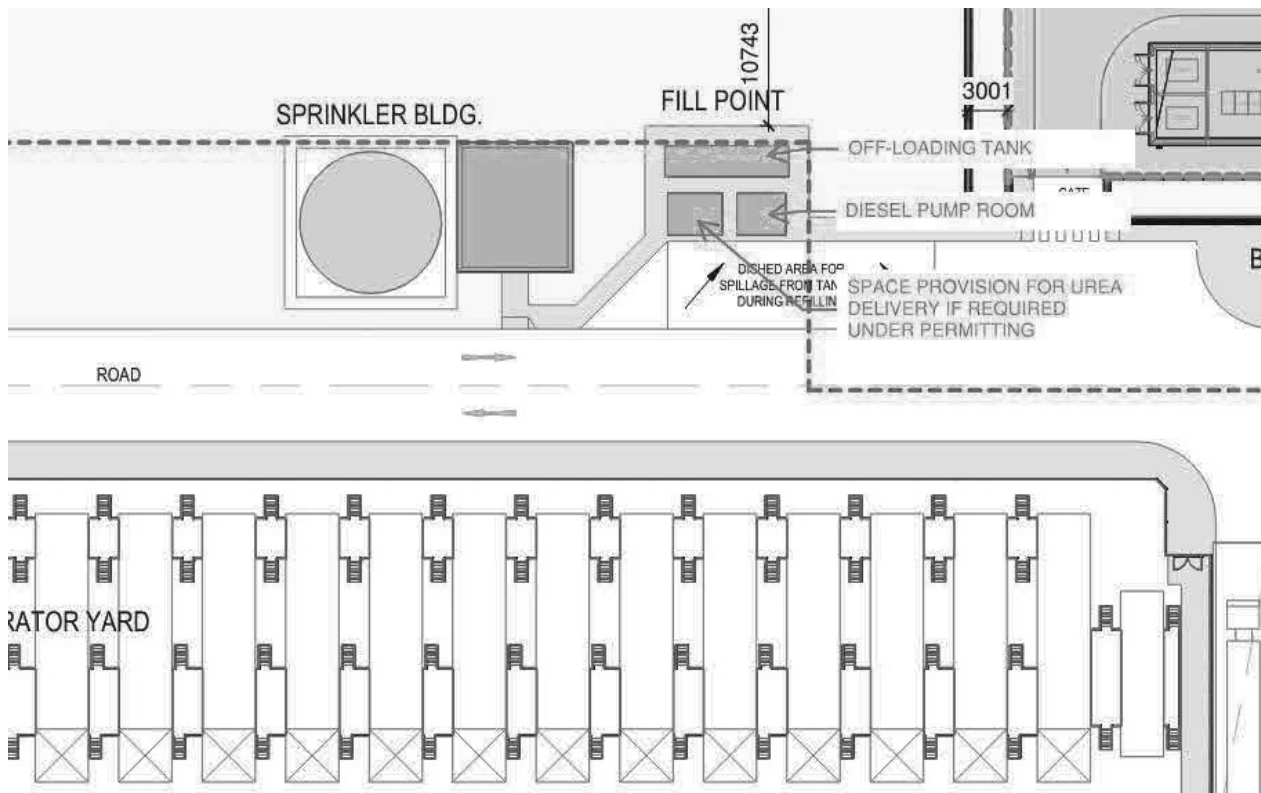
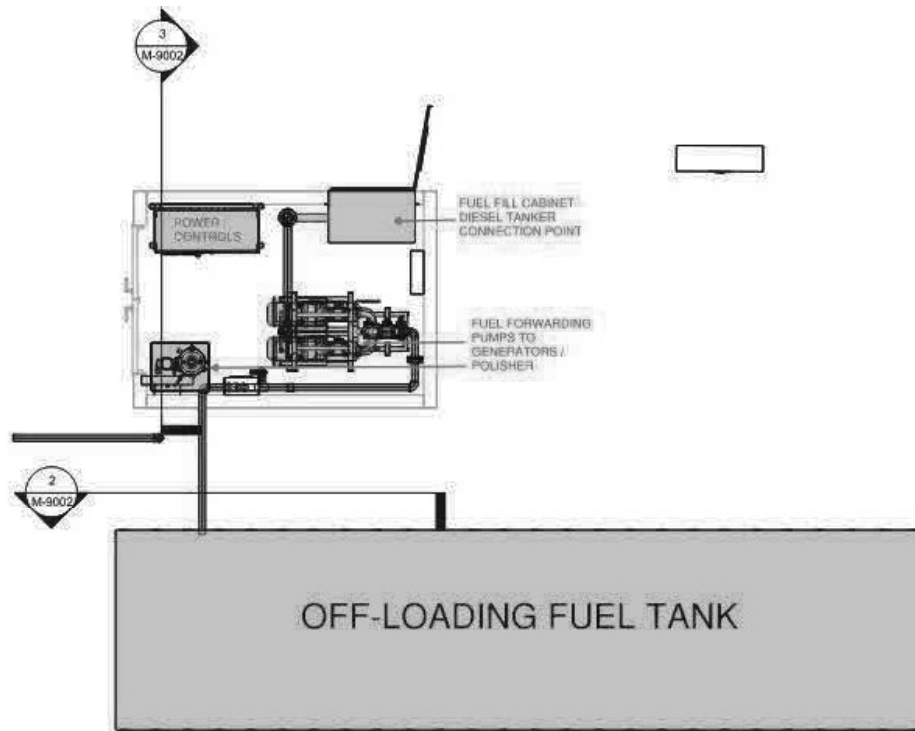


Figure 2 - Typical House Generator Belly Tank

1.2 Off-Loading Diesel Tank





Off-Loading Diesel Tank Specification

Maximum Tank Dimensions: External: 10m (L) x 2.3m (W) x 2.7m (H)

Nominal Capacity: 40,000L (atmospheric tank)

110 % bunded in double contained tank

External Pressure: 0.1 (bar); MAWP: 0.49 (bar); Test Pressure: 1(bar)

Design Temperature: -31°C to +50°C

Material: Carbon steel – EN 10025

Additional Design Considerations: Tank designed to carry content with maximum specific gravity of 0.9 (winter diesel) and not to be transported full.

Design Code: KIWA approved, BS799, MSFBS 2018:3

Atmospheric tank built to BS799 Type J

Coating system to be C3 M – RAL TBC by Architect from standard colour list

Shot blast steel to SA 2.5

Zinc rich Epoxy Primer

Epoxy Build Coat

Polyurethane top coat

Unit designed for safe area

Tare Weight: 6542 kg

1.3 Diesel Pipework – Below Ground

Diesel pipework below ground is double walled fusion welded plastic pipework. Durapipe or similar pipework systems comply with the specification requirement. This pipework system is an industry standard for below ground diesel pipework systems to reduce risk of fuel leakage to ground.

SERVICE: FO – Fuel oil below ground

MATERIAL: Close Fit PLX

DESIGN PRESSURE: 10 bar

ITEM	DESCRIPTION	MATERIAL OR MANUFACTURER	NOTES
PIPE			
32mm ID to 63mm ID	PLX SDR 11 PN10		EN 14125 approved
FITTINGS			
All diameter	Fusion Welded		

1.4 Diesel Pipework – Below Ground

Diesel pipework above ground is visible and leaks more readily detected. Welded carbon steel pipework is used within the diesel filtration / pump room, off-loading diesel tank pipework and within the generator yard.

2.2 SCHEDULE OF PIPEING MATERIALS

Class CS1 –

SERVICE: Diesel Oil (Above ground), CHW

RATING CLASS: PN 16

DESIGN TEMPERATURE: -10°C to 220°C

MATERIAL: Carbon Steel

DESIGN PRESSURE: -1.0 BarG to 10 BarG

ITEM	DESCRIPTION	MATERIAL OR MANUFACTURER	NOTES
PIPE			
50mm and Smaller	Sch 40 Seamless Plain End	Carbon Steel ASTM A53 Gr B	
65mm and Larger	Std. WT. Seamless Bevelled Ends	Carbon Steel ASTM A53 Gr B	
FITTINGS			
50mm and Smaller	Buttweld , Sch to match pipe and Flanged.	Malleable Iron BS EN 10241: 2000	
65mm and Larger	Buttweld , Sch to match pipe and Flanged.	ASTM A234 Gr WPB	