FOYLE MEATS
MELTON RD
SIX HILLS
MELTON MOWBRAY
LE14 3PR

Environmental Permit Application

Bund Integrity Assessment

Document Ref: Attachment C.3

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EXECUTIVE SUMMARY

The purpose of the works undertaken was to assess the structural integrity and adequacy of all bunds and bunded structures, which contain liquids in the event of a spillage or tank rupture.

A total of 6 bunds were inspected as part of the assessment on Thursday 21st October 2021. All of the structures tested are in on-going use at the facility.

A visual examination was undertaken on the 6 structures, as detailed in Section 3.0 below.

This report contains the findings of the structural integrity assessment and provides recommendations for maintenance works where required.

TEST	NUMBER	PASS	FAIL
Visual Inspection	6	6	0
Capacity Non-Compliance	6	5	1
Overall Results	**6**	**5**	**1**

The main finding of the assessment was that 5 of the 6 inspected bunds were of sound structure and were impervious to the materials contained therein.

Bund No.5 has a capacity of 245-litres, which does not provide in excess of 110% capacity of the largest container.

A full list of recommendations can be found in Section 4.0 below.

1.0 INTRODUCTION

Foyle Food Group operates a slaughtering facility on a 24,000 M^2 site located at Six Hills, Melton Mowbray, LE14 3PD, United Kingdom. Activities at the site include the slaughter of cattle and the chilling and quartering of beef carcasses, the harvesting of offal, cod fat and the packing of beef offal and cod fat into vacuum pouches and lined cardboard boxes.

The northern and eastern site boundaries are bounded by green-field, which contains an operational farmstead. The northeast of the site is bounded by a green-field, beyond which is the Six Hills Leisure facility and golf course. At its closest point, this golf course comes within *c.*125m of the site boundary.

The west boundary is bounded by two industrial units and associated carpark, beyond which is the A46 road. The south of the site is mostly bounded by a local access roadway into the adjacent industrial units and partially bounded by the B676 road.

Panther Environmental Solutions Ltd was commissioned by the Foyle Meats – Melton Mowbray to prepare a detailed integrity assessment report for all on-site bunds and bunded structures. This document comprises a report of the works carried out.

A visual assessment was carried out to determine the bunding integrity at this installation, in accordance with the following:

1. British Standard BS 8007:1987 – Design of Concrete Structures for Retaining Aqueous Liquids.
2. CIRIA Report 163 – Construction of Bunds for Oil Storage Tanks.
3. CIRIA Report C736 – Containment Systems for the Prevention of Pollution.
4. E.A. guidance PPG 26 – Drums and intermediate bulk containers (IBC).
5. E.A. guidance PPG 27 – Installation, decommissioning and removal of underground storage tanks.

The on-site bund assessment works were undertaken on Thursday 21st October 2021.

The Risk Assessment reviewed all existing bunds and made recommendations for bunding improvements to ensure compliance with the above Standards and guidance documents.

This document comprises a report of the assessment carried out by Panther Environmental Solutions Ltd and has been based on a site inspection.

2.0 DESCRIPTION OF BUNDING ARRANGEMENTS

Due to the type of processes undertaken on the site, a wide range of liquids are used and the volume stored on site is relatively low. The liquids are mainly associated with fuels, engineering oils and cleaning chemicals.

The majority of bunds are located outside of the main processing facility.

For the bund assessment, as per Section 3.2 of the CIRCA Report 163 and Section 4.2.1 of the CIRCA Report C736, where two or more tanks are installed within the same bund, the recommended capacity is the greater of the following:

a) 110% of the capacity of the largest tank or drum within the bunded area; or

b) 25% of the total volume of substance which could be stored within the bunded area.

All bunds were inspected and findings are detailed in Section 3.0 below.

3.0 BUND INSPECTION

On Thursday 21st October 2021, all of the bunds at the Foyle Food Group site were inspected for signs of stress, fatigue, corrosion, cracks or concrete spalling in accordance with the above-mentioned standards, guidance documents and technical publications.

Each of the following designated bund storage areas were inspected.

Table 3.1: Bund Register 2021

No.	Location	Type	Construction	Test	Result
B1	COSHH Store	Quad Drum Bund	HDPE	Visual	**Pass**
B2	COSHH Store	Quad Drum Bund	HDPE	Visual	**Pass**
B3	COSHH Store	Quad Drum Bund	HDPE	Visual	**Pass**
B4	ABP Handling Area	Double IBC Bund	HDPE	Visual	**Pass**
B5	Rear Yard Area	Quad Drum Bund	HDPE	Visual	**Fail**
B6	Truck-Wash Area	Double Skinned Tank	HDPE	Visual	**Pass**

Bund No.1 – Quad Drum Bund

Bund No.1, located within the site COSHH Store, was found to provide containment for 2 x 25-litre drums of Rapier, 5 x 25-litre drums of Tribac, 9 x 25-litre drums of Bootwash, 8 x 25-litre drums of Causdeta and 1 x 25-litre drum of Excel Extra.

The bund is a made of high-density polyethylene, is of a *"one-piece"* construction and features removable gratings.

This bund is designed for the storage of 4 x 205 litre drums and has capacity for the storage of any single containers at a maximum of 222 litres capacity or 39 x 25-litre drums at one time.

This bund has a capacity of 245-litres, which provides in excess of 110% capacity of the largest container and in excess of 25% of the total volume of the combined containers.

The floor of the bund was found to be clean and clear of debris, which allowed for a good inspection of the bund.

The structural integrity of this bund is sound and shows no evidence of plastic fatigue, distress, or major corrosion.

Figure 1: Quad Drum Bund

Report Sheet – Bund No.1

Location: COSHH Store	**Site Name:** Foyle Meat – Melton Mowbray
Bund Ref. No.: Bund 1 – Quad Drum Bund	**Bund Type (Local/Remote/Combined/Portable):** Portable
Bund Dimensions: 1.38m (L) x 1.29m (W) x 0.28m (H) = 0.245 M^3	**Primary Vessel(s) – Materials of Construction:** 25 x 25-litre drums
Bund Construction Material: HDPE	**Primary Vessel(s) – Total Storage Volume:** 625-litre
Bund Lining Material: None	**Primary Vessel(s) – 110% Volume of Largest Vessel:** 27.5-litre
Bund Retention Volume: 245-litre	**Primary Vessel(s) – 25% of Total Storage Volume:** 156.25-litre
Deemed Practicable / Safe to Conduct Hydrostatic Test? Yes/No No	
If no give reasons:	

Hydrostatic test details:

BS 8007:1987 (Yes/No)?	
Fill Rate	
Stabilisation Period	
Duration of the Test	
Acceptance Criteria (Total permissible drop in water level)	
Water Level Change in Reference Vessel	

Date and Time	Water Level in Bund	Water Level in Reference Vessel

Description / Comments of Hydrostatic Test:

Visual Test Details: Inspection Description & Results:
The structural integrity of this bund is sound and shows no evidence of fatigue, distress or major corrosion.

Result (Pass/Fail)	Pass

Recommendation(s):
The bund should be re-inspected in October 2024 as per Guidance.

Signed:	Qualification:	Date:
Nial Ryan	MSc	21st October 2021
Paul McShane	BEng (HONS) MIEI	21st October 2021

Bund No.2 – Quad Drum Bund

Bund No.2, located within the site COSHH Store, was found to provide containment for 8 x 25-litre drums of Perbac OPD, 6 x 25-litre drums of Sodium Hypochlorite, 10 x 25-litre drums of Perbac Agri, 5 x 25-litre drums of Nipac and 10 x 10-litre drums of Bio-Drain Cleaner.

The bund is a made of high-density polyethylene, is of a *"one-piece"* construction and features removable gratings.

This bund is designed for the storage of 4 x 205 litre drums and has capacity for the storage of any single containers at a maximum of 222 litres capacity or 39 x 25-litre drums at one time.

This bund has a capacity of 245-litres, which provides in excess of 110% capacity of the largest container and in excess of 25% of the total volume of the combined containers.

The floor of the bund was found to be clean and clear of debris, which allowed for a good inspection of the bund.

The structural integrity of this bund is sound and shows no evidence of plastic fatigue, distress, or major corrosion.

A number of drums on the bund were found to be stored partially outside of the catchment area, overlapping upon the adjacent Bund No.3 (see Figure 3). It is recommended that 100% of the storage vessel be located within the bund area.

Figure 2: Quad Drum Bund

Report Sheet – Bund No.2

Location: COSHH Store	**Site Name:** Foyle Meat – Melton Mowbray
Bund Ref. No.: Bund 2 – Quad Drum Bund	**Bund Type (Local/Remote/Combined/Portable):** Portable
Bund Dimensions: 1.38m (L) x 1.29m (W) x 0.28m (H) = 0.245 M^3	**Primary Vessel(s) – Materials of Construction:** 29 x 25-litre drums, 5 x 10-litre drums
Bund Construction Material: HDPE	**Primary Vessel(s) – Total Storage Volume:** 755-litre
Bund Lining Material: None	**Primary Vessel(s) – 110% Volume of Largest Vessel:** 27.5-litre
Bund Retention Volume: 245-litre	**Primary Vessel(s) – 25% of Total Storage Volume:** 193.75-litre
Deemed Practicable / Safe to Conduct Hydrostatic Test? Yes/No No	
If no give reasons:	

Hydrostatic test details:

BS 8007:1987 (Yes/No)?	
Fill Rate	
Stabilisation Period	
Duration of the Test	
Acceptance Criteria (Total permissible drop in water level)	
Water Level Change in Reference Vessel	

Date and Time	Water Level in Bund	Water Level in Reference Vessel

Description / Comments of Hydrostatic Test:

Visual Test Details: Inspection Description & Results:

The structural integrity of this bund is sound and shows no evidence of fatigue, distress or major corrosion. A number of drums on the bund were found to be stored partially outside of the catchment area, overlapping upon the adjacent Bund No.3 (see Figure 3).

Result (Pass/Fail)	Pass

Recommendation(s):

- It is recommended that 100% of the storage vessel be located within the bund area.
- The bund should be re-inspected in October 2024 as per Guidance.

Signed:	Qualification:	Date:
Nial Ryan	MSc	21st October 2021
Paul McShane	BEng (HONS) MIEI	21st October 2021

Bund No.3 – Quad Drum Bund

Bund No.3, located within the site COSHH Store, was found to provide containment for 5 x 25-litre drums of Nipac, 5 x 25-litre drums of Nopac, 7 x 25-litre drums of Maxifoam, 2 x 25-litre drums of Nipac Gel and 19 x 5-litre drum of M7 Hand Soap.

The bund is a made of high-density polyethylene, is of a *"one-piece"* construction and features removable gratings.

This bund is designed for the storage of 4 x 205 litre drums and has capacity for the storage of any single containers at a maximum of 222 litres capacity or 39 x 25-litre drums at one time.

This bund has a capacity of 245-litres, which provides in excess of 110% capacity of the largest container and in excess of 25% of the total volume of the combined containers.

The floor of the bund was found to be clean and clear of debris, which allowed for a good inspection of the bund.

The structural integrity of this bund is sound and shows no evidence of plastic fatigue, distress, or major corrosion.

Figure 3: Quad Drum Bund

Report Sheet – Bund No.3

Location: COSHH Store	**Site Name:** Foyle Meat – Melton Mowbray
Bund Ref. No.: Bund 3 – Quad Drum Bund	**Bund Type (Local/Remote/Combined/Portable):** Portable
Bund Dimensions: 1.38m (L) x 1.29m (W) x 0.28m (H) = 0.245 M^3	**Primary Vessel(s) – Materials of Construction:** 19 x 25-litre drums, 19 x 5-litre drums.
Bund Construction Material: HDPE	**Primary Vessel(s) – Total Storage Volume:** 570-litre
Bund Lining Material: None	**Primary Vessel(s) – 110% Volume of Largest Vessel:** 27.5-litre
Bund Retention Volume: 245-litre	**Primary Vessel(s) – 25% of Total Storage Volume:** 142.5-litre
Deemed Practicable / Safe to Conduct Hydrostatic Test? Yes/No No	
If no give reasons:	

Hydrostatic test details:

BS 8007:1987 (Yes/No)?	
Fill Rate	
Stabilisation Period	
Duration of the Test	
Acceptance Criteria (Total permissible drop in water level)	
Water Level Change in Reference Vessel	

Date and Time	Water Level in Bund	Water Level in Reference Vessel

Description / Comments of Hydrostatic Test:

Visual Test Details: Inspection Description & Results:
The structural integrity of this bund is sound and shows no evidence of fatigue, distress or major corrosion.

Result (Pass/Fail)	Pass

Recommendation(s):
The bund should be re-inspected in October 2024 as per Guidance.

Signed:	Qualification:	Date:
Nial Ryan Paul McShane	MSc BEng (HONS) MIEI	21st October 2021 21st October 2021

Bund 4 – Double IBC Bund

Bund No.4, located within the site Animal-By-Product handling area, was found to provide containment for 1 x 1,000-litre IBC of Rapier and 1 x 1,000-litre IBC of Excel Extra.

The bund is a made of high-density polyethylene, is of a *"one-piece"* construction and features removable gratings.

This bund is designed for the storage of 2 x 1,000-litre IBC and has capacity for the storage of any single containers at a maximum of 1,036 litres capacity or 4 x 1,000-litre IBC's at one time if stored correctly.

This bund has a capacity of 1,140-litres, which provides in excess of 110% capacity of the largest container and in excess of 25% of the total volume of the combined containers.

The floor of the bund was found to be clean and clear of debris, which allowed for a good inspection of the bund.

The structural integrity of this bund is sound and shows no evidence of plastic fatigue, distress, or major corrosion.

Figure 4: Double IBC Bund

Report Sheet – Bund No.4

Location: ABP Area	**Site Name:** Foyle Meat – Melton Mowbray
Bund Ref. No.: Bund 4 – Double IBC Bund	**Bund Type (Local/Remote/Combined/Portable):** Portable
Bund Dimensions: 2.56m (L) x 1.35m (W) x 0.51m (H) = 1.14 M^3	**Primary Vessel(s) – Materials of Construction:** 2 x 1,000-litre IBC
Bund Construction Material: HDPE	**Primary Vessel(s) – Total Storage Volume:** 2,000-litre
Bund Lining Material: None	**Primary Vessel(s) – 110% Volume of Largest Vessel:** 1,100-litre
Bund Retention Volume: 1,140-litre	**Primary Vessel(s) – 25% of Total Storage Volume:** 500-litre
Deemed Practicable / Safe to Conduct Hydrostatic Test? Yes/No No	
If no give reasons:	

Hydrostatic test details:

BS 8007:1987 (Yes/No)?	
Fill Rate	
Stabilisation Period	
Duration of the Test	
Acceptance Criteria (Total permissible drop in water level)	
Water Level Change in Reference Vessel	

Date and Time	Water Level in Bund	Water Level in Reference Vessel

Description / Comments of Hydrostatic Test:

Visual Test Details: Inspection Description & Results:
The structural integrity of this bund is sound and shows no evidence of fatigue, distress or major corrosion.

Result (Pass/Fail)	Pass

Recommendation(s):
The bund should be re-inspected in October 2024 as per Guidance.

Signed:	Qualification:	Date:
Nial Ryan Paul McShane	MSc BEng (HONS) MIEI	21st October 2021 21st October 2021

Bund No.5 – Quad Drum Bund

Bund No.5, located within the rear yard are, was found to provide containment for 1 x 1,000-litre IBC of Rapier.

The bund is a made of high-density polyethylene, is of a *"one-piece"* construction and features removable gratings.

This bund is designed for the storage of 4 x 205 litre drums and has capacity for the storage of any single containers at a maximum of 222 litres capacity or 39 x 25-litre drums at one time.

This bund has a capacity of 245-litres, which does not provide in excess of 110% capacity of the largest container.

The floor of the bund was found to be clean and clear of debris, which allowed for a good inspection of the bund.

The structural integrity of this bund is sound and shows no evidence of plastic fatigue, distress, or major corrosion. This structure has a max load rating of 2700kg and has not been damaged by the 1000kg IBC.

It is recommended that this bund be replaced with one of sufficient storage capacity (≥ 1,000-litre).

This bund may be used elsewhere on-site as it structural integrity is sound.

Figure 5: Quad Drum Bund

Report Sheet – Bund No.5

Location: Rear Yard	**Site Name:** Foyle Meat – Melton Mowbray
Bund Ref. No.: Bund 5 – Quad Drum Bund	**Bund Type (Local/Remote/Combined/Portable):** Portable
Bund Dimensions: 1.38m (L) x 1.29m (W) x 0.28m (H) = 0.245 M^3	**Primary Vessel(s) – Materials of Construction:** 1 x 1,000-litre IBC
Bund Construction Material: HDPE	**Primary Vessel(s) – Total Storage Volume:** 1,000-litre
Bund Lining Material: None	**Primary Vessel(s) – 110% Volume of Largest Vessel:** 1,100-litre
Bund Retention Volume: 245-litre	**Primary Vessel(s) – 25% of Total Storage Volume:** 250-litre
Deemed Practicable / Safe to Conduct Hydrostatic Test? Yes/No No	
If no give reasons:	

Hydrostatic test details:

BS 8007:1987 (Yes/No)?	
Fill Rate	
Stabilisation Period	
Duration of the Test	
Acceptance Criteria (Total permissible drop in water level)	
Water Level Change in Reference Vessel	

Date and Time	Water Level in Bund	Water Level in Reference Vessel

Description / Comments of Hydrostatic Test:

Visual Test Details: Inspection Description & Results:
The structural integrity of this bund is sound and shows no evidence of fatigue, distress or major corrosion. This bund has a capacity of 245-litres, which does not provide in excess of 110% capacity of the largest container.

Result (Pass/Fail)	Fail

Recommendation(s):

- It is recommended that this bund be replaced with one of sufficient storage capacity (≥ 1,000-litre).
- The bund should be re-inspected in October 2024 as per Guidance.

Signed:	Qualification:	Date:
Nial Ryan Paul McShane	MSc BEng (HONS) MIEI	21st October 2021 21st October 2021

Bund 6 – Double Skinned Tank

Bund No.6, located adjacent to the Truck-Wash, is a Balmoral HB2500 Bunded Fuel Tank, which provides storage capacity for red diesel, used by the site shunter truck and two forklifts.

This double-skinned diesel tank is a high-density polyethylene structure tank and consist of a *'tank within a tank'*. Oil is stored in the inner tank, whilst the outer tank acts as a failsafe in case of a spill.

This tank fully complies with current legislation governing the storage of oil.

This bund has a capacity of 2,750 litres, which provides in excess of 110% capacity of its primary 2,500-litre vessel contained within.

This bund was found to be in a good condition. The structural integrity of this bund is sound and shows no evidence of distress, plastic fatigue or major corrosion.

The tank outlet pipe, valve and hose were found to be in good condition, while the fuel nozzle was locked when not in use.

A concrete block was discovered beneath the eastern end of the structure, designed to elevate the tank directing fuel to the outlet. It is recommended that this block be removed, as the structure is designed to dispersed weight through the entire flat base and not via a reduced surface area, which would damage the tank surface over time, while also increasing the overall stability of the tank.

Figure 6.1: Double Skinned Tank

Figure 6.2: Tank Outlet Pipe and Valve

Figure 6.3: Concrete Block Beneath Eastern End of Structure

Report Sheet– Bund No.6

Location: Truck Wash	**Site Name:** Foyle Meat – Melton Mowbray
Bund Ref. No.: Bund 6 – Double Skinned Tank	**Bund Type (Local/Remote/Combined/Portable):** Remote
Bund Dimensions: 2.90m (L) x 1.40m (W) x 1.70m (H) = 2.75 M^3	**Primary Vessel(s) – Materials of Construction:** 1 x 2,500-litre tank
Bund Construction Material: HDPE	**Primary Vessel(s) – Total Storage Volume:** 2,500-litre
Bund Lining Material: None	**Primary Vessel(s) – 110% Volume of Largest Vessel:** 2,750-litre
Bund Retention Volume: 2,750-litre	**Primary Vessel(s) – 25% of Total Storage Volume:** 625-litre
Deemed Practicable / Safe to Conduct Hydrostatic Test? Yes/No No	
If no give reasons:	

Hydrostatic test details:

BS 8007:1987 (Yes/No)?	
Fill Rate	
Stabilisation Period	
Duration of the Test	
Acceptance Criteria (Total permissible drop in water level)	
Water Level Change in Reference Vessel	

Date and Time	Water Level in Bund	Water Level in Reference Vessel

Description / Comments of Hydrostatic Test:

Visual Test Details: Inspection Description & Results:
The structural integrity of this bund is sound and shows no evidence of fatigue, distress or major corrosion. A concrete block was discovered beneath the eastern end of the structure, designed to elevate the tank directing fuel to the outlet.

Result (Pass/Fail)	Pass

Recommendation(s):

- It is recommended that this block be removed, as the structure is designed to dispersed weight through the entire flat base and not via a reduced surface area, which would damage the tank surface over time, while also increasing the overall stability of the tank.
- The bund should be re-inspected in October 2024 as per Guidance.

Signed:	Qualification:	Date:
Nial Ryan Paul McShane	MSc BEng (HONS) MIEI	21st October 2021 21st October 2021

4.0 RECOMMENDATIONS

1. Ensure bunds stored outdoors are regularly emptied of any rainwater.

   All drainage from bunded areas shall be directed to the on-site effluent tank.

2. All bunds should be re-inspected in October 2024 as per guidance.

3. **Bund No.2**

   A number of drums on the bund were found to be stored partially outside of the catchment area, overlapping upon the adjacent Bund No.3 (see Figure 3).

   It is recommended that 100% of the storage vessel be located within the bund area.

4. **Bund No.5**

   This bund has a capacity of 245-litres, which does not provide in excess of 110% capacity of the largest container.

   It is recommended that this bund be replaced with one of sufficient storage capacity (≥ 1,000-litre).

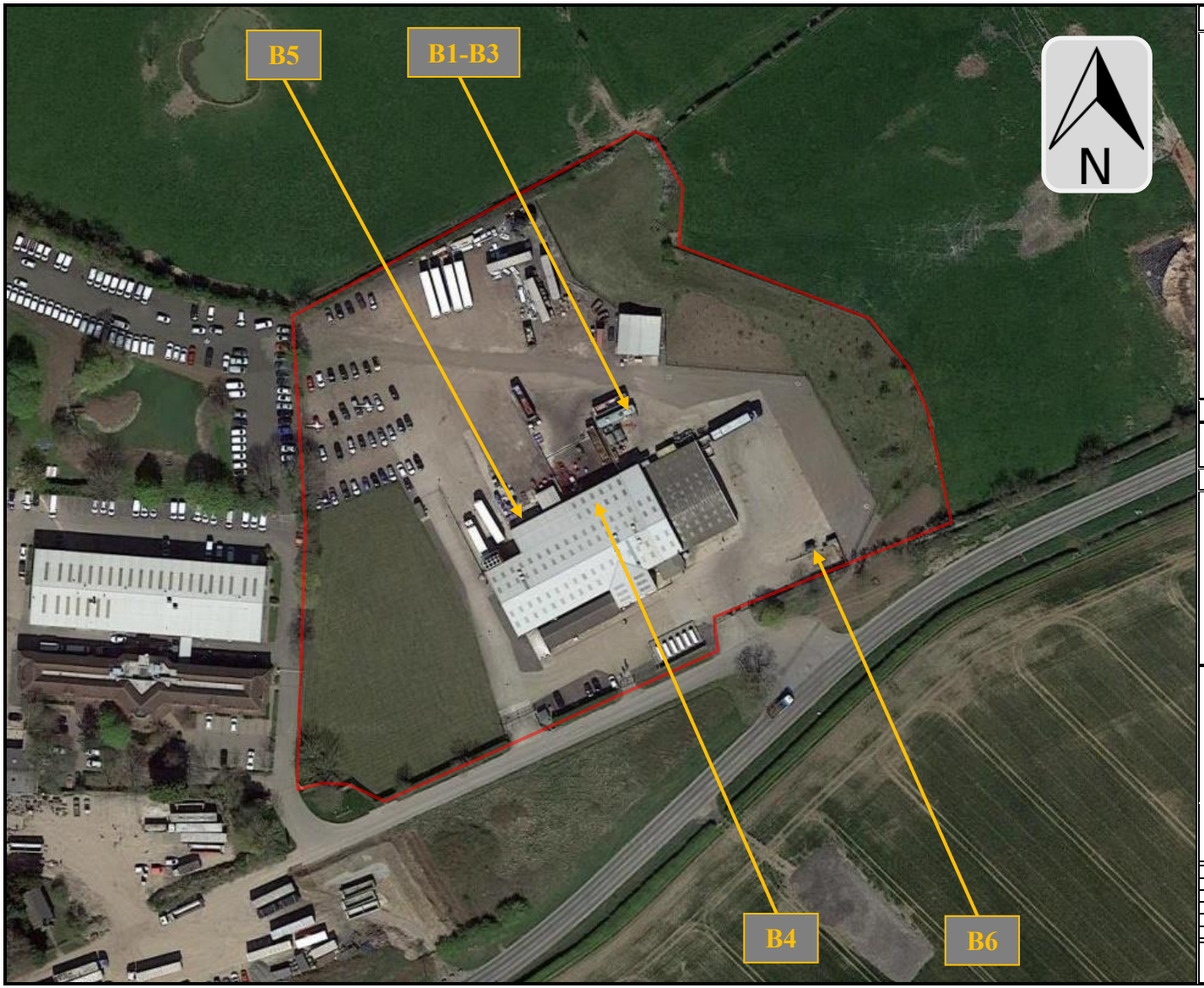
5. **Bund No.6**

   A concrete block was discovered beneath the eastern end of the structure, designed to elevate the tank directing fuel to the outlet.

   It is recommended that this block be removed, as the structure is designed to dispersed weight through the entire flat base and not via a reduced surface area, which would damage the tank surface over time, while also increasing the overall stability of the tank.

APPENDIX A

- BUND LOCATION MAPS -



Notes

– Site Location

Project Title:

BUND LOCATION MAP

Client Name:

Foyle

PANTHER ENVIRONMENTAL SOLUTIONS LTD

UNITS 3 & 4
INNOVATION CENTRE
GREEN ROAD
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Drawing Status:	Scale:	NTS	A4
Report	Datum:	Google Earth Pro	
Drawing Number:	Drawn:	NR	
	Checked:	MF	
Revision:	Approved:	-	
R0	Date:	27/010/2021	