

Lower Thames Crossing Tunnels & Approaches Tilbury Landfill Waste Acceptance Criteria 2026

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Lower Thames Crossing

Tilbury Landfill Waste Acceptance Criteria 2026

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1 Introduction

1.1 Summary of the scheme

- 1.1.1 The A122 Lower Thames Crossing ('LTC' and the scheme) is a new road that will connect the A2 and M2 in Kent to the A13 in Thurrock and Junction 29 of the M25 in the London Borough of Havering (Figure 1-1).
- 1.1.2 It will be approximately 23 kilometres long, with approximately 4.2 kilometres of new tunnel under the Thames. The tunnel portals will be located to the east of the village of Chalk on the southern side of the Thames, and to the west of East Tilbury on the northern side.
- 1.1.3 The project has been divided into three zones; Roads North, Tunnel and Approaches and Kent Roads.

Figure 1-1 Tunnels and Approaches package



1.2 Scope and objectives

- 1.2.1 National Highways is seeking approval for a new Environmental Permit to continue landfilling and Pulverised Fuel Ash (PFA) recovery at the former Tilbury Ash Disposal Site (formerly Environmental Permit EPR/GP3733DZ). National Highways wishes to create the required development levels for the

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LTC using waste derived from the adjacent Goshems Farm Deposit for Recovery (DfR) site (formerly Environmental Permit EPR/WP3094EP).

1.2.2 The site was formerly permitted to operate as a non-hazardous landfill under the conditions of an Environmental Permit, with the most recent variation (EPR/GP3733DZ/V007) issued on 09 December 2025.

1.2.3 This document presents the results of a review of the proposed waste input from the Goshems Farm DfR site and presents the proposed Waste Acceptance Criteria for the Tilbury Landfill.

1.3 Supporting documents

1.3.1 This report should be read in conjunction with the following documents which have been submitted as part of the permit application:

- Environmental Permit Application Form parts A, B2, B4, F1;
- Environmental Setting and Installation Design Report (HE540039-BMJ-EAC-TA_SNZ_ZZ-RP-GS-000005) [1];
- Management Systems and Procedures (HE540039-BMJ-EAC-TA_SNZ_ZZ-RP-GS-000013) [2];
- Dust and Emissions Management Plan (HE540039-BMJ-EAC-TA_SNZ_ZZ-RP-GS-000008) (DEMP) [3];
- Closure and Aftercare Management Plan (HE540039-BMJ-EAC-TA_SNZ_ZZ-RP-GS-000007) [4];
- Site Operating and Waste Acceptance Procedures (HE540039-BMJ-EAC-TA_SNZ_ZZ-RP-GS-000015) [5];
- Stability Risk Assessment (HE540039-BMJ-EAC-TA_SNZ_ZZ-RP-GS-000010) [6], and
- Environmental Risk Assessment (HE540039-BMJ-EAC-TA_SNZ_ZZ-RP-GS-000006) [7].

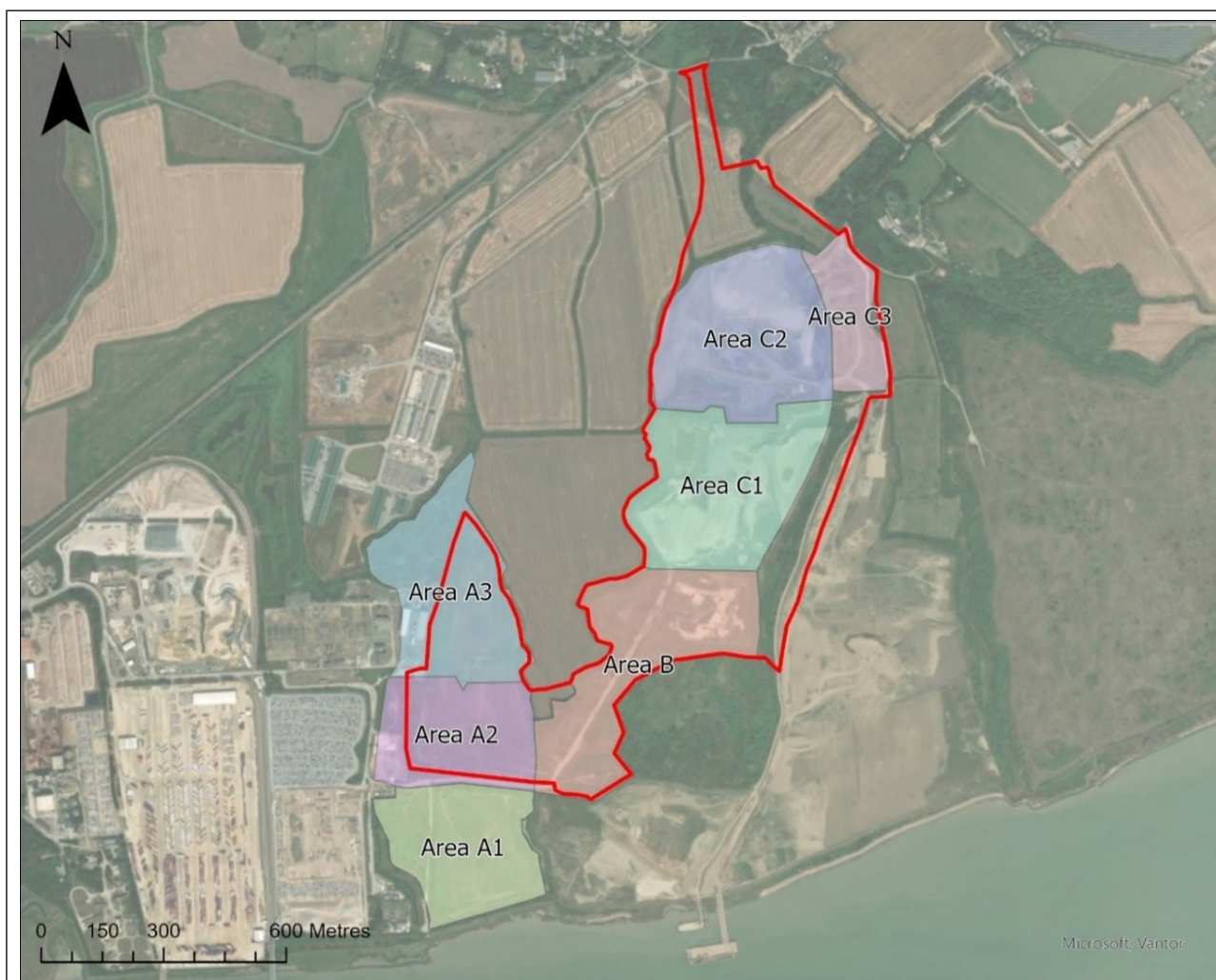
1.3.2 In addition to the documents required by the Environmental Permit, the work will be carried out in accordance with an Environmental Management Plan (EMP2) [8] and associated control documents.

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2 Site details

2.1.1 Tilbury Ash Disposal Site is a non-hazardous landfill east of Tilbury, Essex, centred on national grid reference TQ671763. The 80 hectare (ha) site was split into seven areas A1 to A3, B1 and C1 to C3 as shown on Figure 2-1.

Figure 2-1 Former Tilbury Ash Disposal Site permit boundary and proposed new Tilbury Landfill permit boundary



The red line represents the proposed new permit boundary. The seven coloured areas represent the former Tilbury Ash Disposal Site permit boundary.

2.1.2 This new permit application covers some of the area included in the previous permit boundary but also includes additional areas to the north and east which form part of the LTC project. The previous environmental permit boundary (the site) and the proposed boundary for the new permit are shown on Figure 2-1.

2.1.3 The site is bounded by agricultural land to the north and west, with Port of Tilbury land also bounding the site to the west. The land to the east comprises a mix of agricultural land and Goshems Farm Deposit for Recovery site. The land to the south comprises Goshems Farm Deposit for Recovery site and a wildlife area created from former landfill.

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2.1.4 The temporary access to the site for construction vehicles is from the former Tilbury Power Station area to the west. In the permanent case access will be available from the LTC mainline and a second access point is located in the north of the site via Station Road, for use only by staff vehicles.

2.2 Background

2.2.1 An Environmental Permit was originally issued in April 2007 (permit EPR/GP3739BQ) as Tilbury Ash Disposal Site to accept pulverised fuel ash (PFA) from Tilbury B Power Station until its closure in 2013. Prior to this the site was covered by four Waste Management Licences as discussed in Section 3.

2.2.2 The permit was transferred to Ingrebourne Valley Limited (IVL) in May 2017 (EPR/GP3733DZ/T001), with a variation granted in October 2017 to facilitate the restoration of site using imported inert wastes to a maximum elevation of nine metres above ordnance datum (mOD). The site formerly operated under permit variation EPR/GP3733DZ/V007 [9].

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3 Waste assessment

3.1 Source of waste

- 3.1.1 Only soils from Goshems Farm DfR site will be imported to site under the Tilbury Landfill permit.
- 3.1.2 Goshems Farm is a 78 ha historic landfill approximately 2 km east of Tilbury, Essex, centred around grid reference TQ675760. The site was originally permitted to IVL in September 2011 (permit number EPR/WP3094EP) to restore the land to a condition suitable for agricultural grazing by importing 1,800,000 tonnes of waste to a depth no more than two metres deep using a DfR permit. The site is currently operating under permit variation EPR/WP3094EP/V004 which allows the deposit of 3.2 million tonnes of inert material.
- 3.1.3 The 2021 SLR Waste Acceptance Procedures set out the strict procedures in place at the site to ensure only waste that is suitable for the activity, allowed by the permit and appropriately considered by the environmental risk assessment is accepted at the site.
- 3.1.4 The procedures identify actions to be taken prior to accepting waste at the site, including source checking of waste characterisation data provided by the waste producer.
- 3.1.5 Acceptance procedures at the site to ensure no contaminated materials were accepted included the following:
- Pre-acceptance checks.
 - Visual checking upon arrival and deposition.
 - Document verification.
 - Basic characterization and load sampling.
- 3.1.6 The waste acceptance procedures included visual checking of material coming onto the site, coupled with periodic chemical testing. Any suspected non-compliant loads would not be accepted. The available ground investigation data discussed below confirms the imported material was of the type allowed by the environmental permit.

3.2 Permitted wastes

- 3.2.1 The permitted waste types for recovery are summarised in Table 3-1.

Table 3-1 Permitted waste types for recovery

Waste code(s)	Waste description	Quantity (tonnes)
Wastes currently accepted		
01 01 02	Wastes from non-metalliferous excavation	0
01 04 08	Waste gravel and crushed rocks other than those mentioned in 01 04 07	0

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Waste code(s)	Waste description	Quantity (tonnes)
01 04 09	Waste sand and clays	0
10 12 08	Waste ceramics, bricks, tiles and construction products (after thermal processing)	0
17 01 01	Concrete	0
17 01 02	Bricks	0
17 01 03	Tiles and ceramics	0
17 01 07	Mixtures of concrete, bricks, tiles and ceramics	0
17 05 04	Soil and stones (including sand, clays and chalks)	3,058,767
17 05 06	Dredging spoil other than those mentioned in 17 05 05	0
17 05 08	Track ballast, soil and stones other than those mentioned in 17 05 07	0
19 12 09	Minerals (for example sand, stones)	0
20 02 02	Soil and Stones	0
Wastes previously accepted		
19 12 12	Other wastes (including mixtures of materials) from mechanical treatment of wastes other than those mentioned in 19 12 11	0

3.3 Waste testing

3.3.1 Environment Agency waste records¹ have been provided for the period 2011 to the end of Q3 2025 for the Goshems Farm DfR material. The waste volumes provided to the Environment Agency, by IVL, all relate to waste code 17 05 04.

3.3.2 The Goshems Farm DfR permit is for the placement of inert waste. Based on the waste acceptance procedures, waste code 17 05 04 is assumed to fulfil the criteria of inert waste and therefore could be accepted at the facility without testing, provided the waste stream:

- was a single waste type from a single source;
- was well characterised and described; and,
- had no suspicion of contamination.

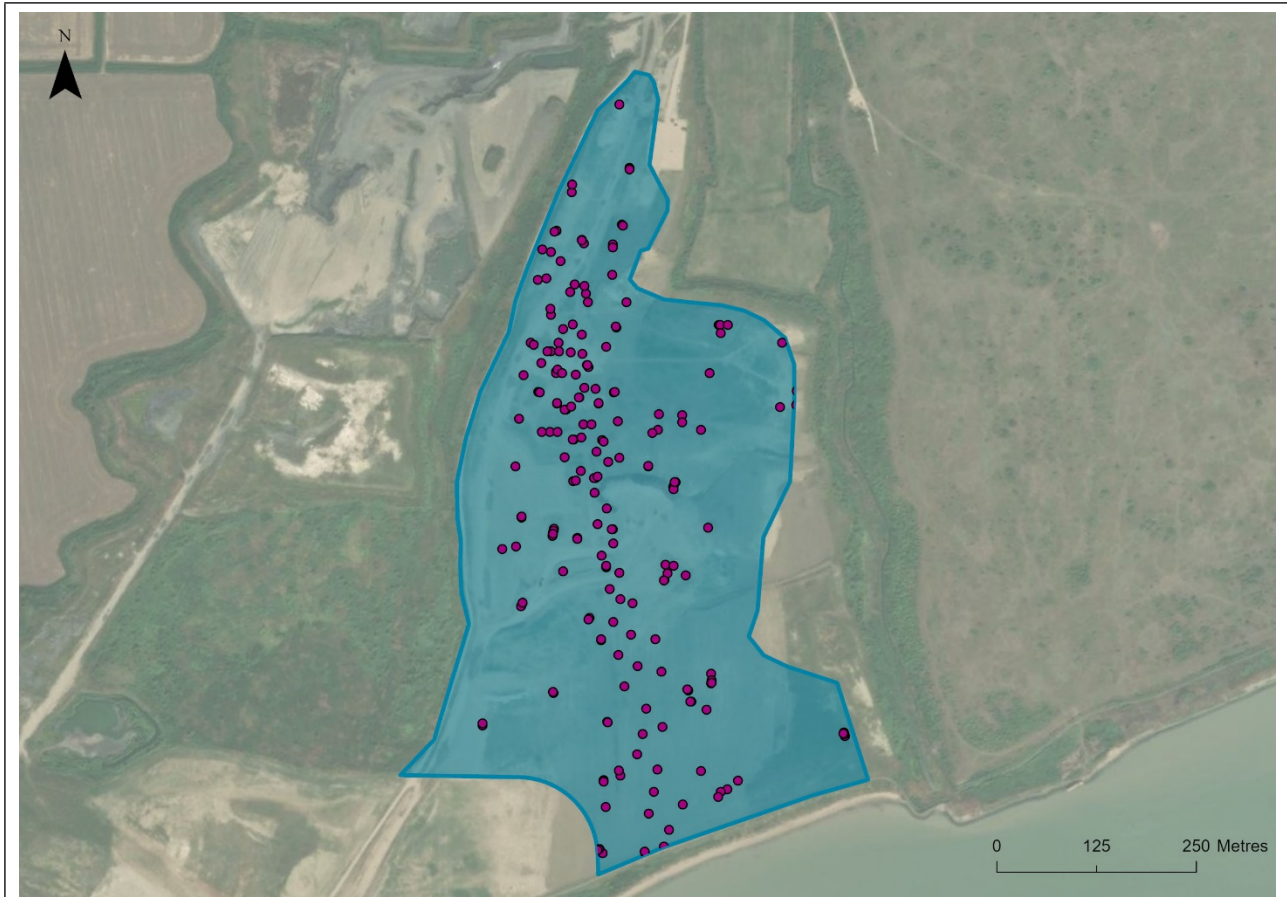
3.3.3 Chemical verification test results have not been made available from IVL. In the absence of verification testing results, ground investigation results associated with LTC have been described below to characterise the DfR material, i.e. the source material for Tilbury Landfill.

¹ Spreadsheet of quarterly waste received records provided by the Environment Agency

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3.3.4 The LTC ground investigations were undertaken within the permit boundary between 2018 and 2025 as shown on Figure 3-1. In total 233 exploratory locations were completed in Goshems Farm, within the Order Limits. Chemical testing of the DfR material was completed in 13 locations.

Figure 3-1 LTC ground investigation locations in Goshems Farm



Pink dots - LTC exploratory locations. Blue shaded area – permit area within the Order Limits

3.3.5 In total, 38 samples of material from the DfR material underwent laboratory testing to BS EN 12457, which is used to determine compliance with waste acceptance criteria (WAC). Of the 38 samples, 31 were tested to BS EN 12457-1:2002 (2:1) and seven were tested to BS EN 12457-2:2002 (10:1). The samples were obtained between 7.9m OD and 3.5m OD which spans the full depth of the DfR restoration layer (at the time of the ground investigation).

3.3.6 A summary of the results of the leachability testing is provided in Table 3-2 below, which have been compared to the compliance limit values in the Tilbury Ash Deposit site permit and the WAC inert criteria.

3.3.7 Occasional values were detected above the limit value for antimony, selenium, sulphate and total dissolved solids, but the average concentrations were all well below the limit values for inert waste.

3.3.8 There were no visual or olfactory observations of contamination noted within the DfR restoration layer during the ground investigations. The BS EN 12457 laboratory testing confirms the DfR material is clean, and compliant with inert WAC.

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Table 3-2 Summary of DfR restoration layer testing

Component	No of samples	Min (mg/kg)	Max (mg/kg)	Mean (mg/kg)	WAC Inert (mg/kg)	Limit values (mg/kg)
Arsenic	38	<0.001	0.06	0.01	0.5	0.5
Barium	6	<0.1	14.4	0.41	20	25
Cadmium	38	<0.00016	0.00125	0.00027	0.04	0.04
Total chromium	38	<0.002	<0.01	0.004	0.5	0.5
Copper	38	0.00113	0.19	0.01206	2	2
Mercury	38	<0.00002	<0.0003	0.00007	0.01	0.01
Molybdenum	38	<0.006	0.232	0.051	0.5	0.855
Nickel	38	0.00328	0.114	0.029	0.4	0.4
Lead	38	<0.0004	<0.01	0.002	0.5	0.5
Antimony	38	<0.002	0.204	0.015	0.06	0.187
Selenium	38	0.00242	0.189	0.071	0.1	0.948
Zinc	38	<0.002	0.642	0.030	4	4
Chloride	38	14.4	288	71.7	800	1980
Fluoride	38	<1	<5	1.5	10	135
Sulphate	38	337	6500	2388	1000	3000 [#]
Phenol index	6	<0.5	<0.5	0.08	1	1.3
Dissolved Organic Carbon (DOC)	6	10.6	230	8.64	500	500
Total Dissolved Solids (TDS)	6	1390	31600	1211	4000	12000
Total Organic Carbon (TOC)	38	<0.2%	8.5%	0.8%	30,000 (3%)	30,000 (3%)
BTEX compounds	37	<0.02	<0.8	<0.09	6	6
Polychlorinated biphenyls (PCBs) (7 congeners)	6	<0.0041	<0.0046	Not detected*	1	1
Mineral oil (C ₁₀ to C ₄₀)	6	<23.4	60.3	4.7	500	500
PAHs (Polycyclic aromatic hydrocarbons) (Total of 17)	5	<1.59	2.82	0.25	100	100
<p>* All results were less than the method detection limit. [#] The limit value for sulphate may be increased to 6,000mg/kg provided that the value of CO does not exceed 1500mg/kg. The value for TDS can be used alternatively to the values for sulphate and chloride.</p>						

- 3.3.9 In addition, 405 samples obtained from the DfR restoration layer were tested for asbestos. Asbestos was detected in <4% of samples (16 samples). All quantification results were at or below 0.01% w/w which is a very low quantity as defined by the descriptions provided within the CAR-SOIL™ Joint Industry Working Group (JIWG) Decision Support Tool.
- 3.3.10 Compliance Assessment Reports written between 2016 and 2025 by the Environment Agency document compliance with the permit.

3.4 Proposed Waste Acceptance Criteria

- 3.4.1 Section 3.3 has demonstrated the inert Goshems Farm DfR materials meet both the inert WAC and the agreed derogated WAC for the current Tilbury Ash Deposit Site.
- 3.4.2 It is understood that the derogations were agreed for the import of waste soils from the Thames Tideway Tunnelling project.
- 3.4.3 These wastes remain in the Tilbury Ash Deposit Site and are likely to be subject to reprofiling as part of the LTC works in the proposed Tilbury Landfill. Consequently, it is proposed to maintain these derogations.
- 3.4.4 The proposed WAC for the waste input to Tilbury Landfill are presented in Table 3-3.

Table 3-3 Proposed Waste Acceptance Criteria for Tilbury Landfill

Component	Limit values (mg/kg)
Arsenic	0.5
Barium	25
Cadmium	0.04
Total chromium	0.5
Copper	2
Mercury	0.01
Molybdenum	0.855
Nickel	0.4
Lead	0.5
Antimony	0.187
Selenium	0.948
Zinc	4
Chloride	1980
Fluoride	135
Sulphate	3000 [#]
Phenol index	1.3
Dissolved Organic Carbon (DOC)	500
Total Dissolved Solids (TDS)	12000

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Component	Limit values (mg/kg)
Total Organic Carbon (TOC)	30,000 (3%)
BTEX compounds	6
Polychlorinated biphenyls (PCBs) (7 congeners)	1
Mineral oil (C ₁₀ to C ₄₀)	500
PAHs (Polycyclic aromatic hydrocarbons) (Total of 17)	100
<p># The limit value for sulphate may be increased to 6,000mg/kg provided that the value of C0 does not exceed 1500mg/kg. The value for TDS can be used alternatively to the values for sulphate and chloride.</p>	

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4 Conclusion

- 4.1.1 It is proposed to import inert waste from Goshems Farm DfR restoration layer to achieve the required construction levels for the LTC development.
- 4.1.2 Review of the DfR waste chemistry indicates compliance with both inert WAC and the derogated WAC agreed for the Tilbury Ash Deposit Site. The derogated WAC were agreed so Tilbury Ash Disposal Site could receive waste from the Thames Tideway Tunnelling project.
- 4.1.3 With Thames Tideway Tunnelling project waste remaining within Tilbury Landfill, it is proposed to adopt the existing derogated WAC for reprofiling of waste within Tilbury Landfill and import of DfR material to Tilbury Landfill.

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5 Reference documents

Document title	Document number /Link
[1] Tilbury Landfill Environmental Setting and Installation Design Report	HE540039-BMJ-EAC-TA_SNZ_ZZ-RP-GS-000005
[2] Tilbury Landfill Management Systems and Procedures	HE540039-BMJ-EAC-TA_SNZ_ZZ-RP-GS-000013
[3] Tilbury Landfill Dust and Emissions Management Plan	HE540039-BMJ-EAC-TA_SNZ_ZZ-RP-GS-000008
[4] Tilbury Landfill Closure and Aftercare Management Plan	HE540039-BMJ-EAC-TA_SNZ_ZZ-RP-GS-000007
[5] Tilbury Landfill Site Operating and Waste Acceptance Procedures	<i>HE540039-BMJ-EAC-TA_SNZ_ZZ-RP-GS-000015</i>
[6] Tilbury Landfill Stability Risk Assessment	HE540039-BMJ-EAC-TA_SNZ_ZZ-RP-GS-000010
[7] Tilbury Landfill Environmental Risk Assessment	HE540039-BMJ-EAC-TA_SNZ_ZZ-RP-GS-000006
[8] Environmental Management Plan 2, North Portal Surface Works - Work no. 5/CA5 (in part) and Utilities	HE540039-BMJ-EGN-TA_S07_ZZ-PL-ZZ-000001
[9] Notice of variation and consolidation with introductory note. 09/12/2025 Variation Application Number EPR/GP3733DZ/V007. Permit Number EPR/GP3733DZ	Application Variation - Permit V007 09122025 (003).pdf