

Great Billing Quarry

Environmental Permit Application

Environmental Management & Monitoring Plan

Mick George Limited

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Prepared on Behalf of Tetra Tech Environment Planning Transport Limited.

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TABLE OF CONTENTS

1.0	INTRODUCTION	1
2.0	GROUNDWATER MANAGEMENT AND MONITORING.....	2
3.0	SURFACE WATER MANAGEMENT AND MONITORING	5
4.0	LANDFILL GAS MANAGEMENT AND MONITORING	8
5.0	METEOROLOGICAL MONITORING	9
6.0	LANDFILL BODY MONITORING	10
7.0	AMENITY MANAGEMENT AND MONITORING.....	11
8.0	HEALTH IMPACT MONITORING.....	13
9.0	AFTERCARE MONITORING.....	14

LIST OF TABLES

Table 1: Proposed Groundwater Monitoring Determinands and Sampling Frequency.....	2
Table 2: Groundwater Compliance Limits	2
Table 3: Suggested Contingency Actions for Exceeding Groundwater Compliance	3
Table 4: Monitoring Programme	8
Table 5: In Waste Borehole Monitoring Programme	8

DRAWINGS

GtB.Q_mpp_1121 – Monitoring Point Plan

MGL/B029956/BH/01 – In-Waste Borehole Plan

1.0 INTRODUCTION

1.1 REPORT CONTEXT

- 1.1.1 This section of the Environmental Permit Application corresponds to Part B4 of the Environmental Permit Application forms, specifically detailing the Environmental Management and Monitoring Plan (EMMP) for the importation of suitable inert waste at the Great Billing Quarry (the site).
- 1.1.2 The Environmental Permit application has been prepared by Tetra Tech on behalf of the Operator, Mick George Limited (Mick George).
- 1.1.3 This report has been prepared in accordance with the Environment Agency's (EA) Guidance for the Landfill Sector and LFTGN 02: Guidance on Monitoring of Landfill Leachate, Groundwater and Surface Water and with reference to the Hydrogeological Risk Assessment (HRA) and the Environmental Risk Assessment (ERA).

2.0 GROUNDWATER MANAGEMENT AND MONITORING

- 2.0.1 Adherence to the Waste Acceptance Criteria (as set out in the Operating Techniques document which is Appendix B of the permit application) will ensure that the waste deposited at the site complies with the inert classification thereby mitigating any risk to groundwater.
- 2.0.2 An HRA has been compiled in support of this Environmental Permit Application (Appendix F of the Environmental Permit Application). The objective of the HRA is to assess the potential risk of significant impacts on groundwater quality as a result of the proposed development and to derive control and compliance limits for groundwater and surface water.

2.1 GROUNDWATER MONITORING SCHEDULE

- 2.1.1 The HRA recommends that groundwater level and chemical data are to be collected from the groundwater monitoring points shown in Drawing GtB.Q_mpp_1121
- 2.1.2 The parameters to be sampled and monitoring frequency to be included in the Environmental Permit are presented in Table 1 below. These requirements are considered adequate in providing in an ongoing characterisation of the groundwater conditions.

Table 1: Proposed Groundwater Monitoring Determinands and Sampling Frequency

Monitoring Location	Quarterly	Annually
Levels	pH, Chloride, Alkalinity, Amm N, Sulphate, Sodium, Potassium, Iron, Manganese, Cadmium, Chromium, Copper, Calcium, Nickel, Lead, Zinc, Electrical conductivity, Magnesium, Selenium, and Mercury.	<i>To include quarterly suites plus Hazardous substances:</i>

Compliance Limits

- 2.1.3 The HRA provides compliance levels for boreholes BH11, BH13, BH14, BH16 BH18 and BHN for nitrogen, chloride, lead and sulphate. The proposed compliance limits for use in the environmental permit are outlined in Table 2 below. Compliance limits should be revised following the capture of further baseline groundwater quality

Table 2: Groundwater Compliance Limits

Substance	MRV (mg/l)	Selected CL (mg/l)
Lead	0.0002	0.0002
Chloride		123

Sulphate		405
Amm N		1.26

Contingency Plan

2.1.4 Once compliance levels have been agreed, should site monitoring identify an increase in the concentration of the selected determinands then a series of contingency actions will be required. Suggested contingency actions, which require agreement with the Environment Agency (EA), are presented in Table 3.

Table 3: Suggested Contingency Actions for Exceeding Groundwater Compliance

Appropriate Contingency Action	Timescale
Advise Site Management	Immediately
Advise Environmental Manager of any detection limit issues	1 Week
Advise Environment Agency	1 Week
Confirm by repeat sampling and analysis	1 Month
Review existing monitoring information	1 Month
Review site management/operations, implement actions to prevent future failure	3 Months
Review assumptions in conceptual site model	3 Months
Review existing HRA Compliance Levels	6 Months
Consult EA about need for corrective action	6 Months

2.2 QUALITY CONTROL PROCEDURES

Monitoring Personnel

2.2.1 Monitoring will be undertaken by suitably trained person(s) appointed by the site management who are familiar with the monitoring procedures. The monitoring personnel will have access to the Environmental Permit and any relevant accompanying application documents to gain an understanding of the conditions applicable to groundwater monitoring (levels and quality). Personnel will also be familiar with the assessment criteria to identify compliance and assessment levels.

Monitoring Procedures

2.2.2 The groundwater levels will be measured prior to sampling using an electronic dip tape/dip meter.

2.2.3 The groundwater samples will be collected using a portable electric submersible pump or other suitable sampling equipment. In order to obtain a sample of the groundwater, each monitoring borehole will be purged to at least three times the well volume (if possible) to prevent sampling non-representative, stagnant samples.

- 2.2.4 On-site analysis will include temperature, pH and electrical conductivity. All groundwater samples will be collected in 1 litre polyethylene or glass containers. Unless the containers already contain a preservative, they will be flushed three times with the sample prior to filling.
- 2.2.5 Filled sample bottles will be stored upright in cool boxes with ice packs. Sample bottles will be pre-labelled in accordance with laboratory requirements and will be submitted to a UKAS accredited laboratory within 24 hours of collection, together with the sample details, tests and suites required. If samples have to be kept overnight, they will be stored in a fridge/cool box and maintained at approximately 4°C.

Recording and Reporting

- 2.2.6 A copy of the sampling results will be stored on site for the duration of the site operations.
- 2.2.7 The site management will ensure that copies of the sampling results are sent to the EA in an agreed format and at quarterly frequencies.

3.0 SURFACE WATER MANAGEMENT AND MONITORING

3.1 SURFACE WATER FEATURES

- 3.1.1 In terms of surface water features, there are no existing surface water features on site. Water bodies within the vicinity of the site include the River Nene which lies to the south of the application site and flows east roughly parallel to the southern boundary of the site. Billing Brook is located approximately 1.5km west of the site. The Ecton Brook flows south through the Ecton Brook Linear park along the western edge of Great Billing, towards the Great Billing Water Recycling Centre (WRC).
- 3.1.2 The Barton Brook flows south from Sywell Wood some 7.5 km to the north of the site. Its route takes it beneath the A45 from where it flows along the eastern boundary of the site and into the Nene. The Brook is joined at Sywell Reservoir (approximately 2.7 km north of the site) by a tributary originating in the north-east of Sywell village.

3.2 FLOOD RISK

- 3.2.1 According to the Flood Map for Planning Service (FMPS) shows that the application site lies within the low probability flood area (Flood Zone 1), medium probability flood area (Flood Zone 2) and high probability flood area (Flood Zone 3).

3.3 SURFACE WATER MANAGEMENT AND MONITORING

- 3.3.1 To facilitate mineral extraction and reclamation, each working phase will need to be dewatered. The general approach is to excavate a trench along the edge of the working phase to intercept the flow of groundwater. The inflow is then collected in channels which are connected to a sump from where the water is pumped to the above-mentioned recharge features. In some instances the abstracted water may need to be pumped to the three stilling ponds in the Water Management Area, or may need to be discharged to the local watercourse network.
- 3.3.2 To facilitate the above, Mick George have submitted applications for a surface water discharge permit and a water abstraction licence. Both applications were submitted to the Environment Agency in June 2022.
- 3.3.3 As such, it's proposed that surface water monitoring will be undertaken in accordance with the conditions of the water discharge permit.

3.4 CONTINGENCY PLAN

3.4.1 In the unlikely event of a pollution incident caused by a direct discharge of contamination e.g. leaking pipework, fuel spillage, the following emergency procedure will be implemented:-

- Immediately report incident to the Site Manager; and
- Identify the source and prevent further leak/spillage.

3.4.2 For major fuel/oil spillage implement the following procedures:-

- a) Clear the area immediately and extinguish any naked flames. Attempt to make a bund to contain the fuel/oil in order to limit the extent of the spillage;
- b) If possible, try and contain the spill using absorbent materials available on site;
- c) Phone 999, ask for the Fire and Rescue Service and request assistance;
- d) Ring the EA and explain what has happened so they can take appropriate action;
- e) At no time put staff, customers or the public at risk;
- f) If appropriate, close the site, wait at the gate for emergency services and explain the situation prior to allowing access to site;
- g) Do not allow staff or the public to go back into the site until authorised to do so;
- h) Keep customers and if appropriate, the public informed about what is going on when appropriate;
- i) Once it is safe to enter the site, re-open to customers and update the EA;
- j) Complete the site diary and any other paperwork about the incident; and
- k) The resultant spillage material should be disposed of in accordance with Environmental
- l) Permitting requirements. Specialist advice must be sought in the event of any doubt.

3.4.3 For minor fuel/spillage implement the following procedure: -

- i. Clear the area immediately and extinguish any naked flames;
- ii. Lay absorbent material over the spill to soak up the spillage and if any drains are nearby place the absorbent material around the drain to stop any liquid going into any surface water gullies; and
- iii. Once the liquid has all been absorbed use a shovel to clear up the waste, put it in a plastic sack and then place it in the fullest container for non-recyclable waste for disposal via the normal route.

- 3.4.4 In the event of the pollution reaching a surface water course, implement remedial measures in accordance with EA guidance. Undertake additional monitoring to ensure water quality does not exceed assessment criteria.

4.0 LANDFILL GAS MANAGEMENT AND MONITORING

- 4.0.1 A Landfill Gas Risk Assessment (GRA) has not been prepared for the site, as Environment Agency Guidance Note H1 Annex I indicates that it is not a requirement for inert landfill sites. However, a screening report has been carried out in accordance with the requirements of Landfill Technical Guidance Note 03 (LFTGN03).
- 4.0.2 This Landfill Gas Screening Report indicates that there is unlikely to be a significant risk posed by the development. However, monitoring of the perimeter boreholes for landfill gas will be carried out in accordance with this Screening Report as detailed within Appendix G of the environmental permit application. The perimeter gas monitoring proposals including frequencies of monitoring are outlined in Table 4 below.

Table 4: Monitoring Programme

Monitoring Location	Parameter	Monitoring Frequency
BH1, BH2, BH3, BH4, BH5, BH6, BH7, BH8, BH9, BH10, BH11, BH12, BH13, BH14, BH15, BH16, BH17, BH18, BHA, BHB, BHC, BHE, BHF, BHM, BHN, BH 9/01	Methane, carbon dioxide, oxygen, meteorological data, atmospheric pressure, differential pressure, temperature.	Quarterly

- 4.0.3 In accordance with LFTGN03 in-waste landfill gas monitoring infrastructure will be installed within each completed phase of filling.
- 4.0.4 In-waste landfill gas monitoring will be carried out in accordance with the procedures set out in LFTGN03. The proposed monitoring programme is detailed in Table 6 below and the proposed locations of the in-waste boreholes are provided on Drawing Number MGL/B029956/BH/01.

Table 5: In Waste Borehole Monitoring Programme

Parameter	Monitoring Frequency
Methane, carbon dioxide, oxygen, meteorological data, atmospheric pressure, differential pressure, temperature.	Quarterly

5.0 METEOROLOGICAL MONITORING

- 5.0.1 The proposed landfill will only accept inert waste and with reference to the HRA and EA guidance, it is not considered necessary to manage and monitor leachate. This negates the need to monitor meteorological conditions for the purpose of using water balance calculations as a tool for evaluating leachate production.
- 5.0.2 However, atmospheric pressure, temperature and ground conditions will be monitored and recorded during all monitoring visits.
- 5.0.3 Weather conditions that may be unfavourable to landfilling, particularly dry loads, will be used to determine the acceptability of such wastes on a particular day, for example strong winds given as severe weather warnings from the Meteorological Office.
- 5.0.4 Details on weather conditions will be recorded in the Site Diary on a daily basis.

6.0 LANDFILL BODY MONITORING

6.0.1 Procedures will be in place to undertake routine surveys in order to record the following:-

- Surface area of waste;
- Volume of waste;
- Remaining capacity; and
- Settling behaviour

6.0.2 Monitoring will be undertaken on an annual basis, or at a greater frequency determined by the Operator.

7.0 AMENITY MANAGEMENT AND MONITORING

7.1 ENVIRONMENTAL RISK ASSESSMENT

7.1.1 An Environmental Risk Assessment (ERA) has been prepared in accordance with the Environment Agency's Risk Assessment guidance. It specifically deals with the following:-

- Particulate Matter Management and Monitoring;
- Noise Management and Monitoring;
- Odour Management and Monitoring;
- Mud Management and Monitoring;
- Litter Management and Monitoring; and
- Birds, Vermin and Insect Management and Monitoring.

7.2 DUST MONITORING

7.2.1 Dust monitoring will be undertaken in accordance with the Dust Management Plan (Appendix K of the Environmental Permit Application).

7.3 NOISE

7.3.1 Noise will be monitored in accordance with the Noise Management Plan (Appendix J of the Environmental Permit Application).

7.4 ODOUR

7.4.1 Due to the inert nature of the waste, the site will not produce odour.

7.5 LITTER

7.5.1 The waste is considered to have a low litter potential and therefore the risk of litter on site will be low.

7.6 BIRDS, VERMIN AND INSECT

7.6.1 Due to the inert nature of the waste, the site will not attract birds, vermin and insects.

7.7 MUD

- 7.7.1 The ERA also considered the risk of mud being transferred to the local highways as not significant. A wheel washing facility will be employed on site which will be used by HGVs before they leave the site. Water sprays will also be employed to dampen the access road. However, in the unlikely event that mud is deposited on the road then a road sweeper will be utilised as necessary.

8.0 HEALTH IMPACT MONITORING

- 8.0.1 Due to the inert nature of the waste, it is considered unnecessary to undertake health impact monitoring on the surrounding population.

9.0 AFTERCARE MONITORING

- 9.0.1 It is proposed to continue the monitoring of groundwater and landfill gas during the aftercare period. At the time the site is ready for closure, all monitoring requirements and frequencies will be reviewed. Any changes to the monitoring frequency and analysis will be subject to agreement with the EA.

DRAWINGS

GtB.Q_mpp_1121 – Monitoring Point Plan

MGL/B029956/BH/01 – In-Waste Borehole Plan