STANWAY QUARRY
INERT LANDFILL FACILITY

MANAGEMENT PLAN

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1.0 INTRODUCTION

1.1 Scope

1.1.1 This Management Plan has been prepared for the operation of an inert landfill facility to support the restoration of Stanway Quarry, Colchester, Essex.

1.1.2 This Management Plan has been prepared in accordance with guidance on best practice and best available techniques available, and in particular the following specific regulations and guidance contained in:

- Environmental Permitting (England and Wales) Regulations 2016 (as amended);
- Environmental Permitting Core Guidance (DEFRA, Updated March 2013);
- Environmental Permitting Regulations: Inert Waste Guidance – Standards and Measures for the Deposit of Inert Waste on Land; and
- Environment Agency online guidance "Risk assessments for your environmental permit" (published 1st February 2016).
- Waste Acceptance at Landfills (EA, November 2010)
- Waste Sampling and Testing for Disposal to Landfill (EA, March 2013).

1.1.3 This Management Plan will be subject to continuous review and revision. In all circumstances, revisions will be subject to approval by the Environment Agency (EA).

1.1.4 Management of amenity issues are discussed in this document as well as being supported by amenity and accident risk assessments which have been completed in accordance with EA Guidance.

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2.0 WASTE MANAGEMENT AND CONTROL

1.1 Permitted Wastes

2.1.1 The Stanway Quarry will operate as a landfill facility for the disposal of inert waste only. A full list of wastes to be accepted for disposal at the site are presented in **Table MPA1.1** of **Appendix MP1.**

2.1.2 Suitable uncontaminated organic soils, limited to those listed in **Table MPA1.2** of **Appendix MP1**, will also be deposited at the site to provide a growing medium to support vegetation. The depth of deposit of these materials will not exceed the final 50cm.

2.1.3 Materials to be accepted will be in line with Environment Agency guidance, therefore from a chemical and biological perspective will be wholly inert. Where required during pre-acceptance procedures, the operator will undertake an analysis of the material prior to deposit to ensure it is suitable.

2.1.4 The site will accept up to 200,000 tonnes of waste per year.

2.2 Waste Acceptance Procedures

2.2.1 Tarmac has defined procedures for the acceptance of waste at its landfill sites which are set out in accordance with the relevant EA guidance. This is to ensure that waste material received is acceptable for disposal at an inert landfill. A flow diagram which acts as an appropriate aid to personnel in terms of material assessment and acceptability is presented in **Appendix MP2.**

2.2.2 The acceptance procedures ensure compliance with the requirement implicit under Duty of Care when dealing with waste materials, particularly the need to assess the material from initial customer enquiry to when it is deposited on site. The phases are divided into 'Pre-acceptance' and 'Acceptance' measures.

Pre-Acceptance

2.2.3 Prior to acceptance of waste at Stanway Quarry a basic waste characterisation procedure must be undertaken by the waste producer to ensure that the waste is in compliance with the 'inert' landfill classification. This should be by means of the Company Waste Characterisation Form, or similar document, but must include the necessary information for a Level 1 Basic Characterisation as specified in the Landfill Regulations. The following information will be required as minimum:-

- Waste source and origin;
- The code applicable to the waste under the European Waste Catalogue (EWC);
- Determination if the waste has any hazardous properties as per WM3.
- In the case of hazardous waste, the properties which render it hazardous;
- The process producing the waste (including a description of the process, its SIC code and characteristics of its raw materials and products which may affect its behaviour under landfill conditions);
- The waste treatment applied, or a statement of why treatment is not considered necessary;
- The appearance of the waste (including smell, colour, consistency and physical form);
- Confirmation that the waste is not prohibited from disposal to landfill (for example liquid waste and whole used tyres);
- The class of landfill the waste can be disposed at; and
- Confirmation of whether the waste requires testing.

2.2.4 The wastes identified in **Table MP1** 'Inert wastes' may be accepted for disposal at the site without being subject to any additional testing provided:

- The waste must be a single stream and single source material. Different wastes contained in **Table MP1** may be accepted together, provided they are from the same source.
- They are not contaminated[1] & do not contain other material or substances to an extent which increases the risk associated with the waste sufficiently to justify its disposal in another class of landfill.

Table MP1: Inert Wastes that do not require additional testing

EWC Code	Description	Restrictions
10 11 03	Waste glass-based fibrous materials	Only without organic binders
15 01 17	Glass packaging	
17 01 01	Concrete	Selected Construction and Demolition Waste only
17 01 02	Bricks	Selected Construction and Demolition Waste only
17 01 03	Tiles and ceramics	Selected Construction and Demolition Waste only
17 01 09	Mixtures of concrete, bricks, tile sand ceramics	Selected Construction and Demolition Waste only
17 02 02	Glass	
17 05 04	Soil and stones	Excluding topsoil, peat; excluding soil sand stones from contaminated sites
19 12 05	Glass	
20 01 02	Glass	Separately collected glass only
20 02 02	Soil and stones	Only garden and parks waste; Excluding topsoil, peat

2.2.5 Wastes not included in **Table MP1** may not be accepted unless representative samples of the waste have been submitted for compliance leaching testing at a solid to liquid ratio (L/S) of 10 l/kg by a suitable laboratory, in accordance with BS EN 12457:2002. The wastes must not exceed the limit values provided in **Table MP2.**

Table MP2: Leaching limit values for inert waste

Substance	L/S = 10l/kg Limit Value (mg/kg)
As	0.5
Ba	20
Cd	0.04
CR	0.5
Cu	2
Hg	0.1
Mo	0.5
Ni	0.4
Pb	0.5
Sb	0.06
Se	0.1
Zn	4
Cl	800
F	10
SO4	1,000
Total Dissolved Solids (TDS)	4,000
Phenol index	1
DOC	500

* *This limit value for sulphate may be increased to 6,000, provided that the value of C0 from a percolation test does not exceed 1,500 mg/l at L/S = 0.1 l/kg. It will be necessary to use a percolation test to determine the limit value at L/S = 0.1 l/kg under initial equilibrium conditions (C0 is the concentration at L/S = 0.1 l/kg).*

[1] *In case of suspicion of contamination (either visual or from knowledge of the origin of the waste), testing should be applied against the criteria given in Table MP2 prior to delivery to the quarry, otherwise the waste must be rejected.*

** *The value for total dissolved solids (TDS) can be used as an alternative to the values for sulphate and chloride.*

*** *If the waste does not meet this value for dissolved organic carbon (DOC) at its own pH value, it may alternatively be tested at L/S = 10 l/kg and a pH between 7.5 and 8.0. The waste may be considered as complying with the acceptance criteria for DOC, if the result of this determination does not exceed 500 mg/kg.*

2.2.6 In addition to the leaching limit values above, inert wastes must meet the additional limit values provided in **Table MP3.**

2.2.7 Further information on waste characterisation requirements can be found in Environment Agency guidance *"Waste acceptance at landfills"* and *"Waste Sampling and Testing for Disposal to Landfill".*

Table MP3: Limits values for total content of organic parameters for inert waste

Parameter	Limit Value (mg/kg)
TOC*	30,000 or 3%w/w
BTEX	6
PCBs	1
Mineral Oil (C10 to C40)	500
PAHs	100

** - In the case of soils a higher limit value may be admitted by the Environment Agency, provided that the Dissolved Organic Carbon value of 500 mg/kg is achieved at L/S 10 l/kg at the pH of the soil or at a pH. The TOC limit does not apply to restoration soil materials*

Waste Acceptance

2.2.8 Once the acceptable material arrives at site, as arranged during the Pre-acceptance measures, it will be subjected to the appropriate on-site verification 'Acceptance' checks. A record is kept of the:-

- date and time of waste deliveries
- quantities and the nature of the waste deposited at the site
- Name of the company and their representation delivering (if applicable) each load of waste and vehicle registration number

2.2.9 Where safe, deliveries will be visually inspected at the weighbridge by a trained staff person to determine the basic characteristics of the waste and ensure it accords with the pre-acceptance paperwork. Consideration will also be given to the use of overhead cameras to inspect high sided vehicles.

2.2.10 Should waste be found to be unsuitable the load will remain on the vehicle for immediate off-site transfer. Any such events will be recorded in the site diary and the Regulator informed where necessary.

2.2.11 Where visual inspection at the weighbridge is not possible, waste will be visually inspected at the tipping face and the machine operator informed via radio of this action.

2.2.12 Should a load be deposited within the landfill site and found to be non-compliant by machine operatives, the material will be immediately reloaded and rejected off site having given consideration for the relevant Duty of Care requirements. Should the producer/carrier have left the site, this load will be placed in a quarantine area awaiting collection for delivery to a suitably permitted facility. Such events will be recorded in the site diary.

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3.0 OUTLINE ENGINEERING PROPOSALS

3.1 Geological Barrier

3.1.1 The western, southern and eastern sidewall of the quarry consist of exposed sand and gravel deposits over which an Artificial Enhanced Geological Barrier (AEGB) will be constructed. Due to stability factors and construction techniques to be employed, the the AEGB will be constructed to a minimum thickness of 3m over sidewalls comprising exposed sand and gravel, reducing to a thickness of 0.5m over the sidewalls engineered from materials used to restore the northern extension area. The maximum permeability of the AEGB will be 1×10^{-9} m/s.

3.1.2 The northern boundary of the landfill footprint will consist of an engineered bund constructed from site derived materials. As a minimum, the sidewall of the bund over which wastes will be placed will be engineered to the same specification as the AEGB for the quarry sidewalls.

3.1.3 The base of the landfill will be formed directly over the underlying London Clay Formation which constitutes a natural geological barrier in accordance with the standard requirements specified in the Landfill Directive.

3.1.4 Outline details of the basal and sidewall AEGB are presented in **Drawing No. B030-00676-06.**

3.1.5 The construction of the AEGB will be supported by CQA protocols that will be approved by the Environment Agency.

3.2 Groundwater Water Management

3.2.1 The surrounding and gravel deposits currently are water bearing in which groundwater currently drain into the quarry. To maintain the stability of the AEGB that will be constructed over the sidewalls of the quarry comprising exposed sands and gravels, a drainage geocomposite will be placed beneath the AEGB up to the natural groundwater level within the sand and gravels. Groundwaters that drain from the drainage blanket will be collected within the existing groundwater management systems employed at the quarry.

3.3 In-Waste Monitoring Installations

3.3.1 Once final levels are achieved in each phase of infilling, monitoring boreholes will be retro-drilled to approximately 1m above the base of the site, limited to areas where the waste deposits exceed a thickness of 4m. The monitoring boreholes will be constructed for assessing the chemical and biological stability of the waste mass for subsequent surrender of the permit. Typical details of the in-waste monitoring installations are presented in **Drawing B030-00676-14.** The construction of all monitoring installations will be supported by CQA protocols approved by the Environment Agency.

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4.0 WATER MANAGEMENT PLAN

4.1 General Context

4.1.1 The impermeable nature of the London Clay at the base of the quarry impedes the infiltration of waters to ground. All surface waters and groundwater are there management within a series of ditches, and storage and settlement ponds pending reuse for site processes or discharge via the consented surface water discharge. A copy of water management plan prepared to support the discharge of condition 45 of Planning Permission Ref.: ESS/23/14/OCL are presented in **Appendix MP3.**

4.2 Surface Water & Groundwater Management

4.2.1 Surface water run-off from all areas of the landfill, and groundwaters discharging from the side walls and drainage geocomposite placed beneath the AEGB will continue to be managed the way it is presently i.e. collection in lagoons for reuse via the onsite mineral processes activities or discharge to surface water. Full details are presented in **Appendix MP3.**

4.3 Surface Water Monitoring

4.3.1 All surface waters collected at the site will be monitored prior to discharge for visual evidence of oils/hydrocarbons. If any visual signs of hydrocarbons are identified on the surface of the waters, arrangements will be made to transfer the waters offsite by tanker for treatment, with the source of the contamination investigated and remediated as appropriate.

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5.0 AMENITY MANAGEMENT & MONITORING

5.1 Dust/Particulate Matter

5.1.1 Landfill operations will be restricted to within the quarry void are currently approximately c. 15m below the surrounding ground levels. The final restoration profile accounts for less than 50% of the total quarry void, with final levels typically around 10m below surface levels, except at the eastern and southern edges of the quarry where fill levels will be graded to tie-in with the surrounding surface levels at gradients of 1:3. Operational areas of the quarry extend beyond the northern and western edges of the landfill footprint by between approximately 100 to 300m. Earth screening bunds are also present along quarry boundaries in which residential properties are located within close proximity. Treelines are also established along most boundaries of the quarry.

5.1.2 A Dust Management and Monitoring Plan has been developed to discharge condition 56 of Planning Permission Ref: ESS/23/14/COL to support all mineral extraction, mineral process and restoration activities at the quarry. A copy of this management plan is presented in **Appendix MP4.**

5.2 Odour

5.2.1 Due to the inert properties of the waste accepted at Stanway Quarry, the odour generation potential of the landfill is negligible. Odour management will therefore be limited to the assurance that only specific waste is accepted and deposited at the facility, through visual inspection of waste as they are delivery to and discharged at the site.

5.3 Dirt and Mud

5.3.1 The dispersal of dirt and mud originating at the site onto public roads and the surrounding land will be controlled.

5.3.2 The following operational procedures will be implemented to ensure that dirt and mud do not reach the public highways and surrounding land:

- Where possible, internal site roads will comprise hard surfacing;
- Metalled surfacing is provided between the site access point with Warren Lane and the landfill footprint;
- Wheel wash facilities will be located along internal haul routes;
- Plant and machinery will be thoroughly cleaned before leaving the site
- Mechanical sweeper to be deployed to remediate any mud and debris that has been deposited on to the public highway or metalled access road.

5.3.3 The Unit Manager or nominated deputy will regularly inspect the entrance areas for evidence of mud and debris that has been trafficked.

5.4 Litter

5.4.1 The wastes to be deposited at the quarry will not contain any significant quantity of light fractions. All loads will be inspected upon delivery and/or discharge at the site to ensure contaminated wastes are not accepted.

5.4.2 The site will be inspected daily for evidence of litter, with litter picking undertaken as necessary.

5.5 Birds, Vermin and Insects

5.5.1 Due to the inert properties of the waste that will be accepted there is a low potential to attract birds, vermin and insects. No specific measures are therefore required, however, visual inspections of will be carried out by the weighbridge clerk at the point of acceptance with further assessment by site operatives when the waste is deposited. Daily site inspections will also be undertaken to identify any potential issues that may arise.

5.6 Noise and Vibration

5.6.1 Site operational hours will ensure that works carried out at the site will not continue into unsociable hours. Working hours are restricted to:-

- Monday to Friday 07:00 – 1800hrs
- Saturdays 07:00 – 1300hrs
- Sunday/Public Bank Holidays Closed

5.6.2 Mitigation against the risks of impact of noise and vibration outside the site will be provided by strategic positioning and use of existing perimeter attenuation bunds, mineral stockpiles (when present) and other static equipment between the receptors and items of plant. All haul roads will be kept well maintained to minimise body slap and vehicles will be subject to internal speed limits.

5.6.3 Noise levels will be aurally monitored by the Unit Manager or appointed deputy to ensure that operations are not resulting in significant level of noise beyond the site boundary and effective noise reduction measures shall be introduced and noted in the diary. Plant machinery will be operated in a proper manner with respect to minimising noise emissions which typically include:

- Use of white noise reversing alarms with no auditable warning noise;
- Turning off idling plant engines;
- Minimising drop heights
- No unnecessary revving of engines

5.6.4 Furthermore, landfill operations will be generally carried approximately 10 m below surrounding ground levels and a will therefore provide a significant degree of attenuation, by acting as a barrier.

5.6.5 Planning Permission for the quarry also requires that noise surveys are carried out at sensitive receptor location every quarter. A copy of the noise monitoring plans approved by Essex County Council under Conditions 51 and 53 of planning permission ESS/23/14/COL are presented in **Appendix MP5.**

6.0 MANAGEMENT SYSTEMS

6.1 Environment, Health, Safety and Quality System

6.1.1 The landfill operations at Stanway Quarry will operate under the effective system of management procedures already developed on a national basis by the operator, Tarmac Limited. Tarmac operates in accordance with the following externally accredited standards:-

- EN ISO14001 – Environmental Standard Certification (see **Appendix MP6)**
- ISO9001 – Quality Management System Certification
- ISO18001 – Health & Safety Management System Certification

6.1.2 Audits and inspections will be conducted to the suitably accredited standard to meet the requirements of the management system and performance will be reported annually to the EA as per the requirements of the Environmental Permit.

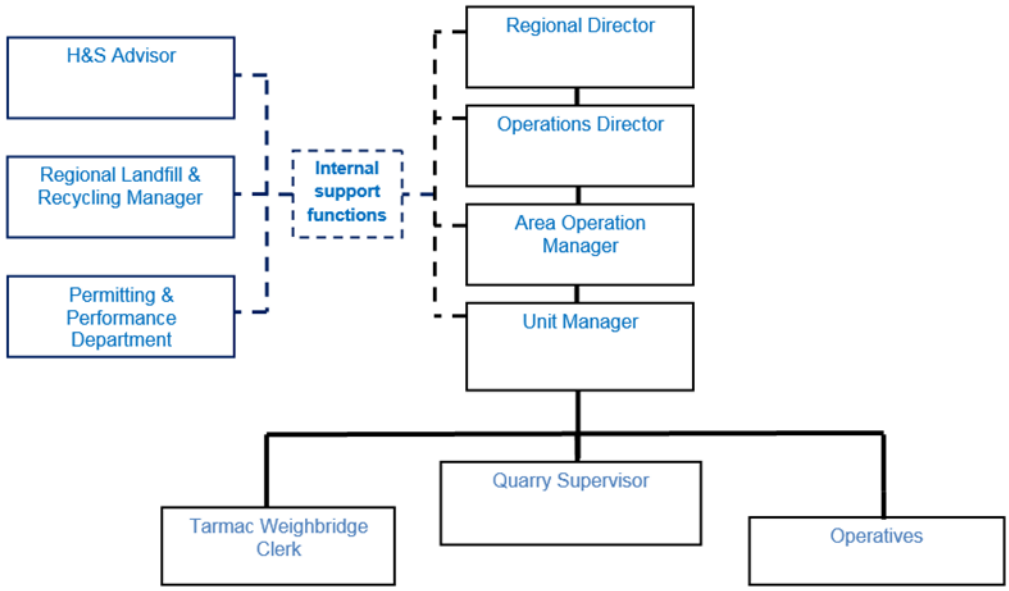
6.1.3 Environmental issues will be considered when purchasing items of plant and when design changes are being undertaken at the facility. These considerations will be documented.

6.1.4 Records will be kept of all items required by the Environmental Permit, other legislation and operating procedures.

6.2 Management Structure

6.2.1 **Figure MP1** detailed below, illustrates the typical management structure that is utilised in relation to the inert waste disposal operations on site.

Figure MP1: Management Structure for Landfill Operations



6.3 Environmental Permit and Management Plan

6.3.1 The original Environmental Permit, Environmental Permit Application and associated Management Plan and supporting documents will be kept within the site office at Stanway Quarry, and/or online in the Site's EMS.

6.4 Technical Competence

6.4.1 Technical competence for the landfill operation at Stanway will be provided via the WAMITAB scheme. The Technically Qualified Manager (TCM) proposed for Stanway is Ian Rumbellow. Evidence of his qualification is presented in **Appendix MP7.**

6.4.2 General Training and development for operational staff will be undertaken in accordance with Tarmac's general policy on staff training and development and investment in people. Full time employees are selected based upon relevant experience within the minerals, waste management and recycling industry.

6.4.3 The EA will be informed within 24 hours of any proposed changes to the technical competence arrangements.

6.5 Staffing

6.5.1 The staffing arrangements are outlined in the relevant organogram as shown in **Figure MP1** above.

6.6 Training

6.6.1 All new employees are given full induction training by the Unit Manager or other appropriately qualified person(s) as appointed by the Unit Manager.

6.6.2 The assessment of competences of staff will be made by the Unit Manager or other appropriately qualified person(s) on an ongoing basis and will be recorded in the Site Diary. All staff will be trained to ensure that they are competent to undertake their respective duties. Particular attention will be given to familiarisation of staff with the Environmental Permit for the site, the potential emissions from the site and the prevention of accidental emissions. Training will be tailored to individual requirements.

6.6.3 An induction and personal training plan will be developed for each individual and will be regularly updated to reflect staff needs and skills.

6.7 Operating Procedures

6.7.1 A number of operating procedures have been developed and documented for onsite activities. Where procedures do not already exist, it is anticipated to create a full draft of working procedures for all activities within one year of receiving the Environmental Permit.

6.8 Maintenance Procedures

6.8.1 A documented maintenance schedule is already developed in accordance with manufacturer's recommendations. The maintenance plan will identify individual items of process equipment and specify maintenance requirements. An inspection regime will also be developed for each piece of plant in order to visually inspect condition and immediate repair requirements. Maintenance procedures will be included in the Site Management System.

6.8.2 A stock of spare parts will be maintained on site for vital equipment to reduce potential down time. Maintenance procedures will be developed in conjunction with the company Management System.

6.9 Records

6.9.1 A record of the types and quantities (in tonnes) of inert wastes received for recovery and non-compliant wastes removed from Stanway Quarry will be maintained within the site office. A summary of the types and quantities of wastes placed at the site and removed from the site will be provided to the EA quarterly in an agreed format. All Duty of Care documentation in relation to waste movements will be kept for 2 years, prior to archiving until the Permit is surrendered.

6.9.2 The following significant events at the facility will be recorded, as detailed below:

- The start and finish of any construction/engineering works undertaken at the recovery site;
- Maintenance;
- Breakdowns;
- Emergencies;

- Problems with waste received and action taken;
- Recovery site inspections;
- Attendance of technically competent management at the recovery site;
- Despatch of records to the Agency;
- Severe weather conditions;
- Complaints received;
- Visitors to the facility;
- Pest or vermin incidents; and
- Rejected loads and the reason for rejecting the load.

6.9.3 The Unit Manager or nominated person will maintain a record of all the above information in the site log or on inspection forms, as appropriate. Records relating to significant events will be kept for up to 6 years, or where involving off site environmental effects or pollution of land or groundwater until permit surrender.

6.9.4 All records and copies of inspection forms will be kept at the facility at all times and will be available for inspection at all reasonable times by any authorised officer of the EA.

6.9.5 The facility records may be kept either as:

- Hand generated log;
- Computer generated hard copies; or
- Computer permanent storage media.

6.9.6 To ensure the security of records they will be housed in either locked containers or kept in offices that shall be locked when not attended.

6.9.7 Records will be disposed of in accordance with company policy, which shall ensure an appropriately secure method e.g., shredding and recycling, where feasible.

6.10 Visitors

6.10.1 Persons visiting the waste recovery site will be required to report to the main site office. A record of the time and reason for their visit will be logged in the signing-in book. Visitors entering the working areas will be briefed and inducted with respect to facility safety and accompanied where necessary.

6.10.2 All visitors will be made aware of the requirement for Personal Protective Equipment (PPE). No person will be allowed entry to the operational site without the correct protective equipment. The facility employees are responsible for the Health and Safety of all visitors and will ensure that they are given sight of a copy of the Health and Safety Plan, and are made aware of any potential threats to their safety or welfare.

6.10.3 There will be additional induction requirements for contractors visiting site that are providing a service or undertaking works such as maintenance. A permit to work system will be employed for more hazardous maintenance activities to ensure compliance with company health and safety requirements.

6.11 Site Inspections and Audit

6.11.1 Daily site inspections will be conducted of the landfill operations and associated boundary. The facility shall be inspected daily by the Unit Manager or other nominated representatives of the Environmental Permit holder for defects in plant, equipment or structure or in any working practice that may affect satisfactory compliance with the Environmental Permit. Inspections shall be undertaken by staff suitably qualified and/or experienced in the day-to-day operation of the site. The main points of inspection shall include:

- Waste storage levels;
- Waste type storage area separation;
- Cleanliness;
- Site emissions;
- Leakages/Spillages;
- Monitoring data (where relevant);

- Plant condition; and
- Integrity of wider associated buildings, site surfacing, drainage systems and security provisions, where applicable.

6.11.2 Should a problem be identified, the Unit Manager will arrange immediate repair or other appropriate remedial action.

6.11.3 Records shall be kept of daily inspections and shall be made available for inspection as reasonably required by authorised officers of the EA. Any defects shall be rectified promptly.

6.11.4 In addition, an annual audit of working procedures will be conducted internally. The audits will be used to identify non-compliance and monitor progress of corrective action. The Senior Management Team will review details of the audits. Copies of the audits will be kept in the site office.

6.12 Site Security

6.12.1 All reasonable precautions are taken to prevent unauthorised access to the site. The site has only one access point, from Warren Lane, will all other boundaries secured with fencing. The main access gate is kept secure out of hours. During operational hours, the main access gate to the of the site is kept open for Tarmac staff, customers and visitors.

6.12.2 The integrity of the wider site boundary fence line, entrance gate and perimeter structures are inspected on a weekly basis. Any damage to the integrity of the fence, gates or any other security structure, where practicable, will be repaired by the end of the working day. If it is not possible to make repairs within a working day, temporary repair measures will be implemented. Final repairs are carried out within 7 days of the damage being detected or any other such period as agreed in writing with the EA. All damage and repairs (temporary or permanent) are recorded in the Site Diary.

6.12.3 All static and mobile plant, offices and relevant infrastructure will be kept locked down and secure during out of hours periods.

6.13 Complaints

6.13.1 Any complaints relating to the facility will be managed as follows:

- Details of the complaint and the complainant will be logged in the Site Diary;
- The complaint will be investigated. Corrective actions and preventative actions will be undertaken where the source of the complaint can be identified and is attributable to activities undertaken at the facility;
- The details of the action taken will be reported back to the complainant. This will include cases where the complaint is unsubstantiated, i.e. the complaint fails to be linked to any activity occurring at the facility. All investigative works and compliant outcomes will be recorded in the Site Diary.

6.14 Staff Welfare Facilities

6.14.1 Staff rest and wash facilities will be situated adjacent to the tunnel entrance point to the main quarry void. Additional welfare facilities are present at the site weighbridge and office facilities.

6.15 Non-Compliances

6.15.1 Any non-compliances identified onsite will be reported to the EA within 24 hours. Details of the non-compliance and corrective actions will be recorded on appropriate recording forms and held within the site office for a period no less than two years. Any records of non-compliances will be archived until Environmental Permit surrender.

6.16 Health and Safety

6.16.1 The company recognises the importance of Health and Safety for both its staff and visitors to its facility. The company will therefore continue to monitor Health and Safety in accordance with its ISO18001 procedures to ensure the well-being of all who visit the site. The procedures outline the Health and Safety policies and practices to be adopted on site at all times.

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7.0 ACCIDENT MANAGEMENT

7.1 Emergency Planning

7.1.1 An Accidents Risk Assessment matrix has been prepared in accordance with EA guidance and is presented in **Appendix MP8**. The matrix identifies potential hazards at the landfill, the likelihood and consequence of an accident or emergency relating to hazards, and the risk management measures that will be put in place to ensure that risks are acceptable.

7.2 Emergency Contact

7.2.1 In the event of any significant environmental emergency/incident, a representative of Tarmac will notify the EA by telephone immediately, but first having due regard for the incident at hand and any remediation actions required to ensure the safety of site personnel and the immediate environment.

7.2.2 Details of any environmental incident will be confirmed to the EA in writing, on the next working day after identification of the incident. This confirmation will include: the time and duration of the incident, the receiving environmental medium or media where there has been any emission as a result of the incident, an initial estimate of the quantity and composition of any emission, the measures taken to prevent or minimise any further emission and a preliminary assessment of the cause of the incident.

7.2.3 Any incident notified to the EA will be investigated, and a report of the investigation sent to the EA. The report will detail, as a minimum, the circumstances of the incident, an assessment of any harm to the environment and the steps taken to bring the incident to an end. The report will also set out proposals for remediation and for preventing a repetition of the incident.

7.3 Control of Fires

7.3.1 As part of the ongoing operations, arrangements will be made, as necessary, with the local fire liaison officer to visit the site and discuss the relevant operations with the client. Any specific advice given by the fire liaison officer can then be incorporated into the site's management plan as appropriate.

7.3.2 No waste will be burned within the confines of the site boundary. Due to the nature of waste stored in other areas of the site, all fires within the facility will be treated as a potential emergency and dealt with accordingly. Fires may occur in relation to:

- Plant failure – fixed or mobile plant fires; and
- Within non-conforming waste loads awaiting removal from the site.

7.3.3 In the event that a fire occurs at the facility, the following actions would be undertaken:

- Person(s) discovering a fire will raise the alarm;
- Report the incident to the Unit Manager / nominated person;
- All site personnel and visitors will be accounted for and evacuated to a safe location;
- Contact the emergency services and state the nature of the incident;
- Follow all instructions given by the emergency services;
- If the fire can be controlled without endangering operatives, appropriate actions will be undertaken using available firefighting equipment. Fires will be tackled by a minimum of two site operatives;
- Ensure access is clear for the emergency services but prevent access to the facility from anyone else until the emergency is over; and
- The EA will be informed forthwith of any fires that occur at the facility.

7.3.4 Firefighting equipment will be available at the facility and will be clearly marked and tested, at appropriate intervals, to confirm their suitability and functionality. Site personnel will be made aware of the locations of all firefighting equipment and will be trained in their correct use.

7.3.5 A record of the occurrence of a fire will be maintained in the site log, along with any actions taken. An Incident and Accident Report will be completed by the Unit Manager.

7.3.6 Following approval by the fire services and/or facility manager the residues from the fire will be disposed of accordingly at a suitable permitted waste management facility.

7.4 Explosions

7.4.1 Due to the nature of the wastes accepted at the facility, the likelihood of the materials containing explosive elements is highly unlikely. However, awareness and caution will be practised with all staff and to ensure no other waste is accepted that has explosive properties, the waste acceptance procedures identified in **Section 2.0** will ensure that unauthorised waste types are prevented from entering the facility.

7.4.2 In the unlikely event that materials with explosive elements are discovered within a waste delivery that has already been accepted, the following action would be taken:

- Contact the Unit Manager or in his absence the Site Supervisor;
- Check that all site personnel and visitors are accounted for and are moved to a safe location;
- Contact the emergency services and state the nature of the incident (including whether any fires have occurred);
- Follow all instructions given by the emergency services;
- If injuries have occurred medical assistance will be called;
- No further wastes will be accepted at the facility until the Unit Manager has given authority; and
- The EA will be informed forthwith of any arisings of explosive materials or any explosions that occur.

7.4.3 Once the emergency is over and the emergency services have declared that the area is made safe, an incident/accident report shall be completed. A written account of the incident will also be forwarded to the EA no later than 14 days after the incident.

7.5 Flooding

7.5.1 Following a review of the Environment Agency flood risk map, the site is not at risk of flooding. The site is located outside the floodplain and is not likely to flood, even in extreme conditions. This takes into account the effect of any flood defences that may be in this area, whether or not these are currently illustrated on the EA Flood Map.

7.6 Control of Leaks and Spillages

7.6.1 Daily visual inspections of the operational and processing surfaces will be conducted. In the event of a spillage, facility operatives will inform the Unit Manager or Supervisor who is responsible for assessing the situation and deciding on the most appropriate actions to be undertaken.

7.6.2 All necessary measures will be taken to contain any spillage or discharge by means of suitable material and equipment. The actions undertaken will depend on the size of the spillage, the location of the spillage in relation to sensitive receptors and the nature of the spilled material.

7.6.3 Where spillages of dry wastes occur, these will be cleared by either manual or mechanical means, for example handpicking, sweeping or shovelling, dependant on the size and location of the spillage.

7.6.4 Minor spillages of liquid will be contained using spillage kits or any suitable readily available absorbent material. This material will be disposed of in a manner appropriate to the type of material absorbed.

7.6.5 If a major spillage of liquid occurs, such as heavy plant oil/fuel, the following actions will be undertaken, where appropriate:

- Ensure no risk of off-site transfer;

- Report the occurrence to the Unit Manager/Supervisor immediately;
- Trained facility operatives will take immediate action to try and contain the leak where it is safe to do so;
- If it is safe to do so, the cause of the spill or leak will be isolated and/or moved to a bunded area;
- If the liquid spillage is large, inert low permeability material such as clay will be used to make a temporary containment bund to prevent further transfer of the spillage. The Unit Manager or designated person will contact the EA to discuss best practicable disposal options;
- Access to the immediate area should be restricted until a disposal/clean up solution is implemented;
- If the spillage cannot be contained using approved methods, senior management will be contacted immediately, and specialist advice and help will be sought; and
- If a vehicle or item of plant is identified as leaking, wherever practicable, it will be stored on an impermeable pavement (at the site offices/garages) / highly compacted made ground within a bunded area, where the spillage can be contained until such time as a repair is affected.

7.6.6 The Environment Agency will also be informed immediately of major spillages, having due regard to first take appropriate measures to deal with any emergency in hand.

7.6.7 The locations of spillage kits and other emergency equipment will be detailed within an appropriate plan.

7.7 Investigation of Accidents and Incidents

7.7.1 For any accident, incident or dangerous occurrence, an incident and Accident Report will be completed by the Unit Manager. All relevant details of the accident, incident or dangerous occurrence will be recorded, together with any additional statement, photographs, logs or records that may assist in the full investigation of the accident, incident or dangerous occurrence.

7.7.2 After an Environmental Incident and Emergency has been made safe, an investigation will be conducted, if necessary, by the Unit Manager and other Company Personnel as appropriate.

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8.0 CLOSURE PLAN

8.1 Introduction

8.1.1 Tarmac are required to maintain a Closure Plan throughout the life of the landfill operations.

8.1.2 At Stanway Quarry, the site will be deemed 'Closed' once final levels have been achieved. Following this, all infrastructure that is no longer required will be decommissioned and a series of monitoring wells will be installed within that waste mass to enable aftercare monitoring to be carried out to support permit surrender. Following their installation, the operator will apply for 'definite closure' of the facility, whereby the site will be monitored for a minimum period of 2 years to support subsequent surrender of the Environmental Permit.

8.2 Landfill Stability

8.2.1 Following restoration and definite closure of the site annual topographical surveys of the waste surface will be carried out for a minimum period of two years to determine if the waste is undergoing any significant level of settlement.

8.3 Landfill Gas Management & Monitoring

8.3.1 Given that the site will only be permitted to accept inert wastes, gas management and collection is not required.

8.3.2 Notwithstanding the above, gas monitoring boreholes will be installed within the waste mass soon after final levels are achieved in each landfill phase. As stipulated in Environment Agency Guidance (*Environmental Permitting Regulations: Inert Waste Guidance - Standards and Measures for the Deposit of Inert Waste on Land*) this monitoring infrastructure will be installed at a minimum density of 2 per hectare. An indicative layout of the monitoring infrastructure is presented in **Drawing No. B030-00676-08.**

8.3.3 Upon installation, monitoring for any landfill gas will be undertaken in accordance with the schedule presented **Table MP4.**

8.3.4 The monitoring results will be reported to the Environment Agency within 28 days of the end of each quarterly monitoring period.

Table MP4: Aftercare Phase Landfill Gas Monitoring Schedule

Monitoring Point	Parameter	Units	Frequency
All in-waste monitoring wells	Methane Concentration	%v/v	Quarterly
	Carbon Dioxide Concentration	%v/v	
	Oxygen Concentration	%v/v	
	Atmospheric Pressure	mbar	
	Differential Pressure	mbar	
	Meteorological conditions Cloud Cover Wind Direction Wind Speed Precipitation Ground Conditions Temperature	 % Compass direction or degrees from North mph General Description General Description (water logged, frozen, snow covered) ˚C	

8.4 Groundwater Management & Monitoring

8.4.1 No groundwater management will be required during the aftercare phase. Groundwater monitoring around the periphery of the site during the aftercare phase of the development will continue in accordance with the schedule presented in **Table MP5.** The locations of the monitoring points are shown on **Drawing No. B030-00676-08.**

Table MP5: Aftercare Phase Groundwater Monitoring Schedule

Monitoring Point	Parameter	Frequency
BE8A, GR07, GR08, SQ1, SQ2, SQ3 and any replacement monitoring wells	Level, pH, EC, total alkalinity, COD, BOD, Antimony, Arsenic, Barium, Cadmium, Chloride, Chromium, Copper, Fluoride, Mercury, Molybdenum, Nickel, Lead, Selenium, Zinc, Sulphate, Phenols	Quarterly
	BTEX, PAHs	Six-monthly

8.4.2 Groundwater compliance levels will be set in accordance with the Hydrogeological Risk Assessment and any subsequently reviews required under the Environmental Permit.

8.4.3 The monitoring results will be reported to the Environment Agency within 28 days of the end of each monitoring period.

8.5 Surface Water Management & Monitoring

8.5.1 Following restoration of the site surface water monitoring within the Roman River and it north-bank tributaries will continue. As the restoration proposals include a flooded area within the approximate centre of the landfill, an additional monitoring point will also be included at the point of discharge from this lagoon. The locations of the monitoring points are shown on **Drawing No. B030-00676-08.**

8.5.2 During the aftercare period, it is proposed to monitor the waters within the pond as per the schedule presented in **Table MP6.**

Table MP6: Aftercare Phase Surface Water Monitoring Schedule

Monitoring Point	Parameter	Frequency
SW1, SW2, SW3, SW4, SW5, SW6, SW7.	pH, EC, total alkalinity, COD, BOD, Antimony, Arsenic, Barium, Cadmium, Chloride, Chromium, Copper, Fluoride, Mercury, Molybdenum, Nickel, Lead, Selenium, Zinc, Sulphate, Phenols	Quarterly
	BTEX, PAHs	Six-monthly

8.5.3 The monitoring results will be reported to the Environment Agency within 28 days of the end of each monitoring period.