



Crownhill

CROWNHILL TOPSOIL – ENVIRONMENTAL MANAGEMENT SYSTEM

Unit 1009, Caerwent Army Training Estate,
Caerwent

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1 INTRODUCTION:

The Environmental Management Plan (EMP) responds to the identified impacts from the running of the Crownhill Topsoil facility and provides the basis for communicating how site activity will be controlled to minimise the environmental impact.

This EMS includes:

- A description of the services provided;
- An outline works methodology;
- A description of the site setting and existing status;
- A description of the sensitivity of the site, the communities along it and the potential effects of the project on these;
- The legislative, policy and guidance framework associated with the scheme;
- Key staff and their roles;
- Consultees and liaison mechanisms;
- Monitoring and reporting procedures;
- Procedures to mitigate impacts;
- Incident response and reporting procedures;
- Environmental monitoring, audit and reporting procedures.

1.1 AIMS AND OBJECTIVES:

The main aims and objectives of the EMS for Crownhill Topsoil are to manage the work carried out on site, as well as the site itself, in an environmentally acceptable and sustainable way.

Below is a breakdown of the objectives:

- Minimise the risk of any adverse impacts on surface and groundwater. The site lies within a Source Protection Zone groundwater protection zone.
- Minimise potential impacts on Great Crested Newts within Unit 1009 and the wider MoD Training Base.
- Minimise potential impacts on commuting and foraging bats.
- Minimise waste generated by operations at the site.
- Minimise carbon emissions from operations at the site.
- Establish robust procedures for dealing with incidents at the site.
- Establish robust procedures for the monitoring of potential environmental impacts at and around the site.

2 STRUCTURE OF THE EMS

The EMS identifies the Environmental Impacts/Opportunities associated with the works and mitigation and monitoring requirements associated with these.

2.1 USE OF THIS DOCUMENT:

This document is to be used in conjunction with the following:

- Non-Technical Summary (CH002);
- Drainage Strategy (CH005);
- Ecological Mitigation Plan (CH006);
- Surface and Groundwater Risk Assessment (CH007); and
- Site Specific Risk Assessment (CH008).

All personnel involved in the operation of the site will be given a Toolbox Talk on the contents of the above documentation to ensure that all practices outlined are adhered to.

3 THE SERVICE:

Crownhill Topsoil and Aggregates (trading name of Sole Trader Simon Stone) provide recycled topsoil and aggregates to the domestic and commercial sectors.

Crownhill provide a range of different quality soils, sands and aggregates to private and commercial customers.

The key aspects of the service are:

- Sourcing and collecting aggregates;
- Assessment of sourced material through GI and laboratory data;
- Inspection of sourced material for possible contaminants;
- Grading the soil and aggregate using a screen;
- Testing soils and aggregates produced;
- Loading and delivery of processed material to customers;

4 SITE DETAILS:

Please refer to the Site Location Plan in Appendix 1.

Grid Reference: ST 46457 92070

Post Code for Site: NP26 5XL

The site is located at Unit 1009 of the Caerwent Army Training Estate in Caerwent. This is in the north west of Caerwent. The site is in the north of the training estate, which is bounded by the A48 to the south. At this point, the road is single lane carriageway serving the majority of the local towns and villages.

The Castrogi Brook runs to the west of the site, beyond which is the Dinham Meadows SSSI as well as many agricultural fields. Lanmelin Wood is located to the north and east, a dense woodland which is upslope from the site.

The site is comprised of eight large concrete and brick-built built buildings, six of which are used by Crownhill. These buildings vary in size between 300m² and 1000m². The smallest building is used as a workshop for the storage of plant / vehicle consumables, oils, tools and small items of plant. The larger buildings are used for the storage of topsoil produced and larger items of plant and machinery. Between the buildings are concrete surfaced areas. Some of the site is hard standing comprising compacted stone, these areas are used for the storage of soils and aggregates awaiting processing into topsoil and recycled aggregates.

The site falls north to south and is split into an upper northern level and a lower southern level, separated by an approximately 3m high batter.

There is a concrete surfaced road which runs throughout the site in a loop, allowing access to all buildings. All of the buildings sit on concrete slabs. Soil storage and processing areas are split into concrete surfaced, compacted stone surface and earth surfaced areas. Refer to the plan in Appendix A for a site layout.

A deep ephemeral drain runs along the southern boundary of the western section of the site, eventually discharging into the Castrogi Brook to the west of the site, via a 700m long culvert beneath a section of the base. This drain is dry for the majority of the year as the upstream section was diverted prior to Crownhill leasing the property.

There are two sets of attenuation ponds for the treatment of silt contaminated runoff from the site. One set of ponds on the SE boundary and one on the SW boundary. These ponds discharge into the ephemeral drain via a full retention hydrocarbon separator.

The majority of the site is utilised for the storage and processing of inert soil and stone. Finished topsoil products are stored within the buildings, along with feedstock materials with a high percentage of fines, which are moisture sensitive. The remainder of the feedstock materials and the aggregate products are stored in open bunds situated on the hardstanding and permeable areas between the buildings.

The site is currently managed by Landmarc on behalf of the MoD / DIO.

5 LOCATION SENSITIVITY:

The Caerwent Army Training Estate is a large area of land in Caerwent, Caldicot, owned by the Ministry of Defence. It is predominantly used for military training exercises, but portions of the site are utilised by local businesses. Access is via a manned gatehouse from the A48 trunk road.

5.1 ECOLOGICAL SENSITIVITY

Unit 1009 itself offers limited habitat value for species. The site is predominantly concrete hard standing and covered areas, with only a small amount of low value vegetation growth on the periphery of the site. Vegetation is comprised of ruderal vegetation, predominantly

nettle, bramble and semi-mature scrub, leading into an area of woodland to the north and the east.

There is a large open concrete water tank adjacent to the entrance of the site. This is a concrete structure with vertical sides and is currently used as a pond for waterfowl, predominantly ducks.

The site is surrounded by scrub on three sides, which offers ideal habitat for nesting birds, reptiles, amphibians and mammals.

There is historical evidence of the presence of Great crested newts within the bounds of the MOD base. These studies identified the presence of GCN in Pond 6, which is approximately 220m from the Unit 1009 boundary but did not identify GCN within this pond during the last three surveys 2008, 2016 and 2020. GCN have not been identified in any other ponds within 500m of Unit 1009. Further GCN surveys have been undertaken of the terrestrial habitats surrounding Unit 1007 and of ponds within 600m of the site, including the attenuation ponds within Unit 1009. This included eDNA testing of the ponds. None of the ponds within 500m of Unit 1009 tested positive for GCN DNA, however Pond 8, which is 580m SE of the site has an historic population of GCN and also tested positive during the 2020 surveys.

Newts are unlikely to use the bare earth or road surface which dominates the site. However, as there is potential for GCN to commute across the site, amphibian exclusion fencing has been erected around the site boundary. This must be maintained intact for the duration of operations at Unit 1009.

Use of the two settlement ponds and small duck pond adjacent the site entrance is unlikely due to limited vegetation growth along their edges and poor water. The eastern pond frequently dries out. However in time, there is potential for vegetation to establish within the western ponds and these could provide suitable habitat for GCN. This would be desirable as these ponds receive very little silt loading and hence would not need to be frequently dredged and this would provide additional habitat for this species. These ponds will therefore be outside of the exclusion fencing. Full survey, assessment and mitigation details are included within CH006 - Ecological Mitigation Plan.

There is a known lesser horseshoe bat roost within the former base commander's house approximately 550m SW of Unit 1009. Due to the distance from Unit 1009 this will not be directly impacted by the inclusion of an Inert Waste Recovery facility within Unit 1009, however, there is potential for this roost and the flight lines / foraging routes leading too/ from it, to be impacted through indirect impacts i.e. noise, dust, light pollution provided appropriate mitigation is not implemented. Mitigation for these impacts is set out within the Ecological Mitigation Plan, the Dust Management Plan, the noise and Vibration Management Plan and the Environmental Management System. These controls include restrictions to site operating hours, dust suppression and monitoring requirements, Restrictions on the use of artificial light within the site and mitigation for noise impacts. A full assessment of this roost can be found in CH006 Ecological Mitigation Plan.

A section of the Dinham Meadows SSSI lies 50m west of the western boundary of Unit 1009, separated from the site by a tall mature hedgerow. A further section of the Dinham Meadows SSSI lies approximately 60m to the east of Unit 1009. This is part of a block of protected grassland areas, which include examples of many key grassland communities, such as *Centaurea nigra* and *Arrhenatherum elatius*. The grassland species present support a

diverse array of invertebrates, such as species of *Diptera* and *Lepidoptera*. In 1992, the Countryside Council for Wales (CCW) issued a list of activities which are prohibited within the SSSI area. These activities include cultivation, use of fertiliser and burning.

Llan-melin Wood SINC Ancient and Semi-natural Woodland runs along the North and East boundaries of the site, separated from the site by a bank of scrub and semi-mature trees. This joins with Dolkins Wood to the east of Unit 1009.

5.2 HYDROLOGY AND HYDROGEOLOGY

The Crownhill Topsoil and Aggregates site has a network of open drains running along the concrete roadways, which carry surface runoff from the hard surfaced areas and the compacted stone areas, into the attenuation ponds. This was formerly done using a system of gullies but due to the nature of the business at the site, these were difficult to maintain as they became blocked with site material. Open drains are easier to maintain and to monitor the condition of runoff.

The deep open earth drain along the southern boundary, through the eastern section of the site only carries water during periods of high rainfall as it was diverted upstream by the previous tenant. The drain discharges into the existing drainage of the MOD site and eventually into the Castrogi Brook, via a 700m long culvert.

The Castrogi Brook is located 330m to the west of the site, running from north to south. This brook runs down the entire east of the MOD site, eventually discharging into the Severn Estuary. This brook flows through Llanmelin Wood upstream of the site. It is likely that this brook supports small fish and invertebrates, as well as potentially providing a corridor for bats, small mammals and birds.

The site is located within a Groundwater Source Protection Zone 1 (SPZ1). This indicates that the groundwater within this area is particularly sensitive to the introduction of contaminants. The groundwater in this area feeds into the Great Spring abstraction zone. The rocks beneath the site are porous and hence there is potential for liquids spilt at the site to enter the aquifer. This is covered in more detail, as well as the risk that the site poses to this, in the Preliminary Ground and Surface Water Risk Assessment (CH007).

5.3 NUISANCE

The entire estate is fenced off, and access is only permitted by passing a checkpoint at the entrance, which will grant permission for entry. As a result, there is very little traffic movement through the area, with little interaction with the general public.

The site is around 550m from the nearest residential property, which is a farm house to the west of the site. The nearest residential area is the housing estate to the south of the training estate, 950m from the site border. These are unlikely to be affected by site activities, however there is a negligible risk that they may experience nuisance from noise and dust generated from the works.

The MOD buildings in the area are sparse, and often vacant, although there are several other small commercial companies within the estate. When in use, the buildings may also be affected by noise and dust generated from the works.

5.4 ARCHAEOLOGY

Llanmelin wood is located immediately adjacent to the northern boundary of the site. This woodland contains Llanmelin Hillfort, which is an iron age hillfort located approximately 220m north west of the site. The operation of the site will detrimentally impact this.

There is no excavation proposed at the site during its operation.

6 USE OF THIS DOCUMENT:

This document is to be used in conjunction with the following documents which have been produced prior to this management plan:

Document Title	Description
Ecological Management Plan	Sets out ecological mitigation required as part of the operations at Unit 1009
Dust Management Plan	Prediction, management and monitoring of dust and emissions to air from activities at Unit 1009
Noise and Vibration Management Plan	Mitigation for noise from operations and the monitoring of noise.

7 ROLES AND RESPONSIBILITIES:

Simon Stone shall have overall responsibility for overseeing the management of the environmental aspects of the operation of the facility. Anthony Skaratts the Site Manager will have responsibility for the day to day management of the site.

Simon Stone

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Anthony Skaratts

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Email: info@crownhill.co.uk

Role / Personnel / Organisation	Contact	Responsibilities
Company Manager: Simon Stone	Tel: 01291 430 066 Mob: 07880 722 436 info@crownhill.co.uk	<ul style="list-style-type: none"> • Overall responsibility for the operation of the business and the Environmental Management of operations at Unit 1009 involvement. • Responsibility for the development and implementation of the CEMP.
Site Manager: Anthony Skaratts	Tel: 01291 430 066 Mob: 07749454652 info@crownhill.co.uk	<ul style="list-style-type: none"> • Responsibility for the day to day operation of the site, including the instruction of mitigation for environmental / Ecological impacts such as noise and dust. • Will have a detailed understanding of the conditions of the Environmental Permit, the EMS, the, EMP, DMP and the Noise and Vibration Management Plan. • Will inspect the condition of amphibian exclusion fencing weekly. Will record findings and arrange repair of any damage observed. • Will report observations and findings to the Office Manager for audit and traceability purposes.
Office / Commercial Manager: Alex Stone	Tel : 01291 430 066 Mob: 07825 700989 accounts@crownhill.co.uk	<ul style="list-style-type: none"> • Will have an understanding of the monitoring and reporting requirements for the operations of Unit 1009 as set out within the Environmental Permit, the EMS, the, EMP, DMP and the Noise and Vibration Management Plan. • Will operate a calendar highlighting when monitoring is required, and will collect and collate monitoring forms to demonstrate compliance with the conditions of the EP. • Will forward information from weather forecasts and from the weather station to the Site Manager.

Role / Personnel / Organisation	Contact	Responsibilities
Weighbridge Manager Sarah Lewis:		<ul style="list-style-type: none"> • Will assist with undertaking environmental monitoring at Unit 1009 i.e. Collection and changing of the Dust Deposition Gauge. • Collection of weather data. • Observations on wind speed and dust levels on site.
Environmental / Support: EcoVigour Ltd	Tel: 08448 400 401 jgregory@ecovigour.com	<ul style="list-style-type: none"> • Will provide training of the contents and requirements of Environmental Permit, the EMS, the, EMP, DMP and the Noise and Vibration Management Plan. • Will assist with environmental monitoring of the site. • Will undertake an environmental / ecological audit of the site every six months. • Will undertake surface and groundwater monitoring every six months.

8 CONSENTS:

8.1.1 Consents:

The following consents will be required for the operation of the facility:

Aspect	Consent Required / Consenting Body
Carriage of Wastes	Waste Carriers License
The beneficial use of inert construction waste.	Environmental Permit for Waste Management – Bespoke Permit based on Standard Rule Set SR2010_No12 – Treatment of Waste to produce Soil, Soil Substitutes and Aggregates
The production of Hazardous Waste (during the operation of the facility)	Hazardous Waste Producers Premises Notification – National Resources Wales

9 LEGAL REGISTER:

Below is a list of Environmental Legislation applicable to the works undertaken at the facility and the areas of operations controlled by this legislation:

Legislation:	Implications on Operations:
Climate Change Act 2008	Sets 2050 as the target for reducing greenhouse gas emissions, outlines a carbon budgeting system, greenhouse gas emissions trading schemes, financial incentives for businesses to reduce waste and recycle more. Puts onus (not statutory requirement) on businesses to monitor and report greenhouse gas emissions.
Control of Asbestos Regulations 2006 SI 2739	Requires employers to assess risks and limit employees exposure. Also requires employers to have the correct license before working with asbestos and to ensure that their employees have proper training.
Control of Substances Hazardous to Health Regulations 2002 SI 2677 / Amendment 2003 SI 978 / Amendment 2004 SI 3386	Requires employers to assess the risks of, prevent or control to hazardous substances and monitor employees exposure. Also places duties on employees concerning their own protection from such exposure. / Amendment – amends 2002/2677 by adding new definitions and additional hazardous substances / Amendment – Amends 2002/2677 by introducing new exposure limits and amending the duty to review control measures.
Anti-social Behaviour Act 2003.	Extends the powers of to clean up the environment, and applies controls over noisy premises, advertisements and waste.
Clean Neighbourhoods and Environment Act 2005	Introduces additional noise, litter and waste controls including site waste management plans and classifies artificial lighting as statutory nuisance.
Noise Emission in the Environment by Equipment for Use Outdoors Regulations 2001 SI 1701	Establishes maximum noise levels for equipment used outdoors, such as generators.
Environmental Protection Act 1990	Defines the legal framework for Duty of Care for Wastes, contaminated land and statutory nuisance.

Legislation:	Implications on Operations:
Waste Batteries and Accumulators Regulations 2009 SI 890	Establishes a legal framework and schemes for collecting, treating and recycling portable, industrial and vehicle batteries.
Control of Pollution (Amendment) Act 1989	Requires carriers of controlled waste to register with the Environment Agency and outlines the penalties for vehicles shown to have been used for illegal waste disposal.
Controlled Waste Regulations 1992 SI588 – Amendment 1993 SI566	Defines household, industrial and commercial waste for waste management licensing purposes.
Controlled Waste (Registration of Carriers and Seizure of Vehicles) Regulations 1991 SI 1624	Introduces a registration system for carriers of controlled waste.
Environment Act 1995	Establishes the Environment Agency as the regulatory bodies for contaminated land, control of pollution, conservation or enhancement of the environment and fisheries.
Environmental Protection Act 1990	Defines within England Scotland and Wales the legal framework for duty of care for waste, contaminated land and statutory nuisance.
Environmental Protection (Duty of Care) Regulations 1991 SI 2839	Imposes a duty of care on any person who imports, produces, carries, keeps, treats or disposes of controlled waste, to ensure there is no unauthorised or harmful depositing, treatment or disposal of the waste.
Environmental Protection (Duty of Care) (Wales) (Amendment) Regulations 2003 SI 1720	Amends 1991/2839 to allow waste collection authorities in Wales to serve notices on people required to keep written descriptions of waste and transfer notices, and to require them to produce such documents to the authority within a specified time.

10 ENVIRONMENTAL ASPECT IDENTIFICATION AND MITIGATION MEASURES

Before they can be controlled, it is necessary to identify the likely environmental aspects associated with the operation of the site and to ensure that they are fully understood. Within this section, we outline all potential environmental impacts which could arise and the mitigation measures put in place to ensure that the risks associated with these impacts, as well as the impacts themselves are reduced as far as is possible.

10.1 SURFACE AND GROUND WATER

As identified within the Preliminary Surface and Ground Water Risk Assessment (CH007), the initial risk to the ground water, which is within the Great Spring Source Protection Zone 1, is high due to the permeability of the soils and rock underlying the site.

There is also the potential risk of runoff from the site affecting the nearby Castroggi Brook, into which the surface water drainage from the site eventually discharges.

It is therefore critical that any potential threat to this be controlled. No materials which have potential to leach contaminants will be allowed onto site. Liquids which have potential to cause contamination of the underlying aquifer must be tightly controlled on site.

10.1.1 Waste Acceptance

The site is only permitted to accept inert waste i.e. wastes which do not contain organic materials or liquids. The storage of non-inert wastes can result in the generation of leachate which could impact the underlying aquifer. Most of the raw materials for the process are construction and demolition wastes and excavated soils sourced through construction works. Only the following materials will be accepted onto site:

Waste types accepted by Crownhill Topsoil and Aggregates	
Exclusions Wastes having any of the following characteristics shall not be accepted: <ul style="list-style-type: none"> • Consisting solely or mainly of dusts, powders or loose fibres • Hazardous wastes • Wastes in liquid form 	
Waste Code	Description
01	WASTES RESULTING FROM EXPLORATION, MINING, QUARRYING AND PHYSICAL AND CHEMICAL TREATMENT OF MINERALS
01 04	wastes from physical and chemical processing of non-metalliferous minerals

01 04 08	waste gravel and crushed rocks other than those mentioned in 01 04 07
01 04 09	waste sand and clays
10 11	wastes from manufacture of glass and glass products
10 11 12	clean glass other than those mentioned in 10 11 11
10 12	wastes from manufacture of ceramic goods, bricks, tiles and construction products
10 12 08	waste ceramics, bricks, tiles and construction products(after thermal processing)
10 13	wastes from manufacture of cement, lime and plaster products and articles and products made from them
10 13 14	waste concrete only
15	WASTE PACKAGING
15 01	packaging
15 01 07	clean glass only
17	CONSTRUCTION AND DEMOLITION WASTES (INCLUDING EXCAVATED SOIL FROM CONTAMINATED SITES)
17 01	concrete, bricks, tiles and ceramics
17 01 01	concrete
17 01 02	bricks
17 01 03	tiles and ceramics
17 01 07	mixtures of concrete, bricks, tiles and ceramics other than those mentioned in 17 01 06
17 02	wood, glass and plastic
17 02 02	clean glass only
17 03	bituminous mixtures, coal tar and tarred products
17 03 02	road base and road planings (other than those containing coal tar) only
19	WASTES FROM WASTE MANAGEMENT FACILITIES, OFF SITE WASTE WATER TREATMENT PLANTS AND PREPARATION OF WATER INTENDED FOR HUMAN CONSUMPTION / INDUSTRIAL WASTE
19 12	wastes from the mechanical treatment of wastes
19 12 05	clean glass only
19 12 09	minerals (for example sand, stones)
20	MUNICIPAL WASTES (HOUSEHOLD WASTE AND SIMILAR COMMERCIAL, INDUSTRIAL AND INSTITUTIONAL WASTES) INCLUDING SEPARATELY COLLECTED FRACTIONS
20 01	separately collected fractions
20 01 02	clean glass only
20 02	garden and park wastes
20 02 02	soil and stones

Results from ground investigations will be screened against Waste Acceptance Criteria Limit Values for Inert Waste Landfill.

Samples of produced topsoil are taken at a rate of 1 sample per 1000t produced. Samples are submitted to a UKAS accredited laboratory and tested against a suite of determinands as described in BS5228, this includes, testing for:

- particle size analysis;
- stone content (2-20mm, 20-50mm, >50mm);
- pH and electrical conductivity values;
- exchangeable sodium percentage;
- major plant nutrients (N, P, K, Mg);
- organic matter content;
- C:N ratio;
- heavy metals (As, B, Ba, Be, Cd, Cr, Cu, Pb, Hg, Ni, Se, V, Zn);
- total cyanide and total (mono) phenols;
- speciated PAHs (US EPA16 suite);
- aromatic and aliphatic TPH (C5-C35 banding);
- benzene, toluene, ethylbenzene, xylene (BTEX);
- asbestos screen

If indicators of contaminated materials are discovered (odours, discolouration, sheens on water, bubbling, hazardous waste items) within soils and aggregates received at the site, they will be rejected immediately and returned to the supplier. If it is not possible to immediately return these to the consignee (if transport needs to be arranged etc), wastes will be removed to the quarantine area in Building 1. As the wastes are within a building, rainwater will not be able to percolate through them. It will be ensured that the valves on the isolated drainage tanks for the quarantine building forecourt and opened so that rainfall / runoff onto the forecourt slab is diverted into the two 11000l isolation tanks.

Inert materials at the site can be separated into two categories, feedstock and product. Feedstock will be comprised of soils, rock, concrete, brick and ceramics. These are segregated into types for processing into products for sale. Feedstocks are then crushed and screened using the required ratio to achieve the required product. Products include:

Topsoil, which will contain a majority of fines from soils. This material is moisture critical and is stored in Building 5;

Sub-base materials, which will include some fine but predominantly granular materials;

Granular materials of varying grades.

There is potential that soils could be admitted onto site, which contain pockets of contaminated material, which over time could leach to the environment. Due to the duty of care process and the acceptance criteria, significant volumes of contaminated materials would not be accepted onto site or would be identified on being tipped and either removed immediately or quarantined for removal as soon as possible. The potential for pockets of contamination to leach will depend on a number of factors, including the bioavailability of the elements / compounds within the soils, the physical composition of the materials i.e. clays are more likely to lock up contaminants. Due to the low likelihood of significant

volumes of contaminated materials being imported, in consideration of the overall volumes of materials on site, the risk of this being a significant source is low.

Inert wastes are stored predominantly on concrete surfaced areas but also on stone surfaced areas. Runoff from wastes stored on concrete surfaced areas, flows along the kerb line into attenuation ponds. Attenuation ponds are lined and have been constructed to remove suspended solids prior to discharge of the site runoff into the drain flowing along the southern boundary. Discharge from the ponds will be via a full retention hydrocarbon separator.

The risk of leachate from inert wastes is therefore considered to be low.

Training will be provided for personnel in the recognition of the indicators of contaminated material and actions to be taken on discovery.

10.1.2 Management of Stone Surfaces to Prevent Infiltration

Most of the working areas of the site are surfaced with concrete, some areas are surfaced with compacted stone. This should be classed as a semi-permeable surface i.e. water will not readily soak into it but if puddles are allowed to form, these will soak away with time. To prevent this happening, stone surfaced areas should be constructed with a crossfall and maintained free from soft spots and low spots to ensure that runoff sheds evenly across the site.

All site surfaces will be regularly inspected for crossfall and low spots. Low spots will be filled with Type 1 Sub-base and compacted into place.

10.1.3 Runoff from Spilled Hydrocarbons

The primary risk to the groundwater within the site boundary is spillage of hydrocarbons and coolants from plant used at the site and from storage facilities used for the fuelling and servicing of plant and equipment. If there were an accidental release, which is not adequately controlled, these liquids could percolate through the underlying superficial deposits and bedrock to the aquifer below the site.

Sources:

- Spillages of diesel during refuelling of plant.
- Spillages of oil during plant maintenance.
- Leaking fuel from plant.
- Leaking fuel and oil from containers.

Pathways:

- Percolation through underlying geology to groundwater.
- Direct spillage to site drainage.
- Surface runoff carrying contaminants to site drainage.

- Drainage from site offices

Receptors:

- Site drainage
- Castrogi Brook
- Underlying SPZ1 Aquifer
- Severn Estuary

Controls:

The measures put in place to control the storage and use of hydrocarbons on site are as follows:

- Re-fuelling of plant and machinery shall not take place within 10m of the drain running through the eastern section of the site or 30m of a borehole (borehole locations are marked on the Site Layout Plan in Appendix 1). Fuelling is only to be carried out by appropriately trained personnel, issued with appropriate PPE.
- The re-fuelling of static and small items of plant shall be carried out by a suitably trained, designated person using fuel cans with spouts which can be inserted into re-fuelling apertures of the plant being re-fuelled. If such fuel cans are not available a funnel will be used.
- Bowsers used for the re-fuelling of plant shall be Integrally bunded and stored in a secure location overnight.
- All fuels, oils and chemicals to be stored in suitable containers within controlled secondary bunded enclosures such as concrete bunds or drip trays. Small quantities of fuel and oils (less than 100l) will be stored within drip trays in the workshop area in secure drip trays within the COSHH Store. Bulk fuel will be stored in the bunded tank within the workshop (please refer to Site Layout Plan in Appendix 1)
- Suitable security shall be provided for fuel and chemical storage areas.
- The secondary containment system must provide storage for at least 110% of the tanks maximum capacity. If more than one container is stored, the system must be capable of storing 110% of the biggest container's capacity or 25% of the capacity of all of the containers within the bund, whichever is the greater.
- Drip trays and bunds shall not be penetrated by any valve or pipe used for draining the bund.
- All tanks shall be labelled to show their contents, volume, refill procedure and spill response procedure.
- Plant and vehicles should be inspected for oil and fuel leaks prior to the start of each shift.
- All static plant should be placed within a drip tray which more than covers the footprint of the plant with a capacity of 25% of the fuel or oil capacity of the plant. Drip trays should be fitted with integral oil traps to allow them to drain or provision should be made for the removal of water during wet weather.
- All containers of hydrocarbons or chemicals used out on site should be placed in a drip tray as above.

- COSHH and Environmental Hazard data sheets shall be obtained for all chemicals bought to site and copies shall be kept at the same location as the chemicals are stored. Attention shall be paid to instruction for environmental conditions in which chemicals are to be stored i.e. temperature, humidity, expose to ultra violet light, etc.
- A full retention hydrocarbon separator has been installed on the outflow of the attenuation ponds. This will remove hydrocarbons which may be present within the drainage water, preventing their discharge to existing site drainage.

10.1.4 Silt Contaminated Runoff

Silt contamination of surface water is of great concern for any site which handles soil and stone. The large quantities of bare earth encourage silt to enter the surface water during periods of high rainfall. This silt can cause problems for the local watercourse, such the deoxygenation of the water, blockage of the gills of fish and smother aquatic plants and invertebrates, and the starvation of light. Silt contamination of a watercourse can lead to a prosecution under the Water Resources Act (1991).

Source:

- Silt mobilised from stockpiles and haul roads by surface runoff.

Pathways:

- Surface water drainage.

Receptors:

- Site drainage
- Castrogi Brook

Controls:

To prevent silt being mobilised and site runoff becoming contaminated, the following good practice will be employed:

- Silt contaminated water will be directed into the two sets of attenuation ponds before being discharged to the site drainage.
- Settlement ponds are lined with an impermeable HDPE membrane to prevent water breaching the bunding or percolating through to groundwater.
- The settlement ponds are divided into levels to encourage particulates to settle out.
- Inspections of the settlement ponds will be carried out daily, including checking the integrity of the bunds and the siltation level. Silt build-up will be cleared from the ponds when required. Checks will be carried out multiple times a day during periods of intense rainfall.

- Runoff will be confined to the drains across the site. These drains will be monitored daily to prevent blockages. Checks will be carried out multiple times a day during periods of intense rainfall.
- Site traffic will be confined to the concrete roads around the site and these will be maintained clear of loose material, through grading and brushing.
- Damping down for dust suppression to be carefully coordinated to ensure excessive volumes of water are not sprayed onto areas, mobilising suspended solids.
- Areas around drains will be maintained free from site material.

10.1.5 Water from Firefighting

Volumes of water likely to be used for fire fighting are difficult to predict as this depends on a number of factors, including the nature and extent of the fire.

The area of the site with the highest risk of fire is the workshop and adjacent site waste storage area. All other materials stored within the site are inert. If fire were to occur within this area it would most likely be due to vehicle fire or the combustion of stored oils within the workshop. From discussions with South Wales Fire and Rescue, these sorts of fires would be tackled using foam or if small scale CO₂.

If water is required for firefighting it will be abstracted from the attenuation ponds and the duck pond, this water will be recirculated back into the attenuation ponds. The outlet from the hydrocarbon separator would be shut off to prevent water leaving site. South Wales Fire and Rescue have told us that as part of their standard practice they deploy water filled booms to channel water away from sensitive receptors. A stock of sand bags will be stored at the site and these will be used to direct firewater.

If required, water flowing into the attenuation ponds could be recirculated, either at the outlet of the ponds so that suspended solids are removed or upstream of the pond.

An additional pond to retain firewater can be formed within the soil storage area. A 14m x 30m HDPE liner will be retained at the site as part of the firefighting inventory. A pond can be formed using plant on site and can be lined with the HDPE sheet. Firefighting water can then be diverted into here, through the construction of a drain and can be retained. This would provide an additional capacity of 275,000l of storage.

Water from this and other attenuation ponds will be tankered to the mains sewer if additional capacity is required.

Provision would need to be made to remove solids from the ponds, test this material and dispose of it within the Duty of Care for the material, following the fire.'

10.1.6 Surface and Groundwater Monitoring

Surface water compliance points have been established to mirror those used within the Jacob Land Quality Assessment undertaken for the former WormTech facility at the site.

Surface Water

Surface Water Monitoring Points will be:

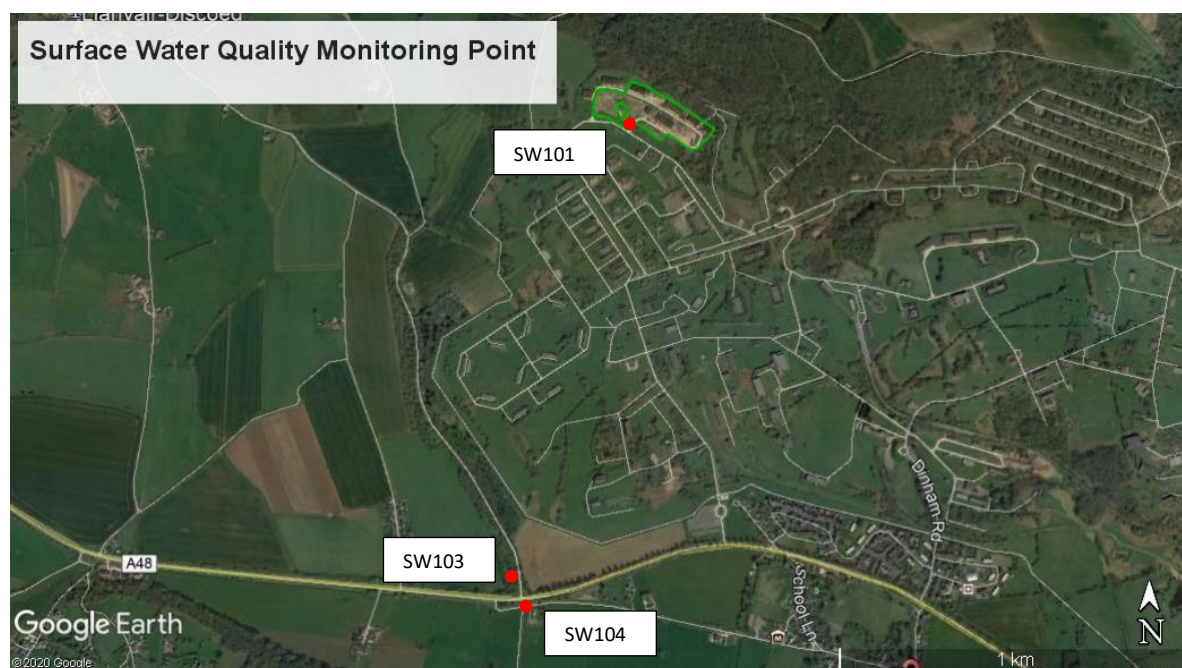
SW101 – The sampling basin beneath the outfall from the hydrocarbon separator at the discharge point from the site - ST 46343 92074

SW103 – Upstream of the Culvert on the Castrogi - ST 46022 90726

SW104 – Downstream of the culvert on the Castrogi - ST 46056 90679

Monitoring will be undertaken monthly at these compliance points (except for periods when there is not flow – the Castrogi Brook can dry up during periods of dry weather), for suspended solids, BOD ATU, electrical conductivity, TPH (speciated), and ammonia.

Further sampling will be undertaken every six months by Crownhill, with surface water samples from SW101, 103 and 104 submitted for analysis against the following parameters, pH, EC, BOD, COD, Chloride, Ammonia, Ammoniacal Nitrogen, Arsenic, Boron, Cadmium, Chromium, Copper (dissolved and bioavailable), Iron, Mercury, Manganese (dissolved and bioavailable), Nickel (dissolved and bioavailable), Lead (dissolved and bioavailable), Zinc (dissolved and bioavailable), TPH (speciated), EPH (C10-C40), SS.



Locations of Surface Water Monitoring Points

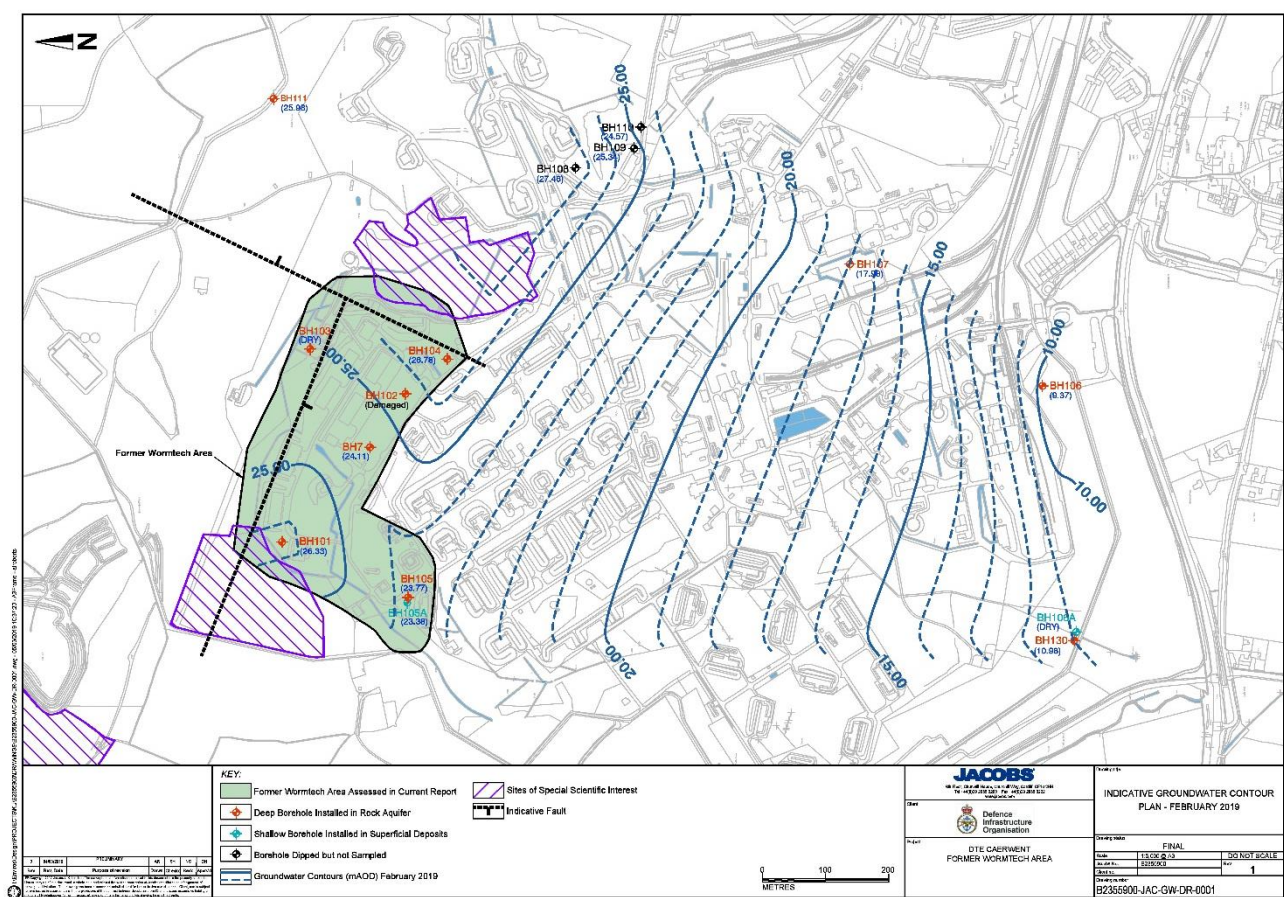
Sampling Methodology:

Samples will be taken in a 500ml glass and 500ml plastic bottle. The sampler will wear nitrile gloves. Samples will be refrigerated and collected within 24hrs of sampling. Samples will not be taken on a Friday as they cannot be cold stored over the weekend. A Chain of Custody Form will be completed with the details of the samples.

Impacts to surface water would be detectable quickly, but impacts on groundwater are likely to be slow occurring and longer term. If it is found that surface or groundwater is being impacted by the operation of the Crownhill facility, sources of contamination will immediately be investigated. This will commence with a review of the Duty of Care process, followed by the sampling and testing of materials at the site. Any materials which are found to be out of specification will be removed to the quarantine area, pending removal from site. This will include feed stock and product.

Groundwater On Site

Borehole BH7 has been chosen as the Compliance Point for on-site groundwater monitoring. This is due to the fact that in previous investigations relating to the former Wormtech operations at the site, this borehole had the most exceedances of EQS and DWS. This suggests that this borehole is in an area of aquifer, which receives surface runoff from the site percolating into the aquifer. The borehole is also downgradient of site activities.



Borehole Locations

Groundwater Off Site

BH102, BH104, BH105 will be monitored every six months. From groundwater levels measures during the Jacobs April 2019 round of monitoring it appears that groundwater

flow immediately below the site is to the SW and hence BH105 is proposed as the off site compliance point. As these groundwater contours have been developed from limited level information, BH104 will also be included.

This BH will be purged and sampled every six months. Purging will continue until compliance monitoring undertaken at the borehole stabilises and becomes consistent. Samples will then be taken and submitted to a UKAS accredited laboratory for analysis against the following parameters:

pH, EC, BOD, COD, Chloride, Ammonia, Ammoniacal Nitrogen, Arsenic, Boron, Cadmium, Chromium, Copper (dissolved and bioavailable), Iron, Mercury, Manganese (dissolved and bioavailable), Nickel (dissolved and bioavailable), Lead (dissolved and bioavailable), Zinc (dissolved and bioavailable), TPH (speciated), EPH (C10-C40), SS.

Environmental Quality Standards (EQS) and Drinking Water Standards (DWS) are the most appropriate standards for the assessment of lab results.

10.2 EMISSIONS TO AIR

Although the site is fairly isolated from local residents, it is important to ensure that emissions to air, such as smoke and dust, are controlled. These emissions can travel large distances under certain weather conditions, so large amounts of emissions can still cause nuisance to residents. In extreme cases, these emissions can also cause problems for local ecology such as the Dinham Meadows SSSI, which is adjacent to the site.

10.2.1 Dust and Particulates

Dust emitted from site can cause severe nuisance to surrounding residents, businesses and facilities. In its simplest form, it can cause additional cleaning work and reduce resident's quality of life but in its most severe form it can have acute effects on people health especially those suffering with respiratory conditions such as asthma. Dust can also carry contaminants which has great impacts on health.

Dust can also have an impact on the ecology of the area blanketing vegetation preventing it from transpiring and reducing food sources for animals and invertebrates.

Source:

- Dust emitted from material processing operations
- Dust emitted from vehicle movements
- Dust emitted from cutting operations
- Dust emitted from materials handling.

Pathway:

- Airborne dust, which can be carried from site via wind.

Receptors

- Nearby residents

- Site employees
- Local ecology including Dinham Meadows SSSI

Controls:

Material Handling

- All material will be stored within manufacturer's containers, in a secure dry location.
- Tipping heights and rates will be minimised for materials which contain fine particles.
- In handling areas, bowsers, sprinklers, spay mist systems and screens, shall be used to prevent dust.

Vehicles & Plant Movement

- Haul routes will be maintained clear from site material and if required shall be dampened down in dry weather conditions, using water from grey sources where possible.
- All vehicles and plant on site shall be fully serviced and maintained, where possible vehicles used will comply with Euro IV and V standards.
- No vehicle on site shall be permitted that emits black smoke.
- No plant or machinery shall be left running when not in use.
- Site speed limits shall be enforced and speeds limits on haul roads reduced in dry weather to reduce dust generation.

Control of Site Operations

- Equipment likely to generate excessive quantities of dust shall be enclosed, shielded, fitted with dust suppression, extractors, filters and scrubbers.
- Drop heights shall be kept to a minimum during the movement of materials.
- Where appropriate spray mist systems, windbreaks, netting screens or semi-permeable fencing shall be used to reduce dust emissions.
- Where necessary, water sprays shall be employed to control dust generated during the processing of soils and aggregates.
- Visual monitoring for dust shall be undertaken daily during periods of dry weather.

10.2.2 Smoke

The likelihood of smoke being emitted from the site is low. Smoke can contain harmful substances such as carbon monoxide and diesel particulate matter (DPM). This can be dangerous to anyone in the immediate vicinity of the site, as well as contribute to the level of greenhouse gasses in the atmosphere. The impact of smoke on the local environment is low unless the quantities being released are large. Smoke can cause nuisance to local residents via visual intrusion and odour.



Sources:

- Smoke emitted from poorly maintained plant engines
- Smoke from burning materials on site

Pathway:

- Smoke is airborne, so can be transported via wind.

Receptor:

- Site employees
- MOD employees
- Local Residents
- Global Atmosphere

Controls:

- Burning on site is prohibited unless under consent of the Natural Resources Wales and Monmouthshire Environmental Health Department.
- Crownhill is committed to a plant and vehicle replacement programme with the majority of their vehicles now being Euro 6.
- Site vehicles are subjected to daily checks to ensure they are in optimum operational condition. They are serviced as per the manufacturers recommendations. Records for both are maintained in the site office.
- A fire prevention strategy is present to prevent the spread of fire within the waste operations and also the office.

10.3 NUISANCE

Although the site is relatively isolated by the secure nature of the MOD base, nuisance to nearby residents and businesses can still be brought about by site activities. There are several small businesses operating in the area and a residential area 550m to the west.

10.3.1 Noise and Vibration:

Please refer to the Noise and Vibration Management Plan.

10.3.2 Dust:

Please refer to the Dust Management Plan.

10.3.3 Mud on Roads:

The site is accessed from the A48 but Unit 1009 is approximately 1km from the A48. Therefore the risk of mud being transferred on to the general highway network is low.

- Vehicle movements within the site will be confined to the concrete surfaced haul roads. These will be maintained free from waste and processed materials.
- All vehicles leaving the site shall be cleared of site material if required using a combination of dry brushing and jet washing.
- If site material is noted on highways around the site, a road brush will be bought to site to remove it.

10.3.4 Lighting:

- Spot lights are mounted on the buildings to illuminate the areas around the buildings. These will be angled down to minimise light spill onto surrounding areas.
- During the summer when bats are most active, site lighting will not be used for 1hr either side of sunset / sun rise.
- Vehicle headlights may impinge on surrounding areas but the site is screened by the buildings and surrounding vegetation.

10.4 SITE GENERATED WASTE

All industrial activity produces waste. This waste must be controlled to ensure that it is disposed of in a legal, sustainable way. As the majority of materials imported onto the site are recycled, very little waste is generated from the waste processing activities. Key wastes include:

- Metals recovered from the screening of soils;
- Wood recovered from the screening of soils;
- Plastics recovered from the screening of soils;
- Glass recovered from the screening of soils;
- Cardboard packaging;
- Wood packaging;
- Plastic packaging;
- Worn out or damaged PPE;
- Vehicle and plant servicing consumables;
- Food waste from the canteen.

The most environmentally damaging waste is hazardous waste. Although the site does not accept this, there is potential for a small amount of hazardous waste to be generated from site activity or found within a mixed waste skip brought to site.

Hazardous Wastes likely to be encountered are:

- Aerosols – paints, cleaners, oils, etc
- Grease Cartridges – Grease inserts from grease guns used for lubricating machines.
- Wastes Oils and Oily Materials – oil from machines, oily rags and gloves, oil filters, etc
- Surplus Paints, Thinners and Sealants and their Containers.
- Batteries – all types of batteries are now covered under the EU Batteries Directive but to all intents and purpose should be treated as Hazardous.

- Fluorescent Lighting Tubes – These should be kept intact as they contain hazardous gasses and metals, including mercury.

These wastes must be segregated from the general waste stream and must be assessed for their acceptance to landfill.

The key waste streams produced by the company are wood and general construction waste i.e. worn out or damaged PPE, empty paint and sealant containers, wood treated with preservatives, geotextile offcuts, etc. The fate of these and other potential wastes needs to be considered to ensure that they are disposed of within the duty of care for the waste and also in the most sustainable manner. The priority for the disposal of wastes should be considered in this order:

- Re-use
- Recovery
- Recycle
- Disposal

Waste	Waste Designation	Recovery/Disposal Route
Waste Wood from soil screening	Controlled	Placed into wood skip
Mixed Waste: General mixed waste.	Controlled	Placed into 1100l EuroBin
Waste oils, from contamination of oils stored on site and residues caught in drip trays.	Hazardous	All waste oils are removed from site by our service agents and disposed of through a licensed waste management company.
Waste plastic, aluminium, glass beverage containers from the	Controlled	Office – Plastics, glass and cardboard is recycled through a recycling bin in the office canteen. This is recycled by our landlord. Yard - These are collected in recycling bins, and then collected by the Local Authority as part of their black box scheme.

Waste	Waste Designation	Recovery/Disposal Route
office and yard.		
Waste office paper and newspapers	Controlled	This shall be collected in the recycling bin in the office and then emptied into the recycling bin in reception.
Canteen and food waste.	Controlled	1100l Eurobin mixed waste collection.
Dry Cell Batteries	Hazardous	Placed into the battery recycling box in the office.
Electrical and Electronic Equipment - WEEE	Controlled/ Hazardous	If electrical or electronic items which are no longer required were purchased after 13 th August 2005 and are being exchanged for equivalent equipment the distributor must accept the equipment back and arrange for its disposal. If this is not the case WEEE must be disposed of via an Approved Authorised Treatment Facility (AATF). WEEE must also be stored separately from other waste streams. Some WEEE will be classed as Hazardous Waste and must be disposed of as such (computer screens, TV's, etc)

10.5 ECOLOGICAL CONSTRAINTS AND MITIGATION

For the ecological constraints of the site, as well as the mitigation measures put in place, please refer to the Ecological Mitigation Plan (CH006).

11 EMERGENCY PREPAREDNESS AND RESPONSE:

11.1 EMERGENCY CONTACTS:

Incident Managers (Simon Stone / Anthony Skaratts): 07880 722 436 / 07749454652

Natural Resources Wales: 0300 065 3000

Emergency Services: 999 (Request service required)

11.2 DEFINITIONS:

Environmental emergencies can be broken down into two categories, Environmental Incidents and Environmental Issues.

11.2.1 Environmental Incident:

- An inappropriately controlled emission to land, sea, air or water (e.g. spillage, fumes, dust, vibration, noise, disposal) that has potential to cause environmental harm if not controlled properly.
- A substantiated complaint from a third party affected by the project.
- An event causing major quantifiable environmental harm.
- A breach of a consent licence that may lead to statutory intervention.
- A breach of Environmental Legislation.
- Issue of a statutory enforcement notice, Local Authority, Environment Agency (Works Notice)
- An environmental emergency (i.e. an event on site that is not under control and requires assistance from external bodies to minimise potential harm to the environment)

Examples:

- Spillage of fuels, oils and chemicals on land and into water.
- Silt contaminated runoff entering watercourses, drainage and other sensitive environments.
- Discharge of concrete or grout into surface/ground water or other sensitive receptor.
- Unauthorised burning of material on site.
- Unreasonable noise at sensitive receptor.
- Breach of local authority consents for noise, vibration or dust.
- Incidents involving Environment Agency action or intervention. (e.g. sampling)
- Nuisance from dust blowing off site

11.2.2 Environmental Issue:

- An unforeseen occurrence which will impact on the works.
- An environmental incident caused by a third party not connected with the scheme but which impinges on the scheme.
- An environmental incident beyond the control of the contractor.

Examples:

- The discovery of contaminated material, where no contamination indicators were found in the SI or historical site documents.
- Discovery of protected species where there were no indicators.
- Flooding from events outside the 1 in 100 year probability.

11.2.3 Responsibilities

In all cases responsibility for immediate action lies with the person discovering the incident. They should take whatever actions they can, to immediately stop the source and contain the pollution.

In all cases the incident shall be immediately reported to the manager. The Incident Controller shall coordinate resources to put the containment and mitigation plan in place.

Crownhill will assist in post incident training, incident reporting/monitoring and documentation for the EMS.

11.3 SPECIFIC POLLUTION INCIDENTS.

Fuel or Oil entering a surface water drainage:

The response will depend on the amount of hydrocarbon spilt. As a general rule the following steps should be taken.

- Stop release of fuel by removing the source or by using plastic sheeting and bunding.
- If there is flow in the drainage channel, deploy an oil absorbent boom across the water to contain the spill.
- Place oil absorbent mats on the water surface to absorb the oil. N.B. once used these are to be stored and disposed of as special waste. Impermeable gloves and boots and disposable overalls are to be worn.
- The above items can be found in the oil spill kit, these are located with foremen, environmental coordinator, store man and in the environmental emergency area in main stores.
- Contaminated water can also be pumped from the watercourse into a sealed container for disposal by a registered waste handler.
- Natural Resources Wales to be contacted (0300 065 3000)

Fuel or Oil spillage on land:

- Stop release of fuel by removing the source or by using plastic sheeting and bunding.
- Excavate oil contaminated soil and place in an oil tight container. This must be disposed of by a specialist waste handler as special waste.
- If spillage is onto a hard surface, all drains must be sealed immediately. Absorbent materials such as sand, sawdust, straw or oil absorbent granules/mats are to be placed over the contaminated area to soak up the spill. These should then be removed and stored and disposed of as special waste. Impermeable gloves and boots and disposable overalls are to be worn.

- The above items can be found in the oil spill kit, these are located with foremen, environmental coordinator, store man and in the environmental emergency area in main stores.
- National Resources Wales to be contacted (0300 065 3000)

Spillage of chemicals:

- Where possible remove source of pollution.
- Obtain as much information on the chemical spilt as possible to evaluate the potential harm it could cause to staff and the environment.
- If it can be ascertained that there is no significant health and safety risk the chemicals should be dealt with as oil, above.
- If a potential health and safety risk is identified the area should be evacuated and the emergency services contacted.

11.3.1 Environmental Response Equipment

Spill kits are available from the foreman

11.3.2 Incident Reporting

All personnel on site have a duty to report any situation, occurrence or activity which poses a risk to the environment.

Incidents must be reported immediately to the Incident Controller who will be responsible for assessing the incident and reporting it to the responsible agencies (NRW, CADW, ENV Health, etc)

The following details should be recorded by the Incident Controller:

- Time, date and location of the incident
- The root causes of the incident
- Actions taken to remedy the incident
- Personnel involved
- Third parties and statutory bodies involved
- Procedures put in place to ensure there is no re-occurrence.

12 TRAINING:

All staff shall be trained to a level to ensure that they are more than capable of carrying out their duties with minimal environmental impact.

Toolbox talks will be given to all staff covering the aspects of this Environmental Management System, as well as all adjoining documentation.

Personnel will be given instruction on specific aspects of the works, in small groups. If required supporting material shall be utilised such as manufacturer's instructions or company handouts.

All toolbox talks and training will be recorded along with signed attendance sheets within the site office.

13 MONITORING AND AUDIT PROCEDURES

This section outlines the procedures that will be undertaken to ensure that all environmental aspects of the company are being held to the highest standard.

13.1 PLANT AND EQUIPMENT

- Daily checks will be undertaken by plant operators prior to using the equipment. This includes checks for fuel and oil leaks, fuel and coolant levels, hydraulics and safety equipment. These checks will include a written check list which will be kept on file in the site office.
- All plant and equipment will be serviced as per the manufacturer's instructions, but at minimum annually. Service documentation will be kept on file in the site office.
- Certification will be maintained for any lifting equipment used on site, and refreshed as required to ensure certification is current and valid. This documentation will be stored within the site office.
- All electronic equipment used on site, including within the site office, will undergo portable appliance testing (PAT) to ensure safety of use.

13.2 MAINTENANCE OF SITE DRAINAGE

Daily checks of site drainage will be undertaken. If any are found to be blocked (for example via siltation or site material) this shall be cleared immediately. These inspections will be recorded on the Daily Site Log.

Monthly checks of the integrity of the drainage channels and surfaces will be carried out to ensure that the non-inert materials processing area remains isolated from the rest of the site drainage. Any cracks or holes in the surface will be broken out, investigated and sealed.

13.2.1 Attenuation Pond Inspection and Dredging:

Periodic inspection will be undertaken of the attenuation ponds to ensure they are not in danger of overtopping and silt buildup is within acceptable limits. It is likely that ponds will need to be periodically dredged to remove accumulated silt. The ponds are lined with a

HDPE liner and hence care will be required to ensure that the liner is not damaged. If damage is caused to the liner, this will need to be repaired either using an adhesive patch or a seam welded patch.

Dredging of the ponds will be undertaken over the winter unless the pond has completely dried out over the summer. This will be done to prevent impacts on great crested newts and other amphibians, which may have colonised the ponds. If the ponds contain water, this will be pumped out and discharged into the hydrocarbon separator. Pumping will be undertaken from a pipe and gravel sump to prevent silt being disturbed from the base of the pond.

Silt will be carefully dredged by an excavator using a toothless bucket. Dredged material will be placed in a bund along the edge of the pond, where it will be left in place for 24hrs to allow water to drain and invertebrates within the dredged material to return to the pond.

After 24hrs, dredged materials will be moved to the quarantine area in Building 1, where samples will be taken and sent to a UCAS accredited laboratory and tested against the following parameters:

- pH;
- organic matter content;
- heavy metals (As, B, Ba, Be, Cd, Cr, Cu, Pb, Hg, Ni, Se, V, Zn);
- total cyanide and total (mono) phenols;
- speciated PAHs (US EPA16 suite);
- aromatic and aliphatic TPH (C5-C35 banding);
- benzene, toluene, ethylbenzene, xylene (BTEX);
- asbestos screen

Data from this analysis will be used to assess the materials in line with WM3 to allow the waste to be fully described. If the waste can be deemed inert, it will be included within feedstock materials at the site, ensuring that it is thoroughly mixed as it will contain a high proportion of fines. If it cannot be described as inert, it will be removed to a permitted facility which is able to accept it.

13.3 ECOLOGY

- The integrity of the newt fencing at the site will be checked and recorded on a monthly basis to ensure it remains to function as a barrier to the species.

13.4 NUISANCE

Daily checks will include:

- Amount of dust being generated by site activities. If this is excessive, damping down procedures will be implemented – Please refer to Dust Management Plan for further information on this process.

- Amount of noise and vibration from site equipment. If this is deemed to be excessive, the activity will be ceased and a workaround will be found which reduces this level.
- Amount of mud on the roads outside of the site. These will be brushed down if this is excessive. If it persists, road cleaning will be undertaken.

13.5 ENVIRONMENTAL SITE INSPECTIONS:

- Environmental site inspections shall be carried out weekly by the Site Manager. These will involve a site walk through, with observations being made and corrective actions assigned.

13.6 INSPECTION OVERVIEW

The following table is an overview of all inspections to be carried out on site.

Inspection Regularity	Inspection Description
Daily	Plant and Equipment <ul style="list-style-type: none"> • General plant and equipment check before use.
	Drainage <ul style="list-style-type: none"> • Inspection of drainage channels – Visual inspection for blockage or damage. Results recorded on the Daily Site Diary. • Inspection of attenuation ponds – Visual inspection of level and to ensure discharge is not blocked and water quality at the outfall appears acceptable.
	Site Waste <ul style="list-style-type: none"> • Segregated waste check – Ensure correct wastes have been placed in the correct bins.
	Nuisance <ul style="list-style-type: none"> • Dust levels – Please refer to Dust Management Plan • Noise and vibration levels – Please refer to Noise and Vibration Management Plan • Mud on roads – Visual inspection to be undertaken by Site Manager as part of the dust inspections. Results of inspection to be recorded in the Daily Site Diary.
Weekly	Drainage <ul style="list-style-type: none"> • Check silt levels in attenuation ponds;

	<ul style="list-style-type: none"> Inspect hydrocarbon separator for hydrocarbon content and functionality. Ensure level warning alarm is operational and test by raising the float.
	Environmental Site Inspection <ul style="list-style-type: none"> General environmental site inspection
Bi-Weekly	Dust - Change the dust deposition media in the Dust Scan DS100 and send for analysis.
Monthly	Plant and Equipment <ul style="list-style-type: none"> Servicing of all plant and equipment Portable Appliance Testing (PAT) of equipment Checking of all certification for plant and equipment
	Surface Water Quality Water samples will be taken for observation and comparison from the following locations (refer to Section 10.1.6): <ul style="list-style-type: none"> SW101 – The sampling basin beneath the outfall from the hydrocarbon separator at the discharge point from the site - ST 46343 92074 SW103 – Upstream of the Culvert on the Castrogi - ST 46022 90726 SW104 – Downstream of the culvert on the Castrogi - ST 46056 90679
	Drainage <ul style="list-style-type: none"> Integrity of drainage surfaces to maintain impermeability
6 Monthly	Surface Water Quality Water samples will be taken for observation and comparison from the following locations (refer to Section 10.1.6): <ul style="list-style-type: none"> SW101 – The sampling basin beneath the outfall from the hydrocarbon separator at the discharge point from the site - ST 46343 92074 SW103 – Upstream of the Culvert on the Castrogi - ST 46022 90726 SW104 – Downstream of the culvert on the Castrogi - ST 46056 90679
	Groundwater Monitoring:

	Samples will be taken from BH7, BH102, BH104 and BH105. This will be undertaken by an Environmental Specialist (Refer to Section 10.1.6)
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14 DOCUMENTATION, REPORTING AND DATA GATHERING:

14.1 DOCUMENTATION:

14.1.1 Inspection Check Sheets

All inspections carried out on site will have an inspection form which will be signed, dated, and kept on file in the site office.

14.1.2 Certification

All certificates for plant use, servicing, safety equipment and training will be kept on file in the office.

14.1.3 Waste:

All waste transfer notices will be kept on site.

14.1.4 Control of substances Hazardous to Health (COSHH):

COSHH data sheets will be required for all materials and substances bought onto site and for any man made materials or substances encountered on site. COSHH data sheets shall be filed alphabetically and stored in the Weighbridge Office.



15 APPENDIX 1: SITE LAYOUT PLAN
