CROWNHILL TOPSOIL WASTE MANAGEMENT FACILITY FIRE PREVENTION AND MITIGATION PLAN

Unit 1009, Caerwent Army Training Estate,
Caerwent

Produced by: EcoVigour
info@ecovigour.com

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Location	Unit 1009 Caerwent Army Training Estate		
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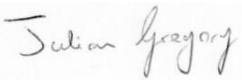
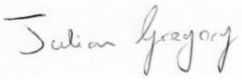
Checked by	Julian Gregory	Signature 	Date 19/08/16
Authorised by	Julian Gregory	Signature 	Date 19/08/16

Rev	Date	Purpose	Prepared by	Checked	Authorised

Contents

1. Site Details

Name of the applicant	Crownhill Topsoil
Activity address	Unit 1009 Caerwent Army Training Estate
National Grid Reference	ST 46457 92070
Document reference and dates for Site Condition Report at permit application and surrender	Fire Prevention and Mitigation Plan CH015 – 08/08/16

This Fire Prevention Plan has been prepared for Crownhill Topsoil's operations at Unit 1009 of the Caerwent Army Training Base.

Crownhill Topsoil's Waste Management Facility of proposed to be located at Unit 1009 of the Caerwent Army Training Estate. This is a facility operated by the Ministry of Defence and managed by Landmarc. It is predominantly used for the training of MOD personnel and the storage of MOD assets. Sections of the site are now let to companies for use as commercial / industrial facilities.

Crownhill Topsoil proposes to operate a Waste Management and Recycling facility at Unit 1009 which will include:

- The processing of inert soils and construction and demolition waste into topsoil and recycled aggregates;
- The sorting and chipping of treated and un-treated wood to produce wood chip suitable for use within the biomas heat and power generation industries.
- The sorting and segregation of residential and commercial skip waste into its various waste fractions for ongoing recycling / disposal.

Part of the company's operations at the site will include the storage and processing of significant volumes of wood and the sorting and storage of skip waste which may contain flammable materials.

1.2 At Risk Materials Stored at the Crownhill Topsoil Facility

The following combustible materials could be stored at the Unit 1009 site:

- paper or cardboard
- plastics
- rubber (natural or synthetic, including whole tyres, baled tyres, tyre shred, crumb and fibre)
- wood and wood composites
- rags and textiles
- scrap metals
- waste fuels – including residual combustible waste, RDF and SRF
- waste electrical and electronic equipment such as fridges, computers and televisions containing combustible materials such as plastic – the facility is not permitted to accept that and hence if found within skip waste they would be placed in a quarantine area.
- compost and plant material
- biomass

2. Fire prevention:

Specific fire risks and mitigation requirements have been considered in Table 1 below. The following good practice will be applied to the facility to ensure the risk of fire is minimised.

The following measures will be implemented at the site to minimize the risk of fire.

- No burning or naked flames will be allowed on site.
- Signage will be erected around the site enforcing the no smoking / no naked flames rule;
- The key flammable material stored on site is wood waste. This will be stored as illustrated on the drawing in Appendix 1. Wastes will be stored as described in Section
- Personnel will be given instruction on the contents of this plan.

The following Fire Risks have been identified and assessed:

Mitigation within the following table is risk specific. For site specific mitigation please refer to Site Specific Fire Risk Reduction, below:

Table 1 – Fire Risks and Mitigation

Cause of Fire	Risk	Mitigation
Arson or vandalism	Persons unknown gaining access to the facility and deliberately or maliciously starting fires.	The site is controlled by the Army and is extremely secure. The entrances are controlled by manned control posts, which are closed out of hours. The perimeter is fenced but there is opportunity for this to be breached. However people do not enter the base due to the risk of encountering soldiers and special forces operating within the base.
Self-Combustion (e.g. due to chemical oxidation)	Stockpiled materials reaching a temperature where they self-combust due to chemical oxidation or microbial action.	Oxidising materials are not knowingly accepted onto site. Potentially oxidizing materials will be removed from waste streams and quarantined. Stockpiled wood chip will be maintained dry within buildings. Stockpiles will be regularly turned to ensure anaerobic decomposition does not occur.

Cause of Fire	Risk	Mitigation
Storage of incompatible wastes.	Storage of flammable or oxidizing wastes.	Flammable or oxidizing wastes are not accepted on site. If wastes which are oxiding or flammable are received on site they will be placed within
Plant or equipment failure.	Faults with plant and equipment resulting in overheating due to inadequate cooling of combustion engines, heat due to friction or electrical failure resulting in sparks being emitted.	Plant and equipment will be serviced in line with manufacturers recommendations. Daily inspections will be undertaken of all plant and equipment to be used within that shift. Faults will be reported and the machinery will not be used until these have been rectified. All faults will be reported to the Site Manager and will be recorded on the fault log. Faults will be assessed and if require the machinery will be removed from service until the fault is repaired.
Electrical faults	Electrical faults causing overheating of components or flames.	Plant and equipment will be serviced in line with manufacturers recommendations. All electrical apparatus will be PAT tested annually. All electrical faults will be reported immediately and the piece of equipment will be isolated from the supply until repairs have been made and the equipment tested.
Naked lights / Open burning / Discarded smoking materials.	Ignition from naked lights. Ignition from discarded cigarettes and cigars.	No fires will be allowed on site. Smoking will only be allowed in designated areas, which will be designed to be remote from flammable materials.

Cause of Fire	Risk	Mitigation
Hot works (e.g. welding or cutting)	Uncontrolled release of sparks from welders, disc cutter and grinders.	Hot Works Permit procedure to be implemented. All works which could produce sparks will require a permit. In order for a permit to be put in place, the following conditions: - Works which produce sparks will not be allowed in areas where flammable materials are stored. - Guarding is put in place where required. - A Watch Person will be appointed to inspect for sparks and ensure all sparks are extinguished. - That suitable firefighting equipment is available prior to works commencing.
Neighbouring site activities.	Use of naked flames, cutting equipment, fires, etc on neighbouring sites.	There are no neighbouring sites to Unit 1009 but the larger site is used by the MoD for training exercises. There are not live fire exercises in the vicinity of Unit 1009 so the fire risk from neighbouring activities is low.

2.2 Site Specific Fire Risk Reduction:

The following actions will be taken in addition to the risk specific actions outlined in Table 1.

Signs will be erected around the site stating 'No Smoking' and designated smoking areas will be established.

Fire extinguishers will be located within workshops, offices and canteens and within plant and vehicles.

2.3 Storage of Wastes:

Waste volumes will not exceed those specified within the Environmental Permit for the facility:

No more than 750 tonnes of treated and untreated wood waste, processed and un-processed shall be stored on site at any time.

Wastes will only be stored within designated areas i.e. different waste fractions will be placed within quarantine bays with concrete dividers. Wood waste will be stored in stockpiles not exceeding the limits set out in Table 2. A minimum distance of 7m will be allowed between wood stockpiles and clear access will be allowed for plant to enter the area and remove wood, should one stockpile ignite. Please refer to the Fire Management Plan Drawing in Appendix 1

Table 2: Maximum pile size and minimum separation distance

Material	Max height (m)	Length / width (m)	Max vol (m^3)	Max area (m^3)	Min separation (m)
Paper, cardboard and rags	5	20	750	235	6
Plastic, rubber and other materials	5	20	450	235	6
Fridges, computers and electrical equipment	5	20	300	235	6
Processes wood including sawdust, shavings, chip.	3	10	150	100	6
Unprocessed wood	5	20	750	235	6

Information from Fire Prevention and Mitigation Plan Guidance – Waste, Version 1, May 2016 – Natural Resources Wales / South Wales Fire and Rescue Service.

Un-processed wood stockpiles must be stored a minimum of 7m from buildings.

Wood and wood chip stockpiles will be regularly turned to prevent anaerobic degradation which could result in temperatures within the core of the stockpile reaching ignition temperature.

Wood will not be chipped until it is due to be removed from site, to prevent large volumes of wood chip being stored on site.

Wood chip will be stored within bays inside a building of solid construction with no leaks. Stockpiles within bays will be maintained dry and regularly turned to prevent chip within the core of the stockpile becoming anaerobic and degrading giving off heat and causing a

potential point of ignition. Inspections of these stockpiles will be included within weekly site inspections. Stockpiles of wood chip will not be left in place for more than 3 months.

Temperature probes will be installed within wood chip stockpiles to monitor temperatures within the stockpile.

Combustible skip waste will be segregated into relevant quarantine areas with non-recyclable fractions loaded into bins to be exported from site to the relevant permitted facility. With the exception of wood waste, this will be removed from site within 72 hours of being received.

No wastes will be stored within 7m of the site boundary.

3. Fire Detection:

Simon Stone has been appointed as Fire Marshal for the facility. Simon will be responsible for ensuring all of the actions set out in this plan are enforced.

Smoke Detectors will be installed in all buildings and tested weekly. The form in Appendix 3 will be used to record this.

Waste which is retained on site for more than 48hrs will be inspected for signs of combustion. This will be managed in line with the stockpile guidance.

If fire occurs, it is the responsibility of the person discovering the fire to raise the alarm. This will initially be done by shouting 'FIRE'. This will be followed up by the blowing of the air horn located within the site office. They will notify all other people in the area and then notify the Fire Marshal / Site Manager.

The fire brigade will then be ca3lled by dialing 999 and requesting fire. The fire service will require the address of the site:

Unit 1009;
Caerwent Army Training Base;
Caerwent;
NP26 5XL

Someone should be sent to the gate house to meet the fire service and guide them onto site.

If Landmarc / MoD Security detect fire outside of site operational hours, they will invoke the process above. Landmarc and the MoD will be issued with a copy of this plan.

4. Containing and Supressing Fires

The key control for limiting the size, duration and impact of a fire at the site will be minimising the volume of combustible material stored at any one place within the facility.

Fuels will only be stored in the main bunded fuel area on the eastern boundary of the site.

Gas cylinders will only be stored in the workshop. Only gas cylinders required for the operation of the site and a reasonable number of spares will be stored.

On discovery of a fire, the fire brigade and the MoD will be notified immediately. If a member of staff feel confident to attempt to put out the fire i.e. the fire has not taken hold, they may do so, using one of the fire extinguishers available on site.

Personnel will move to the muster point adjacent to the site entrance (please refer to the Fire Management Plan Drawing in Appendix 1) The Fire Marshal will take a register to ensure everyone has evacuated the site.

Once the Fire and Rescue Service arrives on site, they will be met by the Fire Marshal who will brief them on the situation and give them information on the locations of flammable materials and water supplies. The Fire Marshal will also advise on potential hazards within the areas which will be entered by the Service.

4.1 Water supplies

A 300m3 pile of combustible material will normally require a water supply of at least 2,000 litres a minute for a minimum of 3 hours. If one of the stockpiles of wood were to ignite and the fire become established it would therefore require 1,333 litres of water a minute for a minimum of 3 hours.

There are several water supplies around the site:

The pond at the front of the site contains approximately 181,500 litres of water. This would supply 1,333 litres of water for 136 minutes There are a further three attenuation lagoons with a combined capacity of 215,000l of water. These could be used for the suppression of fire if required.

There is a fire hydrant adjacent to the site access on the access road – Please refer to the Fire Management Plan drawing in Appendix 1.

Unburnt materials will be pulled away from the fire using excavators or loading shovels (available on site). Burning material could also be pulled out of the fire to aid with the firefighting process, this would only be done under the supervision of the Fire and Rescue Service. Soils stored at the site could also be used to smother the fire, again this would need to be under the direction of the Fire and Rescue Service.

5. Managing fire water

The area of the site with the highest risk of fire is the wood storage area, within the northern section of the site. Materials stored within the southern section of 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. These sorts of fires would be tackled using foam or CO_2. In the event of fire and the need to use firefighting water it is likely that this would occur within the northern section of the site.

Water from this area drains into gullies along the southern side of the site road. This discharges into the ditch along the northern side of the site access road, via attenuation ponds and a hyrdrocarbon interceptor. Refer to the Site Drainage Drawing in Appendix 2.

This system would remove suspended solids and hydrocarbons and the water would then be discharged into the dry ditch. If required, this water could be contained through the use of a bund. The water could then be tested and a suitable discharge / disposal route developed.

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.

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.

6. Training:

All staff and sub-contractors will be briefed into the contents of this plan during site inductions. Key issues they will be made aware of are:

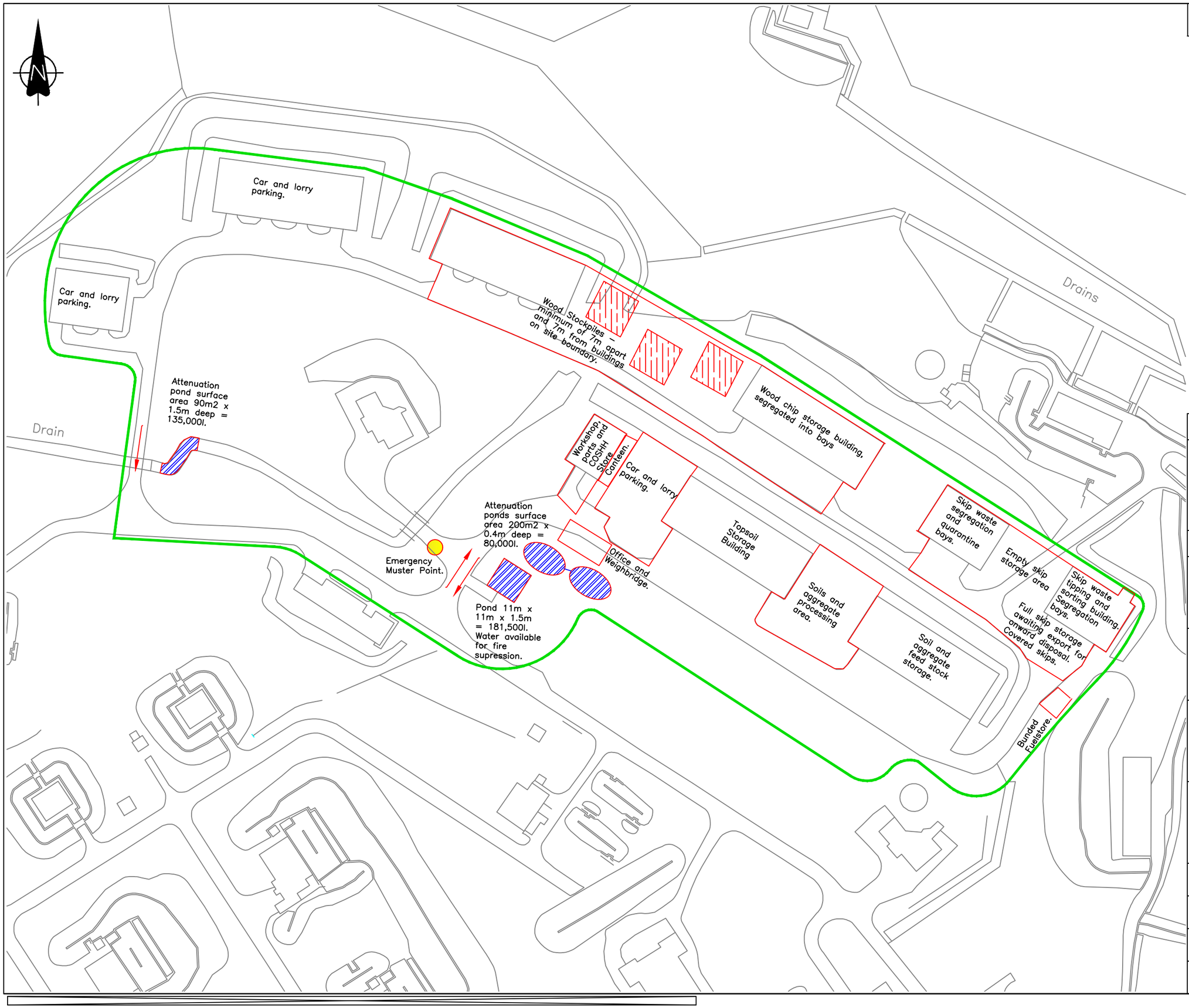
Actions on the discovery of fire;

The location of the muster point.

Staff at the site will be fully briefed on the requirements for fire prevention.

Regular fire drills will be undertaken to ensure personnel are familiar with the actions required on the discovery of a fire.

7. Appendix 1 – Fire Management Plan Drawing



DRAWING NUMBER: EV/13/0901/106

REVISION: -

KEY:

SITE BOUNDARY

EMERGENCY MUSTER POINT

REV	DATE	DESCRIPTION	DRWN	CHKD
		REVISIONS		
-	-	-	-	-

STATUS: INFORMATION

CLIENT:
CROWNHILL
UNIT 1009 CAERWENT
ARMY TRAINING ESTATE
CALDICOT
NP26 5XL

PROJECT: CROWNHILL TOPSOIL

TITLE: FIRE MANAGEMENT PLAN

C:\Caerwent\Crownhill - topsoil.dgn

SCALE: NTS	DESIGNED: G. WILLIAMS
PROJECT NUMBER: GW/13/1201	DRAWN: G. WILLIAMS
DATE: AUGUST 2016	CHECKED: J. GREGORY
DRAWING NUMBER: EV/13/0901/106	REVISION: REVISION REF. -

8. Appendix 2 – Site Drainage Drawing

DRAWING NUMBER: EV/13/0901/103
REVISION: -

KEY:

SITE BOUNDARY

Highway gullies across the eastern side of the site are blocked. Runoff from the yard will flow along the kerb line along the southern boundary and then into Attenuation Ponds before discharging via a Bypass Hydrocarbon Separator.

REV	DATE	DESCRIPTION	DRWN	CHKD
		REVISIONS		
-	-	-	-	-

STATUS: INFORMATION

CLIENT: CROWNHILL
UNIT 1009 CAERWENT
ARMY TRAINING ESTATE
CALDICOT
NP26 5XL

PROJECT: CROWNHILL TOPSOIL

TITLE: DRAINAGE PLAN

SCALE	DESIGNED
NTS	G. WILLIAMS
PROJECT NUMBER	DRAWN
GW/13/1201	G. WILLIAMS
DATE	CHECKED
AUGUST 2016	J. GREGORY
DRAWING NUMBER	REVISION
EV/13/0901/103	REVISION REF. -

Gully
Gully
Gully
Gully
Gully
Gully
Gully
Direction of runoff flow.
Manhole
Headwall discharging 225mm pipe from Bypass Separator
Drain
Attenuation Pond – Surface Area 70m2
Bypass Separator
Headwall discharging 225mm pipe from Bypass Separator
Bypass Separator
Gully
Gully
Manhole
Attenuation Ponds – Surface Area 200m2 – Rnoff from yard flows along the kerbline and then into the attenuation pond.
Blocked Gully
Blocked Gully
Blocked Gully
Blocked Gully
Blocked Gully
Blocked Gully
Blocked Gully
Blocked Gully
Blocked Gully
Blocked Gully
Direction of runoff flow.
Drains

9. Appendix 3 – Smoke Detector Location Check Form

Crownhill Topsoils – Smoke Alarm Inspection Record

Date of Inspection:	
Inspection Undertaken By:	

Smoke Alarm Location:	**Condition:**	**Notes**
Workshop – South		
Workshop – North		
Office		
Canteen		
Skip Sorting Building – East		
Skip Sorting Building – West		
Skip Waste Segregation Building		
Wood Chip Storage Building 1 – East		
Wood Chip Storage Building 1 – West		
Wood Chip Storage Building 2 - East		
Wood Chip Storage Building 2 - West		