



# Environmental Management System

Motocross Track  
Mynachdy Farm  
Mynachdy Road  
Ynysybwl  
Pontypridd  
CF37 3PH

**Permit no.:** PAN-012300

**Doc Ref:** EMS

**Date:** 23/03/2021

This Environmental Management System has been written using [latest NRW guidance](#) available at the time of writing.

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## Site Information and Key Contacts List

**Site Address:** Bwl MX Motocross Track, Mynachdy Farm, Mynachdy Road, Ynysybwl, Pontypridd. CF37 3PH

**Site Grid Reference:** ST 03835 95143

**Site Operator:** Mynachdy Limited trading as Bwl MX

Contact	Description	Office hours	Out of hours
Daniel Isaac	Site Manager	07930 386627	
Abercynon Fire Station	Fire and Rescue Service	999 (emergency)	999 (emergency)
Pontypridd Fire Station		01443 232000 (local phone number)	01443 232000 (local phone number)
Ferndale Police Station	Local Police Station	999 (emergency)	999 (emergency)
Mountain Ash Police Station		101 (non-emergency) 01656 655555 (Mountain Ash Police Station)	
Ysbyty Cwm Cynon	Local NHS Hospital	999 (emergency)	999 (emergency)
		111 (non-emergency) 01685 721721	01302 366 666
Natural Resources Wales	Environmental Regulator	0300 065 3000	0300 065 3000
Rhondda Cynon Taf Council	Local Authority	01443 425001 (Environmental Services)	01443 425011 (Emergency)

**Site Description:** The site is located a kilometre west of Ynysybwl, a village situated in the county borough of Rhondda Cynon Taf, roughly 32 km northwest of Cardiff. The surrounding area is predominantly agricultural and woodland, with pastoral farmland to the east and south and large areas of coniferous woodland to the west. The nearest property is the Brynffynon Hotel which is located approximately 520 m to the northwest of the site.

The site is a total of 5.9 ha with approximately 4 ha consisting of positively drained non-vegetated soil (dirt track). The facility has a 1.2 km main circuit situated on the hillside, a secondary small junior track, paddocks, a car park, and changing/welfare facilities.

The Bwl MX Motocross Track is used by local residents, local motocross clubs, and companies offering corporate days and rider experiences. At peak times there can be up to 70 bikes on track at any one time.

A small unnamed tributary of the Y Ffrŵd runs along the west/southwest perimeter of the track. This watercourse is not particularly well defined as it runs through a large area of marshland. The Y Ffrŵd watercourse is located approximately 500 m to the southeast of the site.

Please refer to **Appendix i: Site Plans** to see the site layout and sensitive locations.

# 1 Introduction

## 1.1 General

- 1.1.1 It has been identified that activities at Bwl MX Motocross Track are causing silt contamination of the unnamed watercourse flowing along the western boundary of the site.
- 1.1.2 Silt mitigation has been put in place to control this silt pollution and Natural Resources Wales have issued a Permit to Discharge for the facility (reference: PAN-012300).
- 1.1.3 Bespoke permit, PAN-012300, is in place to allow the discharge of sediment loaded rainfall related run-off from the track located under regulation by NRW. The run-off is discharged into a ditch leading to an unnamed tributary of the Y Ffrwd.
- 1.1.4 This activity has been permitted previously by NRW under the management of Bwl MX Limited, the previous track managers (permit number EPR/WB3390HY). Unfortunately, this company entered administration in 2020. Management has transferred to Mynachdy Limited, the landowner of the site, but due to the administration of the previous owners, their bespoke permit is unable to be transferred.
- 1.1.5 Along with the new updated permit, this document will replace the existing working plan for operations at the site, as it has been deemed out of date and necessary to include conditions in the new permit.
- 1.1.6 This document has been written in accordance with NRW's latest guidance;  
<https://naturalresources.wales/permits-and-permissions/environmental-permits/environment-management-system/?lang=en>.
- 1.1.7 The purpose of this Environmental Management System (EMS) is to ensure that the discharge of run-off from Bwl MX Motocross Track under the new bespoke permit can be carried out responsibly and that all impacts are managed and reduced. The EMS implemented by Mynachdy Limited. also seeks to identify and control the risks that the activities may pose to the environment and human health.
- 1.1.8 The EMS ensures that all procedures are documented. The EMS is reviewed to ensure that the activities continue to provide an adequate and effective system for compliance and reduce exposure to environmental risk and to improve the environmental performance of the organisation.
- 1.1.9 All site staff will be provided with a copy of this EMS and undertake awareness training as part of their induction process. Annual refresher training will ensure any updates are effectively communicated and provide opportunity for clarification.
- 1.1.10 The registered office address and contact details for Mynachdy Limited are:

Mynachdy Limited  
Mynachdy Farm  
Mynachdy Road  
Ynysybwll  
Pontypridd  
CF37 3PP

Phone: 07930 386627  
Email: [disaac123@btinternet.com](mailto:disaac123@btinternet.com)

## 2 Mitigation Measures

### 2.1 General

2.1.1 There are 6 different methods of mitigation in place at the site to control silt pollution.

2.1.2 These mitigation methods were installed using an iterative approach and are consistently reviewed and evolved as understanding of the site improves.

### 2.2 Silt fencing

2.2.1 Silt fencing has been installed along a number of points around the circuits to capture, filter, and direct runoff from the site.

2.2.2 Installations have been placed:

- Along the southern bend of the intermediate level track
- At the low point of the entrance track
- Along the length of the existing watercourse along the western boundary and running back into the site
- Silt fence crescents downstream of the pond outlets and spreader bars.

2.2.3 Silt fencing specifications are presented in **Appendix ii: Silt Fencing**.

2.2.4 The silt fencing is further enhanced by vegetation cover and a tiered design to improve effectiveness.

2.2.5 **Image 1:** An example of one of the silt fencing crescents. Silt and discharge can be seen to be held up effectively by the fencing.





## 2.3 Settlement ponds

- 2.3.1 Seven settlement ponds have been constructed at the site along the western and southern boundaries. Two of these have been constructed as tiered ponds, with the remainder as single ponds. See locations of the ponds in **Appendix i: Site Plans**.
- 2.3.2 The ponds have been sized to reflect the volume of runoff flowing into them.
- 2.3.3 The ponds have been constructed to allow larger particulates to settle prior to runoff being discharged through further mitigation measures.
- 2.3.4 **Pond 1** is adjacent to the point where the watercourse passes beneath the access track in a culvert.
- 2.3.5 This pond discharges into a 2.5m x 3m pumping sump, from which a float actuated pump pumps runoff into vegetation on the hillside above the watercourse.
- 2.3.6 The runoff then flows through the vegetation into the watercourse via a bale and geotextile sump.
- 2.3.7 All runoff from most of the main circuit flows into this pond.
- 2.3.8 **Image 2:** Pond 1 with the sump.



- 2.3.9 **Ponds 2 and 3:** Two-tiered pond with straw bale filter between tiers. Discharging through a piped spreader bar into the reed bed with lines of silt fence to further filter runoff. Maintenance will be required of bale filters and silt fence as they become blocked or damaged.

### 2.3.10 **Image 3:** Settlement Ponds.



2.3.11 **Pond 4:** Small pond intercepting runoff from a steep section of the circuit, this pond reduces the force of this runoff and discharges it via a spreader bar (**Appendix iii: Spreader Bars**) into the reed bed. If rainfall is heavy, this pond overflows into **Pond 3**.

2.3.12 **Pond 5 and 6:** Single level pond collecting runoff from the circuit and discharging to the reed bed via piped spreader bars.

2.3.13 **Pond 7:** At the southern end of the site, collecting runoff from the southernmost corner of the circuit and discharging it into the reed bed via a piped spreader bar.

2.3.14 **Image 4:** Final settlement pond seeps through straw bales to discharge point.



## 2.4 **Spreader Bars**

2.4.1 Spreader bars have been added to outflow pipes from settlement ponds (**Appendix iii: Spreader Bars**). Spreader bars assist in creating an even spread of flow and reduced the likelihood of creating water channels by reducing the force of water flow. This in turn, encourages a greater rate of suspended sediment deposition.



2.4.2 **Image 5:** Spreader bar incorporated into pond drainage systems.



2.5 **Pumping of Treated Water into Vegetation to Remove Suspended Solids**

2.5.1 A pump has been installed within a sump adjacent to the most downstream attenuation pond. Runoff flows from the pond via a bale and geotextile filter with lines of silt fence.

2.5.2 **Image 6:** Pump from final settlement pond to reed bed.



2.5.3 The runoff is collected in a sump and is pumped onto a vegetated area on the western side of the watercourse. The runoff is allowed to flow through a reed bed into the watercourse. This process has been monitored during periods of heavy rain and it was noted that all but the very fine fraction of suspended solids were being removed.



2.5.4 **Image 7:** Sampling point at culvert.



## 3 Further Mitigation Measures

### 3.1 General

This Environmental Management System is a live document and will be reviewed at least annually to identify if mitigation is effective in delivering the obligations of the Discharge Permit. If required, additional mitigation measures may be specified and constructed, or existing mitigation refined. If amendments are made to the mitigation measures, these will be recorded within the subsequent revision of this Management System.

### 3.2 Maintaining the Reed Beds

3.2.1 It is essential that the reed beds do not become overcome with silt. This will greatly reduce their capacity to encourage filtration and settlement. This can be prevented by moving the spreader bars periodically to allow the vegetation to recover. The timing of this should be based on inspections undertaken weekly (more frequently during prolonged periods of wet weather).

### 3.3 Implementation of Industrial Water Management Technologies

3.3.1 If the levels of silt cannot be reduced to an acceptable level following the implementation of this environmental management system to the existing silt mitigation measures at the motocross site. The site operator will approach industrial water treatment companies. There are a range of companies that supply lamella clarifiers, chemical polymer dosage and electro coagulation techniques that can be used to reduce levels of suspended sediment within site effluent.

The operator will approach these companies for assistance in dealing with unacceptable silt concentrations and arrange a solution. The operator will maintain contact with Natural Resources Wales highlighted the chosen company and techniques to be used in order to appropriately measure their impact.

## 4 Monitoring and Maintenance of Mitigation Measures

### 4.1 General

The mitigation measures undertaken must be adequately maintained in order to ensure their continued effectiveness. The **Mitigation Checklist** in **Appendix iv** will be used to ensure the below features are maintained and audited on a regular basis.

### 4.2 Site Inspections

4.2.1 All mitigation measures will be inspected weekly, in line with the **Mitigation Checklist (Appendix iv)** to ensure they are functioning correctly. These inspections will be more frequent during periods of prolonged rainfall. Should any of the measures fail to function, or if they have reduced functionality, this should be corrected as a matter of urgency. The inspections should include a visual inspection of the water leaving the site.

### 4.3 Settlement Pond Maintenance

4.3.1 Ponds will be de-silted annually during the dry summer months. Recovered silt will be removed to a slurry pond, where it will be left to dry prior to removal from site by a registered waste carrier. Ponds will be pumped dry, and the water discharged into the silt mitigation system. Silt will then be removed using a tracked excavator with care taken not to damage the pond bunds or discharge points. Silt from the ponds will be transported to the slurry pond, tipped, and then levelled using the excavator. The excavator will access the area via the track along the SW edge of the circuit, with care taken not to over track vegetated areas, which form part of the silt mitigation for the site.

Ponds will be inspected as part of the Site Inspection Process and if silt build up is noted, this will be removed. It is anticipated that silt removal may be required regularly around the inlets to the ponds to prevent them becoming choked.

Waste transfer notes will be completed and retained for all silt material removed from site. Additional to the above the following specific treatments will be applied to the ponds:

**Pond 1** — The bale and Silt fence filter at the outlet will be monitored and will be replaced when it no longer allows water to pass through it.

**Ponds 2 and 3** — Overflow pipes between the two sections of the ponds will be inspected periodically to ensure they are clear of blockages and set at a level which maximises the water level within the upper pond but does not allow the upper pond to overflow.

### 4.4 Spreader Bar Maintenance

4.4.1 The spreader bars (**Appendix iii**) will be kept free of silt to ensure they continue to discharge water efficiently. This will be achieved via disassembly and cleaning using the water within the settlement pond. If the spreader bar becomes too clogged with silt, it may require removal from site and jet washing.

### 4.5 Reed Bed Maintenance

4.5.1 The reed beds will be maintained by ensuring that all vehicles are prevented from travelling over vegetated areas whenever possible. The spreader bar should be moved whenever required to ensure the reed beds do not become overburdened with silt. This should be assessed during the weekly site inspections.

### 4.6 Water Channel Maintenance



4.6.1 The water channels across the site will be maintained and be free of debris. Should a large amount of debris be present within a channel, this should be cleared using an excavator with a toothless/grading bucket. This will prevent the channel being churned up during the clearance operation.

#### **4.7 Silt Fencing and Straw Bale Maintenance**

4.7.1 The silt fencing and straw bales will be checked as part of the weekly inspection. Should the silt fencing or bales be in a state of disrepair (collapsed, ripped, flattened etc.) they should be replaced or repaired as a matter of urgency. It is likely that both the silt fencing and the straw bales will become overburdened with silt over time. Should this be the case, the silt should be cleared using an excavator, and the fencing/bales should be replaced.

#### **4.8 Pumps and Treatment System Maintenance**

4.8.1 The pumps will be located in a Plant Nappy with a second Plant Nappy placed below the fueling aperture during re-fueling. Fuel levels will be checked daily.

The float actuation system on the pump will be inspected daily to ensure it is operating and that the pump is activating once water levels rise and shutting down once water levels fall.

The inlet will be inspected regularly to ensure it is free from debris.

The discharge point will be monitored to ensure excessive volumes of silt are not deposited in one place affecting the effectiveness of the pump and treat system.

#### **4.9 Track Maintenance**

4.9.1 it is necessary to maintain a loose surface on the track to enable riders to slide machines around bends. To achieve this, sand and woodchip are placed onto the track. This has the benefit of acting as a binder for fines within the soil reducing the volume of silt that is mobilised.

Sand or woodchip will be placed onto the track using an excavator and dumper and will be spread using the excavator.

#### **4.10 Water Sampling**

4.10.1 Water samples will be taken monthly, between the 1<sup>st</sup> and the 10<sup>th</sup> of the month and will be sent to a UKAS accredited laboratory and analysed for the following parameters:

- Suspended solids;
- Hydrocarbons (speciated);

Sampling will be random and will take place during both wet and dry weather conditions to produce represented data regarding water quality from the site

The results of this monitoring will be retained and made available to representatives from Natural Resources Wales upon request.

If the results of monitoring are outside the limits within the Permit, NRW will be informed and the Contingency Plan below will be implemented.

## 5 Discharge Limits

### 5.1 Emissions to water

5.1.1 There shall be no point source emissions to water except from the sources and emission points listed in **Tables 1 and 2**.

5.1.2 The limits given in **Table 1** shall not be exceeded.

**Table 1. Point Source emissions to water (other than sewer) – emission limits and monitoring requirements**

Discharge source and discharge point ref. & location	Parameter	Limit (including unit)	Reference Period	Limit of effective range	Monitoring frequency	Compliance Statistic
Trade effluent consisting of rainfall related site drainage via Outlet 1	Maximum discharge volume	Rainfall related	Instantaneous (spot sample)	N/A	N/A	Maximum
	Maximum rate of discharge	9.92 l/s	Instantaneous (spot sample)	N/A	N/A	Maximum
	Suspended solids (measured after drying at 105° C)	100 mg/l	Instantaneous (spot sample)	N/A	N/A	Maximum
	Visible oil or grease	No significant trace present	Instantaneous (spot sample)	N/A	N/A	No significant trace

**Table 2 Discharge points**

Effluent Name	Discharge Point	Discharge point NGR	Receiving water/Environment
Trade effluent consisting of rainfall related site drainage	Outlet 1	ST 03912 95034	Unnamed tributary of the Y Ffrwd

**Table 3 Monitoring points**

Effluent and discharge point	Monitoring type	Monitoring point NGR	Monitoring point reference
Trade effluent consisting of rainfall related site drainage via Outlet 1	Effluent monitoring	ST 03912 95034	Sampling Point

## 6 Contingency Strategy

### 6.1 General

6.1.1 It is vital that the site have a contingency strategy which will be implemented should the mitigation measures fail, in order to ensure that the watercourse remains protected from siltation.

The most likely failure to occur would be the breach of the maximum capacity of the retention ponds. This would result in a large amount of silt water flowing into the watercourse. It is also possible that the bunding around the retention ponds and the channels may breach, although the maintenance plan will minimise the risk of this occurring.

### 6.2 Ceasing of Site Activities

6.2.1 Should any of the mitigation measures fail or the results of water quality monitoring exceed agreed limits, all site activities, including use of the track but with the exception of works in aid of silt mitigation, will cease. This will prevent the ground being churned up further and will stop further fine particles entering the site runoff.

### 6.3 Containment of Surface Water

6.3.1 It is imperative that where possible, the silt water is contained on site. Additional pumps will be bought to site and silt contaminated runoff overflowing settlement ponds will be pumped into areas of surrounding vegetation. Bwl MX has existing relationships with local pump hire companies and additional pumps can be bought to site at short notice.

### 6.4 Lamella Clarifier

6.4.1 In the event of a large scale failure in mitigation measures, a lamella clarifier (Silt Buster unit) may be required to clarify the runoff before discharging to the watercourse. This would be a temporary measure to alleviate large amounts of silt water present around the site which cannot be contained in the retention ponds.

### 6.5 Redesign of Mitigation Measures

6.5.1 Once short-term issues have been remedied, the mitigation measures on site must be re-evaluated in order to reduce the risk of the mitigation measures failing again in the future. An investigation into any incident will be undertaken to identify the key factors which lead to its occurrence including the production of an incident report. The mitigation measures will then be inspected and redesigned, strengthening the areas that were the source of the issue.



## 7 Emergency Management Response Plan

### 7.1 General

7.1.1 In the event of an emergency, the operator will follow the emergency management plan and complete the attached environmental incident form found in **Appendix v**.

### 7.2 Emergency Contacts

#### 7.2.1

Incident Manager: Chris — 07779 267182

Environmental Advisors 4R Group — 0113 232 2400

Natural Resources Wales: 0800 80 70 60  
(to be informed in the event of a Cat A or B Incident).

Emergency Services: 999 (Request service required)

### 7.3 Responsibilities

7.3.1 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 site manager who will act as the incident controller. The Incident Controller shall coordinate resources to put the containment and mitigation plan in place.

If the incident has potential for impacts outside the site boundary or to exceed limits agreed within the site discharge permit, Natural Resources Wales will be contacted on 0800 80 70 60

4R Group will be available to offer advice on containment and remediation of the effects of incidents.

### 7.4 Pollution Incidents

#### 7.4.1 Fuel or Oil entering a watercourse or drainage:

The response will depend on the amount of hydrocarbon spilt and the flow of the river. 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.
- Deploy an oil absorbent boom across the watercourse 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 (0800 80 70 60)

#### 7.4.2 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 hazardous waste.
- If spillage is onto a hard surface, all drains and gullies 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.

Natural Resources Wales to be contacted (0800 80 70 60)

#### **7.4.3 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.

Natural Resources Wales to be contacted (0800 80 70 60)

#### **7.4.4 Silt entering a watercourse**

Remove the source of the contamination by stopping silt contaminated water entering watercourses, ceasing works in or near watercourses or removing contaminating material from watercourses.

A settling lagoon should be constructed adjacent to the watercourse with a pipe set at the required discharge level at the outlet. The water should then be diverted into this lagoon which should have sufficient capacity to retain the water long enough for any particulates to settle out.

### **7.5 Environmental Response Equipment**

7.5.1 Spill kits are available within the welfare area adjacent to the carpark and at fuel storage areas.

Sandbags, straw bales, plastic sheeting, etc are available from the Environmental response area in the stores.

- Environmental Response store inventory:
- Sandbags
- Straw bales
- Rolls of silt fence
- Terram (or similar)
- Roll of plastic sheeting
- Wooden stakes
- Oil spill kits
- Also stored locally quantities of wood chip.

### **7.6 Incident Reporting**

7.6.1 All environmental incidents shall be reported to the Incident Controller immediately, they will then take the necessary action to ensure that the incident is dealt with and the responsible agencies (NRW /

Emergency Services) are informed. The incident shall then be reported on the **Incident Report Form in Appendix v**, within 24 hours of the incident. The report shall include an explanation of the cause, the actions taken to mitigate the incident and proposals to prevent reoccurrence of the incident. Incidents shall be ranked in terms of their severity:

Category A — Major incident - Release of polluting substance resulting in fish kill or serious environmental harm. Intervention of statutory authorities required. Incident to be notified to statutory authorities i.e. NRW (0800 80 70 60).

Category B — Significant incident - Spillage of 5 litres or more of polluting substance, silt contamination of a watercourse, in excess of limits permitted under the Environmental Permit for the site. Incident to be notified to statutory authorities i.e. NRW (0800 80 70 60).

Category C — Minor incident — Spillage of less than 5 litres of polluting substance, silt contamination of a watercourse within the limits of the site Environmental Permit. No requirement to notify NRW.

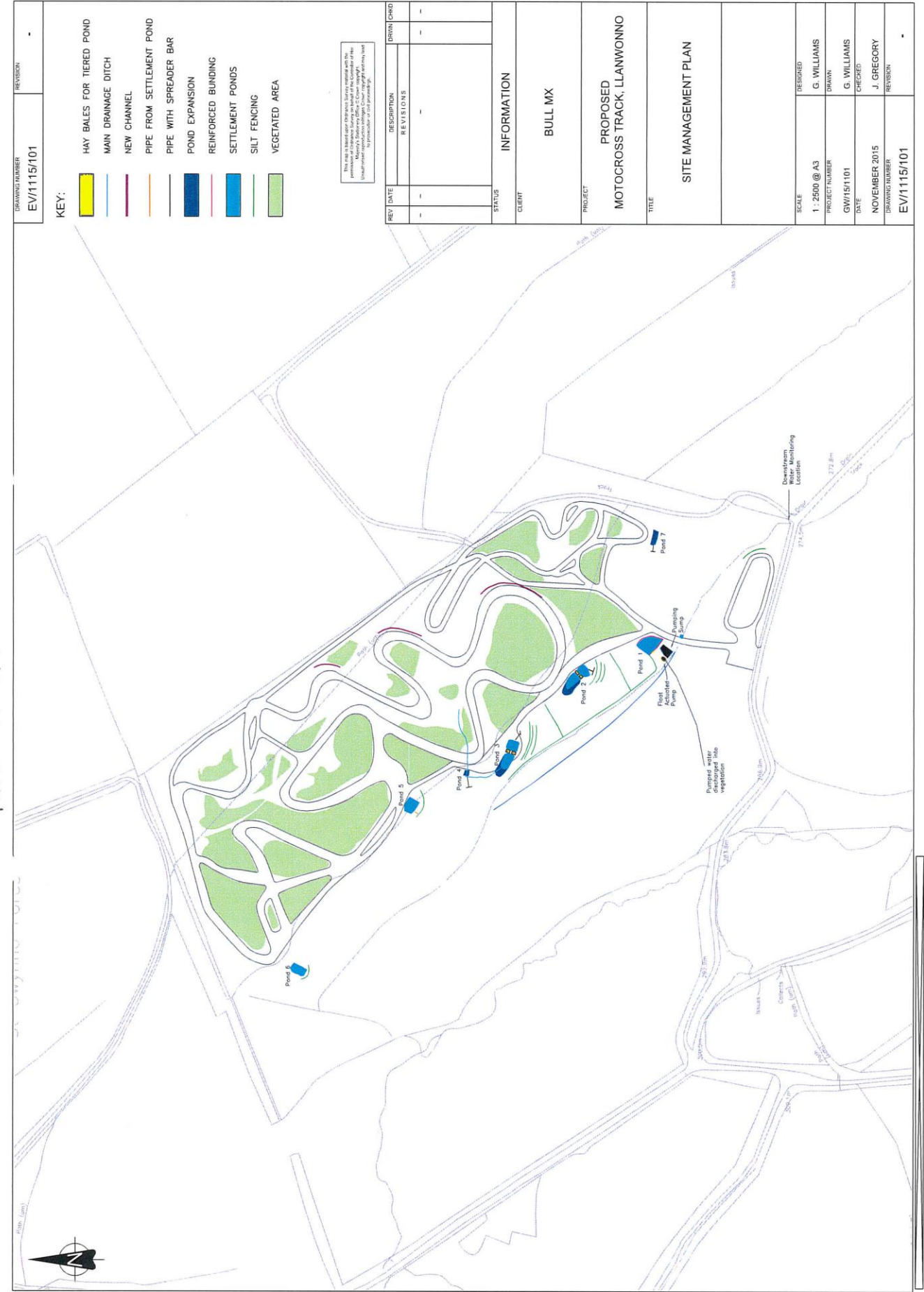
Assessment of incident severity is subjective and the discretion of the Incident Controller and Environmental Advisors will be advised.

The **Environmental Incident Report Form (Appendix v)** shall include the following information:

- 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.



Appendix i. Site plan





### Hy-Tex Terrastop™ Premium Silt Fence

Hy-Tex Terrastop silt fence in use on National Grid's Milford Haven to Aberdula's gas pipeline project



Hy-Tex Terrastop silt fence in use on National Grid's Felindre to Brecon gas pipeline project



Alternate "crown" layout illustrated in final picture was developed through practical field work by Rob Alcock and Marc Palin of NACAP Land & Marine Environment Response Crew.

Many construction activities result in disturbed or bare ground that is vulnerable to weather erosion (e.g. building areas, haul roads, pipelines, spoil heaps and quarries). The silt laden run-off, plus site debris, often contaminates surrounding land, watercourses, lakes and drains - resulting in significant environmental pollution and potentially costly fines.

However, due to the on-going nature of construction works, it is generally not possible to protect exposed surfaces until the project is complete. So stormwater from such sites remains one of the largest un-addressed non-point sources of water pollution in the UK. With the introduction of Hy-Tex Terrastop™ Premium silt fence, there is now a practical, economic and effective method to reduce run-off pollution.

**Terrastop™ Premium** is a special, high quality, permeable, technical filter fabric that can be installed as an entrenched vertical barrier fence, and is designed to intercept and detain run-off, trapping harmful silt through settlement and filtration before it leaves the site.

**Performance:** Although the benefits of silt fences have only recently become recognised in Britain (The Environment Agency/SEPA Pollution Prevention Guidelines (PPG5) now recommend the use of silt fences to reduce silt transport from exposed ground and stock piles), the concept is not new. Silt fences have been used extensively in other countries for many years, and their proven performance (Intercepting up to 86% of suspended solids [Horner et al. 1990]) has made them a standard *Best Management Practice* on a diverse range of projects, while in-depth research and practical experience has identified the most important characteristics for effective results.

Based on this invaluable knowledge, Hy-Tex Terrastop™ Premium has been designed to exceed the highest standards, incorporates many unique features, and is also "CE Mark" certified for erosion control applications in accordance with mandatory European requirements.

**Key Features:** General purpose non-woven and woven geotextiles are unsuitable for silt fence use because they often tear or fray, require costly additional wire support fences to withstand the forces of stormwater/silt build-up, weaken quickly due to lack of UV protection, and clog or inadequately filter sediment because of poor hydraulic properties.

Terrastop™ Premium is manufactured specifically as a silt fence so has a high tensile strength, UV stabilised, woven structure with tear resistant non-fraying reinforced edges, that is durable and self supporting between fixing posts for reliability, as well as having a visually pleasing subtle green colour.

While the important special fibrillated fibre weft yarn, combined with a high quality weave, provides enhanced filtration, maintains a high flow rate and is less prone to clogging.

**Installation Aids:** Silt fences also often fail through poor installation or aftercare, therefore Terrastop™ Premium incorporates pre-marked lines for burial depth and maximum silt accumulation level to ensure correct set-up and maintenance; as well as a top ribbon strip to simplify post attachment and tensioning. While the ideal exposed fence height of 0.60m avoids problems of excessive water damming and wind resistance damage.

Kirsty Liddon's Edinburgh University Dissertation "Prevention of Diffuse Pollution from Active Forestry Harvesting Sites:" concluded "the Hy-Tex [Terrastop Premium] material appears to be the most suitable material for use as sediment retention as it has the most consistent performance between differing soil types retaining the highest volumes of sediment for both gley and peat solutions."

Specification	Hy-Tex Terrastop™ Premium
Tensile Strength	22kN/m
Strain at Maximum Load	22%
Grab Tensile Strength	md 0.98kN, cd 0.95kN
Trapezoid Tear Strength	0.48kN
Dynamic Perforation	10mm
Static Puncture (CBR)	3,500N
Hydraulic Characteristics	Flow Rate: 45 l/m <sup>2</sup> /sec, Water Permeability: 0.015m/s
Opening Size	250µm
Weight	200g/m <sup>2</sup>
Material	1000µ thick, green/black, 400kLy UV stabilised, polypropylene
Roll Size	0.75 x 100m
Other Key Features: Fibrillated fibre weft yarn, burial depth and maximum silt accumulation marker lines, top tying-off and tensioning ribbon, and tear resistant non-fraying edges. CE Mark certified.	

©2011 Hy-Tex (UK) Ltd G TERRASTOP 02a Terms and Conditions apply.

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Hy-Tex (UK) Limited

Committed to Quality, Value & Service



# Hy-Tex Terrastop™ Premium Silt Fence

## Installation Guidelines

### SCOPE

1. This practice covers common installation requirements for temporary silt fence applications.
2. This practice is applicable to the use of silt fences as vertical permeable interceptors designed to remove suspended soil from overland, non-concentrated water flow. The function of a temporary silt fence is to trap and allow settlement of soil particles from sediment-laden water and to filter particles from water permeating through the fabric. The purpose is to greatly limit the transport of eroded soil from the construction site by water runoff.
3. The practices presented herein are intended to ensure good workmanship and quality and are not necessarily adequate for all purposes in view of the wide variety of possible sediments and performance objectives.
4. This standard does not purport to address all safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate health and safety practices and determine the applicability of regulatory limitations prior to use.

**CONDITIONS WHERE PRACTICE APPLIES**

1. Below disturbed areas where erosion would occur in the form of sheet and rill erosion, and where ponded run-off will not cause damage.
2. Where the size of the drainage area is no more than 0.30 hectares per 100.00m of silt fence length; the maximum slope length behind the barrier is 30.00m; and the maximum gradient behind the barrier is 50 percent (2:1).
3. In minor swales or ditch lines where the maximum contributing drainage area is no greater than 0.80 hectares.
4. Under no circumstances should silt fences be constructed in live streams or in swales or ditch lines where flows are likely to exceed 0.03m<sup>3</sup>/s.

5. Silt fence should not be used in areas where rock or hard surfaces prevents the full and uniform depth anchoring of the barrier.

### DESIGN CRITERIA

1. An effort should be made to locate silt fence at least 1.50 to 2.00m beyond the base of disturbed slopes with grades greater than 7%.
2. Properly supported silt fence which stands 0.60 metres above the existing grade tends to promote more effective sediment control (higher fences are vulnerable to excessive wind resistance or may impound volumes of water sufficient to cause failure of the structure).
3. A minimum 150mm of silt fence shall be embedded.
4. Maximum post spacing shall be 1.50m.

### CONTROLLING MATERIAL SPECIFICATIONS

1. The material used for temporary silt fence shall be Hy-Tex Terrastop™ Premium, or similar approved, with CE Mark certification for EN13253: erosion control works and conforming to the following specification requirements:

Grab tensile strength [ASTM D4632]: minimum 0.98kN warp, 0.95kN weft. Water permeability [NBN EN ISO 11058]: minimum 0.015 m/s. Opening size [EN ISO 12956]: maximum 250µm. Composition: 400kLy UV stabilised woven polypropylene with split tape warp and fibrillated fibre weft yarns, burial depth and maximum silt accumulation marker lines, top tying-off and tensioning ribbon, tear resistant non-fraying edges and 0.75m fabric width.

2. The contractor shall provide to the engineer all certifications required by the controlling material specification.

3. Silt fence materials shall be subject to sampling and testing in accordance with, and to verify conformance with, the controlling material specification.

4. All posts shall be a minimum length of 1.20m, have sufficient strength to resist damage during installation and to support the applied loads due to material build up behind the silt fence.

[Note 1]: Generally, for wooden posts the cross section must be minimum 30 x 30mm for hardwood and 50 x 50mm for softwood; while steel posts (standard "U", "T" or "L" section) must be a minimum weight of 2kg/m).

### INSTALLATION

1. Silt fences sections should be continuous and transverse to the flow. The silt fence should follow the contours of the site as closely as possible. Place the fence such that the water cannot runoff around the end of the fence, extending ends upslope enough to allow water to pond behind the fence (See figure 2).

2. A trench shall be excavated approximately 100mm wide and 100mm deep on the upslope side of the proposed silt fence location.

3. Bury bottom 150mm of silt fence (To top of RED MARKER LINE on Terrastop™ Premium) in a "L" configuration in the trench so that no flow can pass under the silt fence. Backfill the trench and compact the soil over the geotextile so that the compacted soil completely fills the trench.

4. Compaction prior to installing posts is generally recommended. Compact the backfill soil immediately next to the silt fence geotextile. Compact the upslope side first, and then the downslope side. The soil adjacent to the buried silt fence geotextile shall be compacted to achieve no less than 50% of its original in situ strength, unless otherwise specified.

[Note 2]: Poor compaction is one of the main causes of silt fence failure. Installed posts may interfere with compaction by large equipment adjacent to the silt fence. Compaction is commonly accomplished with the front wheel of a tractor, skid steer, roller or other device, as well as with manual tamping or other manual means, taking care not to damage the silt fence.

5. When joints are unavoidable, the fabric shall be spliced together only at a support post, with a min. 300mm overlap, and securely sealed so that there are

no gaps, voids, or other loss of integrity of the barrier, ideally by wrapping the overlap around the post.

6. Place the posts tight to the downslope side of the silt fence at 1.50m spacing. Drive posts a minimum of 500mm into the ground. Increase depth to 600mm if fence is placed on a slope of 3:1 or greater.

[Note 3]: Where 500mm depth is impossible to attain, posts should be adequately secured/braced to stop overturning of the fence due to sediment loading.

7. Fasten the filter fabric securely and taut to the upslope side of the posts using top ribbon (see figure 3), wire/cable ties threaded through the silt fence, or 30mm long extra wide head galvanised clout nails (The fabric shall not be stapled to existing trees). Where required, tighten top edge of fabric by looping top ribbon over posts, and strain/brace posts to maintain fence tension and stability (See figure 1).

[Note 4]: If a silt fence is to be constructed across a ditch line or swale, the fence length must be sufficient to eliminate endflow, the plan configuration shall resemble an arc or horseshoe with the ends oriented upslope, and post spacing a maximum of 1.00m.

### MAINTENANCE

1. The contractor shall inspect all temporary silt fences immediately after each rainfall, and at least daily during prolonged rainfall. The contractor shall immediately correct any deficiencies.

2. The contractor shall also make a daily review of the location of silt fences in areas where construction activities have altered the natural contour and drainage runoff to ensure that the silt fences are properly located for effectiveness. Where deficiencies exist, as determined by the engineer, additional silt fence shall be installed as directed by the engineer.

3. Repair damaged or otherwise ineffective silt fences or replace promptly.

4. Either remove sediment deposits when the accumulation reaches one third the height of the exposed fence (Top of BROAD WHITE/BLACK MARKER BAND on Terrastop™ Premium), or install a second silt fence as directed by the engineer.

5. The silt fence shall remain in place until the engineer directs it be removed. Upon removal the contractor shall remove and dispose of any excess sediment accumulations, dress the area to give it a pleasing appearance, and vegetate all bare areas in accordance with contract requirements.

6. Removed silt fence may be used at other locations provided the geotextile and other material requirements continue to be met to the satisfaction of the engineer.

Figure 1: Hy-Tex Terrastop™ Premium

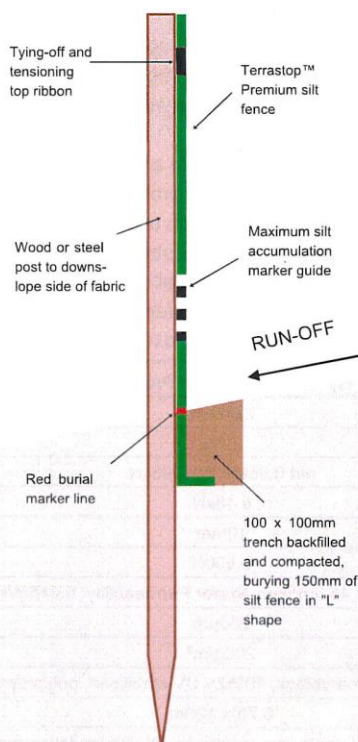


Figure 2: Silt Fence Placement

Alignments called 'U' or 'J' hooks ensure water & sediment pond behind each silt fence.

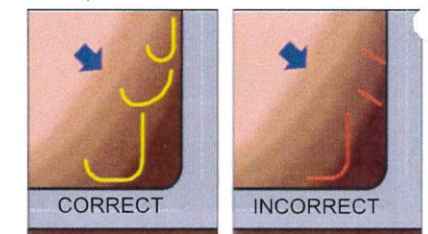
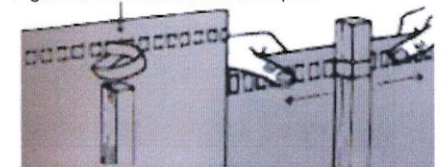
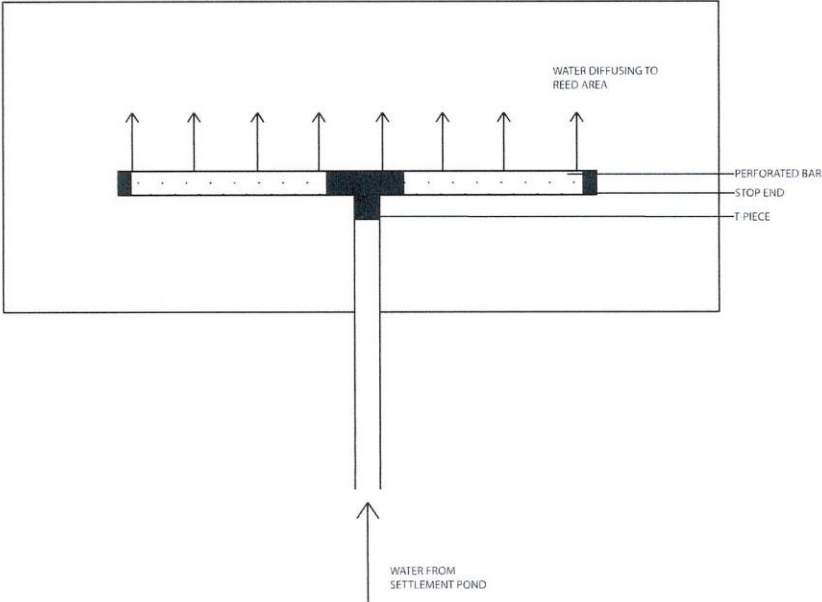


Figure 3: Ribbon attachment to post



Disclaimer: All information is provided in good faith, but without warranty. Nor does it form part of any contract, or intended contract, with the Buyer/User. Further conditions apply, details available on request.

Appendix iii. Spreader Bars



SPREADER BAR  
DIAGRAM

BIG COUNTRY  
MOTOCROSS TRACK  
SILT MITIGATION

11/06/2015

DRAWING NO: EV10329



## Appendix iv. Site Mitigation Checklist



<b>Document</b>	Water Management Checklist	<b>Person / Organisation</b>	BullMx Ltd	
<i>Note: It is recommended this information be kept in an organised log folder and updated on a weekly basis.</i>				
<b>Date of Check</b>		<b>Person Undertaking Check</b>		
<b>Time of Check</b>				
<b>Weather Conditions During Check</b>				
<b>Site Mitigation Measures Checklist</b>				
<b>Feature</b>	<b>Good</b>	<b>Poor</b>	<b>Actions Taken</b>	
Silt Fencing				
Splitter Bars				
Settlement Ponds				
Bunds & Grips				
Spill Kits				
<b>Water Discharge Quality</b>				
<i>Note: clear water must only be considered if there are no signs of contamination within the water outflow, otherwise it is to be considered moderate. In the event the outflow is heavily clouded then it is considered severe which will require immediate action from the site operator.</i>				
<b>Visual Assessment</b>	<b>Clear</b>	<b>Moderate</b>	<b>Severe</b>	<b>Actions Taken</b>
<b>Water Quality</b>				
<b>Date Collection</b>	<b>Yes</b>	<b>No</b>	<b>Sample Point</b>	<b>Number of Samples</b>
<b>Samples Taken</b>				
<b>Other Comments</b>				
<b>Operatives Signature</b>				

## Appendix v. Incident Reporting Form

<b>Document</b>	Incident reporting form	<b>Person / Organisation</b>	
<b>Date of Incident</b>		<b>Location of incident</b>	
<b>Time of Incident</b>			
<b>Cause of incident</b>			
<b>Actions to remedy incident</b>			
<b>Personnel involved</b>		<b>Third parties and statutory bodies involved</b>	
<b>Procedures in place to prevent re-occurrence</b>			
<b>Feature</b>	<b>Advantages</b>	<b>Disadvantages</b>	<b>Actions Taken</b>
<b>Other Comments</b>			