Blackmoss farm

Construction surface water management plan

1. Develop a plan.

As with most things on a construction site, successfully planning is key. How you will deal with water requires a lot of thought before work starts. A good plan will include the following list and address any statutory requirements placed upon the project.

2. Know what and where the receptors are.

The terminology may change but the themes remain the same. Surface waters as defined by the EA or the Water Environment as referenced by SEPA includes watercourses, rivers, streams, estuaries, lakes and canals. If pollutants from your site reach any of the above you are at risk of enforcement action, so it is important to know where they are in relation to your works.

3. Keep non-site water away from your construction activities.

This will obviously vary massively depending on the nature of the site, but plans should be made to isolate your works from any pre-construction surface flows. This can be in the form of impermeable bunds, upslope cut off drains or a mixture of the two. Be aware that the water you stop moving over your site will need to go somewhere, so build in plans to allow the water to move across your site in a way that maintains its non-site contaminated status. Tying your pre-construction drainage into existing watercourses is one way of achieving this, provided all statutory paperwork and commitments are observed.

4. Keep clean water clean.

If there is water on your site that is uncontaminated, try and keep it that way. Broadly speaking, reducing the volume of contaminated water reduces the associated costs of treating it.

5. Have multiple discharge points and keep them as far as is practical from the natural water environment.

In the UK, we are subject to relatively high precipitation rates, which means that even though we have installed measures to stop water flowing on to site, it is very likely that the project will have to treat water that falls on it. If possible, the installation of multiple discharge points treating surface flow close to the source of pollution is preferential. This means you are treating smaller volumes at each location and are discharging the treated water over a larger area.

As discussed, surface waters or the Water Environment are your receptors. Try to discharge your treated water as far as possible from these to reduce the risks. If this is not possible robust treatment measures will be required.

6. Slow silt laden site water down.

Reducing kinetic energy in silt laden waters allows sediments to settle out of the water more effectively. This is commonly achieved through check dams and settlement ponds within your treatment systems. Shallow ponds are more efficient at removing sediment from water than deeper ponds. It is therefore important to understand the difference between attenuating water for flood prevention and using settlement ponds to treat silt laden water.

7. Overcompensate and maintain.

Where possible, it is better to overestimate the volume of water a treatment system will deal with. This will give the system a better chance to cope with any unexpectedly large downpours, or other climatic variables such as significant snowmelt or precipitation falling on baked earth which can lead to an initial increase in surface flow. The treatment systems are there to remove pollutants and so can become overwhelmed, it is therefore critical to maintain the systems so they remain effective.

1. Plan & spec attached as appendices.

2. The preconstruction water from the farm currently flows into an existing swale and discharges into brook

3. Our construction water is being kept separate from non-construction water by means of pumping into settlement tanks and settlement ponds

4. This will be controlled as per item 3

5. As this construction site is 500m + from discharge point with multiple manholes with catchpits and the swale being used post discharge we don't see this as a problem but it will be monitored

6. As per number 5 with the distance and the use of swales, settlement ponds , catchpits etc this will control the flow

7. We will be monitoring the flow rates and the quality of water discharged and if we see any problem works will be ceased till a solution is sorted

Appendix 5 Pumps & silt removal equipment

Sykes Pumps Silt Away

SPECIFICATION

Settlement area:	10 m²
Water capacity:	5000 litres
Weight empty :	1196 kg
Dimensions (L x W x H):	2320 x 2320 x 2015 mm

The Silt Away unit has been specifically designed to separate suspended solids and sediment from water pumped from various ground sources, including construction sites, rivers and drains.

Pumped water passes through the Siltaway filters via a Lamella platebox, allowing solids contained in water to drop into a discharge chamber below.

SETTLEMENT TANKS

SPECIFICATION

Capacity (litres):	3000
Length (mm):	2400
Width (mm):	1200
Height (mm):	1200
Weight Empty (Kg):	900

Sykes offer a range of settlement tanks to be used on the discharge side of any pumpset. The tanks are specially designed to prevent silt and fines being discharged into the water course or drains. Each tank is provided with a series of weir plates, Bauer quick release couplings, lifting eyes and drain plugs.

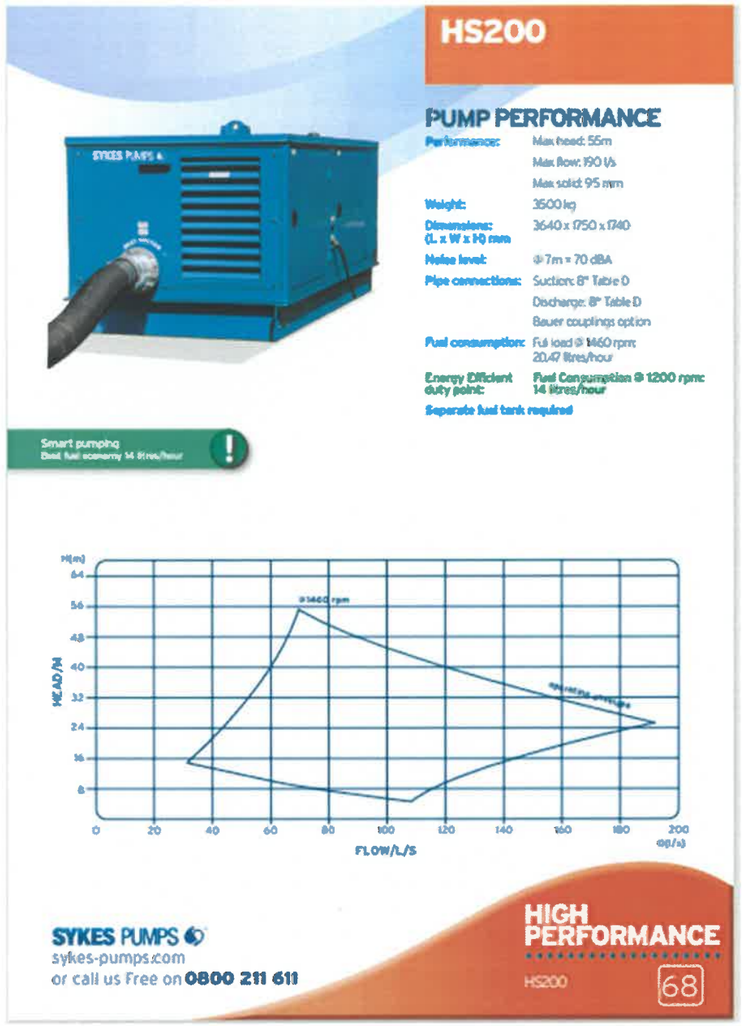
Must not be lifted full.

SYKES PUMPS
sykes-pumps.com
or call us Free on **0800 211 611**

ACCESSORIES

SETTLEMENT TANKS
ROAD RAMPS

Appendix 5 Pumps & silt removal equipment



1. pump and SILT BUSTER. 2. SETTLEMENT TANK 3. SWALE 4. CATCH PIT MANHOLE.

Rodding Eye located inside catchpit S13.

Cut off Filter Drain

Suds Feature 01
Filter Drain

Future Development

Concrete Slab Gullies				
Gully ID	X (Eastings)	Y (Northings)	Cover	Invert
GY01	360126.402	440964.036	105.025	104.575
GY02	360128.155	440962.284	105.025	104.575

Concrete Apron

For manhole Filter Drain details in section refer to drawing CSH-BML-XX-XX-DR-C-0502

Cut off Filter Drain

Existing Building

Existing Building

Althon Outlet Headwall to manufacturers' specifications

Suds Feature 02
Storage Pond

Althon Outlet Headwall to manufacturers' specifications

Proposed Pond 01

PROPOSED STORAGE POND 01
Approx 519.3m3
Pond - Side Slopes : 1 in 3
Top of Pond : 105.190m
Top Water Level : 104.890m
Base of Pond : 103.680m

Bottom of Pond IL. 103.680m

Top Water level IL. 104.890m

Top of Pond CL: 105.190m

For Hydro-brake details refer to drawing CSH-BML-XX-XX-DR-C-0502

Suds Feature 03 Flow Control Chamber

HYDRO-BRAKE FLOW CONTROL CHAMBER (S18)
Proposed Flow Control Chamber
Hydro-brake Optimum
Unit Reference MD-SHE-0097-3000-1200-3000
Design Head :1.20m
Design Flow :3.0 l/s
Manhole Diameter :1200 mm
Cover Level :105.068m
Invert Level :103.880m

Suds Feature 04
Storage Pond

For Drainage Details from Proposed Slurry Tanks, refer to drawing CSH-BML-XX-XX-DR-C-0508

For Drainage details showing outfall at existing ditch, refer to Insert A

- 1-year + 0% CC - 2.9l/s
- 30-year + 35% CC - 2.9l/s
- 100-year + 40% CC - 3.2l/s

S1.006 DN150 SWS @ 1:124.2

S1.005 DN450 SWS @ 1:124.2

Plan
Scale 1:250

Notes:

1. The contractor is to check all information provided prior to commencing the works and seek clarification from the engineer in respect to any ambiguities found.
2. Pipe materials shall be as follows:
   Surface Water:
   -150s to 225s - Polypipe Polysewer PVCu pipes
   -300s and above - Polypipe Rigisewer PVCu pipes
   Foul Water:
   -All pipe materials shall be clayware Class 120 to BS EN 295
3. All drainage under trafficked areas must be backfilled with an approved graded granular material.
4. All chamber covers and gully tops shall be kite marked and comply with the strength / group requirements of BS EN 124.
5. Cover levels for chambers within landscaped areas shall be adjusted to match surrounding finished levels.
6. All new rainwater down pipes are to discharge into roddable connections.
7. All pipes to be benched within the chambers soffit to soffit.
8. Drainage chambers within areas paved with paving flags and block setts shall all have recessed covers.
9. Final position of all RWP's and SVP's to be confirmed.

Safety, Health & Environmental Information:

In addition to the hazards and risks normally associated with the types of work detailed on this drawing, please note the significant hazards identified by symbols below,

INDICATES A RESIDUAL RISK AS A WARNING

INDICATES A RESIDUAL RISK FOR INFORMATION

and described below:

Construction/Maintenance/Cleaning/Demolition

Refer to Drawing:

General Notes:

1. Do not scale from this drawing.
2. All dimensions are in millimetres (mm), all levels in metres (m) unless noted otherwise.
3. Discrepancies or omissions are to be reported to the Engineer prior to work commencing.
4. Materials and workmanship are to comply in all respects with current British Standard Specifications, Codes of Practice, and Building Regulations Approved Documents.
5. The copyright of this drawing is vested in the Engineer and must not be copied or reproduced without written consent.
6. The Contractor is to check and verify all building and site dimensions, levels and sewer invert levels at connection points before work commences.
7. This drawing is to be read in conjunction with all relevant specifications and drawings issued by the Engineer, Architect and other Specialists.

Greenfield Runoff Rates

ICP SUDS Mean Annual Flood

Input

Return Period (years)	100	Soil	0.450
Area (ha)	0.916	Urban	0.000
SAAR (mm)	1057	Region Number	Region 10

Results l/s

QBAR Rural	6.5
QBAR Urban	6.5
Q100 years	13.6
Q1 year	5.7
Q30 years	11.0
Q100 years	13.6

Drainage Key:

DN000 SWS @ 1:000X	Proposed Stormwater Sewer
DN000 SFT @ 1:000	Proposed Filter Drain
DN000 DWS @ 1:000	Proposed Dirty Water Sewer
S0X	Proposed Stormwater Manhole
S0X	Proposed Ridgistorm Separate Catchpit
S0X	Proposed Stormwater Hydro-brake
	DN150 Gully / RWP Connector
RWP	Proposed Rain Water Pipe
	Proposed Rodding Eye
	Proposed Finish Floor Level
P	Proposed Pumping Station. Refer to drawing CSH-BML-XX-XX-DR-C-0503 for details.
DN000 COMB	Proposed Rising Main
DN000 DWS GYXX	Proposed Inspection Chamber with Grilled Cover. For details Refer to drawing CSH-BML-XX-XX-DR-C-0503
XX.XXX	Design Levels

Rev	By / Chkd	Date	Description
P05	DH AM	05.02.2024	Additional Drainage Information added
P04	DH AM	26.01.2024	Additional Drainage Information added
P03	DH AM	10.08.23	Additional Drainage Information added
P02	DH AM	21.07.23	Preliminary Issue
P01	RA/DM	05.04.23	For Discussion

PRELIMINARY DRAWING
This drawing is not to be used for construction

Client: FI REAL ESTATE MANAGEMENT

BarnsleyMarshall Limited
1 Birch Court
Blackpole East
Worcester
WR3 8SG
Tel: 01905 330550
Email: design@barnsleymarshall.co.uk
Web: www.barnsleymarshall.co.uk

Project: Cow Shed, Elmridge Lane, Preston, PR3 2NY

Drawing: Proposed Surface Water Drainage Plan Layout 01 Main Site

By/Chkd	DH/AM	Date	05/04/2023
Drawing No.	CSH-BML-XX-XX-DR-C-0500	Revision	P05
BML Job No.	1000-05	Status	-
Drawing Scale at A1:	DH/AM		
CAD Filename:			

Proposed Pond Detail 01
Scale: NTS

Proposed Swale Detail
Scale: NTS

HYDRO-BRAKE FLOW CONTROL CHAMBER 02 (S22)
Proposed Flow Control Chamber
Hydro-brake Optimum
Unit Reference MD-SHE-0083-1000-1300-2000
Design Head :1.30m
Design Flow :2.0 l/s
Manhole Diameter :1200 mm
Cover Level :104.790m
Invert Level :103.154m

Suds Feature 05
Flow Control Chamber

Suds Feature 04
Storage Pond

1-year + 0% CC - 1.7l/s
- 30-year + 35% CC - 1.7l/s
- 100-year + 40% CC - 1.7l/s

PROPOSED STORAGE POND 02
Approx 261.0m3.
Pond - Side Slopes : 1 in 3
Top of Pond : 104.790m
Top Water Level : 104.350m
Base of Pond : 103.154m

Top Water level IL. 104.350m

Bottom of Pond IL. 103.1545m

Top of Pond CL: 104.790m

Inlet from 2No. Slurry Tanks For details refer to Drawing, CSH-BML-XX-XX-DR-C-0508

For Drainage details from Proposed Buildings, refer to drawing CSH-BML-XX-XX-DR-C-0500

For Drainage details from Proposed Buildings, refer to drawing CSH-BML-XX-XX-DR-C-0500

NOTE:
1. For Foul & Stormwater Manhole Schedules refer to drawings CSH-BML-XX-XX-DR-C-0504.
2. For Catchment Areas refer to drawings CSH-BML-XX-XX-DR-C-0505 & 0509.
3. For Flood Flow Analysis refer to drawings CSH-BML-XX-XX-DR-C-0506 & 0507.
4. For Drainage Details refer to drawings CSH-BML-XX-XX-DR-C-0501 to 0503.
5. Pipe material shall be as follows: 100Ø to 225Ø - Vitrious Clay Class 120 to BS EN 295.
6. All pipes to have Class S bedding as per detail on drawing CSH-BML-XX-XX-DR-C-0501 unless otherwise specified.

Althon Outlet Headwall to manufacturers' specifications

Proposed Swale to start here: Minimum Base Level at start of Swale: 101.600m

Proposed Swale to ends here: Abs Minimum Base Level at end of Swale: 98.350m

Suds Feature 06
Swale

Proposed Swale Depth 0.5m, 1:4 Slopes

Free-flowing outfall archived (Outfall level 98.350) Existing Ditch Top water level 98.120m

Surveyed Existing ditch (Top Water Level 98.120m)

Discharge to existing ditch 98.350m

Existing Surveyed Ditch

Concrete impregnated fabric with Rip-Rap or sandbags for scour control

Discharge into Existing Ditch / Watercourse
CL: 99.100m
IL: 98.350m
Maximum Peak Flow 5.0l/s
- 1-year + 0% CC - 4.6l/s
- 30-year + 30% CC - 4.6l/s
- 100-year + 40% CC - 5.0l/s
Contractor to obtain S23 Land Drainage Act consent to discharge to existing watercourse before construction begins.

S1.007 DN150 SWS @ 1:140.7

S1.008 DN150 SWS @ 1:140.7

S1.009 DN150 SWS @ 1:140.2

S1.011 DN150 SWS @1:25.5

Insert A
Scale 1:500