



SURFACE WATER MANAGEMENT PLAN

Land at Uldale View,
Egremont,
Cumbria,
CA22 2LW

Prepared for:

gleeson

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EXECUTIVE SUMMARY

Site Address	Land at Uldale View, Egremont, Cumbria, CA22 2LW.	
Grid Reference	E 300750, N510027.	
Site Area	7.6 Ha.	
Current Site Use/Description	The site forms an irregular plot of 2no. agricultural fields divided by hedgerows, fencing and some stone walls. Access to the site can be granted via Uldale View to the west of the site. The highest points of the site are noted in the central area and the south western corners, with an approximate 10m drop to the other boundaries. A steep slope is present adjacent to the north and eastern boundaries with dense woodlands beyond.	
Proposed Development	ERGO understands that Gleeson will develop the subject site for a low rise residential end use with associated estate roads, driveways, gardens, landscaping, SUDS features and utility infrastructure.	
Synopsis of Permanent Surface Water Drainage System	The surface water system will flow by gravity utilising ponds in the north and east of the site. The majority of the stormwater attenuation will be stored within ponds and the pipe network prior to ultimate discharge into the surface watercourse to the north east. The programme should prioritise the construction of the attenuation basin as early in the build as possible to provide an effective means of attenuating surface water run-off. Seeding of the banks of the attenuation basin and surrounding area should be completed as soon as is practicable, to minimise silt mobilisation. The permanent basin will be used as a settling pond on a temporary basis until the full drainage infrastructure is constructed, at which time the basin and infrastructure will be cleaned, where necessary prior to commission. Outflow rates will be controlled to the agreed discharge to the receiving water. Prior to the installation of outfalls and pipework, temporary measures including localised bunds, silt traps and 'grips' will be required by the contractor on a construction phase specific basis to ensure no run-off for individual operations, particularly with the significant reprofiling works expected on site.	
Generalized Topography	The site falls in elevation from approximately 60m above Ordnance Datum (AOD) in the central site area down to 50m AOD in the north and east.	
Environmental Setting	<i>Made Ground</i>	No Made Ground was encountered within the site investigation.
	<i>Drift Geology</i>	Topsoil was present across the site to maximum depths of 0.38mbgl. comprising dark grey/ brown silty sandy loam overlying variable drift deposits, comprising silty very sandy gravels with lenses and pockets of sandy gravelly clays, firm to stiff sandy gravelly clays and silty sands. Occasional areas of firm sandy gravelly silt were noted in the north-western site area
	<i>Bedrock Geology</i>	The site is underlain by St Bees Sandstone Formation. This was not encountered during the SI works.
	<i>Hydrogeology</i>	Drift - Secondary (undifferentiated) Aquifer and Secondary (A) Aquifer. Solid - Principal Aquifer.
	<i>Hydrology</i>	An unnamed watercourse is identified within close proximity to the north eastern boundary, ultimately leading to the River Ehen approximately 370m north and east of the site.
	<i>Flood Risk</i>	Long term flood risk on site is identified as low. It is recommended that further consultation with the LA and EA be made with respect to the potential for flood events in this area, to establish local knowledge of periodic flooding, standing water or poor drainage problems.

RECOMMENDED SURFACE WATER MANAGEMENT DURING CONSTRUCTION

ACTION	MITIGATION
Sign up for Flood Warnings.	To provide warning of occasions when increased rainfall will contribute to higher flows in the surface water features, therefore dewatering may need to be prevented and limited to ensure compliance with agreed discharge rates.
Install silt fencing or a 0.50m bund to the northern and eastern boundaries and adjacent to the SUDs pond network.	Precautionary measure to provide protection to watercourse and surrounding properties. During periods of prolonged rainfall, the bund or silt fencing is to be monitored for signs of 'over topping'. In extreme events a sump should be formed to catch the water and allow suspended solids to settle prior to controlled disposal to the agreed outfall by either gravity 'grip' or pumping. Silt fencing will be constructed downslope of the wheel wash location.
Inspect post-enabling works landform at site boundary and implemented temporary measures during construction of road and new drainage systems to limit overland waterflow towards surface water and off-site.	The existing topography generally falls to the north and east. Therefore, overland and off-site flow of surface water in this direction should be controlled onsite to limit the volume of egress.
Provide temporary discharge point prior to the construction of the main surface water point of connection. This could be either gravity flow, providing the flow can be shut off as required or pumped. Flow to be limited to agreed rate with the EA. A filtration system should be employed using straw bales/ floc mats to ensure all waters leaving the site are clean and free of visible pollutant impact. Straw bales/Floc Mats are to be deployed at the point of discharge and at any other location where it is practicable to intercept the waters and provide a filtration point.	Initial discharge of surface water from site. Frequent visual inspections and monitoring will be undertaken to prevent pollution entering surface water. Monitoring of water discharged to the existing surface water outfall on a weekly basis during all works to dewater excavations to demonstrate the waters are free from suspended solids and other pollutants.
Provide filtration measures as either straw bales/Floc Mats or gulley socks (Gulliblock or similar) in the newly constructed surface water infrastructure for the duration of construction works.	These measures will limit the potential for suspended solids and other pollutants to enter the receiving water via the new drainage network. Monitoring of these features is required throughout the works. The permanent basin will be used as a settling pond on a temporary basis until the full drainage infrastructure is constructed, at which time the basin and infrastructure will be cleaned, where necessary prior to commission.
Instigate 'tool-box' talks and watching brief to all construction operatives. The brief will be to monitor the potential presence of any pollutants entering the surface waters (either by overland flow or main drainage network).	If a pollutant enters a surface water (overland flow or main drainage network) ensure that the site manager is notified by a site operative. Mitigation measures can be implemented to limit the intercept the pollution prior to entering the receiving water and to limit the volume of flow.
Demarcation of Manholes and drainage networks by spray painting to denote the receiving system.	Clear demarcation of the separate foul and surface water systems will ensure protection during

ACTION	MITIGATION
Surface water manholes to be painted blue to identify the surface water system. Foul manholes to be painted red to identify the sewerage system.	construction works to mitigate the potential for polluted waters to enter the surface system. Clean and easy onsite identification is a critical aid to site operatives.
Management of stockpiles to ensure the toe or the base are as a minimum 5.0m from existing properties, carriageways, drainage systems and receiving surface waters. Stockpiles to be sealed and well compacted.	Careful management of stockpile locations and sealing of material will limit the potential for run-off of surface waters with suspended solids that has the significant potential to enter the surface water system.
Stockpile material in a location away from site operations. Seal the surface of the topsoil either with membrane or smearing to protect soil properties.	Topsoil to be sealed to minimize run-off from organic materials, humic acids and fines which represent a pollution risk to controlled waters.
Temporary pumping of standing surface water across the site may be required, particularly in low spots.	To prevent standing water across the site and improve working conditions. Water with visual discoloration indicating suspended solid to be temporarily pumped to the SUDS basin to ensure all silts drop out of suspension and the water is certified as clean prior to entering the surface water system or receiving water. The basins and surrounding infrastructure will be cleaned and repaired, where necessary before adoption/final commissioning.

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1. INTRODUCTION

1.1 Background

ERGO Ltd has been commissioned by Gleeson (the client) to prepare a Surface Water Management Plan (SWMP) for the proposed residential development at the site known as Uldale View in Egremont, Cumbria.

The Surface Water Management Plan is required to define the mitigation protocols and procedures that will be implemented and maintained throughout the construction process to ensure no egress of surface water or pollution from the site boundary towards the adjacent dwellings and properties or towards surface water receptors.

1.2 Proposed Development

ERGO understands that Gleeson are developing the subject site for a low rise residential end use with associated estate roads, driveways, gardens, landscaping, SUDS features and utility infrastructure.

ERGO drawing 24-2204-003 displays the proposed development plan with Figure 1.1 below displaying a snapshot of the proposed development.



Figure 1.1 *Snapshot of Proposed Development*

1.3 Objectives

The objectives of the SWMP are to:

-  Review site plans, geology, hydrogeology, site sensitivity, floodplain issues in order to complete a SWMP;
-  Assess the implications of any potential environmental risks, liabilities and constraints associated with the management of surface water;
-  Ensure that surface water quality, and quantity, is managed throughout the construction phase to mitigate impacts off site;
-  Advise on surface water monitoring and emergency mitigation measures, should these be required.

1.4 Limitations

The limitations of this report are presented in Appendix I.

All acronyms used within this report are defined in the Glossary presented in Appendix II.

1.5 Sources of Information

Background information was sought from the following sources:

-  Groundsure Search;
-  Online planning records held by Copeland District Council;
-  Magic Map Groundwater Vulnerability Map;
-  British Geological Survey Map;
-  Flood Map for Planning Service;
-  GEO Environmental Engineering Phase 2: Ground Investigation Report for Proposed Residential Development of Land off Uldale View, Egremont, Cumbria. Reference 2022-5346 dated October 2022.

1.6 Confidentiality

ERGO has prepared this report solely for the use of the Client and those parties with whom a warranty agreement has been executed, or with whom an assignment has been agreed. Should any third party wish to use or rely upon the contents of the report, written approval must be sought from ERGO; a charge may be levied against such approval.

2. SITE SETTING

2.1 Site Details

Site Address	Land at Uldale View, Egremont, Cumbria, CA22 2LW
Grid Reference	E 300750, N510027
Site Area	7.6 Ha.

A site location map is presented in Appendix III as Drawing 24-2204-SLP.

2.2 Current Site Use

GEO Environmental Engineering (GEE) previously completed a site walkover as part of their Phase 2 Site Investigation Report. A summary of the key points is presented in Table 2.1.

Table 2.1 **Current Site Description**

Occupancy/ use/Description	The site forms an irregular plot of 2no. agricultural fields divided by hedgerows, fencing and some stone walls. Access to the site can be granted via Uldale View to the west of the site.	
Generalised Topography	The highest points of the site are noted in the central area and the south-western corner, with a c.10m drop to the other boundaries. A steep slope is present adjacent to the northern and eastern boundaries with dense woodlands beyond.	
Surface Cover (%)	Buildings:	0%
	Hardstand:	0%
	Soft cover:	100%
Vegetation/ Ecology	The site is currently undeveloped farmland comprising 2no. individual fields. A hedgerow divides the site west to east.	

3. ENVIRONMENTAL SETTING

3.1 Site Sensitivity Assessment

Using available information, ERGO have assessed the site to be located within a **Moderate** sensitivity setting as discussed within Table 3.1.

Table 3.1 Site Sensitivity Assessment

SENSITIVITY PROFILE	DISCUSSION	RATING
Sensitive land uses within close proximity (e.g. residential, school, nursery, local nature reserves etc.)	Residential units are present adjacent to the northern and western boundaries.	MODERATE
Groundwater Source Protection Zone or Drinking Water Safeguard Zone	None identified, though a Protection Zone 1 is noted within 1km of the site to the south west.	LOW
Aquifer Classification in Superficial Drift Deposits.	Secondary Undifferentiated and Secondary A are both present on site.	LOW
Aquifer classification in Bedrock.	Principal Aquifer	HIGH
Is the site underlain by low permeability Drift to depths in excess of 10.0m?	The Site investigation completed on site identifies a mixture of cohesive and granular deposits.	MODERATE
Is the site located within 50m of a surface watercourse?	A small tributary of the River Ehen is noted to the north east of the site.	MODERATE
Overall Site Environmental Sensitivity		MODERATE

3.2 Geology and Hydrogeology

The BGS mapping for the site, (1:50,000, Solid & Drift edition) and online records indicates the site is underlain by the geological sequence presented in Table 3.2.

Table 3.2 Summary of Underlying Geology

GEOLOGICAL UNIT	CLASSIFICATION	DESCRIPTION	AQUIFER CLASSIFICATION
Drift	Glacial Till and Glaciofluvial Deposits	Clays, Sands and Gravels	Secondary Undifferentiated and Secondary A
Solid	St Bees Sandstone Formation	Sandstone	Principal Aquifer

The GEE Phase 2 report identifies the ground conditions across the site. These are summarised below:

No Made Ground was encountered within the site investigation.

Topsoil was present across the site to maximum depths of 0.38mbgl. comprising dark grey/ brown silty sandy loam overlying variable drift deposits, comprising silty very sandy gravels with lenses and pockets of sandy gravelly clays, firm to stiff sandy gravelly clays and silty sands. Occasional areas of firm sandy gravelly silt were noted in the north-western site area.

Granular soils were present at shallow depths in generally the higher elevation areas, with clays more frequently noted in the lower lying areas.

Running sands were noted occasionally during the site investigation.

3.3 Hydrology

A watercourse (River Ehen) is located c.370m north and east of the site. A small minor unnamed tributary of this river is noted along the north-eastern site boundary.

SUDS ponds are proposed in the north and east of the site.

4. PROGRAMME OF WORKS AND GUIDANCE

The site will be subject to a programme of site enabling works to be delivered in a phased manner by Gleeson in conjunction with the main development works. The construction will incorporate the commencement of the roads and sewers with the point of discharge being the temporary locations with surface water networks constructed at the project outset. It is assumed that SUDS ponds in the northern and north-eastern site areas will be constructed first and drainage/headwalls, etc will be installed early in the construction works. Construction will then follow on in a roughly clockwise build route around the site.

The contractor is expected to prepare appropriate construction method statements for all aspects of their works. This should include any temporary protection works.

The location of existing drainage that is within close proximity to the proposed site works, which is not to be diverted, should be confirmed by the contractor and reported to the developer to ensure it corresponds to that shown on the engineering layout and that no proposed works are affected.

Where the surface water pipes are constructed and not connected to the point of discharge, temporary pumping will be instigated to ensure outflow at the agreed discharge rate to the receiving outlet ensuring only clean and tested discharge of waters.

The connection of foul water drainage to the existing public sewer system shall be subject to the approval of United Utilities. The contractor is expected to apply for relevant permits prior to commencing the work.

Land drainage will not be permitted to discharge into the public sewer network. Any requirement for land drainage should be appropriately assessed by the groundworker and landscaper during construction and placement of gardens on an individual plot basis. If land drainage designs are required, they should be agreed prior to plot completion.

The works will be phased in a manner that retains surface vegetation where possible to limit surface water run-off. Some infiltration may theoretically be achieved in this material however its extent is minimal. It is assumed that works will begin in the northern site area and works to the south of the existing hedgerow will be started at a later date, therefore the southern area should remain unstripped until works are due to commence in this area.

The surface water system will flow by gravity utilizing a series of SUDs ponds in the north and east of the site and into pipe networks towards the new outfall in the north-east of the site, leading to the existing stream and ultimately Riven Ehen. The majority of the stormwater attenuation will be stored within surface SUDS pond and the pipe network.

The programme should prioritise the construction of the attenuation basins as early in the build as possible to provide an effective means of attenuating surface water run-off. Seeding of the banks of the attenuation basin and surrounding area should be completed as soon as is practicable, to minimise silt mobilisation.

Outflow rates will be controlled to the agreed discharge to the receiving water.

Prior to the installation of outfalls and pipework, temporary measures including localized bunds, silt traps and 'grips' will be required by the contractor on a construction phase specific basis to ensure no run-off for individual operations.

The mitigation measures to limit surface water run-off to the northern adjacent properties should be instigated as and when works progress in this sector and an increased run-off risk is generated.

Any material stripped will need to be placed in stockpiles in an area agreed with the contractor, ideally in a location onsite where it can remain undisturbed until needed. Stockpiles must not be placed along the line of drains on the site or along the northern or eastern boundaries as this could influence the ability to effectively manage runoff. The exception of this would be a

small 0.50m topsoil bund along the course of the suggested silt fencing/bunding which should then be kept in place until no longer required or replaced by a silt fence.

Whilst this report deals specifically with surface water management, it is recommended that the construction phase contractor follows good environmental practice to minimise spillages and leakages with reference, but not limited to the following documents:

-  CIRIA C502- Environmental Good Practice on Site
-  EA Pollution Prevention Guidelines
 - PPG6 - Working at Construction and Demolition Sites
 - PPG2 - Above Ground Oil Storage Tank
 - PPG7 - The Safe Operation Of Refuelling Activities
 - PPG21 - Incident Response Planning

ERGO are aware that some of the EA PPG documents have been withdrawn from the gov.uk website. However, PPGs provided a summary of current UK guidance and the principles are still relevant and provide a useful, concise overview. ERGO would still recommend reference to these in the first instance, via the national archive. The relevant links are provided on the new EA pages.

5. SURFACE WATER MANAGEMENT DURING CONSTRUCTION

ERGO have provided details of the proposed surface water management scheme that is to be applied onsite during development works. These are summarised in Table 5.1 (overleaf) and include the programme of works. Drawing 24-2204-004 in Appendix III also provides a summary the construction phase surface water management plan mitigation measures.

Table 5.1 Surface Water Management Scheme

	ACTION	MITIGATION
1	Install Silt Fencing or formation of a 0.50m bund to the entirety of the northern and eastern boundaries (following the site boundary or rear garden lines and along the SUDs ponds) prior to the commencement of any enabling earthworks.	The installation of silt fence or bund along the perimeters of the development works and adjacent to the SUDS ponds will act to limit the potential for off-site migration of suspended soils in the event of extreme run-off conditions. This is important in particular due to the significant earthworks anticipated on site. This is a precautionary measure to provide protection to the off-site land and neighbouring properties. During periods of prolonged rainfall, the bund and/or silt fencing is to be monitored for signs of 'over topping'. In extreme events a sump should be formed to catch the water and allow suspended solids to settle prior to controlled disposal to the agreed outfall by either gravity 'grip' or pumping. Fencing will be installed downslope of the wheel wash location to prevent overland flow.
2	Install silt mats/ floc mats/ hay bales within SUDS ponds	Straw bales/Floc Mats are to be deployed at the inlets and outlets of SUDS ponds. These should be monitored through the build and replaced should they fill with silts.
3	Install Headwall Protection Net within SUDS	Tanalised timber frame to be double wrapped in 1.0m Terrastop (or similar) and staked in front of headwall apron, braced against direction of flow sand bags placed to hold base of Terrastop. The top of the sandbags is to be below pipe invert level.
4	Provide temporary discharge point. This could be either gravity flow, providing the flow can be shut off as required or pumped. Discharges filtered water from the north east corner of the attenuation pond to discharge to the existing stream. Flow to be limited to agreed rate with the EA. Straw bales/Floc mats are to be deployed at the point of discharge and at any other location where it is practicable to intercept the waters and provide a filtration point to ensure all waters leaving the site are clean and free of visible pollutant impact.	Initial and Final discharge of surface water from site. Frequent visual inspections and monitoring will be undertaken to prevent pollution entering surface water, baseline sampling of the stream and river are also recommended prior to works starting on site. Monitoring of water discharged to the existing surface water outfall on a weekly basis during all works to dewater excavations to demonstrate the waters are free from suspended solids and other pollutants.
5	Temporary pumping of standing surface water across the site may be required, particularly in low spots.	To prevent standing water across the site and improve working conditions.
6	Provide filtration measures as either gulley socks or Gulliblocks in the newly constructed surface water infrastructure for the duration of construction works.	These measures will limit the potential for suspended solids and other pollutants to enter the receiving water via the new drainage network. These measures should be visually inspected throughout the works and at higher frequencies during large muck movements or periods of poor weather.

	ACTION	MITIGATION
7	Instigate 'tool-box' talks and watching brief to all construction operatives. The brief will be to monitor the potential presence of any pollutants entering the surface water (either by overland flow or main drainage network).	If a pollutant enters a surface water (overland flow or main drainage network) however it is notified by a site operative, then mitigation measures can be implemented to limit the intercept the pollution prior to entering the receiving water and to limit the volume of flow.
8	Demarcation of Manholes and drainage networks by spray painting to denote the receiving system. Surface water manholes to be painted blue to identify the surface water system. Foul manholes to be painted red to identify the sewerage system.	Clear demarcation of the separate foul and surface water systems will ensure protection during construction works to mitigate the potential for polluted waters to enter the surface system. Clean and easy onsite identification is a critical aid to site operatives.
9	Strip material & Civil Engineering Spoil. Stockpile material in a location away from site operations. Seal the surface of any topsoil / spoil either with membrane or smearing to protect soil properties.	Stockpiling away from surface water management systems will allow easier management of system and decrease amount of silt runoff in close proximity to receptors. Topsoil to be sealed to minimize run-off from organic materials, humic acids and fines which represent a pollution risk to controlled waters.
10	Management of stockpiles to ensure the toe or the base are as a minimum 5.0m from existing properties, carriageways, drainage systems and receiving surface waters. Stockpiles to be sealed and well compacted.	Careful management of stockpile locations and sealing of material will limit the potential for run-off of surface waters with suspended solids that has the significant potential to enter the surface water system.
12	Temporary pumping of standing surface water across the site may be required, particularly in low spots.	To prevent standing water across the site and improve working conditions. Water with visual discoloration indicating suspended solid to be pumped to the permanent basin to act as a settling pond until the full drainage network is established, to ensure all silts drop out of suspension and the water is certified as clean prior to entering the surface water system or receiving water. The basins and surrounding infrastructure will be cleaned and repaired where necessary before adoption/commissioning.

6. MONITORING

Monitoring the surface water management system is critical and can provide early indication of potential problems, allowing these to be addressed before they escalate, allowing silt to be discharge to the surface water. Monitoring must include:

-  Weather forecasting;
-  Visual inspections of systems; and
-  Active sampling of water.

Whilst ultimately, the responsibility will lie with the Principal Contractor, the role can be delegated providing the delegate is well briefed with an appropriate toolbox talk and can demonstrate an understanding of the different aspects of this surface water management plan. A record of all appropriate training should be kept onsite.

6.1 Weather Forecasting

The Principal Contractor or alternative delegate must review a reliable 7-day predicted forecast at the start of each week. The meteorological office provide a useful short and long term forecast based on a network of weather stations. This can be found at <https://www.metoffice.gov.uk>.

A copy of weekly forecast should be displayed in the site office.

Where heavy rain or persistent rain is forecast, consideration must be given to the available capacity in the SUDS, to prevent overflowing. If extended periods of rain have already occurred, capacity in the SUDS may present a concern and a decision should be made if emergency measures will be required (See Section 7).

6.2 Visual Inspections

The surface water management infrastructure should be visually inspected at the start of each working week and at the end of the last working day of each week. Early identification and repair is critical in preventing silt entering the surface water. Inspection locations should include, but not be limited to:

-  Walk along the line of silt fence or earth bund, check for tears and damage/unstable sections;
-  Visual inspection and photograph all discharges points within the boundary;
-  Visual inspection and photograph of the drainage ditches at each entry and exit point on the site (should ditches be required during temporary works);
-  Visual inspection and photograph of discharge water into and out of attenuation ponds;
-  Visual inspection of whole site for areas of standing water that is not draining into attenuation pond; and,
-  Visual inspection of road gullies at intervals as specified below.

Road Gullies should be fitted with appropriate silt protection measures asap from construction to ensure silts cannot migrate through the surface water system. In normal working conditions, road gullies should be individually checked every month to identify any which need protection measures replaced/ cleaned etc. In periods of heavy rainfall or areas onsite which are undergoing large muck shifts, these road gullies should be checked at the end of every week. Silt protections should be replaced/ cleaned as required as soon as identified. The responsibility of maintaining these should be agreed with the groundworker from the outset where possible.

Discharge water and water within the main catchment drain may be slightly discoloured but should be clear. If discharge is placed in a clear bottle, a label should be easily read when paced behind the bottle. Cloudy water is usually due to suspended solids. Any potentially cloudy water discharge from site is likely to require active sampling and should be reported to the Principal Contractor.

Each inspection should be recorded and a copy held in the site office for a period of two weeks. An electronic copy should be retained for the duration of the project. A suggested record sheet is included in Appendix IV of this report.

6.3 Active Sampling

It is not necessary to undertake water sampling on a daily or even weekly basis, providing daily visual inspections are being undertaken and a record of these are maintained onsite. However, it is recommended that a baseline sample be obtained of the water, prior to any works occurring on site. Then, water samples are to be taken routinely at least once a quarter, to provide evidence that the surface water management system is operating effectively.

Samples should be taken from the closest available point of discharge to the receiving water, this is noted on ERGO drawing 24-2204-004.

Additional samples could be taken from drains discharging into main drains from adjacent land if there is evidence of discolouration or suspended solids.

Samples should be scheduled for suspended solids; the target concentration can be initially assumed as the Environmental Quality Standard (EQS) of 25mg/l. This value is highly conservative and exceedance of this value should not be considered a pollution incident, simply an indication further mitigation measures may be required.

A summary of actions following review of laboratory results is provided in Table 6.1.

TABLE 6.1 SAMPLE EVALUATION AND ACTIONS REQUIRED

Result	Action
No exceedances recorded	No further action
Exceedance of EQS at drain inlet	Consider reporting to the EA to ensure construction site is not later considered as a source of silt
Exceedance of EQS at attenuation pond	Consider reducing discharge rate or including secondary treatment of discharge (emergency measures)
Exceedance of EQS at off-site discharge point	Stop discharge from attenuation pond and initiate emergency measures / further inspection of down gradient water.

7. EMERGENCY PROCEDURES

7.1 Maximum Capacity of the Attenuation Ponds

In the event of heavy or sustained rainfall, the attenuation is at risk of not operating appropriately and may overflow or overtop system, preventing effective settlement. If operating at close to maximum capacity, extra temporary storage will be implemented by means of a secondary holding area.

Secondary holding areas would ideally intercept drainage upgradient of the existing attenuation. This is likely to be a temporary excavation / pond. However, if this is not feasible, a temporary holding area should be situated in a location suitable to allow excess surface water to be pumped to it for storage.

Tankering will be used to remove excess water from site should this be absolutely necessary, to prevent silty water entering the drain and subsequently entering the stream/river catchment.

7.2 High Suspended Solids in Discharge Waters

If visual inspection or active sampling identified elevated suspended solids in the discharge water from the designed outfall, secondary treatment should be considered.

It is recommended that sustainable options including the use of straw bales/ floc mats as a filtration medium would be the optimal solution.

7.3 Spillage of Fuel or Any Potentially Hazardous Liquid

In the event of a significant spill or fuel of any hazardous liquid, the site should have at least one person who is trained and competent to use spill response equipment. Significant effort should be made to ensure the spillage does not enter the surface water management system.

The Principal Contractor should ensure that all site personal are made aware of the content and requirements of the spill response plan. Records to verify that this training has been provided should be retained in the site office for the duration of the project.

The following steps should be made to manage a hazardous spill on site:

-  Assess release area
-  Isolate spilt materials
-  Contain spilt materials
-  Absorb spilt materials
-  Dispose of waste materials
-  Reorder spill response materials

Reference should be made to the Publication Prevention Guideline: Incident Response Planning PPG21. If contamination does enter the surface water management system, discharge to the drain should cease immediately and advice should be sought from a suitably qualified geoenvironmental consultant, such as ERGO.

Depending on the significance of contamination, water in the attenuation pond may require tankering from site and remediation works undertaken.

END OF REPORT

APPENDIX I LIMITATIONS



1. This report and its findings should be considered in relation to the terms of reference and objectives agreed between ERGO and the Client as indicated in Section 1.2.
2. For the work, reliance has been placed on publicly available data obtained from the sources identified. The information is not necessarily exhaustive and further information relevant to the site may be available from other sources. When using the information it has been assumed it is correct. No attempt has been made to verify the information.
3. This report has been produced in accordance with current UK policy and legislative requirements for land and groundwater contamination which are enforced by the local authority and the Environment Agency. Liabilities associated with land contamination are complex and requires advice from legal professionals.
4. During the site walkover reasonable effort has been made to obtain an overview of the site conditions. However, during the site walkover no attempt has been made to enter areas of the site that are unsafe or present a risk to health and safety, are locked, barricaded, overgrown, or the location of the area has not been made known or accessible.
5. Access considerations, the presence of services and the activities being carried out on the site limited the locations where sampling locations could be installed and the techniques that could be used.
6. Site sensitivity assessments have been made based on available information at the time of writing and are ultimately for the decision of the regulatory authorities.
7. Where mention has been made to the identification of Japanese Knotweed and other invasive plant species and asbestos or asbestos-containing materials this is for indicative purposes only and do not constitute or replace full and proper surveys.
8. The executive summary, conclusions and recommendations sections of the report provide an overview and guidance only and should not be specifically relied upon without considering the context of the report in full.
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10. New information, revised practices or changes in legislation may necessitate the re-interpretation of the report, in whole or in part.



APPENDIX II GLOSSARY



TERMS

AST	Above Ground Storage Tank	SGV	Soil Guideline Value
BGS	British Geological Survey	SPH	Separate Phase Hydrocarbon
BSI	British Standards Institute	TPH CWG	Total Petroleum Hydrocarbon (Criteria Working Group)
BTEX	Benzene, Toluene, Ethylbenzene, Xylenes	SPT	Standard Penetration Test
CIEH	Chartered Institute of Environmental Health	SVOC	Semi Volatile Organic Compound
CIRIA	Construction Industry Research Association	UST	Underground Storage Tank
CLEA	Contaminated Land Exposure Assessment	VCCs	Vibro Concrete Columns
CSM	Conceptual Site Model	VOC	Volatile Organic Compound
DNAPL	Dense Non-Aqueous Phase Liquid (chlorinated solvents, PCB)	WTE	Water Table Elevation
DWS	Drinking Water Standard	m	Metres
EA	Environment Agency	km	Kilometres
EQS	Environmental Quality Standard	%	Percent
GAC	General Assessment Criteria	%v/v	Percent volume in air
GL	Ground Level	mb	Milli Bars (atmospheric pressure)
GSV	Gas Screening Value	l/hr	Litres per hour
HCV	Health Criteria Value	µg/l	Micrograms per Litre (parts per billion)
ICSM	Initial Conceptual Site Model	ppb	Parts Per Billion
LNAPL	Light Non-Aqueous Phase Liquid (petrol, diesel, kerosene)	mg/kg	Milligrams per kilogram (parts per million)
ND	Not Detected	ppm	Parts Per Million
LMRL	Lower Method Reporting Limit	mg/m³	Milligram per metre cubed
NR	Not Recorded	m bgl	Metres Below Ground Level
PAH	Polycyclic Aromatic Hydrocarbon	m bcl	Metre Below Cover Level
PCB	Poly-Chlorinated Biphenyl	mAOD	Metres Above Ordnance Datum (sea level)
PID	Photo Ionisation Detector	kN/m²	Kilo Newtons per metre squared
PFAS	Perfluoroalkyl and Polyfluoroalkyl Substances	µm	Micro metre
QA	Quality Assurance		
SGV	Soil Guideline Value		



APPENDIX III DRAWINGS

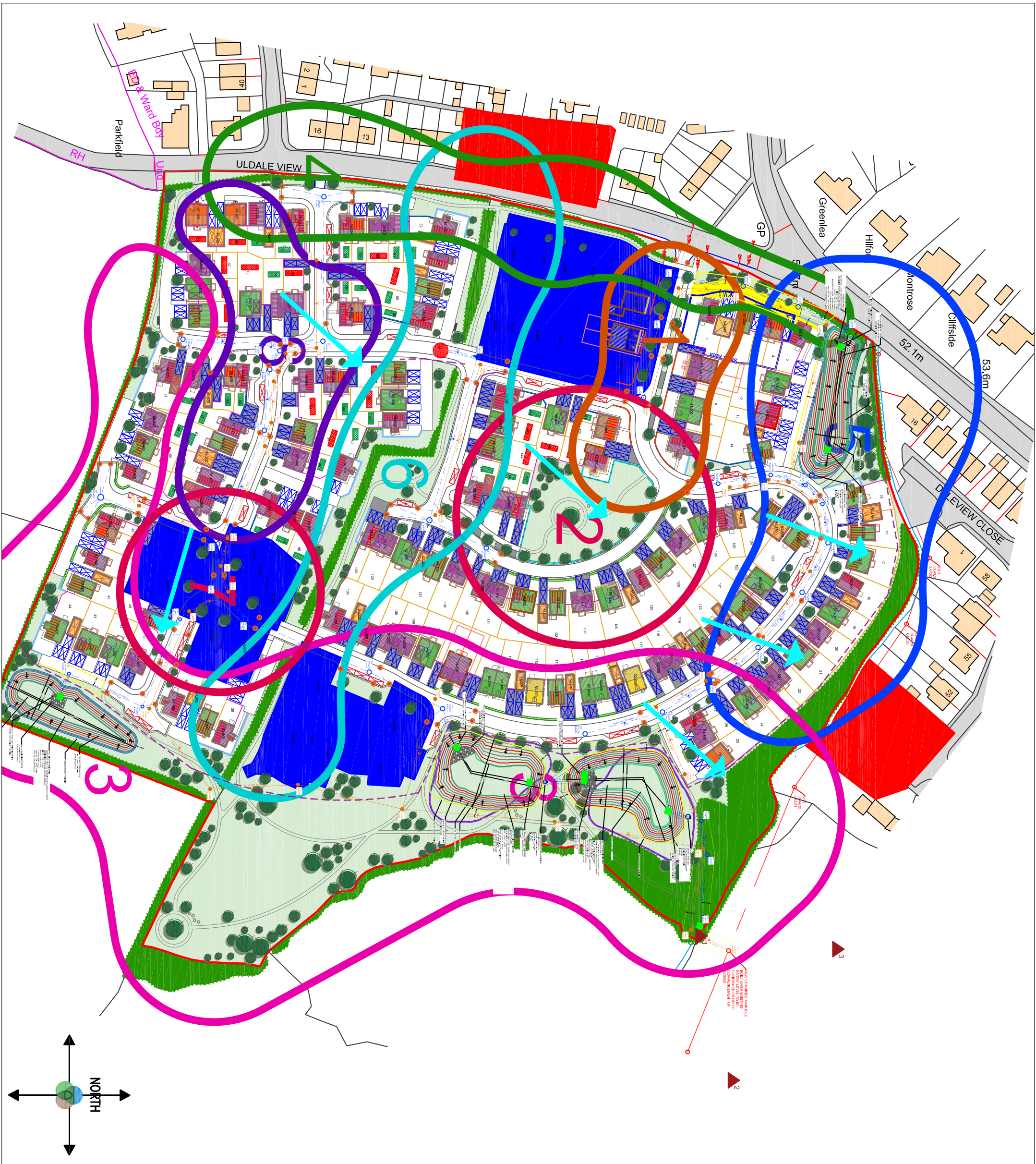




Drawing 24-2204-001

Site Location Plan





Key:

Location Symbols

- Existing downward site gradient
- Silt Fencing/ bunding
- Temporary silt bags with pea gravel at SW first off
- Headwall protection (Hay Bales/ Ploc Mats Etc)
- Inspection Points
 - 1 = Storm Water Outfall Inspection Point
 - 2 = Upstream Inspection Point in River Ehen
 - 3 = Downstream Inspection Point in River Ehen
- Proposed Wheel Wash Location

Notes:

Phase	P1	A	14.05.2025	FINAL	JH	JN
	P1	-	20.02.2025	DRAFT	JH	JN
Client:		Gleeson		Job No: 24-2204		Date: 14.05.2025
Job Title:		Uldale View, Egremont		Drawing No: 004		Scale: NTS
		Surface Water Management Plan				



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APPENDIX IV

Visual Inspection Record



VISUAL INSPECTION RECORD

INSPECTION POINT	COMMENT	PASS / FAIL
Silt Fence	Any rips, tears, fallen posts? Are silts trapped along fence?	
Drainage Ditches on Site	Are ditches free and clear of waste?	
Entry and Exit Drainage Points	What protection measures are in place? Are they suitable or is replacement required?	
Discharge Water Quality	Is the water being discharged generally clear? Is it cloudy?	
Attenuation Pond / Swale	Are appropriate silt mitigation measures in place? Are ponds and swales noticeably lined with silts?	
Below Ground Storage Tanks	Are any storage tanks incorporated into the design?	
Standing Water on Site	In areas of standing water, where can this drain to/ are any areas of constructed drainage not working properly?	
Silt Bag / Silt Buster Condition	Check all road gullies – do bags/ blocks need to be replaced?	

Signed:

Date:



**APPENDIX V
GOOD PRACTICE
EXAMPLES**



GOOD PRACTICE EXAMPLES

INSPECTION POINT	COMMENT	PHOTO
Silt Fence	Silt fencing is staked properly along the boundary of the site along the lowest boundary.	
Drainage Ditches on Site	Sand at base to encourage infiltration	
Entry and Exit Drainage Points	Silt fencing and straw bales installed across an inlet headwall within an attenuation basin, to promote settlement of silt prior to discharge into the attenuation basin.	



Discharge Water Quality	Water should be generally clear rather than cloudy.	
Attenuation Pond / Swale	Mature plants present in pond – clear of debris Ponds not overflowing – water and scheduled height	 



**Silt Bag / Silt
Buster
Condition**

Gully Guard installed
on site – road gully
clear of silts.

