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South Wales Police Joint Firearms Unit
Glan Ewenny Meadows
Felindre Road
Pencoed

SURFACE WATER MANAGEMENT PLAN

Rev 01 Feb 24

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1. PROJECT BACKGROUND.

Project Name	South Wales Police Joint Firearms Unit
Address	Glan Ewenny Meadows, Felindre Road, Pencoed Technology Park, Pencoed CF35 5HU
Grid Reference	SS969812 (E296959 N 181288)
Type of Project	New Build Bespoke Police Training Facility
Previous Land Use	Development plot used as agricultural land owned by Welsh Government
Commencement date Enabling	Jan 2023
Commencement Main Works	April 2023
Completion Date	September 2026
Site Area	Circa 18 acres

The purpose of this document is to explain and identify the control of surface water run-off and proposed pollution control measures from the South Wales Police Joint Firearms unit development during the construction process.

The development plots as can be seen in Figure 1 are dissected by the named river 'Ewenni Fach' with the Western plot falling with the authority of Bridgend County Borough Council and Eastern plot within the control of Rhondda Cynon Taff County Borough Council.

The site was formally remediated by the Welsh Government as a development site and has now been purchased following local authority development planning consent by South Wales Police to house the tri-force tactical training facility.

The central portion of the site is a floodplain however through design the development zone has been located on the Western side of river to be outside & above the major flood events. The Eastern Plot will be, in the majority, utilised for Ecology mitigation planting and habitat improvement measures.

Access to the site is from the main highway, 'Felindre Road' via the already formed & adopted junction, named 'Glan Ewenny Meadows'.

Existing drainage ditches exist to the base of the road embankment outside our site boundary and under the control of the local authorities. It is believed that some road gullies may discharge into this drainage ditch which then discharge, via concrete headwalls, to the Ewenni Fach on the downstream side of the 'Felindre Road' highway bridge crossing.

The Project.

The Joint Firearms unit consists of a large building split into 3 distinct zones, encompassing two large covered live fire ranges at 100m and 50m in length, two large covered tactical training warehouses, adjoining the live ranges and a two-storey teaching/office amenity building to the front of the building. Externally, there will be a tactical training road with mock street scene, fast rope and abseil towers, mock train station and trains for breach and assault along with a bus and method of entry training area. The building is serviced by a large main carpark to the Northern aspect and

pedestrian access to and around the development. Current layout of the site as noted in Figure 2.

Figure 1 Site location Plan



Figure 2 Ecology and final site plan

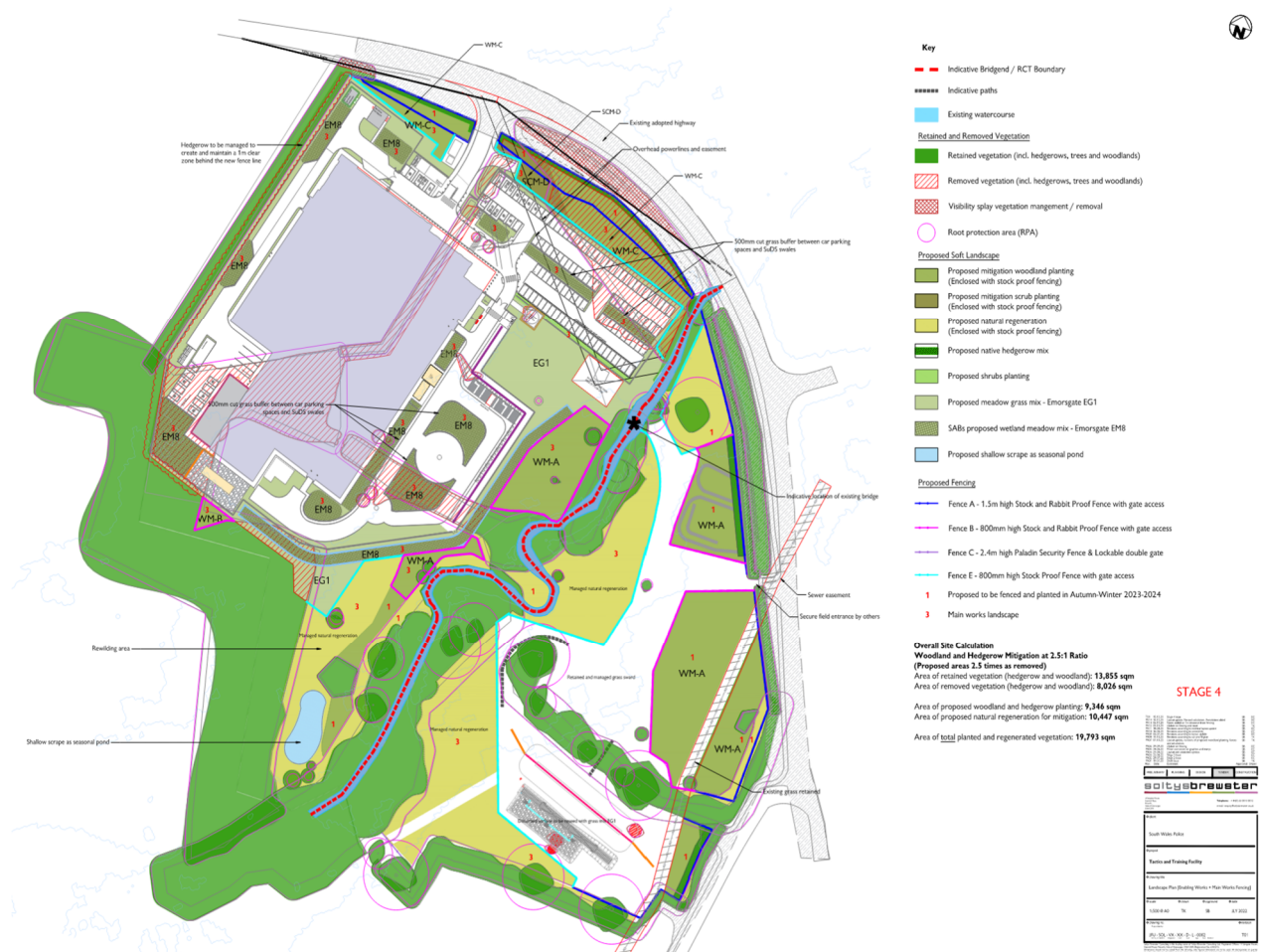
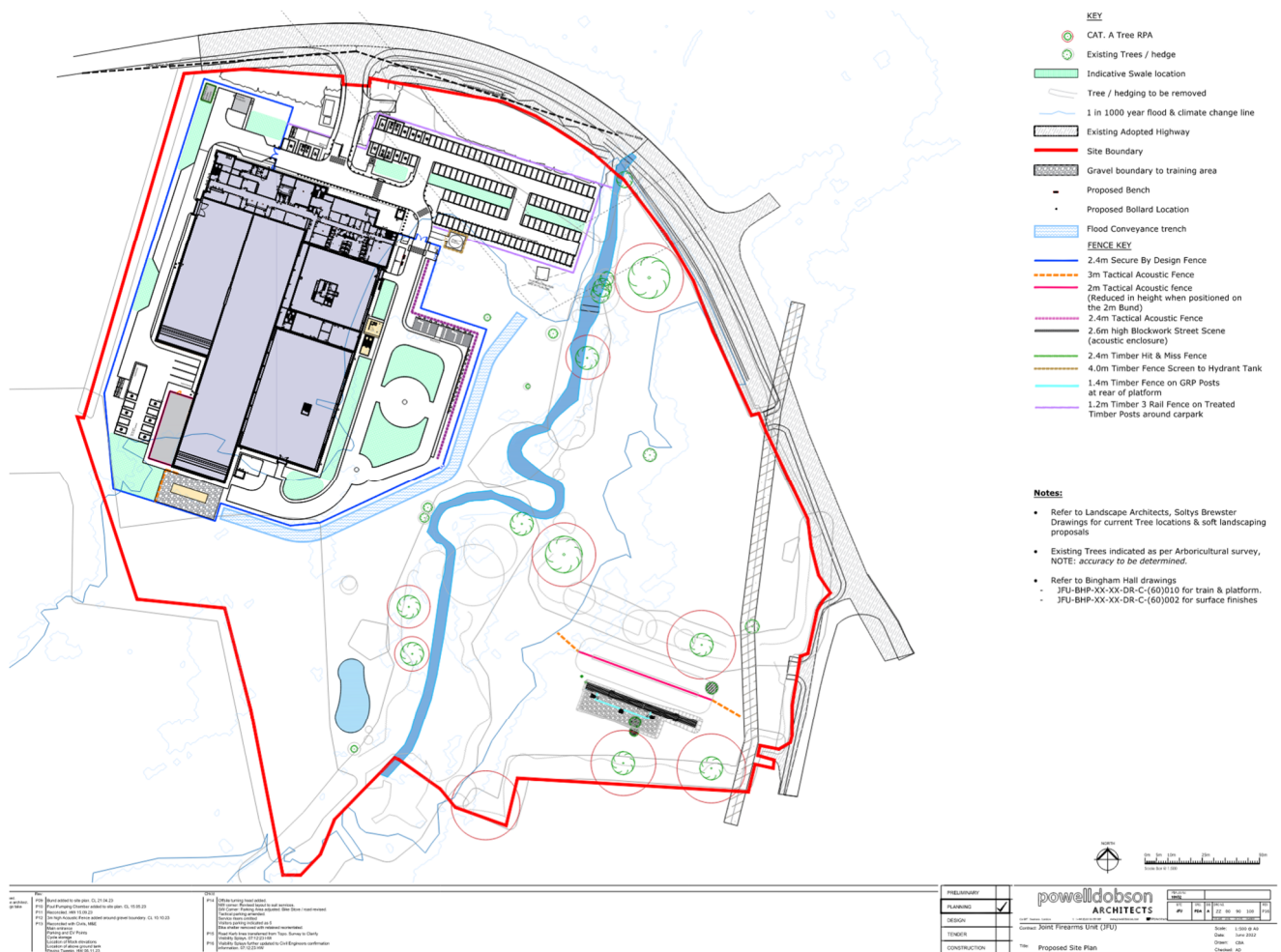


Figure 3 Site plan indicating structures



Proposed Programme of Works

The construction scheme commences in January 2024 and is anticipated for completion circa September 2026

The development of the site, has, where possible been programmed in line with ecological restraints and seasonal effects on the site in respect to river flooding, high ground water tables and months of anticipated high rainfall.

In summary ecology works (enabling) associated with erection of boundary fencing, felling of trees and hedgerows and new habitat creation will be undertaken in months 1 to 4 (Jan 24 to April 24) followed by the creation of the main carpark during months 4 to 7, facilitation on site parking for contracting staff and supply chain.

The main construction process commences with cut and fill activities during months 5 to 7, with excavation for foundations and associated concrete of below ground structures starting during month 6, June 24, through to month 10, October 24.

The superstructure of the main building and in this management plan we only refer to concrete works commences in month 8 of the programme though to anticipated completion of the superstructure frame in month 16, June 25.

Following geotechnical surveys carried out throughout the course of 2022 we are reasonably confident that the high ground water table monitored as being 700mm below existing ground level starts to dissipate down to a depth of circa 3m commencing during the Months of April down to its lowest point during the months May through to October, hence our bulk earthworks commencing during the month of May and Foundation excavations commencing during the period of June. This to prevent and remove any ground water from foundations and reduce the possibility of site strip being washed into the named watercourse during heavy rainfall.

2. SCOPE OF SURFACE WATER MANAGEMENT PLAN FOR TEMPORARY WORKS.

The purpose of the surface water management plan is to provide an assessment of the silt pollution risk of a construction site during its temporary work phase. Having a sound knowledge of the development and gathered information practical silt control actions and good management practices will be identified and responsibilities for the delivery of these actions.

The management plan will provide the necessary information for a bespoke water discharge activity application.

Considering that above the plan will consider the following:

- Pollution Control risk assessment focusing on silt.
- Site topography and geology.
- Watercourses and sensitive environmental receptors
- Pollution sources
- Site drainage catchment
- Pollution control measures
- Pollution prevention
- Inspection

3. ROLES, RESPONSIBILITIES AND CONTACTS.

Table 1 Responsibilities for surface water management during temporary works

ROLE	RESPONSIBILITY FOR SURFACE WATER MANAGEMENT DURING TEMPORARY WORKS
Operations Manager	Ultimate responsibility for ensuring that there is no pollution from the site; ensure temporary works can accommodate necessary water treatment and storage. Support and check the water management plan, associated guidance and process are being followed with support and guidance from the environmental and safety managers. Ensure environmental manager has correct information to ensure correct permits and consents are in place. Ensure build managers and supply chain are aware of and have highlighted new areas of works that may present a risk to the environment and ensure these are proactively managed.
Senior Build Manager and Build Manager	Consult with supply chain partners to ensure no works are undertaken without a full understanding of the risks and that all measures are in place before work commences. Undertake toolbox talks and assist in ensuring training has been undertaken in line with RAMS and environmental recommendations and guidelines. Lead on developing new ways of working to avoid, reduce and mitigate pollution and obtain support from environmental and safety officers.

	Communicate and where necessary supervise the delivery of the agreed work and any additional actions. Act in the event of pollution incidents. Foster the dynamic nature of water management with the supply chain, ensure all statutory and company obligations are met and recorded. Monitor water quality via testing (check results of ongoing samples) and carry out regular visual inspections.
Supply chain partners	Follow procedures communicated with respect to environmental protection and specific method statements for the prevention of pollution. Delivery of temporary works including the implementation of site drainage, water storage and treatment and construction of headwalls following the water plan and any site specific measures. Ensure all workforce are suitably trained and competent in ensuring the water management plan is adopted and adhered to. Support, develop and sign off method statements for high risk activities. Ensure that updates to the water management plan and site specific protection measures are communicated. Report any pollution and near miss incidents. Act in the event of pollution incidents.
Local Safety Manager & Environmental Manager	Lead on proposals to address strategic environmental risk and present these to the business and customer. Ensure incidents, monitoring, non-conformances and complaints are discussed and ensure environmental risk is considered with any changes or variations in the working method. Support development and sign off method statements for high risk activities. Ensure that update to the water management plan and site specific protection measures are communicated. Ensure all permits and licenses are in place and have been correctly applied for. Provide environmental training to all staff and person involved in the water management plan.
Group Safety and Environmental manager	Ensure all site processes, statutory and group have been adhered to maintain full compliance.
Site operatives and staff	Follow processes communicated with respect to environmental protection and specific method statements. Report immediately any pollution and near misses observed. Act in the event of pollution incidents.

Table 2 Points of Contact for surface water management during temporary works

POINT OF CONTACT	
Person acting as normal contact and regulator of this plan. Principal contractor	Name: Chris Purchase Tel: 07976912929 Email: chris.purchase@willmottdixon.co.uk
Person acting as 24-hour Contact in case of emergency. Principal Contractor	Name: Matt Wilson Tel: 07970765349 Email: matt.wilson@willmottdixon.co.uk
Person acting as Environmental lead, Health safety and Environment Principal Contractor	Name: Lauren Higgins (Environmental) Tel: 07815744584 Email: lauren.higgins@willmottdixon.co.uk Name: Dave Randall (Safety) Tel: 07973127057 Email: dave.randall@willmottdixon.co.uk

Person acting as Principal Designer	Name: Conner Richards Tel: 07789595550 Email: connorricards@pickeverard.co.uk
Person acting on behalf of Client. South Wales Police	Name: Bethan Ward Tel: 07970005232 Email: Bethan.ward@south-wales.police.uk

4 POLLUTION CONTROL RISK ASSESSMENT

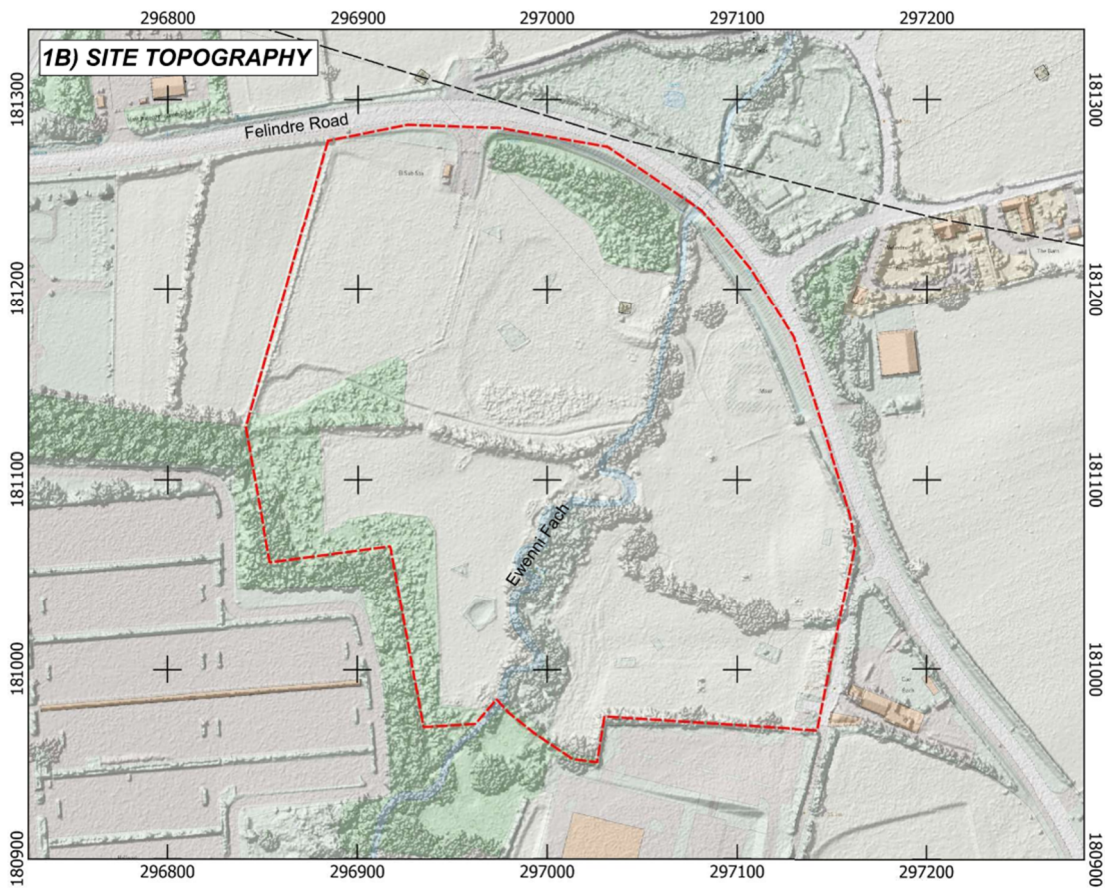
A site walkover and meetings have been held over the course of 2022 and 2023 when the site was not live and all vegetation was present with open land being used for grazing. This inspection of the site identified local topography and possible sources of silt pollution for the proposed development and the temporary works. On this review the following management plan has been developed.

4.1 TOPOGRAPHY

The site (Figure 1) is currently greenfield (land used for grazing) and is located to the east of the town of Pencoed within an allocated strategic employment development area. The site comprises of "Plots G & H" within Pencoed's Technology Park. The site is split into several parcels of land by areas of dense vegetation & hedgerows plus a designated 'main river', the "Ewenni Fach" which cuts through the centre of the site. Access to the site can be found at various points along Felindre Road with the main formal junction to the north of the site. Other "farm gate" access points are available off the eastern section of Felindre Road. The site is bounded by Felindre Road along its north and eastern boundary, with the remainder of the eastern boundary formed by an existing storage yard. The south/south-western boundary is formed by car parking that serves the existing commercial units within the Technology Park along with the Ewenni Fach floodplain; the north-western region of the site is bounded by dense vegetation and more arable land with a cemetery beyond.

Topographical survey data indicates much of the central portion of the site is located within a localised valley with the eastern and western regions of the site grading down towards the Ewenni Fach that runs through the middle of the site, flowing in a north to south direction. The high point of the site is located within the north-western reaches of the site, immediately adjacent to Felindre Road at approximately 35.0m AOD; the low point of the site is the furthest downstream reach of the Ewenni Fach, along the southern boundary which is at approximately 31.5m AOD. A noticeable feature within the central western region of the site is a localised plateau/basin that sits immediately adjacent to the watercourse.

Figure 4 Extract from Geotechnical report identifying topography of the site



4.2 GEOLOGY

The geology of the site primarily consists of recent and varying depths of topsoil and subsoil ranging in depths from 200mm to 400mm overlaying quaternary deposits of Alluvia, river terrace and Devensian till sat on carboniferous dark siliceous mudstone and cherts and Oxwich limestone. Table 3 below identifies presumed and know geology of site.

The British Geological Survey (BGS) Maps indicates the majority of the site is underlain with Marros Group (Mudstone, siltstone and sandstone), whilst the southern region of the site is indicated to be underlain by Oxwich Head Limestone Formation (Limestone). Superficial deposits are also identified, with the majority of the site underlain with Alluvium (Clay, silt, sand and gravel) due to the river Ewenni Fach's flood plain; the eastern and western extents of the site are underlain with Devensian Till and River Terrace Deposits (Sand and gravel) respectively.

Early consultation with local Geotechnical Engineers indicated there is significant site investigation data available for adjacent sites, but less for this site. A review of the British Geological Society's borehole viewer showed one borehole having been undertaken in the northern part of the site. This borehole data indicates the site is underlain by made ground to 1.5m depth which overlays very dense gravels/cobbles and sandstone deposits up to 11.5m in depth. Boreholes undertaken during 1990's for the adjacent "Sony" development encountered soft/very soft clay bands and competent ground conditions were encountered

at shallow depth for the development to the south of the site. The report for the Sony development also concluded that the risk of “limestone solution features” was low, however this has been investigated in greater detail as part of the Ground Investigation works carried out by Ashfield Solutions Group.

A comprehensive intrusive site investigation has been undertaken on the site by Ashfield Solutions Group with the report on findings produced by Geotechnical Engineers, Integral Geotechnique Ltd. Report Title Plots G & H, Pencoed Technology Park, Report Ref. 14058/FG/22/SI/A. The SI works included window sampling, trial pits and permeability tests. In addition, soil samples have been taken for testing for the required suite of contaminants.

Site investigation and ‘Envirocheck’ reports found no evidence of natural cavities.

Ground water appears to vary throughout the season of the Calendar year from high circa 700mm below ground level to lower than 3m or not encountered during infiltration testing and window sampling.

Table 3 Geology of site

Geological unit	Horizon	Description
Recent	Topsoil/subsoil and localised areas of made ground	Various materials
Quaternary	Alluvium (majority of the site)	Consolidated, compressible silty clay, but can contain layers of silt, sand, peat and basal gravel. A stronger, desiccated surface zone may be present
	River Terrace Deposits (Northwest area)	Sand and gravel, locally with lenses of silt, clay or peat
	Devensian Till (Southeast area)	Variable and poorly sorted clays, sands and gravel
Carboniferous	Marros Group (majority of the site)	Dark grey and grey siliceous mudstones and cherts and commonly fossiliferous mudstones, quartzitic sandstones and conglomerates
	Oxwich Head Limestone (southern area)	Thick bedded fine to coarse-grained skeletal packstones with distinctive pale to dark grey mottling and ooidal limestones. Intervals of dark grey, irregularly bedded skeletal packstones with shaly partings are also present

4.3 KNOWN SOURCES OF CONTAMINATION

Site investigation undertaken by ‘Integral Geotechnique’ in October 2022 indicates that no contamination is considered present from historical or current coal mining activities. Other historical risks considered prior to development of the site under this management plan would be construction of the pylon, ‘Glan Ewenny Meadows’ access road and known ground disturbance to the Northwest and Southeast corners of the site. Recent occupation of the site has been in the form of agriculture.

Sample of soil taken from the site by Ashfield Solutions Group in December 2023 indicate the presence of no actionable contaminants that could or would be considered as environmental triggers or issues.

4.4 SETTLEMENT TEST

Water samples will need to be collected to assess the presence of natural settlement or the need for flocculant dosing to enhance sediment deposition and capture. Based on the known geology of the site and the system adopted to filter water from the temporary construction process through the swales and filter medium we believe at present there will be no need to utilise dosing methods as noted to further reduce the anticipated TSS at the point of discharge lower than 60mg/l.

4.5 SENSITIVE ENVIRONMENTAL RECEPTORS

The 'Ewenni Fach' a named river runs through the site North to South, passing under the main highway bridge on 'Felindre' Road which transects the river at an East West orientation.

The 'Ewenni Fach' flows through the site development area for approximately 360m in South Westerly direction, no further tributaries join the watercourse within boundary of the site. The 'Gelynog Fach' joins the 'Ewenni Fach' approximately 100m meters downstream from the Southerly site boundary and both then continue to flow to and under the M4 whereby the named watercourse is referred to as the 'Afon Ewenni'.

The National River flow archive data was reviewed to acquire information and anticipated flow data. The nearest fixed gauging point datum located at 'Keepers Lodge' grid reference SS919782.

The site is located within a medium to high flood risk area according to NRW flood records. NRW FRAW Mapping 2023.

The site is considered suitable habitat for Hazel Dormice but following surveys undertaken during the course of 2022 and 2023 none were found. Removal of hedgerows and trees will be done so under ecology watching brief. The 'Ewenni Fach' is also used by otters as a transit. Works to protect the water course has been in respect to minimising the construction impact on the environment have been agreed and described within the CETMP.

4.6 POLLUTION SOURCES, PATHWAYS AND RECEPTORS RISK ASSESSMENTS.

Pollution risks have three main features:

- A source of Pollution
- A pathway for pollution to travel
- A receptor where the potential damage/harm is done.

A full risk assessment using the three identifiable features above is contained within section 6 of the management plan.

The assessment provides an overview of the control measures that would/could be needed to ensure the risks are reduced.

4.7 SITE DRAINAGE CATCHMENT, DISCHARGE RATE & LOCATION.

The surface area of the development is approximately 2.4ha but the development area is considerably less due to the restriction imposed by the flood plain. To provide the catchment area the developable areas have been broken down into 2 networks/areas covering circa 24000m². A full breakdown of this can be found in Appendix A of this management plan. For analysis purposes the entirety of the development area is considered impermeable surface. Restriction on SUDS as required by local planning authority. As such all surface water will be directed towards 'Swale' features/lagoons around the perimeter of the development. These features form part of the proposed developments surface water drainage network. These will be used for the temporary works and prior to completion will be made good by the contractor to form the permanent surface water collection and discharge scheme. Collected run-off will be discharged into the 'Ewenni Fach' at an uncontrolled rate during the temporary works via headwalls, two number located on the Western bank of the river. Anticipated flow rates are indicated below in the attached table for Q2, Q5 and Q10 return periods.

Table 4 Anticipated Discharge rates & Network location

Network	Drained Area	Q2 Peak Discharge Rate	Q5 Peak Discharge Rate	Q10 Peak Discharge Rate
A	20,000m ²	27.2 l/s	28.6 l/s	29.8 l/s
B	4,000m ²	25.2 l/s	27.9 l/s	30.1 l/s

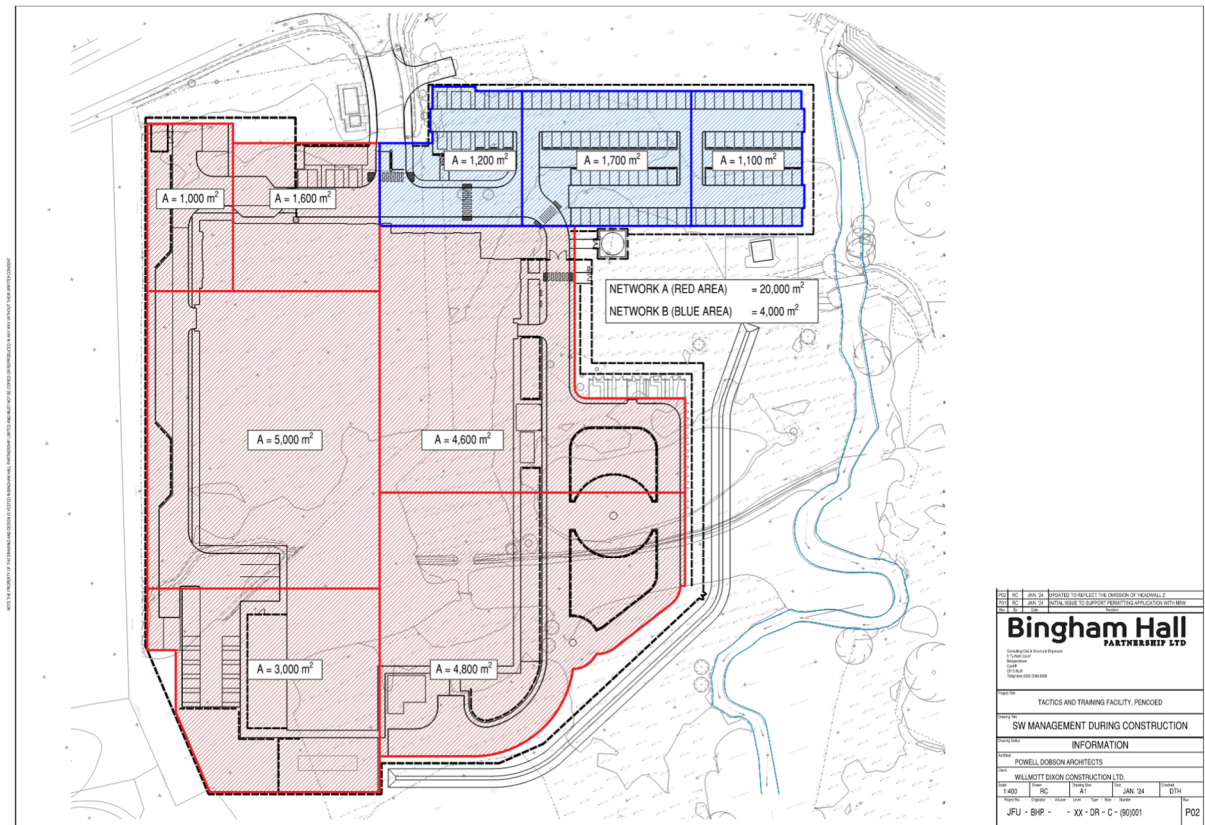
N.B Values above are based on piped discharges from the base of the ultimate swales / lagoon feature to the proposed invert level of the associated headwalls associated with the proposed developments surface water drainage network. Storage volumes for each swale feature that have been utilised as part of the temporary works construction stage phasing surface water management have been provided within Table 5 and located within Figure 5, and further information provided within Appendix A.

Table 5 Swale Capacity

Location	Type	Total Volume m ³
Network A	Lagoon 1	84.4
Network A	Swale 1	102.5
Network A	Swale 2	147.6
Network A	Lagoon 2	518.3
Network A	Lagoon 3	110.7
Network A	Lagoon 4	176.5

Network B	Swale 1	17.1
Network B	Swale 2	48.7
Network B	Swale 3	33.3

Figure 5 Water catchment network areas and discharge location.



The surface water discharge throughout the temporary works for the site will be intermittent, only undertaken as the need arises following local rainfall events and the needs to dewater foundation following rainfall events. It will not be continuous and unlikely to occur in dry weather.

As the building superstructure nears completion, roof rainwater discharge will be directed to the drainage network along with a phased discharge of associated external hardstanding networks. At this stage no dewatering of foundations will be undertaken.

Description and location of headwalls with max discharge rates can be seen below table 6.

Table 6 proposed discharge points

Reference	Description	Grid Reference	Max discharge Rate
Network B	Headwall 1	SS 97067 81203	30.1 l/s
Network A	Headwall 2	SS 96997 81064	29.8 l/s

5 ENVIRONMENTAL MANAGEMENT SYSTEMS

This surface water management plan will form part of the Willmott Dixon environmental management system certified to ISO 14001:2015.

The plan is designed to identify environmental risk and outline the methods and philosophy behind avoiding and reducing pollution risk as well as mitigating effect,

collecting, treating and discharging water from the site in a suitable manner so as not to impact surface water and ground waters during construction.

5.1 COMMUNICATION

Environmental issues will be reviewed internally weekly with the site construction team on a formal basis. The agenda will include the following items:

- Review the current implemented process to ascertain if the system and working practices are achieving the desired aims and goals.
- Identify change or variation in the working method and whether this alters the environmental risks.
- Environmental incidents, complaints and non-conformance, assignment of corrective actions and sign off on previous actions.
- Environmental training requirements
- Inductions and toolbox talks.
- Discussions required at safety and environmental briefings.
- Supply chain meetings required
- Environmental Manager visits
- Risks assessments and method statements reviews
- Client reporting
- Regulator visits if applicable

5.2 RECORD KEEPING

Environmental records will be included in the site environmental folder on-line project portal.

- Staff competency and training records
- Environmental risk register and management systems including method statements and pollution control plans.
- Permits, licences and consents.
- Inspections
- Site visit records
- Internal and external audit reports along with corrective actions and close outs.
- Daily diary sheets
- Complaints register
- Environmental survey reports
- Routine monitoring and compliance records
- Incident and investigation reports.
- Environmental data.

5.3 TRAINING AND AWARENESS

Training is to be given in accordance with the relevant company's personnel development and training processes. As a minimum during this project that noted below should be considered:

- All project operatives and supervisory staff will receive a site specific induction that covers environmental issues associated with their roles and responsibilities.
- More detailed training, such as that required for pollution control measures, waste management, spill kit training will be given to operatives as required.
- Training on specific environmental topics will be given by suitably qualified persons where required.
- On-line pre-enrolment of all operatives prior to commencing works.

- Specific Site supervisors' induction and training given by suitably qualified persons.
- Site supervisors and environmental managers to give toolbox talks to operatives on key issues such as silt control, water pollution prevention, spill response, protected species, waste management, storage of chemicals and fuels, invasive weeds.
- Details of task specific environmental operational controls including permit conditions and detailed methodologies which are to be included in RAMs.
- Display posters such a silt control, spill response.
- Ensure any permits are in place.

6 POLLUTION CONTROL MEASURES

Willmott Dixon Construction Ltd have considered pollution control measures based on guidance and good working practices contained within GPP-5 (source, pathway, receptor) and on the information received following site inspections, geotechnical investigation, flood compensation audits and associated hydrology and flood mapping models, throughout the planning and design stages of this project. Whilst surface water management and pollution control systems will be in place prior to the commencement of construction activities these will need to be reviewed on a regular basis as the site work progresses making this management plan a dynamic plan managed through the monitoring process.

The surface water management for the temporary works will use passive silt control options, good working practices, drainage, settlement, and filtration as described below. Only when this avenue has been exhausted and as and when exceptional environmental conditions dictate will control measure such as flocculants or coagulants be introduced as a water treatment option.

The management plan defines the management of pollution control into three categories those being General good practice, site specific water treatment and emergency contingency measures.

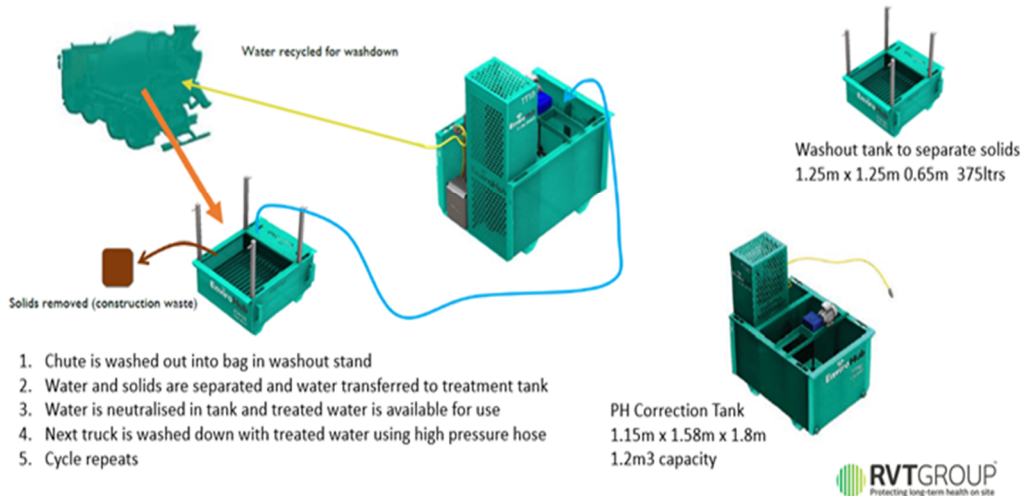
Table 7 General Good Practice, site specific and emergency contingency measures.

Action	Description
	Environmental responsibilities: <ul style="list-style-type: none"> • Identify a responsible person for environmental management. • Ensure everyone has basic awareness of silt control measures. • Provide specific instruction to site teams and supply chain. • Arrange detailed training for individuals directly involved with this management plan and supervision.
	Consents & Permits <ul style="list-style-type: none"> • Ensure correct consents and permits are in place prior to commencing construction works.
	Access <ul style="list-style-type: none"> • Formalise site access and establish site compound with temporary carparking away for flood plain and river. • Separate delivery areas • Ensure spill kits are present and available. • Ensure safe storage for fuels and chemicals in bunded secure storage at least 50m away from receptors. • Work in sequence phase creating clean safe spaces as outlined in sequence of works description and Figure 7 sequence of works. • Haul roads and temporary construction roads and storage areas kept free from sludge and mud. Works to cease if conditions become too bad to maintain clean and clear working routes and spaces. • Monitor and maintain entrance to maintain cleanliness of highway and preventing pollution of road, provide 'rumble' strip to main entrance if required, primary

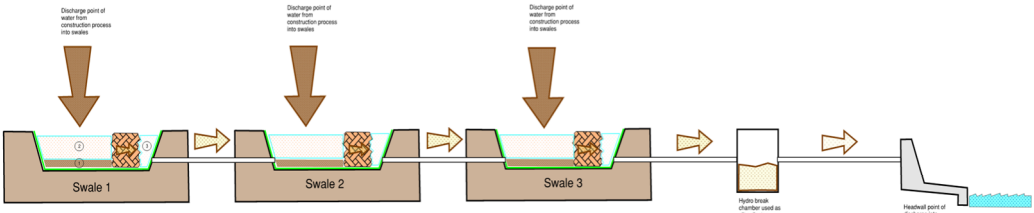
	<p>maintenance utilise road brush on a regular basis in line with LA and CEMTP requirements.</p> <ul style="list-style-type: none"> • Install swales in temporary drainage format as noted on Figure 7 sequence of works phasing plan.
	<p>Sewage & Grey water</p> <ul style="list-style-type: none"> • Ensure all temporary accommodation discharges into septic tanks, tanker off site as required. • Apply for section 104 to proceed with adoption of private rising main off site and then section 106 to allow temporary accommodation to discharge into permanent foul sewer.
	<p>Construction phase planning</p> <ul style="list-style-type: none"> • Ensure any stockpiles of site arisings are kept to a minimum and removed from site as soon as practicable and cover stripped areas with fill as work proceeds to mitigate surface water run-off. • All enabling works for pollution control to be undertaken in line with programme of works prior to main works commencing. • Temporary generators and offices welfare to be located as site logistic plan out of the flood plain.
	<p>Materials storage</p> <ul style="list-style-type: none"> • Storage of materials in line with site logistics plan • No fuels, chemicals, cements to be stored within floodplain or within 50m of the receptor. • Fuels to be stored in bunded containers and areas. • Waste deposition points to be kept clean and clear at all times. • Pollution control measure as noted on Figure 6 to be installed prior to construction works. • Temporary stockpiles of materials to be kept away from river, behind and within, pollution controls zones to capture and prevent contamination of the receptor in the event of site flooding or periods of exceptional rainfall.
	<p>Dust</p> <ul style="list-style-type: none"> • In the event of exceptional dry periods wet down haul roads and stockpiles with water spray as and when required in line with CETMP. • Monitor and record events in line with record keeping procedures.
	<p>Pumping of standing water, treatment ditches, perimeter protection, attenuation ponds and water treatment.</p> <p>The following identifies the considered passive measures for site specific water treatment. To address the possible risk of surface water washing silt and possible pollutants down into the named water course the sequence of works has been broken into two distinct phases. These can be seen below in the attached drawings.</p> <p><u>Phase 1 works in preparation to any construction being undertaken and undertaken during the enabling phase of the construction process.</u></p> <ul style="list-style-type: none"> • Along with mitigation planting and being undertaken during the months of January 2024 to April 2024 silt fencing will be erected to Western boundary of the river, this can be seen as the 'dark green' line running North to South. The construction of the silt fencing can be seen on the detail noted below in Figure 6 and will consist of wooden stakes driven into the ground, with a proprietary silt stop membrane secured to the posts and buried into the ground in accordance with the manufacturer requirements. A small section of silt fencing can be seen on the South-Eastern aspect of the river. This is required to provide segregation from the earth bund to be created for the mock station training area. The bund is a considerable distance from the river, but is within the possible high level flood zone, hence the required installation until the seeding has taken and stabilised the construction. • Excavate and seed conveyance ditch (dark blue area in Figure 6), required as part of flood mitigation works and described under FCA. This ditch will act as natural barrier for water run off from the site footprint and reduce the risk of catastrophic flooding during flood events. This ditch is not lined and allows for ground filtration. • Construction of the main carpark, as noted on Figure 6 and Figure 7. This carpark will be constructed in its permanent state as full attenuation, discharged via hydro-break chamber and into headwall 1. During the construction phase, this area will be utilised as a carpark and surface water run-off will be filtered via the clean stone layer prior to the entering the watercourse. As can be seen in Figure 6 the final porous paving to parking bays will be postponed until the end of the construction process. In lieu of porous paving clean stone will be laid over the construction layers but segregated via a porous membrane. • Excavate swales and install inter-connecting pipework identified light green on Figure 7 sequence plan below. The swales will be fully lined with an impervious membrane and connected via headwalls outlet/inlets. The completed swales construction calls for a soiled and planted scheme, however, to maintain cleanliness through the construction phase this process will be postponed until all construction works have been completed. The specification and style of construction can be seen on extract noted on Figure 6

	<p>pollution control measures. Water run-off from the site hardstand during the construction process to the Western aspect of the site will be directed to these ditches. Once the water has entered the swales it will be filtered via straw wattles and bales, encapsulated within a membrane lined fence on the outlet position, before entering the named river via Headwall location 2.</p> <ul style="list-style-type: none"> • Reduced level dig will be undertaken with arising removed from site. Due to the confined and restricted nature of the site deposition and stock-piles will be kept to a quantity that can be removed on a daily basis. The intention to maintain a clean working environment will be to cap the site area with clean stone to formation as the reduced level works are undertaken. • Throughout this process and into the construction phases roads and access routes to the site will be kept clear using road sweepers. It is important to note that discharge of road sweeper on site will be permitted. Deposition of collected materials will be so in accordance with waste guidelines off site. • It is the intention depending on site conditions that during the bulk earth works process rumble strips will be considered at the site entrance to dislodge mud and debris before vehicles enter the highway, further reference can be made to the CEMTP located on the local authority planning portals. <p><u>Phase 2 works. During the Construction Process.</u></p> <ul style="list-style-type: none"> • As noted above, the main structural frame of the two large covered live ranges is insitu concrete, these are located on the Western aspect of the development plot and building footprint. The programme intent will be to commence these when the seasonal conditions are at their best, summer months when the water table is at its lowest and the effect of heavy rainfall is less likely. Foundations are a combination of mass fill and RC concrete and will be undertaken sequentially with open excavation reduced to a quantity whereby they are left in an open condition for least amount of time prior to concrete. Having undertaken filtration test during the months it is perceived that any surface water that may fill open trenches will percolate into the natural ground bearing strata reducing the need to remove water. In the event heavy rainfall and possible flooding of open foundations, water will be removed via pumps directed into swales labelled as 1, 2 and 3, ref Figure 7 below for location. As noted, outlet positions on these swales will be protected with straw bales and or wattles contained within silt membrane fencing. As the swales are interconnected, 1 to 2, 2 to 3 each containment 'pond' will filter its own water prior to discharging into subsequent swales, thus reducing suspended solids prior to reaching the location of the Hydro break chamber prior to outfall/Headwall location 2, location identified Figures 6 and 7. During the construction phase of the works there is no intention to install the hydro-break within the chamber but to use this chamber as a further silt collector. • The above process will also be adopted for the construction and concrete works associated with the office area and covered tactical training warehouses. The structures have less concrete within the build than the main live fire ranges thus swales 1 and 4 will be used due to their proximity of the works. • As work progresses to the structure and roofing completed below ground rainwater systems will be connected into the swales as can be seen on Figure 7. At this time no construction runoff will be entering these swales and it is perceived only rainwater will be entering the system. The permanent access road to the Western side of the building will be constructed in its permanent state again after main construction works have been complete, anticipated commencement summer 2025. This will then become full attenuation in line with the construction drawings, layered stone within impervious membrane in line with agreed SUDs strategy and SABs requirement. • Headwall 2 location as seen on Figure 6 and Figure 7 will not be utilised in the collection of discharge into the river until the main construction works of the building are complete. It is anticipated that this will happen during the summer months of 2025, whereby the swales noted as 5 and 6 will be constructed allowing discharge of the building storm water to discharge into these. Prior to this point in time the swales identified as 5 and 6 will be stoned for construction storage and access relying on natural filtration of surface into the ground. To reduce site contamination the access roads will be constructed early as can be seen on Figure 7, identified as light grey shading. The ethos and purpose are to maintain a clean site allowing road sweeper full access on a regular basis to maintain the primary access route to and around the site. Any surface water wash down from this external area will naturally, in heavy rainfall conditions wash into the large conveyance ditch, highlighted 'dark blue' Figures 6 and 7, installed during the enabled works. A clean stone 'buffer zone' will also be provided on the Eastern aspect of the temporary tarmac road, indicated by the yellow hatched zone as seen on Figure 7. This again to act as natural filtration for run off prior to water entering the conveyance ditch. In the event of over topping of this ditch due to exception conditions the silt fence will retain any perceived washed-out silt from entering the watercourse. Again, once the road gullies have been connected into swale 5 these will be protected by 'silt nappies' installed within the gulley pots to minimise any
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	<p>contaminants entering the system. The outfall of swale 5 will, as other swales, be protected by hay bales and silt fencing prior to entering hydro break chamber outfall 2. The hydro break will be installed at the latter end of contract so the chamber can be utilised as a further silt break until this time.</p> <p>Head Wall 1, location as noted on Figures 7 and 8 will be installed along with the main carpark it serves.</p>
	<p>Concrete Wash Out</p> <ul style="list-style-type: none"> • Sequence of works as noted below. • Ensure and make provision that the correct closed loop wash out system is properly installed, and the method of works are adhered to. • Correctly trained operatives to use the wash plant only to reduce possible failure and misuse. • Monitor and record correct pH levels in the event of overflow of the holding tank. • It is envisaged that an 'Envirohub' closed loop concrete washout system is utilised, with recycled water used to clean and clear the next truck. • Aggregate collection bags removed once used and disposed as waste from the site. • The EnviroHub system is a closed-loop system which removes the solids from the water and then neutralises the pH by using CO₂ gas. This system does not leave any residues or substance in the water. The correction process is managed by a control module which takes pH readings of the water continuously and when a value between pH 6 and 9 is achieved the treatment is stopped and the water is allowed for use to wash out subsequent concrete trucks. <p>Below is a summary of how the system works</p> <p><u>How the system works:</u></p> <p>1.Solids/water separation – CW01 Water is washed out into the CW01 stand – this holds a 1 tonne washout bag on a bunded stand. The tank is 1200mm x 1400mm This separates the fines and the water, allowing aggregate to be used for backfill / disposed of as dry waste. Separating the concrete from the water prevents further alkaline reaction. The water is contained in the bund and transferred into the TT01 treatment tank by a small pump in the bottom of the tank.</p> <p>2.Water treatment – TT01 The TT10 is a separate tank, holding an automatically controlled CO₂ correction system which receives and corrects water. It can be fitted with a booster pump which means once the water is corrected it can be re-used. Alternatively, the neutralised water can be discharged via foul drainage under a trade effluent consent. This tank will hold and correct up to 1,000ltr of water at a time before it is released and requires a 110v 16a power supply.</p> <p>Key Benefits:</p> <ul style="list-style-type: none"> • Auto corrects the washed-out water to a natural PH so no need for any site labour/chemicals. • Can reuse the water as it's a closed loop system with a booster pump so saving water and no need to remove the water off site. • The bags are multi-use and the CO₂ gas will provide around 300 wash cycles. • This system will be relocated to and adjacent work faces as work proceeds to an around the site. Due to the nature of the works more than 1 system may be required. • Trained operatives will monitor and manage the systems to ensure replacement CO₂ and wash down is kept running and in a good state at all times. <p>Concrete wash system closed loop operation diagram.</p>

	<p>Concrete Washout – reuse water in unique closed loop system</p>  <p>Water recycled for washdown</p> <p>Solids removed (construction waste)</p> <p>Washout tank to separate solids 1.25m x 1.25m 0.65m 375ltrs</p> <p>PH Correction Tank 1.15m x 1.58m x 1.8m 1.2m³ capacity</p> <p>EnviroHub</p> <p>RVTGROUP Protecting long-term health on site</p> <ol style="list-style-type: none"> 1. Chute is washed out into bag in washout stand 2. Water and solids are separated and water transferred to treatment tank 3. Water is neutralised in tank and treated water is available for use 4. Next truck is washed down with treated water using high pressure hose 5. Cycle repeats
	<p>Road Sweep wash out water.</p> <ul style="list-style-type: none"> • Road sweep will not be allowed to discharge waste onto site or into off site drainage systems but will return to depot to discharge in correct and managed premises in line with waste disposal procedures of hire company. • Highways to be inspected regularly to ensure no pollution, mud or silt is entering network. • On site road gullies to be correctly protected with gulley protectors or proprietary silt prevention bags and maintained regularly. • Site areas to kept clean and clear discussed under planned maintenance regime.
	<p>Oil & Chemical Management.</p> <ul style="list-style-type: none"> • Fuels, oils, paints, solvents, cements and other control of substances Hazardous to Health (COSHH) materials will be in lockable containers, with controlled access keys and in line with legal requirements including the control of pollution regulations, i.e 110% bunding, use of drip trays etc. • Oil and fuel facilities kept in double bunded storage areas at least 50m away from the river. • Regular maintenance and daily checks made on plant, inspecting for leaks. Plant nappies required to and under all small and static plant. Recorded on record sheets. • Ensure dedicated, impermeable re-fuelling point set up and is not in flood plain or within 50m of river. • No re-fuelling outside dedicated point or within flood plain. • Fuelling operations planned to minimise spillage and environmental risk. Plant nappies used during fuelling activities. • Appropriate spill kits available and operatives trained in use. • Site specific re-fuelling procedure available displayed and discussed in induction and site briefings. • Fuelling points to be contained within secure areas to prevent and mitigate vandalism and theft. Area to be always kept clean and clear with correct fire provision available. • No loose materials as described above to be left out or stored within flood zone or used within flood zone.
	<p>Waste Management</p> <ul style="list-style-type: none"> • Ensure waste hierarchy is followed, reduce, re-use, recycle. • Develop maintain and discuss on a regular basis waste management plan. • Foul effluent removed from site only by licensed carriers. • Waste fuels and chemicals disposed of in sealed containers and disposed of in line with waste management plan. • All waste removed from site will be covered, recorded by or accompanied by the correct duty of care documentation and in line with waste management plan. • Ensure correct waste segregation is adhered to and enough skips are provided and exchanged so as not allow over filling or debris being left around site. • Ensure regular litter picks are actioned and events recorded.
	<p>Biosecurity</p> <ul style="list-style-type: none"> • Invasive weeds have been found on site, Himalayan balsam. Locations identified on site plan Appendix B

	<ul style="list-style-type: none"> • Areas to be fenced in advance of construction and INNS approved method of management throughout construction developed and to be issued to local authorities prior to construction works. • Materials in this zone are to be disposed of in line with specific RAMS and operatives undertaking work in these areas to receive site specific toolbox talk with specific note made to RAMs. Signed and recorded. • Plant moving to and from these work areas to be de-contaminated in accordance with RAMS to reduce spread of invasive species. • Waste removed from site that may have contamination done so in accordance with RAMs, correct waste transfer procedures and in discussion with ecologist. • Do not enter river with any plant or machinery unless supported by correct working procedures. • Re-use soil from site where possible, imported materials, soils to come from reputable supplier with supporting certification of compliance. Re-cycled aggregates not to be used on site. • All retained trees and hedgerows to be protected from damage with proprietary fencing. • All trees and plants should wherever possible be sourced from British supplies and be pest and disease free, accompanied by correct biosecurity management systems.
	<p>Watercourse and fields</p> <ul style="list-style-type: none"> • Do not allow vehicles to ford the watercourse. • Develop a plan for movement of vehicles/plant to and around site in line with ecology statement and protection of habitat in respect to future growth, regeneration of areas and protected species watching brief. • Installation of headwall cannot be undertaken until FRAP submitted and approved, supply chain to work strictly in accordance with headwall RAMs, specific briefing to be undertaken and recorded prior to works commencing. • No works within 10m of riverbanks to be undertaken with the exception of headwalls, zone protected prior to main construction works. • During headwall works consider the need for downstream pollution control. • Plant crossing site only within designated routes to prevent spoiling of soil and creation of sludge. Routes to be discussed and planned and where necessary temporary removable roads to be installed. • Daily briefing held to discuss works and dynamic assessment made in light of seasonal and changing weather patterns that may affect the planned scope of works.
	<p>Water treatment from Swales.</p> <ul style="list-style-type: none"> • Water entering the swales primarily comes from two sources, dewatering of foundations and surface run off. • The use of a pump to dewater foundations will be required. A sump pump will be utilised to empty affected foundations prior to concrete work being undertaken. • Water should be allowed to settle in foundations prior to pumping out to reduce silt content. • As noted in the descriptive process above, the intention is to use the swales as the points of discharge throughout the construction process, ultimately terminating at the headwalls and into the named river. The primary source of pollution will be surface water entering the excavations requiring removal and surface water run-off over hard stand areas. During the course of the project and as the structures progress roof drainage will ultimately take over the use of the swales and hence the source of polluting compounds will be dramatically reduced. • To address the issue of minimising turbidity/TSS within the ultimate discharge point, that being the 'Ewenni Fach' to acceptable levels, the process of providing Swales filtration will be required. The process described above can best be seen in the diagram below, whereby each swale will provide its own level of filtration for suspended solids prior to discharging into the next, ultimately flowing into the temporary silt interceptor chamber before discharging via the head walls. • The use of hay bales and sediment fencing within the swales at point of discharge is not only environmentally friendly but will provide and excellent means of reducing suspended solid. Anticipated on its own Hay bales could reduce suspended silt by upto 60% but in culmination with a proprietary silt fence the reduction of suspended silt passing through the filter medium could be upto 80%. It therefore the intention to install the system as noted below, either both during months of heavy rainfall or just hay bales during summer periods. • Swales will be regularly maintained throughout the duration of the contract. Excessive silt removed on a weekly basis and tears or rips to the impermeable lining repaired. Prior to completion of the project new impervious lining will be used to replace any damaged materials and before growing medium and seeding installed. • Hay bales will be replaced at intervals no greater than 3 months or sooner depending on site conditions, compliance monitored under the reporting process below.

	<p>Swales Filtration Principle.</p>  <p>Filtration Process 0 - water in. 1 - Natural settlement of heavy solids to bottom of 'swale'. 2 - Cleaning water above, less suspended solid. 3 - Water passes through Hay Bales and Silt membrane reducing suspended solids before passing into next 'swale'.</p> <p>N.B - Intention 1 'bale' to be used in line at any one time.</p>
	<p>Headwall Installation</p> <ul style="list-style-type: none"> On approval of the associated permit, install the headwall with associated drainage in advance of network connections. Reference made to headwall installation RAMS/Good practice guidelines, required and produced by supply chain partner.
	<p>Site Management</p> <ul style="list-style-type: none"> Plan, manage, monitor passive filtration from swales to prevent contaminated water bypassing system and discharging into river. Ensure waste water or silt collected in swales is emptied on a regular basis and removed from site. Plan in advance cleaning regime of swales, and silt interceptors and manage in good time replacement haybales and correct method of disposal. Discuss on regular basis during daily briefings and supply chain review meetings to ensure all understand dynamic nature and importance of preventing environmental contamination.
	<p>Monitoring</p> <ul style="list-style-type: none"> Prepare a monitoring plan for the site. Monitor daily the surface water discharge. Monitor both upstream and downstream of the named river as it passes through the site. Record daily, report finding to wider team if trigger levels exceeded. Construction works will not be undertaken in flood events and exceptional weather, In the event of major spills refer to the SEEPA for emergency plans and requirements. Close off all points of discharge to the river from the affected source point. Contained contaminated water pumped out of swales and tankered away from site.
	<p>Emergency Procedures</p> <ul style="list-style-type: none"> Willmott Dixon to develop company specific Emergency reporting system (Safety and environmental emergency planning arrangement SEEPA). The SEEPA is completed in line with the construction phase plan and forms part of the operating procedures of the site. For ease of description, attached below is the route map for the reporting procedure in the event of an emergency situation. Ensure The SEEPA has all contact details logged and completed for all statutory authorities including contact numbers and addresses. An individual incident commander will be named within the SEEPA and that person will organise the response and action required to resolve or contain the issue. Prior to any work being undertaken on site that involves work contained within this management plan risk and method statements will be produced by the supply chain partners involved and approved by the site manager or regional health safety and environmental managers prior to works starting. Toolbox talks will be given at a site. Prior to any work being undertaken on site that involves work contained within this management plan risk and method statements will be produced by the supply chain partners involved and approved by the site manager or regional health safety and environmental managers prior to works starting. Toolbox talks will be given at a site level to ensure high standards of compliance are met by operatives undertaking the work. Spill kits and or pollution pontoons will be kept on site and or at the point of work for use in such emergency situations revolving around pollution incidents and operatives trained in their use. Report and record all near misses and incidents.

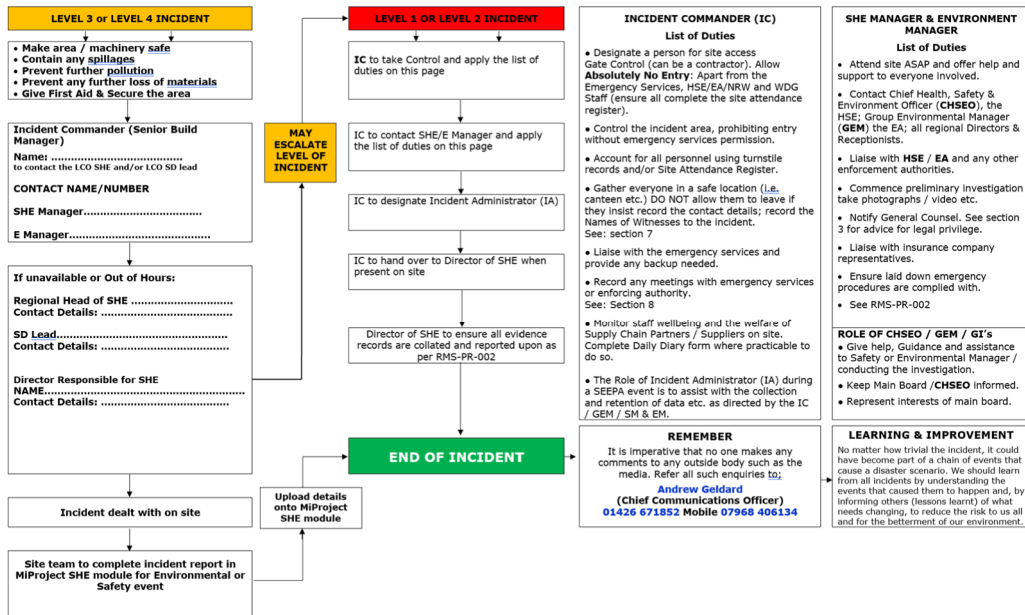
SECTION 1 EMERGENCY RESPONSE FLOW CHART - INCIDENT LEVEL MATRIX

Note: The lists are NOT exhaustive as other incident types may occur (See "SEPPA" Section).

LEVEL 4 - OBSERVATION:	LEVEL 3 - MINOR classified as:	LEVEL 2 - SERIOUS classified as:	LEVEL 1 - MAJOR classified as:
Example SHE Incidents <ul style="list-style-type: none"> Inadequate storage/ disposal arrangements for hazardous substances. Poor waste segregation Failure to manage concrete / cementitious washout. Poor management of fuel storage areas Failure to prepare/ plan for nesting birds/bats Minor drips of oil onto ground Poor housekeeping Wildlife found on site - left undisturbed and allowed to leave of own accord (bats, fox, badger, birds) or with support (bees/keepers) Inadequate/inappropriate use of PPE Poor management of work at height Unsafe use of mechanical plant Failure to issue relevant permits Inadequate plant and equipment records Finding of uncharted service (any type) 	Example SHE Incidents <ul style="list-style-type: none"> Loss of Power Supply causing machinery to fail (no injuries). Service Strike causing disruption to services. Minor site trip or fall resulting in a minor injury. Any type of equipment failure resulting in no or minor injury. Oil or other hazardous substance spills of less than 10 litres AND/OR requiring use of spill kit / Failure of equipment - e.g. cement tank pipework during unloading. Minor disturbance to wildlife - birds nesting but not affecting works / unauthorised work in a Tree Protection Zone. Breach of Planning Conditions. Discovery or damage to archaeological artefacts. Discovery of unknown contaminated land on site / nuisance / noise, vibration, dust and odour issue. 	Example SHE Incidents <ul style="list-style-type: none"> Any instance of asbestos fibre release. Any near miss that might have caused minor / serious injury. Any near miss that might have caused fatal injury. Any minor ignition or fire (electrical, chemical or fuel). Any collapse of materials or stored goods. Any overturning plant or equipment (with injury or not). Any instance of serious equipment failure causing cutters / blades / cutting heads / boring tools / digging tools (buckets / points / Chisels) to fall off or be ejected from the machine. Fire or flood - dependent on severity, e.g. slip fire. Terrorism / public disorder. Oil or other hazardous substances spills which have or may leave the site, over, underground or in pipes (of more than 10 litres). Disturbance to wildlife - birds nesting and affecting works / schedule. Damage to tree or hedge branches or roots. Unauthorised discharge to sewer / environment about to occur or already occurring. Waste has or is about to leave site but not fully documented. Containment of contaminated material / land on site. 	Example SHE Incidents <ul style="list-style-type: none"> Any fatality or persons reported missing due to a collapse. Any instance of underground collapse with missing persons. Fire or flood - dependent on severity. Terrorism / public disorder. Oil or other hazardous substances spills which have left the site or contaminated shallow groundwater (of more than 100 litres) OR loss of control of the incident. Serious damage to wildlife e.g. protected species / habitats. Contamination that may or has caused damage to public health. Waste illegally dumped - disposed at location other than documented or expected. Wildlife fatality or nest/laire/ den destroyed. Fatality. Any incident caused by being overcome by a substance.
CONTACTS (In order of Priority) <ul style="list-style-type: none"> Site Management Team Safety/Environment Managers Operations Manager Operations Director 	CONTACTS (In order of Priority) <ul style="list-style-type: none"> Site Management Team Operations Manager Operations Director SHE / Environment Manager SHE / Environment Manager may decide to inform: <ul style="list-style-type: none"> LCO SHE Lead / SD Lead and / or the Group Chief Health, Safety & Environment Officer (CHSEO) Group Environmental Manager (GEM) Site Management Team Operations Manager Operations Director Safety / Environment Managers 	CONTACTS (In order of Priority) <p>All as listed for Level 3 incident, plus:</p> <ul style="list-style-type: none"> Operations Director Director Responsible for the Environment Managing Director SHE Manager to determine requirement to contact the following: <ul style="list-style-type: none"> Environment Agency Health & Safety Executive (HSE) Natural England (NE) / Natural Resources Wales (NRW) Specialist Contractors and for due cause the drug & alcohol labs Director Responsible for H & E to determine requirement to contact the following: <ul style="list-style-type: none"> Insurers (via Group Insurance Manager GIM) Specialist Legal Advisor (Legal Privilege) <p>A lesson learned investigation should be undertaken for all Level 2 incidents. Speak to the GEM & CHSEO / Regional Head of SHE to ascertain the nature of any evidence or information thought critical by them.</p>	CONTACTS (In order of Priority) <p>All as listed for Level 2 incident, plus:</p> <ul style="list-style-type: none"> Group Chief Executive / Director Responsible for SHE Chief Operating Officer WGD Chief Communications Officer Company Secretary All Regional Managing Directors
ACTION: Site team to complete Safety Observation Report on MiProject/MSHE App POTENTIAL TO PROGRESS TO LEVEL 3 ACTION: Site team to complete Safety Observation Report on MiProject POTENTIAL TO PROGRESS TO LEVEL 3 ->	ACTION: Site team to complete Incident form on MiProject If required; Investigation and / or a Written Report by: <ul style="list-style-type: none"> Site Management Team SHE / Environment Manager POTENTIAL TO ELEVATE TO LEVEL 2 ->	ACTION: IMPLEMENT SAFETY & ENVIRONMENTAL EMERGENCY PLAN Investigation and/or a Written Report by: All the above as listed for Level 1 incident, plus: <ul style="list-style-type: none"> Media interest (Press, Television, etc.) Utility Companies (Water and Sewerage service undertakers) Environmental Health (Noise/Dust/Vibration nuisance) Officer Environment Agency Local Planning Authority Other Agencies / Authorities Additional Consequences: <ul style="list-style-type: none"> Legal process started by any of the above Bad Publicity Increased Insurance Premiums Loss of Revenue / Increased Cost Client Dissatisfaction Community concerns Undertake a "Lessons Learned" investigation POTENTIAL TO ELEVATE TO LEVEL 1 ->	ACTION: IMPLEMENT SAFETY & ENVIRONMENTAL EMERGENCY PLAN Investigation and/or a Written Report by: All the above as listed for Level 2 incident, plus: <ul style="list-style-type: none"> Police Media Coverage (Press, Television, etc.) Willmott Dixon Main Board / SHEIP <p>A "Lessons Learned" investigation will be undertaken for Level 1 incidents and the results communicated to the CHSEO, GEM, Regional Head of SHE and all LCO SHE Lead/SD Leads</p> <p>The CHSEO may appoint a Group Inspectorate to lead the "Lessons Learned" investigation.</p>

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SECTION 2 EMERGENCY RESPONSE FLOW CHART - INCIDENT PROCESS MAP



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Incident Hotline Numbers:

In Scotland, Northern Ireland and England call:

0800 80 70 60
(24 hour service)

In Wales call:

0300 065 3000
(Press 1 for 24 hour service)

7 SITE PLAN OF POLLUTION CONTROL MEASURES

Figure 6 Pollution Control Measures

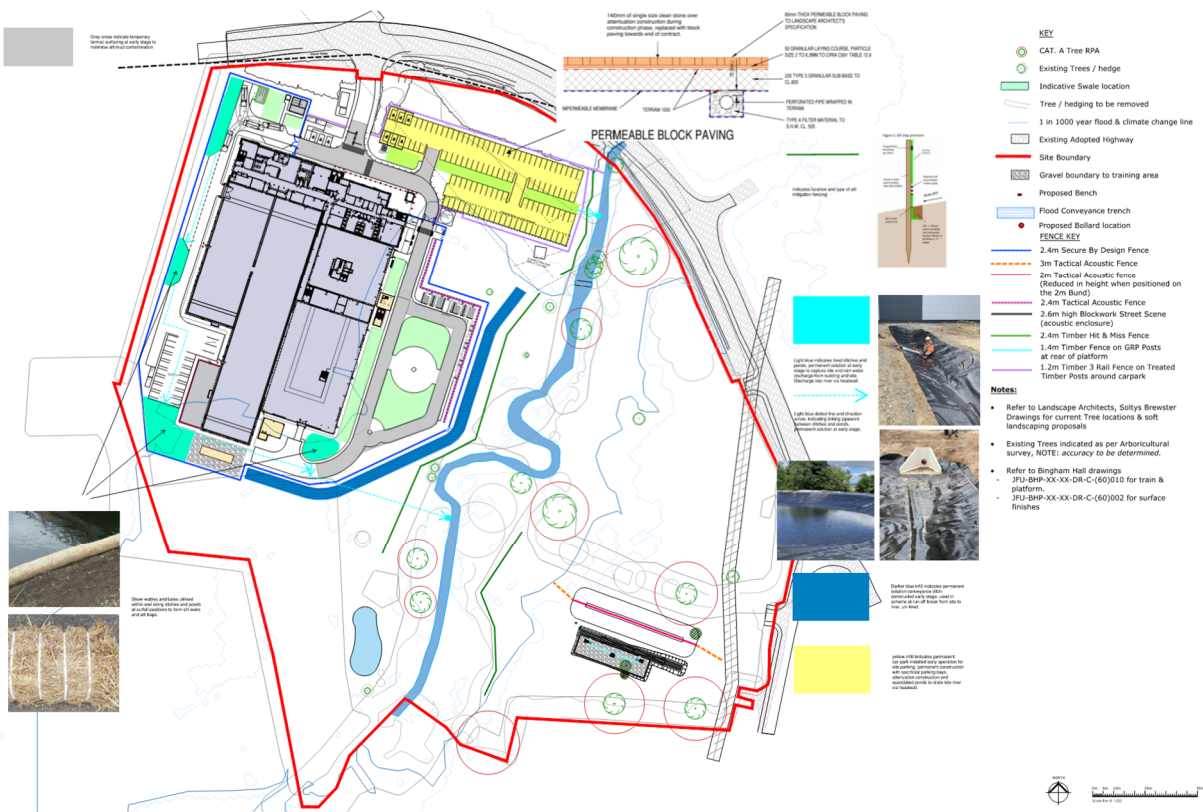
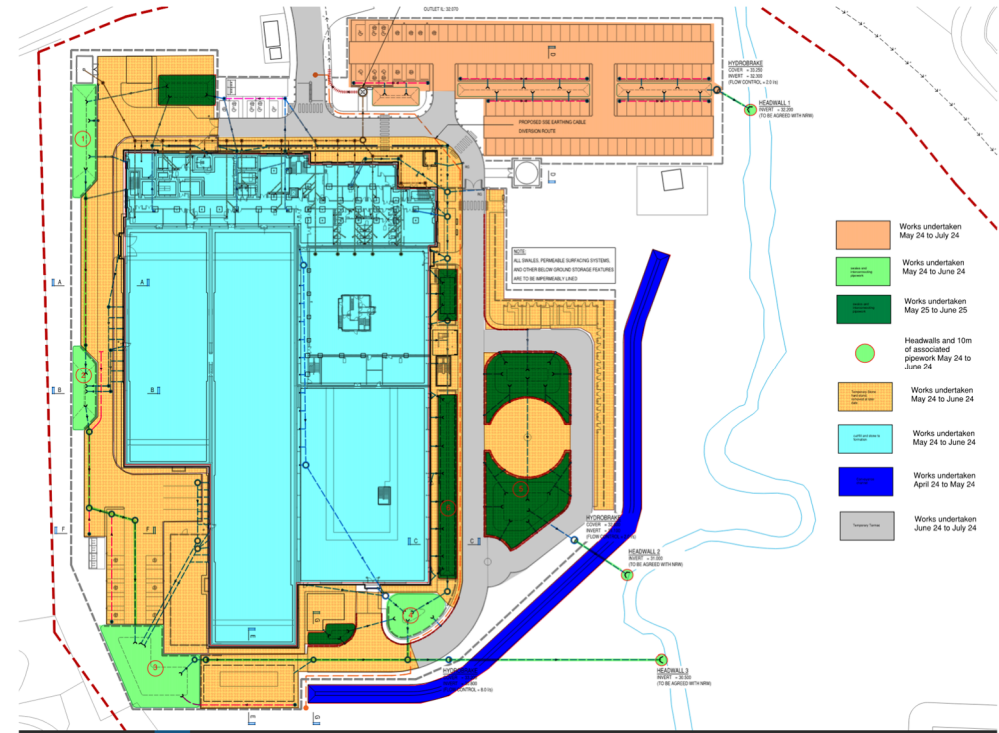


Figure 7 Sequence of works



*Note – updated plans are for 2 headwalls only. Second headwall in the above has been removed based on NRW comments.

8 MONITORING

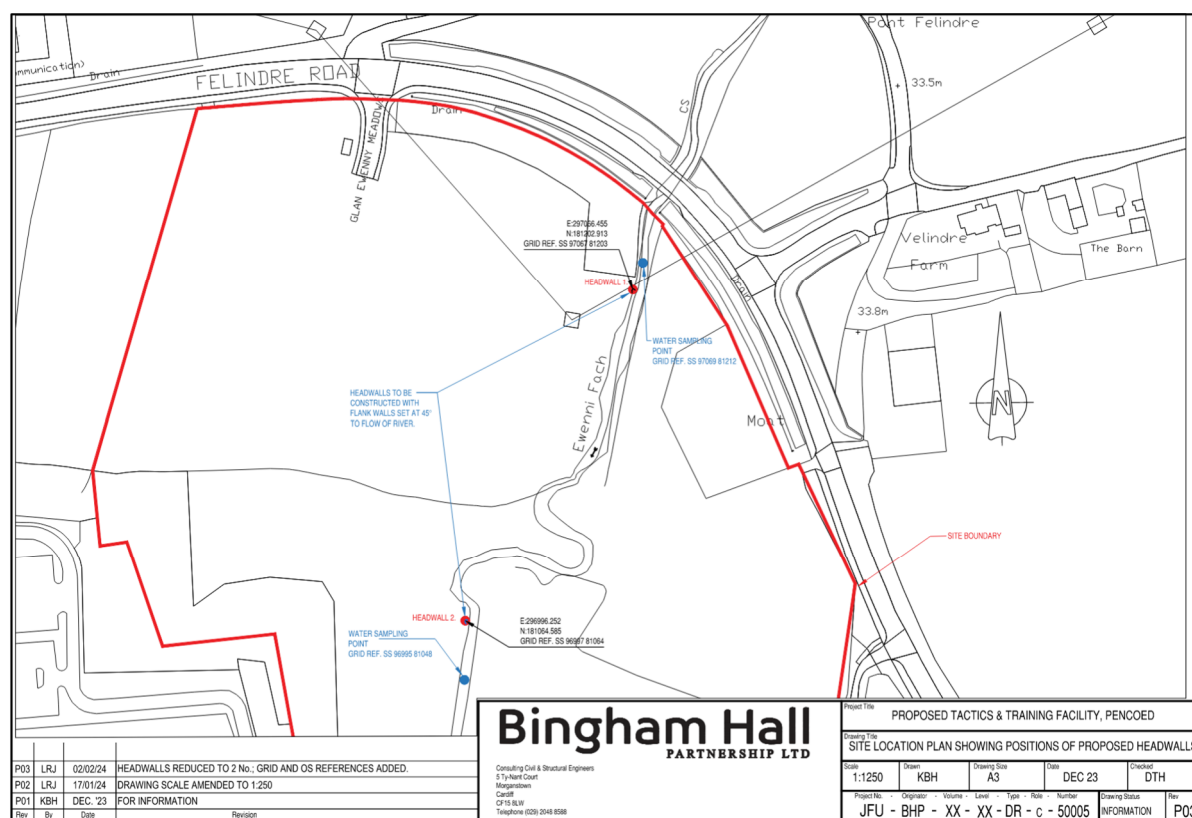
To ensure that the mitigation and treatment process is working correctly, self-monitoring will be undertaken.

To act quickly in the event of any incident and to provide constant real time monitoring automated systems will be installed within the river at two location's.

Table 8: Water sample points

Monitoring ref.	Location	Grid ref
Water sample point 1	Upstream of headwall 1	SS 97069 81212
Water sample point 2	Downstream of headwall 2	SS 96995 81048

Figure 8 Location of headwalls and monitoring points



The monitoring will include as a minimum turbidity (NTU) which will provide information for the discharge consent with total suspended solids (TSS) measured in mg/l. NTU may be used to provide a correlation to TSS. It may be considered applicable to check the TSS values attained on site against a programme of sampling for TSS.

To ensure the mitigation and treatment process is working, monitoring will utilise a standard suite of information on the automated monitoring module that will assess pH, Turbidity, suspended solids estimate, dissolved oxygen and temperature ranges.

Supply chain and contractor's team will receive toolbox training to identify immediate pollution concerns in addition to the automated system.

Table 9 Water testing parameters

Parameter	Measurement	Range	Method
Weather	visual	Sun/rain/hot/cold	Observation and record
Discharge from site	visual	Yes/no	Observation and record
Water clarity	visual	Clear/cloudy/silty	Observation and record
Turbidity	NTU	0-150	Automated monitoring system, data logging on portal. Alarm status
TSS	Mg/l	0-60	Automated TSS estimate based on NTU. Alarm status. 'Palintest' turbidity meter site based.
pH	pH	6-9	Automated monitoring system. Data logging on portal. Alarm status
Hydrocarbons	Visual	sheen	Observation and record

Should the monitoring regime show any rise in any of the parameters via visual or pre-set alarm status via the automated system tests will be repeated or additional test taken. Should the result return the same elevated results, discharge from the site be ceased, site water tested and the underlying cause investigated. If the test is within normal parameters and proven not to be the cause of the elevated results discharge will re-commence. If the site water is found to be the source of the issue the discharge will cease until appropriate measures have been put in place to remove the source of the pollution. Any anomalies or elevated result must be recorded and discussed with all parties on the site.

If a pollution event is deemed to have occurred, then the regulator will be notified of the event, as required, and remediation measures undertaken.

Managing silt is a process and as any system in place will need to be checked a maintained on regularly basis. A proactive regime will be put in place to ensure weekly monitors are undertaken, after heavy rainfall or site flooding due to abnormal inclement weather and after installation or first use to ensure the system is working correctly. Silt control measures in the passive format will require good housekeeping and cleaning/replacement of component parts.

Table 10 Maintenance and inspection

Location	Inspection	Action	Intervals
Swales	silt build up	Clean and clear	weekly
Swales	blockages	Clean and clear	daily
Swales	Filtration medium	Replace haybales/repair silt fencing	Haybales 3 month or sooner. Silt fencing weekly.
Swales	Safety fencing	Maintain damaged units, good condition	weekly
Hydro break chambers to headwall outfalls	clear and clean Covers on	Clean and remove silt and blockages Ensure cover bedding and located	Weekly or after heavy rainfall/flooding
Headwall outfalls	Flap valve operation Blockages in river Safety fencing	Check operation of flap valve, maintain as required. Remove blockages preventing safe operation of valves Repair/replace damaged fencing	Weekly or after heavy rainfall/flooding
Concrete washout	System check in line with manufacturers requirements	Replace aggregate/silt bags when full. CO2 canister check	Visual check every use. Weekly As required

		Plant and guards operational and safe.	
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Proactive silt management will be encouraged but consideration needs to be given that elements of reactive work will be necessary. The management plan should therefore be viewed as dynamic able to address and deal with changes or variations. These will be assessed for their potential to impact the on the environment as well as reviewing working documentation, the implementation of that documentation and an evaluation of the site condition. Non-conformance issues with the scheme environmental management systems and the water management plan and or best practice will be addressed immediately.

9 EMERGENCY PROCEDURES

Control measures to prevent and manage environmental incidents and emergencies on site are referenced and contained with the contractors SEEPA (Safety and environmental emergency planning arrangement)

General pollution prevention will be achieved by continual training, by the provision of containment measures such as plant nappies, drain covers, good housekeeping and pro-active maintenance and by complying with safe working methods. Spill kits and pollution pontoons will be sited in appropriate locations around the site for rapid response as and where prevention fails.

It is a requirement of the contractor that regular drills are held in a practical format with outcomes recorded to assess performance and response of site operatives.

Actions in response to environmental incidents and emergencies will be communicated at inductions and safety briefings.

Plans of the site will be displayed in prominent locations identifying locations of spill kits, fuel points and waste facilities. This information will also be contained within the construction phase health and safety plan.

Plans as noted above will also include the names of personnel with specific environmental responsibilities and actions to be undertaken in the event of incident or emergency.

All incidents, near misses are to be reported through the management hierarchy as soon as practically possible after they have been identified. Site management will assess the significance of the incident and determine the level of investigation via the online portal reporting process and consultation with local and group environmental safety managers.