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CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN

Abercynon Feeder Bridge

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CONTENTS.

1.

INTRODUCTION

4

2.

GENERAL SITE MANAGEMENT

8

3.

PHASING AND THE CONSTRUCTION PROGRAMME DETAILS

12

4.

POLLUTION PREVENTION

15

5.

RESOURCE MANAGEMENT

17

6.

BIODIVERSITY MANAGEMENT

18

7.

TRAFFIC MANAGEMENT

23

8.

RISK ASSESSMENT TO SUPPORT THE CEMP

25

9.

ROLES AND RESPONSIBILITIES

27

10.

SUMMARY

28

Appendix A: Contractors Programme

31

1. INTRODUCTION

1.1. Project description

BakerHicks was commissioned by Balfour Beatty to provide engineering services for remediation works to Feeder Pipe Footbridge across the river Taff, Abercynon and Rhonda Cynon Taf.

The feeder bridge, constructed in 1857, includes three historic feeder pipes made of wrought iron, part of a water canal system which has been decommissioned. The pipes are supported by three intermediate masonry piers spaced at max. 7.8m.

Supported by the same piers, a contemporary constructed footbridge was installed at an unknown date. The footbridge consisted of a timber deck on a steel structure supported by steel columns. The footbridge structure was damaged by the flooding event during Storm Dennis in 2020 followed by acts of vandalism and eventually, for safety reasons, was dismantled leaving intact the feeder pipes.

The works aim to rebuild the footbridge based on the Active Travel (Wales) Act 2013 requirements preserving two of the historic feeder pipes.

1.2. Purpose of this report

The purpose of this Construction Environmental Management Plan (CEMP) is to provide evidence and information to address the specific requirements identified by Rhondda Cynon Taf County Borough Council (RCTCBC) and Merthyr Tydfil County Borough Council (MTCBC) Planning Department.

In particular the following, assuming access from the south side of the river:

No development shall commence until a site wide Construction Environmental Management Plan (CEMP) has been submitted to and approved in writing by the Local Planning Authority.

The CEMP should include the following.

- General Site Management: details of the construction programme including timetable, details of site clearance details of site construction drainage, containments areas, appropriately sized buffer zones between storage areas (of spoil, oils, fuels, concrete mixing and washing areas) and any watercourse or surface drain.
- Resource Management: details of fuel and chemical storage and containment; details of waste generation and its management; details of water consumption.
- Biodiversity Management: details of management of invasive species - signal crayfish may be present within the river Taff corridor management; species and habitats protection, avoidance, and mitigation measures.
- Pollution Prevention: demonstrate how relevant Guidelines for Pollution Prevention and best practice shall be implemented, including details of emergency spill procedures and incident response plan.
- Traffic Management: details of plant on site and wheel wash facilities.
- Details of the persons and bodies responsible for activities associated with the CEMP and emergency contact details.
- Details of pre-construction otter inspections to be carried out within 48 hours prior to the commencement of works.

Section 2 to Section 8 sets out the plan for addressing these issues.

1.3. Background and Context

The site comprises an existing bridge located over the River Taff in Abercynon as shown in Figure 1. It is located between woodland and the A4054. The bridge consists of three pipes on top of three masonry piers and an abutment at either end. The Taff trail runs alongside the river Taff on the southern sides of the river and connects to the existing bridge via a footpath. The site is located 1km east of the village of Abercynon in the Cynon Valley, at an approximate national grid reference 309208 E, 195499 N, and the nearest postcode of CF45 4SA.

The land is owned by Rhondda Cynon Taf County Borough Council to the north; and Mrythyr Tydfil/private ownership to the south. It is approximately 85m above Ordnance Datum at the base of the Cynon valley. Access to the site is via the public footpath, accessible on the northern riverbank from Woodland Crescent, and from the Taff trail on the southern riverbank.

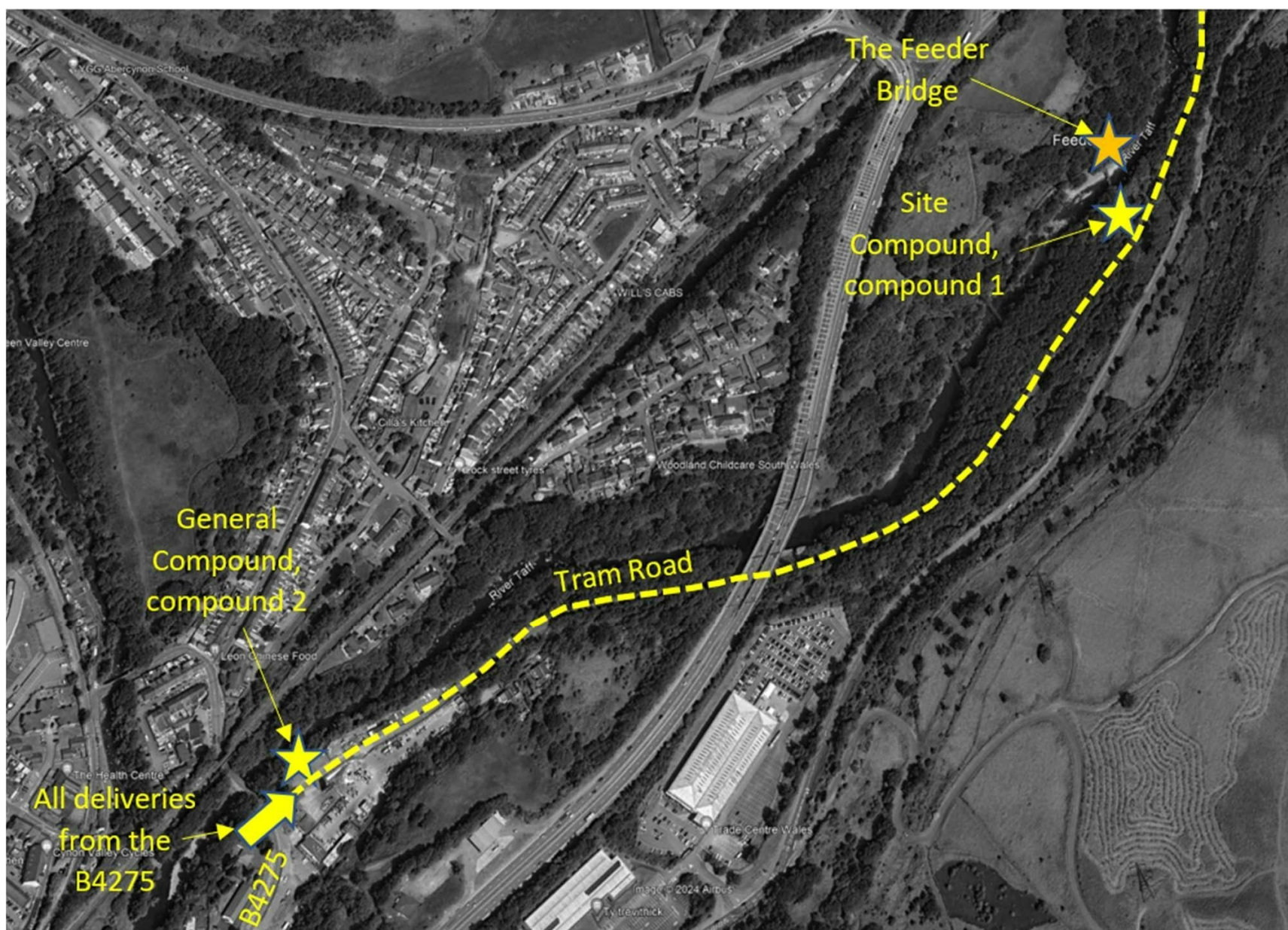


Figure 1 - Site Location and Plan

1.4. Available Technical Documentation

The following drawings have been used to help prepare this CEMP:

Table 1 – Summary of BakerHicks drawings referred to

BakerHicks Drawing Title	BakerHicks Drawing Reference
30003237-BHK-00-XX-DR-C-0100	Site Location Plan
30003237-BHK-00-XX-DR-C-0200	Existing Services Plan
30003237-BHK-00-XX-DR-C-0300	Site Constraints Plan
30003237-BHK-00-XX-DR-C-0301	Site Clearance and Demolition Plan
30003237-BHK-00-XX-DR-C-1001	Feeder Pipe Proposed GA, Sections and Elevations
30003237-BHK-00-XX-DR-C-1701	Bridge Foundation Bases South Abutment - Reinforcement Details
30003237-BHK-00-XX-DR-C-1702	Bridge Foundation Bases North Abutment 1 & Pier Spreader Pads. Reinforcement Details
30003237-BHK-00-XX-DR-C-1703	Bridge Foundation Bases North Abutment 2 - Reinforcement Details
30003237-BHK-00-XX-DR-C-1800	General Arrangement of Steel Bridge
30003237-BHK-00-XX-DR-C-1801	Site GA Plan
30003237-BHK-00-XX-DR-C-1810	Proposed Bridge Foundations
30003237-BHK-00-XX-DR-C-1830	Bridge Elevations
30003237-BHK-00-XX-DR-C-1840	Proposed Setting Out GA Sheet 1
30003237-BHK-00-XX-DR-C-1841	Proposed Setting Out GA Sheet 2
30003237-BHK-00-XX-DR-C-5000	Remedial Work to Existing Embankment and Bridge Piers Sheet 1
30003237-BHK-00-XX-DR-C-5001	Remedial Work to Existing Embankment and Bridge Piers Sheet 2
30003237-BHK-00-XX-DR-C-5010	Proposed Bridge and River Works Details Sheet 1
30003237-BHK-00-XX-DR-C-5011	Proposed Bridge and River Works Details Sheet 2

The following ecology reports have been used to help prepare this CEMP:

Table 2 – Summary of Ecology Reports Referred to

Report Title	Report Reference
Arboricultural Impact Assessment	7028_Feeder Pipe Bridge_AIA_JW
Preliminary Ground Level Tree Assessment North and South	Preliminary Ground Level Tree Assessment North and South
Bat Survey	Feeder Pipe Bridge Bat Report - August 2021 by Redstart T7028-TEM-AB-RP-EC-0005 Rev 2.0
INNS Survey	T7028-TEM-AB-RP-EC-0003 INNS
Preliminary Ecological Appraisal	Feeder Pipe Bridge PEA Report by Redstart T7028 PEA and PRA Updated Report
Otter Survey Report	Feeder Pipe Bridge Otter Report - August 2021 by Redstart T7028 Abercynon otter update survey report

2. GENERAL SITE MANAGEMENT

2.1. Site Compound Details

Figure 2 below shows the site management arrangement of the siteworks compound, compound 1 close to the bridge. The compound is 670m² in size and incorporates elevated elevates to create a working platform for a proposed 300t crane.

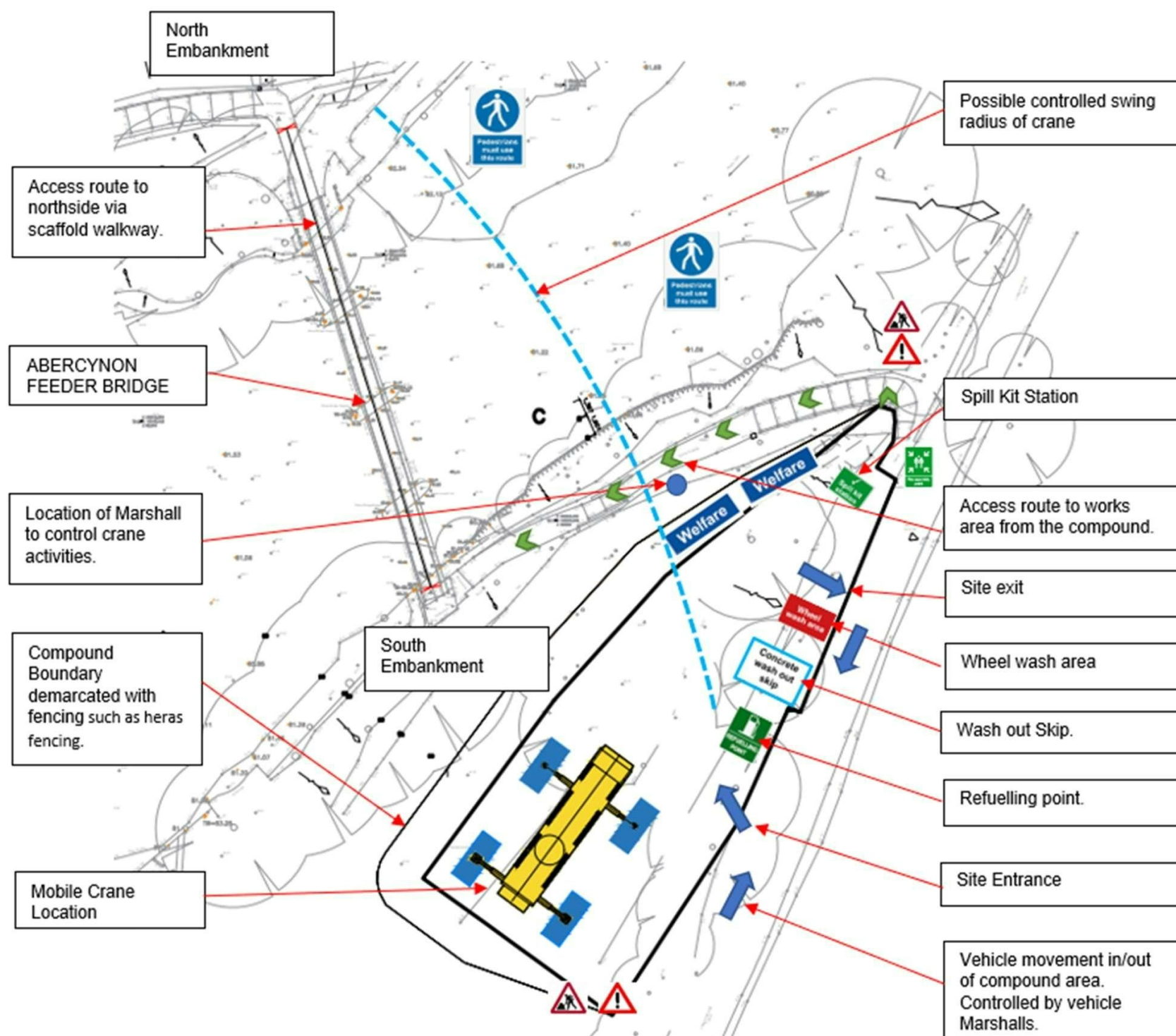


Figure 2 - Site Compound 1: Siteworks compound

Figure 2 shows the general location of the wheel wash, the wash out skip, refuelling point and spill kits. A minimum buffer zone of approximately 2 metres shall be provided between these facilities. Ready mixed concrete imported to the site shall be used in all cases. Site runoff issues are covered under Section 2.5 of this report.

Figure 3 below provides details on site management arrangement of the Contractor's General compound, compound 2 located at the southern end of Tram Road Side, approximately 1km away from the site. The contractor will use this compound for storage, parking, and welfare/general office space.



Figure 3 - Site Compound 2: General Compound.

2.2. Accommodating Silt and Suspended Solids Arising from the Works

It is likely that there will be some silts and sediment generated by the works. This is expected due to several activities including the removal of the old abutment foundations, trimming back the bank edge to accommodate the new revetment, and preparing the formation for the new abutment wall masonry units.

On the northern side of the river to mitigate against this, it is proposed to install the ton bags (i.e. gravel bags 1 tonne in weight) as the main barrier to prevent materials entering the water course. If required; the ton bags shall be complemented by a secondary containment of straw bales. These shall be positioned locally to the area of working. The straw bales shall be sourced from local suppliers and changed periodically when work is to start on the adjacent stage, or if the bales have become too soiled.

On the southern side, the majority of the construction will not involve river entry, but in case working space is required, the ton bag shall be placed at the edge of the river with a heavy-duty pump in operation to keep the formation dry.

There may be some extreme circumstances where an extra line of defence is necessary. In these circumstances either polyethene sheeting or sandbags shall be installed at specific locations as required.

Where polythene sheeting is used, this is expected to be secured in place between the working side of the ton bags and straw bales for the duration of the works that are carried out in this area. The inclusion of polythene will be considered if there is evidence that the straw bales are becoming soiled too quickly.

2.3. Accommodating the Concrete Pouring

It is acknowledged that the pouring of concrete during the works needs to be carried out in such a way to reduce the risk of concrete entering the river channel. The main area where concrete shall be poured is in the placing of the concrete abutments. To control the potential risk of concrete entering the river, the following shall be undertaken.

- Concrete shall be delivered by lorry to a concrete pump that will deliver the concrete directly to the area of the abutments, via hoses attached to the pump. This reduces the risk of spillage as concrete is pumped to its destination. The hose connections shall be inspected at the start of each pour to make sure they are securely connected and shall be monitored during pumping to ensure they do not disconnect. The hose connections shall be placed on the ground in areas away from the river. The concrete delivery vehicle and pump shall be set back away from the river, either within the cleared woodland or from crane parked on the Tram Road Side.
- A skip shall be provided for concrete delivery vehicles to discharge directly into during wash down activities. Once the washed-out concrete has set within the skip it shall be broken up and removed from site. The wash out skip shall then be prepared and inspected ready to receive the next event.
- For other inert/non-hazardous materials, a wash down of the plant shall be done away from the river in a designated area as shown in Figure 2. To capture the wash down products, the contractor shall excavate a pit approximately 2m x 2m x 1m deep which shall be bunded with arisings from the excavation and have appropriate signage. The pit shall be lined with polyethene sheeting ensuring it overlaps the surrounding bund. At the appropriate time, the pit shall be excavated, and the contents loaded onto waiting lorries. When the pit has been emptied the pit shall then be prepared with new lining ready to receive the next event.
- The placing of concrete shall be done in several stages/lifts to minimise the volume of concrete being placed at any one time. This results in the benefit of reducing the risk of any surplus concrete entering the river and will allow shuttering to be fixed in place prior to the next subsequent stage. The shuttering is expected to consist of “Peri” style shuttering or similar approved. This type of shuttering provides good flexibility to accommodate a range of applications and fixing options to ensure close contact with the previous poured concrete is achieved. The shuttering shall be inspected by the contractor prior to any pour and signed off as being adequate for use. Where there are signs of gaps on inspection of the shuttering, these gaps shall be sealed with self-expanding foam to keep the concrete in place.
- Toolbox talks shall be carried out on the importance of controlling pours and to ensure any spills are dealt with quickly.

2.4. Accommodating Site Runoff and Mine Water

Runoff from the site compound will be encouraged to naturally infiltrate vertically through the stone matrix of the site compound. The lower layers of the ground comprise of sand and weak sandstone. It is therefore envisaged that this will be sufficient to accommodate most of the surface water generated. If needed, small bunds at the edge of the compound shall be installed to prevent silty water directly flowing over the edge towards the river. A further French drain will be considered at the toe of the stone embankment to prevent any surplus surface water flowing laterally reaching the river.

BakerHicks has carried out a study on the potential mine workings risks in the area.

The Envirocheck report identified 15 British Geological Survey (BGS) historical mineral sites up to 1km from the site, two of which are located within 500m. All these sites were open cast with the exception of one underground site. This was located 495m from the site for deep coal mining with historical mapping recording this location as ‘trial shaft’. The closest mineral site was located 277m to the east where quarries

were identified on historical mapping. The historical mapping shows disused workings 190m east of the site. Due to the location and previous mapping of quarries, these disused workings are likely to be open cast and associated with the nearby BGS recorded mineral site.

The Envirocheck report states that the site is in an area which may be affected by coal mining activity and that there is inconclusive coal mining evidence on site. The site is in a Coal Authority Reporting Area. According to mapping there are no sub-cropping coal seams beneath the site, and it is not located in a development high risk area. The Cefn Glas coal seam is present on mapping 650m west of the site and there is one mine entry located 500m west of the site.

A Coal Authority Consultant's Coal Mining Report has been obtained for the site on 2nd February 2023 (ref 51003336782001). This shows that there are no mine entries within 100m of the site and no probable unrecorded shallow workings. Coal mining records show that the shallowest worked coal seam is at a depth of 604m bgl relating to the 6ft Bottom Leaf coal seam.

The Coal Authority have confirmed that a permit to disturb assets is not required for the ground investigation.

2.5. Accommodating Invasive species

Due to the presence and location of the invasive species around the site it is recognised that an invasive species control programme is required. This has been recently managed by RCTCBC, however the recommendations from the INNS method statement will need to be followed which recommends containment in situ.

The Contractor will not be using any herbicide spray as part of his day-to-day activities but shall introduce a wheel wash facility to wash down wheels before they leave site.

The Contractor will liaise with RCTCBC at appropriate times to ensure any spraying occurs in a safe and effective manner. If rhizomes are disturbed during construction, they shall be carefully collected and put into a container before sending to a licenced tip.

The invasive species and ecological considerations shall be read in conjunction with the INNS management plan as outlined in report T7028-TEM-AB-RP-EC-003-INNS

Toolbox talks will also help reinforce this requirement.

3. PHASING AND THE CONSTRUCTION PROGRAMME DETAILS

The Works are envisaged to be delivered via five key stages, Stages.1 to 6 as described below. The Contractor's programme is attached in Appendix A to help support this approach.

3.1. Stage 1: Pre-construction

This preconstruction phase will involve obtaining all the necessary consents and permits and liaising with residents with respect to the bridge/road closures and alternative travel arrangements.

The relevant management plans for the site shall be reviewed including the INNS Management Plan, Site Waste Management Plan, Health and Safety plans, Community Liaison Plans etc.

A toolbox talk shall be given by the Ecology Clerk of Works (ECoW) to the relevant/key contractors/site personnel on the importance of protecting and respecting the ecology.

A pre-start survey shall be undertaken to check for the presence of otter and other habitats.

Vegetation shall only be removed where necessary with ancillary areas not required for construction protected from un-necessary/accidental loss by temporary site fencing.

Retained trees (and their root protection areas) shall be identified and protected from accidental damage using official root protection barrier and other suitable means of protection such as herras fencing as identified in the arboricultural impact assessment ref 7028_Feeder Pipe Bridge_AIA_JW

Lighting around the river shall not be installed.

3.2. Stage 2: Mobilisation and Site Clearance

This stage will involve site clearance of the area where the southern compound is proposed and the area adjacent to the northern abutment. The site clearance will involve removing selected trees as detailed in the Arboricultural Impact Assessment (AIA) report 7028_Feeder Pipe Bridge_AIA_JW_ A suitable root protection area shall be installed as recommended in the AIA.

Assuming the site compound will be located on the south side, once the site clearance has been carried out, the top layer of topsoil from the designated working area shall be removed to form the working area as shown in Figure 2. After stripping the topsoil, a stone level platform using 6F5 material shall be installed but stepped into the landform in 500mm deep layers using geogrid as shown in Figure 4 below.

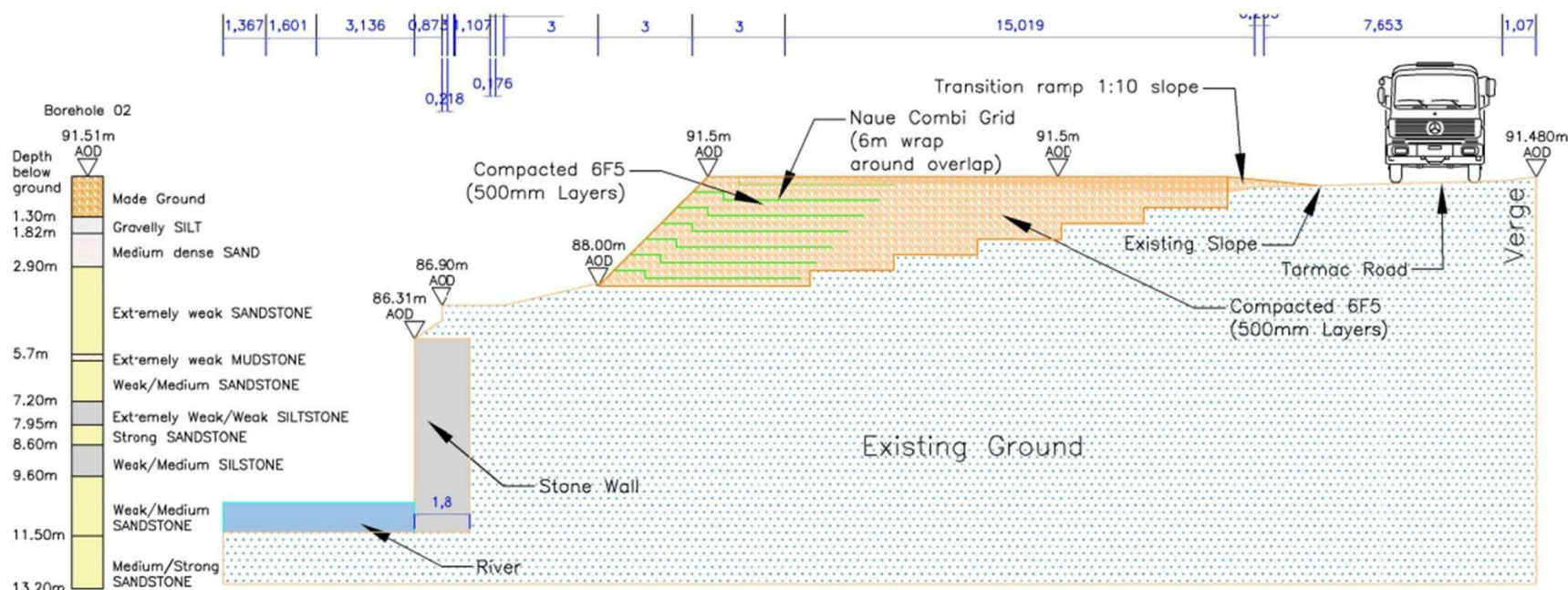


Figure 4 - Site Compound 1 Typical Section.

This platform shall be designed to accommodate a 300t crane.

Materials and plant shall be brought onto site and stored in the contractor's compound, compound 1.

Measures to protect retained trees and vegetation shall be kept under active review.

3.3. Stage 3: South Embankment Pre-river window

This stage will involve removing the top layer of topsoil from the designated working area around the abutment shown in Figure 2. After stripping the topsoil, a platform with a thickness of 200-300mm shall be installed to help facilitate the construction of the abutments.

Once the excavation for the South Abutment is complete, the next step will be to pour concrete to form the structure. This will involve setting up formwork, installing steel reinforcement and then pouring and curing the concrete to create a solid foundation or structure.

The concrete is expected to be transported in a skip by crane, or pumped for this part of the site.

If required, ton bags shall be placed near the water's edge to help provide working space and a line of defence to prevent grout loss entering the river.

3.4. Stage 4: North Embankment Pre-River Window

This stage will involve removing the topsoil from the designated working area shown in Figure 2. The works will also involve the removal of the masonry units around the existing abutments to make way for the new abutments. These masonry units will be set aside for reuse.

Prior to installation, preparation of the working area for stress testing of ground anchors shall be carried out. This will involve ensuring the ground is stable, clear of debris, and ready for testing procedures. The testing shall be carried out in accordance with Pile Loads specification 30003237-BHK-00-XX-SP-G-0005.

Once the test pile has been completed and the results known, a specialist piling contractor shall drill and install ground anchors. The access for an excavator is provided via an existing track. The piling arrangement shall be provided by the piling specialist.

The installation of the ground anchors shall be checked for workmanship and performance.

Once the ground anchors have been tested and confirmed, excavation for the abutments and the pile cap will be poured. The excavator for this operation will use the existing track to access the site. This will involve setting up formwork, installing steel reinforcement and then pouring and curing the concrete to create a solid foundation or structure.

The concrete is expected to be transported in a skip by crane for this part of the site. Once the concrete has been cured the masonry units around the abutments will be reinstated.

Ton bags at the water's edge may be used to help contain any grout loss entering the river.

3.5. Stage 5: River Working

This stage will involve installing an underslung scaffold system at the piers for access. Once the scaffolding is in place the central pipe will be carefully removed using the crane and set aside. Once the pipe has been removed, the bridge will be installed in sections using the crane progressing across the river from the north to south.

At this time, scour protection work shall be undertaken involving grouting and concrete bag work. This will also involve grout repairs to the piers.

3.6. Stage 6: Finishing Works & Demobilisation

At the end of the works the scaffolding shall be carefully removed and the stone blanket in the working areas shall be removed. Final surfacing works to the approach access and landscaping/planting works will then follow.

Once all works have been completed, the south compound area and crane platform shall be removed, and the former landscape reinstated supported by planting. Signage and any temporary fencing shall be removed.

Ecological enhancement measures shall be completed. The scheme has been designed to incorporate opportunities for ecological enhancement by re-creating higher value habitats and linking/connecting habitat creation areas with the existing retained habitats.

Material and plant shall be removed on completion of the works.

4. POLLUTION PREVENTION

4.1. Compliance with Legal Requirements

Aside from health and safety requirements, all works shall be undertaken with appropriate consideration of UK environmental law and statutory guidance; and as such, the Principal Contractor will make themselves fully aware of its requirements. The following list of legislation, which is not exhaustive, shall be considered:

- The Control of Pesticides Regulations 1986;
- Environmental Protection Act 1990 (Section 33 ((1) (a), (1) (b) and (1) (c)));
- Waste (England and Wales) Regulations 2011;
- Environmental Permitting (England and Wales) Regulations 2016;
- List of Wastes (Wales) Regulations 2005;
- Hazardous Waste Directive; • Invasive Alien Species Order 2019;
- The Hazardous Waste (Miscellaneous Amendments) Regulations 2015; and
- Wildlife and Countryside Act 1981 (Schedule 9)

4.2. Licences, Consents and Management Plans

All licences, consents or other permissions for the development works shall be obtained and implemented prior to work commencing. Current licences in place include a Temporary Flood Risk Activity Permit (FRAP) for temporary works within the river, A Permanent Flood Risk Activity Permit for the permanent works undertaken in the river. The FRAP licences are:

- Temporary FRAP Licence DFR-S-2023-0112
- Permanent FRAP Licence DFR-S-2023-0067

Besides this management plan, a Site Waste Management Plan (containing Materials Management and Soil Resource Plan) is recommended.

4.3. Compliance with Industry and Good Practice Guidance

The Principal Contractor shall also be aware of and undertake all works in accordance with industry guidance and good practice documents including, but not limited to, the following Pollution Prevention Guidelines (PPGs).

PPGs provide environmental good practice guidance for the whole UK, and environmental regulatory guidance directly to Northern Ireland, Scotland and Wales only:

- PPG5 Works in, near or over Watercourses: Prevent Pollution, 2014;
- PPG6 Construction and Demolition Sites, 2014; and
- PPG13 Vehicle Washing and Cleaning, 2007.

4.4. Control of Site Activities

The following activities shall be controlled.

- We shall avoid dropping polluting materials from a bridge or riverbank.
- We shall avoid pumping out water from excavations into a watercourse.
- We shall prevent contaminated water from a working site to flow or seep into a watercourse.
- All materials (especially if hazardous or toxic) shall be stored at least 7m away from the watercourse.
- All static machinery shall be placed on drip-trays or oil absorbent nappies. Trays shall be emptied regularly to ensure that they contain any spills.

The contractor shall develop an incident response plan for the control of these issues.

4.5. Principal Contractor's Voluntary Action

The Principal Contractor shall operate an Environmental Management System certified to adhere to ISO14001:2015.

The Principal Contractor shall register the site under the Considerate Constructors Scheme before work commences and deliver the works in accordance with the five-point Code of Considerate Practice. For more information see <https://www.ccscheme.org.uk/>

Consequently, with respect to environmental management, and other matters, the Principal Contractor shall consider engaging with local residents before commencing work.

5. RESOURCE MANAGEMENT

The following sections outline the fuel and chemical storage containment proposals, waste generation and management proposals, and water consumption.

5.1. Fuel and Chemical Storage Containment

All fuel storage shall be designed by the Contractor in the site compound, compound 1, in accordance with pollution prevention guidelines and shall be bunded accordingly. Refuelling point shall consist of a double skinned bowser and there will be a stone platform prepared with heavy duty upvc liner turned 90 degrees to create an additional bunding area. It is intended to just fill the bowser on a need to have basis to help reduce the risk of any pollution incident.

As part of the Contractor's method of working, spill kits shall be made available at certain locations to ensure that any pollution incident will be adequately dealt with. The spill kit shall be located within the main site compound, compound 1. The spill kit shall be identified with appropriate signage.

Tool-box talks shall be given by the contractor to staff on the importance of safeguarding the environment and ecology around the river. The contractor shall also introduce a logging system to record any near misses, events, incidents, and control measures introduced. This shall be reviewed regularly by the contractor's H&S officer.

5.2. Waste Generation and Waste Management

All construction waste generated from Feeder Bridge works shall be stored on site in a skip and transported off site at the end of each day or when the skip is full. The skip shall be located in the site compound, compound 1, next to the spill kit.

5.3. Water Consumption/Supply

Where possible a local connection will be made to the existing water supply in the area to help provide a supply to the welfare facilities. This is expected to be done close to compound 2. Where this is not possible, or where additional water is needed for site use, then a supply shall be provided via water bowser and parked in compound 1. Water for concrete mixing is not envisaged as the concrete is expected to be delivered to site ready mixed. Some water will be required though for mortar repairs and some minor welfare in the local cabins.

6. BIODIVERSITY MANAGEMENT

This section considers each of the habitat and species for which avoidance, mitigation or other measures are proposed, it is worth noting that the entire site is classed as contaminated site.

6.1. Biodiversity Net Gain in Wales

The approach taken to Biodiversity Net Gain (BNG) in Wales is different to that which has been adopted in England whereby there is an emerging statutory requirement through the Environment Act 2021 for projects to deliver BNG +10%.

Section 6 of the Environment (Wales) Act 2016 places a general duty on public authorities to, “seek to maintain and enhance biodiversity in the exercise of functions... and in so doing promote the resilience of ecosystems”.

Chapter 6.4 of Planning Policy Wales provides specific guidance on how local planning authorities should comply with the Section 6 duty. The duty does not include specified metrics (such as the Statutory Metric in England) and or a particular target level of enhancement, leaving judgement as to whether proposed developments meet the requirements to local planning authorities on a case-by-case basis. The emphasis is placed on the development of practical options using professional judgement.

Taking the above factors into account, the approach to BNG in the context of the landscape strategy has therefore been to follow a staged and qualitative approach.

- Establishment of the site’s ecological baseline based on Preliminary Ecological Appraisal (PEA) reports and Phase 1 habitat survey and reporting with associated mapping.
- Input into scheme design to avoid un-necessary loss of habitats.
- Preparation of a Landscape Strategy aimed at maximising biodiversity enhancement.
- Provision of advice in respect of other ecological enhancement measures such as the provision of bat boxes and bird nest boxes; and
- Preparation of a Landscape Ecological Management Plan (LEMP) to deliver the landscaping and monitor the outcomes.

The main environmental gains are expected to consist of:

- New native broad-leaved woodland,
- Management of Invasive Plant Species,
- Riverbank improvements,
- Retention of an existing log pile upstream, and
- Erection of bat and bird boxes.

6.2. Risk Assessment of Potentially Damaging Development Activities

Presented in Table 3 below is a risk assessment of all the proposed construction related activities likely to impact upon important biodiversity on the site.

TABLE 3 – Assessment of potentially damaging development activities.

Activity	Habitats	Breeding Birds	Otters	Bats
Removal of trees and ground vegetation, scrub.	Direct loss of lower value habitats on site including dense scrub. Direct loss of higher value habitats such as woodland trees.	Killing, injury or disturbance to breeding birds. Damage or destruction of an active bird's nest.	Loss of commuting habitat.	Killing, injury or disturbance to bats. Removal of potential tree roosts. Loss of foraging and commuting habitat.
Removal of soil piles, rubble and other materials from works.	None anticipated	Disturbance of breeding birds through noise, vibration.	None anticipated	None anticipated
Temporary storage areas and stockpiles for soils, materials, spoil and waste	None anticipated	None anticipated	None anticipated.	None anticipated
Noise pollution	None anticipated	Disturbance to breeding birds through noise.	None anticipated	Disturbance to roosting bats through noise pollution

6.3. Non-Statutory Sites

Woodland

The site forms part of the River Taff Site of Importance for Nature Conservation (SINC). Any unnecessary vegetation removal shall be avoided. A 10m buffer around the trees outside of the site will be put in place and no works shall take place within this buffer. This will prevent compaction of soil and minimise disturbance.

Trees that are due for removal within the site boundary will be subject to a precautionary approach and soft felling techniques as outlined below for protection of bats and birds.

River corridor

Strict measures to prevent pollution / sedimentation of the river will be taken such as the storage of plant / materials / liquids / chemicals away from the river in the contractor's compound, and on hard standing to reduce leaching.

Working methods should be implemented such that works to the riverbanks are only undertaken where necessary and that the mobilisation of sediment is avoided.

Site landscaping will aim to restore a lightly wooded riverine environment which is consistent with the SINC designation, and which brings about a gain in habitats and improvement of the visual appearance of the bridge crossing.

6.4. Practical Measures to Avoid or Reduce Impacts During Construction

Measures outlined below will aim to mitigate adverse effects of the development during construction phase on the various ecological receptors on and adjacent to the site so that they are avoided or reduced to an acceptable level.

6.5. Invasive Non-Native Plant Species (INNS)

Plants

Under Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) it is illegal to allow the spread of invasive plant species in the wild. The INNS Management Plan reference T7028-TEM-AB-RP-EC-003-INNS together with the INNS Method Statement shall be followed in full. The proposal is to protect the existing INNS in situ to minimise disturbance. Biosecurity measures should also be put in place to prevent removal of seeds or sections of Japanese Knotweed (*Reynoutria japonica*) from being transported off site. This includes wheel washing and washing of footwear before leaving site.

Signal Crayfish

Under Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) it is illegal to distribute or allow the release of signal crayfish into the wild. All workers on site will be provided information on recognition of Signal Crayfish. To prevent individual crayfish being transported between waterbodies and to kill the spores from crayfish plague prior to entering another waterbody, biosecurity measures will be put in place. This includes cleaning of all equipment, for example wellies / waders, machinery which have been in the water.

The INNS Management Plan reference T7028-TEM-AB-RP-EC-003-INNS together with the INNS Method Statement shall be followed in full. The proposal is to lay protecting sheeting over the invasive species so that it remains in situ, ensuring it is not disturbed.

6.6. Otter

Night-time working will be avoided.

No artificial lighting of the river /immediate channel will be installed.

A pre-commencement otter survey will be undertaken 48 hours prior to the works commencing on site and a statement will be prepared. This will be completed by our proposed Ecological Clerk of Works (ECoW) prior to mobilisation.

6.7. Bats

There is potential for bats to roost in or near the site. As such bat boxes are proposed to be installed as outlined in the Landscaping Strategy and some crevices in the rock face near the bridge will not be grouted up to encourage bat roosting. These locations are shown in drawing 30003237-BHK-00-XX-DR-C-5001

The trees within and adjacent to the site both scheduled for removal and those being retained have potential to support roosting bats. To mitigate noise pollution, machinery will be kept outside a 10m buffer from trees with moderate and high suitability to support roosting bats.

Trees scheduled for removal will be felled using a soft-fell technique and carried out under supervision of a Natural Resources Wales bat licenced Ecologist.

Works will be carried out in April/May post the bat hibernation period and prior to the maternity period, during daylight hours with no artificial lighting permitted on the development.

6.8. Breeding Birds

Vegetation within the site such as tree, shrubs and tall ruderal vegetation could support nesting birds between March and September. Structures such as revetment and concrete ledges could also be used by birds for nesting. The removal of vegetation and structures should therefore take place outside of the nesting season (i.e., be removed between October and February). Vegetation removal will be timed to take place outside of the bird nesting season (the season is March to September inclusive).

If the above is not possible for any reason, a check for nesting birds must be carried out by a suitably qualified ecologist / ECoW up to 48 hours prior to the start of works. If nests are found within the works area, a suitably sized no-works buffer zone (approximately 5m but species dependant) will be demarcated around the nest until an ecologist / ECoW has confirmed that the young have fledged. If any nesting birds, including wood pigeon (*Columba palumbus*), are found at any time during the works, activity within the surroundings of the nest will stop immediately and an ecologist consulted. Other Species

6.9. Other Species

In the unlikely event that any unexpected protected species are found during site clearance or construction, works will stop immediately and advice sought from the ECoW on site / a suitably qualified ecologist on how to proceed.

6.10. Habitat Protection

The site manager should monitor the site daily during the works to check that all retained trees and the river corridor habitats are being appropriately protected.

6.11. Toolbox Talk

Prior to the commencement of vegetation removal or site clearance work a toolbox talk will be given to all contractors attending site by the ECoW. This will entail a briefing on the areas within the site where species could be found, the legal protection afforded to these species and information on what to do if these species are encountered.

6.12. The Role of the Ecological Clerk of Works (ECoW)

The ECoW role will be fulfilled by the involvement of a competent person with the necessary skill sets. All staff undertaking ECoW will be members, or qualifying members, of the Chartered Institute of Ecology and Environmental Management (CIEEM) and will have previous experience working on construction sites and supervising construction personnel. Where less experienced ecologists are placed in this role they will be adequately supported by more senior staff, who will be accessible to give advice and guidance at all times.

The responsibilities of the ECoW are as follows.

- Review and update the risk assessment (where necessary).
- Review and update the practical measures to avoid and reduce impacts on biodiversity.
- Review and update the timing of sensitive works during construction and implementation (where necessary).
- Monitor site works and practical undertaking of ecological works.
- Provide training and information to site workers through toolbox talks.
- Monitor and report on compliance with legal and planning requirements in relation to biodiversity.
- Investigate and report unplanned incidents (e.g. pollution, damage to habitats, unexpected occurrence of protected species, implications of delays due to bad weather).
- Provide further advice to the client / site manager on any of the above as necessary.
- Monitor that buffers are installed appropriately where required, e.g., tree protection and nest stand offs.

7. TRAFFIC MANAGEMENT

Figure 5 below shows the proposed traffic management arrangements for the site including signage at the bridge and next to compound 1.

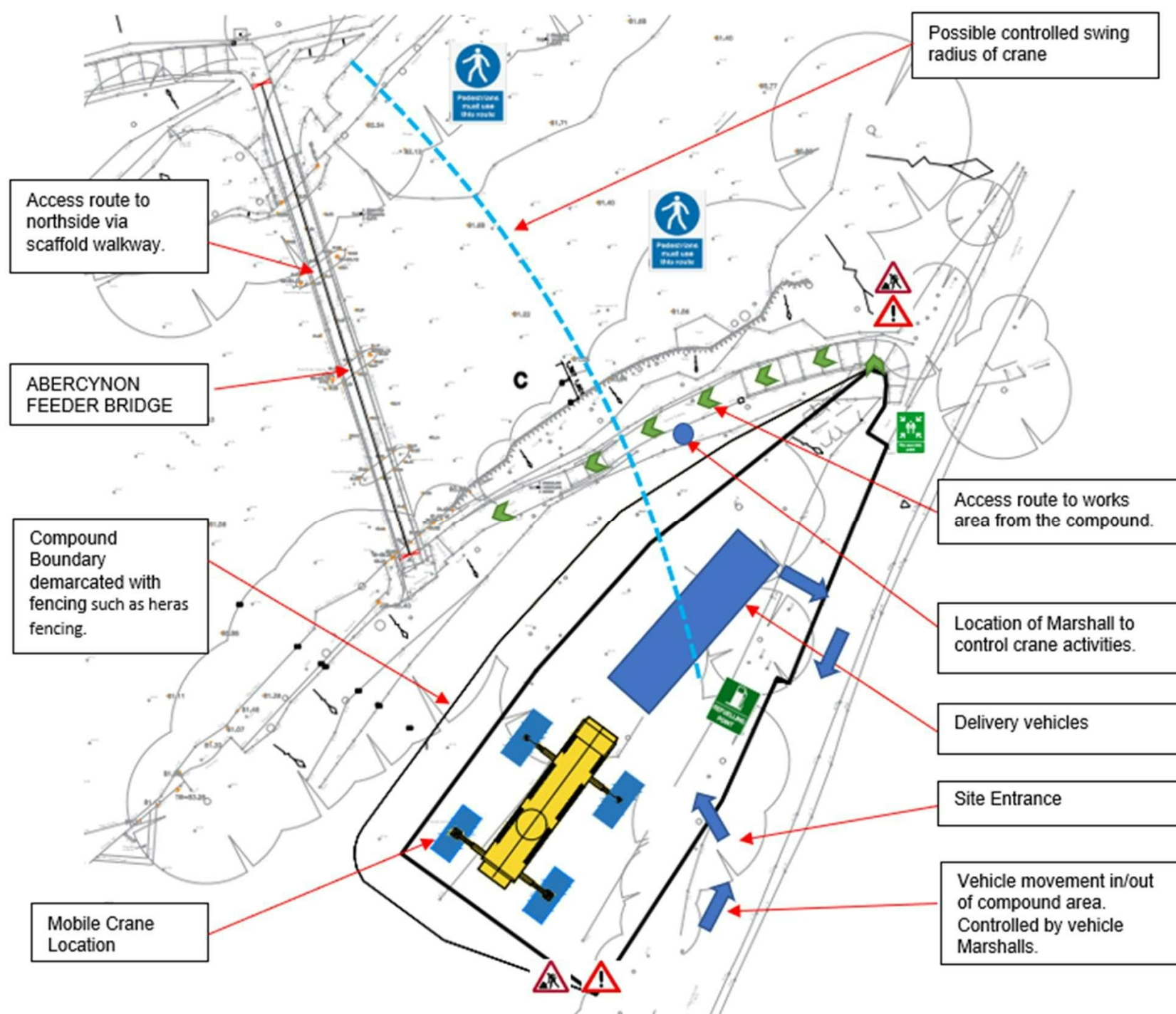


Figure 5 -Traffic, Plant and Vehicle Management Plan

7.1. Plant Details on Site

The type of plant on site will consist of:

- A 300t crane,
- Small excavator with dumper to maintain the compound and to help transfer materials between compounds,
- Small piling rig for the northside,
- Generator,
- Skips; and
- Bowsers.

Details have been provided in Figure 5 2.

7.2. Traffic Movements

Pedestrians are expected to follow the site rules and designated pedestrian routes. These shall be clearly identified on site. Pedestrians shall not take short cuts and shall only use designated crossing points.

The following identifies specific requirements for pedestrian traffic on this site:

- We shall identify areas where pedestrians are prohibited (not including the working party). This includes the scaffolding area, areas where the crane will be operating, and areas close to the refuelling zone. Suitable fencing and barriers shall be used to enforce this.
- We shall put in place a Marshall who will be present to ensure site operatives obey the rules.
- We shall identify designated crossing points and routes.
- We shall enforce the safe use of mobile phones i.e. away from operating plant and vehicles.
- The marshalls shall control the boom of the crane not to go beyond the blue circular dot shown in Figure 5.

7.3. Wheel Wash Facilities

Wheel wash facilities shall be placed within the site compound, compound 1, at the location shown in Figure 2. Water will be supplied by a bower.

8. RISK ASSESSMENT TO SUPPORT THE CEMP

Table 4 sets out a summary of the key CEMP risks and the recommended mitigation measures.

Table 4 – CEMP Risks and Recommended Mitigation

- P= Probability of risk occurring. I= Impact of risk on development. T= Total outcome numerical outcome.
- 1=low, 2=medium, 3=high
- T= 1 to 3 risk deemed to have been sufficiently reduced or resulting risk is acceptable. T= 4 to 6 risk deemed to require mitigation if possible. T>7 risk requiring mitigation

		Impact		
		L=1	M=2	H=3
Probability	L=1	1	2	3
	M=2	2	4	6
	H=3	3	6	9

Probability-Impact Matrix

ID	Stage of Risk	Risk Before Mitigation	Risk Score			Suggested Mitigation Measure	Risk Score			Ownership of Risk
			P	I	T		P	I	T	
1	The mobilisation of silt and suspended solids;	Risk of sediments and silts entering the river from demolition of existing abutments, trimming back to formation	3	2	6	Introduce ton bags with strawbales , have stand by pumps ready and install plastic sheeting at more prone high risk locations such as near the bridge	3	1	3	Balfour Beatty
2	The pouring of concrete;	Risk of concrete entering the river when placing abutments	3	2	6	Use ready mix and concrete pumps/skids to deliver concrete hence reducing the potential for spillages. Install polythene sheeting as a secondary line of defence to prevent grout entering the river. Introduce managed wash down areas away from the river Place concrete in small managed stages to reduce the risk of spillage Introduce high quality shuttling to reduce the risk of any movement in the formwork Introduce tool box talks	2	1	2	Balfour Beatty
3	Mine water discharge	Risk of mine water entering the river	1	3	3	The risk of there being mine water present is low according to studies carried out, mainly as a result of there being made ground in the immediate vicinity During the works the Contractor shall monitor any seepage generated to	1	2	2	Balfour Beatty

ID	Stage of Risk	Risk Before Mitigation	Risk Score			Suggested Mitigation Measure	Risk Score			Ownership of Risk
			P	I	T		P	I	T	
						identify any discolouration of pungent smells. A standby over pump system shall be made available in the very low risk event of encountering mine water occurs. Any mine water which is pumped will be allowed to discharge into natural ground at least 10m away from the river edge				
4	Activities that could negatively impact on the aquatic environment	Risk of site compound activities producing effluent that could make its way to the river	2	3	6	Contractor to introduce bunded areas for fuels and oils, waste water to connect to foul Spill kits to be set up Tool box talks to be carried out	1	2	2	Balfour Beatty
5		Risk of invasive species spreading	3	3	9	Contractor to class material from the site as contaminated Contractor to lay protective sheeting/matting to help with access Contractor to install wheel wash facility to reduce the risk of spreading before vehicles leave site Contractor to follow the INNS management plan Tool box talks will help reinforce this requirement	2	2	4	Balfour Beatty

9. ROLES AND RESPONSIBILITIES

Balfour Beatty is ultimately responsible for meeting the commitments made in this CEMP.

A number of key staff are responsible for the implementation and success of this document. For clarity, each is listed in Table 55, together with individual responsibilities for implementing this strategy.

Table 5 - Roles and Responsibilities

Role	Responsibility
Balfour Beatty to appoint Site Manager Site Agent: Ryan Anderson M: +44 (0)7580982399 E: ryan.anderson@balfourbeatty.com	- Overall responsibility to ensure the CEMP is followed. - Maintain regular contact with Ecological Clerk of Works (ECoW), providing details of site work schedule as necessary
Ecological Clerk of Works (ECoW) ECoW Jess Clitheroe M: 07989933400 E: Jess.Clitheroe@templegroup.co.uk	- To be instructed by Balfour Beatty to oversee implementation of the measures contained within this report. - The ECoW(s) shall be members of the Chartered Institute of Ecology and Environmental Management (CIEEM). - Reports to Site Manager. - Ensure all workers comply with the site protocols regarding ecological receptors through delivery of toolbox talks and attendance on watching brief during sensitive operations, as/if required. - Site survey for protected species. - Be available to answer questions on site as they arise and to advise accordingly. - Monitoring mitigation measures and compliance with management prescriptions.

10. SUMMARY

A CEMP has been prepared by BakerHicks which sets out the measures required to avoid or reduce the risks of committing offences under the relevant wildlife legislation.

A CEMP is an iterative document and should be revised considering changing circumstances or as issues arise so that it remains a working document and key point of reference for site activities.

Table 6– Summary of key findings

Planning requirement	BakerHicks compliance to planning requirement
General Site Management	Section 2 sets out the key requirements for the site management including key site features for compound 1 (site compound close to the bridge) and compound 2 (general compound southwest of the site). Each compound has been set out showing position of welfare units, storage, refuelling points, spill kit locations, wash down areas and crane position. A minimum 2m buffer zone has been identified between containment features. Concrete pouring is expected to be delivered as ready mixed via lorry before been skipped or pumped to the location where it is needed. Procedures for dealing with runoff using bunding and monitoring have been identified. Section 3 sets out the proposed works programme/phasing to support Section 2
Pollution Prevention	Section 4 sets out the key requirements for dealing with pollution prevention issues. This includes commentary on compliance with legislation, confirmation that FRAP licences are in place, as well as compliance with typical pollution prevention guidance. Key activities on site to be controlled include: • We shall avoid dropping polluting materials from a bridge or riverbank, • We shall avoid pumping out water from excavations into a watercourse. • We shall prevent contaminated water from working site to flow or seep into a watercourse. • All materials (especially if hazardous or toxic) shall be stored at least 7m away from the watercourse; and • All static machinery shall be placed on drip-trays or oil absorbent nappies. Trays shall be emptied regularly to ensure that they contain any spills. The Contractor shall develop an incident response plan to manage this.

Planning requirement	BakerHicks compliance to planning requirement
Resource Management	Section 5 sets out the details of resource management. Fuel and chemical storage and containment shall be closely monitored and use double skinned fuel bowzers with spill kits in local proximity. Stone matting with heavy duty upvc liner shall be installed under the fuel bowser All waste shall be tipped into the skip located in compound 1 which shall be cleared on a daily basis or when full. Water supply shall be connected locally near compound 2 and brought to compound 1 using a separate bowser. Water consumption in compound 1 is expected to be minimal but may be needed for welfare and mortar repairs
Biodiversity Management	Section 6 provides details of biodiversity requirements Management of invasive species shall be needed by laying protecting sheeting over the invasive species so that it remains in situ, ensuring it is not disturbed. With respect to signal crayfish, the presence of this species shall be monitored during any in-river works. Provision for bat and bird boxes shall be provided. Any pile logs present shall be left in situ. The role of the ECoW is defined Protection of the environment/ecology shall be reinforced through toolbox talks
Traffic Management	Section 7 sets out the traffic management proposals: It consists of designated access points, pedestrian routes, the extent of heras fencing. Specific requirements for the control of staff are provided below: - We shall identify areas where pedestrians are prohibited (not including the working party). This includes the scaffolding area, areas where the crane will be operating, and areas close to the refuelling zone. Suitable fencing and barriers shall be used to enforce this. - We shall put in place a Marshall who will be present to ensure site operatives obey the rules. - We shall identify designated crossing points and routes, - We shall enforce the safe use of mobile phones i.e away from operating plant and vehicles. The location of the wheel wash facility has been identified
Roles and Responsibilities	Section 8 provides details of the persons and bodies responsible for activities associated with the CEMP and emergency contact details have been provided. The CEMP shall be implemented as approved during the site preparation and construction phases of the development.

Appendix A: Contractors Programme

Date	Revision	Checked	Approved

[illegible]



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