

KNIGHTS BROWN ENVIRONMENTAL MANAGEMENT PLAN

W000150 - Cardiff Coastal Defence Scheme

Environmental Management Plan

	Name	Designation	Signature	Date
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Amendment List

Rev	Date	By	Site	Client	Description of Modification
3	16.02.24	SH		CCC	App C table 1 added reference to contaminated sediment use and linked to App D control 9 which refers back to sediment management plan for controls Added that any sediment removed from site will be controlled by waste management protocols. Table 1 format altered Added note that compounds are all off road so no drainage to protect in table 2 action number 1 Added to table 2 environmental management plan saltmarsh habitat control relating to vehicle access routes across saltmarsh (item 9). Also added to table 1 (item 20 the potential impact of vehicle routes. Line 14.7 added relating to EcoW role in the project and independent inspection of environmental matters on site. Bio risk assessment (Knotweed management and marine invasive species risk assessment) added to Appendices. Added to table 1 impacts item 21 and table 2 management plan item 12 relating to disturbance of otters and over wintering birds.
2	19.12.23	SH		CCC	Table 2 – environmental management section 3(f) actions wording amended relating to washing of wheels when leaving identified knotweed areas rather than going into areas. P59 – reference to helical piling preferred removed. Addition of reference to both Sediment management plan and the saltmarsh habitat plan and

					appendices added for each document.
1	02.11.23	SH		CCC	Outline CEMP deleted and appendices list updated to match appendices after review from JBA.

LIST OF APPENDICES

Appendix A: Knights Brown Environmental Policy Statement

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Appendix N: Biodiversity risk assessment and knotweed management plan.

1 Scope of the Construction Environmental Management Plan

- 1.1 The scope of the Construction Environmental Management Plan (CEMP) covers the activities and operations under the control of Knights Brown or subcontractors during the works.
- 1.2 The CEMP forms one component of the Project Management Plan and should be read in conjunction with the Site Project Phase and Quality Plans. The requirements of this plan apply to the whole project team, including all contractors and sub-contractors involved in the works under the control of Knights Brown.
- 1.3 The CEMP is supported by the Knights Brown, Information Management System (IMS).

2 Scheme Environmental Policy

Policy

- 2.1 The Knights Brown Environmental Policy Statement will be applicable and applied through this Construction Environmental Management Plan. Knights Brown's Environmental Policy Statement is delivered through its integrated Occupational Health and Safety Management System (OHSAS).
- 2.2 This current policy statement is also provided in Appendix A.

Aims

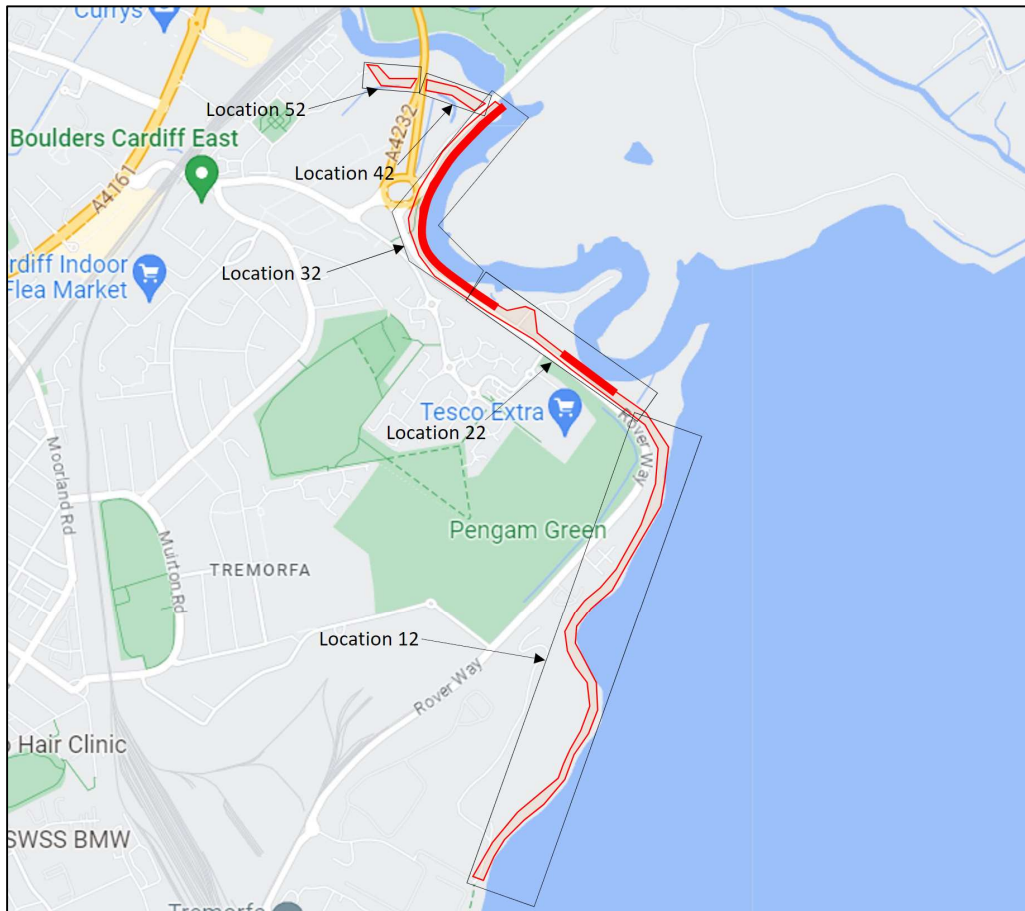
- 2.3 The overall aim of the Construction Environmental Management Plan (CEMP) is to ensure adequate management resource is provided to minimise the detrimental environmental impact of the works to ensure the smooth delivery of this project, taking cognisance of the environmental sensitivities of the location.
- 2.4 A key issue is that appropriate training is given and adequate resources are available to ensure that environmental responsibilities are discharged. Employees are required to take reasonable care of the environment in addition to their health, safety and welfare and that of others who may be affected by their acts.
- 2.5 All personnel are required to understand and implement the requirements of the CEMP. The aims, policies and procedures described in this plan will regularly be reviewed and revised as necessary.

3 Project Description

General Description of the Works

This project involves the reinforcement of banks near to the mouth of the river Rhymney and into the Severn estuary. The aims of this project are to reduce the erosion of the coast, as well as maintain the relevant aquatic ecosystems.

The works have been isolated into 5 sections: 12, 22, 32, 42, and 52. As highlighted below.



Anticipated commencement date: [16/10/2023](#)

Duration: [110 weeks](#)

The overall works programme is included in Appendix H

- (iii) Description of how the required environmental mitigation measures as identified in the Environmental Statement will be implemented (see Appendix 30/70 for further information).
- (iv) An Emergency Pollution Response Plan (EPRP) meeting the following requirements:
- (a) The *Contractor* shall consult with the relevant statutory bodies including the HSE, Fire Authority, Natural Resources Wales, and the Local Authority (Emergency Planning) when preparing the EPRP. This plan shall cover the procedures to be followed to limit the spread of pollution in the event of an incident. The *Contractor* shall incorporate the EPRP into the Method Statements.
 - (b) The *Contractor* shall prepare the specific sections of the EPRP for discussion with the relevant statutory authorities and approval where required by legislation.
 - (c) The *Contractor* shall ensure that the EPRP complements and is consistent with the relevant Emergency Preparedness Plans, as required by Health and Safety legislation, other environmental management and health and safety procedures and guidance (e.g. as set out within NetRegs GGP5 'Works and maintenance in or near water').
 - (d) The EPRP will contain, but not necessarily be restricted to:
 - a full and up-to-date list of all substances stored on site, including comprehensive data on the behaviour and toxicity of the stored substances in the water environment, together with location (which must be away from watercourses)
 - a full drainage plan for the site and its compounds
 - guidance on the storage and use of hazardous materials with the aim of preventing and containing spills and releases details of emergency equipment available on and off site
 - a breakdown of staff responsibilities
 - procedures for notifying appropriate emergency services, authorities, and personnel
 - provision of site access information to the emergency services
 - procedures for the removal of materials in the event of a flood warning
 - (e) The EPRP shall be easily accessible, and a copy kept away from the main site accommodation. A notice at the entrance to each site shall be posted, indicating the location of relevant emergency instructions. Copies of the EPRP shall be supplied to the emergency services, Natural Resources Wales, and other relevant Statutory Authorities. The *Contractor* shall obtain and store on site all the necessary equipment which may be required to alleviate a pollution spillage.

5 Significant Environmental Impacts

- Water Environment – Damage to watercourse and marine habitats
- Biodiversity and Nature Conservation – Maintain current biodiverse conditions and ecosystems within the site
- Landscape and Visual – Avoid degradation of the visual aspects of the site
- Historic Environment – Maintain the current historical value of the site.

The site area includes:

- Severn Estuary SSSI (461)
- Severn Estuary (Wales) Ramsar site (UK11081)
- Severn Estuary (Wales) Special Area of Conservation (UK0013030)
- Severn Estuary (Wales) Special Protection Area (UK9015022)

Works in these areas will be controlled to limit the impact of the project to protected lands, although the areas specified (location 12-22) involve minimal intrusive works and aim to reduce flood risk and erosion by strengthening the river/estuary bank. Which may further protect the site.

6 Structure and Responsibilities

Management Structure

- 6.1 The following appointments have been made in accordance with The Construction (Design and Management) Regulations 2015 and this Construction Environmental Management Plan:

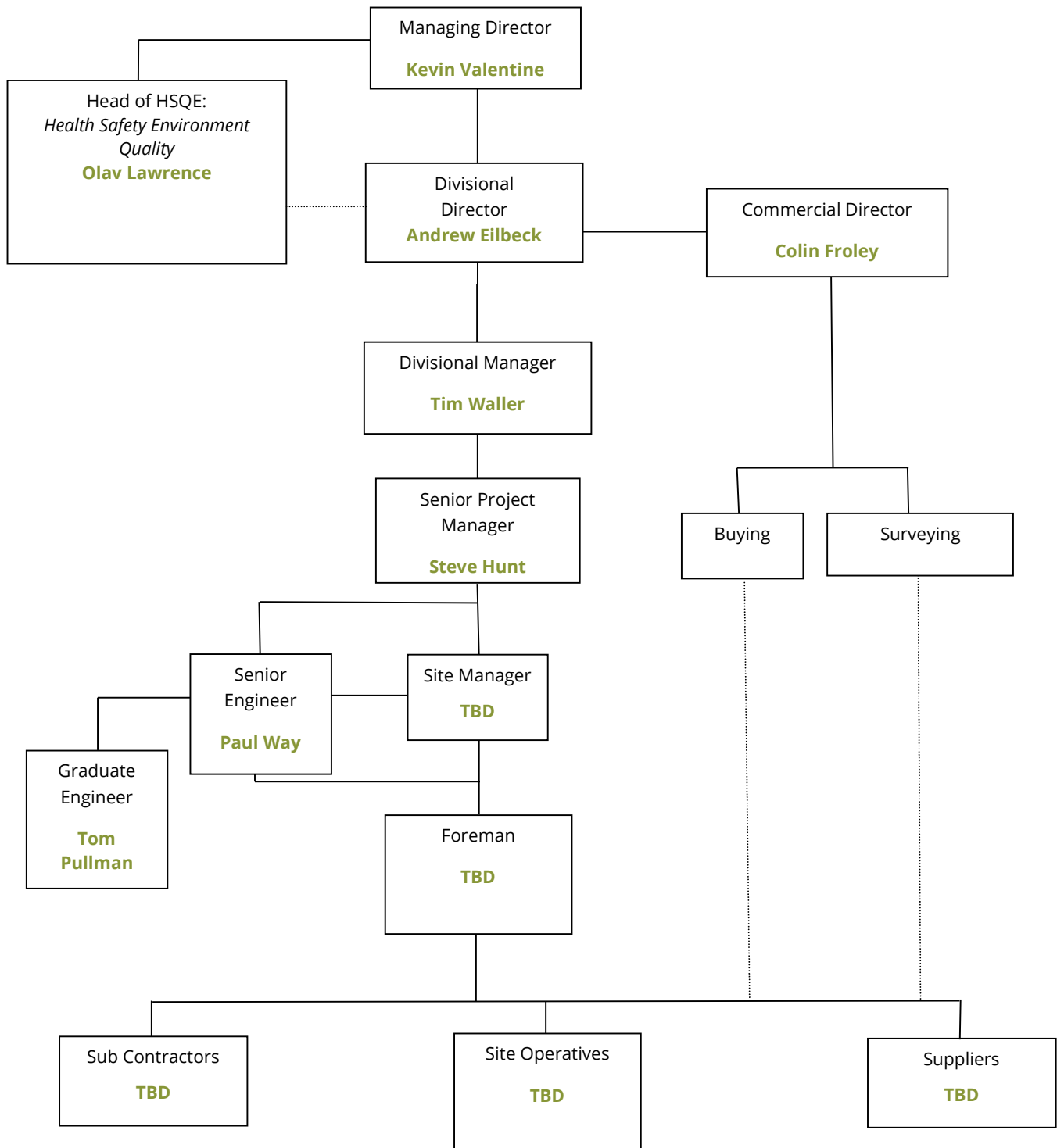
Contracts Manager:	Tim Waller
Senior Project Manager:	Steve Hunt
Site Manager	TBA
Senior Engineer	Paul Way
Graduate Engineer	Tom Pullman
Principal Contractor:	Knights Brown

- 6.2 As Principal Contractor, Knights Brown. will apply its own management framework to undertake the proposed works, reporting directly to the Site Manager.

- 6.3 Responsibility for all environmental issues relating to the proposed development falls to the Knights Brown Site Manager. Individual responsibilities will be allocated throughout the Knights Brown management team relating to inspection, sampling or reporting. Individual responsibilities are outlined below.

Typical Contract Organisation Chart

6.4 The following chart illustrates how the project team will be organised.



Individual Responsibilities

- 6.5 The duties of the Site Manager and other personnel are as detailed below.
- 6.5.1 The Site Manager reports directly to Knights Brown Project Management and is responsible for:
- the establishment and implementation of the Construction Environmental Management Plan
 - identifying all environmental effects associated to the project
 - setting environmental objectives and targets
 - environmental works programming
 - legal and contractual compliance by ensuring the appropriate licenses, certificates and procedures are in place
 - ensuring Knights Brown staff and sub-contractors receive training on project specific environmental issues

Other Specialists

- 6.6 Relevant specialists will be employed if necessary, during the project to undertake watching briefs or undertake surveys and advise the construction staff. CVs of all specialist staff proposed would be submitted for approval.

All Staff

- 6.7 All staff working on the contract would have responsibility for complying with the provisions of the EMP and any subsequent environmental control measure. This responsibility shall be communicated during the general site induction.

7. Environmental Action Plan

- 7.1 An Environmental Action Plan has been developed to outline the key management actions, responsibilities and timescales necessary for the achievement of the objectives and targets.
- 7.2 The complete Environmental Action Plan can be found in Appendix D. The action plan is referenced as an appendix to this plan to aid revision and adjustment as the project progresses.

8 Training

- 8.1 A training regime will be implemented to ensure that all members of the construction team, including client personnel, staff and employees, sub-contractor's personnel and major suppliers, receive focused environmental training to ensure their competence in carrying out their duties on the project.
- 8.2 Any environmental training shall be extra to the training requirements of the Knights Brown Occupational Health and Safety Management System.

Environmental Induction

- 8.3 A general environmental induction shall be developed to introduce all site personnel to the environmental issues connected with the project, important environmental controls associated with the day to day operation of the project e.g. water pollution, boundary control, waste management, drip trays etc, and the general emergency procedures. A full register of induction attendance shall be maintained on site, in accordance with data protection regulations.

Toolbox talks and method statement briefings

- 8.4 Toolbox talks and method statement briefings will be given as the work proceeds and will cover the environmental controls related to specific activities undertaken during the works for example refuelling. A full register of toolbox talk or method statement briefing attendance shall be maintained on site.

Emergency Procedures and Incident Response

- 8.5 General procedures for addressing spillage and ecological or archaeological incidents will be included in the general site induction; specific toolbox talks however will be delivered to ensure operatives are aware of any extra emergency procedures. For example, work on some areas could require the use of booms or sedi-mats to control a possible incident. The procedures for deploying such measures will be affected by the local conditions and may require location specific training.

Specialist Training

- 8.6 Specialist training relating to certain environmental aspects will be developed and delivered to key members of the site team as required throughout the project. These talks are likely to cover topics including managing ecological incidents, spill control and assessment and site water flow.

Training Records

- 8.7 All training records will be maintained and filed on site. The records shall include the content of the courses (induction and toolbox training), record of attendance and schedule of review.

9 Communication

Written Correspondence

- 9.1 All correspondence between members of the project team relating to environmental issues shall be written/emailed/confirmed on CVI.

Progress Meetings

- 9.2 To ensure all members of the protect team are kept informed of the construction work, there will be an environmental component in the monthly progress reports and meetings. Performance against the environmental objectives and targets can be reviewed at these meetings.

On site communication

- 9.3 A full contact list containing names, job titles and contact numbers shall be produced and maintained. On site communication, will be provided by mobile telephone.

External communication

- 9.4 External connections shall be established and maintained for the works.

10 External Reporting and Community Relations

Statutory Authorities and Interested Parties

- 10.1 The Site Manager will be responsible for the liaison on environmental matters with statutory and non-statutory authorities.

Complaints

- 10.2 On site, the manager in charge or designated community liaison is responsible for handling and resolving complaints.
- 10.3 Those received by offices should be directed either to the divisional marketing & communications manager or the head of marketing & communications.
- 10.4 A Complaints log shall be maintained and reviewed regularly to identify any changes to management procedures or operational controls to mitigate causes of complaints wherever possible. All complaints will be recorded in the Considerate Constructor Site file.

11 Operational Control and Incident Response

Pollution Prevention

- 11.1 A statement on general pollution prevention will be added to each method statement outlining the generic pollution prevention measures to be applied throughout the works. This method statement will relate to the following issues

- Provision and Selection of plant
- Fuel storage and refuelling procedures
- Operation of plant and equipment
- Dust mitigation
- Noise mitigation
- Special mitigation measures related to protected areas across the site.

Pollution Incident Response

- 11.2 Pollution Incident Response Plans shall be prepared wherever necessary, to cover the potential pollution risks generated from the construction activities. Each pollution incident response plan shall include:
- Step by step procedure for assessing and containing the spillage
 - A list of equipment and its location

- Responsibilities and reporting Protocols
- Emergency contact numbers and reporting procedures, including the relevant NRW, and NE contact numbers.
- Post incident Review and further preventative measures.

- 11.3 General procedural templates shall be used for the formation of these plans, however, at certain locations throughout the site extra precautions will need to be taken and the standard pollution procedures will be varied accordingly. The standard and site incident response procedures are available in Appendix E.
- 11.4 The Knights Brown HSQE Advisor will inspect the implementation of pollution response plans. Failures in implementation will be reported in the Safety and Environmental Report Log.
- 11.5 All pollution incidents shall be logged and reported to the Site Manager who shall be responsible for reporting to Knights Brown Senior Management, Regional Safety and Environmental Advisor and the Environmental Officer.
- 11.6 The construction activities could generate interactions with existing ecological and land use resources.
- 11.7 Method statements will outline the main operational controls applied at each location or activity to control possible detrimental impacts in accordance with the Environmental Action Plan. Specific operational controls will be communicated to the workforce through method statement briefings or toolbox talks.
- 11.8 Knights Brown will maintain watching briefs during any 'high risk' construction works.

Land use and Disruption

- 11.9 A works boundary will be maintained at all times. Permission for any temporary land take outside the footprint of the permanent works will be obtained in writing from the client prior to works commencing.

12 Procurement and Control of Sub-contractors and Suppliers

- 12.1 All subcontractors will be required to undertake site work in accordance with this CEMP and its supporting documents. All site operatives will be required to attend an induction which will include a section on the environmental aspect of the project.

Procurement

- 12.2 The procurement of sub-contractors and suppliers is controlled by Knights Brown Integrated Management System procedures (sub-contractor procurement) and Supplier database. The following information in this section summarizes procedural requirements for the purposes of the reader. IMS procedures will take precedence over this section of the CEMP.
- 12.3 The questionnaire would be reviewed as part of the subcontract or order evaluation procedure and the Knights Brown buyer will determine whether the subcontractor or supplier's environmental commitment, awareness and performance is adequate for the requirements of this project.
- 12.4 A pre-let meeting shall be held between the subcontractor or supplier and the Knights Brown Site Manager prior to contract award. Site-specific environmental issues and the proposed control measures will be discussed and reviewed during this meeting. The minutes to pre-let meetings shall be filed in accordance with the Project Filing Index.

Performance Monitoring

- 12.5 The Site Manager will monitor the performance of subcontractors or suppliers. Any significant underperformance or re-occurring breaches of controls will be reported immediately to the Knights Brown board that will take appropriate action.

13 Document Control and Records

- 13.1 Documents relating to the CEMP, their issue, revision, storage and archiving would be in accordance with the Project Quality Plan.
- 13.2 The following environmental records shall be maintained on site:
- Contract documents
 - Consultation with statutory authorities
 - Relevant consents, licenses, or authorizations
 - Minutes of meetings
 - Survey or monitoring records
 - Incident reports and corrective actions
 - Induction records and corrective actions
 - Complaints log
 - Waste management documentation
 - Audit and inspection reports
 - Pollution incident equipment checklists

14 Audit and Inspection

- 14.1 An auditing and inspection regime shall be defined and maintained to ensure the continued compliance of the construction works with policy, the contract conditions and relevant legal requirements.
- 14.2 The results of environmental inspections and audits shall be reported to the Site management team and Knights Brown board. The results can be made available to the Client's Project Manager.

Site Inspection

- 14.3 Weekly inspections of the works shall be undertaken by a nominated member of the site staff to ensure the continued compliance of site operations with the provisions of this plan and control measures outlined in relevant method statements.
- 14.4 Audits will be carried out on a regular basis to ensure sub-contractors and site operatives are operating in compliance with this plan and are aware of incident response procedures.

Internal Inspection

- 14.5 Periodic inspections by a Knights Brown Safety and Environmental Advisor shall be carried out. The scope of environmental inspections will cover the compliance of site-based operations with the requirements of this plan, the contract, the law, Knights Brown minimum standards and progress against any corrective actions. Any non-conformities and actions arising from monthly inspections will be raised in the Safety and Environmental Report Book, which is maintained by the Site Manager.
- 14.6 Senior Knights Brown Management checks the Safety and Environmental Report Book regularly.
- 14.7 In addition to internal Audits there will be an independent Ecology Clerk of Works present on site supervising the construction works and ensuring compliance with the items within the environmental statement which has also driven the content of this CEMP. The Environmental and Ecological Clerk of works will be present on site 2 days a week and will report directly to NRW to ensure that independence is maintained. The role will be carried out by Jonathan Harrison BSc MSc MCIEEM, Jonathan has a comprehensive knowledge of the site and has skill set suitable for the site's particular environmental sensitivities.

Environmental Audit

- 14.8 A trained competent auditor would carry out an environmental audit of this plan within 6 months of acceptance. Environmental audits will focus on the compliance with the CEMP throughout project management, which will include performance against the environmental objectives and targets, legal and contractual compliance and continued effectiveness of the CEMP.
- 14.9 The audit report would be reviewed in accordance with the audit procedure contained in the Project Quality Plan. The review would determine if procedural changes are required and the objectives and targets in the Plan are being met.

Procedures in the event of failure to comply with requirements of CEMP

- 14.10 If an audit shows that the requirements of the CEMP are not being met, the Auditor would raise a Corrective Action Request (CAR), for procedures to be put in place to deal with the system non-conformance.
- 14.11 The root cause for the non-compliance would be identified and the procedures modified to remove this underlying cause. There shall be a determined effort to cure the problem and not superficially treat the symptoms.

- 14.12 If the procedures are adequate but have not been implemented such that there is a potential risk of pollution etc. a Non-conformance Report (part of the Integrated Management Systems) shall be raised and only closed out with the agreement of the auditor. An NCR can be raised by an auditor, or Safety and Environmental Advisor. NCRs will be recorded in the site Safety and Environmental Report Book.

15 Reviews and Close Out Report

- 15.1 A review of the overall effectiveness of this Plan would be carried out at least every 3 months by the Site Manager and procedural revisions changed accordingly. Any change to this plan will be submitted to the Project Manager for authorisation.
- 15.2 Information for the review will be gathered from the results of the inspection regime, regular progress meetings and environmental audit results.

Closeout Report

- 15.3 A closeout report would be compiled by the Environmental Officer upon completion of the construction phase of the project.

Appendix A

Knights Brown Environmental Policy Statement



ENVIRONMENTAL POLICY STATEMENT

While believing that our construction projects will ultimately enhance the built environment, Knights Brown recognises that the activities associated with these projects have the potential to affect the natural environment.

We will, therefore:

- Ensure our processes continue to meet the certification requirements of ISO 14001:2015.
- Keep up-to-date and comply with all environmental legislation, codes of practice, technical advances and customers' requirements.
- Support our customers and designers to improve the whole-life environmental performance of the construction projects that we are involved with.
- Adopt appropriate best practice examples from our customers, suppliers, regulators and industry sector in our aim of continual improvement.
- Set ourselves objectives and targets including where practicable, quantitative targets, to demonstrate continual improvement in our environmental performance.
- Ensure at least one of our objectives meets the UK government target of carbon net zero by 2050 delivered by our "Goal 13" programme; supporting the UN sustainable development goal for climate action.
- Each year, achieve and continually improve the environmental objectives and targets we have set.
- Provide training for employees and information to subcontractors and suppliers so they can help us achieve our environmental objectives and targets.

This policy statement is brought to the attention of all employees and other interested parties. It is reviewed not less than annually or more often as required.

KEVIN VALENTINE | MANAGING DIRECTOR
JUNE 2023

Appendix B

Environmental Components of Method Statements

Environmental Components for Method Statements

The following considers the main parameters of the natural environment that could potentially be impacted by the construction works together with a summary of the methods that will be used in mitigation of any impacts caused by the planned construction. However for specific identified environmental risks and methods of risk reduction / mitigation see Appendix C Environmental Action Plan and Appendix D Environmental Management Plan

These measures will be implemented and maintained throughout construction methodology as a matter of standard. If variations are required these shall be defined in the particular method statement and in consultation with the Site Manager and (where applicable) the Client's natural environment supervisor.

NRW should be informed of when the project is to start and is completed so that inspections can be arranged as the work proceeds. The NRW will be provided with a copy of this CEMP, and with the main works programme, including any major changes as work progresses.

1. Water

1.1. Fuel and Lubricants, and other chemicals

- Fuel and Lubricant use and storage – All fuel and lubricants on site will be stored in double-bunded containers, either at the Construction Compound, or through use of a mobile bunded bowser for refuelling on site. Wherever recommended and accepted by the plant manufactures, biodegradable lubricants will be used. Spill kits will be available and re-stocked as necessary at each storage point and with the refuelling bowser. Any fuel or lubricant waste arising from normal operations and/or any spills will similarly be stored in a special waste container and held on site until being disposed of through a licensed waste handler.
- Refuelling will be from a bunded bowser with both plant and bowser in the same area to minimise penetration or spread of any spill. Only trained operatives will be permitted to carry out refuelling. Spill kits will be available with the bowser. The bowser will be equipped with a non-locking trigger nozzle to prevent dangers of overflow. Any spills occurring will immediately be reported to the Senior Site Manager and further action taken as directed in the Site Pollution Incident Response Plan (Appendix E). Under no circumstances should the mobile bowser to enter within the tidal range of the river.
- Plant servicing will take place in the compound, with the appropriate use of drip trays and spill kits as necessary. Waste product and materials will be stored on site in a special waste container at the Construction Compound or removed from site by sub-contractors carrying out the servicing for responsible disposal. Plant servicing personnel will have to enter the site and be inducted in the normal way at their initial visit to the site.

2. Concrete

- Concrete will be batched offsite and transported to site in standard concrete wagons. Washout will occur on site, using a large skip or tank at or near each pour location. Skip contents will be transported offsite for responsible disposal. Concrete mix to be designed such that it can be submerged directly after being placed without causing pollution.
- Concrete pours will take place under close supervision. Any spill out from the shuttered area will be cleared up immediately, the waste product being placed within the construction area, or into the mobile skip at site. The delivery chute will be swept clean into the pour before departure, and any tools used in the pour washed over the site skip.
- Any waste concrete will be cleared up as above, or placed in the skip once it has gone off and can be collected without further spread.

3. Air

3.1. Noise and vibration

- Operating plant noise will be kept within the standards and time periods dictated for the different parts of the site. Any non-complying plant will be stopped and stood down until it can be rectified or removed from site.
- All pneumatic tools will be fitted with silencers or mufflers, where practicable.
- All plant and equipment will be checked daily and maintained correctly to limit noise.
- Noise monitoring stations will be established early in the scheme to ensure the noise levels from operating plant are maintained within the contractually specified limits.
- Vibration monitoring will be undertaken at any properties that have the potential to be impacted by works.
- Monitoring will be undertaken as specified in the contract with works ceasing if any vibration is detected above the contract prescribed limits.

3.2. Dust

- Haul route surfaces may generate dust under plant movement and in dry weather. If this proves to be the case, water from an appropriate source will be sprayed onto the surfaces to limit dust generation.
- Vehicles transporting materials to and from site will be sheeted.

- Speed on site will be limited to 10mph.
- Road sweepers will be used at access points if necessary.

3.3. Exhaust gases

- Plant and vehicles on site will be maintained to the standards dictated for the site. Any non-compliant plant will be stopped and stood down until it can be rectified or removed from site.

4. Wildlife and Vegetation

- Initial investigation completed in this area have shown a large quantity of Japanese knotweed within the site, predominately along rover way and Lamby way, where excavations will be required. This will be completed along a specified risk assessment and method statement to prevent the spread of the plant.
- Protected species have been identified across the site including fish and bird species, therefore works in these areas will be limited during nesting/spawning seasons. Details will be specified in relevant RAMS to minimise the impact of these species as well as the influence of works on the surrounding SSSI, Ramsar area, SAC and SPA.
- Ecological Toolbox Talks will be provided to the construction workforce to advise on the ecological risks, responsibilities, and emergency reporting requirements.
- Pre-construction checks for reptiles will be undertaken in any suitable habitat in compound and storage area locations. Two stage strimming for clearance of ground vegetation may be required to safely disperse reptiles.
- To avoid impacting the designated habitats surrounding the works being undertaken, all site personnel and vehicles/ plant will be strictly confined to the pre-agreed boundaries. The works area will be strictly defined and fenced, and the vehicles and materials will be kept within this area.
- Periodic check of the site to be undertaken by the project manager during construction, with all actions and updates listed in detail in the CEMP.

5. Landscape

5.1. Waste

- Construction waste will be cleared by means within the site compound. Skips will be closed, or netted to prevent waste being blown out on this exposed site, and to deter the attraction of birds and vermin. Skips will be emptied and maintained as necessary by a licensed waste handling contractor.

- Surplus spoil will be removed from site via a licensed waste handling contractor to a licensed disposal point for recycling where feasible.
- Personal waste will be kept to a minimum through creating awareness of landscape values, the local residents' quality of life, and the prevention of pest and disease build up. Skips will be used, and small containers made available in the offices, and in the welfare facilities used on site. The Site Manager will ensure that these containers are emptied regularly as needed.
- Sewage will be disposed via the tanker collection although a connection to a mains supply should be sought if possible.

6. Biodiversity

- The objective of the Plan is to protect, conserve and enhance the natural habitats/species of the site and the aim of mitigation is to ensure there is no overall decline in the biodiversity and ecological value of the site.
- The site sits within a SSSI, Ramsar area, SAC, and SPA. Therefore, all works will be done in accordance with relevant environmental risk assessments to minimise the risk to the biodiversity within these areas.

7. Cultural Heritage

- Preconstruction investigation has highlighted 5 locations throughout the site which are considered to be of archaeological interest. Works in 4 of these locations will require an archaeological watching brief for any intrusive works.
- Prior to commencing work Knights Brown will appoint a qualified Archaeological consultant, who will be registered with the ClfA. Their role will be to assist KB in fulfilling the Archaeological mitigation recommendations for the site, and to identify any further items of interest that may become evident during construction of the works.
- If any features that are of potential archaeological interest are encountered, the works must cease within the vicinity of the find, and the appointed archaeological contractor will be informed who in turn will then assess the potential asset and inform the archaeological consultant.

Appendix C

Assessment of Environmental Impacts

Identification and Assessment of Environmental Impacts

Assessment Process

In assessing each activity the following has been considered:

- potential impacts on flora, fauna, existing habitats, and vegetation.
- potential impacts groundwater quality, availability, and flow.
- potential impacts on the landscape quality and character, including views.
- potential impacts on local cultural heritage, including archaeological features.
- potential changes in air quality, including CO₂, NO_x SO_x emissions.
- potential nuisances for local people such as noise, dust, and dirt on roads.
- potential impacts on traffic and transport and impacts of site vehicle traffic.
- waste management, including disposal, minimisation and off site works.
- site security and storage of materials, especially hazardous materials.

Assessment of Significance of Impacts

To evaluate the significance of the impacts, a consideration is made of the importance to the environment and business, together with the probability of the consequences occurring. The importance of an impact and the probability of its occurrence are evaluated below in terms of a combined Importance/probability matrix (see overleaf). This matrix assigns a value to the combined effect of Importance and Probability. These rankings would be taken into account when determining the control measures required.

TABLE A: IMPORTANCE

VALUE	IMPORTANCE	
5	Very High	Immediate and/or long-term catastrophic harm/severe breach of legislation or policy/catastrophic business loss.
4	High	Immediate and / or long term severe harm/breach of legislation or policy/severe business loss.
3	Moderate	Short Term harm/ temporary or occasional breach of legislation or policy/ moderate business loss.
2	Slight	Limited short-term harm/ minor breach of legislation or policy/minor business loss.
1	Negligible	No or trivial harm/ no or trivial breach of legislation/ no or trivial business loss

TABLE B: PROBABILITY

VALUE	PROBABILITY
5	Almost Certain
4	Likely
3	Occasional Chance
2	Unlikely
1	Improbable

TABLE C: IMPORTANCE - PROBABILITY MATRIX (to give Priority Rating)

IMPORTANCE	Very High	5	10	15	20	25
	High	4	8	12	16	20
	Moderate	3	6	9	12	15
	Slight	2	4	6	8	10
	Negligible	1	2	3	4	5
		Improbable	Unlikely	Occasional Chance	Likely	Almost Certain
PROBABILITY						

Note – When assessing the priority rating; the higher the number, the higher the priority the potential impact on the environment is to be given.

TABLE 1: ENVIRONMENTAL IMPACTS

Impact Ref. No.	Potential Impact	Construction Phase	Sensitive Receptor	Importance Score	Probability Score	Priority Rating	Objective Ref.
1	Water quality / Marine habitats: Sedimentation of watercourse from surface runoff	All phases (surface run-off) • Material movements • Concrete pours • Operation of compound areas	All watercourses, sensitive saltmarsh habitats, notable/rare plant species	3	3	9	1
2	Air quality: Dust	All phases • Excavation • Movement of materials	Construction staff, Landowners, wildlife	2	5	10	2
3	Air quality: Exhaust emissions	All phases • Site plant and equipment • Associated road traffic, delivery vehicles and staff vehicles	Construction staff, wildlife and local residents	2	5	10	2
4	Ecology: Permanent habitat loss	• Severn Estuary SSSI, Ramsar area, SAC, SPA. • Construction of hard standings / roads and structures	Habitats and wildlife (including invertebrates, birds, mammals)	5	3	15	3

5	Ecology: Damage to existing habitats, flora or fauna	All phases - Excavation works - Piling	Habitats and wildlife	5	3	15	3
6	Ecology: Damage to protected fauna within works boundaries	All phases - Removal of Topsoil and Trees - Piling	Trees	4	3	12	3
7	Archaeology: Discovery of unrecorded archaeological interest	Phases of project involving excavation	Buried archaeological features	5	2	10	4
8	Land use: Physical presence of works	All phases	Landowners	3	5	15	6
9	Construction Noise and vibration	All Phases - Increases during: - Vehicle movements - Excavation - Earthworks - Piling	Landowners, wildlife	3	5	15	6

Impact Ref. No.	Potential Impact	Construction Phase	Sensitive Receptor	Importance Score	Probability Score	Priority Rating	Objective Ref.
10	Waste: General waste Cleared material and debris. Removal of excess material off site	All Phases for general and construction waste	Disposal site receptors – at construction compound and satellite skips	2	5	10	11
11	Visual impact: Temporary impact of construction works	All Phases	Loss of visual amenity, company reputation	4	4	16	5
12	Visual Impact: Change in character and quality of landscape	All Phases	Residential properties	2	5	10	5
13	Resource Use: Aggregates	All Phases	Use of natural resources	2	5	10	9
14	Resource Use: Water	All Phases	Water sources away from site	1	5	5	9

Impact Ref. No.	Potential Impact	Construction Phase	Sensitive Receptor	Importance Score	Probability Score	Priority Rating	Objective Ref.
15	Resource Use: Energy	All Phases - Operation of plant and equipment - Operation of offices - Provision of welfare	Use of non-renewable natural resources	1	5	5	9
16	Traffic Movements and Deliveries	All Phases - Material deliveries, waste collection - Staff transport	Local residents	4	4	16	7
17	Ecology: Damage to SSSI and Saltmarsh habitat	All construction works in or around the SSSI.	Protected land	4	3	12	3
18	Ecology: Spread of non-native invasive species.	Excavation and machine tracking past invasive species.	Habitats and wildlife, Company reputation	4	3	12	3
19	Contaminated Sediment Use	Removal of existing river bank containing sediment deposits. (drying for re-use as useable material on site)	Habitat and wildlife, members of the public.	4	3	12	9
20	Vehicle Access routes	Throughout the duration of the works	Sensitive habitat, wildlife.	3	3	9	9

21	Ecology: Potential for the disturbance of otters and over wintering birds in the area.	Throughout the duration of the works	Sensitive habitat, wildlife.	3	3	9	9
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Appendix D

Environmental Management Plan

TABLE 2 ENVIRONMENTAL MANAGEMENT PLAN

Document owner: HSQE Manager

Ref: F504 Issue 1.1
(September 2018)

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Objective	Target	Impact Ref. No.	Actions	Responsibility (tbc)	Timescale (tbc)
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T: 01425 472241
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160 Christchurch Road,
Ringwood, Hampshire
BH24 3AR



1	To prevent pollution of watercourses	1	No significant deterioration in water quality during construction	1	Develop Pollution Prevention Method Statement outlining general preventative measures that are to be used throughout the works	Site Manager	Before ground work initiated
					Ensure all Method Statements relating to work in, over or close to the sea outline pollution prevention measures. Reference Pollution Prevention Method Statement	Site Manager	Continuous
					Incorporate NE & NRW recommendations into the Method Statements for works	Site Manager	As required
					Maintain regular inspection of work sites to ensure control measures are implemented and remain effective	Site Engineer	Continuous
					Prepare and implement Method Statements for the construction of the works	Site Manager	Before ground work initiated
					No construction of the defenses will take place either above tidal areas. No material will be stored on the foreshore.	Site Manager	Continuous
					As much work as possible will be non-tidal (i.e. undertaken above the Mean High Water Springs (MHWS) level or during periods that allow for dry working)	Site Manager	Continuous
			No enforcement action by statutory agencies during		Agree format for statutory agency visits during relevant periods/works	Site Manager	Continuous

Objective		Target		Impact Ref. No.	Actions	Responsibility (tbc)	Timescale (tbc)
			construction works		Establish requirements for any further statutory agency consents during project	Site Manager	Before ground work initiated
			No water pollution incidents during construction works		Ensure requirements of any consents/conditions are maintained throughout relevant works	Site Manager / Site Engineer	Continuous
					Develop and implement adequate Pollution Incident Response Plans throughout the works	Site Manager	Continuous
					Develop and maintain consultation with the statutory agencies over construction methods for sensitive phases of the project	Site Manager	Continuous
					Arrange specialist incident response cover via emergency contractor to be used in case of major spillage.	Site Manager	Before ground work initiated
					All compounds are off road and away from any drainage. Run off will be controlled with silt fencing	Site manager	Continuous
		No corrective actions each audit relating to the implementation of Pollution Incident Response Plans			Inspect pollution incident response equipment regularly	Site Manager / Site Engineer	Continuous
			Ensure regular tool box talks are given on pollution incident response equipment use		Site Engineer	Continuous	

2	To reduce or eliminate the release of airborne pollutants	2	No dust pollution incidents during construction (<i>a dust pollution incident shall be defined as warranted complaint arising as a result of construction activities</i>)	2,3	Develop general Pollution Prevention Method Statement outlining dust control measures to be used throughout the works.	Site Manager	Before ground work initiated
					Ensure relevant method statements include dust mitigation measures. Reference Pollution Prevention Method Statement	Site Manager	Continuous
					Arrange road sweeper to be used as necessary to control mud/dust on public access roads used by site traffic	Site Manager	Continuous
					Maintain visual inspection over works for dust emissions and implement control measures as required	General Foreman	Continuous
			All vehicles and plant to be well maintained		Maintain plant maintenance schedule for all plant and equipment directly operated by Knights Brown.	General Foreman	Continuous
					Complete inspection checks on all plant and equipment directly operated by Knights Brown.	General / Section Foreman	Continuous
					Ensure sub-contractors can produce maintenance schedule and checks if required	Site Manager	Pre-let meeting
					Remove poor or faulty plant and equipment from site	General Foreman	As required
			No complaints related to exhaust emissions from site based plant or equipment		Maintain regular visual inspections of exhaust emissions from plant and equipment.	Site Manager /General Foreman	Weekly inspection

Objective		Target		Impact Ref. No.	Actions	Responsibility (tbc)	Timescale (tbc)
3	To minimise the impact on existing ecological features	3	No unauthorised removal or damage to protected grasses or flowers during construction works	4,5,6	Develop and maintain continued consultation with statutory bodies and local authorities to ensure interested parties are kept informed of proposed working methods and control measures.	Site Manager	Continuous
			No unauthorised injury, damage or destruction of protected wildlife or vegetation during construction works – no enforcement action under Wildlife and Countryside Act or Habitats Regulations		Method statement for the protection of protected vegetation during excavation / removal of material	Site Manager	As required
					Prepare and implement a response plan to address potential discovery of protected fauna during works	Site Manager	As required

				Ensure works boundaries are clearly defined and maintained at all times	Site Manager / General Foreman	Continuous
				Ensure strict compliance to Method Statement of working adjacent to ecological sites.	Site Manager / general Foreman	Weekly inspections
				Develop and deliver tool box talk to section engineers and foremen outlining what to do in case of ecological	Site Manager / general Foreman	weekly
				Any habitat lost as a result of the defense footprint and coastal squeeze will be replaced with compensatory habitat.discovery	Site Manager	Continuous
				Demarcate areas of any sensitive habitat and/or notable/rare plant species and exclusion of any activity within these areas	Site Manager	Continuous
			Avoid disturbance to ground nesting and over wintering birds.	Works in the vicinity of bird roost areas are avoided over winter whenever possible. Any works with the potential to cause disturbance to overwintering birds are restricted to avoid 2 hours either side of high tide.	Site Manager	Continuous
			Avoid disturbance to marine mammals and fish	All piling works to be undertaken above Highest Astronomical Tide (HAT)	Site Manager	All Piling Works
				Vibration piling should be the	Site Manager	All Piling

					preferred method of piling. Percussive piling should only be undertaken when vibration piling is not possible If percussive piling is required, piling within 30m above HAT conducted between October-March (inclusive) can occur without tidal restrictions; percussive piling within 30m above HAT conducted between June-September (inclusive) can only occur on the ebb tide to protect upstream migrating Atlantic salmon and sea trout; No percussive piling within 30m above HAT is to be conducted during April-May.		Works
			No damage to the environment resulting from poor waste management		Site Waste Management plan is prepared, which gives consideration to the sustainable disposal of waste with reference to the principles of the waste hierarchy.	Site Manager	All Piling Works
			Avoid the spread of non-native invasive species		Measures to control the use and storage of potentially contaminating materials and litter will be undertaken	Site Manager	Continuous
					Wheel washing facilities should be used by the contractor to clean wheels of vehicles leaving highlighted invasive species areas across the site to ensure that biosecurity risk associated with transferring non-native invasive plants to other areas of the site is minimized. Biosecurity	Site Manager	Continuous

Objective		Target		Impact Ref. No.	Actions	Responsibility (tbc)	Timescale (tbc)
			No unauthorized temporary land take outside of works boundary		methods should be in line with the principles of Check, Clean and Dry protocols. Should any Japanese Knotweed be found during construction management requirements will be followed as outlined in the knotweed management plan. Ensure works boundaries are clearly defined Obtain written authorisation for any temporary land take outside the footprint of the completed works from Landowner in advance. Maintain regular inspections for works areas	Site Manager / General Foreman Site Manager Site Manager / General Foreman	Continuous Seven days before required land take Weekly inspections
4	To minimise impact on archaeological features	4	No damage or destruction of known archaeological resources (none)	7	Compare construction program against locations of existing archaeological resources and highlight potential interactions	Site Manager / Environmental Officer	Before ground work initiated

Objective		Target		Impact Ref. No.	Actions	Responsibility (tbc)	Timescale (tbc)
			No damage to unrecorded archaeological finds which may be discovered during works		Develop and implement strict control measures to ensure protection of existing archaeological features during periods of potential interaction. Obtain archaeological specialist to maintain watching brief over ground works if unrecorded archaeology uncovered. Accurately record any features of archaeological interest	Site Manager / General foreman / Field Archaeologist Field Archaeologist	Continuous Continuous As required
5	To minimise the visual impact of construction works	5	Complete the works as per the program No complaints from Landowner, statutory bodies or other interested parties relating to construction Reduce the negative impact of vegetation removal during and post works. Avoid disruption arising from construction traffic and deliveries	11,12	All phases of project, including material delivery and storage are planned Ensure works completed as per Method Statements. Ensure compound/materials storage is tidy Trees and vegetation lost in this area during the works will be replaced with new planting designed to integrate with the species that remain. Traffic management plan is prepared to limit interaction between site vehicles and public roads	Site Manager	Continuous

Objective		Target		Impact Ref. No.	Actions	Responsibility (tbc)	Timescale (tbc)
6	To minimise disturbance to Landowner, local residents, and wildlife	6	Zero prosecutions or enforcement actions related to noise disturbance Respond to any noise complaints within 48hrs of receipt No corrective action each audit relating to the maintenance of works boundaries	8,11,12	Prepare a Noise Management plan as part of the Pollution Prevention Plan outlining proposed control measures Ensure complaints and consultation log is maintained	Site Manager	Before ground work initiated
7	To minimise impact of works related traffic upon local residents and roads	7	No complaints, each week, relating to works traffic using incorrect routes to site	6,9,16	Develop traffic management plan, include site access routes Ensure highways controlled traffic routes are communicated to all sub-contractors and suppliers, include site access points Review traffic control measures monthly and respond to complaints	Site Manager	Before ground work initiated
8	Sediment management measures	8(a)	Refer to the sediment management testing results and subsequent management plan appended to this documents (appendix K)	1,10	Compliance with the guidance provided within the appended document. Any material unsuitable for re-use will be disposed of in line with Waste management protocols.	Site Manager	Construction period

Objective		Target		Impact Ref. No.	Actions	Responsibility (tbc)	Timescale (tbc)
9	Saltmarsh and intertidal habitat management.	9	To reduce the impact on Saltmarsh habitat and intertidal habitat within the construction area.	4,5,6	Comply with the controls identified with the appended Saltmarsh management Plan (appendix L) Vehicle access routes will be restricted to single routes, clearly fenced and bunded off to stop multiple routes that will impact on the Saltmarsh. The topsoil containing the saltmarsh seeds and root matter of the surrounding area will be stripped and stored in a bund adjacent to the access track. This will allow the root mass and seeds to regenerate during the stored period, and then will be reinstated in the same area on completion of the works. This will then allow the bunded material root mass and seeds to regenerate with the same plants from the exact area. The topsoil will not leave the area it was stripped from, and will be stored in bunds no higher than 1m high.	Site Manager	Construction period

Objective		Target		Impact Ref No.	Actions	Responsibility (tbc)	Timescale (tbc)
10	To minimise the consumption of energy and water	10	No corrective actions each audit relating to water consumption	13,14,15	Ensure that only approved water sources are used for all needs, and conservative water use practices in place Display energy awareness posters wherever required	Site Manager	Continuous
11	To minimise the impact of waste disposal	11	Promote the re-use and recycling of materials No prosecutions by statutory bodies related to waste disposal	10	Develop and implement Waste Management Plan Investigate viable re-use or recycling options for waste materials leaving site Ensure correct 'duty of care' documentation is collected from waste contractors and tips	Site Manager	Before ground work initiated

12	To minimise impact on wildlife within or close to the work areas: <u>Otters</u> Whilst the site has been identified as possible habitat for otters, surveys of the area have identified that from the ES section 5.5.8: <i>The Rhymney River is designated as a SINC for a range of migratory fish, Otter and bankside habitats. Sites suitable for resting Otter were not identified during site surveys and impacts to the species will be limited to disturbance impacts throughout the construction.</i> Section 5.5.26 and 5.5.27 goes on to explain: <i>It is likely that Otter will pass through the works area. Scrub and reedbed habitat set CCD-JBAU-00-00-RP-EN-0002-S3-P04-Environmental_Statement Without Appendices 112 back from the Rhymney River and within Parc Tredelerch have the potential to provide resting sites and holt sites for Otter.</i> <i>These habitats will not be impacted upon by the works and therefore, impacts are considered to be</i>	12	Complete the works in line with controls identified within the Environmental statement. No prosecutions relating to disturbance of wildlife on the site	21,17,6	<u>Mitigation of disturbance to Otters</u> Construction works will not be carried out between sunset and sunrise. During these times, all construction plant will be removed from the river bank. Any site lighting required will be positioned so that no light falls onto the adjacent river bank. The installation of protective fencing around the site compound areas will be undertaken to prevent Negligible adverse CCD-JBAU-00-00-RP-EN-0002-S3-P04-Environmental_Statement Without Appendices 123 Ecological feature Potential Impact Effect without mitigation Mitigation Significance of residual effect otter from accessing these areas. All excavations will be backfilled on the same day to avoid the risk of otter falling in, or all open excavations over 600mm in depth will be covered at night. If this is not possible, a means of escape for small animals will be provided. Monitoring for signs of otters during works. Should an otter be encountered on site during the works, all works will cease immediately Bats Potential severance of commuting routes, from direct damage to commuting, foraging and roosting habitats from vegetation clearance	Site manager, ECoW.	Continuous
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	<i>limited to the temporary disturbance of Otter during the construction period. The banks of the River Rhymney are unlikely to provide suitable habitat for resting sites or holts.</i> <u>Overwintering Birds</u> Disturbance to overwintering and migratory bird species				The permanent removal of plantation woodland could adversely impact upon woodland foraging species. Temporary negative effect at local scale to foraging and commuting habitat. <u>Mitigation for disturbance of overwintering birds</u> Sensitive areas adjacent to the Rhymney and Severn Estuaries have been identified and will be subject to a 2 hour tidal restriction either side of high tide to avoid impacts on birds utilising these habitats at high tide. This will be monitored by an ECoW.	Site manager, ECoW.	continuous
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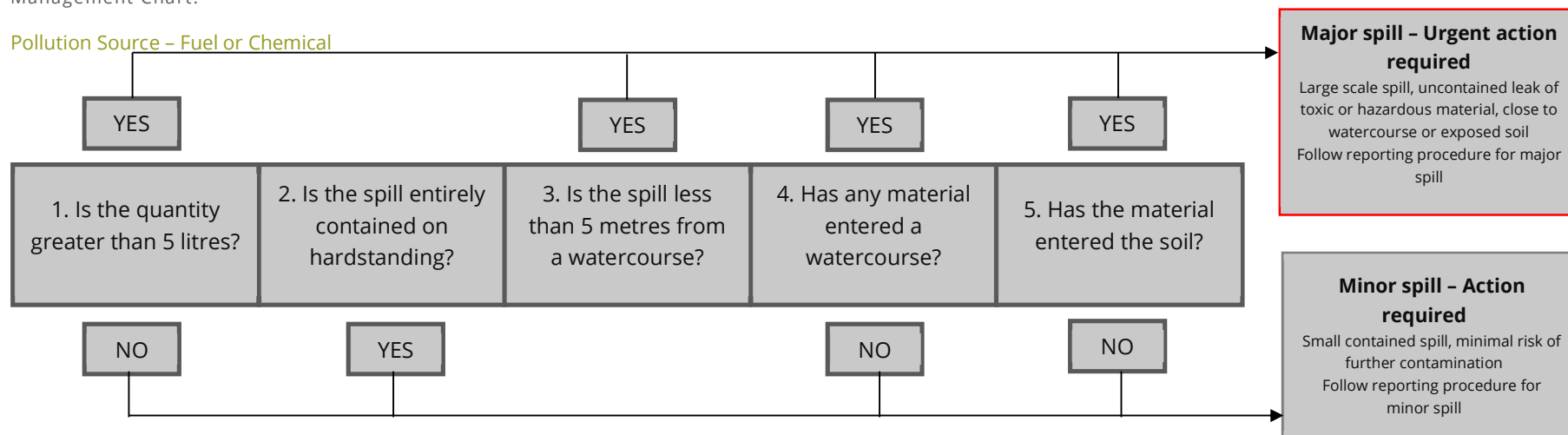
Appendix E

Site Pollution Incident Response Plan

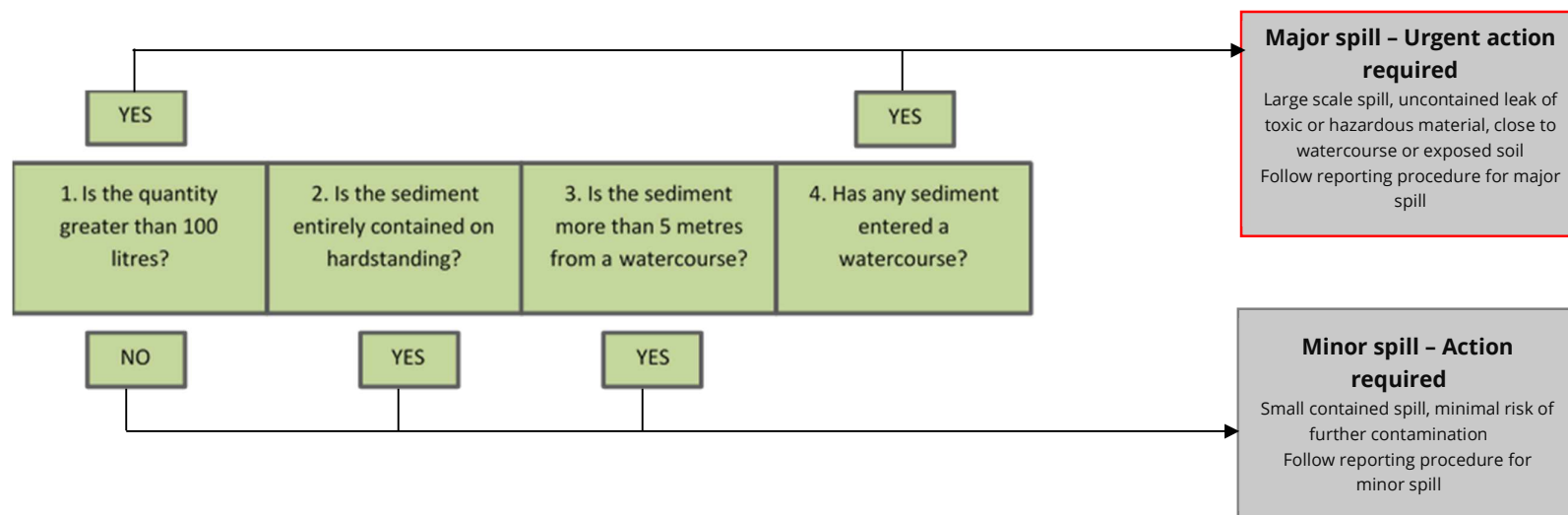
Pollution Incident Assessment

If you observe polluting materials being spilled or leaking, follow the decision tree below to determine the correct course of action on the Pollution Incident Management Chart.

Pollution Source – Fuel or Chemical

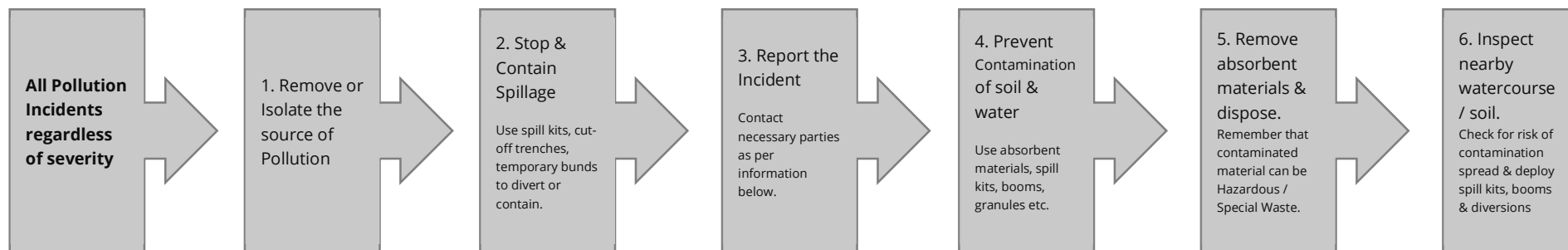


Pollution Source – Sedimented water or concrete

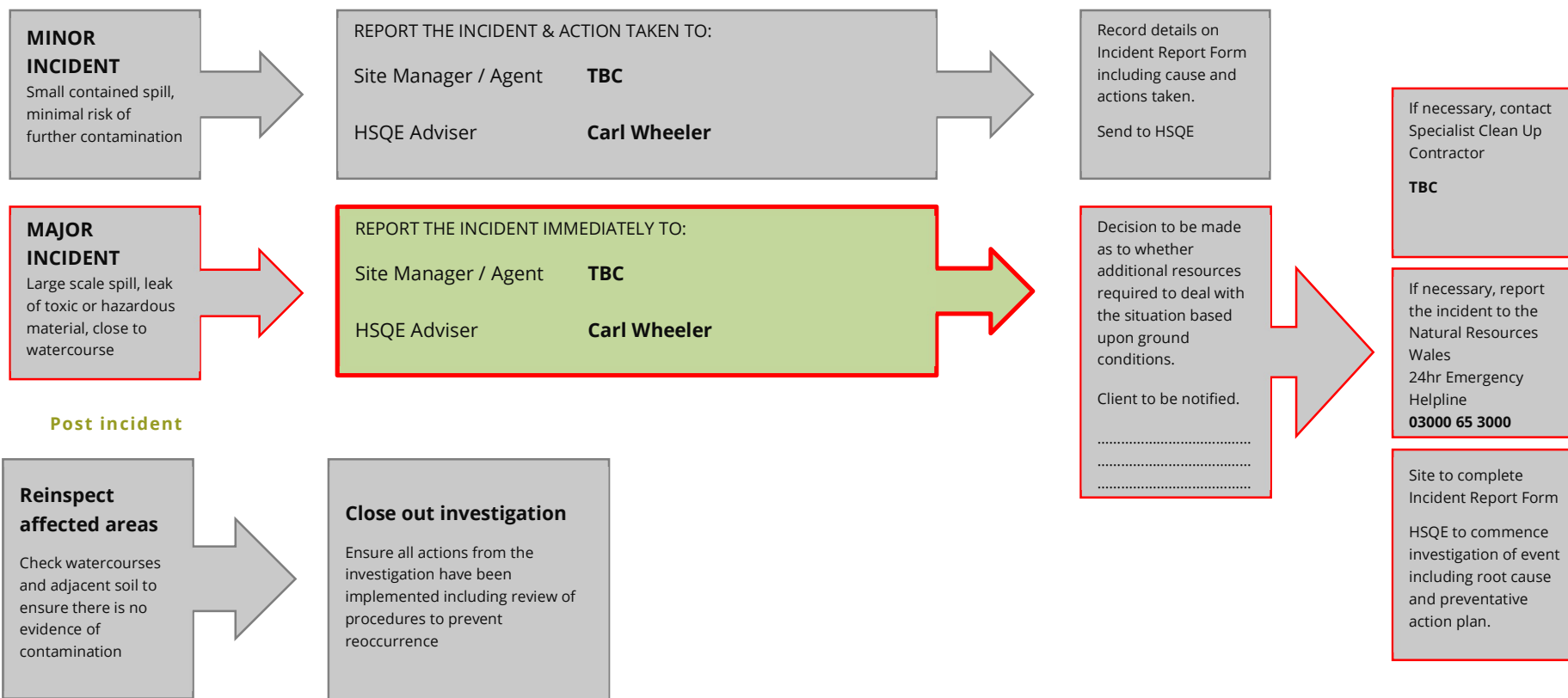


Pollution Incident Management

Action to take in the event of a pollution incident



Reporting of an incident - in accordance with the site emergency plan



Environmental Emergency Plan

Person responsible for taking charge at the scene:	
1.	In case of spillage of Oils and Chemicals, report immediately to your Manager/Supervisor, who should report the incident to: Knights Brown Health and Safety Advisors Olav Lawrence – 07733 367862 Claire Bithrey – 07827 278877 Carl Wheeler – 07581 014240
2.	Try to Identify the Source of Pollution and Stop the Flow Immediately; Switch off any source of Ignition
3.	Avoid the spill Spreading: • Check the site drainage – Where will the Spillage go? • Stop the flow if possible; • Dam the flow with earth / sand / polythene; • Divert from Drains / Watercourses where possible.
4.	Get a Spill Kit: • Use absorbent materials if appropriate; • Place a Boom across watercourse as a precaution.
5.	Use sand or absorbent pads to mop the spillage up. • Do not Wash Spillage into the Drainage system – it only makes things worse; • Never use Detergents.
6.	If the spill has already entered the Drains, block off the entrance to the drains to prevent any more from entering
7.	Any Contaminated material (Special Waste) must be disposed of appropriately, including materials used for mopping up.
8.	Replenish Emergency Spill Incident Equipment

Controlling a Spillage – What You Should Do

WHAT TO CONTROL

If you spill or discover any of the following materials spilt, then they must be controlled immediately.

- Diesel or fuel oil
- Hydraulic oil
- Shutter oil
- Chemicals
- Curing agents
- Cleaning agents

Any other chemical materials.

ASSESS IT

Has anyone been injured?
Is spillage safe to approach?
Have you got the correct PPE?
Where is the spillage coming from?



Always Remember - Safety First



CONTAIN IT

Stop spillage at source, if possible.

- Stop spillage entering drains or open water - use absorbent materials to protect drainage.
- Use absorbent material to contain spillage - put absorbent material down at edges of spill first

REPORT IT

All spills or leaks must be reported to site management.

Things to report:

- Source and reason of spillage
- The material involved
- Any escape to drains or into open water
- Action taken so far

CLEAN IT UP

Appendix F

Mitigation of Environmental Intervention

Protecting the Environment – Water Courses, Landscape, Plants and Wildlife

1. Which construction activities are involved?

All construction modifies the Environment, but especially:

- Removing topsoil
- Clearing new road / track line
- Diverting water
- Carrying out any action that cause siltation into watercourse, or modify natural flow
- Carrying out any actions away from the site area demarcation
- Cutting trees
- Any potential polluting situations – refuelling, maintenance, leaving lubes/fuels/oils or other construction materials on site, exposed or unattended.

**2. What is Important?**

- The landscape and groundcover vegetation
- Burns, streams, and periodic watercourses
- Trees – significant vegetation features
- Fixed wildlife features such as burrows, setts, hole in the ground of any reasonable size, nests, drays, eggs and chicks – on the ground, in trees or in bushes
- Mammals – Protected species such as Otters, Badgers, Red Squirrels, Bats
- Snakes
- Amphibious creatures – such as frogs, toads, newts
- Fish
- Birds
- Other wildlife evidence – dead animal remains, bats in enclosed spaces
- Livestock

3. Before works starts on site (e.g. starting a new culvert, new track or other site clearance)

- Relevant permissions to be in place – NRW permits, MMO Licences, planning permissions
- Refer to pre-construction ecological survey and ensure any requirements or controls are observed

4. During work on site

- Prevent materials from entering or disturbing the flow of water especially sediment, dust, spoil from road, fuels and oils or other construction materials.
- Make adequate use of alternative drainage, sedimats, drip trays, plant nappies, Teram filters and silt bags etc.
- Ensure spill kits are suitably placed and well stocked.
- Ensure any spills are reported as per the Site Emergency Plan and in accordance with the Pollution Incident Assessment and Management Plan.
- On discovery of trapped / static animals, snakes, amphibian, fish, bird, nest with or without eggs / chicks, livestock, significant burrow or standing tree stop work if to continue would cause disturbance to the fauna or flora.
- Report findings to on site supervisor and await decision as to how to proceed
- Where possible encourage mobile animals to move off site of their own accord
- Do not attempt to move or disturb snakes – adder bites can be fatal, although some GP practices / hospitals hold antivenom
- Ensure that any open excavations have ramped access to allow animals to escape should they enter / fall in
- Be aware of stored materials that have stood for some time – animals may have set up home within
- Observe exclusion zones set up to prevent disturbance of protected species / trees
- Familiarise yourself with potential invasive plant species that may be present on site and the action to take upon discovery.

**5. Completion of site**

- Ensure all materials and waste are removed
- Finishing works to include reinstatement, landscaping and repair as appropriate

IF YOU ARE UNCERTAIN OF THE SIGNIFICANCE OF ANY INCIDENT / DISCOVERY INFORM(HSQE ADVISER)
ON IMMEDIATELY TO PREVENT UNNECESSARY DELAYS TO CONSTRUCTION.

Appendix G

Site Waste Management Plan

SITE WASTE MANAGEMENT PLANS

1. APPROACH

Site Waste Management Plans (SWMP) are no longer required by legislation. SWMP's do provide a framework to encourage waste minimization, resource efficiency and contribute to the company environmental objectives. A SWMP is required for any contract of more than 30 days duration or 500 manhours and is to be appended to the construction phase plan. This process includes a forecast of the amount and type of waste produced, identification of how waste be reduced, reused, recycled or disposed of, record the actual management of waste and a review of the completed plan.

2. RESPONSIBILITIES

It shall be the responsibility of the Estimating Department to identify waste streams, quantities and proposed action during the estimating process.

The Contract the Site Manager shall be responsible for developing the draft SWMP in to a formal SWMP.

The Site Manager shall be responsible for ensuring it is kept up to date throughout the construction period and accurately reflects the construction program and activities.

The HSQE team are to be consulted for advice on the development of the SWMP as appropriate.

3. RELATED DOCUMENTS

Forms [Site Waste Management Plan incorporating:-](#)

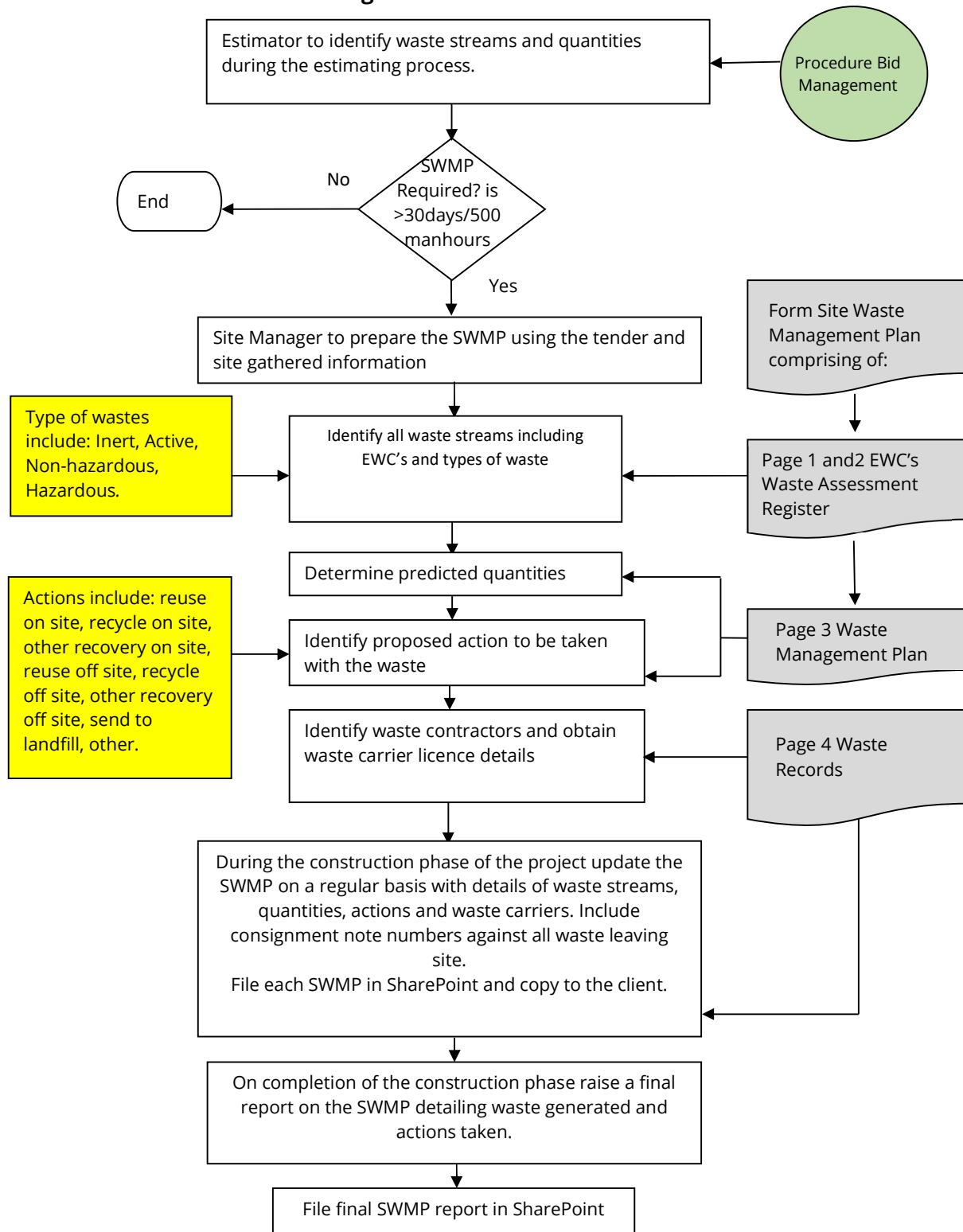
Page 1 European Waste Catalogue (common types)
Page 2 Waste Assessment Register
Page 3 Waste Management Plan
Page 4 Waste Records

Procedures [Bid Management](#)

Guidance [Waste SIC and EWC Codes](#)

4. METHOD

See attached flow chart

Flow Chart Site Waste Management Plans

Appendix H

Pollution Prevention Measures

Environmental Aspect	Potential Environmental Impact	Prevention Measure	Emergency Action and Response
Emissions/Dust from materials	Air pollution	• Site environmental briefing delivered • Daily monitoring by site manager • All volatile materials will be stored appropriately in sealed, labelled containers and kept cool in secure containers • Burning of materials on site will be prohibited • Dust Suppression will be used if required • Keep surfaces swept and damp down with water at regular intervals • Minimise drop heights into haulage vehicles and into conveyors • Ensure cutting and grinding operations are adequately shielded or wetted • Sheet lorries carrying dry materials off site • Keep to site speed limits to minimise dust generation • Use the wheelwash for appropriate vehicles, if one is provided on site • Stockpiles will be dampened down as required • All skips with dust or any other material must be covered to prevent the dust to be blown out of the skip by wind	Cease operation immediately, make work area safe and inform the GAL Project Manager / RESPONSE Team
Controlled wastes arising from construction works	Waste generation Pollution from incorrectly stored materials	• Produce a Site Waste Management Plan • Excavated soils reused on site to form environmental bunds • Where possible segregate waste prior to removal from site, robust waste audit trail • Obtain EA U1 Exemption and follow protocol • Reduce, reuse, recycle • Minimal storage of materials onsite	Cease operation immediately, make work area safe and inform the GAL Project Manager

On site storage and site use of substances, materials, plant and equipment associated with the construction works	Land/water contamination	• COSSH procedures form part of our Integrated Management System • Segregated and secure storage • Environmental info prominently displayed on a site safety noticeboard • Site environmental briefing delivered to all staff • All materials will be stored appropriately in sealed, labelled containers and kept cool in secure, covered storage areas, away from drains and watercourses • Segregated and secure storage • Use appropriate areas for stockpiles and inspect daily • Refuelling will take place in a designated area • Return oil and fuels to storage areas after use • Potential pollutants (fuels, oils, lubricants, etc.) are to be stored a safe distance from potential receptors i.e. drains and watercourse. • Fuel tanks will be double-bunded to 110% volume and oils/lubricants stored within/on bunded secure facilities. • Ensure bunds are free from cracks and leaks • Check hoses and valves regularly for signs of wear • All drains and gullies will be identified and protected where applicable to avoid possible contamination routes. • Good access to site • Spill kits will be strategically positioned and instruction given to the workforce in their use. • Emergency Response Plan in place • When not in use, plant will be parked at least 10 metres away from surface water body or drain • Discharge wastewater from temporary staff toilets and washing facilities to sealed containment systems and dispose of on a weekly basis via a licensed contractor ensuring the correct duty of care. • Undertake regular visual assessments for oil and silt • Use timber from renewable sources (if required) • Use drip trays on all static plant, and ensure spill kit is adjacent to work face in event of emergency • Supervise all fuel deliveries • Lock oil stores when not in use • Check barges for any cracks	Use emergency spill kit Inform Site Manager
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Environmental Aspect	Potential Environmental Impact	Prevention Measure	Emergency Action and Response
		- Concrete mixing and washing areas should be 10 meters away from the watercourse, drains and gullies - Settlement and re-circulation systems to be in place for water reuse - Establish designated area for washing out and cleaning of concrete batching plant or ready mix lorries	
Discovery of previously unidentified contamination, explosive ordnance or underground structures during construction	Land contamination	- Emergency response plan in place - Site induction and environmental awareness briefing delivered - An Explosive Ordnance Threat Assessment has been provided by GAL. - Site Manager to understand the assessment and be aware of potential hazards.	Cease operation immediately, make work area safe and inform GAL Project Manager
Increased levels of noise and light disturbance	Noise and light disturbance to the built environment	- Vibration piling should be the preferred method of piling. Percussive piling should only be undertaken when vibration piling is not possible. - Where possible use Silencers on machines - Deliveries to be planned - ensure that vehicles use correct routes to site. - Noise and lighting monitoring - Acoustic doors and hoods on plant to be closed - Use local screening where necessary	Cease operation immediately and inform the GAL Project Manager
Emissions from plant, vehicles and equipment	Air pollution	- Energy and Fuel consumption monitored - Inspect plant and equipment daily and ensure it is well serviced - Company car fleet offer a higher fuel efficiency and lower emissions - When not in use, plant and vehicle engines will be switched off - Plant and vehicle fleet is Euro 5/6 compliant - Generators, pumps etc. will be well sited, away from water courses/properties	Cease operation immediately until plant repaired or replaced
Fire Spillage	Air pollution Land/water contamination Waste to Landfill Creation of hazardous material	- Fire Risk Assessment - Site Fire and Emergency Plan - Training in Emergency Procedures	Call 999 or 112

Environmental Aspect	Potential Environmental Impact	Prevention Measure	Emergency Action and Response
Silt from bored arisings and other silty water contaminating watercourse	Water pollution	• Silty water to be discharged only into designated settlement systems • Check site drainage and settlement systems • Any problems during pumping to be reported to site manager and pumping to be stopped immediately • Ensure all hardstanding areas are kept clean • Pumping to be done using re-usable Sediment Dewatering Filter • Collect run-off in lagoons and allow suspended solids to settle before disposal • Use silt fences at the toe of the slope, made from geotextiles, to reduce silt transport • Plant and wheel washing to be done in a designated hardstanding area at least 10 meters away from any watercourse or surface water drain • Run-off to be collected, water recycled and reused where possible	Stop silty water from entering the watercourse by diverting it away, i.e. using sand bags

Appendix J

Project Environmental Statement

Appendix K

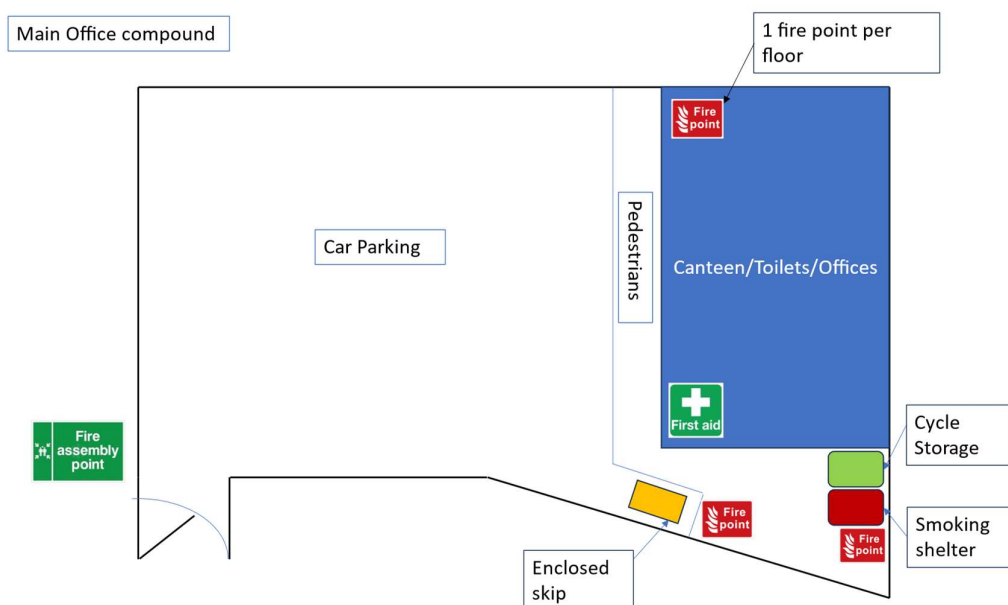
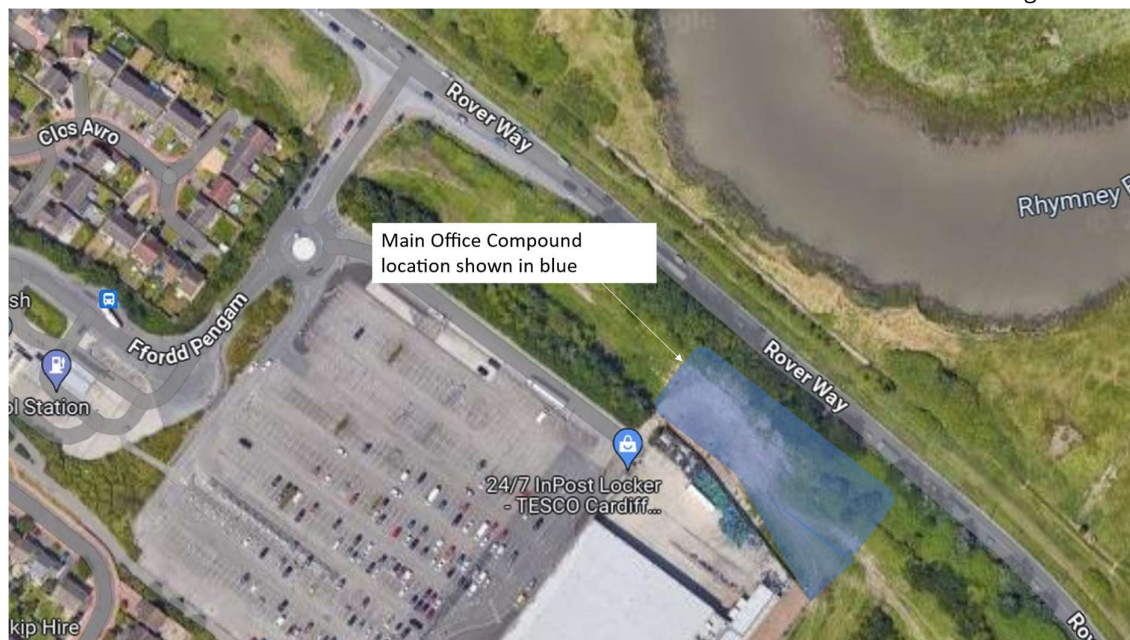
Sediment Sampling Plan

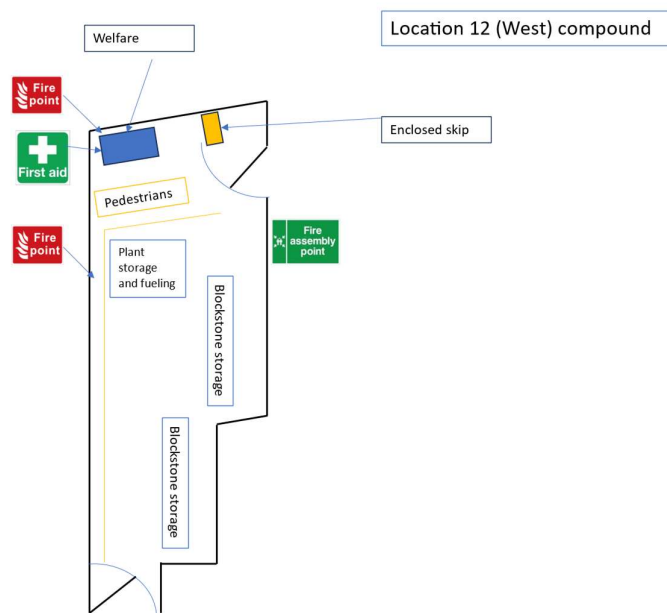
Appendix L

Saltmarsh Management Plan

Appendix M

Example Compound Layouts





Appendix N

Biodiversity risk assessment and knotweed Management Plan



Method statement for Japanese Knotweed control

MS10-10007

River Rhymney

Rover Way

Cardiff

Written by Robert Mitchell

Certificated Surveyor in Japanese Knotweed

Member of Property Care Association Invasive Weed Group

16th February 2024

Method statement for Japanese Knotweed along River Rhymney
Rover Way Cardiff

Prepared by	Robert Mitchell
On behalf of	Knights Brown
Written by	Robert Mitchell
Issue Status	Final
Signed	
Date	16 th February 2024
Additional project documents	MS10-10005 with Appendix 1

Project: Control of Japanese Knotweed to support work to be carried out along the River Ryhmney Rover Way Cardiff.**What is the issue?**

There is Japanese Knotweed present, in various locations, within the area of proposed ground works to be carried out along the River Ryhmney, Rover Way, Cardiff.

The purpose of this document is to supply a method of working and associated protocols to enable the ground works to be carried out without causing additional spread of the already established areas of Japanese Knotweed.

Supporting narrative.

This method statement is to provide protocols for an appropriate mitigation strategy, to make it 'safe', in terms of preventing the spread of the Japanese Knotweed, for the required ground works to be carried out and to prevent the spread of Japanese Knotweed already present within the project area, during the duration of this project.

This is not a method statement for a control programme for the Japanese Knotweed.

This method statement provides protocols to ensure that the situation is a net zero sum; the area of Japanese Knotweed already present will remain the same and will not be spread beyond where it is already present.

What is the legislation relevant to the task?

Wildlife and Countryside Act (1981)

Japanese Knotweed is one of the 40 plants listed within Schedule 9 Part 2 of the Wildlife and Countryside Act (1981).

Within the Wildlife and Countryside Act (1981) it is an offence to plant, or otherwise cause to grow (including allowing to spread) any plant species listed within Schedule 9 Part 2 in the 'wild'.

And, if transported off site, there is a duty of care regarding the disposal of any part of the plant that may result in the establishment of the plant within the wild and cause environmental harm.

Environmental Protection Act 1990

Any waste containing Japanese Knotweed is classified as controlled waste and consequently there is a legal requirement to observe the appropriate duty of care for its proper handling, under the Environmental Protection Act 1990.

Treatment and disposal of invasive non-native plants in Wales: RD 58

Outlines requirements within Wales that individuals/companies must adhere to, if disposing of invasive non – native plant material and the material it is contained within.

Summary

Vegetation containing Japanese Knotweed is considered controlled waste and consequently has to be handled as controlled waste.

Timing of the project.

All the vegetation in location 12, 22 and 32 will be stripped before the end of February 2024 due to entering bird nesting season. Any de-veg after 1st March will be supervised by an ecologist to check for nesting birds. However Location 42 and 52 will be cleared next winter as works are not planned until next year in these 2 areas – please refer to appended phasing drawing for construction work dates

The duration and monitoring of the stored excavated material containing Japanese Knotweed will be in line with the submitted phasing drawing.

Each area of stored material will be under monitoring until each area is reinstated.

First task; mapping of the Japanese Knotweed locations.

To locate and map the areas of Japanese Knotweed.

This document will be used to assist the overseeing of the vegetation clearance and excavation of the Japanese Knotweed, that falls within the known ground work areas, to be stored within agreed exclusion zones, to enable the ground works to proceed without spreading the Japanese Knotweed material.

Second task; clearance of the vegetation.

To be carried out under the supervision of a Property Care Association (PCA) Certificated Japanese Knotweed Surveyor(CSJK).

The machinery used will be 13 to 14 ton 360 excavators with a flail attachment.

The exclusion zones will be established by using Heras fencing with appropriate signage indicating that this is an area of Japanese Knotweed and is a restricted access zone.

The mulch zones are contained within each area of Japanese Knotweed. The areas of Japanese Knotweed have already been mapped and recorded [see first task] and by definition of this, all zones are equally known and mapped.

Tool box talk on day 1 will be carried out by the PCA CSJK to;

1. brief the contractors the protocols for Japanese Knotweed,
2. showing the already identified areas of the Japanese Knotweed within the document from Task 1 and explaining the correct buffer zones,

Clearing the vegetation.

3. PCA CSJK to confirm each area of vegetation without any Japanese Knotweed.
4. Once the non Japanese Knotweed areas have been cleared this will provide clear working area for the winter stems of the Japanese Knotweed , which are inert and non-viable, to be cut 10cm above ground level to avoid spreading the Japanese Knotweed crown, rhizome and/or propagules. The cutting of the stems at 10cm ensures that all the cut is only the inert winter stems and there is no viable material inadvertently collected.
5. As work progresses to currently inaccessible areas, the PCA CSJK to initially establish each area of vegetation not containing Japanese Knotweed and, as above, for this to be cleared first.
6. Once the second phase areas of vegetation not containing Japanese Knotweed have been cleared, then the PCA CSJK to oversee clearance of the areas containing Japanese Knotweed.
7. The cut Japanese Knotweed stems to be cleared and mulched down stored on site and allowed to compost down, using 13 to 14 ton excavators with flail attachment.

Third task; Excavation of the Japanese Knotweed material, relevant to the ground works, for storage and monitoring.

To be carried out under the supervision of a Property Care Association Certificated Japanese Knotweed Surveyor.

The machinery used will be 13 to 14 ton 360 caterpillar tracked excavators and 9 ton dumper trucks (wheeled).

Note: The majority (approximately 80 to 85%) of the Japanese Knotweed crown and rhizome is found in the first 500mm.

Process of excavation.

1. There will be an initial scrape of 500mm across the area.
2. The PCA CSJK will then identify remaining Japanese Knotweed rhizome that may require further excavation in order to facilitate the required depth for the ground works to take place in such a way as to not result in any spread of the Japanese Knotweed material.
3. The dumper trucks used to transport the material will be $\frac{3}{4}$ filled to prevent material falling out.
4. The excavated Japanese Knotweed material to be stored within the area already containing Japanese Knotweed, with the topsoil being stored separately to the sub soil.
5. The stored material to be profiled to ensure stability and integrity of the stored material.
6. Exclusion zones to be set up around these storage areas using Heras Fencing and appropriate signage, for ongoing monitoring during the re-engineering process.
7. The signage will indicate that it is stored Japanese Knotweed material and that it is a restricted access area.
8. The storage zones will be mapped and recorded.
9. This excavated material, both the top soil and sub soil to be re-used within identified Japanese Knotweed areas only.
10. The summary is that all excavated material, containing Japanese Knotweed crown and rhizome, will stay within known, identified, Japanese Knotweed zones.

These storage areas to be subject to regular monitoring by a Property Care Association Certificated Japanese Knotweed Surveyor.

Bio-security protocols.

All exclusion areas, containing the stored excavated Japanese Knotweed material, to be fenced with Heras Fencing and appropriate signage warning of the presence of Japanese Knotweed material and restricted access.

These storage areas to be 10m from a watercourse.

All vehicles involved with the excavation and transport of the Japanese Knotweed, will be inspected for any Japanese Knotweed material by the PCA CSJK and the wheels, tracks and buckets to be cleaned, using spades and brushes before being allowed to exit the area.

All cleaning to be carried out within the Japanese Knotweed zone.

Jet washes are not to be used as this creates a 'slop' that can not be correctly contained or controlled and gives rise to a potential spread of the Japanese Knotweed material.

Risk Assessment concerning the Japanese Knotweed.

What are the hazards with Japanese Knotweed?	EXISTING CONTROL MEASURES	Severity	Likelihood	Existing Risk High/Medium / Low	FURTHER ACTIONS REQUIRED (Yes/No)
1 Japanese Knotweed is listed on Schedule 9 Part 2 of the Wildlife and Countryside Act (1981). This means all viable or live propagules are controlled waste.	A full briefing to be given on day 1 explaining that all Japanese Knotweed crown and rhizome is potentially viable live propagule and has to be handled as controlled waste. All areas of Japanese Knotweed, within the area of the project, to be mapped and recorded to ensure there is full knowledge of the Japanese Knotweed zones. This information to be used to identify known likely pathways of infestation and spread to inform the decisions regarding appropriate routes of access for plant and machinery and which areas of Japanese Knotweed will require the agreed mitigation contained within the method statement.	3	1	Low	no

2 In handling a moving Japanese Knotweed material there is a risk of spreading the current infestation.	Full briefing concerning this risk given before work begins and informing of the established biosecurity protocols concerning not loading any dumper to more than $\frac{3}{4}$ full and cleaning of machinery. Any transport of material containing Japanese Knotweed to only take place along agreed haulage routes and for these haulage routes to be monitored for any dropped material and to be checked once the transport has been completed. All work concerning Japanese Knotweed material to be supervised by a PCA CSJK.	3	1	Low	no
3. Inappropriate storage of Japanese Knotweed material can lead to uncontrolled spread of the material and lead to new infestations.	All material containing Japanese Knotweed to be stored within restricted access areas using Heras Fencing and signage indicating the presence of Japanese Knotweed material and restricted access.	3	1	Low	no

Client: Knights Brown3 Charnwood Park,
Waterton,

Bridgend CF31 3PL
Steve Hunt

DD: 07970 798655 email : steve.hunt@knightsbrown.co.uk

Site: River Rhymney, Rovers Way, Cardiff

Date of works: To Be Confirmed

Supervision and personnel

- Mr Robert Mitchell (Conservation Land Services Ltd) - 07518 456090

Training

All operatives are adequately trained to carry out required tasks.

Robert Mitchell holds a current certification and has the following training:

- Certificated Japanese Knotweed Surveyor (PCA) and examiner.

Knotweed Plan areas

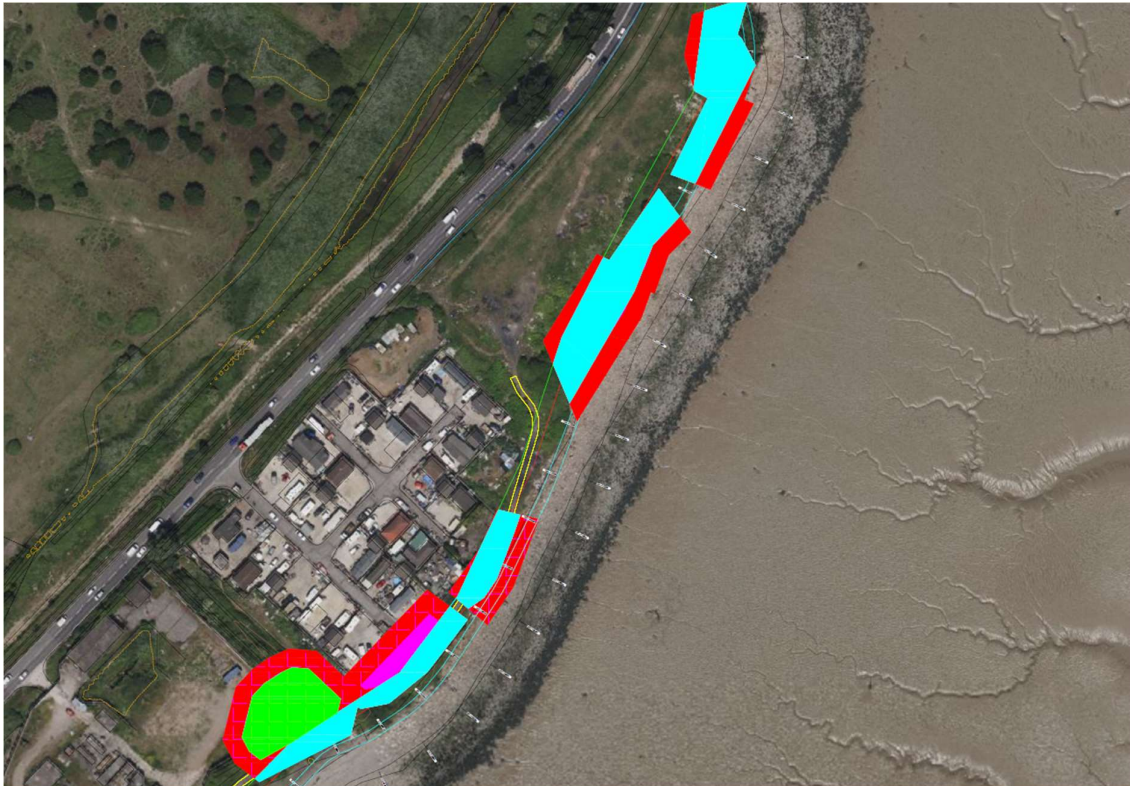
Pink – Areas of known knotweed

Red – 7m exclusion zone

Blue – Areas of knotweed for removal within work area

Green – Potential sites for storage of removed knotweed.

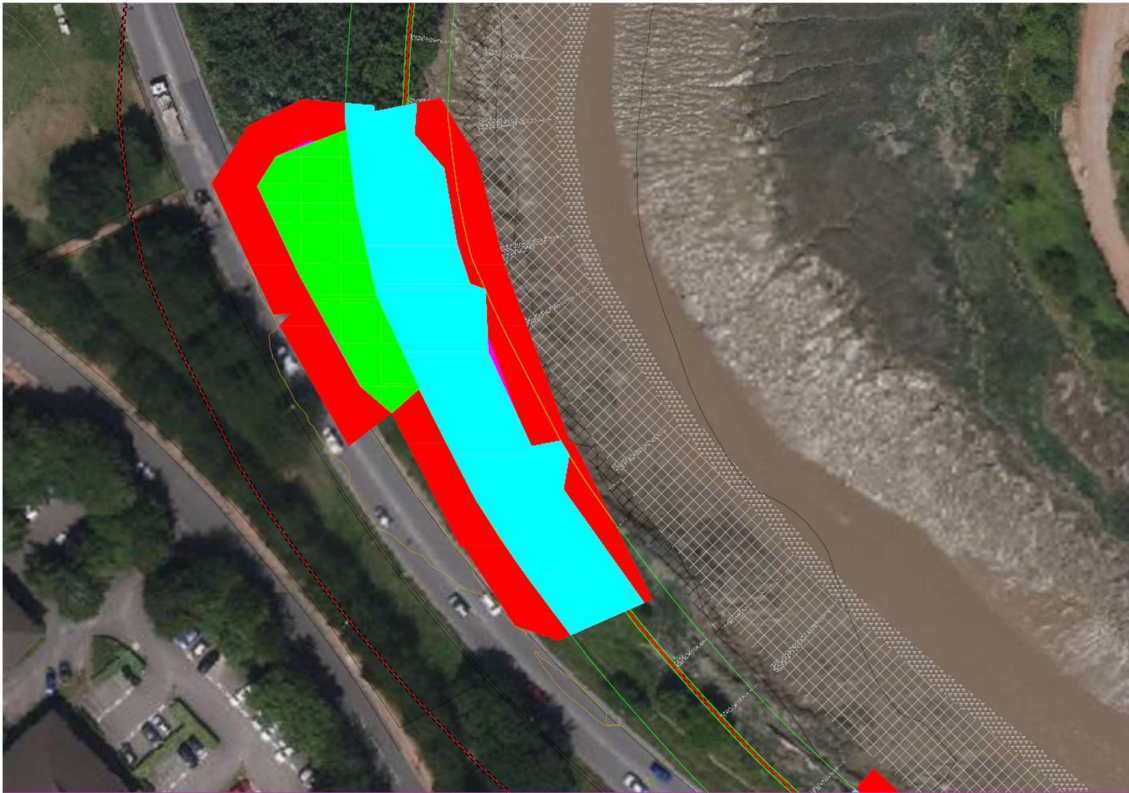
Location 12



Location 22



Location 32



Location 42

