

## Site Specific Environmental Management Plan



### Site Specific Environmental Management Plan

Incorporating the CDM Construction Phase Plan.

For use where Morgan Sindall is the Principal Contractor

|                                               |                                              |
|-----------------------------------------------|----------------------------------------------|
| <b>Morgan Sindall business unit / region:</b> | <b>Energy/Water</b>                          |
| <b>Project name:</b>                          | Welsh Water Capital Delivery Alliance – AMP7 |
| <b>Project no.:</b>                           | 1W7000 / IM                                  |
| <b>Customer:</b>                              | Dwr Cymru Welsh Water                        |

|                               |                   |
|-------------------------------|-------------------|
| Name of Scheme: Trebanos WwTW |                   |
| Scheme Code: 1W7000 / IM      | Plan Number: 1232 |

|                    |                |                 |                |              |         |
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#### Scope of Works:

Trebanos WwTW is located in Trebanos, Swansea, South Wales, SA8 4BR. The site is Located off the B4603 near Trebanos Rugby pitch.

Trebanos WwTW currently has a population equivalent of 16,645 (2021). This is expected to increase to 19,012 by the 2040 design horizon. The PFF at this site will remain at 146 l/s and all other consents remain unchanged.

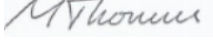
The purpose of scheme is to install and construct a PFET side stream reducing the volume of untreated storm water going to the river Tawe.

The proposed modifications and extensions to the treatment works shall include:

- New outfall;
- Replacement of existing inlet screens;
- Upgrades to PSTs – new edge protection;
- Upgrades to ASP plant – replacement of aeration system;
- New 2 no. FST tanks;
- New PFET filtration plant;
- New first flush storage tank;
- New potable water booster plant;
- New FE booster plant;
- New sludge thickener;
- New 2no. sludge holding tanks;
- New FE flow meter and sampling chamber;
- Modifications to existing RAS/SAS pumping station;
- New transformer;
- New MCC kiosk to provide power and control for the new instrumentation;
- New standby generator;
- Associated lift pumping stations;
- Associated pipework, manholes, distribution and collection chambers;
- Associated access roads and footpath; landscaping, swale, planting and fencing;
- Abandonment of redundant structures (existing FSTs, nitrifying filter, etc.)

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|                |                  |                       |                                                                                     |          |
|                | Name             | Position              | Signature                                                                           | Date     |
| Prepared by    | Ed Williams      | Section Engineer      |   | 29.05.24 |
| Reviewed by    | Abigail Clifford | Environmental Advisor |  | 29.05.24 |
| Checked by     | Mark Thomas      | Project Manager       |   | 4/6/24   |
| Authorised by: | Sean Murray      | Snr Contract Manager  |                                                                                     |          |

Note: This document has been prepared in accordance with the CDM 2015 regulations, contract requirements and the Morgan Sindall company management system. This is a **site-specific** plan which is to be used in conjunction with the Project Execution Plan.

**UPDATE ALL TEXT HIGHLIGHTED YELLOW TO IDENTIFY ALL RELEVANT SITE-SPECIFIC INFORMATION**

| Amendment no. | Issue date | Details of amendment                                                                                                                                                                                                                                                                                                                                                 | Approved for issue by: |
|---------------|------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|
| Rev 11        |            | New Environmental SSP – separated SHQ and Environmental Information i.e. formalised document based on what sites are already doing                                                                                                                                                                                                                                   | D Stacey               |
| Rev 12        |            | Changed referencing to AMP7, changed Environmental Advisor details                                                                                                                                                                                                                                                                                                   | Mike Sellers           |
| Rev 15        |            | Changed Environmental Advisor Details                                                                                                                                                                                                                                                                                                                                | Mike Sellers           |
| Rev 16        |            | Updated Environmental Objectives (Section 2.2) and Emergency incident (Section 2.8).                                                                                                                                                                                                                                                                                 |                        |
| Rev 17        |            | Updated Responsibilities Section to include Ecologist Clerk of Works                                                                                                                                                                                                                                                                                                 | Mike Sellers           |
| Rev 18        |            | Updated 2.8.1 with new tel no for Ideal Response & App B                                                                                                                                                                                                                                                                                                             | Mike Sellers           |
| Rev 19        |            | Updated 1.1 removed reference to South Wales, added reference to new Env Policy. Updated 2 and 2.1 with new references to IMS standards and guidance. 2.7 removed reference to CCS. 2.8 amended TY to Env Manager and added Abi Clifford as Env Advisor. 2.10 and 2.12 included HVO in monitoring requirements. 3.8 removed reference to WRAP and added reference to | Tara Yates             |

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#### APPENDICES

|   |                                                                                              |
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| A | Register of Environmental Effects                                                            |
| B | Site Specific Organisation and Arrangements                                                  |
| C | Welsh Water Capital Delivery Alliance/Morgan Sindall Management Organisation Structure Chart |
| D | Site Specific Organisation Structure Chart                                                   |
| E | NRW- Flood Activity Permit                                                                   |
| F | Invasive Species Management plan                                                             |
| G | Emergency Ideal Response Poster                                                              |

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#### 1. Introduction

##### 1.1. Purpose of this plan

It is the intention of Morgan Sindall that all schemes carried out as part of the overall AMP7 programme of improvements within Wales should be executed with the highest regard for safety, health, environmental and quality matters.

This Environmental Site-Specific Plan (SSP) when read with the Project Execution Plan (PEP) meets the requirements of the Construction Design and Management (CDM) Regulations 2015 with regard to the construction phase plan.

It identifies those aspects of site activities with potentially significant effects on the environment and the controls in place to mitigate those effects. Subcontract works supervised by Morgan Sindall's project team are also subject to this EMP.

Morgan Sindall is certified to ISO 14001: 2015

This plan is a 'live document' to be supplemented and/or revised as the scheme develops, by the introduction of supporting documents such as subcontractor method statements, risk assessments or any documentation relevant to the environment of the project, which may include:

- Appropriate legislation
- Corporate governance
- Morgan Sindall policies
- Customer requirements (to include stakeholders)
- Company processes and procedures (amend as necessary)
- Methodologies and programmes
- Organisational structures
- Supply chain requirements.

It conforms to Morgan Sindall's Environmental and Responsible Business policies which will be clearly displayed in site offices.

##### 1.2. Authorisation

This plan is authorised when the preparation, approval, authorisation and distribution section on page 1 is completed.

This SSP will be reviewed by the Project Manager at regular intervals, if appropriate, amended and re-issued so that it reflects the requirements of the scheme. Reviews will be recorded on the front page of the current plan.

Any changes made to personnel or circumstances shall be marked up in ink on the live site copy and initialled as such changes take place.

This SSP shall be retained as a 'hard copy' on site. An electronic version of the first revision of the SSP must be returned to Document Control to be made available on the Morgan Sindall AMP7 server to all staff with responsibilities for managing, monitoring and implementing its requirements. This will include the CDM Manager.

On completion of the scheme the final revision of the SSP must be returned to Document Control for filing on the server.

#### 2. Environmental Management

Morgan Sindall has a series of standards and guidance that supplement this EMP. Please visit the IMS, available through Connect. Please see IMS for the following environmental standards:

- Environmental incident investigation, reporting and control standard (E STD 01)

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- Energy and carbon management (E STD 02)
- Contaminated land (E STD 03)
- Invasive species and injurious weeds (E STD 04)
- Ecology and biodiversity (E STD 05)
- Environmental consents and permitting (E STD 06)
- Waste management (E STD 07)
- Materials management (E STD 08)
- Nuisance (E STD 09)
- Water management (E STD 10)
- Historic environment (E STD 11)

#### 2.1. Environmental aspects and effects

The project manager and site engineer/senior general foremen, in line with the Framework Environmental Advisor, is to ensure that the Register of Environmental Effects (E FRM 01), specific to the project is completed before works begin and updated as circumstances occur, such as a change in scope, or a change in Morgan Sindall customer or legislative requirements. The completed Register of Environmental Effects is appended as Appendix A to this document. Note any legislative requirements in the register. The input of designers at pre-handover meetings will also be considered in developing the register. Completion of the Register of Environmental Effects should be made with reference to the DCWW Capital Delivery Alliance's Enabling Third Party checklist (CAF 317). All required consents and licences are captured within both the Register of Environmental Effects and the DCWW Capital Delivery Alliance's Third Party Checklist (CAF317) and have to be recorded on the SHEQ Tracker.

Site specific environmental constraints and requirements for this scheme are set out within the DCWW AMP7 Environmental Checklist which is completed by the Morgan Sindall design partners (Arup & Sweco) environmental teams.

Legislative requirements should be assessed with reference to specific site conditions and requirements. The Framework Environmental Advisor is to advise on specific legal provisions. Additional checks can be made against the technical index, business environmental updates or in consultation with SHEQ Director.

#### 2.2. Objectives and targets

Morgan Sindall will develop contract specific objectives and targets that take into account:

- Morgan Sindall's Responsible Business and SHE functional strategies
- Customer Key Performance Indicators (KPIs) and other requirements.

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### Morgan Sindall Environmental Objectives and Targets (Dŵr Cymru Welsh Water's Environmental Objectives and Targets in red)

| Targets                         | Reporting Frequency | Data Requirements                                  | Source                     | Target                                                                                                                                                     |
|---------------------------------|---------------------|----------------------------------------------------|----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Safe Environment                | Monthly             | No. of incidents                                   | Digest - SHEQ Tracker      | 0 Major (Cat One) incidents<br><br>0 CAT 1-2 incidents<br><br>75 environmental Positive Interventions                                                      |
| Considerate Constructors Scheme | Monthly             | Audit scores                                       | CCS Monitors Site Report   | 41.5                                                                                                                                                       |
| Carbon Emissions                | Monthly             | Carbon emissions from fleet, plant and electricity | Environmental Data         | Reduce our operational carbon by 25% by 2025<br><br>Reduce our carbon in the assets we build by 25% by 2025<br><br>Have 25% of our sites fuel free by 2025 |
| Waste Generated                 | Monthly             | % Diversion from Landfill                          | Site Waste Management Plan | 95%                                                                                                                                                        |

The contract manager is to ensure that monitoring against the objectives and targets takes place and that the project manager in consultation with the contract environmental adviser reviews them periodically, generally not less than annually.

### 2.3. Roles and responsibilities

Good environmental practice will be achieved through the appointment of a Framework Environmental Advisor. Specific environmental roles and responsibilities are described in other parts of this plan as well as in job descriptions, however each site team shall have a dedicated Environmental Co-ordinator whose responsibilities shall include (but are not limited to) the following:

- Updates the EMP including the Register of Environmental Effects (E FRM 01) and the Consents and Pre-Notification Checklist (E FRM 06);
- Updates the Site Waste Management Plan;
- Ensures weekly environmental inspections are undertaken and actions are closed out;
- Ensures monthly environmental Toolbox Talks are undertaken;
- Report monthly environmental data.

### 2.4. Risk assessments and method statement (RAMS)

No activity will be permitted without an approved RAMS.

The project management team shall produce risk assessments where significant risks are identified.

### 2.5. Site specific RAMS

Site specific RAMS will be carried out by appointed and competent personnel on site. A register of method statements and associated risk assessments will be kept on site and reviewed.

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Method statements will identify tasks, responsible personnel, control measures and monitoring arrangements in line with the Morgan Sindall method statement tracking and content sheet. Method statements will be assessed, tracked and accepted by Morgan Sindall prior to commencement of work. The contents of the method statement will be communicated to all those undertaking and associated with the work activity.

Contractors shall hold a signed copy at the work face while the works are taking place ensuring all operatives have read, understood and signed stating they will comply with the method

#### **Change control for systems of work**

A change control will have significant repercussions with respect to the prevention or control of accidents and may require changes in the measures taken to ensure that those risks remain as low as reasonably practicable.

Whether a change has significant repercussions will depend on the degree to which it:

- Introduces a new hazard
- Changes the risk from an existing hazard
- Affects control or mitigation measures (including off-site emergency plans).

Changes that have a positive impact on the risk profile are also important.

Morgan Sindall has in place systems for the communication of changes and any changes to approved systems of work shall be agreed in writing.

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|--------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------------------|-------|-----------|------|----------------|-----------------|-------------------|--------------|---------|-----------------|------------|-------------|--------------------|------------|----------------|-------|------------|-------------|----------|---------|--------------|----------|--------|----------------------|-------|-------------------|--------|--------|---------|------|-------------|----------|-------------------|-----|
| Prepared in conjunction with the Pre-construction Information and other relevant information. Process to reflect construction programme details. | Water | Contaminated Land | Noise | Vibration | Dust | Fire/Explosion | Buried Services | Overhead Services | Mobile Plant | Traffic | Manual Handling | Substances | Electricity | Lifting Operations | Hand Tools | Confined Space | Grout | Demolition | Temperature | Lighting | Weather | Lone Working | Asbestos | Sewers | Pedestrians (Public) | Waste | Working at Height | Litter | Visual | Ecology | SSSI | Archaeology | Heritage | Protected Species | LPG |
|                                                                                                                                                  |       |                   |       |           |      |                |                 |                   |              |         |                 |            |             |                    |            |                |       |            |             |          |         |              |          |        |                      |       |                   |        |        |         |      |             |          |                   |     |
| PROCESS                                                                                                                                          |       |                   |       |           |      |                |                 |                   |              |         |                 |            |             |                    |            |                |       |            |             |          |         |              |          |        |                      |       |                   |        |        |         |      |             |          |                   |     |
|                                                                                                                                                  |       |                   |       |           |      |                |                 |                   |              |         |                 |            |             |                    |            |                |       |            |             |          |         |              |          |        |                      |       |                   |        |        |         |      |             |          |                   |     |
| Site Set Up/Maintenance                                                                                                                          | 2     | 2                 | 3     | 3         | 3    | 1              | 1               | 1                 | 1            | 1       | 1               | 3          | 1           | 1                  | 1          |                |       |            |             | 3        | 3       | 1            |          | 3      | 1                    | 3     | 1                 | 1      | 1      | 2       |      |             | 2        |                   | 2   |
| Traffic Management                                                                                                                               |       |                   | 1     | 2         | 3    |                |                 |                   | 1            | 1       |                 | 3          |             |                    |            |                |       |            |             |          |         |              |          |        | 1                    |       |                   | 1      | 1      | 2       |      |             | 2        |                   | 2   |
| Caisson                                                                                                                                          |       |                   |       |           |      |                |                 |                   |              |         |                 |            |             |                    |            |                |       |            |             |          |         |              |          |        |                      |       |                   |        |        |         |      |             |          |                   |     |
| Excavations                                                                                                                                      | 3     | 2                 | 3     | 3         | 3    | 1              | 3               | 1                 | 1            | 1       | 1               | 3          | 1           | 1                  | 1          | 1              |       |            |             | 1        | 1       |              |          | 1      | 1                    | 1     | 1                 | 1      | 1      | 2       |      |             | 2        |                   | 2   |
| Construction                                                                                                                                     | 3     | 2                 | 3     | 3         | 3    | 1              | 3               | 1                 | 1            | 1       | 1               | 3          | 1           | 1                  | 1          | 1              |       |            | 1           | 1        | 1       | 1            |          | 1      | 1                    | 1     | 1                 | 1      | 1      | 2       |      |             | 2        |                   | 2   |
| Temporary Works                                                                                                                                  | 3     | 2                 | 3     | 3         | 3    | 1              | 3               | 1                 | 1            | 1       | 1               | 3          | 1           | 1                  | 1          | 1              |       |            |             | 1        | 1       |              |          | 1      | 1                    | 1     | 1                 | 1      | 1      | 2       |      |             | 2        |                   | 2   |
| Live Connections                                                                                                                                 | 3     |                   | 3     | 2         | 3    |                | 3               |                   | 1            | 1       | 1               | 3          |             | 1                  | 1          | 1              |       |            |             | 1        | 1       |              |          | 1      |                      | 1     | 1                 | 1      | 1      | 2       |      |             | 2        |                   | 2   |
| Permanent Installations                                                                                                                          |       |                   |       |           |      |                |                 |                   |              |         |                 |            |             |                    |            |                |       |            |             |          |         |              |          |        |                      |       |                   |        |        |         |      |             |          |                   |     |
| Reinstatement                                                                                                                                    | 2     | 2                 | 1     | 1         | 1    |                | 3               | 3                 | 1            | 1       | 1               |            |             |                    | 1          |                |       |            | 1           | 1        | 1       |              |          |        | 1                    | 1     | 1                 | 1      | 1      | 2       |      |             | 2        |                   | 2   |
| Site Clearance                                                                                                                                   | 2     | 2                 | 1     |           | 1    |                |                 | 1                 | 1            | 1       | 1               | 3          |             | 1                  | 1          |                |       |            |             | 1        | 1       | 1            |          | 2      | 1                    | 2     |                   | 1      | 1      | 2       |      |             | 2        |                   | 2   |
|                                                                                                                                                  |       |                   |       |           |      |                |                 |                   |              |         |                 |            |             |                    |            |                |       |            |             |          |         |              |          |        |                      |       |                   |        |        |         |      |             |          |                   |     |

Authorised for Use: Mark Thomas (Snr Contracts Manager)

Date: 4/6/24

|               |   |
|---------------|---|
| H&S           | 1 |
| Environmental | 2 |
| Both          | 3 |

Note: The horizontal and vertical titles are provided as prompts. Authors may modify these titles to suit the specific requirements of the project.

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#### 2.6. Training

Training is to be given in accordance with the company's personal development and training processes, operated at corporate level by HR. Further training will be given as identified in the contract specific training plan. Requests for training personnel on the contract will be coordinated by the project management team. Typically,

- All project operatives and supervisory staff will receive a contract induction that covers environmental issues and their roles and responsibilities including environment
- More detailed training, such as that required for waste management plans, will be given to staff as identified in the contract training plan
- Training on specific environmental topics will be given by suitably qualified personnel. This may be the contract environmental adviser.

Site supervisors, safety coach and engineers will give Toolbox Talks (TBTs) to operatives on key issues such as spill response and waste management on a basis of a minimum of one per month and as near miss trends are identified, drawing upon the full site of Toolbox Talk's (TBT's) (E GUID 11) and Bulletins as relevant to the project condition.

It is a Morgan Sindall requirement that the spill response TBTs are undertaken on a six-monthly basis.

#### 2.7. Communication

##### Internal

Environmental information will be delivered to contract personnel in the following way:

- Including environmental issues as an agenda item on project progress meetings
- Inductions, topic-specific training, Toolbox Talks
- Posting information on notice boards
- Monthly cascade briefings
- Morgan Sindall magazine
- Morgan Sindall intranet.
- Alliance Design Alerts

Additionally within the contract, information will be communicated through:

- SHEQ meetings
- Supply chain meetings
- Other meetings e.g. design team, NRW Environmental, DCWW Land Agent and Senior Project Manager

##### External

Where contact is made with any regulatory authorities, the SHEQ department will be informed and records will be entered onto SHEQ Tracker.

Complaints and compliments will also be recorded on SHEQ Tracker and resolved particularly when from regulators, the public and customers.

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#### 2.8. Environmental incident and emergency controls

Control measures to prevent and control environmental incidents and emergencies on sites are referenced in the Register of Environmental Effects (E FRM 01), and detailed in site emergency plans.

Generally, pollution prevention will be achieved by adequate training, by the provision of containment measures such as drip trays, absorbent mats or materials, drain covers for preventing impact on sewers or watercourses and by complying with safe working methods.

Adequate and appropriately placed spill kits will be provided for rapid incident response when and where prevention fails. Incidents and emergencies will be reported in accordance with Morgan Sindall's and the customer's procedures.

Regular drills (either practical or desk top) shall be conducted and recorded to maintain competency levels of site personnel and adequacy of response plans.

An environmental emergency spill drill and record of same will be completed, within the first six months of a project and repeated at least annually thereafter.

##### 2.8.1 Incidents and emergencies

Actions in response to environmental incidents and emergencies will be communicated at inductions and task briefings. Spill response posters will be displayed on office and welfare facility notice boards.

Site plans showing the locations of spill kits and waste facilities, in addition to the locations of health and safety facilities will be available on site office and welfare cabin notice boards. Plans will include the names of personnel with specific environmental responsibilities, and actions to be taken. Cross reference will be made to contingency planning requirements.

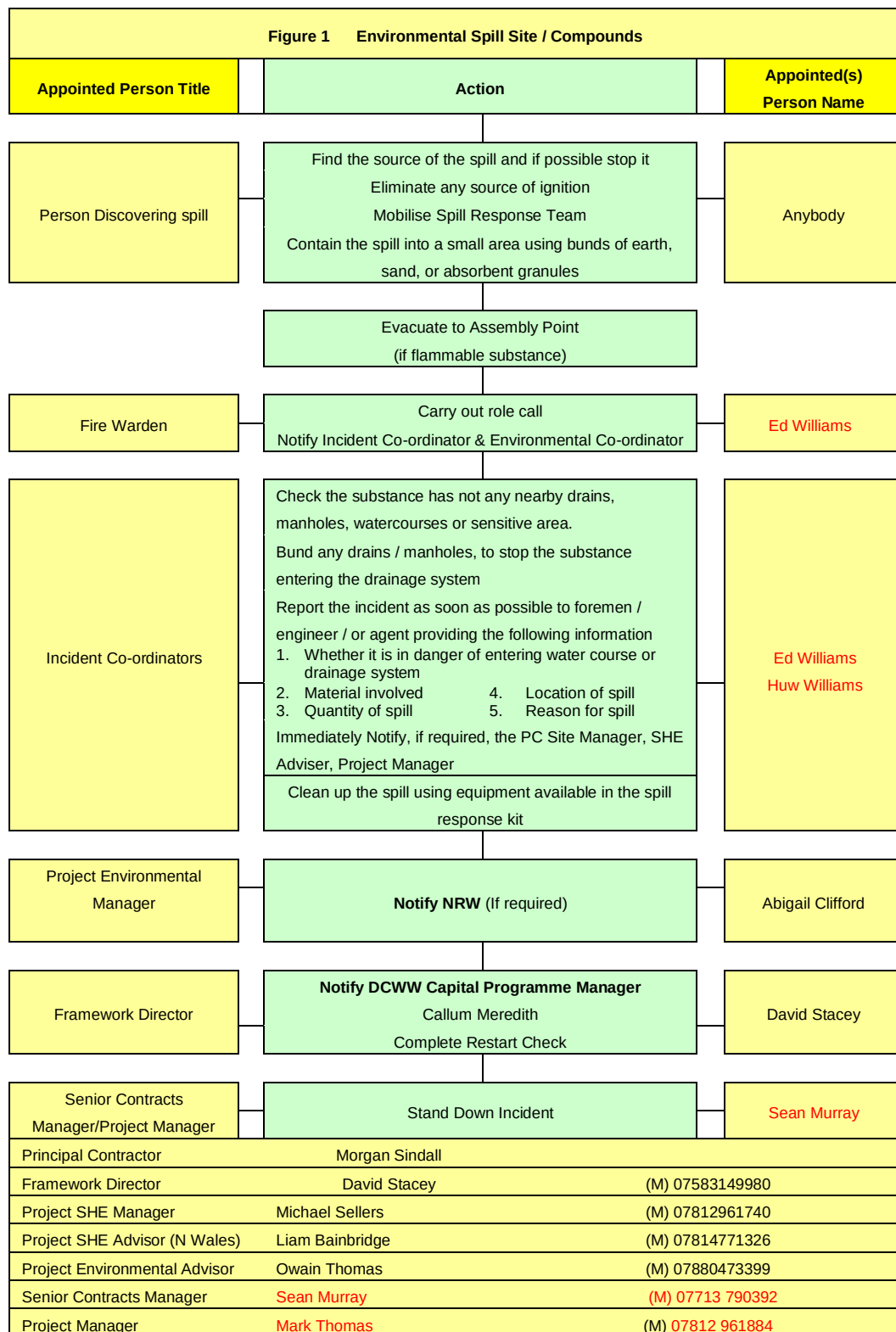
Ideal Response act as our emergency response specialists, contact the Ideal Response team on the dedicated 24-hour emergency helpline 0808 239 9598 and provide the building number, type and location of the emergency (full description), together with contact details. Refer to Appendix B for Ideal Response poster.

##### 2.8.2 Incident reporting and investigation

Incidents are to be reported through the management hierarchy as soon as practically possible after they have been identified. Site management will assess the significance of the incident and determine the level of investigation. All incidents must be reported to the SHEQ department and entered onto SHEQ Tracker.

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#### 2.9 Auditing

Audits will be carried out to check compliance with requirements and to ensure good site practices are in place. They may include

- Customer
- External – third party assessors to Morgan Sindall, British Standards Institute (BSi)
- Internal.

Internal audits may be conducted by the contract environmental adviser or by competent personnel from other Morgan Sindall business units / regions. In line with any audit programme and plans, system compliance audits will be conducted or as directed by the Head of Internal Audit, the SHEQ Director, and the Head of Function – Assurance NEW. The contract manager is responsible for ensuring that any non-conformances arising are closed out as soon as is practicable within the time frame specified. Close out will confirmed by the auditor.

#### 2.10 Monitoring

The site team's appointed Environmental Co-ordinator will be responsible for ensuring environmental inspections are completed at site level to record on the company's Intranet database SHEQ Tracker. Inspections may also be carried out by the project SHE advisors and Contract Managers.

Environmental performance at site level will be regularly monitored during weekly inspections carried out by delegated site personnel.

Environmental Performance Monitoring is a legal requirement of Morgan Sindall. The site team's appointed Environmental Co-ordinator shall ensure that an appropriate method of recording monthly environmental performance is implemented and meters are fitted and available where required:

- Water (m<sup>3</sup>)
- Electricity (Kwh)
- Gas (Kwh)
- Diesel consumption – Morgan Sindall and Subcontractors (Litres)
- HVO consumption - Morgan Sindall and Subcontractors (Litres)
- Aggregates (Primary, Secondary, Re-use – Tonne)
- Waste (Landfill, Incineration, Recycling Reuse – Tonne)
- Carbon

Subcontractor data should also be recorded.

#### 2.11 Records

Environmental records will include

- Inspections
- Site visit records (by others)
- Internal and external audit reports
- Waste management records and plans
- Sub-contractor waste returns
- Minutes of progress meetings
- Correspondence including complaints and regulatory units
- Incident and investigation reports

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- Permits, licences and consents
- Environmental data e.g. recycled aggregates, sustainable timber, etc.

#### 2.12 Carbon reporting

Requirements of the legal Carbon Reduction Commitment (CRC) necessitate the recording of energy consumption specifically gas and electricity consumption. Nonetheless, as a minimum the following fuel uses will be recorded (where appropriate to do so and where information is available and/or not recorded elsewhere):

- Electricity (direct purchase) kWh
- Electricity (customer supply) kWh
- Diesel consumption (Morgan Sindall and Subcontractors) litres
- HVO consumption (Morgan Sindall and Subcontractors) litres
- Gas consumption kWh
- Other power sources if needed e.g. renewable.

#### 2.13 Water management

The quantity of potable water supplied to the project shall be monitored and recorded (in SHEQ Tracker). Where practicable and appropriate, water conservation devices and practices shall be put in place.

### 3 Operational and project specific controls

The following sections describe minimum controls. Site specific controls to be implemented by the site team will be detailed in the register of environmental effects and supporting method statements and risk assessments.

#### 3.1 Site set up

Selection and establishment of site compounds shall be undertaken mindful of site sensitivity, security, neighbours, storage and handling of chemicals (spill prevention), materials storage needs, drainage, vehicle access including employee commuting needs and nuisance potential, planning constraints, etc.

Site compounds, storage and construction areas will be fenced or have barriers to delimit areas of operation and separate them from other occupied work sites. Where appropriate, sub-project site plans will show site establishment and the locations of environmental facilities such as fuel tanks, spill kits and waste bins.

Welfare units to be located with the works itself to the concrete hardstanding west of the site. Final layout plan to be confirmed.

#### 3.2 Housekeeping - litter

Adequate waste bins will be placed in work areas, storage areas and temporary site compounds for the depositing of work-related waste and mixed welfare wastes.

Regular inspections will be carried out to monitor housekeeping and initiate action to clear litter and debris.

Personnel are encouraged to avoid littering and to clear litter where it occurs within site boundaries.

#### 3.3 Nuisance

As a courtesy, and to establish a relationship, the Local Authority's Environmental Health Officer should be notified of the intended start date of construction works on-site where possible. A record of this

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correspondence should be maintained. The Framework Environmental Advisor may be able to assist with this if required.

#### 3.3.1 Noise control

Site works located in residential and other locations can create noise nuisance to neighbours and the general public, as well as posing an occupational risk. The presence of sensitive receptors will be identified and recorded on the Register of Environmental Effects and the necessary control measures implemented.

Welsh Water will make contact with neighbours likely to be affected by construction works informing them about the works and what mitigation measures have been implemented to reduce nuisance and disruption as much as practically feasible.

If, during construction, the Site Manager anticipates an excessive increase in noise levels likely to cause a nuisance, control measures will be adopted. Where possible noisy operations must be programmed for times when the least perceived nuisance will occur. Contact should be made with Welsh Water to determine whether additional neighbour consultation is required.

Negotiation with local authorities may be required to establish and manage Control of Pollution Act Notices (S60 / S61).

#### **Section 60/61 Notice will not be required**

Morgan Sindall define normal working hours as:

0730-1730 hours Monday to Friday;

0800 to 1300 hours on Saturday; *(not required at the current time on this project)*

No work, processes or other activities shall take place at all on Sundays, bank or public holidays.

#### 3.3.2 Traffic Management Plan

A Traffic Management Plan (TMP) shall be developed for individual schemes where appropriate detailing deliveries, including abnormal loads, regular commuting, public transport options, parking, restrictions detailed in any local planning agreement or Section 61 consent, out of hours working and with view to minimising local congestion and impact on local roads.

Further details of the TMP can be found within the project file. Reference **Trebanos WwTW Outfall Scheme Traffic Management Plan – 1W7000IM-TMP-001-C01 for site specific control measures**

#### 3.3.3 Mud and dust control

Wind-blown dust, generated from dry, exposed ground or soil and wastes stockpiles, will be prevented generally with the use of water sprays. Surfaces and stockpiles will be damped down to minimise dust as necessary.

In wetter conditions, deposits of mud on roads, pavements and areas of hard standing may need to be cleared. Installation of wheel washing devices may be required, preferably with water recycling equipment. Small occurrences will be cleared manually with a broom and shovel; elsewhere road sweepers will be called upon. The need to control mud and dust is covered in site inductions and in relevant task risk assessments, method statements and briefings.

#### 3.3.4 Housekeeping and Visual Standards

Adequate waste bins will be placed in work areas, storage areas and temporary site compounds for the depositing of work-related waste and mixed welfare wastes. Ensure adequate signage is used throughout the site. Regular inspections will be carried out to monitor housekeeping and initiate action to clear litter

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and debris. Personnel are encouraged to avoid littering and to clear litter where it occurs within site boundaries.

#### 3.3.5 Plant Emission Control

Where feasible, electric plant will be used in preference to diesel or petrol powered units.

No plant will be allowed to idle for long periods when not in use. Plant operators are encouraged to switch off as soon as practically sensible.

Evidence of poor plant maintenance, such as black exhaust fumes, will be monitored by supervisory staff on a continuing basis. Plant with unacceptable performance is prohibited from work until rectified or replaced. Plant will be routinely inspected in line with prescribed requirements including emissions as well as leaks and drops.

***Any operated plant entering the river will use biodegradable hydraulic oil.***

#### 3.3.6 Lighting

Where feasible, electric lighting will be used in preference to diesel or petrol powered units. Lighting shall be positioned to prevent nuisance to neighbours or sensitive receptors surrounding the site and where feasible shall be fitted with PIR movement sensors and/or timers, and shall only be used when required. If additional lighting is a required (permanent or temporary) it will be reviewed by an ecologist prior to installation to assess the effects to nocturnal wildlife (including foraging and commuting bats, badger, hedgehog and otter).

### Water management plan

Where there is risk of impact on controlled waters, a water management plan shall be developed setting out project specific controls and mitigation for the management of rivers, streams, lakes, canals, coastal waters, estuaries and groundwater during the construction phase.

The plan shall include detail of regular inspection, sampling and contingency in the event of equipment failure, fire or other emergency.

#### 3.4.1 Site drainage

Drainage systems can act as rapid pathways for the spread of pollutants. Small quantities of pollutants such as oil can spread over large areas and cause significant harm.

Both storm and foul drainage systems should be identified and shown on plans. It is good practice to colour code drain covers; surface water – blue, foul water - red and combined – red.

Interceptors and cut-off valves, and other pollution control equipment must be maintained, inspected and clearly identified.

***No specific additional requirements.***

#### Foul Drainage

***No specific additional requirements.***

#### Surface Water

***To ensure no silt enters the local watercourse, rock mattress, silt netting and an bubble curtain will be erected within the river around the working areas near to receptors – this will be required as part of the FRAP working conditions. Please see attached RAMS***

***All surface run off will be minimised and controlled to ensure that no silt is discharged into the River Tawe. Silt mitigation materials such as silt fencing and silt socks will be used as required.***

***Any soft spots within the access track will be excavated and compacted with stone.***

***Temporary works designs to be completed for all silt mitigation measures.***

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#### 3.4.2 Pumping from excavations

Greater or lesser quantities of surface and ground waters that occasionally require to be cleared from excavations and exposed surfaces will be discharged to sewer, to land or to controlled waters either directly or indirectly via minor drainage systems. The need for approvals or consents will be determined on a case-by-case basis. Priorities will be to prevent

- i. Ingress of surface waters
- ii. As far as is practical, disturbance to clean waters needing to be cleared from excavations and exposed surfaces.

Generally, discharges to sewers will require the consent of the relevant statutory undertaker. If necessary, silty water will be passed through a settlement tank of appropriate capacity before discharge to the receiving medium.

Water known to be contaminated with hydrocarbons or other hazardous substances will be handled in accordance with specific risk assessments and method statements (RAMS).

Pumping operations and working in waters lead to the largest number of environmental incidents for the construction industry. Control measures must include detailed requirements being set out in risk assessments and method statements as well as use of the "Permit to Pump" (PTP) system shall be used for all dewatering activities. This also applies to over pumping of effluent to facilitate works.

PTP's must be task specific and include details of inspection, equipment, location of dewatering and discharge, and risks such as watercourses and monitoring to be carried out.

Any dewatering of significant volume or for an extended period of time must be reviewed by the Framework Environmental Advisor to ensure that it remains compliant.

***From initial ground investigation undertaken at the site groundwater has been found in the associated construction areas. As such discussions and arrangements are underway to undertake potential pump tests on site to establish the extent of the groundwater for management during construction phases. Once details are finalised approvals will be obtained from the Natural Resource Wales to undertake.***

#### 3.4.3 Flood Risk

Flooding can become a rapid pathway for the transportation of pollution, oils and silts and materials, chemical storage and access should be planned to avoid such areas during time of wet weather.

Manage stockpiles carefully to avoid silt runoff. Cover or reseed semi-permanent stockpiles, install control measures such as silt fencing and protect watercourse/drainage where required.

#### Flood Risk Potential

***The site has been assessed for the likelihood of flooding on the government website and the location of the access roads and compound has a risk of flooding from rivers and also from surface water flooding.***

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Figure 6: Flood Map (NRW). Red dot marks STW.

**Where works are being carried out within the river to build the Outfall, weather forecasts and flood warning will be monitored and where necessary all plant & tools will be removed from the river during the increased flows.**

**A Flood Risk Activity Permit (FRAP) has been approved for construction of the outfall headwall due to the location on the River bank..**

**An additional FRAP maybe required for the **main works** within the field and as such the design partner for the scheme “ARUP” are currently undertaking an Flood Consequence Risk Assessment in collaboration with NRW. The model for the area has been requested and received by ARUP and review is currently being undertaken.**

#### Flood Risk Activities

**Are there any site specific requirements derived from an Environmental Permit needed for Flood Risk Activities (Main River), or a Land Drainage Consent from the IDB or Lead Local Flood Authority (e.g. NYCC, Derbyshire CC) (Ordinary Watercourse).**

**A NRW Flood Activity Permit is required for permanent outfall works in the River Tawe. This has been approved and is detailed within this document**

**There shall be no stockpiling or storing of materials in the floodplain unless in broken heaps parallel to the direction of flood flow.**

**Spill kits must be kept on site and be readily available for use. Spillages must not be washed away but must be remediated with suitably absorbent material (e.g. booms, sand etc.) and disposed off-site to a permitted waste facility.**

**The agreed method of working must be complied with at all times to avoid discolouration / sedimentation or pollution of the watercourse. Should any discolouration/sedimentation or pollution of the watercourse occur, work must stop immediately and Natural Resources Wales notified on 0300 065 3000 to review working practices before work recommences.**

**All plant, machinery, tools and excavations must be kept in such a manner as to prevent mammals from becoming trapped, particularly during periods where the site is unsupervised.**

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#### 3.4 Storage of fuels, oils and COSHH materials

Fuels, oils, paints, solvents and other Control of Substances Hazardous to Health (COSHH) materials will be kept in lockable containers, with controlled access to keys, and in line with legal requirements e.g. oil storage regulations, 110% bunding, plant nappies/Enviropads, etc.

Fuelling operations will be planned to minimise the risk of spillage and environmental risk. This may be the subject of a specific plan for high-risk operations and sensitive areas.

***Designated refuelling areas to be provided with sufficient plant nappies and spill kits to mitigate any potential spills. All refuelling will be at least 10m away from any drain or watercourse. Site team to be briefed on Emergency Response Procedure.***

#### 3.5 Resource and energy management

In line with Morgan Sindall strategy, the contract will plan and carry out operations with due regard to energy (CO<sub>2</sub>e emissions), as well as resource efficiency, e.g. efficiency using WRAP or Cl:aire protocols, storage of materials, delivery management, etc.

***Is a CL:AIRE Protocol Materials Management Plan (MMP) required or being considered/prepared for any part of the scheme? No.***

#### 3.6 Contaminated land

Contaminated land identified prior to or during the contract will be managed in line with Morgan Sindall standards and guidance.

A contaminated land checklist is available for use on the forms section of the IMS (SE FRM 4).

***Have the Ground Investigations undertaken identified any contaminated ground No***

#### 3.7 Waste management

##### Site Waste Management Plan

A Site Waste Management (SWMP) shall be developed, implemented and maintained for the project and held on SmartWaste Online. All projects are required to have a SWMP in place irrespective of scale or value.

##### Waste Characterisation

Anticipated waste streams and their List of Wastes (LOW) / European Waste Catalogue (EWC) codes shall be estimated prior to construction. Any waste streams likely to be sent directly to Landfill should be WAC Tested prior to excavation.

##### Waste Contractors

Waste Carrier Licenses and the Environmental Permits/Exemptions of planned disposal sites shall be obtained prior to any waste movements. All licenses and permits will be checked on the public register of the appropriate regulator.

Duty of Care details must be correctly recorded within the SWMP and copies of all licenses/permits shall be kept on-site in the project waste file for the duration of the project.

##### Waste Storage and Segregation

The Waste Hierarchy 'Prevention – Reduce – Reuse – Recover – Dispose' must always be implemented (legal requirement).

Suitable skips, bins and storage areas shall be provided and closed or sheeted where required to prevent the escape of wind-blown debris. Waste storage must be suitably signed and display the correct EWC code.

##### Waste Disposal

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Waste collections can only be carried out following the correct Duty of Care checks.

Any Waste Carriers whose details are not held on file must be turned away from site.

#### **Waste Movement Duty of Care**

All waste movements must be covered by or accompanied by the correct Duty of Care documentation.

Waste movements without the correct document in place or not containing the correct information must be refused.

#### **Non-hazardous Waste Transfer Note**

All Non-Hazardous Waste leaving the site will be accompanied with a Waste Transfer Note (WTN) or "Ticket".

Many waste carrier companies provide their own WTN. These will be checked to ensure that the following information is detailed:

- a written description of the waste
- any processes the waste has been through
- how the waste is contained or packaged
- the quantity of the waste
- the place, date and time of transfer
- the name and address of both the producer and carrier of the waste
- details of the permit, licence or exemption of the waste carrier
- the appropriate EWC code for your waste
- The 2007 SIC code for the activity producing the waste - 42.21 (Construction of utility projects for fluids)
- A declaration that the waste hierarchy has been implemented.

Once complete, the WTN will be signed by a suitable person and a copy retained on site.

#### **Seasonal Waste Transfer Note**

There may be circumstances where waste produced on a site will be of a similar nature throughout the year and it may not be appropriate to issue WTN for every load, if it is being transported by the same contractor and is going to the same location. A 'Seasonal Waste Transfer Note' may be used instead, for a period up to 12 months. The seasonal note must contain the same information as a WTN above and;

- the commencing and termination date

Once complete, the Seasonal Waste Transfer Note will be signed by a suitable person and a copy retained on site.

#### **Hazardous Waste**

In Wales, sites must be registered as a hazardous waste producer with NRW before the disposal of hazardous waste can commence.

A Consignment Note is required for the disposal of hazardous waste which contains details of the hazardous nature of the waste.

Consignment Notes follow the Hazardous Waste to the Transfer/Disposal location and must be completed by other parties that handle the waste. To ensure the waste has been correctly consigned, we must either obtain a Consignment Notes with Part E completed from the waste carrier, or if there are numerous transfers a quarterly statement summarising the wastes consigned between parties.

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Consignment Notes collected at site, completed part E's or quarterly statements shall be kept in the site waste file. Hazardous/ special waste Consignment Notes must be kept for a minimum of 3 years.

#### **Waste Records**

Key Waste Records include:

- Site Waste Management Plan
- Evidence of Waste Characterisation/WAC Testing
- Waste Contractor Authorisation Checks; Licenses, Permits etc.
- Duty of Care Records; WTN, Seasonal WTN, Consignment Notes
- Waste Returns, Hazardous Waste Part E or Quarterly Returns

The SWMP shall be updated with Waste Contractor authorisations/disposal sites regularly.

All waste movements must be recorded in the SWMP. The SWMP shall be stored on SmartWaste Online.

The SWMP shall be sent to the Framework Environmental Advisor monthly for inclusion in corporate and customer reporting.

At the end of the project the Site Manager shall ensure the SWMP and all Waste records are obtained, updated and archived correctly.

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#### Wastes from road sweepers

The volumes of sweeper wastes are small and deemed to be inert. Wastes will either be taken to the operator's normal discharge location, for which there is a valid waste management licence or an exemption or discharged at a location designated by site management.

#### Burning of wastes

The burning of waste is strictly prohibited and not allowed under any circumstances.

### 3.8 Ecology and biodiversity

Protection and enhancement of biodiversity and ecology is a legal requirement. Plans should be developed, if not already in place at tender stage, to conduct pre-construction surveys, and during construction phase to continue monitoring for protected and/or invasive species.

**It is necessary to remove three number trees for the location of the headwall. Plans are currently being agreed for compensation planting of these trees in the vicinity of the new headwall. This will be confirmed and submitted in due course.**

Specific ecological and biodiversity risk assessments will be completed as part of normal completion of the Register of Environmental Effects, and where mitigation measures are required; they shall be detailed either below or in site-specific plans.

It is expected that projects of over £1m in value will complete the risk assessment (Register of effects) with specific focus on biodiversity and ecology, record its completion on Tracker and establish mitigation and control plans where required. (Smaller projects should focus on biodiversity and ecology where there is a direct project need.)

Biodiversity net gain (BNG) is a way to contribute to the recovery of nature while developing land. It is making sure the habitat for wildlife is in a better state than it was before development. Biodiversity Net Gain (BNG) is the legal requirement to deliver 10% BNG on all schemes going through planning permission or located within a designated area (Special Area of Conservation, Special Protection Area, Ramsar, Site of Special Scientific Interest, Local Nature Reserve, Area of Natural Beauty, National Park, or Conservation Area) in England under the Environment Act (2021).

In Wales as of 18th October 2023, all schemes requiring planning permission will need to demonstrate Net Benefit for Biodiversity and must establish a baseline of existing habitats to ensure that there is a measurable Net Benefit for Biodiversity once the scheme has been completed. Currently, there is no standardised metric for measuring this in Wales. As part of DCWW's AMP7 target on all Capital Delivery Alliance schemes, we aim for No Net Loss and we should maintain and enhance biodiversity on our schemes.

#### *Project specific issues*

**Biodiversity and ecological sensitive areas have been identified within the site, *the river corridor including the watercourse and bank fall within the zone of influence of the River Tawe Corridor and Swansea Canal Site of Importance for Nature Conservation (SINC), as well as the blanket SINC designation to all watercourses in Neath Port Talbot (NPT). Due to the small nature of the proposed works, no direct effects are anticipated on the River Tawe corridor, Swansea Canal SINC or NPT corridor. Adverse effects are not anticipated. The proposed works have the potential to indirectly affect these sites through pollution or surface run-off during the construction phase, therefore best practice pollution prevention methods will be adhered to at all times.***

***The Scheme's Environmental and Ecology information is saved in the S Drive under the project Folder. A Preliminary Ecological Appraisal has been completed, Trebanos WwTW Preliminary Ecological Appraisal P00009789, which contains the following biodiversity and ecologically sensitive areas below (further comments have been added following subsequent site survey)-***

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- Designated sites: Best practice pollution prevention methods (including dust and silt control) should be adhered to at all times during the construction phase. At no point during construction should any water be discharged into waterways (including the River Tawe).
- Priority Habitats: If it is not possible to avoid works (including vegetation clearance) within the woodland, then the works footprint in this habitat should be minimised as far as possible. Should any excavations be necessary within the woodland, it is recommended that liaison with an Arboricultural Consultant is undertaken. Any excavation works should be carried out in such a way that soil compaction is minimised to reduce the risk of damaging the roots of trees. Appropriate methods to minimise soil compaction should be set out (e.g. in contractor RAMs) and adhered to during all phases of the development.
- Badger and hedgehog: A pre-works check for badger setts within a 30 m buffer of the proposed works footprint should be carried out up to four weeks before the works commence. Best practice measures such as covering open pipework and excavations at the end of each day or installing mammal ramps should be adhered to, to avoid any mammals (and other wildlife) becoming trapped.
- Roosting bats: Small trees along the Rugby Road access have been identified as having moderate bat potential due to the presence of rot holes, and were inspected with an endoscope December 2023. No evidence of bats was found and the rot holes did not extend significantly, so these trees were downgraded to low potential. ECoW checks with an endoscope will be undertaken prior to clearance. Trees will be section felled and left in-situ for a minimum of 24 hours in line with the Precautionary Ecological Method Statement. All trees will be re-assessed for bat potential, mainly in relation to the woodland adjacent the river, but also the scattered trees across the site (with the exception of the trees along the access track and in the bunds (as these will have already been cleared under an ecological watching brief).
- Hazel dormouse: Areas of low risk clearance will be completed under the Precautionary Ecological Method Statement (small bund and outfall areas). Further targeted survey (including presence/ absence surveys) are required for the woodland. Should the presence of dormice on Site be confirmed, an EPS licence from NRW is likely to be required.- **Dormice surveys are ongoing for the overall scheme. This will last until Oct 2024 and the ECOW for the scheme will then confirm is an license is required. Note this is for the main scheme and the area around the outfall/headwall has been survey and deemed low value for dormice and as such works can progress in this location,**
- Otter: The removal of scrub and woodland should be avoided, and the proposed works should avoid encroaching on the river bank. If this is not possible, further targeted survey for otter is recommended. Should it be confirmed that otters use the Site (particularly as a resting place), and impacts are unavoidable, an EPS licence from NRW may be required. – **Otter checks have been undertaken 4 weeks in advance of the planned works and no holts are present. Checks will also be undertaken 1 week before planned works in the river for the headwall.**
- Reptiles: The removal of scrub and woodland habitats at the Site should be avoided. If this is not possible, removal should be minimised as far as possible. Following receipt of detailed project proposals, and provided that vegetation removal is kept to a minimum, it is unlikely that further targeted survey for reptiles will be recommended. Removal of reptile habitat will be in line with the Precautionary Ecological Method Statement. An ECoW will be present to conduct checks for reptiles prior to and during any clearance of vegetation.
- Nocturnal wildlife: If additional lighting is a requirement (permanent and temporary) it should be reviewed by an ecologist prior to installation to assess the impacts to nocturnal wildlife (including bats, badger, hedgehog and otter).
- Invasive non-native species: Japanese Knotweed and Himalayan Balsalm are present on site. Appropriate biosecurity measures will be set out (e.g. in contractor RAMs) and a specific **INNS Management Plan has been produced for the scheme.**

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In addition to the above, Fish rescue may be required during cofferdam installation as part of the new construction outfall. Should this be required this will be in accordance with the fish rescue method statement and FR2 license acquired from NRW.

The site itself contains or has the potential to contain –

- Trees
- Watercourse – River Tawe
- Nesting birds
- Protected species – otter, bats, badgers, dormouse, amphibians and reptiles
- Other - hedgehog

#### ***Project potential impact***

The potential effects upon the existing biodiversity on this project are –

- Removal of trees – with bat roost potential. **Surveys have been undertaken and low risk for the trees to be removed as part of the outfall works.**
- Removal of scrub – with suitability for reptiles, dormouse, otter
- Removal of hedgerow – with suitability to support dormouse
- Relocation of reptiles and amphibians
- **Fish rescue will be undertaken for the works associated in the river course when pollution control is installed, and sheet piles are also installed to enable construction. This is programmed pending approval of planning for 1/8/24**

#### ***Project Specific mitigation***

To minimise the effects of this construction project or to mitigate for unavoidable effects upon the local biodiversity the project team will consider all opportunities to improve biodiversity. These may include:

- Improving the immediate habitat through landscaping and planting of native trees and shrubs
- Consider build design to incorporate habitat or features to accommodate local species – bat access bricks, bird nest boxes, ponds, etc.
- Consider inclusion of additional features not in design – bird tables, insect hotel, etc.
- Consider off-site local enhancements in conjunction with local wildlife groups, etc.
- **Minimise river bank and tree clearance where possible**

#### ***Responsibilities***

The *Trebanos WwTW Outfall* Project/Site Manager is responsible for the implementation of this Environmental Management Plan. The PM/SM shall communicate all management techniques to relevant subcontractors during site specific inductions.

If protected species are encountered during the project, the sighting should be recorded and forwarded on to the local Biodiversity Records Centre.

The designated Ecological Clerk of Works (ECoW) for this scheme is **Lorna Rowe**

The ecologist contact details can be found below:

**APEM Limited, First Floor, 7 Old field Road, Bocam Park, Pencoed, Bridgend, CF35 5LJ**

**Office Tel No 0161 442 8938**

**Mobile Tel No 07788326908**

Lorna Rowe has been integral with the scheme development and will be throughout the life of the scheme

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#### 3.10 Subcontractors

Subcontractors and suppliers are required to comply with the EMP in its entirety. Site inductions, toolbox talks, training and task briefings will be given to all site personnel with relevant information from the EMP.

This EMP will be provided to subcontractors, along with the contract specific environmental details, where their works package can have a potential detrimental impact on the environment. Subcontractors will be required to develop their own environmental plans specific to work packages where appropriate and to comply with the content and direction of this and other applicable supporting documentation.

#### 3.11 BREEAM / CEEQUAL / CCS / other registrations

Where customer requirements specify the project may need to register with BRE Environmental Assessment Method (BREEAM), Civil Engineering Environmental Quality Assessment (CEEQUAL), DREAM, etc. such registrations should be completed in a timely manner and responsibility allocated to a project individual to manage the relevant processes, registrations, filing, document collection, etc. and to facilitate audits and site inspections where required.

All projects are required under the terms of the company Associate Membership to register with the CCS, other than for very short duration projects (typically less than six weeks), subject to permitted exception.

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Appendix A  
Register of Environmental Effects

|                    |                |                 |                |              |          |
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4 Register of environmental effects

|                        |                  |              |             |      |            |
|------------------------|------------------|--------------|-------------|------|------------|
| Office / depot / site: | Trebanos WwTW    | Prepared by: | Ed Williams | Date | 29.05.2024 |
| Assisted by:           | Abigail Clifford |              |             |      |            |
|                        |                  | Reviewed by: | Mark Thomas | Date | 4/6/24     |
| NOTES                  |                  |              |             |      |            |

In the table below, under Environmental Impacts, assess levels of impact significance for each Development Activity and Aspect, as L, M or H, in accordance with following risk matrix. Mitigation measures are required where significance of impact is assessed as M or H.

Assessment of Significance

| Likelihood of Activity resulting in impact. | Severity of Subsequent Impact |              |              |               |               |
|---------------------------------------------|-------------------------------|--------------|--------------|---------------|---------------|
|                                             | Low (1)                       | Moderate (2) | Moderate (3) | High (4)      | High (5)      |
| Negligible (1)                              | Low (1)                       | Low (2)      | Low (3)      | Low (4)       | Low (5)       |
| Unlikely (2)                                | Low (2)                       | Low (4)      | Moderate (6) | Moderate (8)  | Moderate (10) |
| Unlikely (3)                                | Low (3)                       | Moderate (6) | Moderate (9) | Moderate (12) | Moderate (15) |

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|-------------|--------------|---------------|---------------|-----------|-----------|
| Likely (4)  | Low (4)      | Moderate (8)  | Moderate (12) | High (16) | High (20) |
| Likely (5)  | Low (5)      | Moderate (10) | Moderate (15) | High (20) | High (25) |
| Certain (6) | Moderate (6) | Moderate (12) | High (18)     | High (24) | High (30) |

### Definitions:

**Activity:** generic definition relating to works being completed and medium that may be impacted

**Aspect:** element of an activity that can interact with the environment

**Impact:** any change to the environment, whether adverse or beneficial, wholly or partially resulting from an aspect

**Likelihood:** the chance or probability of an event occurring. Negligible – rare, occurs less than 0.1% of the time/case through to Certain – almost inevitable, 99.9% chance of occurrence

**Severity:** the impact that an event might have on the environment. Low – minor in inconsequential impact with no or short-term duration through to High - major impact or destruction to the environment with potential long-term consequence.

**Significance:** the product of likelihood and severity according to the above table.

### Guidance

#### Likelihood of an Environmental Impact Occurring

| Likelihood | Description                                     | L Score |
|------------|-------------------------------------------------|---------|
| Certain    | Occurs repeatedly / event 'only to be expected' | 6       |
| Likely     | 'No surprise' / will occur several times        | 5       |
| Likely     | Could occur sometimes                           | 4       |
| Unlikely   | Unlikely, though conceivable                    | 3       |

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|            |                                               |   |
|------------|-----------------------------------------------|---|
| Unlikely   | So unlikely that probability is close to zero | 2 |
| Negligible | Not going to occur                            | 1 |

Environmental Consequences of an Impact Occurring

| Consequence | Description of environmental impact                                                                     | C Score |
|-------------|---------------------------------------------------------------------------------------------------------|---------|
| High        | Major damage on & off site, national reputation damage, prosecution inevitable                          | 5       |
| High        | Considerable environmental damage, prosecution and national reputation damage likely                    | 4       |
| Moderate    | Moderate impact, contamination or damage recoverable, local reputation damage, prosecution possible     | 3       |
| Moderate    | Slight impact, small scale event contained on site, possible local media interest, prosecution unlikely | 2       |
| Low         | No measurable environmental consequence, no reputation damage, zero likelihood of prosecution           | 1       |

Risk Rating Categories

| Risk Rating     | Action to be taken                                                                                 |
|-----------------|----------------------------------------------------------------------------------------------------|
| High (16-30)    | Work can only continue if control measures reduce the risk rating to an acceptable level           |
| Moderate (6-15) | Introduce control measures to reduce risk as low as reasonably practicable                         |
| Low (1-5)       | Risk broadly acceptable, but situation needs to be monitored for changes and action to reduce risk |

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| Activity                                | Aspect                                                                                    | Impact                                                                     | Impact Significance                                             |                                           |                                              | Control and Mitigation                                                                                                                                                                                                                                                                                                                                                                                                  | Residual Impact Significance |
|-----------------------------------------|-------------------------------------------------------------------------------------------|----------------------------------------------------------------------------|-----------------------------------------------------------------|-------------------------------------------|----------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|
|                                         |                                                                                           |                                                                            | Likelihood                                                      | Severity                                  | Resulting Significance                       |                                                                                                                                                                                                                                                                                                                                                                                                                         |                              |
|                                         |                                                                                           |                                                                            | 1 - Negligible<br>2-3 - Unlikely<br>4-5 - Likely<br>6 - Certain | 1-2 - Low<br>2-3 - Moderate<br>4-5 - High | 1-5 - Low<br>6-15 - Moderate<br>16-30 - High |                                                                                                                                                                                                                                                                                                                                                                                                                         |                              |
| Works associated with office operations | Operation of air-conditioning and refrigerant units containing ozone depleting substances | Escape of gases and impact associated with ozone layer and climate change. | 6                                                               | 2                                         | 12                                           | Use of CFC free refrigerant units within the site canteens and offices. No air conditioning is required                                                                                                                                                                                                                                                                                                                 | LOW                          |
| Works affecting <b>Water</b> resources  | Abstraction of surface or groundwater                                                     | Deterioration in water resource quantity and quality                       | 5                                                               | 4                                         | 20                                           | Ground investigation has been undertaken on the site that has identified a high water table.<br><br>Pumps tests are being developed with a dewatering specialist contractor to establish the pump rate and potential dewatering measures that maybe required as part of the main works deeper structures                                                                                                                | HIGH .                       |
|                                         | Dewatering of surface or groundwater                                                      | Deterioration in water resource quantity and quality                       | 3                                                               | 3                                         | 9                                            | No water from excavations to be pumped into any watercourse or surface water drains. Water to be removed from excavations in accordance with site specific Permit to Pump and discharged in combined sewer via a settlement tank. Minor flows will be directed to an agreed point within the treatment works itself with agreement from the works supervisor. Pending pump tests for the main scheme an discharge point | LOW                          |

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## Site Specific Environmental Management Plan

| Activity | Aspect                      | Impact                                               | Impact Significance                                             |                                           |                                              | Control and Mitigation                                                                                                                                                                                                                                                                                                               | Residual Impact Significance |
|----------|-----------------------------|------------------------------------------------------|-----------------------------------------------------------------|-------------------------------------------|----------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|
|          |                             |                                                      | Likelihood                                                      | Severity                                  | Resulting Significance                       |                                                                                                                                                                                                                                                                                                                                      |                              |
|          |                             |                                                      | 1 - Negligible<br>2-3 - Unlikely<br>4-5 - Likely<br>6 - Certain | 1-2 - Low<br>2-3 - Moderate<br>4-5 - High | 1-5 - Low<br>6-15 - Moderate<br>16-30 - High |                                                                                                                                                                                                                                                                                                                                      |                              |
|          |                             |                                                      |                                                                 |                                           |                                              | will be agreed with NRW and discharge permit applied for.                                                                                                                                                                                                                                                                            |                              |
|          | Impoundment of watercourses | Deterioration in water resource quantity and quality | 4                                                               | 3                                         | 12                                           | Works within watercourse to be carried out during low water flows in the summer months, barrier to built within the river will no surpass 50% of the river channel therefore allowing the river to pass<br><br>Further details of the cofferdam and associated temporary works are detailed in the site specific RAMS for the works. | LOW                          |
|          | Discharge of effluent       | Deterioration in water resource quality              | 3                                                               | 3                                         | 9                                            | Temporary Units - Discharge of effluent from self-contained welfare unit stored effluent tank situated beneath toilet unit and emptied on a regular basis by a licenced waste carried.<br><br>Modular Units – Tapped into Foul Mains.                                                                                                | LOW                          |
|          | Discharge of site drainage  | Deterioration in water resource quality              | 4                                                               | 2                                         | 8                                            | Site drainage/surface runoff from welfare units will discharge and be allowed to filter through type 1 hardstanding area already in the compound.                                                                                                                                                                                    | LOW                          |

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| Activity | Aspect                                                    | Impact                                  | Impact Significance                                             |                                           |                                              | Control and Mitigation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Residual Impact Significance |
|----------|-----------------------------------------------------------|-----------------------------------------|-----------------------------------------------------------------|-------------------------------------------|----------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|
|          |                                                           |                                         | Likelihood                                                      | Severity                                  | Resulting Significance                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                              |
|          |                                                           |                                         | 1 - Negligible<br>2-3 - Unlikely<br>4-5 - Likely<br>6 - Certain | 1-2 - Low<br>2-3 - Moderate<br>4-5 - High | 1-5 - Low<br>6-15 - Moderate<br>16-30 - High |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                              |
|          | Discharge of foul drainage                                | Deterioration in water resource quality | 5                                                               | 3                                         | 15                                           | Foul drainage from the toilet will be collected in an effluent tank and emptied by a licenced waste carrier on a regular basis – if it cannot be diverted to the WWTW.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | LOW                          |
|          | Physical (temp and perm) works to watercourses and Rivers | Deterioration in water resource quality | 5                                                               | 4                                         | 20                                           | <p>. Clean stone with no fines to used in haul road construction with temporary works design, , regular inspections of water course to be carried and stop works if necessary, until alternative arrangements made.</p> <p>Spill kits to be located on all plant where there is a potential release of substances, workforce to be trained in spill kit usage, any releases must be reported to the immediate line manager / supervisor.</p> <p>All hazardous materials to be stored in a suitable locked COSHH cage and located away from the watercourse. All materials to be returned to COSHH cage once completed.</p> <p>Small plant/hazardous substances to be kept on plant nappies when in intermittent use.</p> | MEDIUM                       |

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| Activity | Aspect                                                    | Impact                | Impact Significance                                             |                                           |                                              | Control and Mitigation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Residual Impact Significance |
|----------|-----------------------------------------------------------|-----------------------|-----------------------------------------------------------------|-------------------------------------------|----------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|
|          |                                                           |                       | Likelihood                                                      | Severity                                  | Resulting Significance                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                              |
|          |                                                           |                       | 1 - Negligible<br>2-3 - Unlikely<br>4-5 - Likely<br>6 - Certain | 1-2 - Low<br>2-3 - Moderate<br>4-5 - High | 1-5 - Low<br>6-15 - Moderate<br>16-30 - High |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                              |
|          |                                                           |                       |                                                                 |                                           |                                              | Best practice pollution methods to be always adhered to including use of silt netting and silt socks as required.                                                                                                                                                                                                                                                                                                                                                                                                     |                              |
|          | Physical (temp and perm) works to watercourses and Rivers | Change in flow regime | 5                                                               | 4                                         | 20                                           | All instream works in line with method statement. Submitted as part of FRAP application.                                                                                                                                                                                                                                                                                                                                                                                                                              | MEDIUM                       |
|          | Physical (temp and perm) works to watercourses and Rivers | Loss of Biodiversity  | 4                                                               | 2                                         | 8                                            | All works to be agreed with NRW prior to starting on site via FRAP of which has been approved. Conditions within FRAP and approved RAMS to be followed and reviewed regularly and consistently.<br><br>Clean stone with no fines to be used in haul road construction, regular inspections of water course to be carried and stop works if necessary until alternative arrangements made, spill kits available on site, all stone used in the haul road and temporary works to be removed on completion of the works. | LOW                          |

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| Activity | Aspect                                                | Impact                                               | Impact Significance                                             |                                           |                                              | Control and Mitigation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Residual Impact Significance |
|----------|-------------------------------------------------------|------------------------------------------------------|-----------------------------------------------------------------|-------------------------------------------|----------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|
|          |                                                       |                                                      | Likelihood                                                      | Severity                                  | Resulting Significance                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                              |
|          |                                                       |                                                      | 1 - Negligible<br>2-3 - Unlikely<br>4-5 - Likely<br>6 - Certain | 1-2 - Low<br>2-3 - Moderate<br>4-5 - High | 1-5 - Low<br>6-15 - Moderate<br>16-30 - High |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                              |
|          | Physical (temp and perm) works to flood defence works | Deterioration in water resource quantity and quality | 6                                                               | 3                                         | 18                                           | As per above                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | LOW                          |
|          | Physical (temp and perm) works to estuaries           | Deterioration in water resource quantity and quality | 6                                                               | 3                                         | 18                                           | As per above                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | LOW                          |
|          | Spillages of hazardous substances                     | Deterioration in water resource quantity and quality | 3                                                               | 2                                         | 6                                            | <p>Best practice methods to be utilised to avoid the risk of spills from construction materials and fuels/lubricants from construction machinery.</p> <p>Spill kits to be located on all plant where there is a potential release of substances, workforce to be trained in spill kit usage, any releases must be reported to the immediate line manager / supervisor.</p> <p>All hazardous materials to be stored in a suitable locked COSHH cage and located away from the watercourse. All materials to be returned to COSHH cage once completed.</p> <p>Small plant/hazardous substances to be kept on plant nappies when in intermittent use.</p> | LOW                          |

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| Activity                                       | Aspect                                                                                     | Impact                                  | Impact Significance                                             |                                           |                                              | Control and Mitigation                                                                                                                                                                                                                                                  | Residual Impact Significance |
|------------------------------------------------|--------------------------------------------------------------------------------------------|-----------------------------------------|-----------------------------------------------------------------|-------------------------------------------|----------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|
|                                                |                                                                                            |                                         | Likelihood                                                      | Severity                                  | Resulting Significance                       |                                                                                                                                                                                                                                                                         |                              |
|                                                |                                                                                            |                                         | 1 - Negligible<br>2-3 - Unlikely<br>4-5 - Likely<br>6 - Certain | 1-2 - Low<br>2-3 - Moderate<br>4-5 - High | 1-5 - Low<br>6-15 - Moderate<br>16-30 - High |                                                                                                                                                                                                                                                                         |                              |
|                                                | Use and Storage of Construction Hazardous substances including Oils/ Diesels and Petroleum | Deterioration in water resource quality | 3                                                               | 4                                         | 12                                           | COSHH materials to be used included in the COSHH file and briefed to operatives.<br><br>COSHH materials to be stored in lockable COSHH cage.                                                                                                                            | LOW                          |
|                                                | Use and Storage of Process Commissioning Hazardous substances                              | Deterioration in water resource quality | N/A                                                             | N/A                                       | N/A                                          | The Use and Storage of Process Commissioning Hazardous substances is not required as part of this scheme                                                                                                                                                                | N/A                          |
|                                                | Concrete Washout                                                                           | Deterioration in water resource quality | 5                                                               | 3                                         | 15                                           | Designated concrete washout area to be provided which consists of a lined skip sited at least 10m away from a drain or watercourse. Signage to be included. All drivers to be briefed on the requirement to washout in designated areas only.                           | LOW                          |
|                                                | Use of potable water                                                                       | Deterioration in water resource quality | 3                                                               | 3                                         | 9                                            | Potable water will be supplied as bottled water                                                                                                                                                                                                                         | LOW                          |
| Works affecting Ecological Habitat and Species | Works affecting Ecological Important Habitat                                               | Loss of biodiversity                    | 2                                                               | 4                                         | 8                                            | <i>Biodiversity and ecological controls as detailed in 'APEM Ecology Report Preliminary Ecological Appraisal'.</i><br><br><i>Limit vegetation clearance as much as possible. Any vegetation clearance will be carried out under supervision by an Ecologist in line</i> | LOW                          |

|                    |                |                 |                |              |          |
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| Activity                                                                                                                                                                                 | Aspect                                       | Impact               | Impact Significance                                             |                                           |                                              | Control and Mitigation                                                                                                                                                                                                                                                                                                                                                                                                                                       | Residual Impact Significance |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|----------------------|-----------------------------------------------------------------|-------------------------------------------|----------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|
|                                                                                                                                                                                          |                                              |                      | Likelihood                                                      | Severity                                  | Resulting Significance                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                              |
|                                                                                                                                                                                          |                                              |                      | 1 - Negligible<br>2-3 - Unlikely<br>4-5 - Likely<br>6 - Certain | 1-2 - Low<br>2-3 - Moderate<br>4-5 - High | 1-5 - Low<br>6-15 - Moderate<br>16-30 - High |                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                              |
| <i>(Note: completing this risk assessment and including mitigation measures and controls within the project environmental plan (PEP) will address the Planet target on biodiversity.</i> |                                              |                      |                                                                 |                                           |                                              | <i>with the Pre-cautionary Ecological Method Statement.</i><br><br><i>Replacement planting of habitat in line with 'DCWW No Net Loss' and LPA Net Benefit for Biodiversity as required.</i>                                                                                                                                                                                                                                                                  |                              |
|                                                                                                                                                                                          | Works removing Ecological Important Habitat  | Loss of biodiversity | 2                                                               | 4                                         | 8                                            | <i>Biodiversity and ecological controls as detailed in 'APEM Ecology Report Preliminary Ecological Appraisal'.</i><br><br><i>Limit vegetation clearance as much as possible. Any vegetation clearance will be carried out under supervision by an Ecologist in line with the Pre-cautionary Ecological Method Statement.</i><br><br><i>Replacement planting of habitat in line with 'DCWW No Net Loss' and LPA Net Benefit for Biodiversity as required.</i> | LOW                          |
|                                                                                                                                                                                          | Works affecting ecological protected species | Loss of biodiversity | 2                                                               | 4                                         | 8                                            | <i>Biodiversity and ecological controls as detailed in 'APEM Ecology Report Preliminary Ecological Appraisal'.</i>                                                                                                                                                                                                                                                                                                                                           | LOW                          |

|                    |                |                 |                |              |          |
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| Activity | Aspect                                      | Impact               | Impact Significance                                             |                                           |                                              | Control and Mitigation                                                                                                                                                                             | Residual Impact Significance |          |
|----------|---------------------------------------------|----------------------|-----------------------------------------------------------------|-------------------------------------------|----------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|----------|
|          |                                             |                      | Likelihood                                                      | Severity                                  | Resulting Significance                       |                                                                                                                                                                                                    |                              |          |
|          |                                             |                      | 1 - Negligible<br>2-3 - Unlikely<br>4-5 - Likely<br>6 - Certain | 1-2 - Low<br>2-3 - Moderate<br>4-5 - High | 1-5 - Low<br>6-15 - Moderate<br>16-30 - High |                                                                                                                                                                                                    |                              |          |
|          |                                             |                      |                                                                 |                                           |                                              | <i>Limit vegetation clearance as much as possible. Any vegetation clearance will be carried out under supervision by an Ecologist in line with the Pre-cautionary Ecological Method Statement.</i> |                              |          |
|          |                                             |                      |                                                                 |                                           |                                              | <i>Replacement planting of habitat in line with 'DCWW No Net Loss' and LPA Net Benefit for Biodiversity as required.</i>                                                                           |                              |          |
|          |                                             |                      |                                                                 |                                           |                                              | <i>Biodiversity and ecological controls as detailed in 'APEM Ecology Report Preliminary Ecological Appraisal'.</i>                                                                                 | LOW                          |          |
|          | Works removing ecological protected species | Loss of biodiversity | 2                                                               | 4                                         | 8                                            | <i>Limit vegetation clearance as much as possible. Any vegetation clearance will be carried out under supervision by an Ecologist in line with the Pre-cautionary Ecological Method Statement.</i> |                              |          |
|          |                                             |                      |                                                                 |                                           |                                              |                                                                                                                                                                                                    |                              |          |
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| Activity | Aspect                          | Impact                                   | Impact Significance                                             |                                           |                                              | Control and Mitigation                                                                                                                                                                                                                                                                                                                                                                                                            | Residual Impact Significance |
|----------|---------------------------------|------------------------------------------|-----------------------------------------------------------------|-------------------------------------------|----------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|
|          |                                 |                                          | Likelihood                                                      | Severity                                  | Resulting Significance                       |                                                                                                                                                                                                                                                                                                                                                                                                                                   |                              |
|          |                                 |                                          | 1 - Negligible<br>2-3 - Unlikely<br>4-5 - Likely<br>6 - Certain | 1-2 - Low<br>2-3 - Moderate<br>4-5 - High | 1-5 - Low<br>6-15 - Moderate<br>16-30 - High |                                                                                                                                                                                                                                                                                                                                                                                                                                   |                              |
|          | Works affecting invasive plants | Land contamination by non-native species | 2                                                               | 4                                         | 8                                            | Japanese Knotweed and Himalayan Balsam present onsite. Areas detailed in 'APEM Preliminary Ecological Appraisal'.<br><br>A specialist invasive species contractor has been appointed as part of the scheme to work in collaboration with the invasive species work required on site.<br><br>An INNS management plan and RAMS has been developed to ensure all best practice measures are being followed and bio security managed. | LOW                          |
|          | Works removing invasive plants  | Land contamination by non-native species | 2                                                               | 4                                         | 8                                            | Japanese Knotweed and Himalayan Balsam present onsite. Areas detailed in 'APEM Preliminary Ecological Appraisal'.<br><br>A specialist invasive species contractor has been appointed as part of the scheme to work in collaboration with the invasive species work required on site.<br><br>An INNS management plan and RAMS has been developed to                                                                                | LOW                          |

|                    |                |                 |                |              |          |
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| Activity | Aspect                                      | Impact                                | Impact Significance                                             |                                           |                                              | Control and Mitigation                                                                                                                                                                                                                                          | Residual Impact Significance |
|----------|---------------------------------------------|---------------------------------------|-----------------------------------------------------------------|-------------------------------------------|----------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|
|          |                                             |                                       | Likelihood                                                      | Severity                                  | Resulting Significance                       |                                                                                                                                                                                                                                                                 |                              |
|          |                                             |                                       | 1 - Negligible<br>2-3 - Unlikely<br>4-5 - Likely<br>6 - Certain | 1-2 - Low<br>2-3 - Moderate<br>4-5 - High | 1-5 - Low<br>6-15 - Moderate<br>16-30 - High |                                                                                                                                                                                                                                                                 |                              |
|          |                                             |                                       |                                                                 |                                           |                                              | ensure all best practice measures are being followed and bio security managed.                                                                                                                                                                                  |                              |
|          | Works removing hedgerows                    | Loss of biodiversity                  | 2                                                               | 4                                         | 8                                            | Refer to 'APEM Preliminary Ecological Appraisal'.<br><br>Any clearance will be carried out under supervision of ecologist. Biodiversity Net Gain requirements to be followed and compensation planting to be undertaken as part of the main scheme in line with | LOW                          |
|          | Works affecting trees and ancient woodlands | Loss of biodiversity                  | 3                                                               | 4                                         | 12                                           | Refer to 'APEM Preliminary Ecological Appraisal'.<br><br>Any clearance will be carried out under supervision of ecologist<br><br>Biodiversity Net Gain requirements to be followed and compensation planting to be undertaken as part of the main scheme.       | LOW                          |
|          | Direct impact                               | Loss of historic/archaeological value | 2                                                               | 3                                         | 6                                            | Proposed works within the River Tawe are not expected to affect                                                                                                                                                                                                 | LOW                          |

|                    |                |                 |                |              |          |
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## Site Specific Environmental Management Plan

| Activity                                                                                              | Aspect               | Impact                                                        | Impact Significance                                             |                                           |                                              | Control and Mitigation                                                                                                                                                                                                                                                                                                                                                        | Residual Impact Significance |
|-------------------------------------------------------------------------------------------------------|----------------------|---------------------------------------------------------------|-----------------------------------------------------------------|-------------------------------------------|----------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|
|                                                                                                       |                      |                                                               | Likelihood                                                      | Severity                                  | Resulting Significance                       |                                                                                                                                                                                                                                                                                                                                                                               |                              |
|                                                                                                       |                      |                                                               | 1 - Negligible<br>2-3 - Unlikely<br>4-5 - Likely<br>6 - Certain | 1-2 - Low<br>2-3 - Moderate<br>4-5 - High | 1-5 - Low<br>6-15 - Moderate<br>16-30 - High |                                                                                                                                                                                                                                                                                                                                                                               |                              |
| Works affecting <b>historic</b> (e.g. listed) or <b>archaeological</b> important sites and structures |                      |                                                               |                                                                 |                                           |                                              | historic or archaeological important sites or structures.<br><br>Site compound to have terram layer laid beneath type 1 subbase foundation layer.                                                                                                                                                                                                                             |                              |
|                                                                                                       | Near area            | Loss of historic/archaeological value<br>Subsidence vibration | 2                                                               | 3                                         | 6                                            | No proposed works outside the River Tawe and therefore not expected to affect historic or archaeological important sites or structures.                                                                                                                                                                                                                                       | LOW                          |
|                                                                                                       | Adjacent to area     | Encroachment                                                  | 4                                                               | 4                                         | 16                                           | The nearest residential properties are 300 hundred metres away from the works and are unlikely to be affected by noise due to the proposed works. Noise monitoring to be considered prior to start date to compile base readings. Acoustic barriers to be erected around any works area where there is a risk of excessive noise. Use of silent generators within works area. | Low                          |
|                                                                                                       | Physical disturbance | Potential spread of contaminated land and pollution           | -                                                               | -                                         | N/A                                          | No potential sources of contamination have been identified associated with the temporary access road/site compound area.                                                                                                                                                                                                                                                      | N/A                          |

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## Site Specific Environmental Management Plan

| Activity                                                         | Aspect                           | Impact                                              | Impact Significance                                             |                                           |                                              | Control and Mitigation                                                                                                                                                                                                                                                               | Residual Impact Significance |
|------------------------------------------------------------------|----------------------------------|-----------------------------------------------------|-----------------------------------------------------------------|-------------------------------------------|----------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|
|                                                                  |                                  |                                                     | Likelihood                                                      | Severity                                  | Resulting Significance                       |                                                                                                                                                                                                                                                                                      |                              |
|                                                                  |                                  |                                                     | 1 - Negligible<br>2-3 - Unlikely<br>4-5 - Likely<br>6 - Certain | 1-2 - Low<br>2-3 - Moderate<br>4-5 - High | 1-5 - Low<br>6-15 - Moderate<br>16-30 - High |                                                                                                                                                                                                                                                                                      |                              |
| Working on and disturbance of <b>contaminated land</b>           | Disposal                         | Potential spread of contaminated land and pollution | -                                                               | -                                         | N/A                                          | No potential sources of contamination have been identified associated with the temporary access road/site compound area.                                                                                                                                                             | N/A                          |
| General construction activities that may lead to <b>Nuisance</b> | Mud on road                      | Nuisance to local population                        | 4                                                               | 3                                         | 12                                           | Ensure site working area kept clean as works progress. Shovel and brush to remove locally. Where required, road sweeper to be called in to clean the affected areas.                                                                                                                 | LOW                          |
|                                                                  | Atmospheric emissions            | Nuisance to local population                        | 4                                                               | 3                                         | 12                                           | Well maintained plant sited away from nearby properties.<br><br>PPM maintenance checks and inspections<br><br>Use of electric operated plant as opposed to petrol or diesel fuelled plant where possible. Use of low emitting plant. Reduce unnecessary journeys by advance planning | LOW                          |
|                                                                  | Construction dust                | Nuisance to local population                        | 4                                                               | 3                                         | 12                                           | Jet wash pressure bowser to dampen down dust and clean moving plant when required                                                                                                                                                                                                    | LOW                          |
|                                                                  | Batching dust and silo emissions | Nuisance to local population                        | -                                                               | -                                         | N/A                                          |                                                                                                                                                                                                                                                                                      | N/A                          |

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## Site Specific Environmental Management Plan

| Activity | Aspect                        | Impact                       | Impact Significance                                             |                                           |                                              | Control and Mitigation                                                                                                                                                                                                                                                                                            | Residual Impact Significance |
|----------|-------------------------------|------------------------------|-----------------------------------------------------------------|-------------------------------------------|----------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|
|          |                               |                              | Likelihood                                                      | Severity                                  | Resulting Significance                       |                                                                                                                                                                                                                                                                                                                   |                              |
|          |                               |                              | 1 - Negligible<br>2-3 - Unlikely<br>4-5 - Likely<br>6 - Certain | 1-2 - Low<br>2-3 - Moderate<br>4-5 - High | 1-5 - Low<br>6-15 - Moderate<br>16-30 - High |                                                                                                                                                                                                                                                                                                                   |                              |
|          | Process atmospheric emissions | Nuisance to local population | 3                                                               | 4                                         | 12                                           | Operatives will be briefed, and toolbox talks delivered on emissions from plant. Operators of plant will be told to drive smoothly avoiding harsh acceleration and braking to reduce unnecessary pollution.                                                                                                       | LOW                          |
|          | Noise emissions               | Nuisance to local population | 4                                                               | 4                                         | 16                                           | Utilise good condition silenced plant. PPM maintenance regime.<br><br>Low noise emitting plant to be used, Echo sound barriers to be installed if required.<br><br>Sensitive neighbours regards to the riding school present. Noise and visual barriers to be considered and deployed as part of the main scheme. | Low                          |
|          | Light emissions               | Nuisance to local population | 3                                                               | 3                                         | 9                                            | Works are to be carried out during day working hours reducing possibility of light emissions. Site lighting to be directed away from sensitive receptors i.e. residential property.                                                                                                                               | LOW                          |
|          | Vibration                     | Nuisance to local population | 4                                                               | 3                                         | 12                                           | Low vibratory plant to be used. If necessary, to break out concrete, then this will be carried out at regular                                                                                                                                                                                                     | LOW                          |

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## Site Specific Environmental Management Plan

| Activity | Aspect                     | Impact                              | Impact Significance                                             |                                           |                                              | Control and Mitigation                                                                                                                                        | Residual Impact Significance |
|----------|----------------------------|-------------------------------------|-----------------------------------------------------------------|-------------------------------------------|----------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|
|          |                            |                                     | Likelihood                                                      | Severity                                  | Resulting Significance                       |                                                                                                                                                               |                              |
|          |                            |                                     | 1 - Negligible<br>2-3 - Unlikely<br>4-5 - Likely<br>6 - Certain | 1-2 - Low<br>2-3 - Moderate<br>4-5 - High | 1-5 - Low<br>6-15 - Moderate<br>16-30 - High |                                                                                                                                                               |                              |
|          |                            |                                     |                                                                 |                                           |                                              | short intervals to reduce nuisance to residents during day working hours.                                                                                     |                              |
|          | Odour emissions            | Nuisance to local population        | 2                                                               | 1                                         | 2                                            | Potential odour sources will be monitored on weekly inspections.                                                                                              | LOW                          |
|          | Road congestion            | Nuisance to local population        | 4                                                               | 4                                         | 16                                           | Adequate signage on highway for directions to site<br>Designated access road for site traffic.                                                                | LOW                          |
|          | Other public rights of way | Loss of amenity value<br>Disruption | 3                                                               | 1                                         | 3                                            | Traffic management established where cycle track is crossing on the entrance to the works. Gatesman to be deployed and present for all construction vehicles. | LOW                          |
|          | Visual amenity             | Loss of amenity value               | 2                                                               | 1                                         | 2                                            | Temporary loss during construction phase, good house keeping and best construction practices.                                                                 | LOW                          |
|          | Unsociable working hours   | Nuisance to local population        | 2                                                               | 4                                         | 8                                            | Working hours to be 07:30 to 17:30 hrs with no plant to be mobilised until after 0800hrs                                                                      | LOW                          |

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## Site Specific Environmental Management Plan

| Activity                                                             | Aspect                                                                      | Impact                                                                    | Impact Significance                                             |                                           |                                              | Control and Mitigation                                                                                                                                                                                                                           | Residual Impact Significance |
|----------------------------------------------------------------------|-----------------------------------------------------------------------------|---------------------------------------------------------------------------|-----------------------------------------------------------------|-------------------------------------------|----------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|
|                                                                      |                                                                             |                                                                           | Likelihood                                                      | Severity                                  | Resulting Significance                       |                                                                                                                                                                                                                                                  |                              |
|                                                                      |                                                                             |                                                                           | 1 - Negligible<br>2-3 - Unlikely<br>4-5 - Likely<br>6 - Certain | 1-2 - Low<br>2-3 - Moderate<br>4-5 - High | 1-5 - Low<br>6-15 - Moderate<br>16-30 - High |                                                                                                                                                                                                                                                  |                              |
| Works requiring the consumption of <b>Energy</b> and/or fossil fuels | Energy consumption/carbon management - Construction works                   | Direct: cost<br>Indirect: atmospheric emissions<br><br>Resource depletion | 4                                                               | 3                                         | 12                                           | Order plant suitable for the task.<br><br>Order materials as per material take off and enough for the task.<br><br>Right 1 <sup>st</sup> time.<br><br>Use energy efficient plant machinery.                                                      | LOW                          |
|                                                                      | Energy consumption/carbon management - Site accommodation                   | Direct: cost<br>Indirect: atmospheric emissions<br><br>Resource depletion | 4                                                               | 3                                         | 12                                           | Power supply from generator<br><br>Turn off lights and appliances when not in use<br><br>Pir to be installed on all lighting. .                                                                                                                  | LOW                          |
|                                                                      | Energy consumption/carbon management - Transport and logistics              | Direct: cost<br>Indirect: atmospheric emissions<br><br>Resource depletion | 4                                                               | 3                                         | 12                                           | Pre order in advance to avoid unnecessary journeys to the builder's merchants. Stockpile muck away and arrange wagons to collect in advance. Order plant so that it can be delivered by the supplier during one trip to avoid multiple journeys. | LOW                          |
|                                                                      | Energy consumption/carbon management - Material selection (embodied energy) | Direct: cost<br>Indirect: atmospheric emissions<br><br>Resource depletion | 4                                                               | 3                                         | 12                                           | Avoid use of concrete where possible<br><br>Use of FSC certified timber                                                                                                                                                                          | LOW                          |

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| Activity                                        | Aspect                                                               | Impact                                                                    | Impact Significance                                             |                                           |                                              | Control and Mitigation                                                                                                                                                                                          | Residual Impact Significance |
|-------------------------------------------------|----------------------------------------------------------------------|---------------------------------------------------------------------------|-----------------------------------------------------------------|-------------------------------------------|----------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|
|                                                 |                                                                      |                                                                           | Likelihood                                                      | Severity                                  | Resulting Significance                       |                                                                                                                                                                                                                 |                              |
|                                                 |                                                                      |                                                                           | 1 - Negligible<br>2-3 - Unlikely<br>4-5 - Likely<br>6 - Certain | 1-2 - Low<br>2-3 - Moderate<br>4-5 - High | 1-5 - Low<br>6-15 - Moderate<br>16-30 - High |                                                                                                                                                                                                                 |                              |
|                                                 | Energy consumption / carbon management – generation of on-site power | Direct: cost<br>Indirect: atmospheric emissions<br><br>Resource depletion | 4                                                               | 3                                         | 12                                           | Ensure welfare units are in good condition when received and organise/carry out maintenance checks. Thereby reducing call out visits to repair breakdowns                                                       | LOW                          |
|                                                 | Delivery and handling (transfer) of fuels (liquid or gas)            | Direct pollution through spills, etc.<br><br>Waste of resource and cost   | 3                                                               | 3                                         | 9                                            | Planned deliveries.<br><br>Banksman to supervise vehicle movements on site.<br><br>Designated refuelling point with plant nappy and liner inserts available. Spill kit located at buddy tank and at fuel bowser | LOW                          |
| Works leading to the generation of <b>Waste</b> | Material storage and damage                                          | Direct: cost<br>Indirect: reduced sustainability                          | 3                                                               | 3                                         | 9                                            | Dedicated and segregated material storage area to be established within site compound. Materials prone to weather damage to be stored in sheltered stores or drying room                                        |                              |
|                                                 | Creation of litter                                                   | Nuisance                                                                  | 4                                                               | 3                                         | 12                                           | All litter to be disposed of in general waste bins contained within welfare units and transferred to 8-to-12-yard enclosed general waste skip. Site compound to be clean and tidy                               |                              |

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## Site Specific Environmental Management Plan

| Activity           | Aspect                                                                                           | Impact                                                         | Impact Significance                                             |                                           |                                              | Control and Mitigation                                                                                                                                                                                                                                                                                                                                                                                                                                               | Residual Impact Significance |
|--------------------|--------------------------------------------------------------------------------------------------|----------------------------------------------------------------|-----------------------------------------------------------------|-------------------------------------------|----------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|
|                    |                                                                                                  |                                                                | Likelihood                                                      | Severity                                  | Resulting Significance                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                              |
|                    |                                                                                                  |                                                                | 1 - Negligible<br>2-3 - Unlikely<br>4-5 - Likely<br>6 - Certain | 1-2 - Low<br>2-3 - Moderate<br>4-5 - High | 1-5 - Low<br>6-15 - Moderate<br>16-30 - High |                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                              |
|                    | Waste disposal (duty of care)<br>Construction waste<br>Sewage<br>M&E decommissioning waste, etc. | Contamination<br>Nuisance<br>Pollution<br><br>Legal compliance | 4                                                               | 4                                         | 16                                           | All generated construction waste will be segregated into their separate waste streams. Duty of care checks will be carried out on the waste carrier for their up-to-date licence on NRW website. Disposal tip locations to also be checked to verify they can accept the designated waste by written evidence. Smart waste management plan to document waste movements on site. A waste transfer note will be in place to cover each waste stream movement off site. |                              |
|                    | Surplus excavation/aggregate disposal                                                            | Increased cost<br>Reduced sustainability                       | 4                                                               | 3                                         | 12                                           | Ensure temporary works are tight in the excavation to prevent unnecessary loss of ground. Order aggregate for what is needed to minimise waste. Plan through a material take off and monitor during construction phase to better estimate quantities.                                                                                                                                                                                                                |                              |
|                    | Packaging waste                                                                                  | Increased cost of disposal<br>Depletion of resources           | 4                                                               | 3                                         | 12                                           | Packaging waste to be recycled where possible. For example, cardboard boxes. Other packaging waste to be compressed and placed into general waste skip                                                                                                                                                                                                                                                                                                               |                              |
|                    |                                                                                                  |                                                                |                                                                 |                                           |                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                              |
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Plan

Site Specific Environmental Management Plan

| Activity                                                                                                | Aspect                                                                        | Impact                                     | Impact Significance                                             |                                           |                                              | Control and Mitigation                                                                                                                                                                                                                                                          | Residual Impact Significance |
|---------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------|--------------------------------------------|-----------------------------------------------------------------|-------------------------------------------|----------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|
|                                                                                                         |                                                                               |                                            | Likelihood                                                      | Severity                                  | Resulting Significance                       |                                                                                                                                                                                                                                                                                 |                              |
|                                                                                                         |                                                                               |                                            | 1 - Negligible<br>2-3 - Unlikely<br>4-5 - Likely<br>6 - Certain | 1-2 - Low<br>2-3 - Moderate<br>4-5 - High | 1-5 - Low<br>6-15 - Moderate<br>16-30 - High |                                                                                                                                                                                                                                                                                 |                              |
| Works in sensitive location or where abnormal operating conditions arise e.g. <b>Emergency response</b> | Abnormal operating conditions e.g. pumping, filtration, water treatment, etc. | Pollution of environment<br>Legal sanction | 2                                                               | 3                                         | 6                                            | Follow correct Control and Mitigation measures to prevent abnormal or emergency occurrences.<br><br>In the event of emergencies, follow correct procedures, act to prevent further damage, report immediately and keep records.                                                 | LOW                          |
|                                                                                                         | Unplanned event (Incidents e.g. spill, fire, etc.)                            | Pollution of environment<br>Legal sanction | 3                                                               | 4                                         | 12                                           | Fire extinguishers inspected weekly and located in the site compound. Spill kits located on moving plant, within site compound and working area as a precautionary measure. Morning briefings to be carried out to communicate weather updates, daily tasks, daily hazards etc. | LOW                          |

|                    |                |                 |                |              |          |
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## Appendix B

### Site Specific Organisation and Arrangements

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## Site Specific Environmental Management Plan

## Site Specific HSEQ Organisation and Arrangements

|                                                                                                        |                                                                                                   |                                                                                     |                                                                         |           |
|--------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------|-----------|
| Client: Dwr Cymru Welsh Water                                                                          | Date Compiled:                                                                                    | 29/5/2024                                                                           | Review Date:                                                            | 29/8/2024 |
| Principal Designer: Morgan Sindall Infrastructure Plc.<br>Contact Peter Brookes, CDM Manager           |                                                                                                   |                                                                                     | Principal Contractor: David Stacey Framework Director<br>Morgan Sindall |           |
| Authorised for Use: David Stacey (Framework Director)                                                  |                                                                                                   |                                                                                     |                                                                         |           |
| Site                                                                                                   | Trebanos WwTW                                                                                     |                                                                                     |                                                                         |           |
| Senior Contracts Manager                                                                               | Sean Murray                                                                                       | Mobile number                                                                       | 07713790392                                                             |           |
| Project Manager                                                                                        | Mark Thomas                                                                                       |                                                                                     | 07812 961 884                                                           |           |
| Site Supervisor (s)                                                                                    | Ed Williams<br>Justin Owens<br>Huw Williams                                                       |                                                                                     | 07890 425480<br>07772 996340<br>07973 781524                            |           |
| Incident control:                                                                                      |                                                                                                   | Office Tel: 01633 963277                                                            |                                                                         |           |
| Fire assembly point:                                                                                   |                                                                                                   | IN PARKING AREA, ADJ. TO COMPOUND                                                   |                                                                         |           |
| Welfare facilities located at:                                                                         |                                                                                                   | Main Compound                                                                       |                                                                         |           |
| Will include the following:                                                                            |                                                                                                   | Office(s), drying room(s), washing facilities, canteen(s), COSHH cage(s) and stores |                                                                         |           |
| Level of provision                                                                                     | Male                                                                                              | Female                                                                              |                                                                         |           |
| Facilities as listed below will be provided in compliance with PM STD8 for number of persons as stated | 1 to 20                                                                                           | 2 VISITING                                                                          |                                                                         |           |
| CDM Regulations Schedule 2 Requirements.                                                               | Male                                                                                              | Female                                                                              |                                                                         |           |
| Sanitary conveniences                                                                                  | Yes                                                                                               | Yes                                                                                 |                                                                         |           |
| Washing facilities (located in toilets)                                                                | Yes                                                                                               | Yes                                                                                 |                                                                         |           |
| Showers (if applicable)                                                                                | N/A                                                                                               | N/A                                                                                 |                                                                         |           |
| Drinking water (located in canteen)                                                                    | Yes                                                                                               | Yes                                                                                 |                                                                         |           |
| Changing rooms and lockers (located in drying room)                                                    | Yes                                                                                               | N/A                                                                                 |                                                                         |           |
| Facilities for rest (located in canteen)                                                               | Yes                                                                                               | Yes                                                                                 |                                                                         |           |
| First aid facilities located at:                                                                       | IN CANTEEN & IN SITE OFFICE                                                                       |                                                                                     |                                                                         |           |
| Hospital location & contact details:                                                                   | Moriston Hospital, Heol Maes Eglwys, Morriston, Cwmrhydyceirw, Swansea, SA6 6NL Tel: 01792 702222 |                                                                                     |                                                                         |           |
| Natural Resources Wales:                                                                               | Customer Care Centre 0300 065 3000<br>Incident Hotline 0300 065 3000<br>Flood line 0345 988 1188  |                                                                                     |                                                                         |           |
| Design liaison:                                                                                        | ARUP, Barbara Modrzejewska-Baudin                                                                 |                                                                                     |                                                                         |           |

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### Site Specific Environmental Management Plan

#### List of Appointments

| The following named persons shall be appointed in writing detailing their responsibilities. This chart should be displayed on site safety notice boards. |                                  |                                                                      |                             |
|----------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|----------------------------------------------------------------------|-----------------------------|
| WWCDA App no.                                                                                                                                            | Morgan Sindall procedure         | Appointment                                                          | Names                       |
| 1.                                                                                                                                                       | PM STD1                          | Project Manager                                                      | Mark Thomas                 |
| 2.                                                                                                                                                       | Letter of appointment            | Site Forman/Supervisor                                               | Justin Owens                |
| 3.                                                                                                                                                       | Letter of appointment            | Site Safety Supervisor                                               | Ed Williams                 |
| 4.                                                                                                                                                       | SH PRO7<br>SH7 STD1<br>SH STD3   | Temporary Works Co-ordinator<br>Appointment by Rugby office          | Huw Williams                |
| 5.                                                                                                                                                       | SH PRO7<br>SH7 STD1              | Temporary Works Supervisor<br>Appointment by Rugby office            | Ed Williams                 |
| 6.                                                                                                                                                       | SH STD5                          | COSHH Co-ordinator                                                   | Ed Williams                 |
| 7.                                                                                                                                                       | PM STD8                          | First Aider(s)                                                       | Ed Williams<br>Justin Owens |
| 8.                                                                                                                                                       | Letter of appointment            | Emergency/Fire Marshalls                                             | Ed Williams<br>Justin Owens |
| 9.                                                                                                                                                       | Letter of appointment            | Waste Co-ordinator                                                   | Ed Williams                 |
| 10.                                                                                                                                                      | Letter of appointment            | Highways Co-ordinator                                                | Huw Williams                |
| 11.                                                                                                                                                      | Letter of appointment            | Traffic Management Foreman / Supervisor                              | Ed Williams<br>Justin Owens |
| 12.                                                                                                                                                      | SH STD3                          | Scaffold Inspector                                                   | Justin Owens                |
| 13.                                                                                                                                                      | SH PRO4<br>SH4 STD1              | Electrical Duty Holder                                               | Simon Griffiths             |
| 14.                                                                                                                                                      | SH PRO4<br>SH4 STD1              | Electrical, Authorised Person, Competent Person or Instructed Person | CARL LLEWELLYN              |
| 15.                                                                                                                                                      | Letter of appointment            | Safety Advisor                                                       | Michael Sellers             |
| 16.                                                                                                                                                      | SH PRO6<br>SH6 STD1<br>SH6 GUID1 | Service Co-ordinator                                                 | Ed Williams                 |

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|     |                                                         |                                         |                                             |
|-----|---------------------------------------------------------|-----------------------------------------|---------------------------------------------|
| 17. | SH PRO6<br>SH6 STD1<br>SH6 GUID1                        | Services Locator                        | Ed Williams                                 |
| 18. | Letter of appointment                                   | Plant Co-ordinator                      | Justin Owens                                |
| 19. | SH PRO9<br>SH9 STD1<br>SH9 GUID1                        | Appointed Person for Cranes             | Huw Williams                                |
| 20. | SH PRO9<br>SH9 STD1<br>SH9 GUID1                        | Crane / Lift Supervisor(s)              | Huw Williams<br>Ed Williams                 |
| 21. | PM STD2                                                 | Induction / Orientation Presenter       | Ed Williams<br>Justin Owens<br>Huw Williams |
| 22. | Letter of appointment                                   | Fire Safety Co-ordinator                | Justin Owens                                |
| 23. | Letter of appointment                                   | Incident Co-ordinator                   | Huw Williams<br>Ed Williams                 |
| 24. | SH PRO9<br>SH9 STD1<br>SH9 GUID1                        | Signaller /Slinger                      | Andrew Guard<br>Jason Donovan               |
| 25. | Letter of appointment                                   | PUWER Co-ordinator                      | Justin Owens                                |
| 26. | SH PRO3<br>SH3 STD1                                     | Confined Space Work Entry Permit issuer | Ed Williams<br>Justin Owens                 |
| 27. | SH REG GUID2                                            | Lifting Equipment Inspector             | Ed Williams                                 |
| 28. | SH PRO3<br>SH3 STD1                                     | Hot Works Permit issuer                 | Ed Williams                                 |
| 29. | SH PRO6<br>SH6 STD1<br>SH6 GUID1<br>SH PRO3<br>SH3 STD1 | Permit to Break Ground issuer           | Ed Williams                                 |
| 30. | Letter of Appointment                                   | Plant/Transport Administrator           | Andrea Williams                             |

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Appendix C

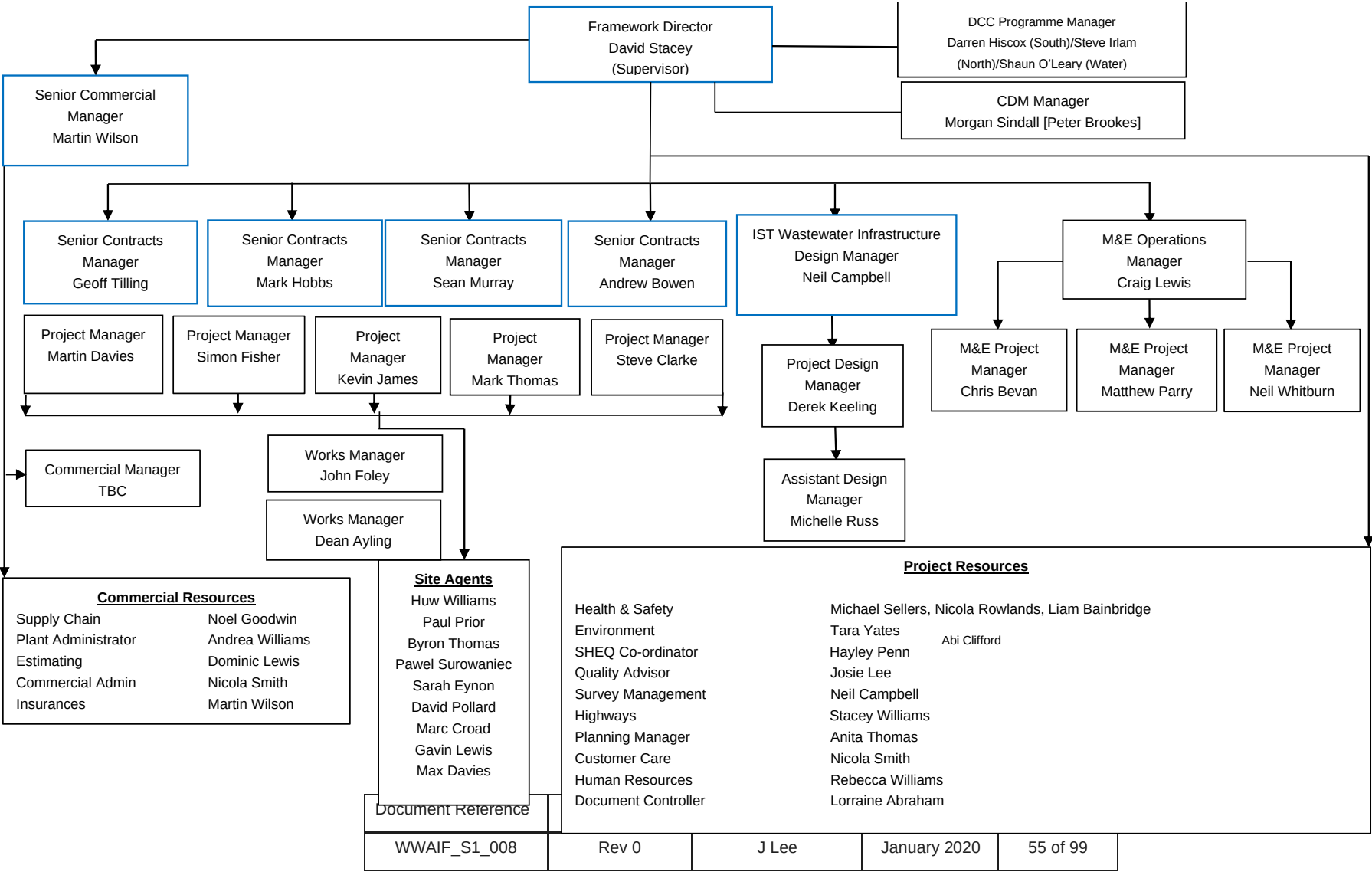
Welsh Water Capital Delivery Alliance

Morgan Sindall Management

Organisation Structure chart

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Site Specific Environmental Management Plan



Site Specific Environmental Management Plan

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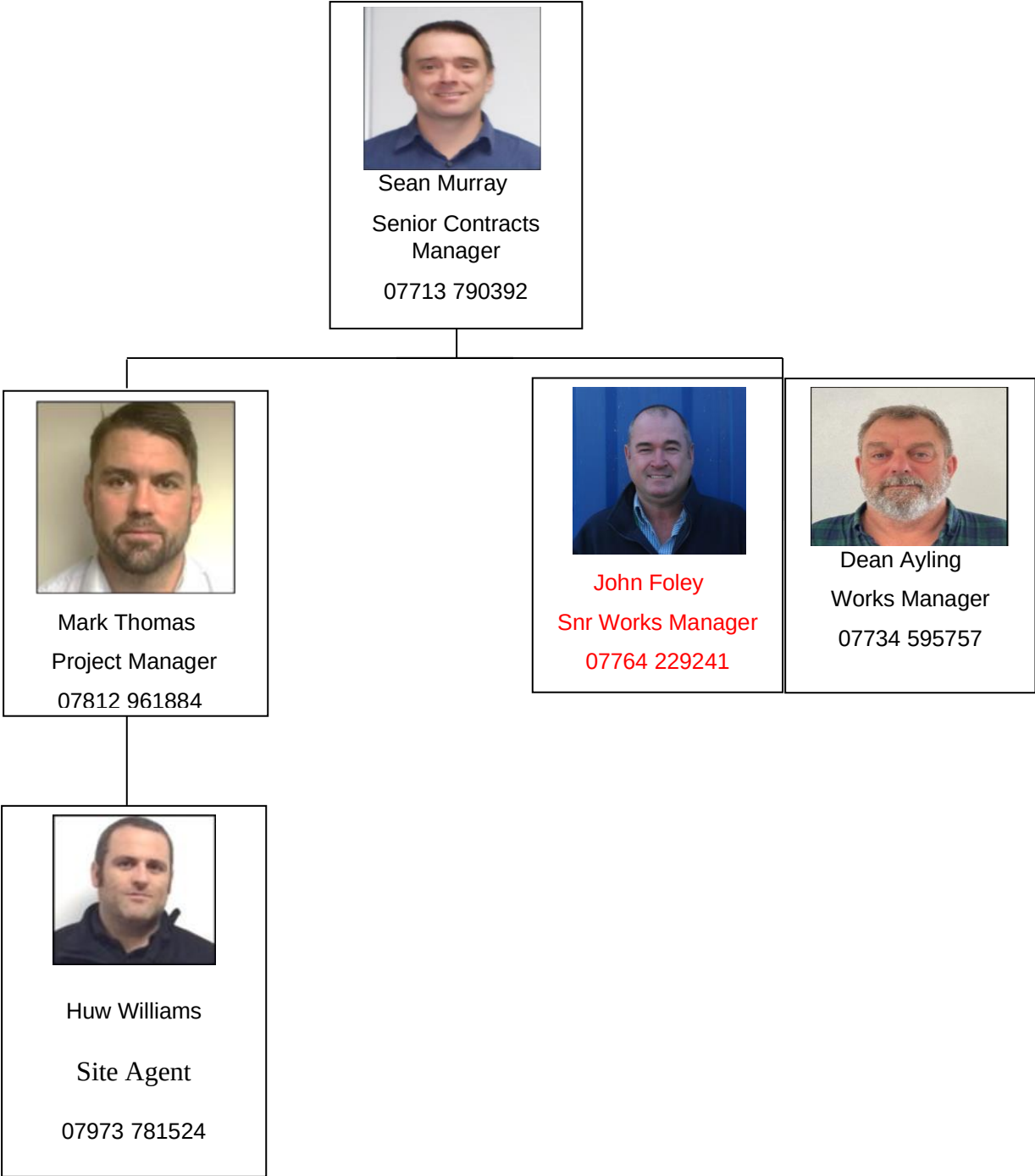
Appendix D

Site Specific Organisation Structure Chart

|                    |                 |                |              |          |
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Site Specific Organisation Structure Chart



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Appendix E

NRW – Flood Activity Permit

Dear Sir/Madam

**Your new Flood Risk Activity Permit**

Permit reference: **DFR/S/2024/0004**

Scheme: **Construction of new headwall, plus associated Temporary works.**

Location: **Trebanos WTW, SA7 9JE**

Our determination of your application for a permit is complete. We're satisfied that you can carry out your activities in accordance with the enclosed permit.

**Rights of appeal**

You have a right of appeal to the Welsh Ministers against NRW's decision to pursuant to Regulation 31 of the Environmental Permitting (England and Wales) Regulations 2016. Any appeal must be made not later than 6 months after the date of NRW's decision or deemed decision.

If you intend to make an appeal, you must send the Welsh Ministers written notice of the appeal and the documents specified below. At the same time, you must send NRW copies of the notice and documents to **DFRSouthPermitting@cyfoethnaturiolcymru.gov.uk**

The documents that must accompany your notice of appeal are:

- a statement of the grounds of appeal;
- a copy of any relevant application;
- a copy of any relevant environmental permit;
- a copy of any relevant correspondence between the appellant and the regulator;
- a copy of any decision or notice which is the subject matter of the appeal; and
- a statement indicating whether you wish the appeal to be in the form of a hearing or dealt with by way of written representations.

You can contact the Welsh Ministers to enquire about making an appeal at: Planning and Environment Decisions Wales (PEDW), Crown Buildings, Cathays Park, Cardiff, CF10 3NQ or by email at PEDW.Casework@gov.wales and telephone on 0300 060 4400.

You may withdraw an appeal by notifying the Welsh Ministers in writing and sending a copy of that notification to us.

**Compliance and Surrender of your permit**

Please ensure that documentation evidencing compliance of the activity as listed in the permit schedule on page 3 is sent to DFRSouthPermitting@cyfoethnaturiolcymru.gov.uk within 1 month of completion.

This evidence should include photographs of the site before the activity commences, during the activity (including photos of any temporary works needed during the construction phase) and upon completion of the activity. We will send confirmation once we are satisfied acceptable evidence of compliance has been submitted. Once you have received confirmation, you should surrender your permit using the relevant online form on the link below. In this instance your permit will need to be surrendered by notification.

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Natural Resources Wales / Surrender (cancel) all or part of your flood risk activity permit  
If you have any questions about this permit, please phone **Anne Thomas** on **0300 065 3460**.

Natural Resources Wales / Surrender (cancel) all or part of your flood risk activity permit  
If you have any questions about this permit, please phone **Anne Thomas** on **0300 065 3460**.  
Yours faithfully



**Gary Purnell**  
**Senior Advisor – Development & Flood Risk (South Area)**

**Other Information**

Pollution Prevention  
The permitted activity should be carried out in accordance with the Guidance for Pollution Prevention (GPP) 'GPP No5 "Works and maintenance in or near water' available at <https://www.netregs.org.uk/>  
Any refuelling should be undertaken at least 10 m away from the watercourse. Any polluting materials (e.g. diesel / oils) should be stored at least 10m from the watercourse and kept in a locked and bunded store when not in use.

A Pollution Prevention Plan should be written (in accordance with GPP22) and pollution control equipment should always be on site, including absorbents & booms. Should pollution occur, Natural Resources Wales should be notified immediately on 03000 653000.  
All waste generated as part of the development should be disposed of in accordance with the Duty of Care requirements of Section 34 the Environmental Protection Act 1990  
Fisheries

Where applicable, you are strongly advised to inform the relevant Angling Club/Association of your proposals before commencing work; Pontardawe and Swansea Angling Society. The issue of a Flood Risk Activity Permit (FRAP) by NRW will not protect you from any claim for nuisance or damage which may be attributed to your works. The relevant contacts may be obtained by using this link: Fishing In Wales | The official website for Welsh angling!! ([fishingwales.net](http://fishingwales.net))

Ffôn/#  
12222-2-#  
Tel 0300 065 3460 E-bost/E-mail [anne.thomas@cyfoethnaturiolcymru.gov.uk](mailto:anne.thomas@cyfoethnaturiolcymru.gov.uk)

[anne.thomas@naturalresourceswales.gov.uk](mailto:anne.thomas@naturalresourceswales.gov.uk) Cyfeiriad/Address Gwefan/Website

[www.cyfoethnaturiolcymru.gov.uk](http://www.cyfoethnaturiolcymru.gov.uk) Croesewir gohebiaeth yn y Gymraeg a'r Saesneg

[www.naturalresourceswales.gov.uk](http://www.naturalresourceswales.gov.uk) Correspondence welcomed in Welsh and English

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Biodiversity

Any work undertaken should take account of biosecurity risks, and mitigation measures should be put in place. The most important measure is to ensure that all equipment (plant, tools, footwear etc) that come to site, arrive clean, and are cleaned again before leaving site. This applies to all sites, not just those where an invasive non-native species (INNS), pest or disease has been previously identified. Information on how to assess biosecurity risks; simple steps to reduce risks; and specific measures for higher risk activities can be found on the GBNNSS website for INNS, or for tree health on our website. If you need any further help, please feel free to contact our INNS and Biosecurity team or our Tree Health team.

Additional Advice

This Permit does not free you from the need to obtain other licences, consents, approvals (including bye-law consents) or permissions (including planning permission) which may be required in law, or to comply with any duties or responsibilities for conservation or protection of the environment. In addition, you should ensure that you obtain the prior permission of any owners or occupiers of land if necessary (though such permission must be granted to the operator of such rights as are necessary to enable the operator to comply with the condition, should that be applicable). For the avoidance of doubt, this Permit does not confer any rights of entry or rights over property including land.

Natural Resources Wales does not accept any responsibility for the design and construction of the works referred hereto and any liability for any loss or damage which may arise out of their design, construction, maintenance or use.

Prior to the commencement of the works, you are advised to contact the Local Authority Planning Department to check whether planning permission is required.

Any future remedial work necessary, as a result of the operator’s proposals, shall be undertaken at the operator’s expense and carried out to Natural Resources Wales satisfaction.

The above information must be brought to the attention of your contractor.

Flood Risk Activity Permit with introductory note

The Environmental Permitting (England & Wales) Regulations 2016

Operator name

Dŵr Cymru Welsh Water

Scheme Name/Location of Regulated Facility

River Tawe,  
Trebanos Wastewater Treatment Works FE Outfall,  
Swansea,  
SA7 9JE

Permit number

DFR/S/2024/0004

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Trebanos WTW – FE Outfall, SA7 9JE  
Permit Number: DFR/S/2024/0004  
Introductory note  
This introductory note does not form a part of the permit

The main features of the permit are as follows.  
Construction of a new storm outfall, and associated works. Also includes temporary works of a sheet piled wall cofferdam and AquaRock Bags & SiltMat, plus bubble curtain wrap, and access ramp and access road.

The status log of the permit sets out the permitting history, including any changes to the permit reference number. **Status log of the permit**

| Description       | Date                            | Comments                        |
|-------------------|---------------------------------|---------------------------------|
| Application       | Received                        | Please refer to the Schedule of |
| DFR/S/2024/0004   | 12/01/2024                      | flood risk activities on page 3 |
|                   | Duly made 09/02/2024            | of this permit                  |
| Schedule 5 Notice | Issued 03/04/2024               | Consultee queries from AP       |
|                   | Additional Information received | Team and Geomorphology          |
|                   | 21/05/2024                      | Team                            |
|                   |                                 | AP and Geomorpholgy             |
|                   |                                 | satisfied with the response     |
|                   |                                 | received. All correspondence    |
|                   |                                 | saved to DMS folder             |
| Permit determined | 24/05/24                        | Permit issued to Arup.          |

Permit number DFR/S/2024/0004 Page 3

**Permit**  
The Environmental Permitting (England and Wales) Regulations 2016  
**Permit number**  
**DFR/S/2024/0004**

The Natural Resources Body for Wales (“Natural Resources Wales”) hereby authorises, under regulation 13 of the Environmental Permitting (England and Wales) Regulations 2016

**Dŵr Cymru Welsh Water** (“the operator”- Permit holder), of  
**Clydach,**  
**Swansea,**  
**SA6 5BQ**

to carry out the flood risk activities outlined in the schedule below

| <i>Schedule of flood risk activities</i> Flood | Description of Works                                               |
|------------------------------------------------|--------------------------------------------------------------------|
| <b>Risk Activity</b>                           |                                                                    |
| Flood Risk Activity (a)                        | Construction of a new storm outfall and associated temporary works |

|                    |                 |                |              |          |
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Watercourse: **River Tawe**  
Regulated Facility: **Trebanos WTW, SA7 9JE**  
Map reference: **SN 70920 02139**

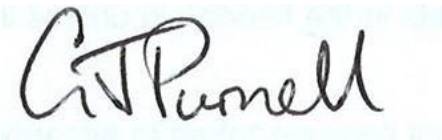
As detailed on plans and sections:

- **Pipe Network - Dwg No. B16241-103503-01-ZZ-DR-CA-C15050\_P02**
- **Site Location Plan - Dwg No. B16421-102503-07-ZZ-DR-TA-PN9060\_P01**
- **Dwg No. B16241-102503-01-ZZ-DR-CA-CI5052 rev C03**
- **Dwg No. B16241-102503-01-ZZ-DR-CA-CI5053 rev C03**
- **Dwg No. B16241-102503-01-ZZ-DR-CA-CI5054 rev C03**
- **Dwg No. B16241-102503-01-ZZ-DR-CA-CI5058 rev C01**
- 

**Preliminary Water Environment Regulations Compliance Assessment**  
**Response to NRW queries re FRAP 21-05-2024**  
**Trebanos WwTW Outfall HW 07.05.2024 Rev 3**

to the extent authorised by and subject to the conditions of this permit.

Name: Date  
**Gary Purnell Senior Advisor – Development & Flood Risk (South Area)**



**Conditions**  
**1 Management 1.1 General management**

- 1.1.1 The operator (permit holder) shall manage, undertake and operate (where appropriate) the activities specified in the permit on page 3.
- 1.1.2 Any person having duties that are or may be affected by the matters set out in this permit shall have convenient access to a copy of the permit.
- 1.1.3 All reasonable care will be taken to ensure that the watercourse is kept free of foreign matter and floating debris during the construction period and on completion.

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- 1.1.4 Works will be carried out in such a way as to ensure minimum obstruction to flows in the watercourse at all times.
- 1.1.5 These works will be carried out in such a way as to minimise disturbance to the existing banks and bed of the watercourse.
- 1.1.6 On completion of the works all debris and surplus material shall be removed from the banks of the watercourse.
- 1.1.7 The integrity of any flood defence infrastructure that may be affected by the works must always be maintained.

2 Operations

- 2.1 Permitted activities 2.1.1 The only activity authorised by the permit is the activity specified on page 3.
- 2.2 The regulated facility (Site) 2.2.1 The flood risk activity shall take place at the points marked on the plans at schedule 1 to this permit

3 Regulated Facility specific 3.1 Environment

- 3.1.1 Otters are known to use the River Tawe corridor. Works must be limited to daylight hours.
- 3.1.2 A survey carried out by a suitably qualified person, must be carried out to identify any protected species or habitats in the vicinity of the works prior to commencement on site. Please contact **Nicola Broadbridge on 07786 190627** for further advice.
- 3.1.3 No bankside vegetation within 8 metres of the watercourse shall be removed unless specified in the agreed method statement.
- 3.1.4 No tree/shrub felling and scrub removal shall take place during the specified bird breeding season (March to September) unless an approved survey confirms that the works can be safely carried out without harm to breeding birds and their nests or young. The survey format and report must be agreed with NRW prior to works taking place.
- 3.1.5 No in river works shall be undertaken between 15th October and 15th April in any year.
- 3.1.6 In river tracking if required shall be kept to an absolute minimum.
- 3.1.7 A fish rescue using electric fishing method shall be required for the sheet pile bunded area.
- 3.1.8 To reduce disturbance impacts to salmonids use non percussive sheet piling method (e.g. hydraulic rams), keep working hours between dawn and dusk (Monday to Friday) and do not install flood lamps over the river at night.
- 3.1.9 All machines and plant working near or in the river must use biodegradable hydraulic oil and engine oil.

|                    |                 |                |              |          |
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3.1.10 Notification of the commencement date of works must be provided to NRW Neath and Swansea Environment Teams, prior to any in river works; [npt.et@cyfoethnaturiolcymru.gov.uk](mailto:npt.et@cyfoethnaturiolcymru.gov.uk) and [swanseaenvironmentteam@cyfoethnaturiolcymru.gov.uk](mailto:swanseaenvironmentteam@cyfoethnaturiolcymru.gov.uk)

- 4.1 Notifications**
- 4.1.1 Natural Resources Wales shall be notified as soon as reasonably practicable following detection, within the site of: (a) any malfunction, breakdown or failure of equipment or techniques, accident, or emission of a substance causing or may cause significant pollution; and
- 4.1.2 Natural Resources Wales shall be notified within 14 days of the occurrence of the following matters, except where such disclosure is prohibited by Stock Exchange rules: a) any change in the operator’s trading name, registered name or registered office address; and
- b) any steps taken with a view to the operator going into administration, entering into a company voluntary arrangement or being wound up.
- a) any change in the operator’s name or address; and
- b) any steps taken with a view to the dissolution of the permit holder.

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- 3.1.5 No in river works shall be undertaken between 15<sup>th</sup> October and 15<sup>th</sup> April in any year.
- 3.1.6 In river tracking if required shall be kept to an absolute minimum.
- 3.1.7 A fish rescue using electric fishing method shall be required for the sheet pile bunded area.
- 3.1.8 To reduce disturbance impacts to salmonids use non percussive sheet piling method (e.g. hydraulic rams), keep working hours between dawn and dusk (Monday to Friday) and do not install flood lamps over the river at night.
- 3.1.9 All machines and plant working near or in the river must use biodegradable hydraulic oil and engine oil.
- 3.1.10 Notification of the commencement date of works must be provided to NRW Neath and Swansea Environment Teams, prior to any in river works; [npt.et@cyfoethnaturiolcymru.gov.uk](mailto:npt.et@cyfoethnaturiolcymru.gov.uk) and [swanseaenvironmentteam@cyfoethnaturiolcymru.gov.uk](mailto:swanseaenvironmentteam@cyfoethnaturiolcymru.gov.uk)

4.0 Notification and interpretation

4.1 Notifications

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4.1.1 Natural Resources Wales shall be notified as soon as reasonably practicable following detection, within the site of:

- (a) any malfunction, breakdown or failure of equipment or techniques, accident, or emission of a substance causing or may cause significant pollution; and
- (b) any other significant adverse effects on the environment or flood risk, which may have been caused by the activity, shall also be notified to Natural Resources Wales as soon as reasonably practicable following detection.

4.1.2 Natural Resources Wales shall be notified within 14 days of the occurrence of the following matters, except where such disclosure is prohibited by Stock Exchange rules: a) any change in the operator’s trading name, registered name or registered office address; and

b) any steps taken with a view to the operator going into administration, entering into a company voluntary arrangement or being wound up.

- a) any change in the operator’s name or address; and
- b) any steps taken with a view to the dissolution of the permit holder.

4.1.3 For the activity as listed in the permit on page 3, where the operator proposes to make a change in the nature of the activity that could have an adverse effect on the environment or flood risk, the permit holder should contact Natural Resources Wales and if necessary, apply for a variation of the permit.

4.1.3 For the activity as listed in the permit on page 3, where the operator proposes to make a change in the nature of the activity that could have an adverse effect on the environment or flood risk, the permit holder should contact Natural Resources Wales and if necessary, apply for a variation of the permit.

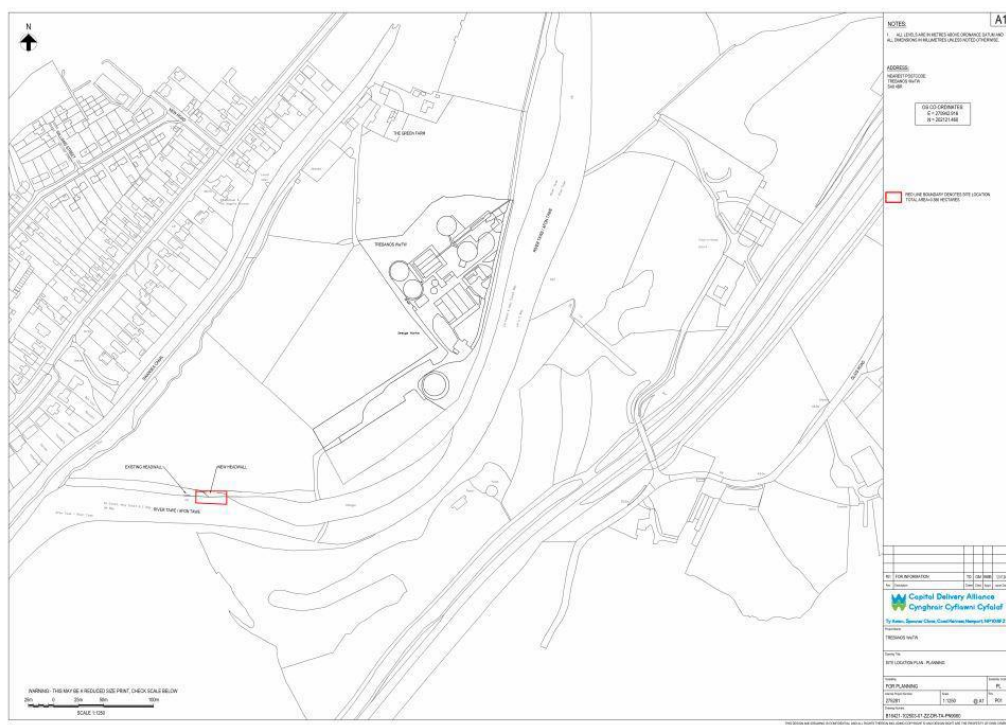
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# Site Specific Environmental Management Plan

## 4.2 Interpretation

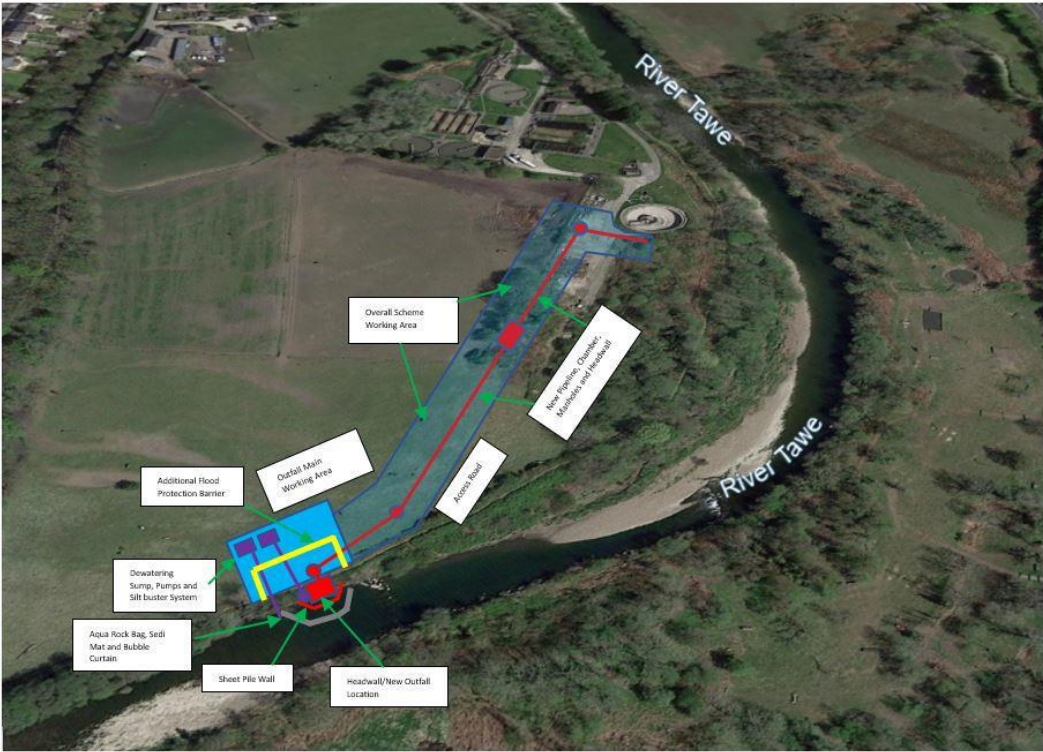
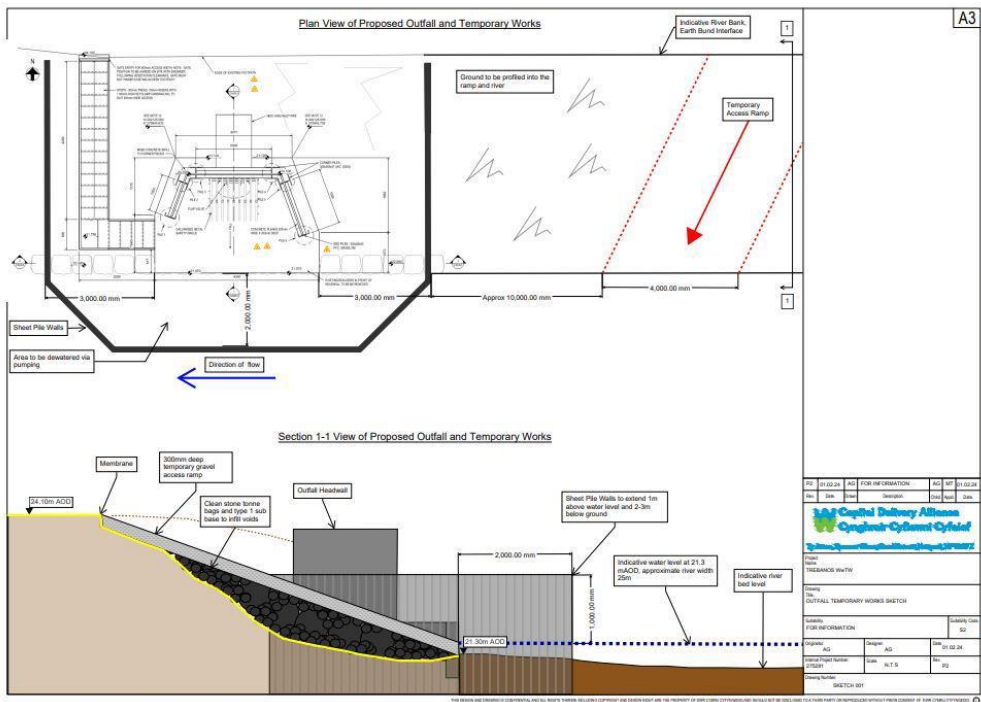
(a) In this permit the expressions used shall have the meaning given in Schedule 2.

## Schedule 1 – Plans of Regulated Facility



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Schedule 2 - Interpretation

“Activity” means a flood risk activity and includes:

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- Erecting any structure (whether temporary or permanent) in, over or under a main river.
  - The carrying out of any work of alteration or repair on any structure (whether temporary or permanent) in, over or under a main river if the work is likely to affect the flow of water in the main river or to impact on any drainage work.
  - Erecting or altering any structure (whether temporary or permanent) designed to contain or divert the floodwaters of any part of a main river.
  - Any dredging, raising or taking of any sand, silt, ballast, clay, gravel or other materials from or off the bed or banks of a main river (or causing such materials to be dredged, raised or taken), including hydrodynamic dredging and desilting.
  - Any activity which is likely to divert the direction of the flow of water into or out of a main river or alter the level of water in a main river.
    - Any activity within 8 metres of a non-tidal main river (or within 8 metres of any flood defence structure or culvert on that river) or any activity within 16 metres of a tidal main river (or within 16 metres of any flood defence structure or culvert on that river) which is likely to:
      - o cause damage to or endanger the stability of the banks of that river or of any culvert;
  - cause damage to any river control works;
  - alter, reconstruct, discontinue or remove any river control works;
  - divert or obstruct flood waters or impact on the drainage of that river; or
  - interfere with Natural Resources Wales’ access to and along that river
- 
- Any activity (other than an allowed activity (see below for definition)) on a flood plain that is:
    - o more than 8 metres from a non-tidal main river or more than 16 metres from a tidal main river; or
  - more than 8 metres from any flood defence structure or culvert on a non-tidal main river or more than 16 metres from any flood defence structure or culvert on a tidal main river, which is likely to divert or obstruct floodwaters, to damage any river control works or to impact on drainage.
  - Any activity within 16 metres of the base of a sea defence which is likely to:
    - o endanger the stability of, cause damage to or reduce the effectiveness of that sea defence; or
  - interfere with Natural Resources Wales’ access to and along that sea defence.
  - Any activity within 8 metres of the base of a remote defence which is likely to
    - o endanger the stability of, cause damage to or reduce the effectiveness of that defence, or
  - interfere with Natural Resources Wales’ access to and along that defence.
  - Any quarrying or excavation within 16 metres of the base of a remote defence which is likely to cause damage to or endanger the stability of that defence.
  - Any quarrying or excavation within 16 metres of a main river or any flood defence structure or culvert on that river which is likely to cause damage to or endanger the stability of the banks of that river.

"Annually" means once every year.

"Application" means the application for this permit, together with any additional information supplied by the permit holder as part of the application and any response to a notice served under Schedule 5 to the EP Regulations.

"Bank" means any bank, berm, wall or embankment that adjoins or confines any main watercourse and includes the side of the bank that stretches down to the mean low-water mark (in the case of a watercourse in which tidal waters flow) or to the bed of the watercourse (in any other case). In the case of a watercourse in which tidal

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waters flow, the bank includes any wall or embankment constructed or maintained by the regulator in the sea or an estuary for the purposes of or in connection with a river.

“Operator” means the person/organisation/company who has been granted a permit to undertake a regulated activity.

“Natural Resources Wales” means the Natural Resources Body for Wales established by article 3 of the Natural Resources Body for Wales (Establishment) Order 2012. The Natural Resources Body for Wales (Functions) Order 2013 transferred the relevant functions of the Countryside Council for Wales, and functions of the Environment Agency and the Forestry Commission in Wales to the Natural Resources Body for Wales.

“Regulated Facility” means the Flood Risk Activity and the location of the Activity.

“Watercourse” means a main river which is a watercourse shown as such on a main river map and includes any structure or appliance for controlling or regulating the flow of water into, in or out of the channel which:

- a) is a structure or appliance situated in the channel or in any part of the banks of the channel; and
- b) is not a structure or appliance vested in or controlled by an internal drainage board.

“year” means calendar year ending 31 December.

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Appendix F  
Invasive Species Management plan

Japanese Knotweed  
Management Plan

Trebanos Waste Water Treatment Works  
Client: Morgan Sindall Infrastructure  
Client Agent: Huw Williams  
Surveyor: James Edwards of Clearsafe Knotweed  
Survey Dates: Various dates between October 2023 and January 15th 2024  
Plan by: James Edwards of Clearsafe Knotweed  
Plan date: 14/01/2024

Revision Record

| DATE     | CHANGES MADE                                              | INITIALS |
|----------|-----------------------------------------------------------|----------|
| 02/02/24 | Extra detail added to clarify work areas                  | JE       |
| 06/02/24 | Acknowledgement sheet included to record briefings onsite | JE       |
| 07/02/24 | Extra JK to be included in works area 1 added (P13-14)    | JE       |

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| Page 8      | Himalayan Balsam background and legislation           |
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|             | Client's need for a Japanese Knotweed management plan |
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Site Specific Environmental Management Plan

Glossary

- **IWMP** – Invasive weed management plan
- **INNW** – Invasive non native weed
- **JK** – **Japanese Knotweed**
- **HB** – **Himalayan Balsam**
- **CSK** – **Clearsafe Knotweed**
- **MS** – **Morgan Sindal**
- **DCWW** – Welsh Water
- **WWTW** - Waste Water Treatment Works
- **RAMS** – Risk assessment method statement
- **SSOW** – Safe system of work
- **TBT** – Toolbox talk
- **SSSI** – Sites of Special Scientific Interest
- **SPA** – Special Protection Area
- **SAC** – Special Area of Conservation

Relevant documents and references

Code of practice for the management of Japanese Knotweed - Property Care Association

PCA Guidance Notes - The problems of Japanese knotweed - Advice for Developers

The Control of Japanese Knotweed (*Fallopia japonica*) in Construction and Landscape contracts - Model Specification and Guide to Procurement – Welsh Government

Managing Japanese knotweed on development sites – The knotweed code of practice – withdrawn – The Environment Agency

Japanese Knotweed background and legislation

Japanese Knotweed – *Fallopia japonica* - is thought to have been first brought into the UK for use in Victorian ornamental gardens in the 1800s and was also used to stabilise embankments such as railways and riverbanks. JK is a perennial plant that grows vigorously, outcompeting other plants, particularly native ones. It can dominate large areas and significantly reduce biodiversity to the detriment of a range of other organisms.

The JK root system is very extensive, with the plants’ vegetative growth often being compared to the ‘tip of the iceberg’ with 70-80% of the biomass below the ground (see below). This root system or ‘rhizome’ is an energy store but also a means of extending the coverage of the plant. The rhizome is particularly important in the UK because all of the plants here are female and so spread of the plant is through soil movements or horizontal growth, except for limited cases of hybridisation with Giant Knotweed and Dwarf Knotweed, which are very similar plants.

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The plant spreads through its extensive root system, or rhizome, with pieces as small as a fingernail being enough to start off a new infestation. It is extremely hard to get rid of because the plant can extend up to 4m vertically below ground and up to 7m horizontally



It can cause damage to structures and surfaces where it can exploit lines of weakness and then exert huge forces which can even lead to cracking and lifting of concrete and separation of masonry (see below). Even though only female plants exist in the UK, there are no natural predators for JK, so it thrives and out-competes other species. Attempts to introduce predator species appear to have been ineffective.

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The spreading of JK is governed under the Wildlife and Countryside Act 1981 / Wildlife. Part I (Wildlife – Miscellaneous), Section 14, Clause 2 of the Act states: ... if any person plants or otherwise causes to grow in the wild any plant which is included in Part II of Schedule 9, he shall be guilty of an offence. Schedule 9 (animals and plants to which section 14 applies), Part II (Plants) lists JK. It is therefore a defence to the provision of the Act to undertake all reasonable steps to control JK on, or infringing onto, your land. The plant is not cited under any legislation that requires its presence to be notified to either DEFRA (Department for Environment Food and Rural Affairs) or local planning authorities, and neither is it listed under The Weeds Act of 1959.

The National Infrastructure Act 2015 introduced powers to force owners of property with a JK infestation that is causing damage or loss of amenity to other properties to enter into a control agreement. Where the agreement is refused or not adhered to, powers of entry can be exercised to treat the infestation and costs recovered from the landowner (Natural Resources Wales are unlikely to enforce this, however, it is a possibility).

Civil actions for private nuisance can be brought against landowners who allow JK to cause damage or loss to others. The precedent has been set by a recent case where a High Court judge found against Network Rail, awarding a house owner damages for loss of value to their property and JK treatment costs. The ruling has been upheld by the Court of Appeal.

Under the Environmental Protection Act 1990, Duty of Care Regulations 1991, JK material to be removed from site, must be removed by a licensed waste carrier to a licensed landfill site for disposal and accompanied by appropriate waste transfer documentation. JK needs to be handled in a responsible manner to protect the environment and prevent property risk, and any works conducted to control or eradicate this invasive weed should be completed in accordance with the current relevant legislation.

Below is a great example of JK sprouting from very small pieces of rhizome.



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Himalayan Balsam background and legislation

Himalayan balsam (HB) - *Impatiens glandulifera* - is an attractive looking flower, with a stout, hollow stem, trumpet shaped pink/white flowers and elliptical shaped green leaves. It grows in dense stands and can be up to 2m tall, quickly taking over whole areas.

It has an explosive seed capsule, which scatters seeds over a distance of up to 4m. There is very little root system but the seeds survive in the ground for 2 to 3 seasons. The seeds germinate all through the summer and autumn and towards the end of the season they can produce seed within 2 weeks of being visible, so they require pulling up regularly throughout the season before the seed pods form. Whilst it is possible to get rid of HB in 2-3 seasons by exhausting the seed bank, the effort involved often means it takes considerably longer!

HB grows anywhere but particularly well on river banks and in damp woodlands and places where it is undisturbed.

It was introduced into Kew Gardens and has spread via its seeds – both individuals passing on the seed to others for garden planting and seeds floating down rivers or being transported with soil movements.



Himalayan balsam grows in dense stands and shades out and crowds out many native species. It produces much nectar and therefore is attractive to pollinating insects, to the detriment of native flowering plants (which are no longer visited by these insects and thus don't get pollinated).

It dominates riverbanks and in the winter when it dies back its shallow root system is no help in stabilising the bare bank, which is then at risk of erosion leading to further seed spread. Dense stands can also impede the water flow at times of high rainfall, increasing the likelihood of flooding.

Even though not as destructive, like JK, HB is 'Schedule 9' and it is therefore an offence to 'intentionally or recklessly cause it to grow in the wild. It is also subject to the same waste legislation, making it very expensive to get rid of as waste. Luckily it does not penetrate far into the soil and is therefore easier and less expensive to manage by excavation.

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1. Introduction

Site - Trebanos WWTW –

An area of the WWTW site is currently being used for soil storage that needs to be developed as part of an extension of the WWTW but the soils are partially infested with Japanese Knotweed and Himalayan Balsam.

Site Visits and surveys

The site has been visited informally by CSK on a number of occasions to discuss the works and to gather information for providing quotes and planning for specific works. Initially, an IWMP was not required by the client but we have recently been asked to produce one. The IWMP will make detailed reference to all of the areas where CSK are undertaking works on INNW; other areas where works such as treeworks are being carried out will be briefly referenced in the introduction, then only where they are relevant to the INNW works. Trebanos WWTW borders the River Tawe to the east and Green Farm Riding School to the West; it is accessed via a concrete road that crosses the canal and passes alongside the Trebanos Rugby Club (Trebanos RFC) as shown in the satellite view on Page 12. The site is not within a SSSI, SAC or SPA and there are no other relevant designations; the nearest relevant site is the Galis Moraine SSSI which lies 1.9KM to the southwest.

Client’s need for Japanese Knotweed (JK) management plan

Trebanos WWTW has an area of undeveloped land where soils from previous works have been stored as raised bunds on a concrete slab; the bunds have been recolonised by vegetation. There appears to be a number of areas of JK interspersed amongst the vegetation and some patches of Himalayan Balsam amongst the vegetation. Historical satellite photos appear to indicate that the extent of the JK infestation is now smaller than it once was but largely located in the same places. The soil needs to be removed to allow development of the land and the presence of the JK makes it very expensive to get rid of the soil, so the client is looking for a way to reduce the soil disposal costs. Clearsafe Knotweed can help with this by identifying which soil contains JK and which soil does not, to both avoid the uplifted cost due to the JK and potentially to avoid the extra landfill tax charges in any soils that could be disposed of as subsoils.

During works to clear soils in areas of habitat suitable to support species such as Dormouse or Bats, there will be an ecological watching brief onsite to ensure legal compliance around the disturbance of species and their habitats. All of our employees will be given basic training at induction on how to work with the ecologist and any special procedures required in the event of any species of concern being found onsite.

IWMP objectives

The overarching objective of the management plan is to successfully treat all of the JK on and up to 3m from the boundary of the site.

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- Vital to the success of the project is:
- To effectively remove JK from the areas where construction of new apparatus is required
  - To effectively move a raised bund containing Jk to allow MS to extend the RFC car park.
  - To effectively treat the JK remaining near the RFC Carpark
  - To outline a plan for ongoing INNW treatments at the site that can be taken on by CSK or others.

2 Site and infestation descriptions

Site location:

|              |                        |
|--------------|------------------------|
| Grid         | SN 71092 02190         |
| Reference    |                        |
| Co-ordinates | 51.703601 , -3.8668731 |

Site Description

The site is a WWTW with the usual tanks and ancillary buildings. The rest of the site is a mixture of scrubland, grassland, concrete slabs and concrete access roads.

The Works Areas (see map below on page 12)

As well as the WWTW, there are a number of other areas where works are being undertaken, although only one of these will be having works undertaken where there is a high potential for plant and people to come into contact with INNW. This additional area will be managed will be included in the scope of the IWMP with the same principles described used.

The scope of the IWMP will only include ‘area 1’ and ‘area 2’ as shown on the map on page 12 : -

Area 1 - Trebanos WWTW has an area of undeveloped land at the south end where soils from previous works have been stored as raised bunds on a concrete slab; the bunds have been recolonised by vegetation. The bunds will be referred to as the ‘large bund’ (east side) and the ‘small bund’ (west side) – see page 14. The large bund is approximately 200m long by 20m wide by 1.3mdeep and the small bund is approximately 50m by 20m and around 1.7m deep.

Area 2 - Outside of the site there is another raised bund adjacent to the Trebanos RFC carpark which is to be moved northwards around 15m to enlarge the RFC carpark. Works in this area will be managed as per WWTW

The scope of the IWMP will not include the following areas numbered as they are not within the WWTW and do not have INNW in the works or access areas : -

Area 3 - The access road has a tree-hedge that overhangs the side of the road in many places, this will need to be trimmed back but the cutting-equipment will not leave the access road or come into contact with any live INNW. It will be inspected before leaving site as a precaution.

Area 4 – The area includes 4-5 trees in the riding school to the west of area 1 that will be removed, the land does not currently present any INNW in immediate area that we will be working in or using for access. There is an area

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of HB but that will be segregated from the work area with fencing or have already been removed and covered over with barrier membrane and aggregate if it is subsequently used for access.

Area 5 - There is an area of river bank that will be cleared near the outfall; we will be passing areas of INNW but there is none on the access track or works area.

The initial works carried out in January and February 2024 will only be undertaken on the small bund and areas 2 to 5. The large bund works will be undertaken Circa November 2024.

The works area map:

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Infestation descriptions

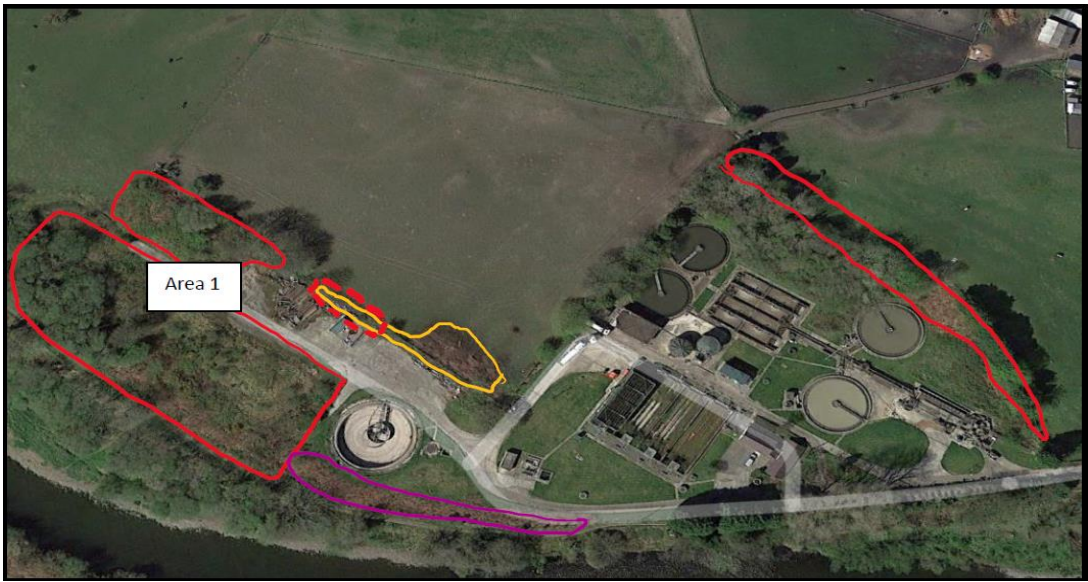
WWTW

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The extent of the INNW in the WWTW, which includes 'Area 1' has not been formally surveyed for INNS during the growing season because the scope of the works involves one section of the works only; the rest of the area is outside of the scope of this IWMP, however, the diagram below shows known areas of infestation for the whole of the WWTW.

NB. Since the first draft JK has been found in the area initially shown as 'HB only' and may become part of 'Area 1'. This is shown as a red dotted line below and on page 14. Excavation of this area may require breaking of the slab and excavation into the riding school', therefore, it may need to be excavated at a future date (TBC).



Key



Japanese Knotweed and Himalayan Balsam



Himalayan Balsam only



Japanese Knotweed only

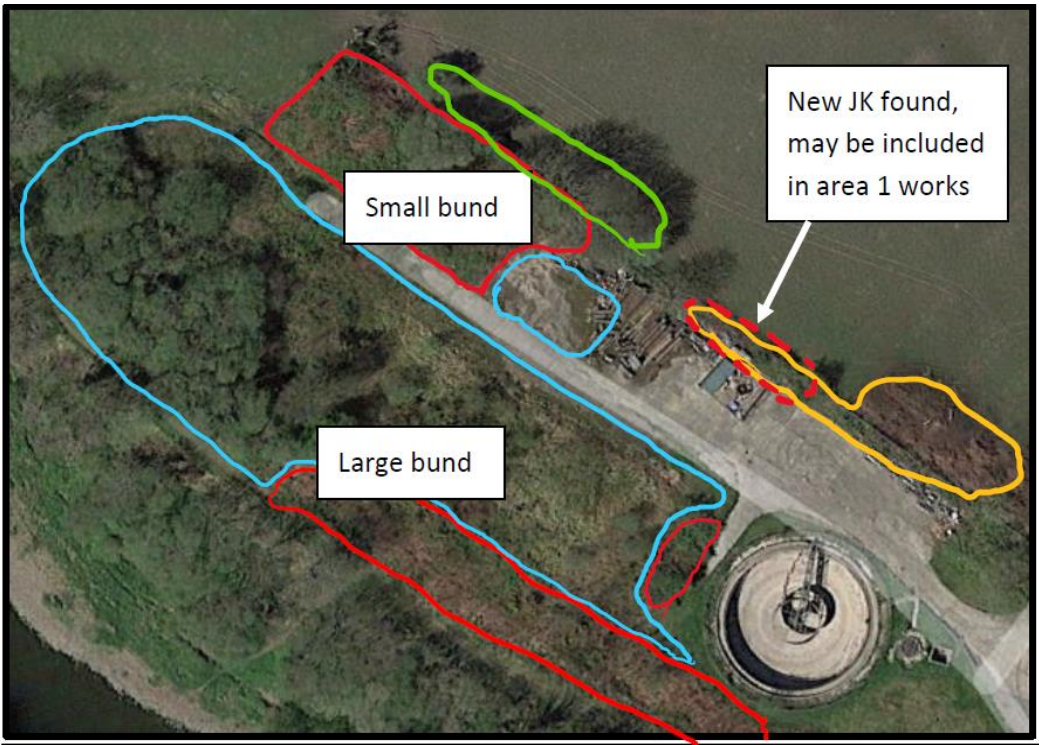
Work area 1 – INNWs

Objective – Separate soils containing Japanese Knotweed for separate disposal to minimise costs

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(see 'Soil Management' section).



JK predominantly - soil separation not feasible



JK patches - soil separation feasible



Himalayan Balsam only - removal not part of the works



Trees to be removed

Work Area 2

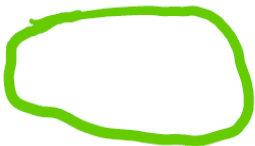
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Objective – Clear vegetation and move part of the soils to an adjacent area, excavating to 300mm below ground level.



Key



JK predominantly – dead JK canes and vegetation removed



JK soils to be moved northwards.



JK soils to be removed to this location requiring removal of dead JK canes



Trees to be removed

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Infestation Information

|                                             |                                                                                                                                                                                                                                                                                  |
|---------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Infestation Information                     | Trebanos WWTW                                                                                                                                                                                                                                                                    |
| Location                                    |                                                                                                                                                                                                                                                                                  |
| Label                                       | Area 1 small bund                                                                                                                                                                                                                                                                |
| Grid reference                              | SN 71068 02198                                                                                                                                                                                                                                                                   |
| Historical evidence of growth and treatment | Fully grown dead canes broken on floor are evident.<br>The older satellite pictures are inconclusive; strong evidence of an infestation since at least 2013 but potentially as far back as 2005.<br>Growth suggests there was not an effective treatment in the last two seasons |
| INNw present                                | JK and HB                                                                                                                                                                                                                                                                        |
| % INNw cover                                | JK - >80%                                                                                                                                                                                                                                                                        |
| Growth presentation                         | JK – Standing dead canes of 1-5 – 2.5m of medium thickness and medium density                                                                                                                                                                                                    |
| % INNw cover                                | HB - <5%                                                                                                                                                                                                                                                                         |
| Growth presentation                         | HB – Evidence of fully grown dead canes in patches at the edge                                                                                                                                                                                                                   |
| Other vegetation                            | Brambles, small trees and saplings, other scrub plants                                                                                                                                                                                                                           |
| Impact                                      | Stored soil is unusable in its current state.                                                                                                                                                                                                                                    |
| Source?                                     | Likely to be imported soils                                                                                                                                                                                                                                                      |
| Comments                                    |                                                                                                                                                                                                                                                                                  |

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| <b>Location</b>                                    | Trebanos WWTW                                                                                                                                                                                                                                                                    |
| <b>Label</b>                                       | Area 1 large bund                                                                                                                                                                                                                                                                |
| <b>Grid reference</b>                              | SN 71110 02176                                                                                                                                                                                                                                                                   |
| <b>Historical evidence of growth and treatment</b> | Fully grown dead canes broken on floor are evident.<br>The older satellite pictures are inconclusive; strong evidence of an infestation since at least 2013 but potentially as far back as 2005.<br>Growth suggests there was not an effective treatment in the last two seasons |
| <b>INNw present</b>                                | JK and HB                                                                                                                                                                                                                                                                        |
| <b>% INNw cover</b>                                | JK - <15%                                                                                                                                                                                                                                                                        |
| <b>Growth presentation</b>                         | JK – Standing dead canes of 1-5 – 2.5m of medium thickness and medium density in patches mostly at the rear of the bund where they cross the boundary.                                                                                                                           |
| <b>% INNw cover</b>                                | HB - <5%                                                                                                                                                                                                                                                                         |
| <b>Growth presentation</b>                         | HB – Evidence of fully grown dead canes in patches at the south/edge                                                                                                                                                                                                             |
| <b>Other vegetation</b>                            | Brambles, small trees and saplings, other scrub plants                                                                                                                                                                                                                           |
| <b>Impact</b>                                      | Stored soil is unusable in its current state.                                                                                                                                                                                                                                    |
| <b>Source</b>                                      | Likely to be imported soils                                                                                                                                                                                                                                                      |
| <b>Comments</b>                                    |                                                                                                                                                                                                                                                                                  |

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|----------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Location</b>                                    | Trebanos RFC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Label</b>                                       | RFC Carpark                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Grid reference</b>                              | SN 71237 02687                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Historical evidence of growth and treatment</b> | Fully grown dead canes broken on floor are evident.<br>Satellite photos suggest an infestation was present as far back as at least 2002, before this the photographic evidence is not discernible.<br>Between 2016 and 2018 a carpark was created and paths across the land disappear suggesting that the current raised soil bund was formed from the excavated soils. This means that the rhizome will be growing throughout the raised bund and potentially extend deep below ground level. |
| <b>INNw present</b>                                | JK and HB                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>% INNw cover</b>                                | JK - <15%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Growth presentation</b>                         | JK – Standing dead canes of 1-0 – 2.5m of medium thickness and low to medium density.<br>Growth round the sloping edges and base is smaller and low density due to treatments carried out in 2022. The growth                                                                                                                                                                                                                                                                                  |
| <b>% INNw cover</b>                                | HB - <5%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Growth presentation</b>                         | HB – Evidence of fully grown dead canes in patches at the edge                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Other vegetation</b>                            | Brambles, small trees and saplings, other scrub plants                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Impact</b>                                      | Stored soil is unusable in its current state and makes the area unusable.                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Source</b>                                      | Likely to be imported soils                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Comments</b>                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |

#### Photos of the work areas

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Area 1- Small bund showing a high proportion of JK coverage



Area 1- Large bund showing patches of JK coverage amongst other vegetation



Area 1- Concrete hardstanding under and adjacent to small and large bunds

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Area 2 – Raised bund adjacent to RFC carpark showing signs of dead JK growth

#### Potential sources of re-infestation by INNW

##### Potential sources of re-infestation by INNW

###### Location

###### Potential Source and likelihood

###### Mitigation

###### Potential Source and likelihood

###### Mitigation

Area 1 – small bund

Rhizome growing to the outside of the boundary into the riding school growing back into the area post excavation. There is a small area where there is a low likelihood of this, Further excavation to remove JK rhizome post purchase of the land

Growth beneath the existing concrete slab preventing removal

Removal of slab during works to allow further excavation

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| <b>Location</b>                        | Area 1 – large bund                                                                                                                                                                                                                                                                                                                                          |
| <b>Potential Source and likelihood</b> | The JK infestation growing either side of the boundary will leave rhizome immediately outside of the boundary that will very likely grow back into the WWTW.                                                                                                                                                                                                 |
| <b>Mitigation</b>                      | Installation of a barrier membrane will stop this temporarily while a herbicide treatment programme is carried out (subject to permission by the landowner.<br>A herbicide treatment programme alone may allow some horizontal growth into the WWTW but should be successfully treated and only represent a risk to structures within 1-2 m of the boundary. |
| <b>Potential Source and likelihood</b> | Growth beneath the existing concrete slab preventing removal                                                                                                                                                                                                                                                                                                 |
| <b>Mitigation</b>                      | Removal of slab during works and further excavation                                                                                                                                                                                                                                                                                                          |
| <b>Potential Source and likelihood</b> | HB seeds released by the canes growing amongst the JK will release seeds that may end up crossing the boundary.                                                                                                                                                                                                                                              |
| <b>Mitigation</b>                      | The HB growing amongst the JK should be pulled and laid down before the seed pods form, this will need to be done at least fortnightly from around the end of July                                                                                                                                                                                           |

**Location** Trebanos RFC car park

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| <b>Potential Source and likelihood</b> | The planned excavation will not remove the JK completely from the area, so the aggregate in the car park will need to be protected with JK barrier membrane. A permeable JK membrane, whilst more expensive than impermeable, will prevent rain pooling and causing problems later on. The existing carpark does suffer from some JK growing through the aggregate base in summer, this will need to be removed by hand and placed amongst the nearby JK growth areas to die off and avoid causing. |
| <b>Mitigation</b>                      | The JK in the area will need to be treated at the appropriate time of the season to weaken it and reduce the likelihood of it growing over the JK membrane                                                                                                                                                                                                                                                                                                                                          |
| <b>Potential Source and likelihood</b> | Further excavation post purchase of the land                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Mitigation</b>                      | Growth beneath the existing concrete slab preventing removal                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Potential Source and likelihood</b> | Removal of slab during works and further excavation                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Mitigation</b>                      | HB seed may be deposited into the carpark by the plants or transferred in from outside from adjacent areas of growth.                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Potential Source and likelihood</b> | A programme to pull and lay down the HB growing nearby before the seed pods fully form will be needed to prevent seed dispersal.                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Mitigation</b>                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |

### 3 INNW Management onsite

#### INNW management options considered

The following options or combinations of these options can be used : -

- 1 Herbicide treatment** - Long term herbicide application can be very effective when carried out by competent personnel, it usually takes 3 to 5 years to control the infestation but will require monitoring for a further 2 years to ensure that there is no regrowth. Whilst there are always risks associated with the use of herbicides, especially in areas of natural vegetation, careful use of herbicide in most areas presents a lower ecological risk than a JK infestation left to spread and out-compete the indigenous vegetation. Long term herbicide application is generally the lowest cost option.
- 2 Bunding and treatment** - Should the infestation fall within an area of site that the owner subsequently wishes to develop, it is possible to excavate the JK rhizome and transfer it to another area of the site which will remain undeveloped. It is stored on a JK barrier membrane and treated with herbicides using the same method as option 1 above.
- 3 Excavation and disposal offsite** – Where there is no space onsite but the infestation needs to be removed immediately, all of the soil can be removed and disposed of to a licensed waste management facility. 'Dig and dump' as it is known is usually the most expensive option due to the combined costs of haulage, landfill charges and landfill tax. Usually the 'active' or biological content will be more than 5% due to the JK rhizome and will be charged at C.£100 per tonne just for the tax; where chemical contamination is present, combined costs are usually considerably more than £200 per tonne.
- 4 Rhizome breakup and removal** – The rhizome can be removed from the soil using machinery and is expensive but usually less than the landfill costs associated with 'dig and dump'. It is not possible to get rid of all of the rhizome first time but storing the soil and allowing regrowth before either treating with herbicide or further mechanical removal is usually successful in 1-2 seasons. The much smaller quantity of removed rhizome can then be disposed of at a lower cost or even incinerated onsite under

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the correct waste exemptions. This method only becomes cost efficient where there are large areas of infestation due to the costs of mobilising the machinery and usually needs to be started well in advance of construction onsite.

- 5 Burial cell** - Excavating and burying onsite inside an approved membrane means that an area on the land must be protected and cannot be dug for at 10-20 years; the 'cell' must also be registered with Natural Resources Wales (NRW). This also avoids costly landfilling but is still a mid-level cost option.
- 6 New experimental method – 'Root reset'** – We are soon to trial a new method where we add a biological agent to the soil that encourages natural breakdown of the rhizome. The method has shown high rates of success in previous trials but does take around 12 months to complete.

#### Chosen management options

The option chosen by the client is a combination of Excavation and Disposal with elements of Bunding and Treatment. There are three differing approaches : -

##### Area 1 - Small bund

The small bund almost entirely consists of JK infested soils, so it will be excavated and stored long term onsite in a redundant tank and treated with herbicide until growth ceases, then monitored for at least 2 seasons.

##### Area 1 – Large bund

The large bund will be excavated and all soils will be disposed offsite to landfill. The JK and HB soils will be separated from the non JK and HB soils to minimise costs by reducing the amount of soil that is classed as containing JK or HB (see next page). There may also be further separation of the soils to reduce the 'active content' to avoid the highest rate of landfill tax.

##### Area 2 – RFC carpark

The soils will be moved to an adjacent location to the north (see page 15), already heavily infested with JK and some HB where it will be treated with herbicides by CSK or others, NB. Responsibility post-MS works onsite may pass to others in all areas; this is currently TBC.

#### Soil and material segregation

##### JK and soil disposal costs

The presence of JK materials alone increases the landfill operators charges because there are specific requirements on the burial location, depth etc. There are also very few landfill operators that are allowed to take JK under their licence conditions. JK presence alone however, is not the only, or even most significant cause of uplifted soil disposal costs.

JK materials and other plant matter usually push up the 'active' content of the soil to above 5% which makes it fall into the 'non-hazardous' (ie. non-inert) category and it therefore falls into the higher rate of landfill tax (C.£100 extra per tonne). The reason for such a significant tax uplift is that active content breaking down in landfill produces methane which is thought to have a very high global warming effect, landfill tax charges are geared to minimise this.

The soil piles onsite appear, from the evidence above the surface, to be only partially infested with JK and therefore, it will almost certainly be possible to reduce the disposal costs significantly by

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separating the infested soil from the un-infested soil. Care will also be taken to separate the soils from vegetation and other active materials that could push up costs.

#### General principles of material segregation onsite

Soils will be split into up to four stockpile types depending on what is found when digging (see also note below on landfill. Sub-soils not containing INNW materials and less than 5% active materials - 'Normal' soil disposal costs

Soils not containing INNW materials but containing more than 5% active materials – Extra C.£100 per tonne additional to 'normal' soil disposal costs

Sub-soils containing INNW materials and less than 5% active materials Subsoils containing JK materials – extra 50-100% landfill operator charges over 'normal' soil disposal costs

Soils containing INNW materials but containing more than 5% active materials – extra 50-100% landfill operator charges over 'normal' soil disposal costs and extra C.£100 per tonne additional to 'normal' soil disposal costs

- The location/shape/size of stockpiles will be determined by ease of working onsite and ultimately how much of each is produced.
- Wood will be chipped and stored in a pile for subsequent removal from site
- Any other general waste that will be likely to change the classification of the soil will be split.

NB. Permanent storage of soils onsite in the redundant tanks does not does not require segregation

#### Soil separation techniques

##### Separating JK and non-JK soils – AKA 'Chasing the rhizome'

The objective of 'chasing the rhizome' is to remove the minimum quantity of infested soils leaving uninfested soils behind. Done carefully this leads to much lower disposal costs than the traditional approach of digging to a depth of 3m for 7m around the excavation.

1. The excavator will dig directly into stands of JK in thin scrapes up to 300mm deep to allow regular inspection, so that more soil than is necessary is not removed.
2. As the amount of JK rhizome thins out, smaller excavator buckets and thinner scrapes will be employed.
3. When JK rhizome cannot be seen in the bottom of the excavation, thin scrapes will be taken and the soils laid out and inspected,
4. Where rhizome is found, digging will continue.
5. Where no more rhizome is found, an extra 250mm of soil will be taken twice with inspections
6. The excavation will be visually inspected
7. Any rhizome found will revert the process to step 3 above.

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8. Removal of the surrounding soils will proceed as per method for soils not containing JK

### Separating HB and non HB soils

1. HB seeds occupy the top layer of the soil
2. The excavator will remove the top 300-400mm MM of soil in two scrapes
3. The soil removed will be treated as containing INNW

### Excavating soils not containing evident INNW

1. The top 300-400mm of the surface will be systematically scraped back in two layers with inspections of the soil and ground after each layer to confirm there is no evidence of INNW
2. The soils will be inspected to confirm INNW are not present
3. Where landfill taxes may lead to increased costs as previously described, excavation will proceed in layers.
4. Soils containing evident organic materials will be kept separate from the lower subsoils.

### Biosecurity

The most significant risk for biosecurity in this and any site where INNW are being excavated is viable materials being transferred and coming into contact with other areas, onsite or offsite, where they can set roots and grow. As a set of general principles, the following will be key to avoiding biosecurity risks being realised : -

### Risk

Rhizome transferred to new areas when stored temporarily

### Control

Avoiding temporary laydown of soils unless unavoidable, ie 'small bund' soil taken to the storage tanks directly from digout.

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Temporary storage primarily on concrete slabs which will be protected with a membrane or swept clean afterwards.

Storage on uninfested soil strictly forbidden, only on already infested soil.

Excavator tracks, rolling gear etc picking up and then depositing viable INNW materials to 'INNW free' locations

Excavators working adjacent to infested soils rather than on top wherever viable

Where excavator must position over INNW, create a platform which is protected with either an aggregate pad or 'bog-mats' on a membrane to prevent any contact.

Using excavators with a front blade to pick up soils and protect tracks etc

Documented inspection and mechanical cleaning of excavator blades and bucket before moving areas

Where tracks must sit in contact with INNW soils, removal of the majority of materials first from an adjacent position, ie scraping off the top layer of soil with HB seedbank and the highest density of JK rhizome first.

Tracks to be washed off with hand tools and pressure washer over a membrane where tracks have become contaminated. Contents of membrane emptied back into the infested area.

Dumper bucket, tyres and body holding and then depositing viable INNW materials to new locations

Loading from outside of the infested soil areas

Use of bucket sizes appropriate to the size of dumper to avoid overspill and not overloading the dumper

Use of membranes to protect under the loading area where there is a risk of transference, with inspections when leaving the area.

Other plant and tools and clothing causing transference of Viable INNW materials

Bootwash used when leaving an 'infested area'. Contents of bootwash emptied back into the infested area.

Documented inspection and cleaning of tools when leaving the infested area

Clothing to be inspected in a buddy system removing large 'blobs' of soil, although this risk has a low likelihood of occurrence due to the nature of the materials.

INNW materials transferred with vegetation clearance

JK canes and vegetation to be transferred and stored with the top layer of soils that already contains INNW and more than 5% active content.

Small saplings to be felled/brushcut/excavated/transferred with the soils containing INNW and more than 5% active content

No felling of tree from outside of the infested areas to be felled into the infested areas to avoid picking up INNW materials

Tree shears used for trees of up to 360mm so that they are lifted clear of the soil. Tree stumps and roots from infested areas to be disposed as containing JK and more than 5% active content.

No trees in infested areas are too large for the tree shears

#### 4 Other considerations –

##### Prevention of horizontal re-infestation

A JK barrier membrane may be required where the large bund borders the eastern boundary of the WWTW to provide protection against JK re-encroachment depending on the proximity of the construction. We have not seen detail of the proposed construction and can comment on this at a later date. As previously mentioned, membrane installation would provide an extra level of protection against JK. A general detail of installation can be found below.

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Installation of JK barrier membrane - JK barrier membrane is purpose made and guaranteed to prevent JK penetrating it; it can be laid vertically to provide a robust barrier to growth. JK membranes are guaranteed to remain protective for up to 50 years in the soil but unless it is monitored regularly, it is not always effective because they can be vulnerable to changes in the height of the soil, ground movements, be damaged by people or animals and they may cause hydrological changes. Installation requires excavation of a trench of pre-determined depth and vertical installation of the membrane according to the manufacturer's specification

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CSK installing 2.5m deep JK barrier membrane in Swansea to protect a new footpath

#### Dormancy of JK rhizome

All estimations for JK content in the raised bunds is based on the locations where JK is evidently growing. There are occasions where herbicide treatment can lead to dormancy, reportedly for up to 20 years. Long term dormancy can be associated with historical herbicide treatments at the wrong time of the season, treatments too often in the season or with herbicides that are not usually recommended for JK. Dormancy only becomes evident once excavation starts, we have excavated on sites where the expected area of JK coverage was around 170m<sup>2</sup> and around 1200m<sup>2</sup> was uncovered in the initial scrape. Unless the treatment history records and growth patterns have been recorded, levels of dormancy are impossible to predict. If dormancy is found onsite, it is likely to significantly increase the amount of soil that is declared as 'containing JK'.

#### Ecological watching brief

An ecological watching brief will be required in areas identified as those with potential to support Dormouse. The Ecological Clerke of Works (ECoW) will complete pre-clearance checks and supervise works to ensure they are carried out in line with the Dormouse Non Licensed Method Statement (NLMS) in these areas. The NLMS (not available at the time of writing this plan) will advise the clearance method to be employed e.g. use of brushcutters rather than the flail mower.

ECoW pre-clearance checks will also be required of those trees with bat potential"

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#### 5 Post completion works

##### Post vegetation and soil works herbicide treatments

The first works onsite to clear the small bund in Area 1 and the soil -shift in the RFC will take place in early February 2024 and the large bund is likely to be carried out in December 2024; the following herbicide treatment is likely to be needed.

##### Schedule of monitoring and herbicide treatment visits

Outline of the anticipated site visits post works completion by ourselves or others (TBC)

| Date        | Visit purpose                                                                                                                                                                                                               |
|-------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Spring 2024 | Monitoring visit                                                                                                                                                                                                            |
| Autumn 2024 | Treatment of large bund, RFC and eastern boundary of WWTW                                                                                                                                                                   |
| Spring 2025 | Monitoring visit                                                                                                                                                                                                            |
| Autumn 2025 | Treatment of RFC and outside eastern boundary of WWTW                                                                                                                                                                       |
| Spring 2026 | Monitoring visit                                                                                                                                                                                                            |
| Autumn 2026 | Treatment of RFC and outside eastern boundary of WWTW                                                                                                                                                                       |
| Spring 2027 | Monitoring visit                                                                                                                                                                                                            |
| Autumn 2027 | Treatment of RFC and outside eastern boundary of WWTW                                                                                                                                                                       |
| Spring 2028 | Monitoring visit                                                                                                                                                                                                            |
| Autumn 2028 | Treatment of RFC and outside eastern boundary of WWTW                                                                                                                                                                       |
| Spring 2029 | Monitoring visit – if growth has not returned, begin a monitoring programme only, twice per year in spring and autumn and cease after 2 full seasons without growth. If growth returns carry on as per the previous 5 years |

##### Ongoing surveying following successful herbicide treatment

The site should be surveyed in the spring and autumn each year with updates to this IWMP by CSK or others

##### Preventing further spread during the construction phase

There are a number of INNW infestations close to the working areas which workers will need to avoid. We would suggest that a site specific training package including a TBT should be produced to ensure that all of those working onsite recognise the relevant INNW, particularly in the earliest growth stage and know what they should and should not do if they encounter them. We specialise in providing training for construction professionals, particularly producing training materials and providing training on a 'train the trainer' basis; we are happy to design something site specific for the project team's needs if required.

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1. Appendix

I: About Clearsafe Partners

Clearsafe Partners Ltd is an invasive weed specialist, we trade as Clearsafe Knotweed. Our surveyor has been worked on invasive species removal and management in both a domestic and commercial setting for the last 17 years and holds individual membership of The Institute of Environmental Management and Assessment (IEMA). Our surveys are carried out by a certified JK Surveyor (CSJK) registered with the Property Care Association (PCA).

As this work requires risk assessments to be carried out, we have both the NEBOSH General Certificate in Occupational Health and Safety and NEBOSH National Certificate in Construction Health and Safety as well as the Construction Industry Training Board’s Site Management Safety Training Scheme (SMSTS) to allow us to safely control and manage a site where necessary.

Our herbicide application specialist has around 8 years of experience of applying the necessary herbicides to invasive species infestations. We also hold the relevant City and Guilds NPTC certificates to prove competence in the safe use of pesticides which allows us to apply the herbicides required to treat JK and other invasive plants (PA1, PA6 and PA6W).

We can provide our customers with a contract-based insurance backed guarantee for the period they require, usually 5 or 10 years as protection against non-completion of contract due to non-performance or insolvency. This guarantee allows the customer to pay the entire contract sum up front with a high degree of confidence that Should Clearsafe Partners cease to trade, the remainder of the contract work would be insured so the customer can contract another JK treatment company at no extra cost.

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## Appendix G

## Emergency Ideal Response Poster



**H S Q ENVIRONMENT BULLETIN**

**MORGAN SINDALL INFRASTRUCTURE**

### Ideal Response - emergency response partner

Ideal Response will provide emergency response services to Morgan Sindall Infrastructure projects 24 hours a day, 365 days a year. The Ideal Response team aims to attend site within 4 hours of receiving the emergency call to the help desk.

Should we require an emergency response following a major environmental incident, such as a fire, flood, sewage contamination, decontamination, oil or chemical spillage, the following process should be followed:

|                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                        |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Stage one</b><br>Contact the Ideal Response team on the dedicated 24-hour emergency help line<br><br><b>0808 239 9598</b><br>And provide the building number, type and location of the emergency (full description), together with contract details.                                                                                                                          | <b>Stage two</b><br>Ideal Response will then confirm the expected time of arrival and will send out alerts to the sites nominated managers. Alerts will continue to be sent out during the time the team is on site updating managers and confirming when works have been completed. They aim to be on site within a four hour period. |
| <b>Stage three</b><br>Ideal Response will update the project team, in the event that any further steps need to be taken as part of the emergency management process. Before, during and after photographic evidence will be taken by the Ideal Response team and included in the final report together with all other reports as required and agreed by the Ideal Response team. | <b>Stage four</b><br>Ideal Response project team will project manage the whole operation from the initial assessment through to completion.                                                                                                                                                                                            |

**Primary points of contact**

|                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                    |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Adam Bourgeois</b><br>Key Account Manager Ideal Response<br><b>T:</b> 0808 239 9598<br><b>M:</b> 07515 599 904<br><b>W:</b> <a href="http://www.idealresponse.co.uk">www.idealresponse.co.uk</a><br><b>E:</b> <a href="mailto:adam@idealgrouptuk.co.uk">adam@idealgrouptuk.co.uk</a> | <b>Murat Kunacav</b><br>Business Development Manager, Ideal Response<br><b>T:</b> 0808 239 9598<br><b>M:</b> 07515 599 900<br><b>W:</b> <a href="http://www.idealresponse.co.uk">www.idealresponse.co.uk</a><br><b>E:</b> <a href="mailto:murat@idealresponse.co.uk">murat@idealresponse.co.uk</a> |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

**24 Hour Dedicated no: 0808 239 9598**

**ideal RESPONSE**

Follow this link to view the Group trading agreement: <https://morganindallgroup.sharepoint.com/sites/MG/Groups/51ed39e0-61ed-439a-b39d-819999999999>

|                                          |                           |                              |
|------------------------------------------|---------------------------|------------------------------|
| SH&Q Alert date: 31/12/23                | Display until: 31/12/2023 | Everyone has the right to be |
| Distribution: Morgan Sindall             | Supply Chain              | Plant Hire Desk              |
| Communication: Toolbox talks / briefings | Noticeboards              | SH&Q update                  |

**100% Safe**

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