Construction Environmental Management Plan (CEMP)

Mumbles Coastal Protection Project

COWSC0000001 /Outline CEMP

13/09/2021

amey consulting

Document Control Sheet

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Executive Summary

This document presents the outline CEMP, prepared at design stage will be fully developed by the Principal Contractor (PC) upon appointment and prior to the commencement of the works. Where specific Amey standards, policies and procedures have been referenced, these shall be adhered to, unless the PC formally submits their own internal equivalent standards to the Project Manager for Acceptance. This is a mandatory document that will be followed by all contractors from this document's issue date. The content of this document will be briefed to the project team, including contractors, by the Project Manager. If the plan is changed then the changes will be re-briefed.

This will be a live document throughout the duration of the project. The document will be reviewed regularly or following any significant change in the scope of the work or changes to key personnel

All reviews (including where no changes are being made) and amendments to the document will be summarised in the Document History and highlighted using change lines in the right-hand margin where necessary.

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Abbreviations & Acronyms

Term	Definition
AQ	Air Quality
BPM	Best Practicable Means
CEMP	Construction Environmental Management Plan
ECOW	Ecological Clerk of Works
EHO	Environmental Health Officer
FSC	Forest Stewardship Council
GGAT	Glamorgan-Gwent Archaeological Trust
INNS	Invasive Non-Native Species
ITT	Invitation to tender
KPI	Key Performance Indicator
NRW	Natural Resources Wales
PC	Principal Contractor
PD	Project Director
PEA	Preliminary Ecological Appraisal
PEFC	Programme for the Endorsement of Forest Certification
PLO	Public Liaison Officer
PM	Project Management
S & EMS	Social and Environmental Management Plan
SSSI	Site of Special Scientific Interest
WPP	Work Package Plan

1. Introduction and background

1.1. Document scope and purpose

The purpose of this Construction Environmental Management Plan (CEMP) is to highlight the environmental requirements and risks of the Mumbles Coastal Protection Project (referred to as the "Project" in this document), and how they will be managed/mitigated throughout construction. This CEMP also:

- Identifies and ensures compliance with current legislation, including specific consents required for project delivery;
- Provides details of site waste management proposals and emergency response;
- Is the document used for agreeing the environmental requirements of the Project; and
- Is a live document used to manage environmental risks throughout the Project.

The environmental management arrangements for the Project are set out in contract level documents and project specific documents in this CEMP.

A single integrated programme developed and coordinated by Amey Consulting (Lead Consultant) covers the following contractors involved in this project:

- JBA Consulting (Coastal modelling and design)
- LDA Design (Designing the public enhancements)
- Knights Brown (Buildability advice)

1.2. Project background and location

The City and County of Swansea ('the Council') has procured a multidiscipline consultancy team for the design and development of the Mumbles Coastal Protection Project. The Project forms part of the Welsh Government's Coastal Risk Management Programme. It will address the current issues of the condition of the Mumbles' seawall, and long-term flood risk affecting the community. It will also deliver improvements to the amenity and recreation value of the promenade for visitors and residents. Amey Consulting has been awarded the role of lead consultant for this project and have prepared this outline CEMP.

The project extends from Knab Rock slipway in the southwest to Mumbles Road to Oystermouth Square and the Dairy Car Park in the north (Grid Ref: N261778, E188053). The Project involves works to improve the existing Mumbles seawall to reduce the threat of coastal flooding and erosion risk, with the extent of the Project seen in Figure 1.

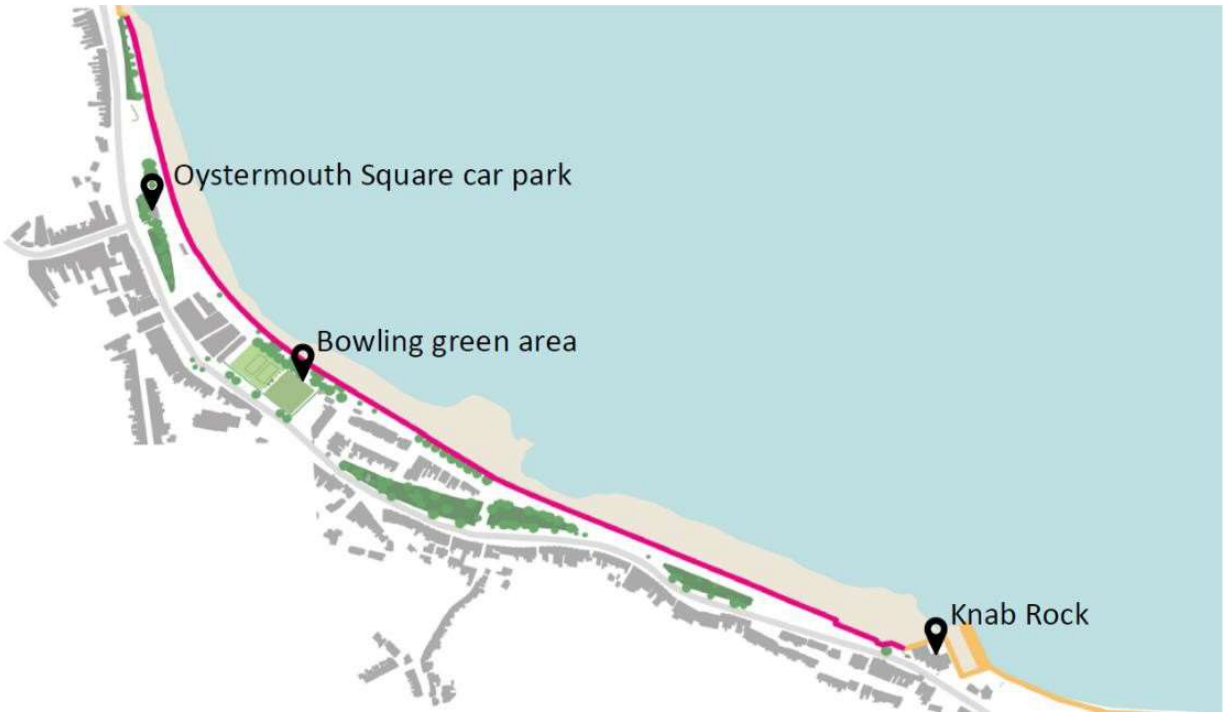


Figure 1: Extent of the Project

2. General environmental requirements

2.1. Environmental policies

Amey is committed to operating a sustainable business and delivering services which meet and go beyond the sustainability objectives of its customers. This is achieved through the three core values and underpinned by seven corporate objectives. Using this framework, Amey can have the most positive social, economic and environmental impact now and for future generations.

Amey Core Values

- Putting people first
- Delivering great service
- Creating better solutions

Amey Corporate Objectives

- Keeping people safe
- Invest in people and skills for the future
- Achieve sustainable growth
- Provide outstanding service
- Enhancing our communities and the environment
- Deliver operational excellence and invest in innovation
- Carbon reduction

Applicable documents and key policy requirements

The following documents are applicable to this CEMP. Upon appointment, the PC may propose to incorporate their own equivalent standards. These must be submitted to the Project Manager for review prior to incorporation:

- AMEY-ENVT-ENVIRONMENT-PO-01 Amey Environmental Policy;
- Corp-HSEQ-Sustainability-PO-01: Sustainability Policy;
- AMEY-ENVT-ENERGY-PO-01 Energy Policy;
- AMEY-ENVT-ENVASSESS-CRC-01 Project Environmental Assessment Compulsory Risk Control;
- ENVT-PermLicenses-PR-01: Environmental Permitting and Licensing;
- HSEQ-SocialValue-GD-01: Social Value in Amey;
- Amey Social Value Report 2020;
- HR-InclDignity-PO-001 Inclusion Policy;
- HR-Training-PO-001 Learning & Development Policy;
- Amey Code of Ethics;
- Amey Roadmap to Net Zero;

- EMMa work stream WS22 Environment and Social Requirements;
- CIRIA Report 753 (2015). The SuDS Manual;
- CIRIA Report 741 (2015) Environmental Good Practice on site;
- CIRIA Report 532 (2001) Control of Water Pollution from Construction Sites;
- Environment Agency (2013) Pollution Prevention Pays in England and Wales;
- Environment Agency Regulatory Position Statement: Temporary Water Discharges from Excavations;
- GPP 1 - General Guide to the Prevention of Pollution (Oct 2020);
- GPP 2 - Above Ground Oil Storage Tanks (Jan 2018);
- GPP 5 - Works and maintenance in or near water (Feb 2018);
- PPG 3 - Use and Design of Oil Separators in Surface Water Drainage Systems (April 2006);
- PPG 6 - Working at Construction and Demolition Sites (March 2012);
- PPG 7 - Refuelling Facilities (July 2011);
- PPG 13 - Vehicle Washing and Cleaning (April 2017);
- GPP 21 - Pollution incident response planning (June 2021); and
- GPP 22: Dealing with spills (Oct 2018).

Requirements of the above documents include:

- having an ISO14001 Environmental Management System;
- avoiding pollution to land, surface and ground waters;
- protecting and enhancing biodiversity;
- restricting or reducing carbon emissions;
- a greater focus on low carbon infrastructure;
- promoting the use of sustainable materials;
- avoiding or minimising the production of waste;
- protecting and enhancing cultural heritage;
- consideration of weather resilience and adapting to changing future conditions caused by climate change;
- inclusive procurement e.g. SMEs, social enterprises in supply chains;
- prompt and fair payment to supply chain;
- delivering social value to local communities; and
- community engagement.

The above requirements are managed through their inclusion in the topic specific sections of this CEMP.

Policy communication

All employees must have an awareness of the environmental requirements to support efficient and effective project delivery.

All project personnel will receive appropriate induction talks before they commence work and briefings to ensure their understanding for carrying out their allocated duties. Briefings will be given before carrying out work for the first time, and if the work process / environment changes. Project specific briefings will be developed from the risk management process including the summary details from this CEMP.

The policies listed above will be accessible by project personnel, brought to the attention of all stakeholders and displayed on noticeboards.

2.2. Compliance obligations

Legislative

The purpose of this document is to ensure the construction works associated with this project will avoid, minimise and mitigate environmental impacts. This document will highlight measures that are in compliance with current legislative requirements. To ensure compliance with relevant legislation and other obligations the Compliance Obligations Management Systems Process (AMEY-HSEQ-COMPLIANCEOBLIGATIONS-MSP-01) is used.

Amey maintains HSEQ through a legislation/compliance obligations register (AMEY-HSEQ-COMPLIANCEOBLIGATIONS-RE-02) to ensure legislation information is available and up to date across our projects. This was last updated on the 11/08/2021. The register is maintained by Amey Group based on information provided by CEDREC Information Systems. Project teams shall be notified via an Amey Group bulletin of any changes. From here, they will review changes and the impact on this Project and where necessary, make changes to this CEMP and associated documentation and control measures.

Customer and other requirements

The Account Director/Manager is responsible for ensuring that customer requirements are identified. These may be contractual requirements, community group agreements, industry codes of practices or other voluntary agreements. These other requirements, along with the legal obligations, are recorded as compliance obligations and documented Project/Account compliance obligations registers are produced using templates AMEY-HSEQ-COMPLIANCEOBLIGATIONS-FO-01 and AMEY-HSEQ-COMPLIANCEOBLIGATIONS-FO-02.

The Project/Account compliance obligations register will be updated:

- at least annually;
- when the Amey BU obligations register changes;
- following changes to Account interested parties assessment; and
- when activities change.

The Account Director/Manager is responsible for reviewing and approving the Account compliance obligations register (Appendix B).

The Amey Environment & Sustainability Team will review designs to check opportunities for inspection and assurance have been included.

2.3. Permits, licenses and consents

The details of any consent requirements are set out in the project consents schedule, a document separate to this CEMP which is regularly updated by the Sustainability team. The Environmental Consents Register (Appendix C) shall track timescales, responsible owners and progress of any consent requirements and shall be reviewed in tandem with the Environmental Risk and Opportunities Register.

The need for environmental permits, licenses and consents will be reviewed / confirmed by a suitably qualified environmentalist from the Amey Environment & Sustainability Team. An overview of consents is shown below:

Description of works	Type of permit / consent	Governing body	Planned submission	Submitted	Approved
Marine works	Marine License	NRW	31/05/2021	31/05/2021	
Works within a SSSI or site with other statutory designation	Assent Notice	NRW	30/09/2021		
All works on site	Planning Permission	The City and County of Swansea Council	30/09/2021		
Sustainable Urban Drainage Approval (SAB)	SAB Approval	The City and County of Swansea Council	25/11/2021		
Coastal protection works	CPA Consent	NRW	TBC		

Table 1: Permits / consents required for the Project

2.4. Objectives and targets

Contract environment objectives, targets and Environment Performance Indicators (EPIs) are agreed with the NEC Project Manager within 28 days of contract award and are appropriate to the contracted works.

Progress is reported to the NEC Project Manager periodically to an agreed cycle. High level strategies are established in the Sustainability strategy action plan which include SMART objectives.

KPI information is gathered each period by various members of the project team with the Office Managers taking a lead role in this. The KPI information is passed onto the HSS Administrator and entered into the various reporting formats just after the period end.

Environmental objectives and targets will be monitored and applied throughout the works stage of the Project. This will be achieved through many actions, such as environmental slots at progress meetings, management reviews with the project manager (PM) and scheduling inspections/audits.

2.5. Roles and responsibilities

Everyone working on the Project either as a direct employee, contingent labour supply or through a sub-contractor has a responsibility to:

- Protect the environment from damage and minimise social disruption;
- Implement the CEMP;

- Consider the environmental impact of design and construction choices;
- Report any environmental concerns to their supervisors; and
- Only carry out tasks if they have the required understanding, qualifications and (where necessary) certification.

Amey Consulting will be acting in an advisory capacity through construction. The following responsibilities are for roles that are filled by Amey Consulting staff.

Project director (PD) - Warren Boal

- Overall responsibility for legal, contractual, and corporate compliance in environmental management and sustainability; demonstrate senior level commitment to meeting the requirements
- Commitment to delivering contract level targets and objectives, and to seeking continual improvement
- Support the integration of sustainability and environmental management in all project processes, risk management, decision making, and roles and responsibilities
- Ensure that appropriate resources are in place, including competent staff, and the provision of training
- Undertake management review of performance and direct the necessary improvements
- Promote and communicate a culture of compliance and best practice

Project manager (PM) and NEC Project Manager - Lee Selway

- Identification, communication and implementation of all project legal, contractual, and corporate requirements, including the identification of risks, opportunities, operational controls, monitoring and reporting
- Produce contract documents according to the required timescales
- Ensure that appropriate competent resources are identified and provided, including training
- Identify all project stakeholders and appropriate arrangements for managing relations
- Implement the project specific operational controls set out in this document via the design, specifications, procurement, work package plans, task briefings, and other project processes
- Integrate environmental management and sustainability into project processes and decision making
- Support the contract sustainability targets and objectives
- Communicate requirements to the supply chain and employees and delegate accordingly
- Monitor compliance and performance and report non-compliance, including close-calls and incidents
- Take corrective and preventive action for non-compliance
- Administer the construction contract

Environmental Clerk of Works

- Work and advise the PC on sensitive environmental receptors during construction
- Ensure construction activities are compliant with the relevant legislation
- Manage environmental mitigation activities on site

Principal Contractor (PC) – To Be Appointed

- Development of this outline CEMP for Construction
- Responsible for the day-to-day management of construction activities on-site, ensuring the activities adhere to the actions set out in the CEMP
- Ensures that the construction activities are carried out in compliance with the CEMP
- Checks the qualifications and competence of the contractors / sub-contractors are appropriate for appointment
- Ensures that all site workers undertake environmental awareness training (including an induction for all site workers / contractors to support the implementation of the CEMP) and are provided with sufficient supervision and instruction to fulfil this requirement
- Ensures that all contractor's allocated specific environmental responsibilities are notified during their appointment and confirms that their responsibilities are clearly understood
- Monitors the performance of contractors / sub-contractors and provides guidance as and when required
- Work with the Project Manager, undertake a monthly audit of the CEMP
- Undertake corrective actions in the event of non-compliances

2.6. Competence, training and awareness

Competence requirements for all contract staff are set out in job descriptions. The competence of the supply chain is reviewed through supply chain audits.

The sustainability team will promote awareness of environmental management and understanding across the wider team through training, targeted toolbox talks and utilising corporate initiatives including Sustainability Week.

Method	Relevant parties	Frequency
Induction	New employees and subcontractors.	Re-induction every 6 months
Start of shift briefings	All site staff	Daily
Task briefings and point of work risk assessment briefings	All site staff	Daily / New WPP / new location
Toolbox talks	All site staff	Weekly
Incident response procedure	All site staff including site security staff	6 monthly
Site notice-boards	All site staff	Daily

Table 2: Mandatory project briefings

2.7. Communication

Between Amey, The Principal Contractor and Sub-Contractors

The sustainability manager attends a four-weekly meeting with the designer to monitor implementation and progress in sustainable design and construction requirements.

The project manager is responsible for ensuring all suppliers, including sub-contractors, are made aware of the sustainability and environmental requirements of the project. This is undertaken as follows:

- ITTs and tender reviews;
- Project start-up meetings;
- Pre-construction information pack;
- Design information and risk assessments;
- Site surveys;
- Construction phase plan;
- Pre-start engagement induction;
- Site induction; and
- WPPs, task briefings and point of work risk assessments.

All project staff

The Principal Contractor is responsible for ensuring that all project staff, including subcontractors, receive a site induction, in addition to task briefings, site specific briefings, start of shift briefings, and toolbox talks.

External Communication

It is the responsibility of the Principal Contractor to ensure that at least 28 days' notice is given to external stakeholders, local residents and business prior to the commencement of any works. As a minimum the following notices will be required:

- Letter drop prior to commencement – To all residents and local businesses along Mumbles Rd and directly adjacent to the scheme. The letter should detail the start date, duration of the works brief description of the works to be undertaken and the contact details of the Public Liaison Officer(PLO) appointed by the contractor
- Site notice boards – located at strategic locations along the route. The information of the notice boards shall be updated monthly and should contain information such as key restrictions to publicly accessible areas, proposed work in month and the contact details of the PLO
- Advance works signs – To be placed on the strategic network along Oystermouth / Mumbles Rd advising of the works and potential delays
- Social Media – The PC shall create a specific web page for the construction phase to provide an update on the works. This will be promoted via social media platforms such as LinkedIn and Twitter

Any contact with Regulatory Bodies will be added to the Amey EcoOnline system as an incident and categorised as event type 'Regulatory Bodies' in line with procedure AMEY-HSEQ-EVENTREPORTING-GD-01. This will enable issues to be dealt with quickly and effectively.

2.8. Records and documents

Records are maintained, in either hard or electronic format as required by the individual procedure that the records relate to, in such a way that they are readily identifiable, retrievable and protected against damage, deterioration or loss.

In general, environmental contract deliverables will be issued to the project sponsor through their electronic document management system (SharePoint), following the agreed process for transmittal, formal review and final decal code 1 acceptance. The client's turn-around timelines for documentation will be honoured to ensure timely approval of documents pursuant to undertaking the works and ensuring reasonable completion periods for final works for handover.

The procedure that the records relate to specifies the retention time for the records and who has the authority to dispose of them.

2.9. Operational control

The Principal Contractor shall implement operational control for the identified sustainability and environmental management risks and opportunities through:

- Defining roles and responsibilities;
- Training, awareness and competence;
- Operational control plans / arrangements for the environmental and sustainability impact areas;
- Implementation of management plans relating to project sustainability objectives, such as the Construction Phase Plan, as set out in the IPEM sustainability strategy and action plan;
- Implementation of the operational control plans in the planning of the work, in particular in the writing and implementation of WPPs;
- Management of the supply chain and subcontractors; and
- Site inspections and monitoring.

Work package plans

WPPs include mitigation or controls to manage specific project and site risks in accordance with the arrangements and requirements set out in this document. The project manager consults with the Environment Manager to agree the appropriate controls for each task. The Environment Manager reviews compliance as part of the four-weekly S & EMS review.

Management of subcontractors and suppliers

The Principal Contractor is responsible for the management of all sub-contractors and suppliers. Arrangements for the procurement of suppliers and subcontractors are set out in the contract specific documentation

Before awarding a contract, the Principal Contractor must be satisfied that the supplier is competent and has allocated sufficient resources to fulfil their obligations, or that project team resources are allocated to support as appropriate. This must be demonstrated to the Project Manager

Sustainability and Environmental contract requirements are issued to suppliers through the ITT process, and are discussed at pre-appointment meetings.

Suppliers are required to appoint a named senior manager responsible and accountable for S & EMS management.

Prior to any subcontractor commencing work on site, a recorded pre-commencement meeting will be held with the Project Manager to discuss health, safety and environmental management matters. In advance of this meeting, the subcontractor must submit details of their risk assessments and systems of work for the work they will be undertaking for review.

Suppliers are required to comply with the requirements of the document for submitting KPI data, inspections, and the reporting of incidents, close calls, and other non-conformance. Supplier performance monitoring is undertaken by the Environment Manager, in consultation with the Project Manager, as set out in this document.

2.10. Monitoring and Assurance

This CEMP will be regularly monitored and updated throughout the construction works. The CEMP will be updated at key project milestones, and reference will be made to related documents at these stages i.e., risk assessments and method statements.

During design the E&S team will review the design plans to ensure identified opportunities have been included.

Internal audits are carried out by the Amey HSEQ team in line with AMEY-HSEQ-AUDIT-PR-01. Quarterly external Audits will be arranged by the Principal Contractor, conducted by a 3rd Part Certification body. The results will be submitted to the Project Manager

Managing and reporting audit findings is in line with audit procedure AMEY-HSEQ-AUDIT-PR-01. Any non-conformances arising will be managed as per Amey Non-conformance procedure (AMEY-HSEQ NONCONFORMANCE-PR-01) and tracked through to successful completion via the EcoOnline reporting system.

A record of all environmental procedures and communication undertaken will be kept on file for the purpose of audit by both the Health Safety Environment and Quality Manager and representatives of the client and local Environmental enforcement authority.

An environmental audit schedule shall be developed which range from auditing specific environmental topics through to an overarching project audit. The audit will detail timescales and the party responsible for undertaking the audit. The aim of the audits is to ensure compliance with the detail provided within this plan, legislation, best practice and guidance.

Non-conformances & corrective action

All non-conformances will be managed in line with Amey's non-conformance procedure (AMEY-HSEQ-NONCONFROMANCE-PR-01) to control measures will be raised as either:

- An environmental close call/incident and logged on EcoOnline together with details of immediate corrective action and preventative action; or
- If recognised during audit, raised on EcoOnline as a non-conformance against the audit ID with actions and closure date allocated to project management team members; or

The PD and PM will review all open incidents/close calls/defects and non-conformances as part of the HSEQ meetings. Specific monitoring and assurance arrangements will include the following:

- Schedule of project audits/ inspections to be undertaken, including the audit scope and type;
- Process for managing and reporting audit findings; and
- Audit escalation process.

3. Outline Construction methodology

3.1. Introduction

Knights Brown were appointed to provide buildability advice during the design phase. The following sections have been extracted from the buildability report.

3.2. Site logistics

Site Compound and Set up

The following areas are under the direct ownership of Swansea City Council and are therefore available for use for the site compound and storage:

- **Tennis courts** – would be used for Site office set up / welfare / site parking and limited stores; and
- **Boat storage area** - to be cleared as early as possible within the programme and used as a material store.

Upon mobilisation the PC will set up the site offices and compound. The following will be clearly identified prior to construction works commencing:

- Statutory Undertakers Apparatus – including surface water outfalls which will be protected for the duration of the works;
- Heritage Assets to avoid damage/ disruption; and
- Ecologically sensitive areas such as root protection zones.

The PC will brief all site staff of the above constraints prior to the commencement of the works. An indicative compound layout is provided in Figure 2. This shows areas allocated for COSHH, bunded fuel tanks for refuelling etc.

Figure 2 - Indicative Site Compound Layout

3.3. Access to the Working Areas

There are three potential points of access to the Working Area. These are;

- Access 1 – is utilising the existing ramp adjacent to Southend Gardens with direct access via Promenade Terrace;
- Access 2 – is available via the boat storage area immediately west of Verdis; and
- Access 3 – will use the entrance to Knab Rock Car park and access vis the existing ramp adjacent to Verdis.

These are shown diagrammatically in Figure 3.

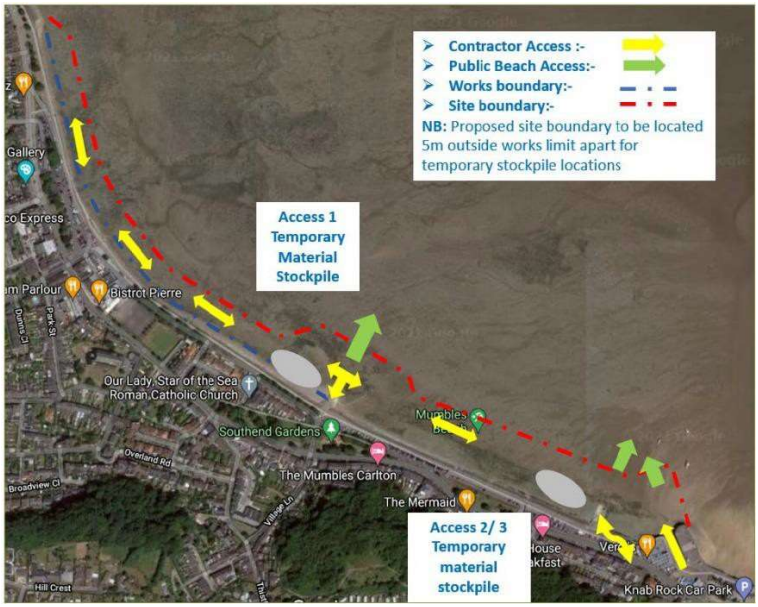


Figure 3 - Works Access Points

3.4. Outline Construction Methodology and Phasing

Location A – Oystermouth Carpark

Excavation works

A 22-tonne 360º tracked excavator will excavate a section of the working area in advance of the works. This will be limited to the length of sheet piles that can be installed during a single tide (approximately 20m). The excavated material will be stockpiled adjacent to the works and used to backfill the excavation once the sheet piles and precast steps have been installed.

We have assumed a stone/concrete blinding layer will be required under the precast concrete steps, the stone will be supplied to Access Point 1 where it will be temporarily stockpiled then loaded and delivered to the place of work using 9 tonne articulated dumpers. Concrete blinding will be delivered to the promenade and installed using a concrete skip. All works to be supervised by and ECoW and Archaeologist where necessary.

Sheet Pile Toe

This will be installed using a 24-tonne 360º tracked excavator fitted with a "Movax" A service crane, such as a 35-tonne mobile, that will be situated on the promenade adjacent to the works and will be used to supply the sheet piles. This will limit the vehicle access required along the beach front.

Precast Concrete steps

These are circa 1.5m³ per lm = 3.7 tonnes per lm, which equates to 7.4 tonnes for a 2m length. These will be lifted into place using the 35-tonne mobile crane (8 tonne capacity @ 10m radius) with the 22-tonne tracked excavator in attendance. Once the precast steps have been installed then the working area will be backfilled to beach level to provide working platform to install the seawall encasement.

If the length of the precast unit was extended to 3.0m then the crane size would need to be increased to 50 tonnes (12 tonnes @ 10m radius), which subsequently increases load bearing on the promenade / rear of existing seawall.

RC Seawall Encasement

A Mobile Elevated Working Platform has been proposed, such as an all-terrain cherry picker to gain access to the working face of the existing wall. Activities associated with the seawall encasement include:

- Pressure jet existing face of wall to remove algae growth;
- Drill and fix dowel bars into existing concrete wall;
- Fill any excessive crack within the existing face;
- Place and securer reinforcement – consideration to be given to prefabricated panels;
- List and secure front face of formwork leave out stop end until after final clean; and
- Place concrete using crane / skip.

It's assumed that joints between adjacent concrete panels will be designed construction joints (expansion / contraction) to eliminate the need for any surface preparation of the joint interface e.g. scabbling.

Schedule of Plant requirements

Figure 4 provides an indicative schedule of anticipated plant requirements divided between the beach and the promenade.

Location	Type of Plant	Description
Beach access via Southend Gardens	➢ 22/ 24 tonne excavators	Exact size will be subject to the final design / methodology; initial proposal is 1. Excavate / backfill / attend precast installation 2. Install sheet piles
	➢ Movax Piling Hammer	This will be used as an attachment to the excavator to install the sheet piles along the toe.
	➢ 9 tonne articulated dumpers	• Transport stone from stockpile
	➢ MEWP – all-terrain cherry picker	Provide access to existing seawall • jet wash / seal cracks / install dowels
Promenade	➢ 35 tonne crawler crane	Due to the limited working width available along the promenade we have chosen a crawler crane to provide attendance for the following activities: - • Supply sheet piling operation • Install precast steps • Construct seawall encasement

Figure 4 - Schedule of plant extracted from ECI Report

Location B – Oystermouth Carpark – Bowling Green

The proposed detail along this section of wall represents a direct replicate of Cross Section Type "A" Option 1 apart from the addition of a wave wall upstand at promenade level. This will impact the construction of the seawall encasement; however, the following main activity methodologies will remain the same in principle:

- Excavation works;
- Sheet Pile Toe; and
- Precast Concrete steps.

RC Seawall Encasement

The main issue will be the introduction of the wave wall upstand and development of the concrete level and joint interface detail between the in-situ concrete encasement and the precast concrete wave wall. In order to form a consistent line and level at the interface its suggested that a "dummy" joint should be created along the front face.

Wave Wall Upstand

In order to guarantee a high-class finish and uniform profile its suggested that a precast concrete item is used. This would impact the cast level of the in-situ concrete Seawall Encasement and would require:

- Introduce "grout check" at cast level to provide clear line and level;
- Dowel fixing between precast unit and existing sea wall; and
- Cast dummy sleeves within precast unit to facilitate post installation grouting.

Location C – Bowling Green – Knab Rock

Sheet Pile Toe

As with both Location A and Location B, the sheet pile will be installed using a 24-tonne 360º tracked excavator fitted with a "Movax" A service crane, such as a 35-tonne mobile, that will be situated on the Promenade adjacent to the works and will be used to supply the sheet piles. This will limit the vehicle access required along the beach front.

Existing concrete revetment

This section is covered by an existing concrete revetment and the current proposal is based around breaking this out and compacting, before regrading with imported fill as a sub-base layer to the construction of the new concrete revetment.

The existing concrete revetment will be broken up using two 360º excavators fitted with an impact breaker, where one will work from the beach and one from the promenade. As a result, the concrete will remain in large pieces which will make regrading and compacting difficult. The only option would be to crush the material on site, which due to the location is not viable. The options are as follows:

- Retain the larger sections of concrete and punch them into the formation, fill any voids with suitable imported material and design the overlay to span to avoid any risk of future settlement;
- Excavate, breakout and remove concrete off site and replace with imported suitable material to compact in place and regrade prior to overlaying with the new revetment; or
- Redesign current detail to overlay existing with new and thereby retain the revetment, this may involve an element of grouting to eradicate any voids.

Wave Wall Upstand

The methodology will very much depend on the joints detail, spacing and layout (e.g. a 10 lm section would equate to approximately 38m³) and the proposed concrete deign mix. It's suggested that the concrete be placed using a concrete pump subject to a suitable mix design and a very strict workability regime to enable it to be finished at a 1:2 slope.

Schedule of Plant requirements

Figure 5 provides an indicative schedule of anticipated plant requirements divided between the beach and the promenade.

Location	Type of Plant	Description
Beach access below MHWS via Southend Gardens /	➢ 22/ 24 tonne excavators ➢ Impact Breakers ➢ Movax piling hammer	Exact size will be subject to the final design / existing revetment solution / methodology; initial proposal is 1. Excavate/ break out concrete 2. Install sheet pile 3. Backfill/ compact formation
	➢ 35t tonne articulated dumper trucks	• Transport stone / from stockpile
	➢ Compaction equipment	• Compact revetment to formation.
Promenade	➢ 55 tonne mobile / crawler crane ➢ Mobile concrete pump	Attendant plant situated on the promenade Crane size increased due to extended reach required.

Figure 5 - Schedule of plant extracted from ECI Report

3.5. Programme

An outline construction programme has been prepared (Appendix D) based on the following assumptions:

- In order to provide an arbitrary dateline, its been assumed that the preconstruction phase will have a starting date of January 2022, which can be amended to suit as required;
- An indicative lead in time of 8 weeks to obtain any necessary consents and approvals and also discharge any prestart conditions that may arise;
- As a result, each programme indicates an Access date of 7th March 2022;
- The Programme includes an element of Time Risk Allowance against high risk activities; and
- Sequencing is based on closing only one single 100m section of promenade at any one time and completing each section before moving on.

Key Dates

The following dates in Figure 6 have been extracted from the programme.

Construction Phase	**46 weeks on site**	The programme durations have been calculated by using quantity's taken off from the drawings provided and historic outputs as shown in the attached programme and planners notes
Planned Completion date	**16th February 2023**	

Figure 6 - Key dates

Sequence of works

The programme has been put together in conjunction with methodology and Phasing drawings, where its suggested that:

- The works will commence from the East working progressively towards the West;
- It's proposed that the work will be completed in approximately 100m sections;
- Each section will be complete before progressing onto the next;

- The programme is based on a 6-hour working day, due to the tidal working;
- Preparation of the existing seawall and drilling of dowels will progress in advance of the main works;
- The installation of the concrete seawall encasement prior to the installation of the sheet pile toe and precast concrete steps is proposed;
- Installation of the wave wall upstand will be carried out as a single operation once the seawall encasement is complete;
- The seawall upstand will be installed prior to completion of the concrete revetment;
- Location A and Location B will be completed using a single resource – each section being complete before moving on; and
- For Location C the introduction of a second resource is suggested due to additional work and area available.

4. Specific environmental impact areas

4.1. Ecology

A Preliminary Ecological Appraisal (PEA) and a wintering bird survey report have been completed at design stage. The wintering bird surveys took place between October 2020 and April 2021, with the report completed in June 2021. The aim of the PEA was to identify likely ecological constraints and suggest mitigation measures to minimise the impacts of the proposed scheme on ecological receptors. The wintering birds report was requested by Natural Resources Wales to inform the development of the project. Site visits will be made by an ECOW to ensure contractors are constructing all works in accordance with the works information. Recommendations by JBA Consulting can be found in the section below.

General avoidance measures

General avoidance measures that should be incorporated within the Project include:

- Limit the hours of working to daylight hours, to limit disturbance to nocturnal and crepuscular animals;
- Due to the potential presence of bats and Otters the use of lighting at night should be avoided. If the use of lighting is essential, then a directional cowl should be fitted to all lights to prevent light spill and to be directed away from the foreshore;
- Contractors must ensure that no harm comes to wildlife by maintaining the site efficiently and clearing away materials which are not in use, such as wire or bags in which animals can become entangled;
- Any pipes should be capped when not in use (especially at night) to prevent animals becoming trapped. Any excavations should be covered overnight to prevent animals from falling and getting trapped. If that is not possible, a strategically placed plank should be placed to allow animals to escape;
- No piling works shall be carried out underwater;
- Should the scheme require the removal of the lawn bowls/tennis clubhouse, a preliminary bat roost inspection of the building should be carried out; and
- Works around the trees will also be monitored by an arboculturalist.

Birds

The Wintering Bird Survey Report agreed with previous studies and concluded that the risk of disturbance to wintering bird species in the adjacent Blackpill SSSI is low. Given the current use of the upper tidal zone and the likelihood that works will not take place during high tide it is not considered that a seasonal or tidal constraint will be required to mitigate impacts to wintering birds.

Further consultation with NRW is recommended to ensure the survey conclusions are adequate and that work is permitted through a full tidal cycle over winter. The construction methodology should be specified in consultation with statutory bodies to ensure agreement on the proposed methodology to both avoid and mitigate any potential impact on waders.

To avoid impacts upon other bird species, it is recommended that any vegetation clearance required to permit works and access is carried out outside of the bird breeding season (i.e., avoiding March to September inclusive). If works are proposed for the bird breeding season, or if following initial clearance it becomes apparent that some further de-vegetation is necessary during the bird breeding season, an experienced ecologist should first check all areas for the presence of nesting birds. Should any nests be found, they should have an appropriate exclusion zone put in place, to safeguard the nests until the chicks have successfully fledged.

Compensatory and Enhancement Measures

The Project has the potential to result in the small-scale loss of intertidal habitats close to the existing sea wall. This is not considered to be a significant impact upon the Blackpill SSSI, however it is still recommended that enhancement measures are built into the Project with the aim of having a net-gain on biodiversity at the site. This will be achieved through a Sites of Special Scientific Interest Mitigation Strategy.

Potential enhancements to the sea wall could be made that encourage growth of algae and colonisation by marine invertebrates such as periwinkles. A Senior Research Scientist at Swansea University (Ruth Callaway) has carried out a study investigating options for enhancement of the Swansea Sea Wall. The success of the study is not yet known however the enhancements may include:

- Placing large rocks at foot of seawall;
- Textured formwork for concrete surfaces;
- Adding water retaining features to vertical walls;
- Constructing gentle slopes where possible; and
- Allowing community produced tiles or other diversity enhancing features to be added to the flood defences.

Biosecurity

Whilst it is unlikely that invasive non-native species (INNS) will be found on site, measures will need to be put in place to ensure that there is no spread of INNS or diseases. The Check-Clean-Dry approach should be followed, ensuring that all PPE and equipment is cleaned before leaving site. For more information go to: www.nonnativespecies.org/checkcleandry.

4.2. Heritage

A Heritage Desk Based Assessment which involved a site walkover survey has been completed. The following will be required at construction stage:

- A walkover survey should be carried out prior to any construction works commencing in order to identify any heritage assets that may have been revealed (e.g. through storm action) since the last walkover survey. This will provide an updated baseline from which any additional mitigation required during construction can be identified;
- A programme of archaeological mitigation shall be carried out during groundworks in areas where ground investigation works have identified that peat deposits are present. These works should be carried out in accordance with a Written Scheme of investigation approved by GGAT and a Cultural Heritage Mitigation Plan;
- Heritage assets on the foreshore shall be protected in situ, potentially through fencing or other appropriate demarcation to prevent them from being damaged by construction activities. If during the formulation of a construction methodology this is determined to be unfeasible, then a programme of archaeological surveying and recording should take place prior to works commencing. Archaeological survey / recording should be carried out in accordance with a Written Scheme of investigation approved by GGAT;
- The impacts to both of the slipways are mitigated through pre-construction building recording. The level of building record should be determined through consultation with the archaeological advisors to the Local Planning Authority, but it is recommended that at a minimum it comprise a drawn record, photographic record and written record equivalent to a Level 2 building survey;
- Works along the promenade where ground reduction is proposed within the 3m corridor from the sea wall may impact on the remains of the Mumbles Railway Line. Works in this area should be subject to either a pre-construction targeted trial evaluation or a watching brief during construction. The archaeological mitigation should be agreed and carried out in accordance with a Written Scheme of investigation approved by GGAT;

- Works within the vicinity of Dunn's Mansion should be subject to either a programme of pre-construction trial evaluation or an archaeological watching brief. The mitigation should be agreed and carried out in accordance with a Written Scheme of investigation approved by GGAT; and,
- The tram poles (JBAS03) are likely to be removed to facilitate access to the works. These should be retained if possible and potentially offered to Swansea Museum.

4.3. Air Quality

Receptor	Details

Table 3: Sensitive air quality receptors close to the site

There are no Air Quality Management Areas within the vicinity of the Project. The following measures and opportunities shall be considered in planning the physical works. Progress / implementation will be monitored:

- Reduce the impact on receptor sites from emissions where elimination of the impacts is not reasonably practicable;
- Mitigate the risk of construction dust through the choice of construction materials and methods of construction that will limit the amount of dust in the air during the construction phases, including to use pre-cast construction;
- A Construction Traffic Management Plan and Dust Management Plan will be developed;
- Minimising the amount of excavation within contaminated land;
- Minimise the number of vehicle movements for the importing of materials and removal of excavation and demolition arisings;
- Use mains electricity rather than diesel generators;
- Use of low emission vehicles;
- Switch off engines when not in use;
- Wheel washing and road cleaning at site entrances where required;
- All lorries to be fully sheeted;
- Damping down of haul routes and other open areas of site; and
- Stock-piles are fully sheeted, and located away from sensitive receptors.

4.4. Materials

Responsibly Sourced Timber

Any timber used on site shall come from a sustainable source which is FSC (sourced from South America, Africa, Asia, Australia) or PEFC (sourced from North America or Europe).

Timber certificates shall be stored so that compliance and chain of custody can be demonstrated.

The Procurement department monitor type, quantity and source of timber purchased through the monthly KPIs.

Concrete and Aggregates

Circular economy principles (e.g. reuse / recycling opportunities) are to be incorporated where practicable. The waste hierarchy will be applied to all designs (reduce, reuse, recycle), and a Materials Management Plan will be developed. Potential high impact opportunities to reduce resource use have been identified:

- Use recycled material;
- Reduce concrete piles & pile caps;
- Recycle aggregate;
- Reduce micropiles (number &/or depth);
- FSC sourced timber for temporary fencing/shuttering; and
- Reuse of existing materials in secondary sea defence.

Steel

The Welsh Government are signatories of the UK Steel Charter and committed to:

- Require the origin of all steel used in future Welsh Government projects to be provided;
- Advertise clearly all future opportunities for the supply of steel in Wales;
- Engage early on in projects with steel producers and supply chains;
- Appoint a 'UK Supply Chain Champion' to manage engagement with the steel sector;
- Stipulate British steel standards within project requirements; and
- Steel reinforcement should be CARES Certified.

4.5. Noise, nuisance and disturbance

Noise & Vibration

Receptor	Details

Table 4: Sensitive noise and vibration receptors close to the site

General requirements that should be incorporated within the Project include:

- Locate vehicle access remote from residential properties;
- Inform and consult with residents and businesses on project proposals in advance of works. Neighbour letter drops are a contractual requirement for the Contractor, as well as providing a full-time public liaison contact. It is the responsibility of the project team to ensure letters and sufficient notice is given to external stakeholders regarding upcoming works that may cause disturbance;
- Incorporate aspects into design to minimise noise levels and mitigate;
- Consult the LPA's Environmental Health Officer team (EHO) – Enquire whether there has been concern by residents or interest groups over previous or similar projects;
- BS5228 – Code of Practice for Noise and Vibration Control on Construction and Open Sites should be adhered to, as well as Best Practicable Means (BPM) such as controlling noise emissions from equipment and control of working hours;
- Conduct site visits to quantify the nature and location of sensitive receptors;

- Obtain baseline data through on-site monitoring and or data from national noise mapping/air quality monitoring network. Undertake noise and AQ (dust) assessment to determine likely impacts of the works on nearby receptors;
- Design aspects: include in/ modify design/incorporate mitigation measures; and
- Liaise with Community Relations Team.

Odour Management

Considerations of impact include identification of fugitive and point source emissions where applicable, and sensitive receptors, with assessment of control measures as appropriate.

Sniff testing and monitoring process controls will be required.

Dust Management

Dust suppression measures are recommended to avoid dispersal, such as damping, sheeting, spraying and washing. Concrete breaking has the ability to generate dust, therefore surface slab breaking should be considered for the inclusion of dust damping as both a nuisance and occupational health risk.

4.6. Water Resources

Typically, the use of water will take place in the following areas:

- Vehicular dust suppression;
- Stockpiles of soil;
- Cleaning;
- Road sweepers;
- Drive-on wheel wash;
- High pressure washing; and
- Domestic and welfare facilities, including toilets, site compound facilities, drinking water.

Construction uses of water on site are likely to include the following:

- Dust suppression;
- Drainage cleaning;
- Excavations;
- Bentonite mixing;
- Concrete mixing; and
- Crushing operations.

The Project shall, where appropriate, adopt the following techniques to reduce water consumption:

- Enable monitoring of water use e.g. install meters which are easy to read, i.e. pulsed metersfor connecting to a Building Management System or sub-metering (pulsed) of areas of major water consumption;
- Ensure all areas of site water consumption are quantified;
- Consider splitting welfare and "site-based" water consumption;

- Record site water consumption on a regular basis for review at project progress meetings;
- Regular meter readings should be taken from all meters, sub-meters and metered standpipes (weekly is recommended);
- Reduce the risk of uncontrolled water use e.g. sensor-actuated devices (such as infra-red actuated taps and occupancy sensors);
- Minimise the risk of leakage: leak detection equipment (including pulsed meters for regular monitoring); ensure valves and overflows are visible for early detection of water loss and easy to access for maintenance; and
- Influence user behaviour; creating a culture that changes attitude and behaviour to accepting ownership of water efficiency is fundamental to improving the use of water in an efficient manner.

Good housekeeping can assist the site in reducing its overall water use. Good housekeeping examples include:

- Reporting/repairing leaks;
- Turning off taps which are not in use;
- Generally using water in an efficient manner;
- The provision of information on appropriate use of fittings and appliances;
- Awareness raising of the costs and environmental importance of water efficiency via Tool Box Talks;
- Guidance on processes for identifying and reporting water leakage/poorly-performing fittings; and
- Method for providing feedback to building occupants on water usage.

Mitigation against impacting seawater quality during high tide from construction activities on foreshore can be found in Section 3.8 of this documents.

4.7. Waste

Waste can be categorised as materials or substances which are eliminated or discarded as they are no longer useful. Discarding also includes activities such as recycling and energy recovery. Amey Consulting are committed to minimising the volume of waste produced and sent to landfill. This will be achieved by actively employing the waste hierarchy (prevent, reduce, re-use, recycle and landfill) and resource efficiency workshops.

Remediation of contaminated materials will be considered where applicable, and the appropriate measures will be provided by the contractor upon appointment.

A Site Waste Management Plan will be developed for the project to evaluate the amount of waste likely to be generated during the construction phase. It will be updated over the course of the works to compare waste produced to estimates and ensure Duty of Care is followed on the project at all times.

All waste generated on site will be managed in accordance with waste management Duty of Care and Hazardous Waste Regulations. Relevant documentation (a Certificate of Registration and permit under the Waste (England and Wales) Regulations 2011 for the waste carrier (Upper Tier). Waste Transfer Notes, Waste Contractor Licences, etc.) will be held on site. A document management system will be set up and managed by the contractor during the construction phase. Client and NEC PM will have access

The waste arisings are categorised as:

- Excavated waste;
- Demolition waste;

- Construction waste;
- General waste; and
- Hazardous waste i.e., Asbestos waste.

Where deemed necessary, Waste Acceptance Criteria tests will be undertaken to identify the waste classification of soil / made ground. A process will be implemented to record how waste arisings have been assessed and justification given as to whether the waste represents a significant impact to the construction works.

The waste management plan will implement the principles of waste hierarchy through eliminating, reducing, reusing, recycling and recovering waste.

4.8. Pollution of land/ water

Sensitive water receptors have been considered through the design and construction stage of the project. Operational control procedures for the effective prevention of pollution are included in the Incident Response Plan for the Project (Appendix A). Certain measures will also be included in the Construction Phase Plan, Pollution Control and Prevention Plan, and Work Package Plans, where relevant. Measures include:

- Bunding requirements to avoid infiltration of soils and run off into water courses;
- Management of bund water;
- Storage of COSHH materials;
- Stock management; and
- Disposal of excess/redundant COSHH materials.

Management requirements to be implemented to ensure the safe and efficient operation of water and waste infrastructure (though measures such as SuDS, septic tanks, oil water interceptors, cess pits, sediments traps and wedge/ catch pits probably not relevant to this scheme).

In certain instances, control measures may be employed to maintain compliance with environmental permits and consents.

The perceived risks to seawater quality during high tide in the form of silt will be managed as follows:

- Silty water from wheel-wash facilities (if required) or any other activities will require appropriate disposal to prevent unacceptable levels of suspended solids entering the sea. Disposal of surface water generated on site, to controlled waters, during construction will require consent from NRW. Wheel wash facilities should not be located close to surface waters or the sea; and
- If dewatering is required along any part of the construction corridor, pumped groundwater shall be disposed of appropriately.

All sub-contractors will be familiar with, and apply, the relevant best practice listed in the above.

4.9. Carbon

The following measures will be undertaken to reduce energy consumption and carbon emissions on the contract.

Use of plant

- Switching off plant and equipment when not required. Energy saving campaigns will be promoted with all personnel encouraged to consider their personal carbon footprint.
- Where practicable, a 'no idling policy' for large plant.

Use of plant and equipment

- Use of energy efficient plant and equipment to be compliant to requirements regarding emissions.
- Hybrid generators of an adequate size for the task selected to ensure energy efficiency.

Transport and vehicle movements

- Encourage car sharing and access method to site.

4.10. Transportation and Vehicle Movements

There is a potential impact to the local road network and surrounding area due to the movements generated by construction traffic. The following should be implemented.

Deliveries to and from site

Flows on the strategic road network along Oystermouth/Mumbles Road are already saturated during peak times. It is estimated that between 10 and 30 additional construction vehicles per day could be generated as part of the scheme. A strategy shall be prepared by the contractor to minimise disruption during the works to prevent queuing /idling vehicles, in accordance with the works specification. The following must be considered as part of the contractors traffic management and delivery strategy.

- Advance notification and signing of the works to enable existing users to avoid / reschedule their journeys at peak times;
- Pre-casting elements to minimise the need for concrete deliveries throughout the duration of the work;
- Consideration of local batching plants for concrete, to minimise the distance of travel to site; and
- Scheduling deliveries outside of peak hours 08:30-10:00 and 15:00 – 17:00.

Site Parking

The availability of site parking for the contractor's staff will be limited and as such, home to work journeys should be minimised to avoid unnecessary delay to Mumbles and the surrounding area. This can be achieved by the following.

- Providing a shuttle service for employees from a central location outside Mumbles; and
- Staggering shift start and end times or implanting split shifts to avoid peak times.

Movement of construction vehicles onsite

The use of Electric vehicles should be considered for short trips within the site boundary. Construction plant shall be fitted with silencers to ensure any noise is reduced to the absolute minimum.

5. Social impact areas

5.1. Connecting communities with the environment

Design and construction should always seek to minimise intrusion to local receptors. Intrusion caused by temporary construction activities such as compounds and the replacement of permanent assets can have a negative social impact. Engaging with the local community through partnerships and undertaking activities with local schools and community organisation can serve to minimise this temporary negative impact. Pursue options with local schools, other youth or other community organisations that the project can engage with. Collaboration with Swansea University has already seen enhancements recommended to the sea wall should be made that encourage growth of algae and colonisation by marine invertebrates.

5.2. Creating industry partnerships and engaged employees

Creating an engaged workforce helps to improve performance and therefore productivity, reduces employee turnover which can be expensive and time consuming and most importantly reduces safety issues.

Table 5 outlines Amey's initiatives aimed at keeping staff engaged. Information on accessing these initiatives are kept on noticeboards in all Amey offices and intranet (AmeyWorld).

Subjects	Details
Employee Assistance Confidential advice and support on a range of issues such as: legal, emotional, work, health, family, money, relationships and addictions. Advice can be sought over the phone or online.	Provided externally by Medigold Health in partnership with Employee Assistance Programme (EAP). Phone - 0800 130 3414 Online - Amey access code (ameywellbeing) www.employeeassistanceonline.co.uk Amey access code (ameywellbeing)
Whistleblowing Confidential hotline to report concerns about suspected wrongdoing in line with the Public Interest Disclosures Act 1998.	Provided externally by a third-party company. Phone – 0800 160 1797
Workforce Networking Groups	Women@Amey LGBTA Mental Health Ambassadors Scope Disability Ambassadors STEM Ambassadors
Supporting Communities	1 Community Volunteering Day. Additional days provided for STEM activities at management discretion. Amey Foundation (match-funding) Challenge Cup Armed Forces Working Group

Table 5: details on Amey's initiatives aimed at keeping staff engaged

5.3. Keeping communities safe

Safety is a top priority and should be 'front and centre' of everything during construction. This includes making sure the communities we work in are kept safe during construction, from both a direct and indirect result of our operations. Indirect impacts could, for example, the introduction of blind corners or darkened public spaces due to temporary hoarding/lighting down-time or the temporary closure of public walkways, leading to potentially less safe alternatives. We have a process for considering the potential for these impacts as a result of our temporary works, as well as providing the opportunity for local residents and stakeholders to have their say about the areas in which our works could impact upon them.

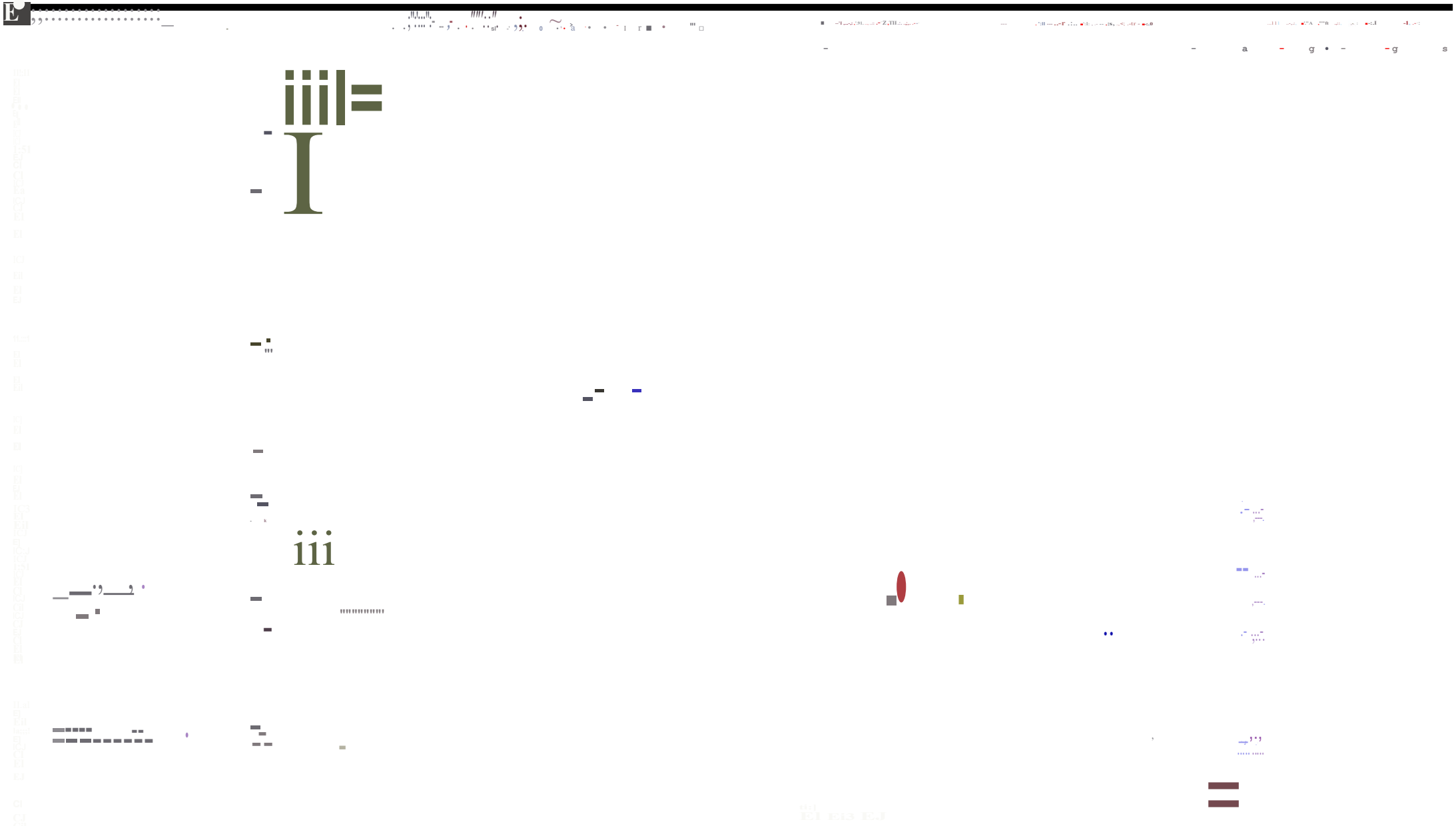
Appendix A: Incident Response Plan

Spillage of Pollutant Refer also to SWMP spill response procedure	Silt release to controlled waters (Rivers, Ponds, Streams Etc)	Complaint from / approach by Public over nuisance (noise, vibration, fumes or dust, light pollution)	Ecology Damage (such as inadvertently killing a protected species or destroying a habitat)	Spread of Invasive weed (Japanese Knotweed, Himalayan Balsam, Giant Hogweed)	Contamination of waste (placing hazardous wastes, into the same container as non-hazardous wastes)	Archaeological or heritage disturbance or damage, including unconsented works to listed buildings (e.g., ancient coins, pottery etc)
Stop what you are doing	Stop what you are doing	Stop what you are doing	Stop what you are doing	Stop what you are doing	Stop what you are doing	Stop what you are doing
Contain the spill using spill granules/spill kit/sand/dry earth	Prevent further silt release	Site manager to speak to MOP. Remain polite and courteous regardless of how the MOP behaves.	Assess what damage has been done	Segregate the area and prevent any further disturbance	Evacuate area if fumes are given off and call emergency services	Ensure the area is safe for the passage of trains and that there is no danger to workers of members of public
Prevent more pollutant from escaping (block up holes or use drip trays to catch pollutant)	If possible, remove as much silt from the water as possible (do not enter water)	Ensure all staff are kept safe if the situation escalates (call the police if necessary)	Do not touch any animals, they may bite	Inform EcoOnline	Assess whether the damage can be undone through segregation	Inform EcoOnline
Assess whether you can clean up the spill properly with the equipment you have	Call EcoOnline	Act on the complaint from the MOP, if you can remove the issue immediately	If animals are injured contact the RSPCA 0300 1234 999 for help, advice and to arrange emergency care	Arrange for boots and other affected PPE to be decontaminated	Complete point of work risk assessment ensuring COSHH risks are thoroughly assessed especially if multiple substances involved.	Ensure nobody tampers with or damages the find
Contact pre-appointed Spill contractor if required	Arrange for cleanup contractor	Take name and contact details of MOP.	Inform EcoOnline	Arrange specialist contractor to remove any affected soil and spray as appropriate	If safe to proceed segregate the waste Do not touch the waste if not safe.	Take plenty of photographs
Call EcoOnline if over 20ltr Amey to call NRW	Plan anti-silt strategy for preventing release when job continues (this may be a different shift)	Inform EcoOnline	Amey to call NRW for advice on what to do.	Report incident to sustainability advisor	Inform EcoOnline	Report incident to sustainability advisor
Arrange for safe disposal of contaminated material	Take photographs to extent of damage	Provide contact details to liaison manager and agree next steps	Take plenty of photographs		Contact relevant waste company	
De-contaminate staff, arrange 1st aid if required	Report incident to sustainability advisor	Report incident to sustainability advisor:	Agree mitigation arrangements, and arrangements for contacting NRW if necessary, with the sustainability manager		Complete Consignment note	
Report any injuries to EcoOnline			Report incident to sustainability advisor		Report incident to sustainability advisor	
Report incident to sustainability advisor						

Appendix B: Compliance Obligations Register

Appendix C: Environmental Consents Register

Appendix D: Outline Construction Programme



Appendix C: Environmental Consents Register