



Tidal Lagoon Swansea Bay

Town & Country Planning Act 1990 (as amended)

275 kV Cable Route – Planning Application

Draft Construction Environmental Management Plan

November 2016



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1 Introduction

1.1 Aims and Objectives

- 1.1.1 This draft 275kV Construction Environmental Management Plan (275kV CEMP) has been prepared by Tidal Lagoon Swansea Bay (TLSB) in support of the application under the Town and Country Planning Act 1990 (TCPA) which will seek planning permission for the 275 kV cable route (the 275 kV cable route Project) associated with the development of Tidal Lagoon Swansea Bay. The 275kV CEMP outlines the responsibilities and environmental standards that will be adopted by TLSB and its contractors throughout the construction of the 275 kV cable route Project to ensure compliance with relevant environmental legislation, best practice and procedures and to ensure project specific mitigation measures are employed.
- 1.1.2 The overall aim of the 275kV CEMP is to detail the measures required to manage and where necessary, mitigate the environmental effects of the construction phase of the 275 kV cable route Project.
- 1.1.3 The 275kV CEMP is to be used by TLSB staff and contractors as a central source of information that will be applied, on site, during the construction phase of the 275 kV cable route Project. The 275kV CEMP will also be made available to relevant regulatory and enforcement organisations to ensure environmental compliance across Project construction activities. Any updates to this 275kV CEMP will be undertaken by TLSB in consultation with the relevant local planning authorities.
- 1.1.4 The 275kV CEMP has three primary objectives:
- To provide for appropriate environmental mitigation relevant to the construction of the 275kV cable route Project;
 - To ensure compliance with legislative requirements and relevant best practice across project construction activities; and
 - To ensure consistency in approach and performance of environmental management across TLSB and contractors during the construction of the 275 kV cable route Project.
- 1.1.5 These objectives will be fulfilled by:
- Setting out the measures required to manage and where necessary mitigate the environmental effects of the 275 kV cable route Project during construction;
 - Defining the relevant legislative and best practice requirements that are to be fulfilled throughout the construction of the 275 kV cable route Project;
 - Defining the relevant roles and responsibilities applicable to the construction of the 275 kV cable route Project; and

- Defining the communication practices and procedures for routine reporting, environmental incident management and notification, auditing and non-conformance action.

1.2 Scope

1.2.1 The CEMP covers, in line with industry standards and best practice, the following:

- The roles and responsibilities of the 275 kV cable route Project TSLB and Contractor personnel with respect to environmental management;
- Mechanisms for reporting compliance and complaints relevant to the 275 kV cable route Project; and
- Mitigation measures to prevent significant adverse impacts on environmental interests relevant to the 275 kV cable route Project (as outlined in Section 1.4).

1.2.2 The environmental management and mitigation measures outlined within this document are relevant to the construction and installation of the 275 kV cable alone. A separate CEMP, provided under Development Consent Order (DCO) Requirement 5, has been produced for the wider TLSB project, which includes the lagoon breakwater seawalls, powerhouse and sluice gate structures and ancillary onshore buildings.

1.2.3 Where appropriate, environmental mitigation measures contained within this 275kV CEMP are consistent with those required under the DCO for the wider TLSB Project.

1.3 Surveys

1.3.1 This draft 275kV Project CEMP is informed by environmental surveys undertaken as part of the wider TLSB Project Environmental Impact Assessment (EIA) in accordance with the requirements of the Infrastructure Planning (Environmental Impact Assessment) Regulations 2009. The EIA formed part of the Environmental Statement (ES) (TLSB ES 2014) for the wider TLSB Project in its entirety including, but not limited to; the energy generating elements, public realm facilities and the 275kV grid connection.

1.3.2 This document is based on the TLSB ES surveys for the following reasons:

- The assessment is based on a likely worst case scenario and therefore any management and/or mitigation measures proposed within this 275kV CEMP are precautionary;
- There have been no material changes in circumstances since the determination of the original DCO application for the wider TLSB project which originally included the 275kV cable route and was informed by the TLSB ES ; and

- The timings of the proposed works and installation of the 275kV is associated with the construction programme for the wider TLSB Project and will therefore not commence until approximately Q4 2018. Any surveys therefore undertaken for the current application will require further update prior to construction.

1.4 Structure

1.4.1 This document is divided into the following sections, as outlined in Table 1.1.

Table 1.1 CEMP Structure

Section		Summary of Content
1	Introduction	Overview of document scope and structure.
2	1.4.2 Project Background	Overview of the 275 kV Cable for Tidal Lagoon Swansea Bay, consent requirements and key milestones.
3	Environmental Management Framework	Overview of the framework within which the CEMP will be implemented.
4	Site Arrangements	Key construction details relevant to environmental management/mitigation.
5	Noise	Management/Mitigation of potential noise impacts.
6	Construction Lighting	Management/Mitigation of potential light impacts.
7	Contaminated Land	Management/Mitigation of potential contaminated land impacts.
8	Pollution Prevention	Management/Mitigation of potential pollution.
9	Spill Response	Management/Mitigation of potential spills.
10		Management/Mitigation of potential waste.



Section		Summary of Content
	Waste Management	
11	Crymlyn Burrows Site of Special Scientific Interest	Management/Mitigation measures for working within protected SSSI.
12	Invasive Non-Native Species	Management/Mitigation of potential introduction of invasive non-native species.
13	Reptiles	Management/Mitigation of potential impacts on reptiles.
14	Traffic and Travel	Management/Mitigation of potential traffic/highway impacts.
15	Dust	Management/Mitigation of potential dust impacts.
16	Unexploded Ordnance	Management/Mitigation of potential unexploded ordnance impacts.
17	Archaeology	Management/Mitigation of potential impacts on archaeology.

2 Project Background

2.1 Introduction

- 2.1.1 Tidal Lagoon Swansea Bay (TLSB) will be the world's first purpose built tidal energy lagoon. The generating station will have an installed capacity of 320 Megawatts (MW) and will enclose part of Swansea Bay, from the eastern side of the River Tawe to the eastern edge of the new Swansea University Bay-Campus.
- 2.1.2 TLSB made an application for development consent to the Planning Inspectorate on 7 February 2014 for a DCO. Examination of the application closed on 10 December 2014 and development consent was granted by the Secretary of State (SoS) on 9 June 2015.
- 2.1.3 A number of elements were excluded from the DCO which included the provision of the 275 kV cable route from the Western Landfall of the development to the Baglan Bay National Grid substation. A separate TCPA permission is therefore being sought for the 275 kV electrical grid connection works. This 275kV CEMP forms part of that TCPA application. From the Western Landfall of the development, the 275 kV high voltage cable and associated trenching works will run alongside the access road, along Fabian Way, through Crymlyn Burrows Site of Special Scientific Interest (SSSI) before crossing underneath the Neath river to connect to the existing National Grid Transmission System at Baglan Bay substation.

2.2 Consent Summary

- 2.2.1 Development consent for the TLSB Project was granted by the SoS on 9 June 2015. In terms of the 275kV cable, this consent only included the section of 275kV cable along the western breakwater to the Western landfall, and excluded the section of 275kV cable from the Western landfall to the National Grid connection point at the existing Baglan Bay substation. Hence, a separate TCPA planning permission is required for the section of 275kV cable from the Western landfall to the National Grid connection point at the existing Baglan Bay substation.
- 2.2.2 The Local Planning Authorities (LPAs) relevant to the 275 kV cable TCPA application; City and County of Swansea Council (CCSC) and Neath Port Talbot County Borough Council (NPTCBC) have requested that a 275kV specific CEMP be produced in support of the application.
- 2.2.3 To ensure consistency across the 275 kV cable route Project documents, where appropriate, environmental mitigation measures contained within this 275kV CEMP are consistent with those required under the DCO for the wider TLSB Project.

3 Environmental Management Framework

3.1 Environmental Policy

- 3.1.1 TLSB is in the process of publishing a project specific Environmental Policy which will be included within the final 275kV CEMP. Tidal Lagoon Power's Environmental Policy is outlined in Figure 3.1 for indicative purposes only.

Environmental Policy

Tidal Lagoon Power is committed to protecting the environment by complying with all relevant UK legislation, meeting national standards relating to the environment and in accordance with best working practices currently in use by the industry.

This is an ongoing commitment which requires working procedures to be frequently reviewed and adapted to reflect the continual changes that are taking place in the industry to ensure the company is at the forefront of the changes with regards to environmental protection.

Tidal Lagoon Power uses the word environment to cover the natural environment and ecosystems as well as the built environment and the effect the company's operations can have on people's lives and heritage.

Our pledge to environmental protection is further extended to protect our employees and the public in general so that the company's impact on people's environment is beneficial and not harmful.

To achieve these objectives Tidal Lagoon Power will:

- Fully commit to preventing pollution throughout all aspects of the companies work;
- Fully comply with current legislation, and/or third parties operating procedures to ensure the highest standards are obtained. The company is not satisfied with merely satisfying minimum legal requirements but will be proactive with its designers, contractors and suppliers in setting and achieving higher standards when practicable;
- Commit managerial resources to implement the Environmental Policy by introducing an effective management control system based on the ISO 14001 Standard;
- Set and review objectives within the Management Review Meeting annually;
- Ensure any contractors and designers working under the company's control also follow similar standards and attitudes;
- Ensure company staff are aware of environmental issues and the procedures they must follow. This awareness training will be encouraged at all levels and in contract companies as well as our own;
- Minimise the impact of the company's activities by adopting best practices that are available at that time. This principle will be applied to all aspects of the company's activities including design, management of contracts and site operations, plant & transport selection and use, energy efficiency, re-use and recycling options, and waste minimisation;
- To strive for proactive positive enhancement of the environment;
- Undertake a periodic review of our performance against our Policy Objectives and applicable legal standards in order to strive for Continual Improvement.

The participation and co-operation of all employees, consultants, designers, suppliers and contractors is vital to the success of this policy.

This Environmental Policy Statement shall be communicated throughout the organisation and will be publicly available to interested parties.

This Policy is reviewed annually.

Signed Mark Shorrock

Date 21 April 2015

Mark Shorrock (Chief Executive Officer)

Figure 3.1 Environmental Policy

3.2 Organisation

3.2.1 Figure 3.2 details the organisation of key environmental personnel during the construction phase of the entire TLSB Project. The 275 kV cable supply, installation and commissioning is a component of the C122 work package, as per Figure 3.2 below.

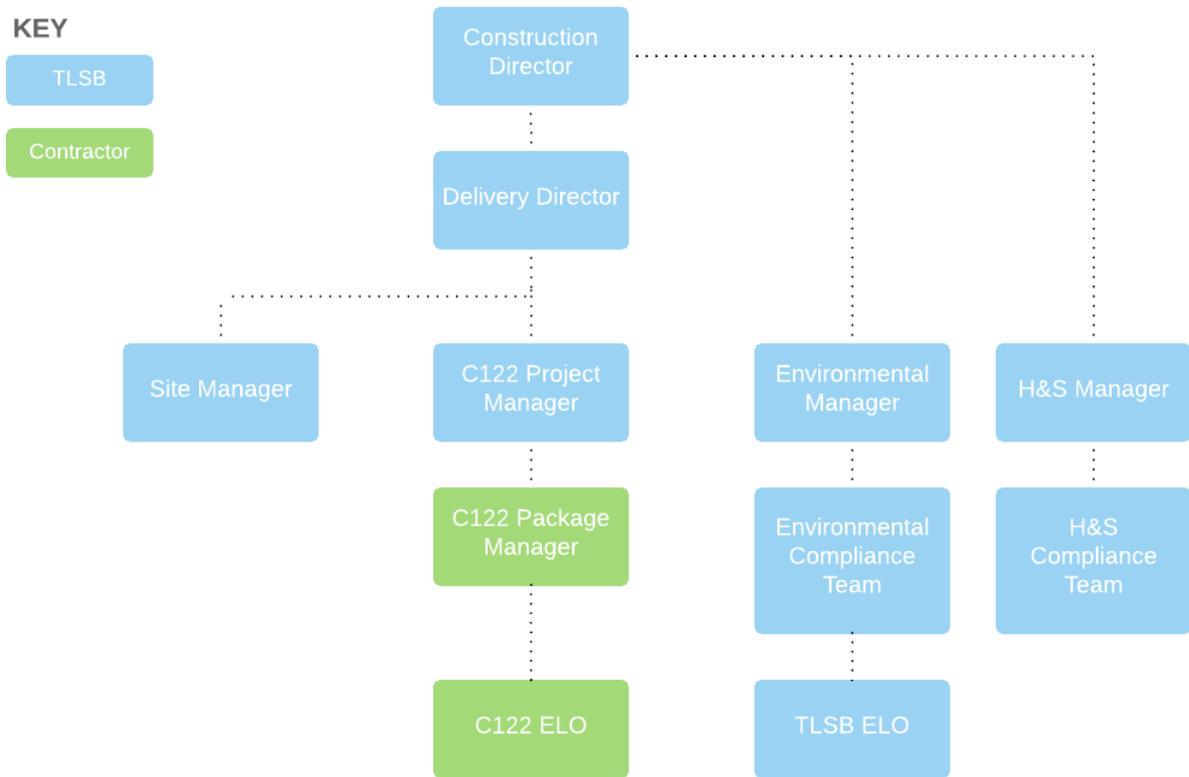


Figure 3.2 Organisational Chart

3.2.2 Table 3.1 details the roles and contact details of the key personnel.

Table 3.1 Roles and Contact Details

Contact	Role	E-mail	Telephone
Mike Unsworth	TLSB Construction Director	TBC	TBC
TBC	TLSB Delivery Director	TBC	TBC
TBC	TLSB Site Manager	TBC	TBC

Contact	Role	E-mail	Telephone
Malcolm Preston	TLSB C122 Project Manager	malcolm.preston@tidallagoonpower.com	07795 960 007
TBC	C122 Contractor Package Manager	TBC	TBC
TBC	C122 ELO	TBC	TBC
TBC	TLSB Environmental Manager	TBC	TBC
TBC	TLSB Environmental Compliance Team	TBC	TBC
TBC	TLSB ELO	TBC	TBC
TBC	TLSB Health & Safety Manager	TBC	TBC
TBC	TLSB Health & Safety Compliance Team	TBC	TBC

3.3 Communications with TLSB and regulators

3.3.1 The C122 Environmental Liaison Officer (ELO) will submit Monthly Progress Reports to the TLSB Environmental Compliance Team. The Monthly Progress Report will include as a minimum the following standard information:

- Reportable incidents;
- Near misses;
- Consents, permits and licenses non-conformance; and
- Observations (Safety & Environmental).

3.3.2 The TLSB Environmental Manager will submit Monthly Summary Progress Reports to the TLSB Construction Director and Delivery Director.

3.3.3 The TLSB Environmental Compliance Team, in liaison with the TLSB Environmental Manager, will provide a point of contact for communication and regular reporting to the relevant regulatory authorities regarding environmental issues where required.

3.3.4 An overview of the TLSB routine reporting procedure is provided in Figure 3.3.

3.4 Communication between contractors

- 3.4.1 During construction of the TLSB Project, there may be multiple contractors carrying out construction activities across the construction site. Installation of the 275 kV cable from the Eastern ABP security gate to the Western Landfall will be carried out along the edge of the current ABP access road adjacent to Queens Dock. This access road will form part of the TLSB Project internal site road during the construction phase, and as such, there may be potential for the C122 contractor to interface with the additional contractors supporting the TLSB Project.
- 3.4.2 A monthly TLSB Project environmental update meeting will be held where at least one representative ELO from each contractor will attend. This meeting will be held by the TLSB Environmental Compliance Team, providing an opportunity for all contractors to be made aware of key environmental related updates on the TLSB Project as well as the 275kV cable route Project.
- 3.4.3 This meeting will ensure communication between the various contractors is maintained throughout the construction phase of not only the 275 kV cable route Project, but also the wider TLSB Project. During these meetings, any forthcoming environmental related sensitivities will be discussed with all the TLSB Project contractors ELO's well in advance of the construction activity taking place, minimising the potential for an incident. See Section 3.5 on environmental incident, management and notification.

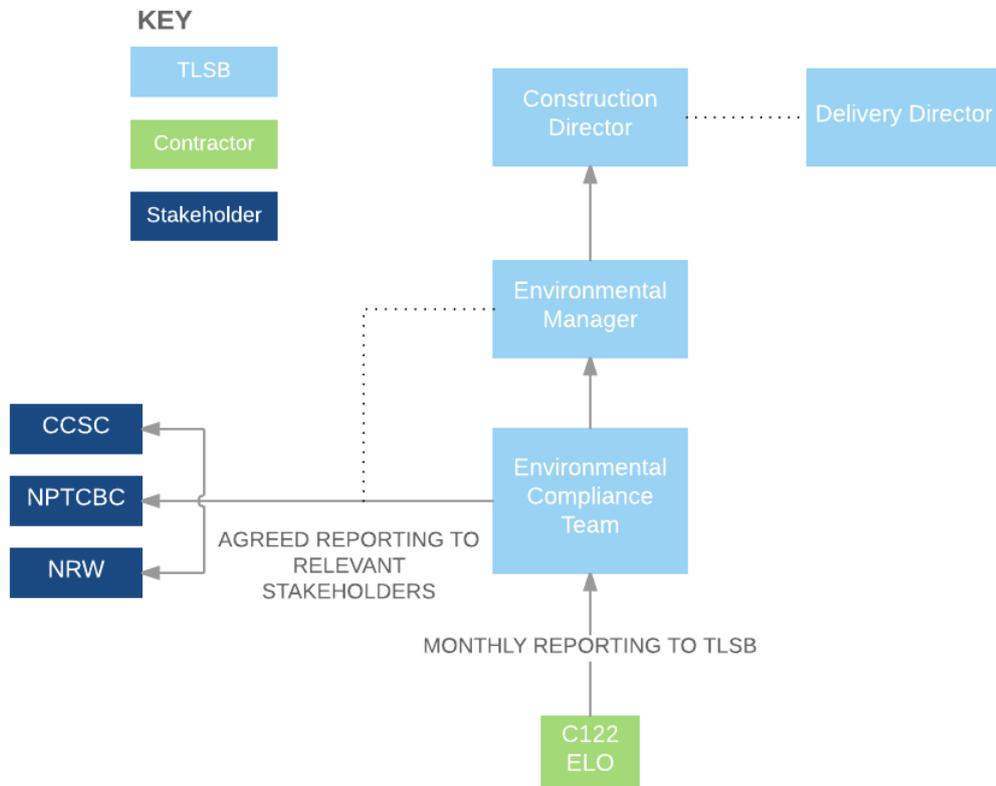


Figure 3.3 TLSB Reporting Procedure

3.5 Environmental incident, management and notification

3.5.1 Environmental incidents are classified into the following three tiers:

- Tier One – Major Environmental Incident;
- Tier Two – Serious Environmental Incident; and
- Tier Three – Minor Environmental Incident.

3.5.2 Definitions of each Environmental Incident Tier and an overview of the actions to be followed in the event of an environmental incident are provided in Table 3.1. Figure 3.4 provides an overview of the TLSB Emergency Incident management and notification procedure.

Table 3.2 Environmental Incident Tier definitions

Tier	Definition	Actions
Tier One Major Environmental Incident	A significant breach of the regulatory authorities permitting conditions. An emission likely to cause significant environmental harm. The remediation of the environmental damage is outside of the capability of the site. May require assistance from government agencies and or other external resources. Many widespread or long term complaints. Short term national or long term local media interest. Ecosystem damage lasting over a year.	<ul style="list-style-type: none"> • Incident likely to require management practices in addition to the implementation of the appropriate environmental management plan. Where this is the case management practices must be agreed with TLSB and regulatory authorities where appropriate prior to implementation; • Incident requires immediate notification of TLSB by the C122 contractor. • Incident requires immediate notification of the regulatory authorities by TLSB. • Following the incident, a lessons learnt report to be completed by the C122 contractor and TLSB and circulated to the relevant staff.
Tier Two Serious Environmental Incident	A breach of the regulatory authorities permitting conditions. The remediation of the environmental damage is within the capability of the site and parent location. Several complaints from individuals and short term local media interest. No long term ecosystem damage.	<ul style="list-style-type: none"> • Incident may require management practices in addition to the implementation of the appropriate environmental management plan. Where this is the case management practices must be agreed with TLSB and regulatory

Tier	Definition	Actions
		<p>authorities where appropriate prior to implementation;</p> <ul style="list-style-type: none"> • Incident requires immediate notification of TLSB by the C122 contractor; and • Incident to be reported to the relevant regulatory authorities within 24 hours. This will be undertaken by TLSB and not the C122 contractor. • Following the incident, a lessons learnt report to be completed by the C122 contractor and TLSB and circulated to the relevant staff.
Tier Three Minor Environmental Incident	A localised environmental release, spillage or discharge that does not typically require outside notification and can be corrected by available personnel and/or materials.	<ul style="list-style-type: none"> • Incident can be appropriately managed through implementation of appropriate environmental management plan; • Incident does not require TLSB or regulatory authorities to be involved with the implementation of the management plan; and • Incident will be reported by the C122 contractor ELO to TLSB in the Monthly Progress Reports.

3.5.3 The level of response and communication required will differ according to the Tier of the Environmental Incident.

3.5.4 It is the responsibility of the TLSB C122 Project Manager to classify the Environmental Incident according to the relevant Tier and therefore determine the appropriate level of response required.

3.5.5 In the event of a **minor Environmental Incident** (Tier Three), the C122 Project Manager shall be immediately informed in the first instance. The C122 Project Manager is responsible for notifying the TLSB Site Manager, other relevant TLSB Project contractors in the event of a cross-package incident and the C122 Site Team. The C122 Site Team will be responsible for implementing the appropriate management strategy in liaison with the C122 ELO and C122 Health and Safety Officer. A Tier Three Environmental Incident will not require immediate notification of TLSB and the regulatory authorities however, all Tier Three incidents will be routinely reported within the monthly report to TLSB. Where a Tier Three incident

needs to be escalated to a Tier Two incident, this is the responsibility of the TLSB Site Manager.

- 3.5.6 In the event of a **serious Environmental Incident** (Tier Two), in addition to the procedure outlined above, the following practices will be applied. The TLSB Site Manager will immediately notify the relevant TLSB Project Managers who in turn will liaise with the TLSB Environmental Compliance Team. The TLSB Environmental Compliance Team are responsible for notifying the relevant regulatory bodies and stakeholders, in liaison with the TLSB Environmental Manager where required. This point in the process provides a feedback mechanism for stakeholders and regulatory bodies to provide advice on appropriate management measures if required in addition to the appropriate management strategy. All Tier Two Environmental Incidents will also be routinely reported in the monthly report to TLSB and where required regulatory bodies. Where a Tier Two incident needs to be escalated to a Tier One incident, this is the responsibility of the relevant TLSB Project Manager.
- 3.5.7 In the event of a **major Environmental Incident** (Tier One), in addition to the procedures outlined above, the TLSB Project Manager will notify the TLSB Construction Director and Delivery Director who in turn will liaise with the TLSB Environmental Manger, TLSB Health and Safety Manger and the relevant TLSB Project Mangers to devise any further appropriate strategies required to adequately deal with the environmental incident. In addition, feedback from regulatory bodies and stakeholders will be sought on any management strategy put forward. Following the agreement of a further management strategy, this will be communicated to the C122 Project Manager who in turn will alert the C122 Site Team whose responsibility is to implement the agreed strategy. All Tier One Environmental Incidents will also be routinely reported in the monthly report to TLSB and regulatory bodies.
- 3.5.8 An overview of the TLSB Emergency Incident management and notification procedure is provided in Figure 3.4.

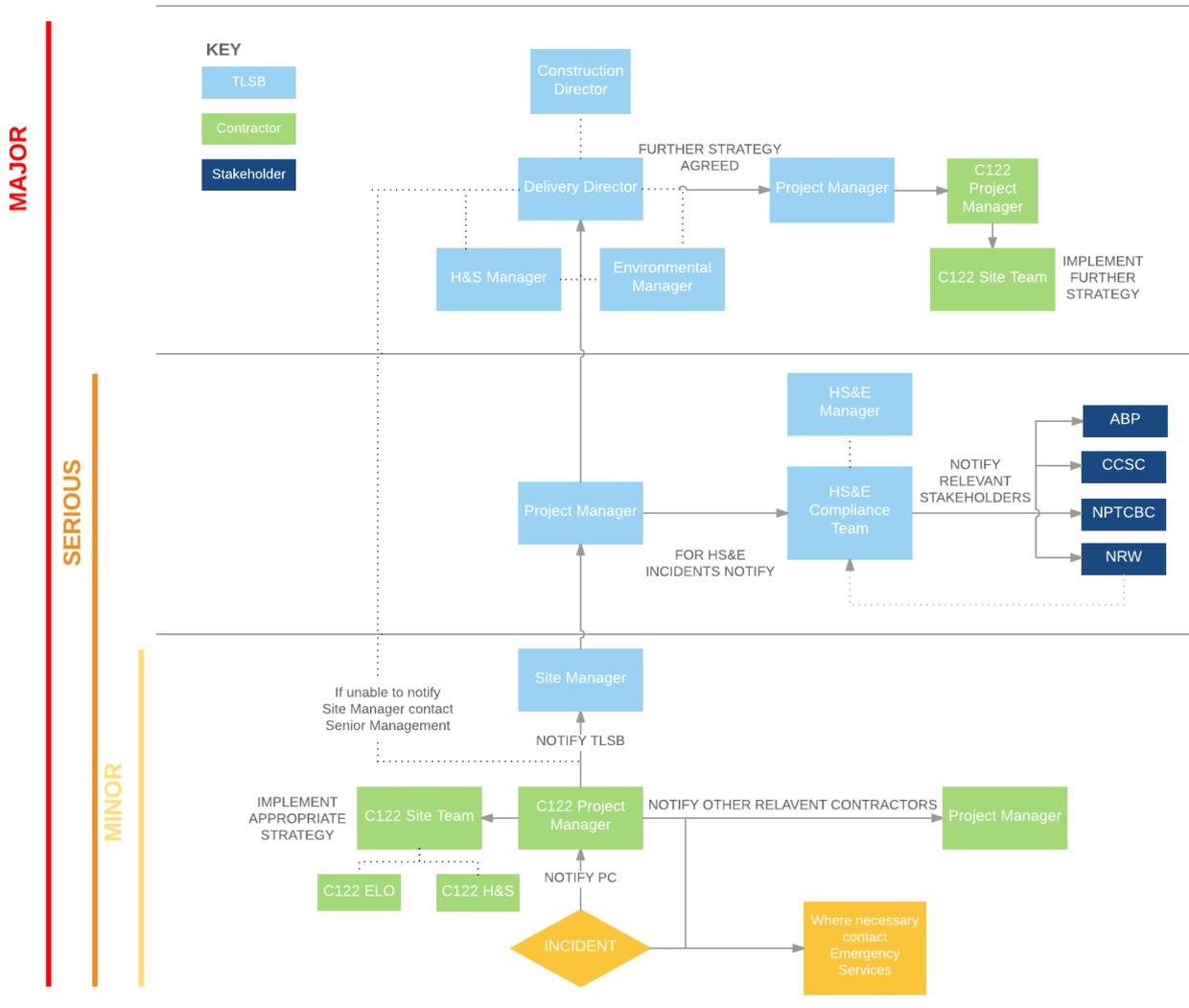


Figure 3.4 TLSB incident management and notification procedure

3.6 Auditing

- 3.6.1 Environmental inspections and audits will be undertaken by the TLSB Environmental Compliance Team at intervals to be determined by TLSB on a risk assessment basis. As a guide, it is anticipated that an environmental inspection will take place monthly for each work area. Inspections will also be undertaken by the TLSB Health and Safety Compliance team, for matters relating to health and safety.
- 3.6.2 The Environmental Inspection Plan will be kept in the 275 kV cable route Project file at the TLSB offices. The TLSB Environmental Compliance Team will plan and undertake the environmental inspections in liaison with the TLSB Environmental Manager. Subsequently, the TLSB Environmental Compliance Team will submit an Inspection Report to the TLSB Management Team and TLSB Construction Director. Should an environmental inspection result in further agreed action or management

measures to be implemented, this will be passed on to the C122 contractor in writing and are to be complied with by the agreed action date. A file of completed Inspection Reports will be maintained and made available by the TLSB Environmental Compliance Team. The findings of Inspection Reports will form part of the Management Review Process to ensure continual improvement.

- 3.6.3 The basis of environmental inspections and audits will be the 275kV CEMP (and associated plans), statutory consent requirements and relevant legislation. The C122 contractor and subcontractors shall fully co-operate with environmental inspections and provide information requested by the TLSB Environmental Compliance Team within an agreed timeframe. Where appropriate, joint inspections and audits will be completed by TLSB and the C122 contractor.

3.7 Non-conformance, corrective and preventative action

- 3.7.1 Through the environmental inspections and audits detailed in Section 3.5, the TLSB Environmental Compliance Team will identify if any non-conformances have occurred.

- 3.7.2 Non-conformances include but are not limited to the following:

- Spillages of oils or chemicals;
- Incorrect segregation of waste;
- Generation of excessive dust;
- Disposal of material or items outside of approved sites;
- Activities carried out without the relevant consent or permit;
- Conduction site activities outside of permitted times or periods; and
- Exceedance of noise thresholds.

- 3.7.3 Non-conformances will be documented by the TLSB Environmental Compliance Team in liaison with the TLSB Environmental Manager and reported to the TLSB Construction Director and Delivery Director, relevant TLSB Project Managers and C122 contractor in a Non-Conformance Report (NCR).

- 3.7.4 Appropriate personnel will be appointed to investigate the non-conformance and ensure preventative action and further management measures are implemented. Timescales for implementing further management will be determined according to the urgency and severity of the non-conformance.

- 3.7.5 Any changes in documentation and environmental plans that arise following the investigation of non-conformances shall be signed off by the relevant TLSB Project Manager. Documentation changes shall be implemented in a timely manner and distributed accordingly. Toolbox talks with the appropriate contractors will be arranged as appropriate to disseminate the relevant information. Should a change



to documentation cause the need for documents to be re-submitted to the relevant regulatory bodies or local councils, this will be coordinated by TLSB.

3.8 Liaison with external authorities

- 3.8.1 The relevant TLSB Project Managers and TLSB Environmental Manager must be informed as soon as possible of all visits from external authorities. A TLSB representative reserves the right to be present during such visits.
- 3.8.2 All correspondence received from external authorities must be sent to the relevant TLSB Project Managers and TLSB Environmental Manager who must review any proposed reply.

4 Site Arrangements

4.1 Site Security

- 4.1.1 The 275 kV cable route Project construction site will be sufficiently secured at all times to protect the public and prevent unauthorised entry to or exit from the 275 kV cable route Project site through the provision of site perimeter fencing.
- 4.1.2 During installation of the 275 kV cable route, temporary Heras panel fencing will be installed around the immediate area of work only. This fencing will be mobile and shall be dismantled and re-erected as the works progress along the route. This will ensure existing access to Crymlyn Burrows Site of Special Scientific Interest (SSSI) is continually maintained for the public whilst ensuring the public maintain a safe distance from the construction works.
- 4.1.3 Safety warning signs informing of the dangers of construction sites will be erected on the perimeter fence at all entrances and at 50m intervals. In addition, an information board shall be provided at each site entrance detailing information on the construction programme and estimated duration of the works, together with the web address and 24-hour telephone number for use by members of the public who wish to lodge complaints or comments.
- 4.1.4 Once the installation of the 275kV cable has been undertaken within the SSSI, the 10m wide working corridor (to be reduced where possible to minimise impacts on sensitive ecological receptors) will be protected (if required) by erection of temporary stock proof fencing to allow a successful ground reinstatement without disturbance. The period in which this fencing will be erected will be agreed in consultation with the relevant planning authority and NRW. As stated above, access for the public into the SSSI will be maintained at all times. Further details can be found in the 275Kv Project CMS.

4.2 Site Hours

- 4.2.1 Throughout the construction phase of the 275 kV cable route Project the normal hours of working will be Monday to Sunday, 8am - 6pm. Construction works will be carried out throughout the year, unless otherwise specified.
- 4.2.2 Should works be necessary outside normal or agreed working hours, the local planning authorities consent will be sought through a Section 60 Notice under the Control of Pollution Act 1974.

4.3 Site Management

- 4.3.1 Best practice construction site housekeeping methods will be applied at all times by TLSB staff and the C122 contractor. This will include the following:
- Staff will be made aware of energy efficiency and the measures to be implemented to reduce energy consumption;

- Measures to promote the efficient use of water on site will be adopted where practical;
- All working areas will be kept in a clean and tidy condition;
- All site waste and litter will be collected at regular intervals, adequately contained and segregated for recycling where possible;
- Adequate toilet facilities will be provided for all site staff and regular standard checks will be made;
- All working areas will be designated non-smoking areas. Specific areas within the 275 kV cable route Project site may be designated as smoking areas and shall be equipped with containers for smoking waste;
- Open fires will be prohibited at all times; and
- All necessary measures shall be taken to minimise the risk of fire and all TLSB staff and contractors shall comply with the requirements of the local fire authority.

4.4 Site clearance

- 4.4.1 All working areas shall be cleaned and restored as far as possible to its original state upon completion of works. Ground reinstatement will be undertaken throughout the 10m working corridor inside the Cymlyn Burrows SSSI and along the verge adjacent to Fabian Way. More detailed information can be found within the Ground Reinstatement Protocol within the 275 kV Cable Installation Construction Method Statement.

5 Noise

5.1 Environmental Management Requirements

- 5.1.1 The construction of the 275 kV cable route is likely to result in some increases in noise levels during working hours. TLSB recognise the need to ensure that these increases are kept within reasonable levels.

5.2 Delivery Strategy

- 5.2.1 The construction methods associated with the 275 kV cable route are detailed in the 275 kV Cable Installation Construction Method Statement provided as part of this application (TLSB, November 2016). The construction noise aspects of the work will comply with British Standard BS 5228:1997 Code of Practice for Noise and Vibration Control on Construction and Open Sites and will be monitored by the C122 ELO. Noise will be kept to a minimum and construction equipment will be used, maintained and serviced as per manufacturers' recommendations.
- 5.2.2 The CCSC has agreed to carry out the noise monitoring for the TLSB Project and associated construction activities, including the 275 kV cable route Project. This will be carried out using a B&K 2250 noise monitor. This monitor is for general use class 1 sound measurements in accordance with BS 5228 and can be used for occupational and environmental assessments as well as logging information.
- 5.2.3 Further to consultation with the Environmental Department of CCSC, it has been formally agreed that a one week baseline noise survey will be carried out prior to commencement of the construction of the wider TLSB Project. Once this information has been gathered, CCSC intends to have a flexible and reactive approach and will conduct noise monitoring surveys as required during the construction phase. As such the frequency of noise measurements and the noise data submissions will be determined in an adaptive approach.
- 5.2.4 It is not intended to use noise trigger levels on the 275 kV cable route Project. CCSC would rather deal with any potential complaint on its merit, taking into account the baseline measurements.

5.3 Reporting

- 5.3.1 It is essential that open communication channels between TLSB, the C122 Contractor and its subcontractors and the relevant authorities are established prior to, and during the 275kV cable Project construction phase. As members of the public are generally more inclined to contact the Environmental Department of CCSC/NPTCBC rather than any other department or TLSB, it is intended that lines of communications are agreed between the Environmental Department of CCSC, NPTCBC and the Environmental Compliance Team within TLSB. A shared schedule of potential complaints will be produced, ensuring that no complaints go unanswered. TLSB will ensure the TLSB Environmental Liaison Officer (ELO) and the



nominated points of contact will be agreed prior to the commencement of construction.

- 5.3.2 On completion of the pre-construction noise survey a copy of the results will be issued to TLSB, relevant contractors and regulatory authorities.
- 5.3.3 Any incident of non-conformance in relation to noise will be reported as per the procedure outlined in Section 3.7 and will be included within the TLSB ELO's Monthly Progress Report. This information will be available for review or reporting to the relevant Local Planning Authorities as necessary.

6 Construction Lighting

6.1 Environmental Management Requirements

- 6.1.1 The construction of the 275 kV cable route will only be undertaken during the working hours specified in Section 4.2. Lighting is likely to be required at the beginning and end of daily work during the winter months due to diminishing natural light during these periods. TLSB recognise the need to ensure that any increases in light are kept within reasonable levels and are not disruptive to local residents or environmental receptors.

6.2 Delivery Strategy

- 6.2.1 The construction methods associated with the 275 kV cable route are detailed in the 275 kV Cable Installation Construction Method Statement provided as part of this application (TLSB, November 2016). Task lighting and signage will be provided to enable the safety and security of the cable works. It will comply with the Institution of Lighting Engineers' guidance notes for the reduction of light pollution and the provisions of BS 5489, Code of Practice for the Design of Road Lighting, where applicable.
- 6.2.2 Task lighting will be low level, at the minimum luminosity necessary and use low energy consumption fittings. Lighting will be designed, positioned and directed so as not to spill onto any nearby water, will be sensitive to relevant ecological receptors, and will not unnecessarily intrude on adjacent buildings or land. This will be achieved by using accessories such as hoods, cowls and shields to direct the light to the intended work area.

6.3 Reporting

- 6.3.1 Any incident of non-conformance in relation to construction lighting will be reported as per the procedure outlined in Section 3.7 and will be included within the TLSB ELO's Monthly Progress Report. This information will be available for review or reporting to the relevant Local Planning Authorities as necessary.

7 Contaminated Land

7.1 Environmental Requirements

- 7.1.1 The construction of the 275 kV cable route has the potential to disturb previously contaminated land or introduce new contaminants as a result of accidental spills. TLSB recognise the need to ensure that these potential incidents are prevented.

7.2 Delivery Strategy

- 7.2.1 The construction methods associated with the 275 kV cable route are detailed in the 275 kV Cable Installation Construction Method Statement provided with this application (TLSB, November 2016). In developing a strategy for the management of contaminated land, TLSB make reference to the advice as set out in the following document:

- Development of Land Affected by Contamination: A Guide for Developers.

- 7.2.2 This document aligns with and makes reference to the following:

- Model Procedures for the Management of Land Contamination – Contaminated land Report 11 (CLR11); and
- CL:AIRE: The Definition of Waste - Development Industry Code of Practice.

- 7.2.3 TLSB have followed the advice as set out within these guidance documents and for consistency across the 275 kV cable route Project TLSB have set out a single strategy for dealing with potential ground contamination which will be utilised to discharge requirements under the TLSB Project DCO as well as subsequent conditions precedent as a result of separate planning applications under the TCPA. Further information can be found in the 275 kV Cable Route Town & Country Planning Application: Ground Contamination Report (TLSB, September 2016).

- 7.2.4 TLSB will undertake initial investigations and reporting routes summarised as:

- Risk Assessments – Phase I and II;
- Options Appraisal and Remediation Strategy; and
- Implementation and Verification plans.

- 7.2.5 TLSB intend to follow the overarching frame work of CLR11 in the gathering of information and the development of the necessary documentation up to the options appraisal/remediation strategy stage. It is then intended to utilise the CL:AIRE CoP to deliver the implementation and verification of the remediation strategy via a Materials Management Plan (MMP).

- 7.2.6 The CL:AIRE CoP sets out a streamlined process with regard to re-use of site won materials and better supports the sustainable and cost effective development of land. In addition, it can provide an alternative to Environmental Permits or Waste Exemptions.

7.3 Reporting

- 7.3.1 A MMP will be developed that will translate the remediation strategy into a clear set of activities, that will deliver the overall objectives (remediation, management and other technical) agreed for the 275 kV cable route Project, in accordance with TLSB and regulatory requirements. Consultation with relevant parties is part of the development of the plan. Health, safety and environmental protection procedures will be considered at the outset as an integral part of the work.
- 7.3.2 The MMP will set out required tracking systems and all materials subject to excavation, disposal, treatment and/or reuse will be tracked throughout and evidence generated to provide an auditable trail. In the case of wastes this is achieved via compliance with the Duty of Care requirements, e.g. description of waste and EWC code, completed Transfer or Consignment Notes and acceptance notes at appropriately authorised facility(ies).
- 7.3.3 The MMP will also set out contingency arrangements in relation to the movement of waste and materials, these contingency arrangements will cover:
- Out of specification Materials and Non-Conformities', resulting in additional treatments or alternative disposal options;
 - Surplus Materials e.g. recovery or disposal options;
 - Responsibility for additional wastes;
 - Programme Slippage;
 - Extended Treatment Times; and
 - Identified Area's for out of Specification Materials.
- 7.3.4 In addition to the arrangements set out within the MMP any incident of non-conformance in relation to contaminated land will be reported as per the procedure outlined in Section 3.7 and will be included within the TLSB ELO's Monthly Progress Report.

8 Pollution Prevention

8.1 Environmental Management Requirements

8.1.1 The construction of the 275 kV cable route Project includes possible sources of pollutants associated with existing ground contamination and arisings from excavation works. All possible measures of pollution prevention and control will be in place to avoid/minimise the occurrence of any incidents as outlined in Section 8.2.

8.2 Delivery Strategy

8.2.1 The construction methods associated with the 275 kV cable route Project are detailed in the 275 kV Cable Installation Construction Method Statement provided as part of this application (TLSB, November 2016).

8.2.2 During construction of the 275 kV cable trench/duct rain water may accumulate in the trench or around the openings of the ducts. There is also the possibility that storm water from adjacent roads or other concrete/tarmac areas may enter the trench/duct. Once construction is complete the trenches/ducts will be infilled with sand and soil and covered.

8.2.3 Until the cable trench is infilled it will be inspected daily by the C122 ELO for water ingress and the reports kept in the C122 Environment Health and Safety (EHS) file.

8.2.4 In the event of significant amounts of water entering the trenches/ducts, then agreement will be obtained from Dwr Cymru (Welsh water) for the safe extraction and disposal of the water. Oil separators and/or sand filters will be used if required by Dwr Cymru.

8.2.5 The C122 ELO will also be responsible for monitoring the arisings as a result of the drilling works. Appropriate storage capacity will be provided and any waste disposed of in accordance with Section 10.

8.2.6 The following mitigation measures will be enforced by the C122 ELO to prevent fuel and lubricants from equipment being released into the surrounding environment:

- Equipment will be maintained regularly to ensure efficiency and to minimise emissions;
- Equipment shall be clean on arrival at site;
- Fuel and oil shall be stored away from watercourses, fully bunded and containers will be maintained in a secure and clean manner; and
- Refuelling or servicing of equipment will be supervised and carried out in designated locations agreed with the TLSB Site Manager.

8.2.7 In the event of a spill, the Spill Response Strategy (Section 9) will be followed to contain and clean-up any oil or fuel leak or spillage.

8.3 Reporting

- 8.3.1 A pollution audit will be carried out by the C122 ELO weekly for all tanks, liquid containers and pipework. The pollution audit is a visual inspection for any signs of leakage which shall be recorded on an audit form, and reviewed by the Site Manager to ensure that the source of the leakage is identified, and that action is taken to prevent further leaks occurring. The pollution audits will be filed by the C122 ELO in the C122 EHS file.
- 8.3.2 A storm water exposure assessment shall be conducted annually.
- 8.3.3 Any incident of non-conformance in relation to pollution prevention will be reported as per the procedure outlined in Section 3.7 and will be included within the TLSB ELO's Monthly Progress Report. This information will be available for review or reporting to the relevant Local Planning Authorities as necessary.

9 Spill Response

9.1 Environmental Management Requirements

9.1.1 The construction of the 275 kV cable route Project necessitates the use of potentially hazardous, acidic and caustic substances. The mitigation measures and procedures to be adopted in the event of a major spillage or any leakage is outlined in Section 9.2.

9.2 Delivery Strategy

9.2.1 Quantities of stored materials are minimised on-site to reduce the probability and magnitude of any release.

9.2.2 Emergency spill/contaminant equipment will be placed in strategic locations around the construction site, as decided by the TLSB Site Manager. The equipment will be used as quickly as possible to prevent ground and water contamination (both storm and foul water).

9.2.3 The two main potential types of hazardous material release that may occur at this facility are spills and leaks:

- **Spills:** defined as an uncontrolled/unplanned release of any substance likely to cause harm to either personnel or the environment; and
- **Leaks:** defined as non-sudden releases of material due to the failure of a container.

9.2.4 Spill kits will be on site at all times and will contain:

- The control action procedure;
- Gloves;
- Absorbant granules/pads/pillows;
- Spill socks or booms;
- Drain mat;
- Disposal bags and ties; and
- A drum with lid.

9.2.5 Spillage response needs to be fast, safe and efficient if the situation is to be localised and major incidents avoided. At least one spill response trained person will be onsite at any time and they will ensure that the following steps will be undertaken in order to deal with spillages:

- All untrained personnel shall leave the area immediately;
- The pollution source shall be located and hazards identified using the product label and substance risk assessment form. (MSDS and COSHH forms);
- The TLSB Site Manager shall be informed and provided with all available information about the incident, so that the appropriate emergency

services can be alerted if necessary;

- If it is safe to do so, any casualties shall be removed from the incident if they are in immediate danger. The person undertaking the rescue shall be appropriately trained and adequately equipped;
- Take immediate action to reduce or stop the pollution as advised by the TLSB Site Manager. Switch off devices or isolate to prevent further contamination and minimise spread and seal off drains using drain covers if required to prevent contamination entering the storm water or foul drains;
- The TLSB Site Manager will identify the hazards, protection required, the availability of trained personnel, the method of carrying out the clean-up operation, and the requirements for the disposal of the waste and clean-up materials. Appropriate PPE will be used. The oil and hazardous material inventory will be used to correctly identify the materials to be used for the cleanup;
- Spills shall be contained by constructing a bund around the spill to stop it spreading using the spill socks and booms provided in the spill kits;
- Spills shall be removed by pumping into a specialist tanker or sealable drums. The residue and small spillages shall be removed with the absorbent granules/pads/ pillows provided in the spill kits. Spills containing substances such as oil, diesel or paint will be hazardous waste will be disposed in compliance with the Site Waste Management Plan;
- Under no circumstances shall spills be washed into drains, unless prior approval from the relevant authority has been obtained;
- Drip trays shall not be allowed to overflow, and the contents shall be disposed in compliance with the Site Waste Management Plan. The contents of the drip trays shall not be tipped out onto the ground; and
- The area shall be secured so as to prevent unauthorised entry.

9.2.6 Should a spill be acidic or chemical, the response outlined above will be followed with the addition of:

- The chemical spill shall be diluted with as much water as required;
- Discharging wastewater to Dwr Cymru (Welsh Water) will be ceased. If necessary Dwr Cymru will be contacted in order for them to stop their effluent pumps; and
- If the spillage is small or can be contained, then the pH can be monitored and manually dosed in order to achieve the necessary pH level, as defined by Dwr Cymru, to permit discharge to Dwr Cymru.

9.3 Reporting

9.3.1 The C122 Project Manager is responsible for providing a report to the TLSB Site Manager detailing the following information should a spill occur:

- Type of incident;
- Time of occurrence;

- Assessment of actual or potential injuries and hazards to personnel, the public and the environment;
- Assessment of potential damage to the facility; and
- Response to actions underway.

9.3.2 In the event of a spill, the relevant LPA(s) and Harbour Authority(ies) will be notified and the subsequent report made available to them by TLSB.

9.3.3 An Emergency Drill will be conducted annually and the effectiveness of this Spill Response Strategy will be evaluated by the TLSB Site Manager. Any required spill management procedures and documentation updates will be communicated by TLSB to the LPAs.

9.3.4 Any spill incident will be included within the TLSB ELO's Monthly Progress Report. This information will be available for review or reporting to the relevant Local Planning Authorities as necessary.

10 Waste Management

10.1 Environmental Management Requirements

10.1.1 The construction of the 275 kV cable route Project will result in the production of waste. Waste materials associated with ground contamination and arisings from excavation works will be managed within the MMP as outlined in section 8.0. For all other waste streams the mitigation measures and procedures to be adopted in order to minimise and manage waste are outlined in Section 10.2.

10.2 Delivery Strategy

10.2.1 In line with best practice, the Waste and Resources Action Programme's Nine Step Guidance has been followed in the establishment of the Waste Management Strategy.

Step One: Plan and Prepare

10.2.2 The legislation applicable for the management of construction waste associated with the 275 kV cable has been identified, reviewed and considered within the following Waste Management Strategy.

Step Two: Roles and Responsibilities

10.2.3 A Waste Champion will be nominated to ensure that the Waste Management Strategy (WMS) is implemented on site and to the C122 contractor.

Step Three: Waste Classification

10.2.4 Waste is defined and classified under Article 1a of the European Waste Framework Directive as "any substance or object [...] which the holder discards or intends or is required to discard". Wastes can be broadly classified into the following categories:

- Controlled Waste (any waste subject to the provisions of the Control of Pollution Act 1989 (COPA, as amended) and the Environmental Protection Act (EPA)). Can be further divided into:
 - Hazardous;
 - Hazardous Inert;
 - Non Hazardous; and
 - Waste Electrical and Electronic Equipment recycling (WEEE), (unless they have hazardous properties).
- Hazardous Waste

10.2.5 Hazardous Wastes likely to be encountered during the construction of the 275 kV cable route Project include:

- Aerosols – Paints, cleaners, oils, etc;
- Grease Cartridges – Grease inserts from grease guns used for lubricating machines;
- Wastes Oils and Oily Materials – Oil from machines, oily rags and gloves, oil

filters, etc;

- Surplus Paints and Sealants and their Containers – Tack coat, bituminous paints, other paints;
- Batteries – All types of batteries are now covered under the EU Batteries Directive but to all intents and purpose should be treated as Hazardous; and
- Fluorescent Lighting Tubes – These should be kept intact as they contain hazardous gasses and metals, including mercury.

10.2.6 A Key Waste Forecast will be completed prior to construction which will act as a planning tool to record the types of waste which may be generated and forecast targets for re-use/re-cycling. This will be updated as the 275 kV cable route Project progresses.

10.2.7 A Waste Estimates Data Sheet will also be established to identify how the different waste types will be managed. During construction a Waste Management Data Sheet will be completed every time waste is removed from the site and will record:

- The types and quantities of waste produced;
- The types and quantities of waste that have been re-used/ recycled/ recovered/ landfilled or otherwise disposed of on or off site;
- The identity of the person removing the waste;
- The registration number of the waste carrier;
- A copy of or reference to the written description of the waste; and
- Details of the site where the waste is taken and licence / permit details.

Step Four: Waste Management

10.2.8 Waste generated as part of the construction of the 275 kV cable route Project will be managed according to the principles of the waste hierarchy outlined in Figure 10.1 . The waste hierarchy ranks waste management options according to what is best for the environment, with waste prevention being the first priority.

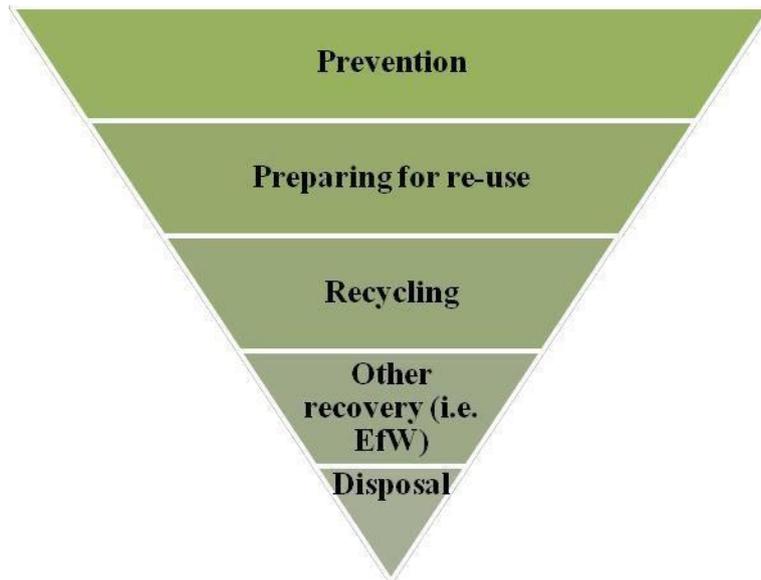


Figure 10.1 Waste Hierarchy

Step Five: Waste Disposal

- 10.2.9 Waste will be stored by the C122 Contractor in dedicated waste storage areas as designated by the Waste Champion. The Waste Champion will undertake regular inspections to ensure waste is stored and segregated appropriately (i.e. hazardous and non-hazardous waste).
- 10.2.10 Waste that cannot be reused, recycled or recovered on site will be collected by a licensed waste management contractor. The appointed waste contractor will have further provision for the segregation of recyclable waste, therefore maximising the percentage of waste diverted from landfill.
- 10.2.11 Waste Transfer Notes are required when waste is transferred from one person to another and must contain details on the waste producer, the waste acceptor and the nature of the waste via a physical description and a classification code which is taken from the List of Wastes (LoW). Waste Transfer Notes will be kept for a minimum of two years after the completion of the 275 kV cable route Project construction and three years after the completion of the wider TLSB Project construction for Hazardous Waste Consignment Notes.
- 10.2.12 The Waste Champion will be responsible for ensuring completion of Waste Transfer and Consignment Notes when waste is transferred and maintaining records.

Step Six: Waste Minimisation

- 10.2.13 Waste will be carefully considered during the detailed design stage of the 275 kV cable route Project to minimise the amount of waste produced during construction. Sustainable Design principles will be followed including:
- Good design;

- Good storage of materials;
- Wastage through over ordering; and
- Wastage through over supply.

Step Seven: Implementation

- 10.2.14 WMS training will be implemented by the Waste Champion to ensure that all relevant 275 kV cable route Project members of staff are competent in carrying out their duties in accordance with the WMS. Information relevant to the WMS will be included in the Site Induction and provided through regular toolbox talks. The WMS will be kept on site and staff will be briefed as to its location. All training records will be maintained and kept on site, and be available for inspection on request.

Step Eight and Nine: Audit, Monitor and Review

- 10.2.15 The Waste Champion will undertake regular inspections of the waste storage area and maintain audit record reports. Records of the movements of waste (Waste Transfer and Consignment Notes) will be maintained and kept on site throughout construction of the 275 kV cable route Project.
- 10.2.16 Upon the completion of the 275 kV cable route Project, the WMS will provide a record of how materials in the site have been managed and will allow a review of the waste management targets to be conducted.

10.3 Reporting

- 10.3.1 The nominated Waste Champion will be responsible for producing and maintaining the:
- Key Waste Forecast;
 - Waste Estimates Data Sheet;
 - Waste Management Data Sheet; and
 - Waste Transfer and Consignment Notes.
- 10.3.2 Any incident of non-conformance in relation to waste management will be reported as per the procedure outlined in Section 3.6 and communicated to the TLSB ELO for inclusion within the Monthly Progress Report. This information will be available for review or reporting to the relevant Local Planning Authorities as necessary.

11 Crymlyn Burrows Site of Special Scientific Interest (SSSI)

11.1 Cable route

- 11.1.1 Crymlyn Burrows SSSI is designated for a range of features, including sand dune and saltmarsh habitats. The 275 kV cable route does not affect any saltmarsh habitat and the route has been chosen to align with an existing tarmac track to minimise disruption to surrounding habitats. The corridor working width is therefore not anticipated to exceed 10 m (including the existing track) throughout the SSSI.
- 11.1.2 It should be noted that where possible, the 10m working width corridor will be reduced within the SSSI in areas where existing sensitive ecological receptors are located in order to minimise the potential impacts.
- 11.1.3 It is envisaged that the cable will be installed under the existing tarmac track. The tarmac would be removed to the sites material handling area and new tarmac laid on completion of the trenching works.
- 11.1.4 The following measures will need to be adhered to when working within the SSSI using the open-cut trench method:
- Protection of the vegetation from tracking of vehicles e.g. through sand covered semi permeable membrane (Terram or similar) or mats which reduce vegetation damage;
 - Topsoil to be stored separately from subsoil and preferably within the easement for ease of re-instatement;
 - Minimising the storage of topsoil/subsoil and reinstating as the works progress;
 - No storage of excess spoil or laydown areas to be within the SSSI;
 - Attempts will be made to carry out these works in Autumn/Winter to reduce long term impacts on vegetation;
 - Re-instatement through the spreading of subsoil, followed by topsoil and allowing the vegetation to naturally recolonise;
 - Vegetation would be allowed to re-instate upon completion of the works.
- 11.1.5 A site survey will be undertaken along the proposed route through the SSSI prior to cable route installation at a suitable time of year to identify any species-rich areas of dune grassland that may be affected by the cable route. Should any areas be identified and micro-siting to avoid them cannot be achieved, a detailed plan setting out how these areas are to be protected, or, if not possible, translocated will be submitted to NRW and NPTCBC prior to commencement of the cable route construction. Further details are contained within the Construction Method Statement provided with this application (TLBS, November 2016).
- 11.1.6 Cable ducts will be installed across the length of the SSSI and then the cable installed into the duct from joint bay locations. These locations will be at approximately 800 m – 1500 m intervals therefore up to three may be installed in

the SSSI. The joint bays will be within the 10 m working width. The installation of the cable within the SSSI will take a maximum of 14 weeks.

- 11.1.7 An alternative method of installation to using the trench method above is to adopt the plough method. This method requires up to a 10 m working width but could be installed either under or adjacent to the existing tarmac track. Further details are contained within the Construction Method Statement.

11.2 Drill Reception Pit

- 11.2.1 To cross the River Neath the technique of Horizontal Directional Drilling (HDD) has been selected to install the 275 kV ducting and cables. This technique consists of a launch pit and reception pit one on either side of the River Neath. The reception pit will be located on the Crymlyn Burrows SSSI side of the River Neath and the launch pit will be on the Baglan Bay side. A minimum area of approximately 40 m x 40 m of good grounding is required at the launch pit to position the equipment and conduct drilling operations. This will be on the Baglan Bay side of the river to minimise the disruption on the SSSI. At the reception pit within the SSSI, an area of approximately 15 m x 15 m of good grounding is required to enable safe hole-opening.
- 11.2.2 A site survey will be undertaken at a suitable time of year of the proposed reception pit within the SSSI, prior to cable route installation to identify any species-rich areas of dune grassland that may be affected by the works. Should any areas be identified and micro-siting to avoid them cannot be achieved, a detailed plan setting out how these areas are to be protected, or, if not possible, translocated, will be submitted to NRW and NPTCBC prior to commencement of the cable route construction. Consideration will be given to the vegetation communities present when assessing the need for any destructive search for reptiles prior to works commencing.
- 11.2.3 The reception pit will be demarcated with suitable fencing to prevent unnecessary tracking on the SSSI and any vegetation protection/translocation works will be undertaken prior to commencement of operations. There will be no storage of fuels or other chemicals within the reception pit.
- 11.2.4 At the reception pit, a tanker will collect any mixing fluid that collects during the drilling or pull back operation. This fluid will be reused where possible, or collected and transported to a licensed waste disposal site (as outlined in the Construction Method Statement provided with this application (TLSB, November 2016)).
- 11.2.5 Following completion of the works, the fencing will be removed and vegetation will be allowed to re-instate naturally or in accordance with the ground reinstatement protocol to be approved by the local planning authority (as outlined in the Construction Method Statement provided with this application (TLSB, November 2016)).

12 Invasive Non-Native Species

12.1 Environmental Management Requirements

- 12.1.1 Japanese knotweed (*Fallopia japonica*), Japanese rose (*Rosa rugosa*), Montbretia (*Crocasmia crocomiiflora*), Sea buckthorn (*Hippophae rhamnoides*) and Early goldenrod (*Solidago gigantean*) have been identified in surveys undertaken for the TLSB Environmental Statement between November 2012 and June 2013 in the vicinity of the cable route within the SSSI.
- 12.1.2 Japanese knotweed, Japanese rose and Montbretia are all listed under Schedule 9 of the Wildlife and Countryside Act 1981 (as amended), making it illegal to plant or otherwise cause to grow in the wild.
- 12.1.3 Japanese knotweed plant material and soil containing plant material and/or rhizomes can also be classified as “controlled waste” or, if treated with herbicide, “hazardous waste” and so is subject to measures outlined in Section 10.
- 12.1.4 Currently control of Sea buckthorn and Early goldenrod is not stipulated under legislation.

12.2 Delivery Strategy

- 12.2.1 In the spring/summer prior to construction of the 275 kV cable route Project, an updated terrestrial Invasive Non Native Species (INNS) survey of the 275 kV cable route and construction/storage compounds will be completed and treatment of any terrestrial INNS within the footprint of any proposed works will take place.
- 12.2.2 For the wider TLSB Project site, treatment of Japanese knotweed will begin the spring/summer prior to construction, following the objectives outlined below:
- **Objective 1:** Confirm locations of Japanese knotweed;
 - **Objective 2:** Fence off areas of Japanese knotweed on site;
 - **Objective 3:** Spray Japanese knotweed with an appropriate herbicide;
 - **Objective 4:** Prevent the spread of Japanese knotweed during the construction phase (good site hygiene);
 - **Objective 5:** Appropriate management of cut material;
 - **Objective 6:** Appropriate management of excavated infested material;
 - **Objective 7:** Installation of knotweed membrane; and
 - **Objective 8:** Carry out management of remaining Japanese knotweed annually for a period of at least 3 years.
- 12.2.3 Due to this extensive eradication programme, the updated INNS survey for the 275 kV cable route will be crucial in identifying INNS present and the most appropriate management methods for each species is identified. If Japanese knotweed is still present, it is considered that a programme the same as that followed for the wider TLSB Project will be adopted.

- 12.2.4 The locations of other INNS along the construction corridor will be documented using GPS coordinates where possible. Sea Buckthorn and Japanese rose will be excavated by tracked 360° excavator (or by hand depending on the size of the stand and its location), sand shaken off roots and vegetation transported to a geotextile lined encapsulation cell as close to the affected area as possible along dedicated protected routes in sealed dump trucks or containers.
- 12.2.5 The tipped vegetation will then be chemically treated with a suitable herbicide and left open enabling regular inspection together with any additional chemical treatment to ensure full eradication.
- 12.2.6 Regrowth at the infected sites will be pulled by hand, placed in 7t dumpers (or similar) or sealed containers and transported to the encapsulation cell for chemical treatment as for machine excavated vegetation.
- 12.2.7 The remains of treated vegetation will be disposed of appropriately off site.
- 12.2.8 Depending on the size of any Monbretia stands, removal will first be attempted by hand immediately prior to full flowering season. Care will be taken to remove the corms from the soil and vegetation would be disposed of using the same methodology as for Sea buckthorn. Alternatively, glyphosate will be used to control the stands. It will be applied with a weed wipe on a dry day. After six weeks the stand will be revisited and further glyphosate applied if necessary.

12.3 Reporting

- 12.3.1 Following the completion of the updated INNS 275 kV cable route survey, the TLSB ELO will update the INNS Strategy and oversee its implementation, including the provisions for preventing the spread of INNS. Any amendments to this INNS Strategy will be carried out in consultation with the relevant planning authority. On a monthly basis, the INNS maps will be reviewed to take account of any new infestations discovered whilst work is being carried out on site. A progress report on the extent of the INNS and how it has been treated will be produced by TLSB every two months. This information will be available for review or reporting to the relevant Local Planning Authorities as necessary.

13 Reptiles

13.1 Environmental Management Requirements

- 13.1.1 Four native species of reptile: grass snake (*Natrix natrix*), adder (*Vipera berus*), common lizard (*Zootoca vivipara*) and slow worm (*Anguis fragilis*) have been recorded within 2.5km of the site (TLSB Environmental Statement Chapter 12, 2013). These four species are offered legal protection under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). However, protection is not extended to their habitat under this legislation. A Reptile Strategy has been developed to ensure that all reasonable measures are undertaken to avoid the incidental mortality and injury of reptiles during construction works of the 275 kV cable route Project and to ensure compliance with the Wildlife and Countryside Act 1981 (as amended). It also aims to ensure that there is no net loss of reptile habitat as a result of the works and to increase the area of habitat suitable for reptiles in the long term.
- 13.1.2 All of these species are also listed under Section 7 of the Environment (Wales) Act 2016 as species of 'principle importance for the purposes of conserving biodiversity'. Under this Act, all local and public authorities in England and Wales have a duty to promote and enhance biodiversity in all of their functions.

13.2 Delivery Strategy

- 13.2.1 Installation of the 275 kV cable will result in temporary construction impacts to reptile habitat through Crymlyn Burrows SSSI. Habitat suitable for reptiles will be affected along a 1000 m long, up to 10 m wide easement in addition to a 900 m² horizontal directional drill reception pit on the western side of the River Neath. This equates to 1.09 ha of the SSSI temporarily affected by the works, which is approximately 0.8% of the suitable reptile habitat within the SSSI.
- 13.2.2 Construction through the SSSI will be using either a trench methodology or the plough method and will take approximately 7 weeks. Both methodologies are described in more detail in the 275 kV Cable Installation Construction Method Statement provided as part of this application (TLSB, November 2016).
- 13.2.3 The cable will be installed under the existing tarmac track (already subject to disturbance by walkers), in order to avoid higher value reptile habitat such as south-facing fronts of dune ridges.

Crymlyn Burrows SSSI 275 kV cable route: Habitat manipulation

- 13.2.4 Existing disturbance on both sides of the access track means that habitat suitable to support large populations of reptiles is limited. Habitat manipulation without exclusion fencing would therefore be used along the cable route in order to encourage reptiles not to enter the impact area (up to 10 m working width including an existing track).

- 13.2.5 Grassland and scrub within the working width will be cut or strimmed by hand to a height of 10 cm and arisings removed from site under supervision of a suitably experienced ecologist. This will be carried out over winter (when reptiles are still in hibernation and prior to the bird nesting season) prior to commencement of the 275 kV cable installation. Areas already supporting short-turf will also be maintained as short as possible. These measures will discourage reptiles from entering the working width.
- 13.2.6 Installation of the cable route through the SSSI will take place in line with the 275 kV Cable Installation Construction Method Statement (TLSB, November 2016) which includes provisions for grassland restoration.
- 13.2.7 A different approach will be taken at the River Neath 275 kV cable crossing HDD reception pit as outline below.

Crymlyn Burrows SSSI 275 kV cable HDD reception pit: Habitat manipulation

- 13.2.8 Grassland and scrub at the site of the River Neath underground 275 kV cable crossing HDD reception pit; including an additional 2 m buffer zone; will be cut or strimmed to a height of 10 cm. The arisings will be removed from site during late winter, prior to relocation. Areas supporting short-turf will be maintained as short as possible. These measures will encourage reptiles to move away from/not enter the construction zones into more suitable adjacent habitat.

Crymlyn Burrows SSSI 275 kV cable HDD reception pit: Reptile survey, exclusion, capture and translocation

- 13.2.9 The 15 m x 15 m compound for the River Neath underground 275 kV cable crossing HDD reception pit will then be demarcated and fenced using a one-way barrier. The barrier will consist of polythene sheeting or alternatively sections of 450 mm twin-wall drainage pipe cut longitudinally and half buried into the ground. Heras fencing will also be used to demarcate the compound following the buffer zone to discourage public access. The area will then be subject to a programme of capture and relocation during the spring and summer prior to installation of the 275 kV cable.
- 13.2.10 Artificial refugia (tins) consisting of 0.5 m² squares of bitumastic roof felt will be deployed at a density of at least 100-200 tins per hectare within the area to be disturbed. Tins will be allowed to bed in for ten days before daily checks for reptiles by a suitably experienced ecologist begin. Checks will be scheduled to begin once the exclusion fencing is installed in the spring and continue through the summer months under suitable conditions.
- 13.2.11 Removal of reptiles will continue for a minimum of 30 days of checks during suitable weather conditions. Removals will cease after this period and when a successive period of 5 days are reported where no reptiles are found during this 5 day period. All reptiles captured during this programme would be released outside the cable reception site at suitable locations within the SSSI, with no more than five individuals of any one species being released at any release site. Each release site

will be at least 100 m from the next. Release sites will be south-facing and away from actively-used footpaths. Artificial refugia will also be deployed at each release site. The purpose of this approach is to limit any significant reduction in site carrying capacity as reptiles are already known to be present.

- 13.2.12 The 275 kV cable HDD reception pit represents 0.07% of suitable habitat for reptiles within the SSSI. It would therefore be expected that the number of reptiles to be found during the survey would be low.
- 13.2.13 Prior to commencement of construction of the 275 kV cable and depending on the numbers of reptiles relocated, consideration will also be given to undertaking a destructive search of the cable HDD reception pit area. The destructive search would consist of the supervised slow and methodical removal of soil and vegetation by the toothed-bucket of an excavator, prior to cable installation. Any decision to undertake a destructive search would need to take into account the short term impacts on the vegetation of the SSSI and would be taken in consultation with NRW and the local planning authority.
- 13.2.14 Once the cable duct has been received and installed in the HDD reception pit, the reptile exclusion fence will be removed and the vegetation will be allowed to regenerate naturally or in line with the ground reinstatement protocol (if required) outlined in the Construction Method Statement (TLSB, November 2016) provided with this application.

Swansea Docks 275 kV cable route

- 13.2.15 Presence of a relatively small population of common lizard was confirmed from an approximately 40m strip of the 600 m length of suitable habitat within Swansea Docks during surveys undertaken to inform the Environmental Statement (TLSB Environmental Statement Chapter 12, 2013). Common lizards were discovered in low numbers on eight of the eleven survey visits. On each of these occasions one to two individuals were recorded with the exception of a visit in late May 2013 when six individuals were recorded (four adults / two juveniles).
- 13.2.16 The area identified as supporting reptiles within Swansea Docks will be subject to disturbance over several stages of construction. Given the length of the construction period and the increased risk of inadvertent damage due to construction activities, it is therefore considered to be appropriate to remove reptiles from the construction zone. This is a suitable long term response which prevents any future risk of injury or mortality to the reptile population.
- 13.2.17 Construction of the wider TLSB Project (such as internal haul roads and 11kV power supply) will impact upon this same reptile population and habitat within the Swansea Docks well in advance of installation of the 275kV cable. By the time of construction of the 275 kV cable route through Swansea Docks, the presence of reptiles will not be a constraint to the construction of the 275 kV cable route. The method of relocation of the reptile population within the Swansea Docks is set out in the Reptile Strategy as set out in DCO Requirement 5 for the wider TLSB Project.



Habitat creation

- 13.2.18 The creation of coastal grassland and dune reptile habitat along the northern fringe of the lagoon both increases habitat available for reptiles and in the long term should increase connectivity between the habitats of Crymlyn Burrows SSSI and the Docks Estate.

13.3 Reporting

- 13.3.1 No specific monitoring of the reptile population of Crymlyn Burrows SSSI is proposed as the potential impacts of the cable installation are temporary and minor.
- 13.3.2 This information will be available for review or reported to the relevant Local Planning Authorities as necessary.

14 Traffic and Travel

14.1 Environmental Management Requirements

- 14.1.1 The construction of the 275 kV cable route has the potential for minimal impacts on the volume of traffic within the vicinity of the site due to movement of construction personnel and delivery of materials. The measures outlined in section 14.2 shall be taken to minimise the impact on the local highway network.

14.2 Delivery Strategy

- 14.2.1 In order to organise, deliver and report on the traffic and travel strategy, a TLSB Travel Plan Coordinator / or Logistics Coordinator will be appointed.

- 14.2.2 The Travel Plan Coordinator / Logistics Coordinator will develop, update and implement a Construction Phase Traffic and Travel Management Plan with objectives to:

- Reduce the number of vehicles, with emphasis on single occupancy vehicles travelling to the site;
- Provide the minimum possible parking provision to encourage other travel modes;
- Improve overall accessibility;
- Reduce the quantity of vehicle that physically access site;
- Vehicle segregation with different access for different vehicles;
- Provide uninterrupted traffic movement on the highway during periods of peak traffic flow;
- No access to the site will be made via junctions A9 or A10; and
- To take account of major public events in the Swansea area, e.g. Swansea Half Marathon.

14.3 Reporting

- 14.3.1 The Construction Phase Traffic and Travel Management Plan will be approved by the relevant LPAs prior to commencement of construction of the 275 kV cable route. This information will be available for review or reporting to the relevant Local Planning Authorities as necessary.
- 14.3.2 Once agreed, the Construction Traffic and Travel Management Plan will be reviewed by the Travel Plan Coordinator Quarterly, with any incidents being reported to the TLSB ELO for inclusion within the Monthly Progress Report.

15 Dust

15.1 Environmental Management Requirements

- 15.1.1 Increased dust as a result of the construction of the 275 kV cable has the potential to decrease air quality within the vicinity of the 275 kV cable route Project. The monitoring and mitigation measures outlined in section 15.2 will ensure that dust emissions are controlled effectively.

15.2 Delivery Strategy

- 15.2.1 The CCSC has agreed to carry out a dust monitoring survey for the 275 kV cable route Project. Dust monitoring undertaken for the wider TLSB project will be used as a baseline to inform the installation of the 275 kV cable. Details of the monitoring survey for the 275 kV cable route Project will be agreed with CCSC and NPTCBC prior to construction.

- 15.2.2 In addition, the TLSB Site Manager will undertake a daily visual inspection for dust release from the 275kV cable works and record the findings in the Site Log. If deemed necessary, the following mitigation measures shall be in place:

- **Dust during dry weather from earthworks activities:**
 - Area of works including haul routes to be damped utilising water bowser with spraying equipment.
- **Dust from cutting of masonry, tarmacadam or concrete:**
 - All cutting equipment i.e. disc cutters, road saws to have water feed attachment to blade.
- **Dust from crushing operations:**
 - Any plant used for the crushing of materials should be issued with a Permit by the C122 Contractor under the Pollution Prevention and Control Regulations 2000;
 - All work should be carried out in accordance with the conditions of the Permit;
 - Where plant is used to recycle materials, the appropriate license from NRW shall be obtained;
 - The C122 contractor will be notified prior to operation; and
 - Water mist spraying equipment to be installed at crusher jaws in order to reduce dust emissions.
- **Dust from Deliveries:**
 - All delivery vehicles carrying materials likely to generate dust during transport to or from site are to be securely sheeted.
 - Wheel wash facilities are to be provided where vehicles leave the site onto the public highway;
 - All vehicles on site are to be limited to 10mph;
 - All haul routes outside the site perimeter will be maintained by regular sweeping with lorry mounted sweeping equipment;
 - Internal tarmacadam delivery access roads will also be maintained

by regular sweeping with lorry mounted sweeping equipment together with damping down during periods of dry weather;

- Site haul roads will be damped down during periods of dry weather; and
 - In all cases where damping down is undertaken the volume of water should be sufficient to damp down only in order to remove the possibility of runoff from excessive water spraying into existing drains or watercourses.
- **Dust from Stockpiles:**
 - Prevent stockpiles from drying out, by covering or damping down in order to reduce the amount of dust generated during windy conditions;
 - Ensure stockpiles are covered during holiday periods where staff may not be present on the 275 kV cable route Project; and
 - Keep stockpiles below the height of the site boundary.

15.3 Reporting

- 15.3.1 As members of the public may be more inclined to contact the Environmental Departments of CCSC and NPTCBC rather than the nominated Environmental Liaison Officer (ELO) for TLP, a single point of contact will be nominated within the CCSC and NPTCBC Environmental team who will liaise with the TLSB ELO. Both parties will agree on the nominated person prior to construction of the 275 kV cable commencing.
- 15.3.2 A shared schedule of complaints will be produced and shared on an agreed format between CCSC, NPTCBC and the TLSB ELO ensuring that no complaints go unanswered. Complaints relating to construction including dust, will be recorded and reported providing that the individual:
- identifies themselves;
 - provides a method of communication by which they wish to receive a response;
 - makes a complaint that can be addressed; and
 - behaves in a cordial manner.
- 15.3.3 Mitigating actions are to be agreed and put into effect immediately after any complaint/reported incident is received and written confirmation that suitable mitigation has been actioned shall be provided to the TLSB Project Manager.
- 15.3.4 Any incident of non-conformance in relation to dust management will be reported as per the procedure outlined in Section 3.7 and communicated to the TLSB ELO for inclusion within the Monthly Progress Report. This information will be available for review or reporting to the relevant Local Planning Authorities as necessary.

16 Unexploded Ordnance

16.1 Environmental Management Requirements

16.1.1 A study was undertaken in 2014 by BACTEC to assess the level of risk presented by the existence of Unexploded Ordnance (UXO) on the 275kV Project site. The area covered by the study included an area from the western tip of Queen's Dock sea wall, along Fabian Way, through Crymlyn Burrows over the River Neath to the eastern extent; the Baglan Bay substation.

16.1.2 A study has been commissioned in order to ascertain the likelihood of the existence of Unexploded Ordnance (UXO) within the 275 kV cable route Project's cable route and construction site. At the time of writing (November 2016), this study is still ongoing and on publication, TLSB will update this draft CEMP to include appropriate mitigation measures ensuring that any UXO encountered will be dealt with in a safe manner.

16.2 Delivery Strategy

16.2.1 The delivery strategy for UXO will be updated upon publication of the ongoing UXO study and included within this CEMP.

16.3 Reporting

16.3.1 Any incident involving UXO will be reported as per the procedure outlined in Section 3.7 and communicated to the TLSB ELO for inclusion within the Monthly Progress Report. This information will be available for review or reporting to the relevant Local Planning Authorities as necessary.

17 Archaeology

17.1 Environmental Management Requirements

- 17.1.1 The section of 275 kV cable which runs through Crymlyn Burrows is the only section of the route which is not located in modern made ground or in areas of modern disturbance. It is therefore subject to an archaeological programme to observe, excavate and record any surviving below-ground archaeological artefacts and deposits across the area where the cable route runs through previously undisturbed ground.

17.2 Delivery Strategy

- 17.2.1 All work shall be carried out in accordance with the Code of Conduct (2014) and Standard and Guidance for Archaeological Watching Brief (2014) produced by the Chartered Institute for Archaeologists (CIfA). TLSB will retain the services of a suitably qualified and experienced Archaeologist and Archaeological Curator to ensure effective implementation of the Watching Brief. They will both report to the TLSB Environmental Manager.
- 17.2.2 All topsoil stripping and groundworks for the cable trench will be undertaken by a machine fitted with a toothless grading bucket under the supervision and control of the site archaeologist to the depth of formation, the surface of in situ subsoil/weathered natural or archaeological deposits whichever is highest in the stratigraphic sequence. Should archaeological deposits be exposed machining will cease in that area to allow the site archaeologist to investigate the exposed deposits.
- 17.2.3 Archaeological features and deposits will be cleaned and excavated by hand and will be fully recorded by context. All features shall be recorded in plan and section at scales of 1:10, 1:20 or 1:50. All scale drawings shall be undertaken at a scale appropriate to the complexity of the deposit/feature and to allow accurate depiction and interpretation.
- 17.2.4 As a minimum:
- (a) small discrete features will be fully excavated;
 - (b) larger discrete features will be half-sectioned (50% excavated); and
 - (c) long linear features will be sample excavated along their length within the trench - with investigative excavations distributed along the exposed length of any such feature and to investigate terminals, junctions and relationships with other features.
- 17.2.5 Should the above percentage excavation not yield sufficient information to allow the form and function of archaeological features/deposits to be determined full excavation of such features/deposits will be required. Spoil will be examined for the recovery of artefacts.

- 17.2.6 Should deposits be exposed that contain palaeoenvironmental or datable elements appropriate sampling and post-excavation analysis strategies will be initiated.
- 17.2.7 In the event of particularly significant discoveries, Cadw and Glamorgan-Gwent Archaeological Trust (GGAT) will be informed and a site meeting between the Archaeologist, Cadw, GGAT and the TLSB Environmental Manager will take place to determine an appropriate mitigation strategy.
- 17.2.8 Photographs will be taken illustrating the principal features and finds discovered, in detail and in context. The photographic record will also include working shots to illustrate more generally the nature of the archaeological operation mounted. All photographs of archaeological detail will feature an appropriately-sized scale. Laser or inkjet prints of digital images, while acceptable for inclusion in the report, are not an acceptable medium for archives. Digital images taken during the course of the fieldwork will form part of the digital archive to be submitted and curated by the ADS – see archive section below. The drawn and written record must be on an appropriate archival medium.
- 17.2.9 The excavated trench limits will be accurately located using electronic survey equipment and fixed in relation to the Ordnance Survey grid.
- 17.2.10 All non-modern artefacts will be retained. If appropriate all ‘small’ finds will be recorded three dimensionally. If artefact scatters are encountered these should be also recorded three dimensionally. Bulk finds will be collected by context. Finds will be stored in controlled conditions where appropriate. All artefacts will be retained, cleaned, labelled and stored as detailed in the guidelines of the UKIC.

17.3 Reporting

- 17.3.1 The results of the archaeological programme will be disseminated to contracting personnel via an archaeological report, submitted to the Site Manager and made available on site.
- 17.3.2 Any archaeological discoveries will be communicated to the TLSB ELO for inclusion within the Monthly Progress Report. This information will be available for review or reporting to the relevant Local Planning Authorities, Cadw and GGAT as necessary.