

St. Athan Northern Access Road

Construction Environmental Management Plan (CEMP)

[DRAFT]

**Prepared for:
Welsh Government**

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1. INTRODUCTION

This Construction Environmental Management Plan (CEMP) has been prepared by Aecom Limited ("Aecom") on behalf of the Welsh Government in relation to the proposed St. Athan Northern Access Road. The intention is that this draft CEMP shall be implemented by the successful Contractor and shall remain a live document for the duration of the project.

A hard copy of this CEMP shall be made available on site for the duration of the works and the Contractor shall review and update the plan on at least a quarterly basis.

This CEMP has been designed to outline the details of monitoring and mitigation measures intended to control the environmental impact during the construction phase. The purpose of the CEMP is to outline how the project will avoid, minimise or mitigate effects on the environment and the surrounding area.

This CEMP is structured as follows:

- Description of the works;
- Roles and responsibilities;
- General site principles;
- Working hours;
- Control of noise and vibration;
- Control of air quality, dust, odour and other emissions;
- Control of water quality and drainage;
- Construction traffic;
- Protection of biodiversity;
- Site-specific method statements;
- Stakeholder engagement;
- Environmental management system requirements;
- Environmental risk register;
- Waste management and material resources;
- Materials Management Plan (MMP);
- Site Waste Management Plan (SWMP).

2. DESCRIPTION OF THE WORKS

2.1 Overview

The works involve the construction of approximately 2.2km of new highway to serve the Aerospace Business Park in St. Athan, South Wales. The new road will provide a link from the B4265 near Llantwit Major to Eglwys Brewis Road near Picketston. Construction of the road is programmed for completion in August 2019.

2.2 Project Location

The site is located approximately 20km southwest of Cardiff, within the Vale of Glamorgan. A location plan is provided in **Figure 1**.

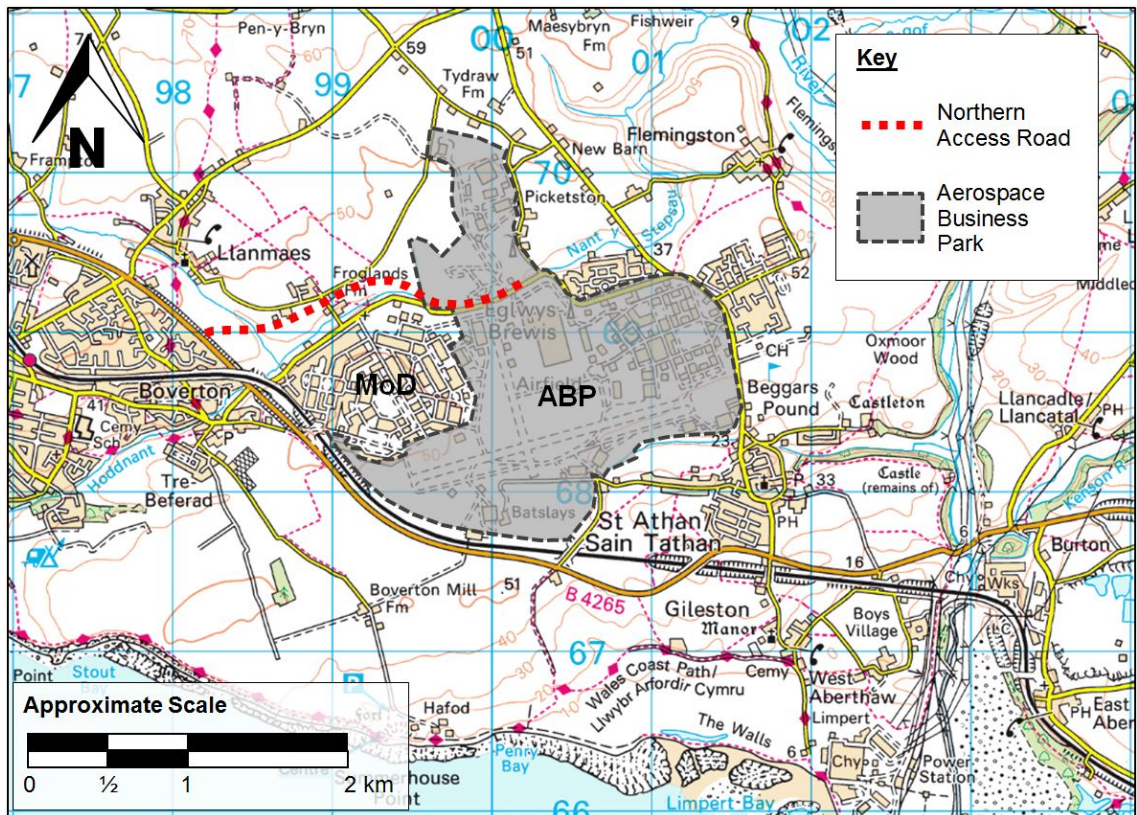


Figure 1 – Location plan

2.3 Programme

It is intended that construction of the new road shall be completed by August 2019. In order to achieve this, the following key milestone dates are proposed:

- November 2017 Start on site
- March 2018 Completion of advance works
- August 2019 Completion of highway construction
- August 2020 Completion of defects period and road adopted by Local Authority
- August 2024 Completion of five-year landscape maintenance period

It is intended that the construction programme shall be developed by the successful Contractor following appointment.

3. ROLES AND RESPONSIBILITIES

3.1 Contractor

The Contractor shall appoint a sustainability manager and/or environmental coordinator who shall have overall responsibility for the environmental management of the project. These responsibilities will include auditing environmental practice on site, liaising with regulatory authorities and monitoring sub-contractors. It is recognised that certain day to day responsibilities will be delegated to members of the site team. These responsibilities should be clearly set out and communicated with the entire team.

Site Engineers and Site Foremen are usually best placed to implement the CEMP and as such the Contractor's Project Manager will ensure that engineers and foremen understand the environmental obligations and the practical measures needed to comply with them. This shall be achieved through site inductions, regular briefings and toolbox talks.

The Contractor will comply with all elements of this CEMP and shall be responsible for:

- Communicating the requirements of the CEMP to all sub-contractors;
- Liaising with all project team members on environmental issues;
- Maintaining an up-to-date register of legislation and meeting legislative requirements; and
- Maintaining a register of actions carried out.

3.2 Sub-Contractors

All sub-contractors shall be responsible for leading the work of their particular discipline on the project. They are responsible for ensuring that the requirements of the CEMP are briefed to all site workers.

The Contractor will ensure that all sub-contractors understand their obligations towards the environment and meet them. To achieve this, the Contractor will ensure the following:

- Sub-Contractors shall be made aware of the approach to environmental management on site before starting work.
- Sub-Contractors shall be involved in environmental training toolbox talks and included at the environmental induction.
- Sub-Contractors shall be made aware of the environmental obligations of the project.
- The past record on environmental performance shall be checked prior to appointment and appropriate controls shall be included in their sub-contracts to ensure conformance with all reasonable requirements with regard to the environment, and encouragement to achieve good environmental performance.

3.3 The Client (Employer)

The Client is ultimately responsible for the content and implementation of this CEMP. This involves ensuring that all project staff comply with the requirements of the CEMP. The Client shall meet regularly with the Contractor to discuss environmental matters affecting the project.

Alternative approaches and alterations to the design may be required where environmental improvements can be achieved and these will be discussed and agreed with the Client as the works proceed.

3.4 Project Manager

The Client has appointed Aecom Ltd. as Project Manager and they shall be responsible for ensuring the delivery to the Client, of the environmental requirements of the contract.

3.5 Regulatory Authorities

The following table sets out the regulatory authorities that are likely to be involved in the project and their responsibilities. The Contractor shall ensure regular liaison with all regulatory authorities.

Table 1 – Regulatory Authorities

Regulator	Responsibility
Vale of Glamorgan Council	<ul style="list-style-type: none"> • Noise and vibration • Air quality, dust, odour and other emissions • Traffic • Nuisance • Visual impact • Planning matters • Ecology and biodiversity
Natural Resources Wales	<ul style="list-style-type: none"> • Effluent discharge • Abstraction licences • Surface water discharges to rivers • Waste treatment and disposal • Protected species licences
Health and Safety Executive	<ul style="list-style-type: none"> • Health, Safety and Welfare matters

4. GENERAL SITE PRINCIPLES

4.1 Guidelines

All staff will adhere to the following guidelines to ensure efficient and effective management of environmental issues.

1. Plan ahead. Try to avoid problems and give regulators advance warning of potential problems.
2. Give regulators the time needed to process any enquiries.
3. Display the relevant emergency number for the regulatory agencies. Include in Construction Stage Health and Safety Plan and put on the site notice board.
4. Ensure that all site personnel know the correct procedures for reporting incidents – they should let the site manager know before contacting the regulatory agencies.
5. Always notify the Natural Resources Wales and the Local Authority of any uncontrolled contaminating spillages.

The Contractor's Project Manager will have ultimate responsibility to ensure that all site personnel understand that all environmental issues must be taken seriously. In conjunction with the site foreman this will be achieved through a combination of setting a good example, rewarding good practice and proactively addressing poor practice.

4.2 Site Controls

The following will act as an aide memoir to ensure that the proper site control is being exercised.

- Have Environmental Responsibilities been defined?
- Is everyone on site, aware of their responsibilities and liabilities?
- Are all environmental standards and obligations clearly defined?
- Have the standards been brought to the attention of all concerned?
- If training is necessary has a training programme been established (site inductions and tool box talks).
- Are environmental awareness posters/bulletins displayed? Are warning signs displayed prominently on site? Is the company environmental policy displayed? Is the Company Environmental Management System Manual readily available?

4.3 Good Housekeeping

Good housekeeping is an important part of good environmental practices and it helps everyone to maintain a safe and efficient site. The site should be tidy, secure and have clear access routes that are well signposted.

- Segregate and control waste as it is produced and remove waste frequently from the site.
- Keep the site tidy and clean.
- Ensure that material and plant storage areas are properly managed.
- Keep temporary site fencing tidy – repair/replace them when necessary.
- Ensure highway access routes to site are kept clean.

4.4 Site Security

Site security is an important component of good environmental management. Vandals often cause damage that harms the environment by:

- Opening taps on tanks containing fuel.
- Tipping out other liquids from drums and containers.
- Smashing/stealing raw materials.
- Playing on plant.
- Spraying graffiti.
- Destroying works in progress

The Contractor should aim to reduce vandalism by securing the site, and moving valuable items and those prone to theft from public view. The following rules and examples of good practice will also be implemented to further improve security.

- Avoid stacking materials against the site boundary or fence as this may help vandals and thieves to scale it.
- Within the site ensure that materials that are potentially hazardous to the environment are well secured. Lock fuel outlets when not in use.
- Secure plant to prevent vandalism.
- Immobilise plant and equipment overnight.
- Install deterrents such as lights, warning notices, consider 24-hour security guards and alarm systems if found to necessary.
- Control the movement of people on and off site by using personnel control either end of site.
- Position the Project Manager's office to give a good view of the site.
- If the site is large or at high risk from trespassers, consider installing CCTV cameras.
- Inform local police about the site and seek their advice on security.

5. WORKING HOURS

Construction activities shall only be permitted during the following working hours (excluding public holidays):

- Monday to Friday: 8.00am to 6.00pm
- Saturdays: 8.00am to 1.00pm

Unless dealing with an emergency, these working times shall be adhered to without exception unless otherwise agreed in writing with the local authority.

6. CONTROL OF NOISE AND VIBRATION

The Contractor shall adhere to the recommendations set out in the Noise Impact Assessment, a copy of which is included in the Site Information. The Contractor shall make all necessary application(s) to the relevant Local Authorities, under Section 61 of the Control of Pollution Act 1974, and obtain consent(s) to undertake the works. Application(s) shall be made at least 28 days before commencement of any activity or works, which may cause noise and vibration disturbance. The application(s) shall include the Contractor's proposals for minimising noise and vibration from the construction works to the level(s) agreed with the Local Authority. The Contractor shall comply with the terms of the consent(s) obtained.

The Contractor shall ensure that vibration resulting from construction works do not have a detrimental effect on nearby properties. The Contractor shall ensure appropriate dilapidation surveys are undertaken before commencing construction activities.

For normal daytime construction and demolition works carried out on weekdays between 8.00am and 6.00pm and on Saturdays between 8.00am and 1.00pm, the noise level measured at a noise sensitive receptor must not exceed Leq, 12 hour, 75 dB(A) wherever practicable. Where this is not practicable prior approval under section 61 of the Control of Pollution Act 1974 (a) must be obtained.

'Best Practicable Means' and the guidance provided within BS:5228 are to be employed to minimise construction impacts, including, for example:

- No deliveries should occur outside of the hours identified above;
- Careful selection of working methods and programme;
- Where applicable, selection of quietest working equipment available;
- Where practicable, positioning equipment behind physical barriers, i.e. existing features, hoarding etc.;
- Ensuring that regularly maintained and appropriately silenced equipment is used;
- Handling all materials in a manner which minimises noise, such as minimising drop heights;
- Switching all audible warning systems to the minimum setting required by the Health and Safety Executive. Reverse warning alarms should be fitted with white noise (broadband) systems;
- Where processes could give rise to significant levels of noise for extended periods of time, noise levels should be monitored regularly by a suitably qualified person with the survey results kept on file; and,
- In terms of on-site employees, appropriate actions should be undertaken with regard to the Noise at Work Regulations including the requirement for the use of ear defenders and appropriate warning notices.

Further to the above, operatives should be trained to employ appropriate techniques to keep site noise to a minimum, and should be effectively supervised to ensure that best working practice in respect of noise reduction is followed. All employees should be advised regularly of the following, as part of their training:

- The proper use and maintenance of tools and equipment;
- The positioning of machinery on site to reduce the emission of noise to the neighbourhood and to site personnel;
- The avoidance of unnecessary noise when carrying out manual operations and when operating plant and equipment;
- The protection of persons against noise; and
- The operation of sound measuring equipment.

Unless otherwise agreed in writing all construction works must comply with the guideline vibration limits set out below. Measurements must be undertaken at any occupied building within a distance of 50 metres from any works likely to cause elevated levels of ground borne vibration to ensure compliance with the guideline limits. Measurements must be undertaken in accordance with BS 5228:2009 – "Code of Practice for Noise and vibration control on construction and open sites (Part 2 – Vibration)" and BS7385:1993 – "Evaluation and measurement for vibration in buildings (Part 2 – Guide to damage levels from ground-borne vibration)".

Table 2 – Vibration Limits

Type of Building	Peak Particle Velocity (mms ⁻¹)	Peak Particle Velocity (mms ⁻¹)
	Day time (7.00am – 11.00pm)	Night time (11.00pm – 7.00am)
Any permanently occupied residential building	1.0 – 1.5	0.5
Any occupied commercial/industrial building	2.0 – 2.5	1.0

The Contractor shall provide briefings and tool box talks on methods to reduce the effects of noise and vibration to both construction workers and local sensitive receptors.

In the event that complaints for noise nuisance are received, the Contractor shall employ a consultant approved by the relevant planning authority to carry out an assessment of noise from the construction activities.

7. CONTROL OF AIR QUALITY, DUST, ODOUR AND OTHER EMISSIONS

This section specifically deals with measures to control the emission of dust, dirt, odours and other emissions during construction.

In order to prevent dust nuisance, particularly during dry and windy weather, the Contractor shall ensure that there should be adequate screening and damping down during all excavation works, clearance works and other site preparations (including storage of construction materials), together with the following measures detailed below:

- Any waste stockpiles will be damped down by water sprays and sheeted if required;
- All rubbish skips will be exchanged on a regular basis and sheeted when required;
- Vehicles shall be sheeted to prevent loss of materials off site
- Storage locations should be aggregated where practical to avoid the creation of many stockpiles, adequately screened to prevent wind loss and damped down where practical when being handled;
- All site vehicles should have vertical exhausts to limit surface dust resuspension;
- Waste materials shall not be burnt on-site;
- Wastes must be placed in suitable containers prior to appropriate disposal; and,
- Prolonged storage of materials on site prior to use and/or disposal is to be avoided.

Given the nature of the works, the construction works will involve the regular use of construction vehicles and HGV's. As such it is imperative that measures are put in place to minimise the dust generated by vehicular movements. These measures are outlined below.

- Vehicular movements on the construction site should be limited to speeds not exceeding 5mph. This speed will limit the potential for dust dispersion and entrainment as well as reduce the potential for accidents on the site;
- Wheel wash facilities should be provided at all site access points to ensure that vehicles are appropriately cleaned prior to accessing public highways. The type of wheel washing

facilities should be appropriate to the types of vehicles being used on the site and the amount of mud and debris likely to be on the vehicles. However, as a minimum the wheel washing facilities should comprise a manually operated high pressure jet wash with an appropriate settlement area to allow silty water to run off and sediment to settle;

- Wheel wash areas should be contained and appropriately disposed of to prevent suspended solids or contaminated waters from entering any nearby water courses or drains. To dispose of this water it will be necessary to obtain the consent of the Natural Resources Wales to discharge into the foul sewers, or if the water contains contaminants such as oil or fuel it will need to be disposed of as controlled waste;
- All vehicles leaving the site should be subject to a visual inspection before accessing the public highways to ensure that the level of dust/mud/debris on the vehicles has been minimised insofar as is practical;
- The specific locations and types of wheel washes to be used on the site should be submitted and agreed with the local planning authority at least four weeks prior to commencement of works on site; and,
- It will be the responsibility of the Contractor to undertake a daily inspection of the adjoining highways and deploy road sweepers if mud and debris is likely to be deposited on the main roads.

In order to minimise the generation of exhaust emissions by construction plant, the following measures shall be implemented:

- Mobile plant should be located away from sensitive receptors near to the proposed development Site;
- Lorries and plant with diesel engines on or off site should be well maintained in order to reduce emissions of visible smoke;
- Engines should not be left idling unnecessarily, and plant and vehicles must not be parked in a position that could give rise to nuisance from exhaust fumes;
- Site machinery and vehicles should use low-emission fuels where practicable;
- Site vehicles and plant with low exhaust emissions (e.g. with particle traps) and emission controls such as catalysts or diesel particle filters should be used; and,
- Contractors should take all precautions to prevent the emissions of fumes from stored fuel oils, for safety and potential nuisance reasons.

The following monitoring recommendations will be adhered to by the Contractor.

- Records of dust and air quality complaints shall be kept, including likely causes and mitigation measures to reduce impacts if appropriate;
- Daily on-site and off-site visual inspections shall be undertaken and recorded;
- Notify local community of works hours and any specific works which are likely to generate higher levels of dust/emissions;
- Notify local community of appropriate details to make complaints if necessary; and

- Inspections should be increased during dry and windy weather and/or during periods of high activity (vehicular or earthworks) which is likely to increase sources of dust and emissions.

8. CONTROL OF WATER QUALITY AND DRAINAGE

8.1 Surface Water and Drainage

Potential construction impacts in relation to surface waters that could occur during the construction phase include; pollution from mobilised suspended solids (silt), suspended sediment due to run off from construction areas and excavations which can impact on water quality, water dependent habitats and aquatic ecology. In areas of moderate to high rainfall, the potential problems will be exacerbated.

In order to prevent pollution to surface water and subsequent drainage the Contractor will take precautions when undertaking excavation works to ensure silts are not able to enter drains and watercourses. The Contractor will undertake the following:

- Preparation of an Emergency Response Plan detailing actions to be taken in the event of an accidental spillage of fuel, chemicals or other hazardous material;
- Works to be conducted which are liable to affect any waterway should be the subject of a construction method statement;
- Surface water drains which could be affected by any proposed works should be identified and blocked off to prevent any sediment or contaminated surface waters from entering the drains and discharging into watercourses;
- Cut off ditches or geotextile silt fences will be installed as and when necessary around excavation to prevent migration of silts; and,
- Any contaminants/silt which are collected during the construction works will be directed to an appropriate settlement area prior to any permissible discharge and residual materials remaining will be removed from site as controlled waste; and,
- Surface water drainage and proposed temporary discharge points will be mapped on a site plan and agreed with Natural Resources Wales in advance of operations. The plan will include the location of existing and proposed measures such as monitoring points, silt curtains, settlement lagoons and oil interceptors.
- Regular visual inspections and monitoring of nearby water courses shall be undertaken during the construction phase to provide an early indication of any potential contamination releases to controlled waters.

The CIRIA/DTI/EA Control of Water pollution from construction Sites – Guide to Good Practice Information sheets will be used to cover the following matters:

- Site Set Up
- Site Drainage
- Water Disposal
- Material Storage
- Silt

- Fuel and Oil
- Concrete, Cement
- Watercourses.

Checklists on the reverse of each sheet shall be used to check conformance on a weekly basis and signed by the Project Manager. Any required actions will be agreed and listed and then signed off when completed.

8.2 Storage of Fuel, Oil and Other Chemicals

Any storage required for fuel or chemicals will be contained within a secure site compound. In order to protect surface water drainage, the following mitigation measures should be adopted by the Contractor:

- Pollution prevention equipment will be kept in the construction area and procedures for use put in place;
- The Contractor will be required to keep sufficient spill kits on site at all times so that one can be deployed to any part of the construction site within 15 minutes;
- Construction vehicles will only be active when required and will be regularly maintained to reduce the risk of leakage or spillage. Maintenance work will be carried out off-site or on impervious drip trays of sufficient capacity to prevent spillage of fuel and oil;
- Immobile plant, fuels, oils and chemicals will be stood on impervious drip trays or be secured/locked in appropriately bunded areas (at 110% of volume);
- Refuelling operations will be carried out within a designated construction site compound remote from surface drainage systems. Leaking or empty drums will be removed from site at once;
- Concrete washout facilities for chutes of vehicles and for other tools will be located in excess of 100m from all watercourses; and,
- Provision will be made to remove any suspended sediments in surface water runoff during excavation and construction works before entering any off-site watercourse/drainage system.

A site specific fuel storage strategy shall be prepared which shall address the following matters:

- Securely store all containers that contain potential pollutants (e.g. fuels, oils and chemicals).
- Clearly label containers so that appropriate remedial action can be taken in the event of a spillage.
- Regularly check taps and hoses for leakage.
- Avoid storing drums tightly against each other – store drums so that they can all be inspected for leaks.
- Prevent damage from vandalism. Ensure that all valves and trigger guns are vandal and tamper proof.

- Clearly mark the contents of any tank, and display a notice that demands that valves and trigger guns are locked when not in use.
- Store tanks or drums in a secure bunded container or compound that is locked when not in use.
- It may be necessary to have an impermeable base to any area where chemicals are stored in areas of particular groundwater risk.
- Provide separate fill pipes for each tank unless the tanks are interconnected by a balance pipe of greater flow capacity than the fill pipe.
- Mark fill pipes with product type and tank numbers where there is more than one tank.
- Before moving a drum, check the bung is secure.
- To avoid accidental spillage, bund tanks with a minimum capacity of 110 per cent of the volume of the largest tank.
- Do not let bunded areas remain filled with rainwater or slops (ideally, provide a cover).
- Position tanks away from vehicle movements and mark them clearly so that they are visible and so that people know they are a potential risk.
- Do not put tanks where there is a direct link to surface watercourses or sewers.
- Avoid placing tanks on unmade ground to reduce the risk of contaminating the soil.
- Protect from vandalism.
- The bund should be impermeable to the substance that is being stored in the tank.
- Position air vent pipes so that they can be seen easily and directed so that any discharge (e.g. in the event of the tank being overfilled) is directed into the bund.
- Fill points should be inside the bund.
- Fit any pump sited outside the bund with a non-return/check valve installed in the feed line.
- Identify designated bunded refuelling areas.
- Avoid using remote fill points or refuelling close to watercourses. Where this is unavoidable, keep materials such as absorbent pads or booms readily available in case of spillage.
- All refuelling must be supervised. Do not leave valves open unattended.
- Keep an emergency spill kit at each refuelling point. If mobile refuelling is carried out, ensure each bowser carries a spill kit.
- Ensure that personnel carrying out refuelling are aware of the protocol and know what actions to take in an emergency.

8.3 Emergency Protocol

Environmental incidents concerning water quality and/or drainage shall be reported to the relevant Regulatory Authorities immediately. A summary report shall be produced providing details of all relevant information.

The Contractor must have an accident Emergency Plan in place and the persons responsible must be contacted in the event of any significant spillage or other such incident.

The Contractor shall report the discovery of deleterious materials, for example; asbestos, fuel oils, etc. The Contractor should take immediate action in accordance with their procedures, to prevent further contact with the deleterious material. All hazardous discoveries shall be entered into the method statements for the relevant project. Attention must also be drawn to any specific Client or Statutory Authority requirements, which may detail actions to be taken.

9. CONSTRUCTION TRAFFIC

9.1 Construction Traffic

In order to minimise the potential impact of construction traffic on the surrounding community the following mitigation measures shall be adopted:

- Unless otherwise agreed in writing all construction traffic shall utilise only the permitted routes to site as indicated on drawing no. 60509148-SHT-30-0000-CT-0160.
- Vehicle movements shall be undertaken within the site operating hours specified in Section 5 of this document. However, deliveries to site shall be scheduled to avoid peak times 8.30am – 9.30am and 4.30pm – 5.30pm.
- When ordering deliveries, ensure that all drivers are aware of traffic restrictions at and around the site.
- Arrange delivery drop-off locations so that vehicles are able to go straight into site without having to queue outside the site boundary.
- Deliveries will report to the site office and all delivery drivers will sign in and out on completion of delivery, with all plant and material loaded and unloaded under the supervision of an appointed banksman.
- Instruct drivers to switch off engines when vehicles are waiting.

9.2 Site Parking

In order to minimise the potential impact of vehicle parking the following mitigation measures shall be adopted:

- The Contractor will provide a dedicated parking area, clearly demarking areas for visitors and site operatives.
- No parking will be permitted on adjacent highways and/or within the neighbouring areas.
- The Contractor will operate a traffic management system across the site, which shall be communicated to all personnel during induction.
- Deliveries will report to the site office and all delivery drivers will sign in and out on completion of delivery.

- Banksmen will be present during reversing operations, where operator's view is obscured. Flashing beacons will be fitted to all on site vehicles and plant.
- Plant is to be fitted with traverse alarms to ensure safe manoeuvring.

9.3 Cleanliness of public highways

In order to maintain the cleanliness of adjoining highways the following measures shall be adopted:

- Wheel wash facilities will be provided at all site access points initially comprising of a manually operated high pressure jet wash with an appropriate settlement area to allow silty water to run off and sediment to settle.
- Wheel wash areas should be contained and appropriately disposed of to prevent suspended solids or contaminated waters from entering any nearby water courses or drains. To dispose of this water it will be necessary to obtain all necessary consents to discharge into the foul sewers, or if the water contains contaminants such as oil or fuel it will need to be disposed of as controlled waste.
- All vehicles leaving the site should be subject to a visual inspection before accessing the public highways to ensure that the level of dust/mud/debris on the vehicles has been minimised insofar as is practical.
- It will be the responsibility of the Contractor to undertake a daily inspection of the adjoining highways and deploy road sweepers if mud and debris is likely to be deposited on the main roads. The specific areas which should be regularly inspected and cleaned should be agreed with the local highways authority.
- All road surfaces affected shall be swept clean upon completion of the works.

10. PROTECTION OF BIODIVERSITY

All works shall be undertaken in accordance with the recommendations set out in the ecological assessment report, a summary of which is set out below:

10.1 Habitats

- All retained habitats will be protected in line with BS5837:2012 'Trees in Relation to Design, Demolition and Construction – Recommendations';
- All suitable hedgerows impacted by the scheme will be translocated to the site boundaries;
- To avoid any significant indirect impacts on the water quality of Llanmaes Brook and Boverton Brook an appropriate construction phase water management methodology will be detailed in a Construction Method Statement to be produced by the Contractor detailing mitigation to avoid any significant indirect impacts on the water quality of Llanmaes Brook and Boverton Brook;
- A Landscape and Ecological Management Plan (LEMP) will be produced to ensure all new and retained habitats are managed to provide suitable habitats for protected species within the area.

10.2 Great crested newt

- No specific impacts are predicted for GCN, and therefore no mitigation is proposed.

10.3 Reptile

- In order to avoid killing and injury of reptiles recorded within the Llanmaes Brook corridor the vegetation in this area will be subject to a sensitive clearance strategy;

10.4 Badger

- The closure of the Annexe sett, this will be completed in accordance with best practice as agreed with NRW;
- To reduce the potential for temporary impacts during the construction phase sensitive working methods for badgers will be employed;

10.5 Otter and Water Vole

- To reduce the potential for temporary impacts during the construction phase sensitive working methods of otter will be employed;

10.6 Invertebrates

- No specific mitigation is proposed for invertebrates.

10.7 Hazel dormouse

- Works are to be undertaken in accordance with a European Protected Species Mitigation licence from NRW which will include details of the mitigation measures including translocation of hedgerows, sensitive clearance strategy, provision of additional hazel dormouse habitat as part of the landscape strategy and provision of a north to south crossing point of the NAR using the agricultural underpass.

10.8 Breeding birds

- To avoid an offence under wildlife legislation all vegetation clearance will be undertaken outside of the bird breeding season, which is usually considered to be between March and September inclusive. If additional clearance of vegetation suitable for breeding birds has to be undertaken during the bird breeding season then a suitably qualified ecologist will be required to survey for nesting birds prior to the vegetation clearance. If any active nests are located they must be left in situ with a suitable buffer until all the young have fledged and cease to return to the nest;

10.9 Bats

- To reduce the potential for temporary impacts during the construction phase sensitive working methods for bats will be employed;

10.10 Tool Box Talks Best Practice

Toolbox talks shall be undertaken to ensure all site operatives are aware of the following:

- Emergency procedure: In the event that a protected/notable species, evidence of these or its resting place is located during site clearance then works in that area must cease until further advice has been sought from a suitably experienced ecologist;
- Provision to construction workers of details of the most common invasive plant species and methods for their identification. If a suspected invasive species is identified then works in that area must cease until further advice has been sought from a suitably experienced ecologist;

- If any excavations must remain open overnight, it is recommended that access ramps are installed each night near to crossing points to allow any animals that accidentally fall into the excavation a means of climbing out. Animals that may enter the site to forage at night include fox and hedgehog. These can again be roughened planks of wood, or even a ramp of earth;
- Daily checks of any excavations should be made by contractors prior to commencing work to ensure that no foxes, hedgehogs or other animals have become trapped in the excavations. Should a trapped protected/notable species be found within the works, an ecologist should be immediately contacted for advice;
- Any pipes stored, or installed on site, with a diameter of greater than 200mm should be covered or capped at night to reduce the risk of animals becoming trapped inside; and
- Consideration should be given to the placement of any gravel storage, or piles of materials that may create mounds suitable for digging (e.g. burrow creation). Any such piles shall be checked on a daily basis by contractor staff to ensure that no digging/burrowing activity has taken place. If the mounds are to be in place overnight, the safest approach may be to temporarily fence them to ensure that animals cannot access the fresh soil.

11. **SITE SPECIFIC METHOD STATEMENTS**

In addressing each of the matters identified in Sections 6 to 10 of this document, the Contractor shall develop site-specific method statements as necessary. These shall be communicated to operatives via site indications and daily toolbox talks, records of which shall be retained. Where necessary formal training workshops, briefings or other training on specific issues for the project will be undertaken to review and establish the environmental risks.

12. **STAKEHOLDER ENGAGEMENT**

The Contractor shall identify all affected stakeholders and communicate with each as necessary to identify specific requirements in relation to the works and the likely environmental impacts. Appropriate mitigation measures shall be agreed with each stakeholder as necessary.

The stakeholders shall include as a minimum:

- The Vale of Glamorgan Council;
- Natural Resources Wales;
- The Glamorgan and Gwent Archaeological Trust;
- Tenant farmers;
- Adjacent landowners;
- The local community.

The Contractor will be required to employ a Public Liaison Officer to manage stakeholder relations. The Contractor's site compound shall also include a reception area accessible to the public during normal working hours which should include general information about the works, copies of the latest newsletters and contact details for the Public Liaison Officer should they not be available.

The Public Liaison Officer shall be expected to undertake the following:

- Visit occupants of particularly sensitive buildings and keep them informed of progress. This shall as a minimum include Rose Cottage, Froglands Farm, Old Froglands and Milllands Park.
- Prepare regular newsletters and distribute to nearby residents or occupiers.
- Identify key local community representatives, such as community councillors and keep them informed.
- Display a contact board at the site perimeter so that the public know who to contact if they have a complaint or a comment to make. Use this board to display information on expected timescales, phasing and other relevant matters.
- When complaints arise deal with them quickly and in accordance with a defined complaints procedure. Create a log of complaints.

13. ENVIRONMENTAL MANAGEMENT SYSTEM REQUIREMENTS

The Contractor shall implement an Environmental Management System compliant with ISO 14001.

The Contractor shall register with the Considerate Constructors scheme and display the appropriate notices and contact details on site.

The findings of all site audits shall be communicated to the workforce via staff briefings and toolbox talks. Monitoring reports shall be made available at the site offices.

14. ENVIRONMENTAL RISK REGISTER

The Contractor shall develop an environmental risk register which shall include the following:

- Description of each environmental risk;
- Description of the impact of each risk;
- Identification of control measures;
- Identification of mitigation measures;
- Allocation of ownership to managing each risk;
- Specific timescales for implementing mitigation measures;
- Timescales for reviewing each risk.

The environmental risk register shall be reviewed on a monthly basis during the progress meeting.

15. WASTE MANAGEMENT AND MATERIAL RESOURCES

The Contractor shall work towards the Welsh Governments Construction and Demolition Waste targets, which include:

- 90% target (by weight) for recycling and re-use of non-hazardous construction and demolition waste by 2019-20;
- 75% target for diverting waste away from landfill by 2019-20.

The Contractor shall work towards the Welsh Governments Construction and Demolition Waste priorities for reuse, recycling and landfill reduction, which include:

- Reusing and recycling packaging waste;
- Reducing the landfilling of biodegradable wastes;
- Reducing waste arisings and increasing recycling of the following priority wastes: Wood, Plastic, Metal, Insulation & Gypsum and Hazardous Waste;
- Reducing the quantity of waste to landfill towards zero.

The Contractor shall work towards the following targets and requirements:

- recover a minimum of 70% of construction materials and packaging;
- recover a minimum of 80% of demolition and strip-out materials; and
- ensure that at least 15% of total material value derives from reused and recycled content in new build, select the top opportunities to exceed this figure without increasing the cost of materials, and report actual performance.

To assist in achieving the above, the Contractor shall consider the following when ordering materials:

- Order the right quantity and quality of materials to arrive at the time when they are needed. This reduces the length of time materials have to be stored on site and therefore reduces the potential for damage or theft to occur.
- When ordering, find out in what form the materials will be delivered, so that the appropriate unloading plant can be arranged.
- After placing an order, check the arrangements for handling and storing materials as soon as they arrive on site.
- Arrange for deliveries to be received by a member of site personnel who is able to supervise the delivery, carry out a quality inspection and ensure that the materials are unloaded to the appropriate place.

The Contractor shall ensure that materials are treated and used as set out in the Materials Management Plan. At the completion of works, the Contractor shall provide evidence that materials have been treated and used in an acceptable manner through the preparation of a Verification Report and, if requested, provide this to Natural Resources Wales.

The Contractor shall, where waste exemptions apply, use suitable waste in construction instead of using virgin raw materials. This shall be carried out in accordance with the Environment Agency's guidance "U1 - Use of waste in construction".

The Contractor shall be responsible for undertaking all the necessary Waste Acceptance Criteria (WAC) sampling and chemical analysis and shall record and report all results of this exercise. All waste transfer notes and other relevant records shall be maintained in accordance with the relevant regulations and shall be made available to Welsh Government and their advisors.

The Contractor shall comply with Welsh Government requirements for the types of recycled paper that can be used.

16. MATERIALS MANAGEMENT PLAN (MMP)

A Materials Management Plan (MMP) must be produced that documents how all of the materials to be excavated are to be dealt with. The Contractor shall follow the MMP throughout the execution of the works.

All materials subject to excavation, disposal, treatment and/or reuse must be tracked throughout and evidence generated to provide an auditable trail.

The MMP must be produced prior to excavation, and shall provide:

- Details of the parties that will be involved with the implementation of the MMP;
- A description of the materials in terms of potential use and relative quantities of each category;
- The specification for use of materials against which proposed materials will be assessed, underpinned by an appropriate risk assessment related to the place where they are to be used;
- Details of where and, if appropriate, how these materials will be stored;
- Details of the intended final destination and use of these materials;
- Details of how these materials are to be tracked;
- Contingency arrangements that must be put in place prior to movement of these materials; and
- Verification plan.

The Contractor should obtain further details on the MMP (such as a template, tracking system and verification plan) through The Definition of Waste: Development Industry Code of Practice, Version 2, March 2011, available to download on the CL:AIRE website (www.claire.co.uk/cop).

17. Site Waste Management Plan (SWMP)

The Contractor shall develop a SWMP that not only meets any minimum regulatory requirements but exceeds these requirements by setting project-specific targets for waste reduction and recovery and measuring performance. It is acknowledged that the Site Waste Management Regulations 2008 have now been repealed but it is considered good practice and a requirement to complete a SWMP to identify and manage waste streams as outlined below.

The SWMP shall identify types of waste arising from the works together with appropriate handling and disposal procedures. It shall include appropriate procedures for documentation and record keeping in relation to the identification and transfer of wastes from the works, and shall include a record of the sources of disposed materials.

The SWMP shall set out proposals for the identification, segregation, handling and storage of different types of wastes identified as arising from the works. These wastes (by quantity/type/chemical composition/EWC code, etc.) shall be recorded and their pre-treatment and disposal route, including the place of their final disposal shall be reported in the CEMP.

The Contractor shall agree with the Employer, targets for reducing waste arising from the use of the following materials that are considered to significantly reduce the ecological footprint

within the Construction and Demolition sector: Wood, Plastic, Metal, Insulation & Gypsum and Hazardous Waste.

The generation of construction waste should, as the first priority, be avoided wherever practicable. When waste is generated, it should be sent for reuse and recovery, in preference to disposal. Wherever practical, uncontaminated spoil will be reused on site for backfill and the regarding of excavations.

In addition, the Contractor will adhere to the following procedures in order to reduce waste.

Buying and Storing Materials:

- Will undertake accurate ordering to reduce surplus materials;
- Will arrange for 'just in time' deliveries to reduce storage and material losses; and
- All deliveries that are damaged or incomplete will be rejected.

Waste Segregation:

- Separate skips for wood, inert and mixed materials will be provided within the contractors compound.

Any waste sent for disposal should be directed to sites which hold valid waste management licenses issued by the EA and which are authorised to accept the type and quantity of waste. Transport of wastes should be minimised by the selection of local disposal sites where available. All contractors used for transport of waste should be registered and licensed haulage contractors following 'Duty of Care'. No disposal of waste by dumping or open burning should be permitted on site. All waste should be subject to controlled collection and storage on site.

The SWMP shall clearly identify the following information:

- the estimated total mass of waste and the estimated recovery rate before mitigating actions, with a list of actions to reduce waste and increase the level of recovery (distinguishing construction, demolition/strip-out and excavation wastes as appropriate); plus
- a revised estimate of the total mass of waste and the estimated recovery rate after mitigating actions, and forecast performance indicators for:
 - tonnes of waste to landfill per £100k construction value; and
 - tonnes of waste per £100k construction value.

The Contractor shall ensure that the SWMP is put into effect on site and will have responsibility for maintaining and updating the plan, and keeping all necessary records, and may be subject to regulatory action if they fail to undertake the necessary work.

The Contractor shall have a nominated person that shall have practical responsibility for ensuring that all waste documentation is complete and submitted as appropriate.

The Contractor shall prepare the SWMP alongside detailed design and submit the initial SWMP to the Employer prior to work starting on site.

The Contractor shall maintain and monitor the SWMP once work commences on site, updating it with actual information relating to the waste managed. Failure to keep the plan up to date will be a breach of the contract.

Throughout the lifetime of the project, the nominated person responsible for the SWMP shall take all reasonable steps to keep it up to date. There are two elements to this requirement.

- The actual waste arisings must be recorded on the plan at regular intervals; and
- If there are significant changes, the plan must be updated to reflect the new position. This will include changes in the expected amount of waste, how it will be managed, or the persons occupying any of the key roles. The reasons for any changes should be recorded on the plan.

The SWMP shall include the following as a minimum:

- Basic details (location of project, names of those involved etc.)
- Identity of a “nominated contact”
- Identity of “waste champion” to raise profile of waste management on a project
- Initial estimates of waste and how it will be managed
- Reasoned justification for waste management decisions
- Evidence of updates after project commences – the plan must be kept up to date, with updates not less than every six months – more often if there are significant changes
- Actual waste arisings
- Reasons for difference from initial plan
- Lessons learned - evidence of having reviewed the plan at the close of the project to consider how waste management practice could be improved.

Throughout the lifetime of the project, the nominated person responsible for the SWMP shall take reasonable steps to keep it up to date. Failure to keep the plan up to date will be a breach of the contract. There are two elements to this requirement.

- The actual waste arisings must be recorded on the plan at regular intervals; and
- If there are significant changes, the plan must be updated to reflect the new position. This will include changes in the expected amount of waste, how it will be managed, or the persons occupying any of the key roles. The reasons for any changes should be recorded on the plan.

The SWMP should be a living document. However, in order to avoid disproportionality, a maximum permitted interval (six months) between updates to reflect actuals and changes will be permitted.

The Contractor shall submit to the Employer, an electronic copy of the final SWMP, on completion of the highway works.

17.1 Waste Management

All those who produce or handle wastes from demolition, earthworks and construction activities have legal responsibilities – Duty of Care – for its safe keeping, transport and subsequent recovery or disposal. Failure to comply can result in an unlimited fine.

Duty of Care requires you to take care of your waste while its in your control, check that the person to whom you give your waste is authorised to receive it, make out a waste transfer note when the waste is handed over and to take all reasonable steps to prevent unauthorised handling or disposal by others. For example, checking that your waste goes to the intended facilities can avoid fly tipping.

Examples of authorised persons are council waste collectors, registered waste carriers, holders of a waste management licence or holders of a registration of an exemption from the need to hold a waste licence.

When waste is passed from one person to another, the person taking the waste must have a written description of it and a transfer note must be filled in and signed by both parties involved in the transfer. Repeated transfers of the same type of waste between the same parties can be covered by the one transfer note for up to one year.

The transfer note must include:

- What the waste is, how much there is and its 6-digit European Waste Code.
- What sort of containers it is in.
- The time, date and place the waste was transferred.
- The names and addresses of both persons involved in the transfer.
- Details of which category of authorised person each one is e.g. producer, registered waste carrier, waste licence holder.
- If either of the persons is a registered waste carrier, the certificate number of the registration.
- If either of the persons has a waste management licence, the licence number of the facility.
- Where appropriate, the name and address of any broker involved in the transfer of waste.
- Signed by both parties and transfer notes kept for two years.

Checking

- If you are dealing with hazardous wastes, such as asbestos, chemicals, oils or contaminated soils, you have extra legal responsibilities and may be required to complete detailed waste transfer consignment notes.
- Check the registration certificate of the waste carrier before handing over the waste. This can be an A4-sized colour certificate (photocopies are not sufficient) or one that looks like a credit card. Both have security features built in.
- Check with your waste carrier where the waste is being taken and make sure the destination is authorised to receive it. For difficult or bulky wastes, it may be appropriate to check that the waste wagons have actually delivered to the intended site.
- Be alert to any evidence or suspicion that demolition, earthworks or construction waste is being dealt with illegally. If you have any suspicions that someone is handling waste illegally or using an unauthorised disposal site, contact the regulatory authority.

Waste is defined as any substance or object that you discard, intend to discard, or are required to discard is waste and as such is subject to a number of regulatory requirements. The term 'discard' has a special meaning. Even if material is sent for recycling or undergoes treatment in-house, it can still be waste.

Whether or not a particular material is waste is for the person producing it to decide in accordance with the law.

Wastes from construction, demolition and excavation operations will normally be a controlled waste, classified as commercial or industrial waste and hence subject to waste-related legislation.

Wastes from construction, demolition and excavation operations will normally be a 'controlled waste' and hence subject to waste-related legislation.

Certain types of controlled waste have properties that make them especially hazardous or difficult to dispose of. These wastes are referred to as Hazardous Waste and require a pre-consignment note system for their recovery or disposal.

A site specific risk assessment and method statement has been done and will be approved by the EA for the removal of waste from this site.

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