Construction Environmental Management Plan

Cardiff East Park and Ride Commercial Park

Issue/revision	1	2		
Remarks				
Date	11 April 2022	21 September 2022		
Prepared by	Ben Hall	Charlie Elliott		
Signature		*C.Elliott*		

Construction Environmental Management Plan

CONTENTS **PAGE**

Construction Environmental Management Plan

1 Introduction

1.1 This Construction Environmental Management Plan has been prepared to accompany the planning application for the Cardiff East Park and Ride commercial park to ensure that the potential impacts that may arise from the construction of the proposed development are actively managed and minimised. The actions set out in this plan are intended to act as a guide and a tool for anticipating, recording and ameliorating any impacts that may arise.

1.2 It is anticipated that the Construction Management Plan will evolve as the project progresses to ensure that its content reflects the current construction programme. Each revision of the plan shall be submitted to Cardiff Council for its prior written approval to any changes unless they are urgently necessary in the interests of health and safety, or pollution control.

1.3 The recommendations for the control of noise and vibration on construction and open sites in the approved code of Practice BS 5228 will be adopted.

2 Environmental Policy

2.1 A copy of Curtis Hall Limited's Environmental Policy Statement is provided in **Appendix A** of this report.

2.2 Curtis Hall Limited recognises the environmental impacts associated with this project and is committed to continually improving its environmental performance. The policy statement sets out the aims of the environmental plan for the construction of the proposed development, the various aims are summarised below:

- To meet the requirements of all relevant environmental legislation, agreements, authorisations and commitments.
- To ensure that all environmental undertakings and obligations of Curtis Hall Limited are fulfilled.

- To adopt working practices that will achieve good environmental practice on site.
- To ensure that sub-contractors and suppliers are aware of the environmental constraints and opportunities of the site and follow any necessary procedures in order to ensure good environmental practice.
- To identify the responsibilities of staff and contractors in achieving good environmental practice on site.
- To mitigate the effects of the construction works on businesses, highway users and the general public.
- To assist in the development of the company environmental management system, not only for the requirements of this project but for future use.

2.3 All personnel are required to understand and implement the requirements of this Construction Environmental Management Plan.

3 Environmental Management System

3.1 The principal requirement of the Construction Environmental Management Plan for the Construction Phase of the project is to provide a management framework to address all the environmental aspects identified for the construction of the proposed development to ensure that the obligations set out in this Construction Environmental Management Plan are implemented, an Environmental Co-ordinator (including Community Liaison) will be appointed by Curtis Hall Limited. The Environmental Co-ordinator will be based on the site and will act as focal point for the distillation of the contractor's responsibilities with respect to the environment and for queries/complaints from the controlling authorities and general public. The duties required of the Environmental Co-ordinator are set out below.

Role and Responsibilities of the Environmental Co-ordinator

3.2 The Environmental Co-ordinator is responsible for all environmental activities on the project and will report to the Operations Manager. The duties involve the following:

- Overall management of the environmental component of the project.
- Manage day to day activities to ensure significant environmental effects are avoided.
- Review and update the site Construction Environmental Management Plan.
- To act as the main point of contact between the regulatory authorities (Environment Agency and Local Authorities) and the project on environmental issues.
- Liaison with the ecological consultant to the project
- To act as the main point of contact between the local populace and the project.
- Development and delivery of environmental training (induction and toolbox talks) for site personnel and sub-contractors.
- Ensure Best Practice is promoted at all times.
- Assisting with the development of procedures that highlight the emergency response to environmental incidents.
- Management of the monitoring programme, including noise, dust and water quality.

- Environmental incident monitoring and reporting.

The Environmental Co-ordinator will be as Curtis Hall's Project Manager throughout the project.

Assessment of Significant Environmental Aspects

3.3 The environmental aspects identified should be evaluated in terms of significance to ensure that resources are targeted appropriately and effectively. The environmental aspects determined to be of most significance are the activities of the project that require managing and should be subject to improvement in performance.

3.4 An Environmental Aspects Register is contained within the Curtis Hall Environmental Management System which will be available for inspection on site at all times and will be structured in the following way.

Environmental Aspects Register						
Activity	Aspect	Impact(s)	Legislation	Significance	Management response	Comments

Legal Requirements

3.5 For each significant environmental aspect the relevant applicable environmental legislation and regulations will be identified. A complete and up to date legal Register is contained within the Curtis Hall Environmental Management System.

4 Project Specific Measures

4.01 This chapter of the Construction Environmental Management Plan contains details of the measures to minimise the potential effects from the construction works, which will be implemented throughout the works. It is envisaged that this Construction Environmental Management Plan will be a live document that will be updated as necessary to include consideration of evolving aspects of the construction works.

4.02 Any material revision of the Construction Management Plan shall be communicated to **Cardiff** Council**.** Wherever possible, amendments to the plan shall be discussed with prior to incorporation into the document.

4.03 A programme of works for the construction of the proposed development is provided in the Construction Method Statement, submitted as part of this planning application, with key dates highlighted in order to show critical areas of the development.

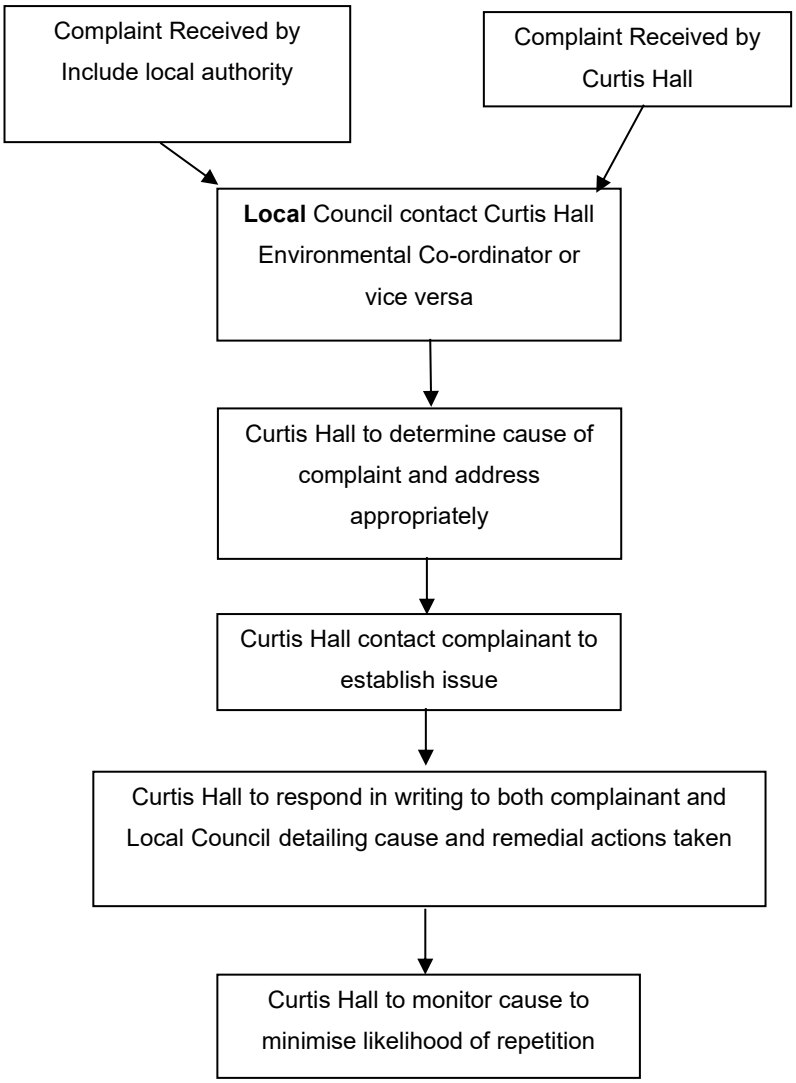
Consideration and Responsibility

4.04 All works will be carried out with positive consideration towards our neighbours and the environment. Should any works be deemed likely to cause an impact to our neighbours will be advertised through a mechanism to be agreed with Cardiff Council**.** This mechanism may be door to door leafleting of nearby properties, advertising in a local paper, posters in prominent locations etc. and will address issues relating to programme, activities and likely effects, duration and points of contact.

4.05 Curtis Hall Limited will ensure that all site personnel, specialist sub-contractors, delivery drivers and any other persons working on or visiting the site fully understand and implement the obligations of the Construction Environmental Management Plan and monitor their compliance with it. This will be achieved by including the Construction Environmental Management Plan and its obligations in the safety induction that everyone attending on site will attend. The inductees will be required to sign a statement stating that they have understood and will abide by the content of the Construction Environmental Management Plan.

4.06 The Site Manager, as the senior representative of Curtis Hall Limited will act as a central contact point for discussions with both Cardiff Council and other interested parties, including local businesses. Details of how to contact the Project Manager will be lodged with the client representatives and advertised through a suitable medium, should any complaints arise during the course of the works. A broad procedure for dealing with them is set out in Figure 1 below.

Figure 1 Complaints Procedure



Contact details for the Curtis Hall Environmental Co-ordinator are given below:

Curtis Hall Environmental Co-ordinator **Benjamin Hall**

4.1 Storage of fuel and chemicals

To reduce the risk of fuel and chemical pollution in watercourses, a comprehensive fuel and chemical storage strategy will be implemented, incorporating specific measures for containment, site management, and personnel training.

All fuels, oils, and chemicals will be stored in appropriate containers within a secure bunded compound. This compound will be constructed of an impermeable hard standing and comply with good site practices and Environment Agency guidelines, such as Pollution Prevention Guidance Note 6 ‘Working at Construction and Demolition Sites’ and GPP 1: A general guide to preventing pollution.

Oil drums and containers of chemicals will be placed on proprietary secondary containment systems. These systems must be capable of containing 110% of the contents of the largest container, or 25% of the total volume stored, whichever is greater.

• Storage for Smaller Containers: Oils and other chemicals in containers with a capacity of less than 200 liters will be kept within a locked store on drip trays. Access to this store will be restricted to authorized personnel only.

• No storage of these materials will be permitted within 10 meters of surface water drains on site. Additionally, environmental awareness toolbox talks emphasize storing all fuels, oils, and other potential pollutants away from root systems of retained trees and hedgerows.

• Subcontractor Agreement: The location and procedures for subcontractors' oil storage areas must be agreed upon with Site Management prior to any deliveries.

• Emergency Response: In the event of any accidental contamination of the ground or surface water, clean-up will be conducted in accordance with appropriate Environment Agency guidelines, and all contaminated materials will be removed off-site by a licensed waste contractor.

4.2 Prevention of silt pollution

• Silty water will only be discharged into designated settlement systems.
• Monitoring Site Drainage: Site drainage and settlement systems will be regularly checked for effective operation. Discoloration in the water will be treated as an indicator of high pollution load, requiring immediate action.

A settlement tank for holding silt contaminated water.

• Immediate Action on Problems: If a problem with silty water arises, pumping operations will stop immediately, and a line manager will be contacted.
• Site Cleanliness: All hard standings on site will be kept clean. If any area becomes silty or muddy, a line manager will be notified. The existing concrete hard standings will be maintained as much as possible during earthworks to ensure vehicles travel over clean surfaces, and will be replaced by stone cappings to avoid exposing bare earth.

• Road Sweeping and Wheel Washing: A manned jet wash and wheel wash facility will be installed at the entrance for cleaning vehicle wheels.

Internal site roads pose a particular risk as a pathway to silt contamination entering the water course. Internal roads are to be kept clean by brushing and scraping the road surface to minimise the risk of silt entering the road gulleys.

Wheel wash station at the site exit to clean wagons prior to leaving the site

Road sweepers will be used for the site compound and local roads, with their frequency managed based on weather conditions and site activities.
Water from the wheel washing point is to be discharged into a settlement tank and then into a settlement pond. Permission will be sought to discharge into the existing drainage system.
• Protection of Watercourses and Drains: If silty water is observed entering a watercourse or drain, site personnel will notify a line manager immediately and take steps to stop or divert it, for example, by using sandbags.
• **Weather Monitoring**: **Weather forecasts will be monitored** to allow for proactive planning of work activities, especially during periods susceptible to increased runoff.

• Runoff Control Measures: Cut-off trenches or silt fences will be considered and installed as appropriate to prevent silty surface runoff from reaching watercourses.

Geotextile silt barriers to be erected prior to earthworks commencing

• **Regular Watercourse Checks**: Watercourses potentially affected by dewatering operations or rainwater runoff will be **regularly inspected**.

• **Drain Cleaning Procedures**: Systems will be in place during drain cleaning operations to **intercept polluted water** effectively.

3. Training and Awareness

• **Environmental Awareness Toolbox Talks**: All site personnel, including subcontractors, will receive **regular toolbox talks** focused on environmental awareness. These sessions will specifically educate staff on the causes and prevention of **chemical pollution** and **silt pollution**, highlighting potential environmental harm, legal penalties, and the practical measures required to minimize impact. This ensures that everyone on site understands preventative measures and knows how to react to a spill.

4.3 SuDS

Sustainable Drainage Systems (SuDS) are an approach to managing surface water runoff that aims to control and manage water as close to its origin as practicable.

SuDS are crucial for treating lightly contaminated water runoff, such as that from car parks, by trapping and helping to break down pollutants. They offer a range of important environmental advantages:

• **Flood Risk Reduction** They reduce the risk of downstream flooding by slowing down runoff that enters the water environment.

• **Pollution Control** SuDS minimize diffuse pollution originating from surface water runoff and reduce the risk of pollution to groundwater. They achieve pollution removal through processes like sedimentation, adsorption, absorption, filtration, and microbial action.

• **Environmental Protection and Enhancement** These systems help minimize environmental damage, such as bank erosion and harm to habitats. They can also maintain or restore the natural flow regime of receiving watercourses, maintain groundwater recharge, and enhance wildlife habitats, amenity, and landscape quality

Project specific SuDS systems

Retention basins are a permanent part of the project and will be constructed as a priority as the primary SuDS drainage component. Rainwater run off and silt contaminated water will be discharged into the retention basins.

Infiltration trenches. Another permanent feature of the project, infiltration trenches will be installed next to the on-site roads to allow run off to divert into the trench and filter into the subsoil

Swales. The project includes a number of existing swales which form an integral part of the SuDS design.

4.4 Earthworks and Material Handling

Site stripping and vegetation removal at the start of a project can increase the volume of contaminated surface water run off. It can also reduce the area of vegetated land available for disposal of silty water. Forward planning for prologued wet weather and heavy downpours is essential.

Site clearance

Vegetation stripping in areas of thinning or development should occur independently and prior to topsoil stripping in order to avoid contaminating stockpiled topsoil. Removal of vegetation can destabilize topsoil and subsoils, particularly near river banks, it is be removed as required in line with scheduled works and not in large areas all at once. All waste vegetation is to be removed off-site and disposed of in line with

Hardcore and stockpiled materials

Stripped hardcore, concrete or planings should be stockpiled or stored away from other soils, maintaining a minimum 15m stand-off between hardcore and natural soils. If hardcore must be stockpiled on natural ground, matting is required.

Topsoil

Topsoil should be identified and stockpiled in areas where contamination will be minimal, avoiding wet conditions during stockpiling. Suggested locations include unused car parking areas, grass areas, or areas for renewed landscaping.

Topsoil stockpiles are to be quarantined by fencing or matting to prevent contamination. If stored on car park surfaces, cleaning or matting is necessary.

Topsoil are not be stored adjacent to rivers to prevent it from washing into the water, and a buffer must be maintained to allow for recoverable runoff.

Topsoiling operations must adhere to BS 3882:2015 specifications. Before topsoiling, subsoil needs to be thoroughly 'ripped' mechanically to relieve compaction. Topsoiling depths are specified for shrub/hedgerow beds and lawned areas.

Subsoil

All subsoiling operations are to comply with BS 8601:2013 specifications, and existing subsoil should be used where possible and broken up according to this standard. Imported subsoil must be installed to specified depths for different landscaping types. the source of imported subsoil must be confirmed and tested for contaminants to ensure compliance with screening values.

Subsoil at the base of tree pits must be thoroughly broken up to a depth of 200mm prior to planting.

Dust and Erosion Control

Finished ground/road surfaces will be laid down as early as feasible to seal the ground and minimize dust generation.

Surfaced and unsurfaced site access roads will be maintained and watered as needed using a water bowser, with daily monitoring during dry weather.

Exposed soil or material stockpiles are to be damped using sprinklers and hoses. A windsock will indicate prevailing winds, guiding targeted damping efforts near sensitive receptors.

All completed earthworks areas not subject to subsequent drainage will receive a stone capping layer, which will then be covered by permanent building works. Areas not permanently covered will be topsoiled and vegetated as soon as practicable.

Visual inspection of the site perimeter will be carried out weekly/daily during dry periods to monitor dust deposition.

◦ Site runoff of water or mud is to be avoided.

◦ Wheel washing systems (with rumble grids) should be implemented for vehicles leaving the site, with an adequate hard-surfaced road area between the wash and the exit.

◦ On-site haul routes will be inspected and repaired, and hard-surfaced routes will be regularly damped and cleaned.

◦ Earthworks and exposed soil stockpiles should be re-vegetated to stabilize surfaces as soon as practicable. If re-vegetation is not possible, Hessian, mulches, or trackifiers will be used.

◦ Only small areas of cover should be removed during work, not all at once.

• Ecological Considerations

◦ Excavation within 7m of an invasive species will not occur without an ecologist's advice.

◦ Soil or material potentially containing seeds or other plant materials from invasive species should not be moved or stockpiled without an ecologist's advice

4.8 Waste

Legal waste storage and disposal are essential for effective pollution control. Duty of Care legislation dictates any waste produced in the course of the project does not escape our control. Waste must be transferred to an authorised and registered waste carrier and disposed of lawfully. Checks are to be made on the destination of the waste to confirm it is authorised to receive it.

As part of the Construction Environmental Management Plan minimising and reducing waste during the construction stage is a key priority and the following core principles will be maintained throughout the construction process:

- Toolbox Talk briefing sessions.
- Adopting good on-site working practices.
- Reducing wastage on site.

- Ensuring adequate waste storage facilities are provided.
- Ensuring adequate security measures are in place.
- Appropriate waste disposal routes.

The above will all be managed and recorded in the Curtis Hall Site Waste Management Plan - SWMP (Pro-forma plan is contained in Appendix D)

4.5 Further details of good site practices include the following:

- All construction personnel including sub-contractors will be briefed through toolbox talks regarding the importance of minimising, segregating and recycling wastes during the construction process.
- Guidance will be provided on the segregation of certain waste streams such as aggregates, excavated materials, metal, wood, cardboard and polythene packaging waste.
- The objectives of the toolbox talks will be to maximise opportunities for recycling and minimise waste to landfill.
- Deliveries will be on a 'just-in-time' basis to minimise potential damage and wastage of materials.
- Clearly labelled waste skips will be provided at the site for the segregation of waste streams for recycling and for general waste to be disposed of to landfill. The skips will be stored in a secure location on-site to prevent waste nuisance issues arising.
- Fuels, oils and chemicals will be stored in appropriate containers within secure bunded compound constructed of an impermeable hard standing and in accordance with good site practices and Environment Agency guidelines (Pollution Prevention Guidance Note 6 'Working at Construction and Demolition Sites').
- Construction materials will be stored in a secure compound to prevent the potential for vandalism and theft of material.
- Segregated waste for recycling will be removed from site by a licensed contractor to an appropriate Materials Recycling Facility (MRF).
- Wastes that cannot be recycled will be removed from site by a licensed waste contractor to an appropriate licensed landfill facility ensuring adherence to the Environmental Protection (Duty of Care) Regulations.

- Waste will only be placed in the approved locations to minimise litter and pollution.

4.6 In summary, the following construction best practice (Construction Industry Research and Information Association – 'Environmental Good Practice On Site' will be followed:

Ordering	**Delivery**
Avoid: - • Over ordering (order "just-on-time") • Ordering standard lengths rather than lengths required (e.g. Plasterboard) • Ordering for delivering at the wrong time (update programme regularly)	*Avoid:* - • Damage during unloading • Delivery to inappropriate areas of the site • Accepting incorrect deliveries, specification or quantity
Storage	**Handling**
Avoid: - • Damage to materials from incorrect storage • Loss, theft or vandalism through secure storage and on-site security	*Avoid:* - • Damage or spillage through incorrect or repetitive handling

4.7 The Environmental Co-ordinator will liaise with the ecological consultant to the project to ensure that the surrounding environment is respected throughout the works. This will be reinforced through the toolbox talks, which will include an ecology-specific briefing.

4.8 Any accidental contamination of the ground or surface water will be cleaned-up in accordance with the appropriate Environment Agency guidelines and removed off-site by the appropriate licensed waste contractor.

4.9 Any protected species identified during the works will be notified to the ecological consultant to the project, who will advise an appropriate course of action, if necessary, in conjunction with Include local authority.

4.10 Until an appropriate course of action is identified, no further works will take place in the area identified as having a protected species.

4.11 Surplus material, rubbish etc. shall not be allowed to accumulate on the site or over-spill to the surrounding environment.

Noise

4.12 Construction noise emissions have been identified as a potential source of annoyance to the local population. Specific consideration will be given to the Neighbouring residential properties situated to the rear of the site,

4.13 Working Hours; the works carried out on site will be from the hours of **07:00 to 18:00 hours Monday to Friday, 07:00 to 13:00 hours on Saturdays. Sundays and Bank Holidays to be agreed with the Local Authority.**

4.14 Standard Construction Plant/Equipment will be used during all phases of the construction process.

4.15 Piling - 10:00 to 16:00 Monday to Friday only which is estimated to take no more than around 10 working days to complete for Plots 5 and 6

4.16 Typical mobile plant will include Excavators, Rollers, Cranes, Dumpers, Scissor Lifts, and Cherry Pickers.

4.17 On site noise levels will be monitored continuously in accordance with Annex G BS 5228 – Part 1: 2009 with a constant noise monitoring station on the southern boundary and potentially at other positions around the site.

4.18 All plant items will be properly maintained and operated in accordance with the manufacturers' recommendations, so that excessive noise is minimised. Rattling noises will be controlled by tightening loose parts and by fixing resilient materials between the surfaces in contact.

4.19 Plant known to emit noise strongly in one direction should, where possible, will be orientated so that the noise is directed away from noise sensitive areas.

4.20 Acoustic covers will be kept closed when engines are in use and idling. Compressors that have effective noise enclosures and are designed to operate when their access panels will be used.

4.21 Materials will be lowered where practicable and not dropped.

4.22 Stationary plant such as compressors and generators will be positioned away from sensitive locations within the confines of the operational use of the equipment.

4.23 Where reasonably practical, noisy plant or processes will be replaced by less noisy alternatives (BPM). Annex B of BS5228: Part1:

Maintenance

4.24 Regular and effective maintenance of machinery and noise control measures, by trained personnel is essential and will assist in reducing potential noise. Increases in plant noise are often indicative of future mechanical failure and will be responded to be the Environmental Co-ordinator.

4.25 Noise caused by vibrating machinery having rotating parts can be reduced by proper attention to balancing.

4.26 Frictional noise will be reduced by tools being well maintained and kept sharp.

4.27 Lubrication of parts will also reduce noise.

Training

4.28 All employees and contractors will need to be informed about the need to minimise noise. As part of on-site training they will be advised regularly of the following:

- 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.
- Avoidance of unnecessary noise when carrying out operations, and when operating plant and equipment.
- Using and maintaining measures adopted for noise control.
- By reporting defective noise control equipment.
- Managers and supervisors recognising the need for employees to make proper use of measure to minimise noise.

- Machines in intermittent use will be shut down in intervening periods of non-use or, where this is impracticable, they will be throttled down to a minimum.

Emissions to Air

4.29 Finished ground/road surfaces will be set down as early as is feasible to seal the ground to ensure that the generation of dust is kept to a minimum.

4.30 Surfaced and unsurfaced site access roads will be kept in good order and will be watered as necessary using a water bowser. This will be monitored on a daily basis during hot, dry weather.

4.31 A water supply will be maintained across the site to ensure that dusty surfaces and activities can be damped as appropriate.

4.32 Any exposed soil or material stockpiles will be appropriately damped, if necessary, using sprinklers and hoses. A windsock will be located on the site and where this indicates a prevailing wind toward sensitive receptors, particular attention will be given to the damping of exposed soil and material stockpiles.

4.33 All areas of completed earthworks that are not subject to subsequent works such as drainage will have a stone capping layer placed on them, which will be covered with permanent building works. Areas not covered with permanent building works will be covered with topsoil and vegetated as soon as is practicable.

4.34 Screening monitoring through a visual inspection of the site perimeter will be carried out weekly during dry periods to check for dust deposition (evident as soiling and marking) on vegetation, cars and other objects.

4.35 The following good practice mitigation measures presented in the below tables will be adopted as detailed in the Air Quality Assessment:

Table 4.1 IAQM Guidance on the Assessment of Dust from Demolition and Construction **'Highly Recommended'** Mitigation Measures

Communications
Develop and implement a stakeholder communications plan that includes community engagement before work commences on site.
Display the name and contact details of person(s) accountable for air quality and dust issues on the site boundary. This may be the environment manager/engineer or the site manager.
Display the head or regional office contact information.
Dust Management
Develop and implement a Dust Management Plan (DMP), which may include measures to control other emissions, approved by the Local Authority. The level of detail will depend on the risk, and should include as a minimum the highly recommended measures in this document. The desirable measures should be included as appropriate for the site. The DMP may include monitoring of dust deposition, dust flux, real time PM_{10} continuous monitoring and/or visual inspections.
Record all dust and air quality complaints, identify cause(s), take appropriate measures to reduce emissions in a timely manner, and record the measures taken.
Make the complaints log available to the local authority when asked.
Record any exceptional incidents that cause dust and/or air emissions, either on- or offsite, and the action taken to resolve the situation in the log book.
Carry out regular site inspections to monitor compliance with the DMP, record inspection results, and make an inspection log available to the local authority when asked.
Increase the frequency of site inspections by the person accountable for air quality and dust issues on site when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions.
Plan site layout so that machinery and dust causing activities are located away from receptors, as far as is possible.
Fully enclose site or specific operations where there is a high potential for dust production and the site is actives for an extensive period.
Avoid site runoff of water or mud.
Keep site fencing, barriers and scaffolding clean using wet methods.
Remove materials that have a potential to produce dust from site as soon as possible, unless being re-used on site. If they are being re-used on-site cover as described below.
Cover, seed or fence stockpiles to prevent wind whipping.
Ensure all vehicles switch off engines when stationary - no idling vehicles.
Avoid the use of diesel- or petrol-powered generators and use mains electricity or battery powered equipment where practicable.
Produce a Construction Logistics Plan to manage the sustainable delivery of goods and materials.
Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction, e.g. suitable local exhaust ventilation systems.

Ensure an adequate water supply on the site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and appropriate.
Use enclosed chutes and conveyors and covered skips.
Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate.
Ensure equipment is readily available on site to clean any dry spillages, and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods.
Avoid bonfires and burning of waste materials.
Earthworks
No Action Required.
Construction
Ensure sand and other aggregates are stored in bunded areas and are not allowed to dry out, unless this is required for a particular process, in which case ensure that appropriate additional control measures are in place.
Trackout
Use water-assisted dust sweeper(s) on the access and local roads, to remove, as necessary, any material tracked out of the site. This may require the sweeper being continuously in use.
Avoid dry sweeping of large areas.
Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport.
Inspect on-site haul routes for integrity and instigate necessary repairs to the surface as soon as reasonably practicable.
Record all inspections of haul routes and any subsequent action in a site log book.
Install hard surfaced haul routes, which are regularly damped down with fixed or mobile sprinkler systems, or mobile water bowsers and regularly cleaned.
Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site where reasonably practicable).
Ensure there is an adequate area of hard surfaced road between the wheel wash facility and the site exit, wherever site size and layout permits.
Access gates to be located at least 10m from receptors where possible.

Table 4.2 IAQM Guidance on the Assessment of Dust from Demolition and Construction **‘Desirable’** Mitigation Measures

Communications
No Action Required.
Dust Management
Undertake daily on-site and off-site inspection, where receptors (including roads) are nearby, to monitor dust, record inspection results, and make the log available to the local authority when asked. This should include regular dust soiling checks of surfaces such as street furniture, cars and window sills within 100m of site boundary, with cleaning to be provided if necessary.
Impose and signpost a maximum-speed-limit of 15 mph on surfaced and 10 mph on un-surfaced haul roads and work areas (if long haul routes are required these speeds may be increased with suitable additional control measures provided, subject to the approval of the nominated undertaker and with the agreement of the local authority, where appropriate).
Implement a Travel Plan that supports and encourages sustainable travel (public transport, cycling, walking, and car-sharing).
Earthworks
Re-vegetate earthworks and exposed areas/soil stockpiles to stabilise surfaces as soon as practicable.
Use Hessian, mulches or trackifiers where it is not possible to re-vegetate or cover with topsoil, as soon as practicable.
Only remove the cover in small areas during work and not all at once.
Construction
Avoid scabbling (roughening of concrete surfaces) if possible.
Ensure bulk cement and other fine powder materials are delivered in enclosed tankers and stored in silos with suitable emission control systems to prevent escape of material and overfilling during delivery.
For smaller supplies of fine power materials ensure bags are sealed after use and stored appropriately to prevent dust.
Trackout
No Action Required.

Vehicles

4.36 The cleanliness of the site access road will be assessed on a daily basis. Road sweeping will be undertaken as necessary should it be required.

Vehicle Routing

4.37 Care has been taken during the design process and thought has been given to minimise the need for HGV movements.

4.38 The proposed routing map will be contained in **Appendix B**.

4.39 This route will be communicated to all Specialist Subcontractors and Material Suppliers.

4.40 Temporary signs will be erected. This will ensure that drivers are directed to the site and do not inadvertently use minor local roads.

4.41 Anticipated vehicle movements will be small in number and infrequent.

4.42 The programme of works has been sequenced such that any deliveries to site will either be onto a stone capping layer or hard surfacing again minimising the risk of any mud or debris being deposited on the Public Highway. The surrounding area will be monitored at all times and if necessary and as required Road Sweeping plant will be on hand to deal with any debris/mud on the Highway.

Lighting

4.43 During the construction phase the temporary site lighting will adhere to the best practice guidance outlined in Guidance Notes for the Reduction of Light Pollution (Institution of Lighting Engineers, 2000), including the following:

- Lighting will be switched off when not required for safety or security;
- Temporary lighting will be directed into the site away from residential areas;
- Wherever possible lighting will be directed downwards to illuminate the target area to reduce spill light to a minimum;
- Specifically designed lighting equipment will be installed to minimise the spread of light near to or above the horizontal;
- To keep glare to a minimum, the main beam angle of all lights directed towards any potential observer will be kept below 70 degrees. Higher mountings used for the lighting will lower the main beam angle reducing potential glare;

- Wherever practicable, floodlights with asymmetric beams will be used.

4.44 In order to mitigate against the impact of artificial lighting on bats, their roosting, migration, and feeding patterns, further stipulations were imposed and are demonstrated within the lighting design for the proposed Development: -

- The use of lights utilising light emitting diodes (LED) without UV elements, therefore reducing the attraction of invertebrates to the lights.

- Only luminaires with 0% upward light ratio should be used and fitted on the horizontal to avoid excessive up-lighting, back lighting and light spill onto boundary hedgerows and trees.

- A warm white spectrum (between 2000-3000 degrees Kelvin) should be used in order to reduce blue light component, therefore reducing the number of invertebrates attracted to the lights.

- Luminaires should feature peak wavelengths higher than 550nm to avoid the component of light most disturbing to bats.

- Ideally the Site boundary lux level should be between 0 and 2 as this is within the range of natural moonlight.

- The vegetation planted on Site and any roosting habitats should be unlit.

Ecology

4.45 Statutory and Non-statutory Designated Sites

Mitigation measures to be implemented during the construction phase in relation to Severn Estuary SAC, SPA and Ramsar, Rhymney River Section SSSI, Howardian LNR, River Rhymney SINC, Llanedeyrn Woodlands Complex SINC and Pontprennau Wood SINC are as follows:

- Standard environmental best practice measures will be implemented, including measures to control dust, and to prevent pollution.

- A 15-20 m buffer will be maintained from the watercourse, which will limit any impacts to the watercourse during construction of the footpath, warehouse, parking, storage areas, access roads, and other hard landscaping.

4.46 Habitats

Mitigation measures to be implemented during the construction phase in relation to habitats are as follows:

- Trees and woodland to be retained following the development will receive appropriate protection during the construction phase of works through the use of tree root protection zones and barriers in accordance with BS5837: 2012 Trees in relation to design, demolition, and construction, where appropriate.

- Standard environmental best practice measures will be implemented, including measures to control dust, and to prevent pollution.

- Sections of the site are subject to a TPO, so any tree work or felling in these protected areas will require permission from Cardiff Council. Proposed thinning will also require felling permission.

4.47 Birds

Mitigation measures to be implemented during the construction phase in relation to birds are as follows:

- Where practicable, clearance of the Site will be undertaken outside of the main nesting bird season (i.e. clearance carried out between September and February inclusive).

- If these works cannot be restricted to within this period, an Ecological Watching Brief will be maintained during the main bird breeding season to ensure that no nesting birds are adversely affected. This will entail a check of all suitable

habitat for nesting birds due to be removed, and a buffer of at least 10 m beyond that area by a suitably qualified ecologist prior to the commencement of works.

- If, during the Ecological Watching Brief, birds are found to be within the area due to be cleared or the buffer zone, measures to prevent any disturbance to breeding birds, including the cessation of tree and vegetation clearance, or construction works in areas close to breeding sites until the birds have completed breeding, will be put in place until the chicks have fledged.

4.48 Bats

Mitigation measures to be implemented during the construction phase in relation to bats are as follows:

- All retained trees and vegetated corridors on-Site and immediately adjacent to the Site will be protected during the construction phase in accordance with BS5837:2012 Trees in relation to design, demolition, and construction. This will also create a buffer to vehicular movement, reducing the impacts of noise and vibration.

- Sensitive lighting will be adopted on-Site to minimise disturbance to bats and other nocturnal species, avoiding significant illumination of suitable habitat during the night.

- Any trees identified to have bat roost potential in the Delta-Simons Ecological Impact Assessment report that require removal will first be subject to further surveys to inform the need for and extent of any mitigation and/or compensation.

4.49 Badgers

Mitigation measures to be implemented during the construction phase in relation to badgers are as follows:

- Prior to construction, a pre-commencement badger check of the Site should be undertaken to ensure no new setts have been created.

- During the construction phase of works, no open pits or trenches will be left uncovered or, alternatively, without a mammal escape ramp overnight.

4.50 Otter

Mitigation measures to be implemented during the construction phase in relation to otters are as follows:

- During the construction phase, no open pits or trenches will be left uncovered or, alternatively, without a mammal ramp overnight.

- Implementation of a landscape buffer of 15-20 m at the edge of the Site where it bounds the River will ensure that any disturbance to this corridor is minimised.

- An otter ledge positioned above the water level will be incorporated into the new bridge to avoid the need for otters to travel onto the road above the bridge.

4.51 Hedgehog

Mitigation measures to be implemented during the construction phase in relation to hedgehogs are as follows:

- During the construction phase, no open pits or trenches will be left uncovered or, alternatively, without a mammal ramp overnight.

4.52 Dormouse

Mitigation measures to be implemented during the construction phase in relation to dormice are as follows:

- A toolbox talk will be given to all site contractors explaining the presence of dormouse on-Site, measures being taken to protect them, and what to do if one is discovered unexpectedly during works.

- Planned works will avoid the main dormouse mid-summer breeding season (June to August, inclusive) and will also be undertaken during the active period for dormice (i.e. avoiding November – March, inclusive).

- All works to on-Site habitat that could impact this species will be covered by, and carried out in accordance with, a European Protected Species Licence from Natural Resources Wales.

- Sensitive lighting will be adopted on-Site during the construction phase to minimise disturbance to dormice and other nocturnal species, avoiding significant illumination of suitable habitat during the night.

4.53 Invasive species

One of the objectives of the twenty-five year Woodland Management Plan prepared for the site is the eradication of all invasive species in particular Japanese Knot Weed (*Reynoutria japonica var. japonica)* and Himalayan Balsam (*Impatiens glandulifera*). The aim is to begin the control measures in the first year of the plan with complete eradication by year five. However, ongoing control of any new infestation will be continued throughout the plan period. Specific control methods for the two primary species of concern are given below:

4.59.1 Japanese Knotweed

In year one of the plan, the areas of Knotweed will be carefully plotted using GPS equipment and the areas measured, after which specialist contractors will be invited to quote for the eradication of this species from site. It is likely that a combination of glyphosate treatment in areas away from the water course and excavation and removal from site will be required with the aim of eradication in the first five years of the plan. The contractor appointed will be expected to provide a detailed Method Statement demonstrating how the requirements of the Environmental Protection Act 1990 will be met prior to commencement. The Method Statement will need to be approved by the Local Planning Authority and the project Ecologist and Arboricultural Consultant before commencement.

4.59.2 Himalayan Balsam

To avoid the use of pesticides on the riparian parts of the site, hand pulling and cutting will be the primary method of control using a volunteer workforce. This will be a continuous control method and will be subject to onsite monitoring with ongoing treatment of balsam growth as and when it is found. The whole plant will be pulled out along with the root; by grasping the stem firmly and drawing upwards deliberately to prevent the stem breaking above the 1st stem node. The work will be timed when plants are large enough that the plant can be pulled out of the ground intact (c.50cm tall) from March/April to August with ongoing treatment to minimise flowering and seed pod formation. If it becomes difficult to get sufficient volunteer help, hand or machine cutting to prevent seeding will be utilised.

4.59.3 Other Species

While the two most invasive species will be a priority other non-native species and garden escapes will be removed particularly from the Ancient Woodland areas. This will be incorporated into routine maintenance and thinning of natural regeneration.

References

Nov D Jones D (2022) Public information on invasive species in Wales: Himalayan balsam. Welsh Government.ec Treatment 2: Physical management systems - Labour-based hand pulling & cutting.

Jones D (2020) Public information on invasive species in Wales: Japanese knotweed. Welsh Government.

Aquatic ecology

Prevention and mitigation measures as follows:

4.54 All operatives would be made aware of the need to protect the watercourse from contamination, including any NRW and CIRIA guidance and legal obligations.

4.55 Appropriate measures to protect the aquatic environment should be implemented during the construction phase of the Proposed Development in order to eliminate or minimise risk to aquatic flora and fauna.

4.56 Such measures include best environmental practice outlined in Construction Industry Research and Information Association (CIRIA) guidance (CIRIA, 2015).

4.57 To prevent fine sediment entering the watercourses, construction activities should occur away from the watercourses, where possible, with appropriate application of silt/sediment control measures. A 15 m minimum buffer zone has been indicated for the Proposed Development.

4.58 When construction activities, including stock piling and plant and vehicle washing, occur near a watercourse they should be separated from the watercourse with barriers (e.g. sediment fences) to prevent surface runoff from these sites entering the watercourse. Ideally, construction activities should be at least 8m from the bank top of a watercourse.

4.59 Geotextile-material silt fences should be installed to filter suspended solids from runoff.

4.60 The extent of vegetation clearance should be limited as far as practicable near to watercourses.

4.61 The works should be carried out in accordance with established best practice.

4.62 Chemicals and fuels must be stored in secure containers located away from water bodies.

4.63 No refuelling of plant or machinery should take place near water bodies.

4.64 Pollution spill kits should be kept on site. In the event of an incident these will be used.

4.65 Any soils contaminated will be removed immediately to a suitable landfill site.

4.66 Bins should be provided on site for debris.

4.67 Cleaning of tools and shuttering would be carried out in water not draining directly to the watercourse.

4.68 In any event of expected heavy rain, pouring concrete, and other activities which increase the risk of contaminating runoff, should not be undertaken.

4.69 Timing of construction works should ideally be planned to avoid the migratory period in salmonids, to avoid the obstruction of passage or disturbance to fish moving to upstream reaches for spawning.

4.70 Sensitivity (to noise and vibration) of those fish species present should be considered to ensure that appropriate construction methods can be implemented to minimise and avoid disturbance or avoidance behaviour.

4.71 Lighting used for construction must be switched-off when not in use and, where possible, positioned so as not to spill on to watercourses. A dark corridor should always be maintained within the watercourse to allow fish passage.

4.72 Sediment management and water quality monitoring should be included in the CEMP and be implemented during any construction works with the potential to affect the watercourse, and plan for appropriate remediation measures to ameliorate any adverse effects should they occur.

Soil resource

4.73 The following strategy is to ensure that construction on site considers both the resource of the soil and the river to preserve the horticultural, ecological and structural condition of the site.

- A Pollution Prevention Plan should be in place for the site to prevent silting and pollution of the river prior to any works commencing on site. This could include soil bunds to prevent runoff, silt traps and fencing, hay bales down slope or in places of enhanced surface water runoff.
- Fly tipped waste and any other anthropogenic materials are to be cleared and appropriately removed off-site.
- Vegetation stripping in areas of thinning or development to happen independent of, and prior to, topsoil stripping. Waste vegetation is to be removed off-site to an appropriate waste management source.
- Remediation of contaminated strata on site.

- Stripped hardcore or pavements to be stockpiled or stored away from any other soils. A minimum of 15m stand-off should be maintained between stockpiles of hardcore and natural soils.
- Stripped hardcore is not to be stored immediately on top of natural soils. If hardcore is require to be stockpiled in areas where natural ground is present, matting is required.

4.74 In areas where any soft landscaping is to be stripped, permanently or temporarily, topsoil is to be identified and stockpiled in an area safe to do so, where contamination will be minimal. Stockpiling of the soil when wet should be avoided. Suggested locations for the stockpiles include:

- Areas of car parking not being used or undergoing development at the time of topsoil stockpiling in the west of the site.

- Areas of grass in the north of the site.

- Areas of soft landscaping, where a renewed landscaping plan is proposed

4.75 To prevent contamination of the topsoil during construction, the stockpile is to be quarantined by fencing or by matting. If topsoil is being stored on car parking surfaces, cleaning or matting is required.

4.76 Topsoil is not to be stored in the east of the site, adjacent to the river. This is to prevent washing of the topsoil into the river. As topsoil cannot be compacted, to preserve horticultural benefit, the topsoil must have a buffer to allow recoverable runoff from any stockpiles.

4.77 If any imported soils are required, the source will need to be confirmed, and the material tested for the attached suite of contaminants, to comply with the maximum screening values listed. The frequency is to be congruent with the site remedial strategy.

4.78 The landscaping plan includes for removal of vegetation to improve the woodlands and parklands planned to be preserved on site. However, removal of vegetation can destabilise topsoil and to a lesser extent subsoils. This will be

particularly relevant in areas where the soils are wet or in the banks of the river, where removal will take away the root systems that help bind together the pedogenic systems of the soils.

Flood Risk

4.79 The site has been assessed as being at risk of flooding from rivers, therefore the following mitigation measures will be implemented as minimum:

- High risk/vulnerable activities (e.g. stockpiling, welfare, etc) to be sited on higher ground and/or above design flood level as defined in FCA where possible

- All chemicals, fuels or materials that could cause pollution to be stored in a way that can be easily moved in the event of a flood

- Detailed procedures set out in a flood action plan for securing the site (and plant etc) prior to a flood event

- Checking the Met Office and NRW Flood Warning service to ensure readiness and appropriate response to anticipated weather events.

- Runoff rate will not increase during the construction phase to avoid increasing flood risk.

APPENDIX A

Curtis Hall Ltd Environmental Policy

APPENDIX B

Construction Traffic Routing
(To be developed)

APPENDIX C

Anticipated Construction Programme
(To be developed)

APPENDIX D

Site Waste Management Plan Template

(To be developed)