



APPENDIX 2.1

**OUTLINE CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN
(oCEMP)**

PROPOSED CAVAN REGIONAL SPORTS CAMPUS

CAVAN COUNTY COUNCIL

MARCH 2024

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1.0 INTRODUCTION

This document represents the **Outline Construction Environmental Management (oCEMP)** for the Cavan Regional Sports Campus Project, incorporating lands west of Canan Town proximal to Kingspan Breffni GAA Stadium. This document will:

- describe the site environmental setting;
- identify local receptors and potential risks to the environment; and
- set out a framework for mitigation of risks during the building construction phase.

The document, covering all construction phases, including all enabling works, Phase 1 and Phase 2 of the development works and construction de-mobilisation, is to be used by the appointed Main Contractor to develop a Final CEMP to incorporate company specific personnel detail and specific methods of working that support and attain the measures and objectives presented in this document.

1.1 Existing Site Conditions

The site, **Figure 1**, currently occupied by agricultural land adjacent to Royal College, County Cavan. The surrounding area is characterised as largely residential, with mixed recreational and commercial land uses surrounding.

Figure 1 : Site Location with Extent of Site Outlined in Red



The main environmental receptors associated with the construction phase are the Cavan River which is of significant ecological importance (protected aquatic species, hydraulic linked to SAC), and the presence of various protected terrestrial species (badger, otter, bats, pine marten and breeding birds) in and around the site. Various residential receptors are present to the west and south of the site.

1.2 This Outline CEMP (oCEMP)

Various environmental assessments undertaken within the EIA supporting this proposed development have identified various potential environmental concerns including flood risk, terrestrial and aquatic ecology, noise and vibration, air quality, soils, groundwaters and surface waters, and general land and construction control.

This oCEMP document incorporates mitigation measures developed from the environmental assessments undertaken. This oCEMP provides a framework for a main contractor to use as

the basis for developing a Final CEMP for the construction phases of the development, which should be agreed with the statutory authority prior to commencement of any construction works on site.

This oCEMP details the environmental factors and mitigating measures that are to be implemented during construction works to minimise the effects of the site operations on receptors. This document:

- Describes the site environmental setting.
- Identifies of sensitive receptors.
- Provides a framework to ensure that all parties are aware of their responsibilities.
- Describes the main site construction activities that could generate pollution sources.
- Identification of main pollution control techniques expected to be deployed, including details of areas for storage of oils, fuels and chemicals and details of appropriate storage requirements and details of pollution prevention measures to be employed during the pre-construction and construction.
- Includes appropriate control measures for Air, Noise, Vibration, Surface Water, Groundwater, Ecological, Transportation & Waste Management during the Construction Phase of the development, drawing from a programme of mitigation described in the EIAr.

Environmental protection during the construction works will be delivered through the implementation of a Construction Environmental Management Plan (CEMP) as set out in this Outline CEMP report. The oCEMP sets out how the commitments will be translated into actions in the field and the means by which they will be monitored and verified.

This document provides the outline of measures to be taken to achieve the objective of environmental protection and is regarded as a **'live document'**, to be implemented and revised as necessary by the appointed contractor.

The oCEMP will be applicable to all works associated with the Proposed Development including those carried out by sub-contractors, however DOES NOT remove or overwrite the legal duties, responsibilities or obligations of the Principal Contractor (and subcontractors) and other parties in accordance with the contract documents and legislation.

The oCEMP includes details on how the works will be carried out and managed to ensure compliance with relevant planning conditions, contractual and legislative requirements and construction industry best practice. The CEMP will form part of the contract arrangements with the appointing contractor in charge of the site will be required to adopt, update with relevant working practice details, and implement the procedures and recommendations, following current industry best practice.

A Final CEMP will be provided to NIEA at least 8 weeks prior to works beginning for review and final agreement.

1.3 Supporting Documents

Associated project-related documents that are relevant to developing this oCEMP include:

- *EIAr Supporting the Planning Application, with particular regard to Construction Phase Mitigation Measures developed for each Chapter.*
- *All Design Drawings and Construction Plans included within the Planning Application.*

1.4 Status of the oCEMP

The status of the oCEMP is as follows:

- **This document comprises the oCEMP and has been prepared during the preliminary design and in parallel with submission of full planning application stage of the Proposed Development.**
- **The oCEMP (and adopted version before onsite works i.e. CEMP) is a ‘live’ document that can be reviewed on a regular basis and updated where necessary to include the further requirements from the local authority.**
- **The provisions of the oCEMP would be incorporated into the contracts for construction of the Proposed Development. It would be a mandatory requirement for both the Principal Contractor and all subcontractors to comply with the oCEMP to ensure that best practice is implemented during construction and to safeguard the environment.**
- **The requirements of the oCEMP do not remove or overwrite the legal duties, responsibilities or obligations of the Principal Contractor (and subcontractors) and**

other parties in accordance with the contract documents and legislation.

- The oCEMP is the mechanism for ensuring that the Proposed Development adopts relevant best practice management techniques for sustainable construction, which may include the following:
 - Identification of potential opportunities to further reduce the capital carbon (i.e. carbon associated with the construction activities) would be progressed prior to construction. Similarly, opportunities for the efficient use of resources (including construction materials and water) may be explored.
 - Sustainable procurement methods may be developed during construction to define the principals to be followed in the procurement of materials and services required. This may include appropriate objectives on the responsible sourcing of materials and support to local suppliers and services where feasible.
- The Final CEMP would identify any further mitigation methods and control measures to be agreed with keystakeholders, including NPWS, Inland Fisheries Ireland and Cavan County Council and would be in place before construction begins.
- During construction, the Final CEMP may be revised to consider any modifications to the design, changes in external factors (for example, regulations or standards), any unforeseen circumstances, and any failings in environmental performance arising from routine inspections.

2.0 DESCRIPTION OF PROPOSED DEVELOPMENT

2.1 General Description of Proposed Development

The general development layout (Phase 1 and Phase 2) is presented in Appendix 1, with development Phasing plans are presented in Appendix 2.

The development comprises the following components:-

- Indoor sports complex to include sports halls with spectator seating, fitness studios, changing facilities, reception, café and ancillary accommodation.
- 7 no. outdoor sports pitches.
- Covered sports arena with playing pitch, spectator seating and other ancillary accommodation.

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- Ancillary sporting facilities include 8 lane athletics track and cricket practice nets.
 - New vehicular access / junction and closure of Park Lane/Dublin vehicular junction, relocation of existing Breffni Park turnstiles to facilitate reconfiguration of Park Lane, bridge structure, internal roads, cycle/pedestrian paths, associated car/bus/cycle parking, electric charge points and streetlighting.
 - Pedestrian access points of Kilnavara Lane and Dublin Road.
 - Hard and soft landscaping including acoustic fencing, wildlife habitat area/corridors, artificial badger-sett, walking trails and other ancillary works such as spectator stands, retaining walls, fencing and ball stop fencing, team shelters, toilet block, floodlighting, signage, drainage infrastructure including attenuation tanks, SuDs and culverting of a minor watercourse, storage space, ESB Substation, ancillary accommodation and all associated site works to accommodate the development.

2.2 Proposed Site Design

Sustainable development is central to the design, delivery and implementation ethos of Cavan County Council (CCC). It is proposed to adopt sustainable designs, drainage systems and renewable power solutions as part of the proposed development. Environmental protection, mitigation and enhancement are key to the success of the proposed development.

It is proposed to reuse earth material for landform to minimise materials required to be removed off-site in order to reduce carbon emissions and landfill. Sustainable Urban Drainage Design System (SuDS) will be employed along with flow-control attenuation systems to allow for containment of run-off along, with engineered end-of-pipe controls deployed as part of the attenuation measures for managing runoff from hard surfaces (interceptors for vehicular routes and car parks). Mitigation measures will be put in place, through consultation with NPWS and Inland Fisheries Ireland to ensure that the Cavan River remains unaffected throughout the construction and lifespan of the proposed development.

The following elements are to be incorporated into the final design of the proposal in order to minimise environmental impact:

-
- Re-Use of site-derived materials for earthworks to minimise the need for soil importation and off-site soil removal.
 - Layout of the development and construction methods for piling etc has been designed to minimise impact to protected species.
 - Creation of new Wildlife Habitat Compensation Areas and creation of a Wildlife River Corridor, including translocation of flora into habitat areas where possible to maximise habitat creation.
 - Installation of bat boxes and various types of bird boxes as part of a package of compensatory and biodiversity enhancement features.

A General Development Layout for the development is presented in **Appendix 1**.

2.3 Earthworks

The development will involve significant land reprofiling, which will be achieved by a programme of cut-fill operations during Phase 1 and Phase 2. The cut-fill plans are presented in **Appendix 2** and will result in a total of 223,402m³ of materials being cut and 222,270m³ of materials being reused as fill materials within the development. In line with a sustainable earthworks strategy, only a small quantity of material, amounting to 1,301m³ will need to be removed from the site for authorised off-site re-use or landfill disposal.

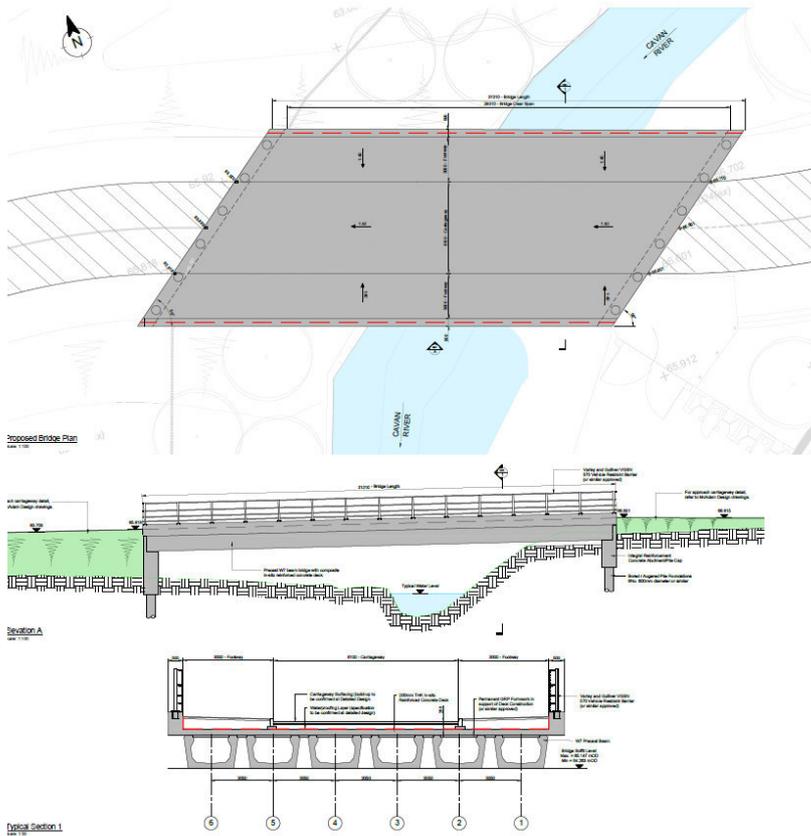
2.4 Specific Proposed Design Elements

2.4.1 Bridge Design

An outline plan of the proposed two-way pedestrian and vehicular access bridge across the Cavan River is provided in **Figure 2**.

The proposed bridge is a single span integral reinforced concrete bridge, supported on piled foundations. A Construction Methodology Statement outlining the Construction Sequence has been prepared for the bridge construction and this is provided in **Appendix 3**.

Figure 2: Bridge Layout and Sections



2.5 Development Phasing

The construction works and implementation of the development will be delivered in two Phases, as shown in the Outline Programme presented in **Table 1**. The facility will commence operation after Phase 1 and will be operational during the construction of Phase 2. Layout drawings for each development phase are provided in **Appendix 4** of this oCEMP.

Table 1 : Outline Programme

Phase	2025				2026				2027				2028				2029			
	Q1	Q2	Q3	Q4																
1																				
2																				

Phase One is expected to be undertaken between Q2 of 2025 and Q3 2026 and will incorporate construction of wildlife habitat creation area, riparian planting adjacent River Cavan, Dublin Road access and River Cavan bridge construction as well as the main arena, hockey pitch, plus 2 sand mattress GAA Fields and two car parks. Construction of the artificial badger sett will also be undertaken in Phase 1, or in advance, pending planning conditions. This sett should be in use for 6 months prior to the exclusion and destruction of the existing badger sett, anticipated within Phase 1.

Phase 2 is expected to be undertaken between Q4 2027 and Q4 2029 and include construction of a further sports building, athletics track and two further sand mattress GAA Fields.

This oCEMP covers both Phase 1 and Phase 2 of the proposed construction works.

2.6 Construction Layouts, Phase 1 and Phase 2

General Construction Layouts for Phase 1 and Phase 2 have been prepared to support this oCEMP and are provided in **Appendix 5**. These show the general configuration for construction works infrastructure, including access / egress arrangements, layouts for internal haul roads, locations and layouts for Construction Compounds, materials storage and stockpiling etc.

3.0 ECOLOGICAL IMPACTS

This section is intended to provide an description of the aspects of the Biodiversity environment that have the potential to be significantly impacted by the proposed development. This section also describes a range of suitable construction-phase mitigation to protect and enhance the biodiversity to minimise impacts are presented.

3.1 Biodiversity

A Preliminary Ecological Appraisal (PEA) desk study and walkover survey was undertaken to inform the assessment. This triggered requirements for a range of more detailed species-specific surveys to be undertaken at the site including surveys for birds, bats, badger, pine marten, otter, and aquatics species (freshwater pearl mussel and white-clawed crayfish – surveys to follow).

A Phase 1 screening for Appropriate Assessment undertaken by MCL. This triggered the need for a Stage 2 Appropriate Assessment Natura 2000 process, which has been undertaken for the development. The Appropriate Assessment, which should be referred to, deemed that the impacts of the site to the ecological environment during the Construction Phases have been fully mitigated through construction phase mitigation. It has been necessary to implement a wide range of mitigation measures to protect the ecological environment during the Construction Phases of this development. Proposed wildlife compensation, ecological planting, sustainable drainage, other engineered drainage, along with controls on lighting, noise emissions, and site operations are included for the operational phase mitigation (not relevant to this oCEMP).

Ecological Mitigation Measures proposed for the Construction Phase are detailed further in this section of the oCEMP.

3.1.1 European Sites within the Project Zone of Influence

A 15km buffer zone of influence (Zoi) has been chosen as a precautionary measure, to ensure that all potentially affected European Sites are included in the screening process, which is in line with Appropriate Assessment of Plans and Projects in Ireland – Guidance for Planning Authorities (DoEHLG, 2009, rev. 2010). **Figure 3** presents the locations of European Sites relative to the development site.

The site is not located within any sites that are nationally or internationally designated for their nature conservation importance. However, the proposed development site is located approximately 3.6km south-east of the Lough Oughter SPA and Lough Oughter and Associated Loughs SAC. The hydraulic distance between the site and the SPA / SAC is c.5km. There are no Proposed Natural Heritage Areas within 15km of the site with the nearest designated Proposed Natural Heritage Areas, Lough Oughter and Associated Loughs pNHA and Drumkeen House Woodland pNHA, located approximately 3.69km north-west / west and 3.02km north respectively.

Figure 3: Distances to European Sites



3.2 Habitat Survey – Existing Conditions

The PEA identified the existing ecological environment across the site as summarised below:-

3.2.1 Wet Grassland (GS4)

This habitat type is located at the far south-eastern corner of the proposed site on the banks of the Cavan River. This small low-lying field sits at a lower elevation to the rest of the site due to the uneven topography and exhibits features suggesting regular flooding/surface/rainwater collection.

3.2.2 Buildings and Artificial Surfaces (BL3)

This habitat type is located in the centre of the site near the Royal School, Cavan where the gravel sports pitch, surrounded by wooden fencing and a small concrete/brickwork pebbledash wall, falls within the site boundary, there is also some small storage structures present at the northern side of this sports pitch adjacent to the Royal School which falls outside the proposed site's red line boundary. A new school structure has recently been completed just north of the Royal School proximal to the site.

There are two other areas of this habitat type located in the east and south-east areas of the proposed site. The neighbouring Breffni Park GAA grounds public access gates and lane leading off the R212 road which goes through the centre of Cavan. This entrance and access

land follow the banks of the Cavan River extending down to the lower levels of the steep embankments leading down to the Cavan River and a car parking area which falls outside the site's red line boundary. The final area of this habitat is located on the western bank of the Cavan River as part of the Breffni Park GAA grounds a small car park area has been created as part of another planning application put in by the GAA club. This consists of a small concrete bridge structure crossing the Cavan River entering the site's red line boundary where a small car park has been created on the banks of the Cavan River.

3.2.3 Riparian Woodland (WN5)

This habitat type is located throughout in the eastern area of the site. The habitat type extends along the banks of the Cavan River which runs parallel to the eastern boundary of the proposed development site. this habitat type extends for approximately 228m along the eastern boundary of the site and on the sides of a steep embankment due to differences in topography between the site, Cavan River and Breffni Park GAA grounds.

3.2.4 Depositing Lowland River (FW2)

This habitat type is present along the entirety of the eastern boundary/ area of the site and flows north into the wider surrounding area and into the nearby designated sites of Lough Oughter SPA, and Lough Oughter And Associated Loughs SAC and pNHA. Species composition along the banks of the river is the same as that exhibited in the WN5 riparian woodland and GS4 wet grassland habitats.

3.2.5 Immature Woodland (WS2)

This habitat type is located in the top north-east corner of the site near the entrance of the site and for the Royal School, Cavan. The habitat type is located on a steep bank leading down to the site and school access lane and bordering a neighbouring sports pitch.

3.2.6 Scrub (WS1)

This habitat type is located in the top north-east corner of the site near the entrance of the site and for the Royal School, Cavan. The habitat type is located on a steep bank leading down to the site and school access lane and bordering the immature woodland habitat type also located in this area.

3.2.7 Dry Calcareous and Neutral Grassland (GS1)

This habitat type is located in the top north-east corner of the site near the entrance of the Royal School, Cavan. The habitat type is located on a steep bank leading down to the site and school access lane and bordering the immature woodland and scrub habitats also located in this area.

3.2.8 Hedgerows (WL1)

This habitat type is present around the boundary of the site and throughout, separating fields from each other. Due to the uneven topography of the west and south areas of the site these habitats follow the steep slopes of the natural landscape offering suitable habitat for invertebrates and bird species.

3.2.9 Treelines (WL2)

This habitat type is present throughout the site separating individual fields from each other and the proposed site itself from the surrounding areas of Cavan town and other agricultural lands. This habitat type contains a diversity of species offering suitable habitat for invertebrates, bats and birds.

3.2.10 Drainage Ditches (FW4)

This habitat type is located travelling through the centre of the site dividing it down the middle as it flows from the northern boundary of the proposed site down past the gravel sports pitch for the royal School, Cavan and flowing into the Cavan River. The drainage ditch present travels through an extensive treeline and is situated at a low elevation compared to the surrounding topography. The badger sett identified at TN3 was also located in the banks of this drainage ditch.

3.2.11 Spoil and Bare ground (ED2)

This habitat type is present in scattered areas of the site, it is primarily located within the northern area of the proposed development site due to the presence of recent works taking place in relation to the Royal School, Cavan. This consists of disturbed bare soil ground and the creation of a temporary lane located just north of the Royal School, Cavan, extending northwards to the site boundary. This has since re-grassed since the PEA survey was completed.

There is another small area located just north of the Royal School, Cavan's gravel sports pitch where works have been carried out as part of the school development with some trees being removed to allow for the installation and connection of electrical cables for the new structure being built causing the ground to become disturbed and cleared.

A third small area is located in the southern area of the site where some spoil dumping has occurred along one of the hedgerows, with another small patch southeast of this resulting from the recent development of the GAA pitches east of the Cavan River.

3.2.12 Improved Agricultural Grassland (GA1)

This is the dominant habitat type present on the proposed development site there are currently 16 fields identified as exhibiting this habitat type present along the western boundary of the site and in the north-east and south areas within the red line boundary. These fields are predominantly used for grazing, with some cattle and sheep having been observed and electric fencing for livestock present.

3.2.13 Amenity Grassland (GA2)

This habitat is located in three areas, the south-central area of the site on the banks of the Cavan River and the northern area of the site above the Royal School, Cavan. The southern area for this habitat is a large playing field, it extends down to the banks of the Cavan River and has experienced some previous development works.

3.3 Fauna

3.3.1 Bats

Habitats present on the site i.e. riparian woodland, wet grassland, scrub, extensive treelines and hedgerows and riverine habitat of the Cavan River. These habitats are present throughout the proposed development site as well as along the Cavan River are known to support roosting, foraging and commuting bats. Similarly, hedgerows with trees on site and wooded areas on site and in the wider area are also likely to support roosting, foraging and commuting bats.

The AECOM Bat Activity survey work did not identify any bat roosts on-site, with the bat activity limited to foraging / commuting. A range of bat species were detected. The bat

assemblage identified during this suite of surveys consisted of all species of bat found in Ireland except for lesser horseshoe bat which is generally restricted to the west coast. Soprano pipistrelle, and to a lesser extent common pipistrelle, were the most frequently occurring species recorded across all transect surveys and through static recording. A smaller proportion of Leisler's bat was recorded, while numbers of all other species were significantly lower.

3.3.2 Badger

A badger sett was located along the banks of the small open watercourse running through the centre of the site just south-west of the school gravel playing pitch.

3.3.3 Otter

Several signs of otter presence were identified. This included otter prints, scat and feeding remains. During the survey no otter holts, natal dens or breeding sites were observed within the surrounding area of the proposals. Remote camera monitoring was undertaken between 6th and 20th June 2023 and 29th November and 19th December 2023 which confirmed presence of otter within the river.

3.3.4 Nesting Birds

Grassland, treelines, hedgerows, and scrub provide breeding opportunities for a range of birds. During the site walkovers, various species were observed visually, however most data was gathered through singing male behaviour. Some birds were observed exhibiting nesting/breeding behaviour being observed several bird nests were also identified on site during the April 2023 site walk over.

Most registrations (23 species) recorded during the surveys were of species that were listed as green on the BoCCI scale (Birds of Conservation Concern in Ireland).

7 species are listed as amber: Mallard, Black-headed Gull, Linnet, Skylark, Starling, Lesser Black-backed Gull and Swallow.

1 species is listed as red: Golden Plover. x1 individual was observed flying across site, but not using the site.

In total, 31 bird species were observed on site during the breeding bird surveys. There was x1 species that displayed breeding behaviour: Jackdaw. A nest was identified for this species during the site walkover.

No individuals of any species were observed carrying nesting material during the x4 site visits.

Other species were observed displaying possible breeding behaviour in the form of singing males present in or within close proximity to suitable nesting habitats. These species include: Hooded Crow, Robin, Raven, Song Thrush, Blackbird, Wren, Jackdaw, Sedge Warbler, Woodpigeon, Rook, Blue Tit, Bullfinch, Chaffinch, Great Tit, Dunnock, Blackcap, Magpie.

3.3.5 Pine Marten

During the camera trapping effort in multiple locations on site, pine marten were observed to be using the site. However no confirmed dens were identified. The presence of young kits on the camera trap indicates that a breeding den is on-site or in the nearby vicinity. While adult pine marten can range on average 7km per night this range is likely reduced for a mother with kits.

3.3.6 White Clawed Crayfish

Evidence was found within the Cavan River of white-clawed crayfish, an IUCN Red List “Endangered” species, in the form of their shells after having been presumably preyed upon. White-clawed crayfish are a known prey species for otter, supporting the potential for this species to be present along the river.

3.3.7 Fresh Water Pearl Mussel

Evidence was also observed of live freshwater pearl mussel, an IUCN Red List “Endangered” species, in the Cavan River on site. These are a critically endangered species globally and are highly sensitive to the water quality of their surrounding environment.

3.4 Invasive Species

In Ireland, the presence of invasive American mink populations, originating from fur farm escapes, is well established. Being a member state of the EU and a signatory to various international agreements, Ireland is legally bound to uphold biodiversity conservation

efforts. This entails managing species like mink through control or eradication measures. A national Mink eradication plan is being produced however no finalised details are in place this will likely be a licensed cull. Regional approaches generally involve NPWS on National Parks site or specific LIFE Project sites, with no widespread implementation.

There is anecdotal evidence of mink onsite however not in large enough numbers to warrant further works at this stage. General construction mitigation measures in relation to entrapment of mammals as discussed in Section XYZ are relevant and if a mink is identified onsite the ecological clerk of works should be contacted for further assessment. Any accidentally captured mink should not be re-released without approval from the ecologist.

3.5 Ecological Mitigation Measures

This section of the oCEMP details the mitigation measures specific to ecological protection and enhancement for the construction phase.

3.5.1 General Mitigation

All works will be carried out in accordance with best practice:

- Waste Management Act, 1996
- Guidelines for the Treatment of Otters during the Construction of National Road Schemes (NRA, 2006)
- Control of Water Pollution from Construction Sites (CIRIA C532)

In general, all construction works undertaken on this site should adhere to all relevant UK Guidance for Pollution Prevention (GPPs):

- PPG 1: General guide to the prevention of pollution.
- GPP 2: Above ground oil storage.
- GPP 5: Works and maintenance in or near water.
- GPP 8: Safe storage and disposal of used oils.
- PPG 18: Managing fire water and major spillages.
- GPP 21: Incident response planning.
- GPP 22: Dealing with spills.

-
- GPP 26: Safe storage – drums and intermediate bulk containers.

Management and protection measures for mammals should be implemented prior to works commencing on site, these include:

- No excavations are to be left uncovered or without a means of egress (a sloped plank for example) overnight, as wildlife may fall in or enter in search of food and become trapped.
- No buildings or storage units are to be left open overnight, as wildlife may enter and become trapped.
- No poisonous or potentially harmful substances or materials are to be left unsecured overnight.
- Fuelling of any machinery or the deposition of cement/concrete should not occur within 10m of any waterbody. All refuelling of mobile plant shall take place at the refuelling area within the Construction Compound.
- Portable fuel bowers, stored at the Construction Compound shall be used to refuel any fixed plant (bridge cranes etc) with appropriate spill kit and drip tray controls in place for the refuelling.

If any priority species are discovered or any activity suggesting priority species have been disturbed during construction is observed, all work must cease immediately, and the ecologist should be notified as soon as possible to detail how to proceed.

A competent foreman will be nominated to ensure best practice is followed on site and to oversee all environmental monitoring.

3.5.2 Silt and Sediment Pollution

A detailed Outline Construction Environmental Management Plan has been prepared for construction works on-site. This will include measures such as:-

- Controlled Construction Compounds
- Biosecurity Measures to protect against Invasive Species Importation
- Drainage Management, no direct construction discharge to Cavan River
- Abundant use of Silt Fencing and Silt Traps
- No on-site mixing of concrete

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- No on-site washing out of concrete lorries
 - Bunded fuel Storage
 - Controlled Refuelling Facilities at Construction Compound
 - Spill Kits
 - Plant Nappies
 - Biodegradable Lubricants
 - Minimisation of Fill / Materials Stockpiles
 - Safe Storage of Wastes and Chemicals
 - Designated skips according to waste type (recyclable/non-recyclable/biodegradable)

Silt barrier / silt curtains will be used to prevent site drainage from disturbed areas entering the Cavan River. This will be required in particular for bridge construction works, around cut-fill excavations, around piling works and between the construction area and the river. It is imperative that installation of the silt fences is undertaken correctly and this will be supervised by the construction manager and ECoW. The silt barrier / silt curtain will be shaped and installed so that it will catch runoff, without the water flowing underneath or around the edge. The silt barrier will be located downstream of the works and inspected on a regular basis including during and after rainfall events. Grips, sumps, straw bales and sediment traps will be installed to capture silt where applicable. Each of these will be maintained daily by the contractor to ensure that they remain effective and do not increase the likelihood of an incident occurring.

It is also recommended that a 50m buffer zone be implemented for watercourses applying to the construction compound, refuelling and oil/fuel storage and a 10m buffer for water courses applying to the stockpiling of materials and wastes. . An Environmental Monitoring Plan has been developed specifying a programme of environmental monitoring required for surface water, groundwater and dust during the construction phase.. Plant nappies and spill kits must be available and in working condition on site at all times with toolbox talks provided to ensure site staff are aware of potential risks and how to correctly use these response tools.

3.5.3 Vehicles and machinery pollutants

All refuelling, and washing of vehicles will take place in a designated containment area within the Construction Compounds at least 100m from the Cavan River

With regards to the vehicles and machinery used on site, a spill response plan should be in place, and all employees made aware of it to mitigate impacts of any potential spills or leaks should be in place. Plant nappies and spill kits must be available and in working condition on site at all times with toolbox talks provided to ensure site staff are aware of potential risks and how to correctly use these response tools.

All hydrocarbons, (oils, fuels, and lubricants etc), should be stored in lockable containers of up to 110% capacity to ensure there is a reduced risk of overflow spill and should be stored a minimum of 10m from any waterbodies and/or drains. If more than 200 litres of any oil type are to be stored on site, this must be stored in oil storage containers including drums and intermediate bulk containers (IBCs). If possible, biodegradable lubricants and biodegradable hydraulic oil must be used as these are less toxic than traditional synthetic oils but should still be stored in the same way.

Any solvent materials, such as sealants, coatings, adhesives or glazings can be very toxic to flora and fauna when exposed to the environment. As such, it is recommended that water-based or low-solvent products are used and stored in safe and secure containers. Where temporary diesel or petrol driven pumps are required, they should be located within bunded units.

All waste oils, empty oil containers and other hazardous waste products should be disposed of according to the requirements of the Waste Management Act 1996.

3.5.4 Concrete/cement pollution

All necessary care will be taken regarding the use of concrete on site. Any vehicles carrying this material will not be washed out on site. A bunded area more than 100m from the designated site boundaries will be arranged for the storage of these materials. Site preparation and construction will adhere to best practice and will conform to the publication "Guidelines on Protection of Fisheries During Construction Works in and Adjacent to Waters".

3.5.5 Dust and Air Pollution

A full Dust Management Plan should be developed by the contractor based on the requirements of the oCEMP and implemented which will reduce impacts to a negligible level.

Dust and airborne pollutants may be produced throughout construction phase of this development. It should be ensured that an adequate supply of water is available on site for effective dust suppression with regular wetting of the site to reduce the potential risk of dried dust and debris from becoming airborne, especially during dry periods of weather.

Where earthworks will be leaving exposed soil for long periods, particularly in dry conditions measures such as use of Hessian, mulches or trackifiers where it is not possible to re-vegetate or cover with topsoil, as soon as practicable should be implemented.

Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport and implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site where reasonably practicable).

3.5.6 Construction and Translocation of Wildlife Habitat

Inclusion of the habitat compensation planting and translocation areas within Phase 1 of the development programme ensures a maximum chance of more mature established vegetation being present prior to full operational phase of the development and provides suitable screening habitat for disturbance sensitive species to acclimatise.

Existing habitats within the Phase 2 areas of the development will be retained and protected, with appropriate fencing, throughout Phase 1 of construction, ensuring ongoing provision of commuting and foraging habitat for local fauna throughout this period, whilst compensatory habitats are establishing.

3.5.7 Biosecurity

To ensure biosecurity on site and reduce the spread of the invasive species throughout the site and on to other sites the following measures are to be implemented:

Invasive Species (Plants, Bivalves and Crayfish Plague) Construction Phase

- Before any piece of construction 'machinery' including crane or mobile machinery / plant, (excavators, rollers, dumpers, tele-handlers etc.) is delivered to the site, the Ecological Clerk of Works shall be provided documentation providing details of all sites close to or involving works in water that the machinery has been working on or stored on in the last 60 days.
- The Ecological Clerk of Works may consider the need for additional biosecurity measures, such as quarantining or pre-delivery disinfection, for any high risk machinery that has recently involved in in-river works.
- Biosecurity Process for machinery arriving or leaving the site during the construction phase with regard to invasive plant and invasive bivalve species is as follows:-
 - On arrival at or departure from the site, **ALL** construction machinery and for delivery vehicles travelling within the site beyond the Construction Compounds / delivery bay should be visually inspected and disinfected in the self-contained biosecurity washing area of the Construction Compounds.
 - The disinfection process shall involve dosing of the exterior of the machinery with a diluted solution of 1% Vircon Aquatic solution or an approved alternative.
 - The machinery should then be power-hosed with water of 60 °C + to remove disinfection solutions and any invasive species debris and any residual treated clams / eggs which may be present, followed by a final off-site visual inspection.
 - The treatment and inspection of machinery shall be overseen and approved by a qualified ecological Clerk of Works, including verification records to confirm completion of the disinfection for each piece of machinery, including any replacement / standby units intended to be used on the project. Records shall be retained for inspection by the client's representatives.
 - Sludge from the self-contained biosecurity facility shall be routinely (on at least a weekly basis) removed from the washing area and transferred to a water-tight covered skip for storage, awaiting off-site disposal to an appropriately licensed landfill site for deep burial.

Mitigation Measures Invasive Species (Plants only) Construction Phase

- The Ecological Clerk of Works shall be responsible for the monitoring of biosecurity onsite. These responsibilities include site management, restrict personal and movement to designated areas, restrict access to site, clean maintain PPE, equipment and plant machinery.
- Plant machinery will remain on site in restricted area until excavation, and replacement to the containment area have been completed.
- Plant machinery to be thoroughly cleaned down upon completion of works including tracks, tyres, buckets, trailers etc and material place in the containment area.
- PPE especially boots to be deep clean and any material placed in containment area.
- Cleaning of Plant Machinery and PPE will be overseen and undertaken by onsite Invasive Species supervisor who will instruct if the plant and personal are safe to leave.

3.6 Bats and Lighting

The construction phase development will involve some use of portable health & safety lighting for the construction compounds, haul roads and working areas. The construction phase therefore has the potential to impact on foraging bats due to light spill / impact on foraging and commuting behaviours. No bat roosts were identified, however, there remains the potential for a bat roost to be identified in a tree or other natural structure within the development site prior to construction commencing.

The following mitigation measures apply to the construction phase:-

- Early implementation of wildlife habitat creation works to ensure these areas in the west of the site and along the Cavan River corridor are established as best possible for compensatory and enhanced foraging / roost potential.
- Undertake pre-tree felling surveys on all affected trees, with associated bat exclusion and relocation works undertaken prior to the main phase of construction works commencing.
- Early deployment of compensatory bat boxes / artificial roosts in retained trees and suitable structures outside the main construction areas.

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- Construction lighting, particularly floodlighting, must be minimised wherever possible in terms of number of lights and particularly in terms the power of the lights (lux level).
 - LED lighting should be used where possible, and metal halide compact fluorescent sources should not be used.
 - Light spill must be minimised on retained or created habitat features (e.g., treelines, hedgerows, woodland and in proximity to the Cavan River Zone).
 - Directional lighting, facing away from surrounding vegetation should be used. This avoidance is particularly relevant to other mature trees on or adjacent to the site. Accessories such as baffles, hoods, or louvres can be used to further reduce light spill and direct light only where it is required.
 - A warm white light source (2700 Kelvin or lower) should be adopted to reduce blue light component.
 - Light sources should feature peak wavelengths higher than 550nm to avoid the component of light most disturbing to bats.
 - During construction lighting must be turned off when not in use except to meet the minimum requirements for Health and Safety.
 - If required, security lighting should be set on motion-sensors and short timers (e.g. one minute).

During consultation NPWS did not provide specific maximum lux levels, however suggested that best practice guidance was adhered to (1LUX) and encouraged the use of red wildlife lighting in sensitive areas where artificial lighting could not be avoided. Lighting plans show some exceptions of the 1Lux limit along the river corridor, which should be minimised where possible with additional screening. It should also be noted that these plans do not take into account the mitigating aspects of the site topography and proposed planting, and in effect show a “worst case” assumption lighting impacts.

3.7 Birds

The habitats that are found on this site provide opportunities for foraging and nesting due to the presence of scrub, hedgerow and mature trees throughout the site. As such development works on site and any removal of such habitats would be considered to have negative impact on bird species, and so will need appropriate mitigation measures to minimise these potential impacts.

A Golden Plover was observed flying across site during the June survey. No specific mitigation is needed on site for this species as it was not observed using the site only flying by. Golden plovers are declining in Ireland and are a more habitat specialist, and so may feel greater impacts of habitat removal on/around the site. Therefore, enhancement of habitat (already in plans to plant trees around the site) is recommended so the site can sustain high levels of biodiversity.

A jackdaw nest was observed during the surveys. If any scrub or trees to be removed in the area that this nest was identified, then an ecologist will need to do a pre-check of the habitat so that no nests or birds are damaged/destroyed. As for mitigation, the on-site plans to plant native trees along the boundaries of the site will provide sufficient habitat for jackdaws as they are a widespread generalist species, and so will be less sensitive to any on-site impacts.

The habitats that are found on this site provide opportunities for foraging and nesting due to the presence of scrub, hedgerow and mature trees throughout the site. As such development works on site and any removal of such habitats would be considered to have negative impact on bird species, and so will need appropriate mitigation measures to minimise these potential impacts.

- Any scrub clearance and tree felling works should be kept to a minimum and undertaken outside of the breeding season (1st March – 31st August inclusive).
- **Should** clearance of scrub/hedgerow's **during** the breeding season be required, this **must** be undertaken under the supervision of a qualified ecologist and appropriate surveys undertaken prior to any scrub clearance i.e. pre-working nest inspection/breeding bird survey to ensure no active nests are present.

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- Any vegetation which is removed prior to the bird breeding season should be removed from the site completely, in order to prevent birds along with other species using stored debris as nesting/resting sites.
 - A large wooded and planted-up wildlife compensation area is proposed as part of the development, located within the western area of the site and along the western bank of the Cavan River within the site.
 - Translocation of mature flora from the drainage ditch running centrally through the site into the compensation area is proposed to re-use as much of the existing trees and wildlife resource as possible. A riparian corridor along the western bank of the Cavan River is also proposed and this will also enhance the bird habitat within the developed site.
 - A minimum total of c50 No. generic bird boxes / nesting boxes will be installed within the wildlife compensation area.
 - A minimum total of c50 No. generic bird boxes / nesting boxes will be installed within the Cavan River corridor.
 - A minimum total of c50 No. generic bird boxes / nesting boxes will also be installed in retained mature trees within the development site.

Trees, hedgerows and scrub are of importance to breeding and nesting birds and so the removal of hedgerows, trees and scrub during the breeding season will negatively impact upon nesting birds due to the abundant presence and activity of birds during the breeding season.

There are plans to plant new native tree species along a large majority of the site boundary and across the site within the current site plans, along with keeping many existing trees where possible. Planting a mix of native species across the site such as conifer species, willow, hawthorn will provide habitat, shelter and food for the bird species using the site. This will help enhance the overall biodiversity within the site.

3.8 Otter

Otters and their holts are strictly protected under Irish legislation. Therefore, it is an offence to deliberately capture, injury or kill otters, disturb them or their holts, damage or destroy holts or impair their ability to hibernate or migrate as well as breeding sites.

No evidence of holts, breeding or otherwise, was recorded during the otter surveys within the site. The absence of holts and couches onsite greatly reduces the risk of impacts to the local otter populations. The site is considered to be used by commuting and foraging otter, with moderate levels of activity identified during the surveys.

The proposed development has been designed in close liaison with the ecology team and mitigation for otter presence has been built into the site design. The majority of the site works are proposed in habitats of limited suitability for otter (open pasture). Boundary vegetation is to be retained, including areas of woodland adjacent to the Cavan River. A works exclusion buffer for the river is to be implemented, lessening the impacts on this habitat.

However, proposals incorporate building a vehicle bridge across the Cavan River. As such without mitigation there are construction phase risks of:

- damage of or disturbance to resting sites;
- loss of commuting or foraging habitat;
- direct mortality

and operational phase risks of:

- Lighting
- Recreational disturbance

There is no predicted loss of holts or resting places through this development, but there is potential for the degradation and disturbance of commuting routes and foraging habitat, as well as potential for the water quality of the Cavan River to be affected.

An updated survey for otter presence should be undertaken prior to commencement of development works to ascertain whether new holts have been created in the interim period. The following mitigation measures are considered sufficient for the level of impacts envisaged by the proposals.

Provision of measures to prevent the release of sediment during the construction work will be installed prior to the commencement of site clearance. Protective measures may include but are not limited to:

- The use of silt fences and sedimentation mats.
- Provision of exclusion zones and barriers (sediment fences) between earthworks, stockpiles and temporary surfaces will be enacted to prevent sediment washing into the receiving water environment.
- Temporary construction surface drainage and sediment control measures will be in place before earthworks commence.
- If pouring of cementitious materials is required for the works adjacent to the watercourses, this will be carried out in the dry.
- If dewatering is required, water will be treated prior to discharge to the existing watercourse. This will include treatment for silt removal either via silt trap, settlement tanks or ponds.
- There will be no direct pumping of contaminated water from the works to the surface water drainage/stream network at any time.
- Foul drainage from site offices and compounds, where not directed to the existing wastewater network, will be contained and disposed of off-site in an appropriate manner and in accordance with the relevant statutory regulations, to prevent the pollution of watercourses.

During the construction phase of the development, all machinery should be appropriately cordoned off at the end of each working day. A suitable method of egress, such as a plank, from any open pits or holes created during this phase should be placed to prevent otter from becoming trapped on site. All construction work should also be limited to daylight hours to reduce the levels of disturbance.

During the construction phase, general management and protection measures should be implemented prior to works commencing on site, these include:

- The use of noisy machinery should cease at least 2 hours before sunset.
- There shall be no on-site mixing of concrete / cement or similar dusty materials. There shall be no on-site washing out of cement or concrete lorries or similar washings.

-
- Security lighting should be directed away from identified mammal trails and denning sites.
 - An adequate supply of water should be made available on site for effective dust suppression.
 - Any exposed open pipe systems must be capped to prevent otter access.
 - No excavations are to be left uncovered or without a means of egress (a sloped plank for example) overnight, as otter may fall in or enter in search of food and become trapped.
 - No buildings or storage units are to be left open overnight, as otter may enter and become trapped.
 - No poisonous or potentially harmful substances or materials are to be left unsecured overnight.
 - Chemicals and fuels should be stored as far from the Cavan River corridor as possible.
 - Special care should be given to protect water sources, as these are likely to be utilized by otter.
 - A minimum 10m buffer should be implemented around the watercourse.
 - Construction Lighting to be kept to a minimum. Lamps should be positioned to direct light to avoid upward spill onto any green corridors/river corridor that could be used by commuting otter.

3.9 Badgers

The badger survey determined that badgers are active within the site, with a breeding sett onsite. Despite the relatively small size of the onsite sett, in absence of a larger main sett being identified locally, it is considered that the onsite sett should be assumed to be a main sett and mitigated accordingly. This precautionary approach will ensure that appropriate levels of mitigation and compensation are put in place. As the sett is located within the central development zone, without appropriate mitigation and compensation there is a risk of impacts to the local badger population.

3.9.1 Sett Closure and Artificial Sett Provision

Due to the location of the sett within the centre of the proposed development it is not considered feasible to retain the sett and appropriate exclusion zone. As such it is proposed that the sett is to be closed, under guidance from NPWS, and a replacement, artificial sett to be built within a habitat compensation zone in the west of the site. This habitat compensation zone has been carefully designed to ensure ongoing site connectivity for foraging and commuting badgers, as well as providing a replacement sett. This relocation is also considered to “future proof” the sett location. Its existing location is immediately adjacent to a small stream which could be subject to flooding in high flow instances. By relocating the sett, it is considered to be within a more suitable location long term.

These works are to form part of the Phase 1 development works and are to be completed simultaneously with the Phase 1 construction works.

Sett closure will be undertaken following guidance from NPWS and in accordance with all appropriate best practice guidance (NRA, 2006). Artificial sett creation will also be conducted following guidance from NPWS and best practice guidance such as “Guidance for the creation of artificial setts” (NatureScot, 2018), NRA Guidelines (2006) and those published by Badger Trust, 2023.

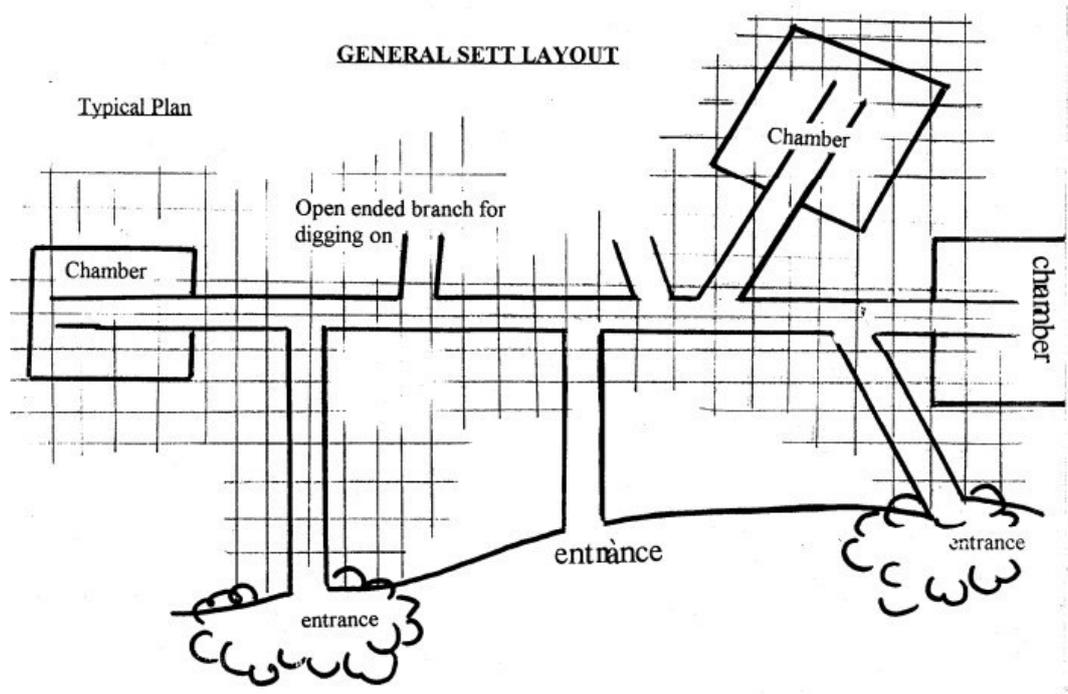
3.9.2 Artificial Sett Creation

A General Layout for the proposed Artificial Sett is provided as **Figure 4**. The new sett location has been proposed due to its relative proximity to the existing sett and maintenance of the social group territory. Due to the close proximity of the proposed location, it is not considered necessary to undertake territorial bait marking surveys. Size of the artificial sett is proposed to be similar to the existing, with three entrance holes leading to three artificial chambers. A 30m exclusion buffer from the new sett is also designed within the habitat compensation area.

Artificial sett creation must take place under the supervision and guidance of an appropriately qualified and experienced ecologist and regular communication with NPWS. This must be well-constructed and placed in a suitable area, as outlined below. Artificial sett design will be broadly similar to that indicated in the figure below, with three entrance holes,

and three artificial chambers, with further open ended tunnels for further digging on by badgers.

Figure 4 General Layout - Artificial Badger Set (NatureScotland, 2018)



Construction

Artificial setts must adhere to very specific guidelines to increase the chances of occupation by badgers:

- Build the sett at the top of a slope for good drainage. The base of the sett in clay or non-porous soil should slope slightly downhill. Tunnels should slope away from chambers.
- Include at least 3 exit holes, one of which is higher for ventilation. This higher pipe should have a bend in it at the exit to prevent rain from entering.
- Build the sett as close as possible to the original one in a quiet location, but at least 100m from the proposed earth works.
- The new sett should have an adequate number of chambers and tunnels to replicate the bulk of the natural sett it is replacing.
- Use pipes of 30 cm in diameter. Where joins leave gaps, exterior grade ply should be placed over to prevent infill. Plastic pipes are best cut lengthways to form an arch

over an earth floor. If this method is selected, 60cm pipes should be used to maintain the required 30cm height of created tunnels.

- Leave open ends of pipes facing an earth bank (as well as leading to chambers) so that the badgers can extend the sett for themselves.
- The chambers should be at least 35 cm high and about 90cm by 60cm in size.
- Cover the sett with steel mesh (to deter illegal badger diggers) and then with about a metre depth of soil covering the sett.
- Include a 30m exclusion zone around the sett in all cases, 100m in the case of significant earth works.
- Plant scrub cover plants around the sett.
- Any licence application should include a simple and clear plan of the sett including dimensions and a site plan with dimensions including elevation to show slope.

3.9.3 Sett Closure

Sett closure is to be undertaking following best practice guidelines from National Roads Agency and DAERA guidelines, under guidance from NPWS. Once the new sett has been created and it is confirmed that badgers have adapted and utilised the new structure, exclusion and removal of the old sett can be undertaken.

The badger exclusion will be achieved using one-way badger gates installed at the sett entrances. A strong wire mesh is to be installed over the substrate surface of the sett entrances to prevent badgers from creating new tunnel entrances or re-entering the sett. The gates only open outwards allowing badgers to exit but not re-enter the sett.

- The sett exclusion process can only take place between July 1st and November 31st as this is outside of the badger breeding season.
- The exclusion mesh and one way badger gates will be installed by hand to minimise disturbance around the setts.
- The exclusion process will be initiated by first installing the gates which are fitted in a two-way position to allow badgers to move in and out of the sett freely, thus becoming used to this new feature.
- After three days the gate will be set to a one-way operation so that badgers can only leave the sett and not re-enter.

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- Wire fencing will also be fitted to cover the extent of the sett, preventing the creation of new tunnels or re-entry of the badger once they have been excluded.
 - The movement of the badgers can then be monitored by placing sticks immediately inside the gate and by erecting camera traps within the area as well as placing sand at the gates and excluded sett entrances to check for tracks. Once no movement has been recorded over a three-week period work can commence.

An ecologist will be employed to supervise the installation and exclusion with regular monitoring. Once the proposed sett exclusion is complete works can commence.

3.9.4 Timing

To ensure ongoing provision for the badger clan, the artificial sett must be completed at least 6 months prior to the exclusion and destruction of the existing sett. Due to the sett classification as breeding/main sett, this exclusion should be undertaken between June and the end of November. Badgers can be encouraged to colonise the new sett with baiting with sweetened peanuts and transfer of bedding and spoil from the existing sett. Under best practice guidelines the new sett should be occupied for 6 months prior to exclusion and destruction of the existing sett.

Mitigation has been designed and will be implemented in accordance with the proposed construction phasing plans, Appendix 4, leaving as much area undisturbed for as long as possible and implementing wildlife compensation as soon as possible. These measures will ensure maximum habitat cover throughout the construction phase.

Temporary mammal exclusion fencing will be installed around the Construction Compounds and construction working areas. An Ecological Clerk of Works will be present across all phases of the construction where required to safeguard protected species onsite and ensure implementation of appropriate mitigation and precautions.

Phase One is expected to be undertaken between Q2 of 2025 and Q3 2026 and will incorporate construction of wildlife habitat creation area, riparian planting adjacent River Cavan, Dublin Road access and River Cavan bridge construction as well as the main arena, hockey pitch, plus 2 sand mattress GAA Fields and two car parks. Construction of the artificial badger sett will also be undertaken in Phase 1, or in advance, pending planning conditions.

This sett should be in use for 6 months prior to the exclusion and destruction of the existing badger sett, anticipated within Phase 1.

Phase 2 is expected to be undertaken between Q4 2027 and Q4 2029 and include construction of a further sports building, athletics track and two further sand mattress GAA Fields.

Inclusion of the habitat compensation planting areas within Phase 1 ensures a maximum chance of more mature established vegetation being present prior to full operational phase of the development and provides suitable screening habitat for disturbance sensitive species to acclimatise.

Existing habitats within the Phase 2 areas of the site will be retained and protected, with appropriate fencing, throughout Phase 1 of construction, ensuring ongoing provision of commuting and foraging habitat for local fauna throughout this period, whilst compensatory habitats are establishing.

3.9.5 Ecological Clerk of Works (ECOW)

An Ecological Clerk of Works shall be appointed prior to development. This will ensure any works required to prepare the site can be appropriately timed and can obtain the required licences in due course. The clerk will work closely with the site foreperson and will report to the construction manager.

The ECoW's responsibilities will include, but not be limited to, the following:

- Provide toolbox talks to staff site to ensure they are aware of the ecological constraints to the works at the site.
- Provide a main point of contact for any ecological issues occurring on site.
- Monitor the mitigation measures and update the mitigation plan as required.
- Conduct monitoring at the site to ensure that the ecological baseline information for the site is up to date throughout the construction phase.
- Approval of closure methodology by relevant authorities
- Supervision of sett destruction.

The ECoW should also maintain a record of all site visits undertaken to include the following:

- Purpose of the site visit.
- Date and weather conditions.
- Summary of works undertaken.
- A photographic record.

3.9.6 Monitoring

The ECoW will need to conduct a site walk over prior to the application to monitor any change in ecological conditions i.e. badger activity. The setts should be monitored closely prior to closure using camera traps and site visits.

Any hedgerows or scrub to be cleared during bird breeding season will need to be monitored for nesting birds.

3.9.7 Habitat Compensation

A detailed drawing of the proposed habitat enhancements is shown in Appendix 2. A minimum of 30m buffer is to be provided around the newly created sett, to avoid disturbance impacts during construction of the proposals. In addition to this an area of high quality foraging habitat is to be created along the western boundary of the site, with other areas of grassland also present within the site.

A species rich grassland mix comprising 80% grass and 20% wildflower will be sown in the main habitat compensation area. A detailed habitat management plan should be prepared giving full management details; however in summary, this grassland should be subject to a reduced mowing regime, with any arisings being removed from the habitat.

Scrub and tree planting will also be carried out in this area to provide visual and physical protection for the badger sett. Use of fruit and nut bearing species is proposed to provide a further foraging resource for badgers within the site. Species such as rowan, elder, hawthorn, blackthorn, hazel and oak are recommended.

Vermicides (chemical treatment for earthworms) should not be used anywhere within the development, as earthworms are a valuable foraging resource for badger.

A commuting corridor to maintain connectivity east-west within the site is also proposed, which will allow for continued linkage between the new sett and the riparian woodland corridor at the Cavan River. This corridor will be sympathetically planted with a mosaic of meadow grassland native shrubs including gorse, hawthorn and blackthorn.

A badger underpass is proposed to allow for connectivity under the proposed roads. This should be designed in accordance with NRA Guidance (2006), comprising a 600mm concrete pipe, with guidance mesh fencing installed to prevent direct access onto the road. Further native planting should be undertaken at the entrances and exits to encourage use by badger.

3.9.8 Lighting and Acoustic Mitigation

At this time no full site lighting plan showing predicted lux levels has been produced, although general advice has been provided by the consultant ecologist. In accordance with this, it is recommended that the lighting scheme is sympathetic to nocturnal fauna such as badger. Screening tree and shrub planting should be undertaken between the habitat compensation area/replacement sett and any pitches to reduce light spill on this area.

In the absence of specific badger lighting guidance, sensitive lighting on site should follow the guidance set out in Bats and Lighting in the UK (BCT and ILP, 2018). Therefore, associated site lighting proposals must consider the following:

- Avoid lighting where possible in woodland areas and adjacent to habitat compensation areas.
- Install lamps and the lowest permissible density; (waist high bollards).
- Lamps should be positioned to direct light to avoid upward spill onto the replacement sett area and any green corridors that could be used by commuting and foraging badgers.
- LED lighting – with no/low UV component is recommended.
- Lights with a warm colour temperature – 3000K or 2700K have significantly less impact on fauna.
- Light sources that peak higher than 550nm also reduce impacts to fauna.
- The use of timers and dimmers to avoid lighting areas of the site all night is recommended.

As part of the general acoustic mitigation for the development, it is envisaged that acoustic fencing will be required on the western side of the proposed pitches. This will be a minimum of 3m in height and is required to be full, closed board fencing. Where this fencing is proposed and considered to form a barrier to dispersal for badger and other mammals there will be a requirement for mammal passes to be installed at the base of the fence and should have a width of approximately 300m. This will allow ongoing commuting links for onsite badgers, whilst still providing required acoustic mitigation.

3.9.9 Construction Mitigation

In addition to the above detailed mitigation for sett relocation, a number of best practices should be followed throughout the construction period, to avoid impacts to transient badgers, these include:

- A check of the working area prior to commencement each day. If any fresh digging or evidence of badger presence is identified all works should cease immediately and the consulting ecologist be notified.
- The use of noisy machinery should cease at least 2 hours before sunset.
- Security lighting should be directed away from identified mature vegetation and the river.
- An adequate supply of water should be made available on site for effective dust suppression.
- Any exposed open pipe systems must be capped to prevent badger access.
- No excavations are to be left uncovered or without a means of egress (a sloped plank for example) overnight, as badgers may fall in or enter in search of food and become trapped.
- No buildings or storage units are to be left open overnight, as badgers may enter and become trapped.
- No poisonous or potentially harmful substances or materials are to be left unsecured overnight.
- Chemicals should be stored as far from trails, mature vegetation, and the river as possible.
- Special care should be given to protect water sources, as these are likely to be utilized by badgers.

The bridge construction works are considered beyond the zone of impact for the badger setts, however as further mitigation the piling design works for the bridge landing sites have been outlined as requiring CFA Piling for ecological protection reasons and CFA or other low vibration piling technique for the wider site to minimise impact.

3.10 Aquatic Ecology

The Cavan River contains an assemblage of protected aquatic species including freshwater pearl mussel and white clawed crayfish, with abundant trout also present. Mitigation measure to protect this aquatic biodiversity for the construction phase are as follows:-

- a soft start approach be implemented when the use and starting of heavy machinery is required. The soft-start methodology will be required every time machinery is started following a 30-minute rest period. Once machinery is in full operation associated noise and vibration will keep fish outside of the area of influence allowing them time to leave the area of disturbance.
- All bridge construction, in-river piling, riverbank piling and all piling works within the SAC for both Lifford and Strabane sites must be carried out between May and September must be carried out between May and September. This has been agreed in order to time works to occur before the salmon run begins in autumn, and to avoid impacting on the migrating salmon during the construction phase of the development.
- a minimum of 10m distance should be retained as a buffer between the proposed development and the surrounding water courses to reduce any potential impact.
- Should for any reason, oil or fuel be stored in the area, it must be kept in a bunded area (providing 110% capacity of the largest stored unit), at least 10m away from any minor or other watercourse ditch or drainage channel.
- Refuelling should be place on a hardstanding area, at least 10m away from any minor or other watercourse, ditch or drainage channel.
- No lights from the site compound are to be directed at the river. All lighting, with the exception of safety lighting, should be directed away from the water surface and should be switched off at night once works have stopped.
- The use of silt traps and or curtains is required in order to trap any silt generated despite measures to attempt to reduce its production. It is essential that silt

containment measures used are free flowing to avoid the accidental capture and death of fish. These traps should also be inspected on a regular basis to ensure no fish are trapped within them and to ensure they are working correctly.

- Plant nappies and spill kits must be available and in working condition on site at all times with toolbox talks provided to ensure site staff are aware of potential risks and how to correctly use these response tools.

Detailed aquatic surveys are to be undertaken in Spring/Summer 2024, the results of which will inform further mitigation requirements to be detailed in a Final CEMP, post planning, prior to work commencement. Should crayfish or mussel be recorded directly within the working area for the bridge construction, then a licensed translocation during the works period may be required, in liaison with NPWS and Inland Fisheries.

3.11 Ecological Clerk of Works

An Ecological Clerk of Works (ECoW) will be employed to provide advice both pre-construction and during construction in relation to relevant international and national legislation relating to the protection of ecological receptors; to provide advice on the timing of works and the implementation of mitigation measures; to apply for relevant derogation licences; to monitor identified works; and to produce site inspection reports.

In accordance with BS 42020:2013 Biodiversity, an ECoW is a person who has the ecological qualifications, training, skills and relevant experience to undertake appropriate monitoring and to provide specialist advice to site personnel on the necessary working practices required to safeguard ecological features on site and to aid compliance with any consents and relevant wildlife legislation (BSI 2013). There may be more than one ECoW required depending on the specialist advice required throughout the project.

An Ecological Clerk of Works must be in place to carry out regular site inspections and be in attendance on a full time basis during site works near to buffer zones for protected species and within the SAC.

3.12 Seasonal Constraints

Based on the various ecological constraints to the construction works, and to ensure optimal management for invasive plant species, the following seasonal constraints will apply for the construction phase.

Seasonal Constraints for Construction and Associated Works

	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
In river works (If crayfish presence confirmed)	Red	Red	Red	Green	Red	Red	Green	Green	Green	Green	Red	Red
Tree and shrub clearance (Birds)	Green	Green	Red	Red	Red	Red	Red	Red	Green	Green	Green	Green
Tree and shrub clearance (Bats)	Green	Green	Red	Red	Red	Red	Red	Red	Green	Green	Green	Green
Tree and shrub clearance (Pine marten)	Green	Green	Red	Red	Red	Red	Red	Red	Green	Green	Green	Green
Badger Sett Creation	Green											
Badger Sett exclusion	Red	Red	Red	Red	Red	Red	Green	Green	Green	Green	Green	Red

Red: Exclusion Period
Green: Approved Period

4.0 ENVIRONMENTAL IMPACTS

4.1 Soils and Waters

The development will involve significant land reprofiling, which will be achieved by a programme of cut-fill operations during Phase 1 and Phase 2. The cut-fill plans are presented in **Appendix 2** and will result in a total of 223,402m³ of materials being cut and 222,270m³ of materials being reused as fill materials within the development. In line with a sustainable earthworks strategy, only a small quantity of material, amounting to 1,301m³ will need to be removed from the site for authorised off-site re-use or landfill disposal.

The Hydrogeological Impact Assessment demonstrates that the cut-fill is not likely to intersect the bedrock or come near to rockhead. The Sections also demonstrate that the cut-fill works should not encounter shallow groundwater during the construction phase, nor is the cut-fill works likely to impact on groundwater flow patterns or recharge patterns, since no construction phase or operational phase groundwater control is likely to be required.

There are no significant cut-fill works planned for the access road area of the site. Therefore, the risk of liberation of pollutants from made ground is considered to be low.

The results of the site investigation indicate that all of the cut-fill operations will be within the clay-rich natural drift deposits within the site. No bedrock excavation, rock hammering or blasting shall be required. Piling works associated with the construction of the access bridge and a number of the main buildings will involve CFA piles down to the top of the Limestone bedrock. Some limited directional drilling, again within the underlying drift deposits may also be required for the installation of new sewers.

It is not anticipated that any significant quantities / volumes of groundwater will be encountered during the cut fill works and site reprofiling. Site Investigation records show the presence of some shallow groundwater within the drift, but since these are clay-rich materials, the volume of groundwater which may need temporary dewatering control is expected to be minimal.

It will be necessary to culvert a small watercourse flowing from north to south through the site. Catchment mapping indicates that this is a small, spring fed watercourse with a very limited catchment outside the site. The watercourse can be captured where it enters the site, and diverted into temporary above ground pipework discharging to the Cavan River to

allow for the culverting works to be undertaken. This will reduce the risk of silt and other construction-related pollutants entering this watercourse during the works.

A Piling Risk Assessment has been prepared to consider the potential risks to the waters environments from piling works. This is presented in Appendix 9-8 of the EIAr and the findings are summarised as follows:

At the time of reporting the piling design works for the bridge landing sites have been outlined as requiring CFA Piling for ecological protection reasons.

Overall, the risk assessment has concluded a low risk associated with the use of permanently installed CFA piles as the foundation solution.

CFA piling solution would appear to be good practice and an appropriately conservative approach in terms of ensuring protection of groundwaters, surface waters and local ecological receptors. The CFA Pile method, being a low vibration option, also provides adequate protection for ecological purposes.

4.1.1 Ground Gas

Ground gas data was collected at SBH01 to SBH25 on 16th February, 20th February, 26th February and 1 March 2024. During the monitoring period, atmospheric pressure ranged from 988mb to 1021mb across falling, rising and constant pressures. Review of the gas monitoring data identifies that Carbon Dioxide was not detected on site. A minimal concentration of Methane at 0.1%vol was detected across all monitoring rounds of the site with the same 0.1% detection for LEL. Steady flow was measured between 0.2-0.3l/h across all monitoring points on site with Oxygen levels remaining between 21.0% and 21.3%. The site has been classified as CS1 Very Low Risk as all Hazardous Gas Flow rates were <0.07l/hr. Therefore, no ground gas mitigation measures are required. There would be no risks to construction workers during the construction phase regarding ground gas inhalation. No explosive levels of ground gas were detected. Entering excavations and confined spaces during earthworks would not pose a risk from a ground gas perspective.

4.1.2 Land Quality

The Generic Quantitative Risk Assessment (GQRA) was informed by an intrusive investigation consisting of 25no. boreholes, the collection of 29no. soil samples, 10no. groundwater samples, 6no. surface water samples and collection of ground gas data from 25no. locations across four monitoring rounds.

The data collected during the investigation indicates that there was limited Made Ground across the site. The Made Ground was generally underlain by natural gravelly Clay. There were no exceedances detected in the underlying soils. There are no environmentally significant concerns in relation to groundwaters and surface waters. Regarding ground gas, the site is classified as CS1 Very Low Risk and therefore, no ground gas protection measures are required. Construction workers are unlikely to come into contact with contaminated soils, groundwaters or surface waters.

4.1.3 Flood Risk

OPW CFRAM data indicates parts of the site are affected by fluvial flooding from the Cavan River and a tributary stream. The application site and proposed development have therefore been subject to a detailed Stage 3 Site Specific Flood Risk Assessment (SSFRA) to better define flood risk to the land and to assess flood risk to and as a result of the proposed development. To inform the SSFRA, A detailed fluvial flood model was developed that is intended to supersede flood outlines shown on OPW CFRAM data.

The assessment indicates that low lying parts of the site are affected by 1% Annual Equivalent Probability (AEP) / Q100 and 0.1% AEP / Q1000 floodplains from the Cavan River. Parts of the site are therefore in Flood Zone A and Flood Zone B. No other flood mechanism is predicted to significantly affect the site.

The nature of the development as use of the land for outdoor recreation is deemed Water Compatible in line with OPW Planning Guidelines for The Planning System and Flood Risk Management, and so is suitable in Flood Zone A. The nature of the development comprises ancillary land uses which are deemed “less vulnerable”. The proposed development has adopted the approach of substitution to ensure that, wherever possible, less vulnerable land uses are sited in areas of least risk (Flood Zone C).

The proposed development includes a proposed bridge crossing of the Cavan River, and land raising in Flood Zones A and B, the cumulative effect of which has been assessed by detailed flood modelling. The detailed assessment determined that there will be no unacceptable effect to flooding on land elsewhere because of the proposed development.

Proposed development levels have been sited to ensure that key areas of the proposed development are not at risk of flooding, including for the effect of climate change. All new built development and grass pitches are resilient to flooding to a minimum of the 1% AEP / Q100 climate change flood, including freeboard. Aspects of the development at higher risk of flooding comprise a riverside walkway where the flood risk is inherent to its location and intended use, and the use of an access via an existing bridge to Breffni Park carpark. Where development is at risk of flooding, mitigation is proposed in the form of selection of flood resilient palettes of materials and construction methods, and a Flood Management Plan to manage risk to site users, to mitigate risk to an acceptable level.

4.1.4 Mitigation Measures Applicable

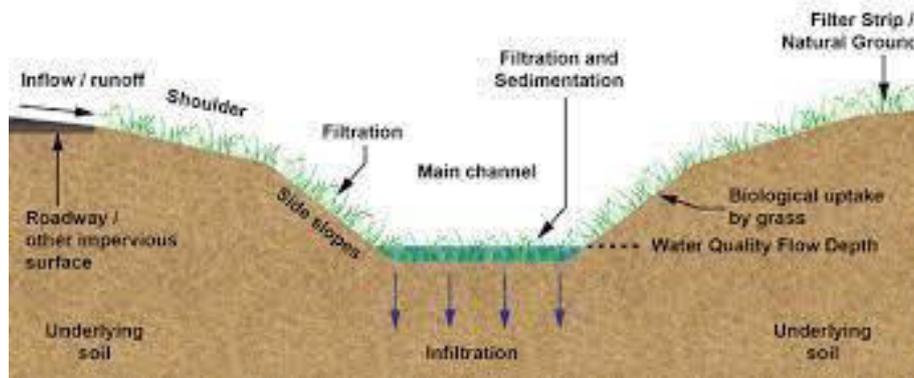
The following section details the mitigation measures applicable to protect the soils and waters environments during the construction phases:

- Pollution Prevention Plan to be prepared prior to the commencement of works.
- Emergency Response Plan to be implemented following spillage events.
- Pluvial flooding management.
- Good stockpile management to prevent erosion.
- Ground surface management to prevent erosion after vegetation/topsoil clearance and during vegetation colonisation following placement of landscaped features.
- Buffer zones of 10m around water courses for stockpiling.
- Silt and pollution management measures shall be as follows:-
 - Appropriate storage of stockpiled piling wastes, 10m from nearest watercourses.
 - Concrete pouring near or in watercourses to be within protective barriers to prevent dispersion.
 - Silt fencing to be deployed between piling excavations and the nearest watercourse.
 - No site runoff from working areas should enter the watercourse directly.

-
- Temporary SuDS systems such as swale collection trenches, infiltration trenches / sumps should be used to control surface water runoff.
 - The use of quick setting cements, grout and concrete for use near watercourses
 - Fuels and chemicals to be stored within bunded areas with at least 110% storage volume and at least 10m away from any minor watercourse, ditch or drainage channels.
 - Spillage kits to be immediately available in working areas.
 - Stationary plant to be fitted with drip tray that are regularly emptied or stored within bunded area on an impermeable surface.
 - Vehicles / piling equipment to be regularly inspected and maintained.
 - The use of quick setting cements, grout and concrete for use near watercourses
 - Concrete pouring near or in watercourses to be within protective barriers to prevent dispersion.
 - Fuels and chemicals to be stored within bunded areas with at least 110% storage volume and at least 10m away from any minor watercourse, ditch or drainage channel.
 - Spillage kits to be immediately available in working areas.
 - Stationary plant to be fitted with drip tray that are regularly emptied or stored within bunded area on an impermeable surface.
 - Vehicles to be regularly inspected and maintained.
 - On-site Personnel training.
 - Obtain relevant consents for all proposed environmental discharges and in-river works.
 - Undertake environmental monitoring at sensitive site boundaries for deposited dust.
 - Undertake environmental monitoring for surface waters and groundwaters in accordance with the outline Environmental Monitoring Programme.

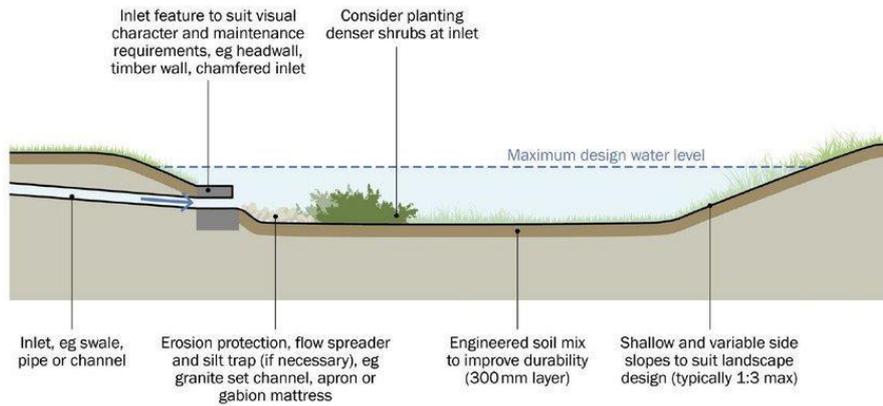
Examples of Construction Phase temporary SuDS Engineering to be deployed are as follows:-

Swales



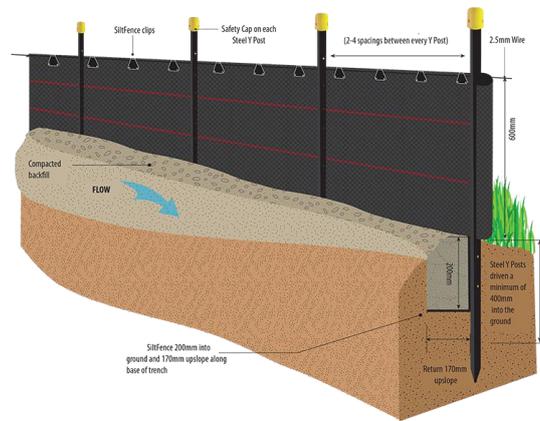
A swale is an elongate vegetated drainage channel designed to capture runoff drainage from upgradient areas of the construction site. The swale is designed to encourage / maximise infiltration of runoff waters through the permeable base / sides as it is transferred to the end point of the swale. The swale is vegetated to provide attenuation of sediment and other pollutants which may be present and therefore also comprises a source-control treatment step.

Infiltration Sump / Pond



A temporary depression can be made at the end of or within a swale complex, or downgradient of the construction site area / area of ground disturbance, cut / fill or other works which may generate sediment. This can receive treated overflow waters from swale outfall or direct input from land runoff. It will generally be grassed / vegetated and lined with aggregate to encourage infiltration to substrate.

Silt Fencing



Silt fencing, with associated capture trench, shall be installed across any working areas upflow of the nearest watercourse to act as an emergency capture in the event of failure of other containment measures. Several sections of parallel silt fencing can be installed in high risk situations to act as additional barriers to sediment release.

Silt Matting and Straw

Sediment matting and straw bales can be used as sediment trap where silt fencing is difficult to install, or as an additional sediment control measure. These can be laid in elongate sections along ridges of excavations, at the base of excavation slopes, and within swales / infiltration basins etc.



It is important that silt fencing and other pollution protection measures are regularly inspected, sediment removed and systems maintained to ensure ongoing efficiency. This infrastructure should therefore be inspected by the ECoW on a daily basis and any flaws / failures reported to the main contractor. Works should not proceed unless all measures are in place to the satisfaction of the ECoW.

Any areas where land formation is completed shall be planted out / seeded as quickly as possible to minimise the timeframes for soils to stabilise and limit the areas of exposed soils to minimise the generation of sediment-laden runoff. Protection measures shall remain in place until the ECoW has agreed that the risk of sediment release has been normalised.

The piling works have designed to minimise impacts to the soils and waters environments. In terms of piling works the following mitigation measures will apply to the construction phases:-

- Works Method Statements and Risk Assessments to be provided and approved in advance see **Appendix 7** for appropriate templates).
- Spillages / Pollution Risk Assessment to be provided and approved in advance see **Appendix 8** for appropriate templates).
- Appropriate PPE to be worn during works.
- Piling operatives to have appropriate levels of operational training and experience.
- Appropriate records of piling works to be retained for inspection by designers.
- In advance of works soils and ground gas testing to be carried out on materials likely to be generated from piling works to assess human health risks (construction workers).
- All piling should be low vibration techniques to protect terrestrial and aquatic species from noise and vibration risks.
- Groundwater occurrences should be recorded and reported to design engineers.
- Piling shall not exceed design depths. Any changes to piling designs to be agreed by designers.
- Appropriate storage of stockpiled piling wastes, 10m from nearest watercourses.
- Concrete pouring near or in watercourses to be within protective barriers to prevent dispersion.
- Silt fencing to be deployed between piling excavations and the nearest watercourse.

-
- No site runoff from working areas should enter the watercourse directly.
 - Temporary SuDS systems such as swale collection trenches, infiltration trenches / sumps should be used to control surface water runoff.
 - The use of quick setting cements, grout and concrete for use near watercourses
 - Fuels and chemicals to be stored within bunded areas with at least 110% storage volume and at least 10m away from any minor watercourse, ditch or drainage channels.
 - Spillage kits to be immediately available in working areas.
 - Stationary plant to be fitted with drip tray that are regularly emptied or stored within bunded area on an impermeable surface.
 - Vehicles / piling equipment to be regularly inspected and maintained.

Once the site has revegetated following completion of construction works temporary infrastructure shall be removed and the ground reinstated following completion of each construction phase.

Earthworks / Excavations

To minimise the risk of erosion, topsoil stripping, cut and fill and other necessary excavation works shall be undertaken in a phased manner and limited to areas where earthworks are immediately programmed.

There shall then be restoration of bare surfaces (seeding and planting) throughout the construction period as soon as possible after the work has been completed or protecting exposed ground with geotextiles if to be left exposed. Existing topsoil and cut materials will be retained on site to be used for the proposed development, subject to stockpiling controls including appropriate buffers (10m for all watercourses).

Removal of vegetation from the riparian corridor shall be limited and retaining vegetated buffer zone should be considered wherever reasonably practicable. A 10m buffer zone will be in place around watercourses where there are no works currently being undertaken to reduce risk of pollution events or sedimentation.

Dust control measures shall be employed where there is the potential for wind to erode earth works (particularly in exposed areas). Common methods for dust control in soil include;

water suppression and the use of covers / screens (where practicable) for fine materials e.g. sand. Deposited Dust monitoring will be required for the duration of the construction works.

Dewatering

It is not anticipated that it will be necessary to undertake any significant shallow or deep aquifer dewatering to facilitate the construction phase. The shallow aquifer is a low permeability unit comprising glacial till. The Hydrogeological assessment has confirmed there is a shallow partially-confined (under pressure) groundwater system, but this would be expected to be reasonably benign, with very low yields / volumes of groundwater. The shallow water table is below the level of the excavation, so no significant groundwater should be encountered. However, where any shallow groundwater is encountered and requires pumping out, this water should be directed by overland pipework to the nearest swale and infiltration basin for treatment and infiltration discharge and NOT discharged to the any watercourse.

Similarly, if there is a need to pump out any area of standing surface water which could accumulate 'naturally' in hollows after a rainfall event, then this water should be directed by overland pipework to the nearest swale and infiltration basin for treatment and infiltration discharge and NOT discharged to the any watercourse.

Construction Phase Silt Management Drainage Features

All construction runoff water will be passed through on-site treatment facilities, with infiltration of runoff maximised. It is preferred that there is no direct discharges to the Cavan River from the construction site, however, there will be provision for stormflow runoff in the event of a sustained heavy rainfall event. These treatment facilities may be a combination of temporary water transfer infiltration swales, holding ponds and soakaway pits. During the construction stage accumulated sediment will be removed on a periodic basis.

It is inevitable that some water will enter the construction site and runoff will entrain sediment. Measures to control this sediment and minimise the amount travelling off site into the wider water environment may include the installation of silt fences, check dams, bunds, and other sediment trap structures as appropriate.

Positioning of these measures will be an important aspect of their efficacy i.e., downslope of overland flow paths, sufficiently setback from water edges to minimise pollution in the event of failure. Retaining a grassed buffer zone or compacted earthen berms can also prevent direct runoff of waters from the construction site to watercourses. Any of these control measures will require regular inspection and maintenance to remove sediment that may compromise the efficiency of the measure.

Non-engineering solutions and green engineering (e.g., vegetation, geotextile matting) can also be placed downslope of earth works to help capture silt laden runoff from earthworks.

Timing / Phasing of Works

The timing of specific construction works can help minimise erosion and reduce sediment controls needed on site. For example, checking weather forecasts to avoid heavy rainfall events or take preparatory actions. Programmes of Works should also be mindful of restricted time periods e.g., known migration / spawning periods (where applicable). Refer to Section 3 of this oCEMP for further detail on specific ecological constraints.

Stockpiling

Unnecessary stockpiling of materials will be avoided. Any required stockpiling should be minimised on site (spatially and in duration) to reduce the amount of contaminated run-off generated.

Areas of stockpiling / material deposition shall be appropriately lined, located away from watercourses (e.g., minimum setback of 10m). Stockpiles of topsoil / soils will be covered / dampened during dry weather to prevent spreading of sediment / dust.

In advance of construction, silt fences and bunds shall be provided around the footprint of any stockpiles. Any runoff generated on the construction site around the stockpiles shall be captured by peripheral cut-off ditches and directed to settlement lagoons and / or sediment tanks which will be provided upstream of the outfall to the receiving watercourse.

Stockpiles shall be protected against rain splash and wind erosion by geotextile matting. Plastic sheeting should be avoided as this has the propensity to transfer erosion problems because water will sheet flow off the plastic at high velocity.

Works in Watercourses

Works to existing surface watercourses (such as installation of temporary or permanent culverts or bridges) have the potential to cause an obstruction to flow and may alter conveyance capacities, potentially causing temporary restrictions in watercourse channels, affecting upstream water levels and increasing flood risk.

The same principles of good practice that apply to permanent crossings also apply to temporary river crossings. Their design should prevent access track / road run-off from entering watercourse, reduce risk of erosion and not increase flood risk. Inappropriately sized crossings can cause flooding by being too small to cope with the flow and / or becoming blocked by debris, therefore, hydrological calculations and examining available flow and rainfall records should be undertaken when considering crossing design.

Good practice methods should be adhered to in order that installation of outfalls does not cause or generate erosion of land, banks or beds during construction phase.

Concrete, Cement and Grout

The use and management of concrete, cement and grout should be carefully controlled to avoid spillage which could potentially have an adverse impact on the water environment. Quick setting products (cement, concrete and grout) will be used for structures that are in or near to watercourses.

Wash-water should not be discharged to the water environment but should be disposed of appropriately through containment and disposal to an authorised waste disposal site.

Chemical Storage, Handling and Re-use

Chemical, fuel and oil storage will be undertaken within a site compound, which will be located on stable ground at a low risk of flooding and at least 10m from any watercourse. The stores will also be locked and sited on an impervious base within a secured bund with 110% of the storage capacity.

Pesticides, including herbicides, will only be used if there are no alternative practicable measures, and will be used in accordance with the manufacturer's instructions and application rates.

Refuelling and Storage of Fuels

Only designated trained and competent operatives will be authorised to refuel plant and all refuelling will be undertaken at designated refuelling areas (e.g., construction compounds). Appropriate measures will be adopted to avoid spillages.

Oil / Fuel Leaks and Spillages

Stationary plant will be fitted with drip trays and emptied regularly, and plant machinery will be regularly inspected for leaks with maintenance as required. Spillage kits will be stored at key locations on-site, and all construction activities will comply with a Pollution Incident Control Plan to be prepared by the appointed Contractor prior to commencement of works.

Construction Compounds

It is envisaged that there would be a number of Construction Compounds for each phase of the development site, as shown in the Construction Layouts, **Appendix 5**.

Compounds will be located at least at least 10m away from any open minor watercourse, ditch or drainage channel. Measures will also be implemented to manage silt laden surface water runoff from the compound to direct water to treatment facilities as not to discharge directly to nearby watercourses. The compounds shall not be constructed in areas known to be at risk of flooding.

There will be no discharge of effluent to surface water during the construction phase. All wastewater from the construction facilities will be stored for removal off site for disposal and treatment.

Wheel Washes / Plant Washes

For vehicles and plant leaving material deposition / stockpile areas, self-contained wheel wash facilities shall be installed at the exit and all vehicles will be required to pass through them.

To prevent the spread of hazardous Invasive Species and pathogens, high pressure steam cleaning of all items of plant and equipment to be used at and adjacent to waters must be undertaken prior to use.

Monitoring

Daily visual water quality assessments should be undertaken by the appointed Environmental Clerk of Works (ECoW) who will remain on site to monitor construction activities for signs of pollution and advise on the deployment of control measures. A Pollution Prevention Plan (PPP) must be prepared by the Contractor prior to the commencement of works.

An outline Water Quality Monitoring Programme has been developed which sets out locations and sampling schedules for appropriate surface water quality and groundwater sampling points. This programme will be implemented to monitoring for any degradation of water quality during the works, with procedures in place to manage any breaches. Baseline monitoring is included to establish relevant Control and Trigger levels of key parameters. Post-Construction monitoring is included for confirmation against baseline conditions.

On Site Personnel Training

The CEMP will form part of the site induction for site operatives and a record of inductions will be kept in the site compound and be available for inspection. All site personnel will be made aware of the importance of the requirement to avoid pollution of all types, throughout all stages of the construction phase.

The Contractor will be obliged to ensure no deleterious discharges are released from the site to surrounding watercourses during the construction stage. Throughout the works the Contractor will also take account of relevant legislation and best practice guidance including but not limited to the following:

- CIRIA C649: Control of water pollution from linear construction projects (2006).
- CIRIA C741 Environmental Good Practice on Site Guide (2015).
- CIRIA C753 The SuDS Manual (2015).
- CIRIA C769 Guidance on the construction of SuDS (2017).
- DEFRA Good Practice Guide for Handling Soils (MAFF 2000).
- BS 8582:2013 Code of practice for surface water management for development sites.
- Guidance on Pollution Prevention (GPP) SEPA & NIEA, 2018.

4.2 Pollution Prevention

To address potential impacts upon the nearby sensitive watercourse arising because of the construction works, in respect of potential emissions to the Cavan River water system including pollutants and sediments and aerial noise and visual disturbance during construction, a range of mitigation measures will be implemented.

The following mitigation measures will be implemented to prevent pollutants entering the storm drainage system on site and reaching the Cavan River from the construction site:

1. New drainage infrastructure will be bunged at the end of each working day to prevent water ingress and accidental contamination. Final connections will be made post-completion of road construction. Self-contained recirculating wheel washes will be used by the contractor at the entrance and egress points of the site.
2. The contractor will dedicate specific areas for oil storage and refuelling, at least 10m away from any minor watercourse, ditch or drainage channel and comply with legislation, including providing bunds sized to contain 110% of fuel storage capacity. The contractor will use fill point drip trays, bunded pallets and secondary containment units. The site will be enclosed and secured, and fuel storage areas will be secondarily secured.
3. All fuel, oil and chemical deliveries will be supervised by a responsible person who will be trained to deal with any spillage to prevent a pollution problem occurring.
4. There will be no stockpiling of materials within 10m away from any minor watercourse, ditch or drainage channel.
5. Equipment, such as chutes, portable mixers, barrows, pump lines, shovels, will be washed out in a designated area of hard standing drained to a sealed sump and subsequently removed from site (no environmental discharge).

4.3 Noise

The assessment of construction noise impacts from the proposed development has the potential to exceed the noise criteria limit at the nearest residential properties during daytime. Elevated construction noise can occur when heavy construction activity occurs near noise sensitive receivers.

Noise from construction works will fluctuate throughout the course of a typical working day as well as over the course of the construction works being undertaken in any one location. Therefore, the daytime construction noise limit of 65 dB $L_{Aeq,12\text{ Hour}}$ is likely to be achieved at the nearest residential properties using appropriate mitigation measures. The construction noise impacts will be short-term and therefore will not be significant.

Also, while the overall construction activities for the Cavan project will occur over many months, the nature of the proposed works and its duration will mean that noise sensitive receivers will not likely be exposed to continuous construction noise impact during the construction period. Appropriate construction mitigation measures have been outlined and once implemented, the residual impacts from the construction period will not be significant.

4.3.1 Construction Noise Mitigation Measures

Appropriate mitigation measures have been identified to ensure the Construction Phase target noise limits are not exceeded. The contractor will be required to implement the control measures recommended in BS 5228 and apply the appropriate measures where applicable. Other measures will include:

- Working hours during site construction operations will be restricted to daytime hours from 07:30 hours to 18:00 hours (Monday to Friday) and from 08:00 hours to 13:00 hours (Saturdays). The construction site will be closed on Sundays and Bank Holidays.
- An on-site speed limit will be enforced for all traffic. Drivers of vehicles will be advised of the speed limits through the erection of signs *i.e.* a typically recommended on site speed limit is 10 km/hr.
- Where practicable, the use of quiet working methods and the most suitable plant will be selected for each activity having due regard to the need for noise control.
- Best practicable means will be employed to minimise noise emissions and will comply with the general recommendations of BS 5228. To this end operators will use “*noise reduced*” plant and/or will modify their construction methods so that noisy plant is unnecessary.
- By positioning potentially noisy plant as far as possible from noise sensitive receivers the transmission of sound can be minimised. Earth mounds and/or stockpiles of material or ecology-friendly perimeter hoarding (only in areas of the site where hoarding is

absolutely necessary) can be used as a physical barrier between the source and the receiver.

- Mechanical plant used on site will be fitted with effective exhaust silencers. Vehicle reverse alarms will be silenced appropriately in order to minimise noise breakout from the site while still maintaining their effectiveness.
- All plant will be maintained in good working order. Where practicable, machines will be operated at low speeds and will be shut down when not in use.
- Compressors will be of the “noise reduced” variety and fitted with properly lined and sealed acoustic covers.
- In all cases engine and/or machinery covers will be closed whenever the machines or engines are in use.
- All pneumatic percussive tools will be fitted with mufflers or silencers as recommended by the equipment manufactures. Where practicable, all mechanical static plant will be enclosed by acoustic sheds or screens.
- Employees working on the site will be informed about the requirement to minimise noise and will undergo training on the following aspects:
 - The proper use and maintenance of tools and equipment.
 - The positioning of machinery on-site to reduce the emission of noise to the noise sensitive receivers.
 - Avoidance of unnecessary noise when carrying out manual operations and when operating plant and equipment.
 - The use and maintenance of sound reduction equipment fitted to power pressure tools and machines.
- Where excessive noise levels are recorded, further mitigation measures will be employed which may include temporary wooden ecology-friendly hoarding / acoustic screening to be installed to a height of no less than 2.5m around areas of construction where loud noise levels occur.
- The contractor will ensure that the TII Guidelines which identify limits for protection against cosmetic damage as a function of vibration frequency are not exceeded using the selected low vibration piling method.
- Responsible Person –The Contractor will appoint a responsible and trained person who will be present on site and who will be willing to answer and act upon complaints and queries from the local public.

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- Night-time Working - If there are items of plant (*e.g.* dewatering pumps and similar) in use during night-time hours they will be chosen, sited and enclosed such that levels at the nearest properties do not exceed the measured background noise levels.
 - Where deemed necessary due to excessive impact or complaints received, noise monitoring will be undertaken during construction works to determine noise and vibration levels at sensitive receivers. Based on the findings of such noise monitoring, appropriate mitigation measures will be implemented to reduce impacts.

4.3.2 Vibration

The following recommendations are provided to protect sensitive receptors to vibration during construction works:

- Agree working hours for piling activities for less sensitive time or days i.e. during the daytime between 07.30h and 18.00h for Monday to Friday, avoiding weekends.
- Use of minimal vibration piling equipment i.e. using a CFA piling method for bridge construction and any other piling works within the SAC or in close proximity to badger setts.
- An alternative low vibration method for removal of the hardstand not involving the use of rock hammers or similar percussive methods must be deployed,
- Carry out a baseline vibration survey to determine current ambient vibration levels at the proposed piling and vibration-sensitive receptor locations,
- The measurement location at the vibration-sensitive receptor should be close to, but far enough away so not to disturb i.e 10 m away,
- Identify vibration levels the vibration-sensitive receptors are currently exposed to, and assess the potential impact from CFA piling and Silent Sheet piling on the vibration-sensitive receptors,
- Determine action and limit values based on the baseline vibration survey and available guidance from international standards,
- Install continuous vibration monitoring equipment at the piling location and the vibration-sensitive receptor location measuring the vibration levels,
- Monitor the vibration levels and compare with the agreed action and/or limit values,
- It is recommended the PPV is measured and if possible, the weighted acceleration and hence the VDV could also be measured (and/or determined).

4.4 Air Quality and Dust

The main existing impact on air quality in the vicinity of the proposed development site is due to emissions from traffic along with domestic and industrial emissions. The existing air quality in proximity to the site is classified as 'good' by the EPA.

There will be a potential for construction dust to be generated due to the movement and exhaust emissions of construction vehicles during the construction phase however the low anticipated number of HGVs and the approximate 19- and 28-month estimated construction duration for phase 1 and 2 respectively will have a short-term and localised negligible impact on air quality. The mitigation measures outlined will reduce the potential for construction dust impact to negligible.

Construction dust control measures and good construction site management and practice is capable of effectively mitigating the potential for significant impact of fugitive dust emissions. Therefore, the potential for fugitive dust emission effects at the nearest sensitive receivers will be controlled to ensure dust impacts are of negligible significance.

4.4.1 Construction Phase Mitigation Measures

These mitigation measures are deemed necessary in addition to those detailed elsewhere within this oCEMP. In accordance with the IAQM Guidance, for proposed mitigation measures, the highest risk category should be applied. Therefore, the mitigation measures applicable to a High-Risk site should be applied. These are outlined as follows:

General 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 DMP may include monitoring of dust deposition, dust flux, real-time PM₁₀ continuous monitoring and/or visual inspections.
 - Continuous automated dust monitoring must be undertaken at key locations, including bridge crossing points, within the site for the duration of the works.

Site Management

- 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 logbook.
- Hold regular liaison meetings with other high risk construction sites within 500 m of the site boundary, to ensure plans are co-ordinated and dust and particulate matter emissions are minimised. It is important to understand the interactions of the off-site transport/deliveries which might be using the same strategic road network routes.

Monitoring

- 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 windowsills within 100 m of site boundary, with cleaning to be provided if necessary.
- Carry out regular site inspections to monitor compliance with the DMP, record inspection results, and inspect logs 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.
- Agree dust deposition, dust flux, or real-time PM₁₀ continuous monitoring locations with the Local Authority. Where possible commence baseline monitoring at least

three months before work commences on site or, if it a large site, before work on a phase commences. Further guidance is provided by IAQM on monitoring during demolition, earthworks and construction.

Preparing and maintaining the site

- Plan site layout so that machinery and dust causing activities are located away from receptors, as far as is possible.
- Erect solid screens or barriers around dusty activities or the site boundary that are at least as high as any stockpiles on site.
- Fully enclose site or specific operations where there is a high potential for dust production and the site is active 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.

Operating vehicle/machinery and sustainable travel

- 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.
- Impose and signpost a maximum-speed-limit of 15 mph on surfaced and 10 mph on unsurfaced haul roads and work areas.
- Produce a Construction Logistics Plan to manage the sustainable delivery of goods and materials.
- Implement a Travel Plan that supports and encourages sustainable travel (public transport, cycling, walking, and car-sharing).

Operations

- 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.

Waste Management

- Avoid bonfires and burning of waste materials.

The IAQM Guidance Mitigation Measures applicable to the specific works undertaken are as follows:

Measures specific to construction.

- Avoid scabbling (roughening of concrete surfaces) if possible.
- 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.
- 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.

Measures specific to 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 logbook.
 - 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 self-contained 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

5.0 CONSTRUCTION SPECIFICS

5.1 Proposed Duration of Works

The proposed construction programme is an estimated 18 months (Phase 1) and estimated 27 months (Phase 2), whilst some site preparation may also be necessary ahead of both phases. There are no other timeframe details available at this stage of the Proposed Development.

There are a number of seasonal constraints for construction and related works which must be adhered to in order to protect ecology. In addition, the treatment of various invasive plants has to be undertaken during specific periods of the growing season to be most effective. These seasonal constraints are presented below:-

Seasonal Constraints for Construction and Associated Works

	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
In river works (If crayfish presence confirmed)	Red	Red	Red	Green	Red	Red	Green	Green	Green	Green	Red	Red
Tree and shrub clearance (Birds)	Green	Green	Red	Red	Red	Red	Red	Red	Green	Green	Green	Green
Tree and shrub clearance (Bats)	Green	Green	Red	Red	Red	Red	Red	Red	Green	Green	Green	Green
Tree and shrub clearance (Pine marten)	Green	Green	Red	Red	Red	Red	Red	Red	Green	Green	Green	Green
Badger Sett Creation	Green											
Badger Sett exclusion	Red	Red	Red	Red	Red	Red	Green	Green	Green	Green	Green	Red

Red: Exclusion Period
Green: Approved Period

5.2 Security

The access points and compound areas will operate within a secure hoarded perimeter regulations and will be controlled by the General Contractor. All access will be monitored and recorded.

The compound area shall exclude local wildlife such as otter and badger.

All construction support activities will be controlled within the site construction compound including office facilities, toilets, canteen etc. Materials and waste handling and storage will be within the confines of the site.

The work area will be protected from the public at all times. CCTV may be installed and compliant Health & Safety information signs will be installed. The external facade of the solid hoarding panels will have a mix of Health & Safety warning signs.

Perimeter hoarding through the rest of the site shall be avoided where possible to allow unrestricted movement of local wildlife, but where it is necessary, shall include animal gates at key locations to be agreed by the ECoW.

5.3 Site Access and Construction Compound

The approximate locations for construction compounds are presented in **Appendix 5**.

5.4 Construction Hours

It is anticipated that the construction hours will be:

- **07:30 to 18:00 Monday to Friday.**
- **From 08:00 to 13:00 on Saturdays.**
- **Closed on Sundays and Bank Holidays.**

5.5 Deliveries

Delivery of equipment and materials will be carefully controlled and managed at the site. Access and egress to the proposed area will be managed by the General Contractor. Delivery times will be planned with consideration to surrounding businesses.

There will be occasions whereby materials are needed to be delivered to site, a banksman will be in placeto ensure safe access is provided. The times of deliveries will be limited to arrive on site during off peak periods of time.

There will be periods of time during the construction programme whereby larger piling and lifting equipment will be needed to be delivered and the demobilised by special arrangement (wide loads anticipated) to construct various elements of the development including the bridge and associated temporary and permanent infrastructure, Hub Building and Spectator Stand. The bridge itself will be brought to the site by road (again wide loads anticipated) in sections.

A number of piling techniques have been selected as appropriate for the site such as CFA (requiring concrete deliveries) and silent sheet piles (requiring steel deliveries).

A self-contained wheel washing facility will be positioned near to access and egress points to ensure that debris or lose inertmaterials are removed from any vehicle leaving the site. A Biosecurity process (detailed in Section 3.5.2) necessary for invasive species management, will also be in place for any machinery entering or leaving the site. Any delivery vehicle

travelling beyond the Construction Compound / delivery bays will be subject to the washing process as detailed in the Biosecurity process (Section 3.5.2).

5.6 Traffic Management

A series of traffic management measures may be included as part of the project, these include:

1. Temporary Signage - The Contractor is required to provide appropriate signage
2. Operation of a Contra Flow - There are no proposals to operate a Contra Flow system.
3. Temporary Road Closure - There are no proposals to introduce temporary road closures. Any road closure can only be operated under agreement with the appropriate authorities.
4. Temporary Traffic Signals - There are no proposals to operate Temporary Traffic Light Signals.
5. Arrangements for Local Access, Pedestrian and Cyclist Access - There are no proposals to alter the existing local access to the surrounding areas.

Dust and Dirt

During the construction phase the increase in dust and dirt will be minimised by effective site management. The construction routes will be discussed and agreed with respective roads departments and disruption will be mitigated. The construction routes and the phasing of the scheme will be agreed with respective roads departments.

Self-contained wheel washing facilities will be provided for all construction vehicles and construction areas will be fenced-off with wildlife excluded.

Any impact will be mitigated using best practice including damping down excavated material and haul roads when the roads are dry and covering loads of surplus material leaving and entering the site. Self-contained wheel washing will be provided on site.

Operatives Travel Behaviour

The Contractor will be required to develop a Construction Travel Plan to ensure operatives vehicles use are kept to a minimum with the use of mini-buses and shared vehicle trips.

5.7 Piling

A Piling Risk Assessment has been undertaken based on anticipated foundation designs all piling necessary to construct permanent infrastructure across the site.

Overall, the Piling Risk Assessment has concluded a low risk associated with the use of permanently installed CFA piles as the foundation solution for the bridge and other structures.

The CFA piling solution would appear to be good practice and an appropriately conservative approach in terms of ensuring protection of groundwaters close to the baseflow recharge zone, the bridge landing sites being close to the Cavan River. The CFA Pile method, being a low vibration option, also provides adequate protection for ecological purposes.

If an alternative piling solution is considered at the detailed design stage, all piling methods must be low vibration during installation and removal (where necessary), and must offer similar degree of environmental protection to the piling solutions assessed at the planning stage.

Mitigation measures specific to the piling works are detailed in Section 4.1.4 of this oCEMP. If the piling method is modified the mitigation measures will need to be reviewed and updated.

All bridge construction piling must accommodate the seasonal constraints detailed as follows-.

Seasonal Constraints for Construction and Associated Works

	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
In river works (If crayfish presence confirmed)	Red	Red	Red	Green	Red	Red	Green	Green	Green	Green	Red	Red
Tree and shrub clearance (Birds)	Green	Green	Red	Red	Red	Red	Red	Red	Green	Green	Green	Green
Tree and shrub clearance (Bats)	Green	Green	Red	Red	Red	Red	Red	Red	Green	Green	Green	Green
Tree and shrub clearance (Pine marten)	Green	Green	Red	Red	Red	Red	Red	Red	Green	Green	Green	Green
Badger Sett Creation	Green											
Badger Sett exclusion	Red	Red	Red	Red	Red	Red	Green	Green	Green	Green	Green	Red

Red: Exclusion Period
Green: Approved Period

6.0 PROJECT RESPONSIBILITY AND COMMUNICATION

6.1 Communications

Effective communication is essential to ensure the appropriate employment of environmental standards and relaying of information, assessments, and data. The following points are some of the key forms of communication required:

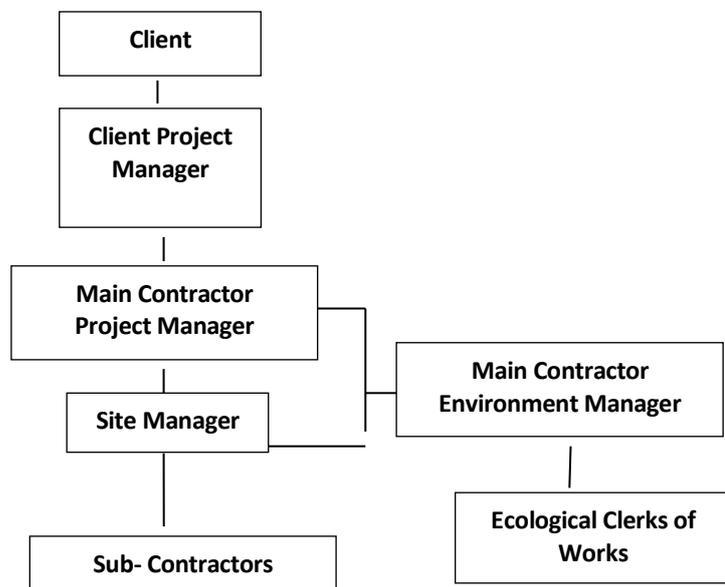
- Statutory and Non-Statutory Bodies - During the construction works, communication will be required with external parties such as, statutory authorities, interest groups and the public/business owners.
- Public/businesses - The Site Manager shall ensure that the public/businesses within the locality are kept informed of operations that may have an effect upon them. This may involve letter drops and meetings to keep local commercial premises owners up to date with progress with the Proposed Development and any new operations that

are to be carried out. The Site Manager will provide details of contacts within the project team for the public/businesses to contact should any issues arise.

- Consents, Licences and Permits - The provisions for controlling, pumping and discharging water will be agreed with the relevant statutory body. The Contractor will ensure that any licences required are in place prior to works commencing.
- Changes in legislation or guidance - Legislative changes or proposed improvements to manage processes on site that have a bearing on the commitments given in the supporting environmental documents or other consultations will be communicated by the Site Manager to the Client.
- Meetings & Records - Environmental issues relevant to the project will be discussed during weekly Site Progress Meetings attended by the Site Manager and Environment Manager. Environmental performance will also be discussed at regular HSEQ meetings. This will include dissemination and discussion of the findings of audits, environmental reports and other inspections where appropriate.

6.2 Responsibilities

This oCEMP defines the follows roles and responsibility relevant to environmental protection on the proposed project.



The Client Project Manager (OR persons nominated by the Client to manage the project) will be responsible for ensuring the CEMP requirements are represented within the tender

process and are communicated to and acknowledged by the main contractor representative and will have an overview role in checking that they are being implemented during the works.

The Main Contractor Project Manager will be responsible for final development of the CEMP, including any detailed working method statements, and for obtaining approval for these from the client project manager and NIEA. The Main Contractor/Project Manager or appointed representative will be responsible for ensuring the CEMP requirements are being implemented on site through site visits and communication with the Site Manager and will be responsible for ensuring correct procedures are followed in the event of any environmental incident including reporting on the risk, alerting relevant authorities and the client project manager if required and documenting the response.

The appointed contractor will be required to identify one or more accredited emergency spill contractors that will be available to call upon in the event of a significant incident, for example the Emergency Preparedness and Incident Response forms. An example Incident Response Form is attached as **Appendix 6**.

The main contractor will be informed that they may be held liable for any pollution incident or adverse impact on designated features.

The Site Manager will be responsible for ensuring that the final CEMP is implemented during all phases of the site works and that all contractor workers and sub-contractors are aware of the environmental sensitivity of the site and the CEMP requirements. The Site Manager will be responsible for ensuring appropriate emergency response spill kit supplies are maintained on-site and for directing /implementing pollution incident responses to any incidents.

Site Manager will also be required to or delegate to competent staff:

- Promote a Health & Safety culture on site, to read, understand and implement the CEMP ensuring contractors are aware of their responsibility to ensure correct working methods where there are environmental risks.
- Ensure that environmental matters are taken into account when considering Contractors' construction methods and materials at all stages.

-
- Be aware of any potential environmental risks relating to the site, plant or materials to be used on the premises and bring these to the notice of the appropriate management.
 - Ensure materials/waste register is completed as appropriate and ensure Contractors method statements include correct waste disposal methods.

An Ecological Clerk of Works will be required to oversee the pre-construction creation of all ecology aspects of Phases 1 & 2 of construction, as part of the creating of compensation / wildlife areas.

All site personnel, on the project will adhere to the following principal duties and responsibilities:

- To conduct all their activities in a manner consistent with regulatory and best environmental practice as laid out in the CEMP
- To participate fully in the environmental training program and provide management with any necessary feedback to ensure effective environmental management at the site.
- Adhere fully to the requirements of the site environmental rules.

6.3 Health and Safety

In developing a Final CEMP the appointed contractor will be responsible for reviewing the relevant reports produced for the site to inform development of safe site practices and environmental protection during the construction phase.

6.4 Project Planning and Co-ordination

Prior to the works beginning, project members shall meet to review the Final CEMP requirements (as agreed with the regulating authority) and plan in detail implementation of working methods to ensure CEMP compliance. At that time a programme for works shall have been designed.

Any mitigation measures that have been agreed with the Statutory Authorities will be put into place prior to the undertaking of the works for which they are required, and all relevant staff will be briefed accordingly.

Specific method statements required for all phases of the works will be prepared by the main contractor for submission with the final CEMP, to be issued to the regulatory authority at least 8 weeks prior to works beginning.

Method statements and risk assessments produced by sub-contractors will be reviewed / approved by the Main Contractor and incorporated within the Final CEMP. Where required, input from a relevant Environmental Specialist will be obtained. An example Method Statement and Site Specific Risk Assessment is shown in **Appendix 7**.

6.5 Communication and Implementation

The Main Contractor Environmental Manager will be responsible for communicating the Final CEMP to the project management team and all contractors/sub-contractors as part of site induction and prior to any works being undertaken.

All contractors/sub-contractors will be required to attend site induction and will not be permitted to undertake works until attendance is recorded. Relevant persons appointed by the contractor will be required to demonstrate previous knowledge or undertake relevant training with respect to use and application of pollution incident response and other pollution prevention equipment.

The induction procedures will include as a minimum:

- The requirements and use of the CEMP.
- Key risk activities and sensitive areas which will be clearly marked out with posts and tape.
- The site communication system.
- Incident reporting plan/forms.
- Identification of personnel responsible for dealing with site incidents.
- Use of spill kits.

The environmental sensitivity of the site and required working practices will be briefed to site workers as a Toolbox Talk on site, prior to works beginning and at the beginning of each main phase of works. Regular review meetings will be held to monitor implementation of the Final CEMP and update/modify working practices as required to ensure compliance. Induction of sub-contractors on site will include communication of the Final CEMP requirements.

7.0 SITE CONTROL SEQUENCE

7.1 Physical Site Works

The main site works will comprise:

- Phase 1 Site Set-up – Pad Foundation for crane etc.
- Commencement of Wildlife Compensation Works.
- Phase 1 Bridge Construction, Building Construction, pitch construction with associated services trenching.
- Phase 1 Final roads, surrounding hard-standing and landscaping
- Phase 1 Demobilisation.
- Period of Operation of Phase 1 Development (not Construction)
- Phase 2 Site Set-up – Pad Foundation for crane etc.
- Phase 2 Building Construction, pitch construction with associated services trenching.
- Phase 2 Final roads, surrounding hard-standing and landscaping
- Phase 2 Demobilisation.

7.2 Pollution Guidance

Based upon the nature of the work, a major risk to the water environment would be from spills of cements, chemicals or oils and migration of suspended solids/dirty water via overland flow to the watercourses or infiltration to the highly vulnerable groundwater. Working methods will follow standard industry guidance for construction sites as set out in guidelines including:

- CIRIA C532 Control of Water Pollution from Construction Sites.
- CIRIA C650 Environmental Good Practice on Site.

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- DAERA Standing Advice Pollution Prevention Guidance.

Guidance for Pollution Prevention (GPPs):

- GPP 1: Understanding your environmental responsibilities - good environmental practices
- GPP2: Above Ground Oil Storage Tanks.
- GPP5: Works and Maintenance in or near Water.
- PPG6: Working at Construction and Demolition Sites.
- PPG7: The Safe Operation of Refuelling Facilities.
- GPP8: Safe Storage and Disposal of Used Oils.
- GPP 13 Vehicle washing and cleaning.
- GPP 20: Dewatering underground ducts and chambers.
- GPP21: Pollution Incident Response Planning.
- PPG22: Dealing with spills

7.3 Additional Pollution Prevention Measures

All site workers including sub-contractors will only be permitted to undertake work on-site following attendance of a site induction which will:

- a) emphasise the sensitivity of the site.
 - b) define the roles and responsibilities relating to pollution prevention and incident response;
 - c) outline the pollution prevention measures that must be followed and marked out buffer zones.
 - d) describe the location and use of emergency response spill kits.
- Contractors will be required to immediately report all pollution incidents or 'near misses' to the Site Manager. The Site Manager will be required to maintain a log of all such incidents and incidents will be reported to the Client's Project Manager and relevant authorities as required.
 - Access to the construction areas will only be via the agreed access routes.
 - Any storage of fuel, oil and chemicals will be within the construction compound within appropriate and secure storage areas. It is not considered likely there will be any need

to store on-site any significant quantity of oils or chemicals. These will be sited beyond the 10m buffer of the ditch and watercourses.

- Fuels and oils (including waste oils) will be stored in fit-for purpose containers in impermeable bunded areas which comply with good practice (110% secondary containment).
- Fuel and Oil storage will take place in dedicated locations at least 10m away from any minor watercourse, ditch or drainage channel..
- Rainwater will be managed to ensure the containment capacity within the bund structures is not compromised.
- All storage tanks and containers will be appropriately labelled with their contents and storage capacity.
- No temporary use (refilling, topping up) of oils, chemicals or other hazardous substances will be undertaken within the 10m watercourse buffers.
- Re-fuelling of mobile plant will take place in a dedicated location within the construction compounds. Refuelling of fixed plant will generally be through use of purpose designed bowser and pump, or by small container using a funnel, with the equipment used only by a trained operator. Drip trays will be deployed during refuelling procedures. All funnels etc. will be stored on an impermeable bunded area or drip tray.
- Drip trays will be utilised beneath any non-mobile machinery and spill kits and adsorbent materials will be stored on site for rapid deployment by trained staff. Spills will be cleaned up as quickly as possible with waste materials bagged and disposed of through appropriate waste carrier and disposal arrangements.
- Regular inspection of plant and equipment will be undertaken, and preventative maintenance undertaken to reduce the risk of spills and drips.
- Regular inspection of the security and integrity of containers and bunds will be undertaken and regular checks made that spill response equipment remains available and appropriate at relevant locations.
- Any waste oil/chemical/ containers will be placed in a secure impermeable facility (covered skip or other container) or removed from site on the same day.
- Vehicles and equipment will be left secure during periods of non-working and site security measures implemented to manage the risk of any adverse disturbance to plant or equipment.
- Where concrete is not brought to site ready mixed, mixing of concrete shall take place at least 10m away from any minor watercourse, ditch or drainage channel (unless

associated with piling works for bridge construction, where a 10m buffer to watercourses will apply). Cement wash-out of delivery vehicles will take place off-site. Wet concrete waste from construction plant buckets/dumpers will be emptied into containers and, when dried, it will be transported by a registered waste carrier to a licensed landfill site for disposal.

- Any wet concrete waste from construction plant buckets/dumpers will be emptied into containers and, when it has dried, be transported to a licensed landfill site for disposal.
- Cleaning of equipment and tools used in concrete production/use shall not take place within the northern portion of the site and should ensure no discharge of contaminated water to the surrounding environment, through use of a specified, contained washdown area.
- Where concrete is poured on the surface adequate shuttering/bunding shall be used to prevent any lateral escape away from the construction area.
- Foul sewage from any temporary portaloo facilities will be collected and disposed of by a registered contractor at the appropriate design frequency of the facilities.
- The site will be secured, and potentially polluting materials stored safely or removed from site overnight such that the risk of impact from vandalism is controlled.
- Contractors will only be permitted to undertake work on-site following attendance of a site induction which will describe the pollution prevention measures and methodologies that must be followed.
- Contractors will be required to immediately report all pollution incidents or 'near misses' to the Environmental Manager. The Environmental Manager will maintain a log of all such incidents and incidents will be reported and response actions reviewed at project meetings.
- A pollution response procedure should be displayed at the site incorporating actions to be followed.
- A Spill Response Procedure and Example Risk Assessment is attached as **Appendix 8**.

7.4 Emergency procedures

A Site Environmental Emergency Plan will be prepared prior to construction and communicated to all members of the project team including sub-contractors and emergency services. A Pollution Incident Emergency Response Plan would be developed in accordance with the guidance set out in the Guidance for Pollution Prevention GPP 21: Pollution Incident Response Plans. The Response Plan would set out the procedures to be followed and

measures to be implemented in the event of a pollution incident. These incidents may be the result of:

1. **delivery and use of materials.**
2. **spillages of oils or chemicals.**
3. **discharge of silty water or other pollutants to watercourses.**
4. **flooding event.**
5. **fire (emissions to air) and failure to contain firewater runoff.**

Emergency procedures are developed to support the response plan. The procedures define the circumstances when the plan should be activated and include:

1. **the names and contact details of staff trained in incident response.**
2. **clearly defined roles and responsibilities.**
3. **the types and location of emergency response equipment available.**
4. **the location of the emergency assembly point.**
5. **Procedures for recovering spilled product.**

Responsible staff will be trained in emergency procedures to form an Emergency Team, so that these procedures can be implemented swiftly and effectively.

- Periodic testing of emergency procedures will be undertaken by the Site Manager. The Environmental Manager will observe the test and to report on results.
- Any corrective actions are taken forward for review and approval.
- Should an emergency incident occur, the Environmental Manager will be notified immediately. The emergency response will be co-ordinated by the Site Manager.
- Protective measures, mitigation, clean up and remediation actions will be identified from the evaluation and shall be put into place, having regard for the sensitivities of the environment.

A record of the emergency incident will be kept showing the nature of the corrective action undertaken. An example emergency response plan is shown in Appendix G.

7.5 Waste Management

Given the extent of cut and fill required within the site, and the required removal of materials, the appointed/Principal Contractor will be required to further develop a Site Waste Management Plan (SWMP) for incorporation within a Final CEMP.

This SWMP will specify the procedures for collection, storage and disposal of all waste products and materials associated with the development.

The procedures will be developed to be compliant with relevant legislation and best practice guidance.

All handling, transport and final disposal of waste off-site will be undertaken only by authorised and registered companies and complying with legal responsibilities such as Duty of Care.

In future developing the SWMP, the contractor will be required to consider:

- Identification of potential waste streams and volumes.
- Planning for waste generation minimisation through pre-construction planning and design including reuse and recycling of materials.
- Ensuring all necessary permits and authorisations are applied for in a timely manner.
- Developing of management systems for the recording and archiving of all associated documentation including plans, procedures, transfer notes, etc.
- Identifying necessary contractors and waste management infrastructure required to deal with all waste arisings, including foul sewage.
- Ensuring all procedures and methodologies adopted meet the objectives of the PPIP.
- Personnel training and measurement and monitoring of site waste management procedures to ensure waste minimisation opportunities are achieved and implementation of the agreed plan procedures is occurring.

There will be a dedicated central waste storage area within each construction compound. Appropriate facilities will be put in place to ensure no air or water pollution from waste

materials can occur. Waste materials generated on-site such as wooden pallets, waste oil, paper, waste batteries, etc. will be segregated to ensure appropriate disposal through authorised recycling and disposal routes. Waste materials generated at construction areas will be collected and transported to the central waste storage area within the construction compound on a regular basis. Appropriate offsite disposal shall then be arranged.

Foul sewage from the construction compound will be collected and disposed of by a registered contractor at the appropriate design frequency of the facilities.

7.6 Control of Imported Soils and Clays

The development will include a degree of cut and fill to create the desired site profiles. For each jurisdiction, the re-use of site-derived excavated materials shall be prioritised to minimise the volumes of imported materials required. Where soils and clays are to be imported the following rules will apply:-

- Materials shall be imported subject to compliance with all Duty of Care and Waste Management legislative requirements. All materials derived from sites other than licensed quarries will be considered as waste.
- Imported clean topsoil and clay must be imported by pre-movement agreement with regulator bodies with all permissions in place, including compliance with relevant guidance.
- Where any inert wastes are to be imported, appropriate authorisations shall be in place with the regulatory authorities.
- Any imported soils and clays shall be subject to appropriate human health screening assessment testing at a density of at least one sample per 1,000 m³ of materials imported.
- All imported wastes, including clays, shall be subject to appropriate waste classification (WAC and WM3) testing at a density of at least one sample per 1,000 m³ of materials imported.
- Proper records shall be kept by the contractor and made available for all topsoil, clay and wastes imported to the site to serve as make-up or fill. Records shall include including waste transfer notes, details of the volume and nature of imported materials,

photographic records of the materials, the position and extent of deposits for each individual source, the exact source of the materials and date imported.

- No suspect contaminated materials or materials from other brownfield sites shall be imported to the site.

8.0 ENVIRONMENTAL PERFORMANCE

8.1 Daily Checking and Corrective Action

The Site Manager with the Environmental Clerk of Works during the CWW PP will establishment to undertake daily checks of the works being undertaken to ensure compliance with agreed working practices and to identify any new environmental risks or harm/damage that requires corrective action or development/modification of working practices.

Such requirements will be reported to the Project Manager, with subsequent actions agreed with the Client Project Manager and implemented into the Final CEMP working document on-site.

In addition, where necessary daily records of the site activities, records, complaints and incidents, will be kept ensuring that all site operatives adhere to the prevention and protection requirements.

8.2 Environmental Risk Register

The Environmental Manager/Officer will prepare and maintain an Environmental Risk Register having regard for legal requirements, project environmental commitments the potential for aspects of works to cause significant environmental impact.

The Environmental Manager will record responsibilities assigned for actions required for mitigation and control of the environmental risks in the Environmental Risk Register.

The Environmental Risk Register will be subject to regular review by the Environmental Manager togetherwith the Site Manager.

8.3 Consents

The Proposed Development may require consents from various regulatory bodies in advance of construction activities. These may include discharge consents / licenses for construction runoff, where any construction-phase discharges are being proposed. Copies of legal consents, permits and licences obtained will be held in the site environmental file by the Environmental Manager.

8.4 Construction Method Statements

This document provides the basis for the Final CEMP to be implemented by the Contractor, incorporating the items outlined above and other requirements identified during site works. It should be regarded as a 'live document' to be updated as necessary to ensure the stated environmental objectives are achieved.

The appointed building contractor will be required to develop a series of method statements, to be agreed with the Client Representative, which integrate and supplement the information provided in the Final CEMP.

The method statements are to be developed for each main construction task and/or other activities that could potentially result in an adverse impact on soils, surface water or groundwater or have the potential for accidental release of fuels, oils or other hazardous substances.

The method statements will:

- Describe how each specific task will be undertaken and what pollution prevention/mitigation measures are to be adopted, including excavation along the proposed stormwater discharge route.
- Contain a detailed risk assessment of each task.
- Contain a list of pollution prevention and control equipment to be provided where it will be stored and how it is to be used in the event of an incident.
- Identify training and communications procedures.

8.5 Notices of Non-conformance

In instances where the requirements of the Final CEMP are not upheld a non-conformance and corrective action notice/procedure will be produced. The notice/procedure will be generated during the inspections conducted by the Supervisors, the Site Manager, Environmental Manager or any external third-party audits.

The Site Manager will be responsible for ensuring a corrective action plan is established and implemented to address the identified shortcoming.

8.6 Complaints Handling

The response to any complaints will be managed by the Site Manager, who will inform the Environmental Manager of any environmental complaints. A Complaints Register will be maintained to detail the name and contact details of the complainant, date and time of the complaint, nature of complaint, action taken to resolve issues, and date of complaint handover.

The Environmental Manager will ensure that all environmental complaints and concerns will be responded to within 24 hours of the complaint being received. An example complaints form is shown in **Appendix 9**.

8.7 Key performance indicators and objectives

The Contractor should set environmental objectives to continuously improve environmental performance on the site. The Contractor will set objectives based on each significant environmental impact and they will be reviewed, and revised, if necessary, on a monthly basis. Procedures, monitoring requirements and key performance indicators will be measured against achievable targets.

Appendix 1: General Development Layout

LEGEND

- 1 Sports Building
- 2 Sports Arena
- 3 Synthetic Hockey Pitch (non-water based)
- 4 Athletics Track (400m)
- 5 External Synthetic Multi-Sport Pitch
- 6 Sand Mattress GAA Fields
- 7 Covered Stands (3No.)
- 8 Toilet Block
- 9 Cricket Practice Nets

- SITE BOUNDARY
- NATURAL TURF PITCH SURFACE
- SYNTHETIC GRASS PITCH SURFACE
- ATHLETICS TRACK - EPDM POLYMER RUBBER SURFACE
- GRASS SURFACE / SOFT LANDSCAPED AREAS (Refer to Landscape Architects Drawings ref: CSC-MLA-XX-0-DR-L-2001)
- EXISTING NATURAL LANDSCAPE AND HABITAT MAINTAINED
- WILDLIFE HABITAT CREATION ZONE (Refer to Landscape Architects Drawings ref: CSC-MLA-XX-0-DR-L-2001)
- PEDESTRIAN PAVEMENT - ASPHALT / BITMAC
- PEDESTRIAN PAVEMENT - NATURAL GRANITE AGGREGATE CONCRETE PAVING SLABS
- VEHICULAR PAVEMENT - ACCESS ROAD / PARKING
- EXISTING DENSE HEDGEROW VEGETATION
- EXISTING TREE
- PROPRIETARY CONCRETE BLOCK GEOSYNTHETIC REINFORCED SEGMENTAL RETAINING WALL SYSTEM (Refer to drawings CSC-MCA-01-XX-DR-A-8001 & 2)
- TIMBER CRIBB RETAINING WALL STRUCTURE (Refer to drawings CSC-MCA-01-XX-DR-A-8001 & 2)
- 12M HIGH BALL CATCH NET (Refer Detail B on Dwg A2156-800-02)
- 1.2M HIGH OPEN MESH FENCING (Refer Detail E on Dwg A2156-800-03)
- 3.0M HIGH OPEN MESH FENCING (Refer Detail G on Dwg A2156-800-03)
- 4.2M HIGH OPEN MESH FENCING (Refer Detail G on Dwg A2156-800-03)
- 1.3M HIGH GALVANISED STEEL SAFETY RAILINGS (Refer Detail F on Dwg A2156-800-03)
- 1.2M HIGH TIMBER POST & RAIL FENCE (Refer Detail H on Dwg A2156-800-03)
- 2M HIGH TIMBER ACOUSTIC FENCE (Refer Detail C on Dwg A2156-800-03)
- 600MM HIGH TIMBER KNEE RAIL FENCE (Refer Detail Don on Dwg A2156-800-03)
- PROPOSED ACCESSIBLE SHARED PEDESTRIAN AND CYCLE ROUTE LINKING DUBLIN ROAD AND KILNAVARRAGH LANE - Max Gradient < 1:21
- PROPOSED LOCATION OF FLOODLIGHT COLUMN (Refer Detail L on Dwg A2156-800-03)
- PROPOSED BOLLARD PATHWAY LIGHT (Refer Detail J on Dwg A2156-800-03)
- PROPOSED LIGHTING COLUMN - SINGLE LUMINAIRE (Refer Detail K on Dwg A2156-800-03)
- PROPOSED LIGHTING COLUMN - DOUBLE LUMINAIRE (Refer Detail K on Dwg A2156-800-03)
- ELECTRIC VEHICLE (EV) CHARGE POINT
- PROPOSED DUCTING PROVIDED FOR FUTURE EV CHARGING POINT
- PROPOSED FIXED BOLLARD - STAINLESS STEEL WITH VISIBILITY BAND. REFER TO LANDSCAPE MATERIALITY SHEET CSC-MLA-XX-00-DR-L-3001
- PROPOSED REMOVABLE BOLLARD - STAINLESS STEEL WITH VISIBILITY BAND. REFER TO LANDSCAPE MATERIALITY SHEET CSC-MLA-XX-00-DR-L-3001
- PROPOSED LITTER BIN. REFER TO LANDSCAPE MATERIALITY SHEET CSC-MLA-XX-00-DR-L-3001
- PROPOSED EV CHARGING PARKING SPACE
- PROPOSED ACCESSIBLE PARKING SPACE
- 75.45 PROPOSED LEVELS



NOTES

1. All measurements shown are in metres, and all levels are to ordnance datum unless otherwise indicated
2. All Coordinates are to Irish Grid, unless otherwise noted.

KEY PLAN

Rev	Issue Date	Description	App

Status	PLANNING
Client	Cavan County Council
Project	Cavan Regional Sports Campus
Drawing	Proposed Site Plan Overall
Scale	1:1250 @ A0

McAdam
ENHANCING LOCAL COMMUNITIES

Contact Details: 10 Montgomery House, 478 Castleagh Road, Belfast, BT5 6BG. T: 028 9040 2000, E: sales@mcadamdesign.co.uk, www.mcadamdesign.co.uk

Drawn: moc	Checked: pa	Approved: moc
Date: 04/03/24	Date: 04/03/24	Date: 04/03/24
Project Number: A2156	Drawing Number: 100-10	Revision: -

All dimensions are in metres. Figure dimensions to be taken in preference to scale dimensions. Dimensions to be checked on site. © 2024 McAdam Design Ltd.



Appendix 2: Cut and Fill Plans

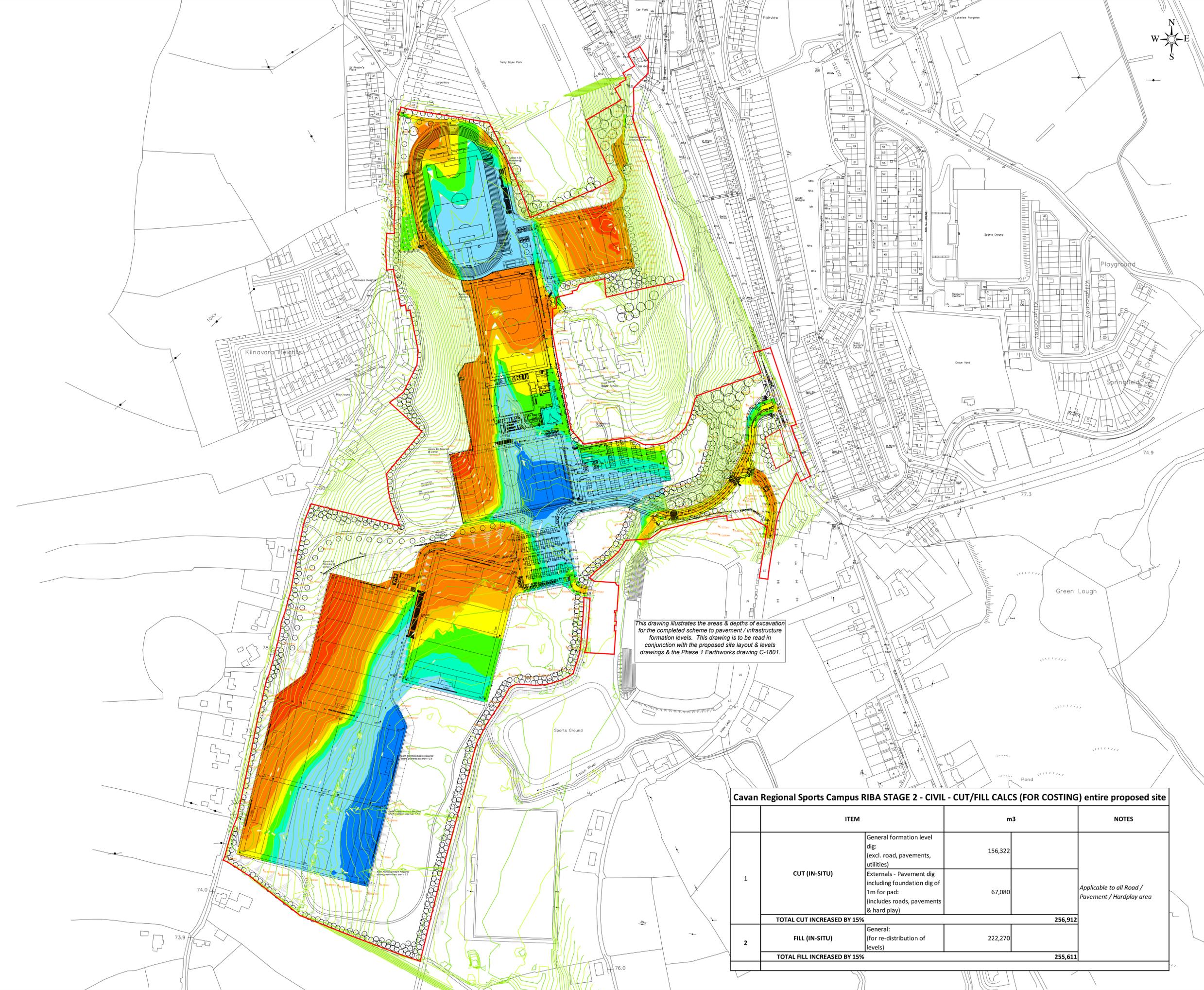
- NOTES:**
- This drawing should be read in conjunction with all relevant drawings (Architectural and Engineering).
 - This drawing is provided to illustrate the excavation depths required from existing ground to formation levels throughout the site. Existing levels indicated taken from Topographical Survey provided by the client.
 - All measurements shown are in metres, and all levels are to ordnance datum unless otherwise indicated.
 - All Coordinates are to Irish Grid, unless otherwise noted.

LEGEND:

- Site boundary
- Existing Primary Contours
- Existing Secondary Contours
- 42.00+ Proposed Levels
- 42.00(ex)+ Existing Levels

CUT Depth Bands	
Band 1	-0.00 - -0.50
Band 2	-0.50 - -1.00
Band 3	-1.00 - -5.00
Band 4	-5.00 - -11.00

FILL Depth Bands	
Band 1	0.00 - 0.50
Band 2	0.50 - 1.00
Band 3	1.00 - 5.00
Band 4	5.00 - 8.00



This drawing illustrates the areas & depths of excavation for the completed scheme to pavement / infrastructure formation levels. This drawing is to be read in conjunction with the proposed site layout & levels drawings & the Phase 1 Earthworks drawing C-1801.

Cavan Regional Sports Campus RIBA STAGE 2 - CIVIL - CUT/FILL CALCS (FOR COSTING) entire proposed site

ITEM		m3	NOTES
1	CUT (IN-SITU) General formation level dig: (excl. road, pavements, utilities) Externals - Pavement dig including foundation dig of 1m for pad: (includes roads, pavements & hard play)	156,322	Applicable to all Road / Pavement / Hardplay area
		67,080	
TOTAL CUT INCREASED BY 15%		256,912	
2	FILL (IN-SITU) General: (for re-distribution of levels)	222,270	
		255,611	
TOTAL FILL INCREASED BY 15%		255,611	

Rev	Issue Date	Description	App

Status: **FOR PLANNING**

Client: **Cavan County Council**

Project: **Cavan Regional Sports Campus**

Drawing: **Proposed Earthworks Layout - Overview**

Scale: **1:2000 @ A1**



Contact Details: 1c Montgomery House, 478 Castlereagh Road, Belfast, BT5 6BQ. T: 028 9040 2000, E: admin@mcadamdesign.co.uk, www.mcadamdesign.co.uk

Drawn: PC, Date: 27/02/2024, Checked: PA, Date: 27/02/2024, Approved: PA, Date: 27/02/2024

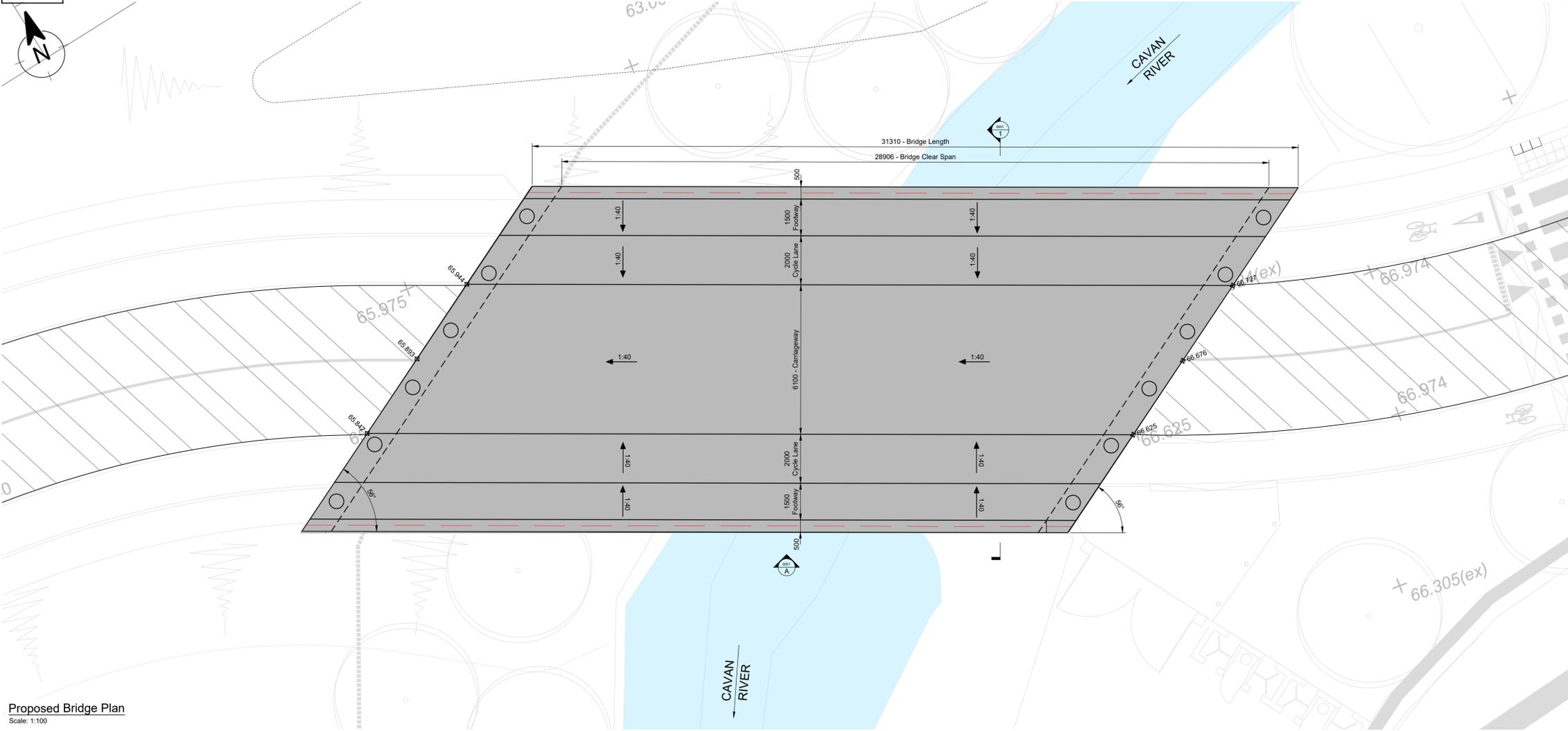
Project: CRSP - MCA - 00 - 00 - DR - C - 1800 - P1

Project Number: A2156, Status code & Description: S4

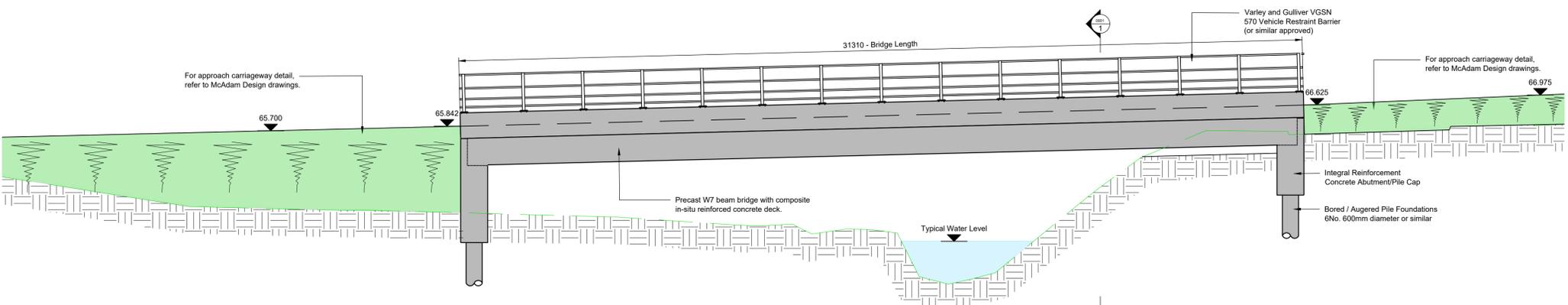
All dimensions are in metres. Figured dimensions to be taken in preference to scale dimensions. Dimensions to be checked on site. © 2021 McAdam Design Ltd.

Appendix 3: Bridge Designs and Construction Method Statement

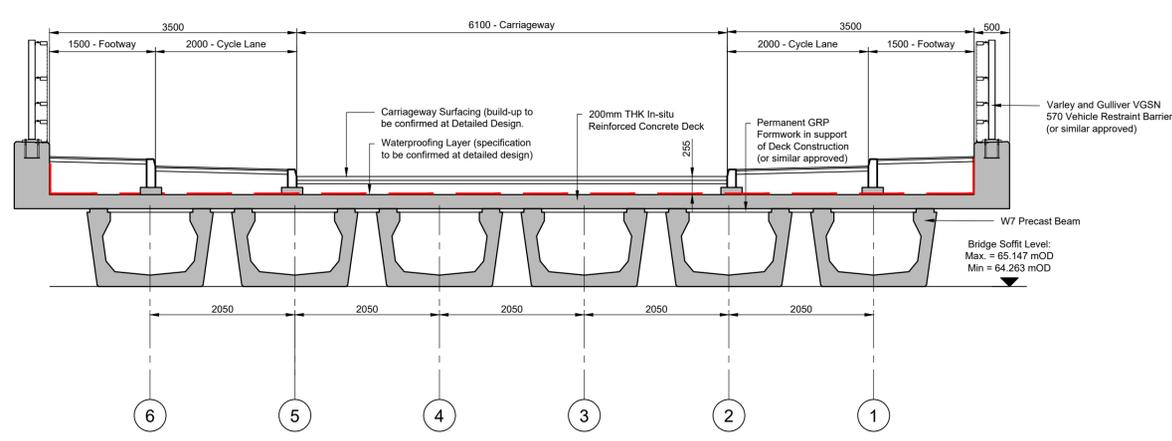
A1 Original



Proposed Bridge Plan
Scale: 1:100



Elevation A
Scale: 1:100



Typical Section 1
Scale: 1:50

General Notes

1. Design ID are responsible for the planning drawings and setting out of the proposed bridge only. For carriageway details refer to McAdam design drawings supplied under separate cover.
2. This Drawing has been produced based on the following drawings supplied by McAdam:
 - CRSP-MCA-ZZ-DR-SK-011 (05.02.24)
 - CRSP-MCA-00-00-DR-C-1100 (05.03.24)
3. The proposed bridge soffit has been set in consideration of achieving a minimum 1031mm freeboard above a 1% AED + CC flood event 63.4mOD as provided by McCloy Consulting. Please refer to Flood Risk Assessment conducted for this scheme issued under separate cover.

Legend

- Cavan River
- Proposed Precast Concrete Deck Structure
- Existing Level (mOD)
- Proposed Level (mOD)
- Existing Ground Level
- VRS Barrier (Varley & Gulliver VGSN 570 Vehicle Restraint Barrier or Similar Approved)
- McAdam Proposed Levels

Rev	Date	Drawn By	Appr. By	Description
P03	05/03/24	LP	RC	Cycle Lane Added
P02	27/02/24	LP	RC	Issued for Stage Approval
P01	26/02/24	LP	RC	Issued for Coordination

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Design ID Structural & Civil Engineers

Think | Design | Engineer mail@designid.co.uk
www.designid.co.uk

Project: Cavan Regional Sports Complex Drawn By: LP
Design ID Project No: 24020

Drawing Title: Bridge Layout and Sections Date Drawn: Feb '24
Scale(s) @ A1: As Shown

Full Document Reference: CRSP-DID-ZZ-XX-DR-C-0001 Suitability & Description: S4 For Stage Approval

Project	Originator	Volume	Level	Type	Role	Number	Revision
CRSP	- DID - ZZ - XX - DR - C -	0001					P03

CONSTRUCTION METHODOLOGY STATEMENT

Introduction

This sketch relates to the Cavan Regional Sports Complex. The purpose of this sketch is to communicate an indicative construction sequence for the road bridge proposed as part of the scheme. The proposed bridge is a single span integral reinforced concrete bridge, supported on piled foundations. For further information, please refer to the following design drawings produced under separate cover.

- CRSP-DID-ZZ-XX-DR-C-0001 (Design ID)
- CRSP-MCA-00-00-DR-C-1100 (McAdam)

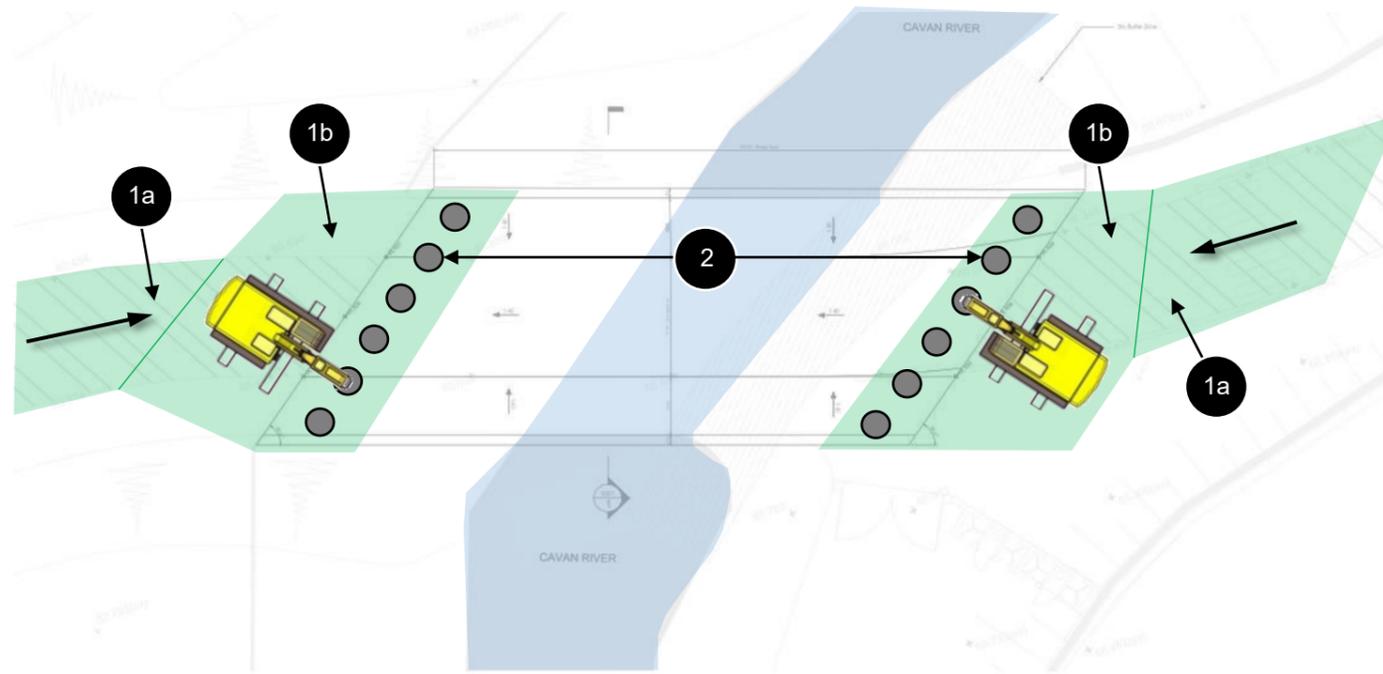
Preliminary Construction Sequence

The construction sequence can be broadly broken into the following key stages:

Stage 1 – The first stage of the works will require enabling excavation to facilitate construction of the foundations. This will include the construction of ramped accesses (1a) and granular working platforms in support of tracked site plant. A geotextile layer would be placed over the existing ground surface prior to placement of any imported granular fill. The Contractor must ensure that any imported fill is appropriately graded and free of contaminants.

Stage 2 – Installation of bored / augured piles to design depth, leaving projecting reinforcement to subsequently tie into pile cap. The use of a bored / augured pile solution results in a reduction in noise and ground vibration, thereby minimising the impact on the environment.

Stage 3 – Formwork and reinforcement tied to the integral RC for the precast beams (3a). It is proposed that the Contractor would pump concrete to the proposed foundation locations to ensure a controlled pour, minimising the risk of concrete contamination to the river (3b).



STAGE 1 & STAGE 2



STAGE 3

Legend

- Granular Working Platform / Access Ramps
- Integral RC Abutment
- Carriageway Surface
- Waterproofing
- Pile Foundation
- Construction Sequence Reference

Please note, the layout detailing the locations of each stage of the construction sequence should be considered indicative only and subject to development at detailed design stage. All in ground and foundation works are proposed to be carried out in Spring / Summer, where the probability of adverse weather conditions is considered low.

CONSTRUCTION METHODOLOGY STATEMENT

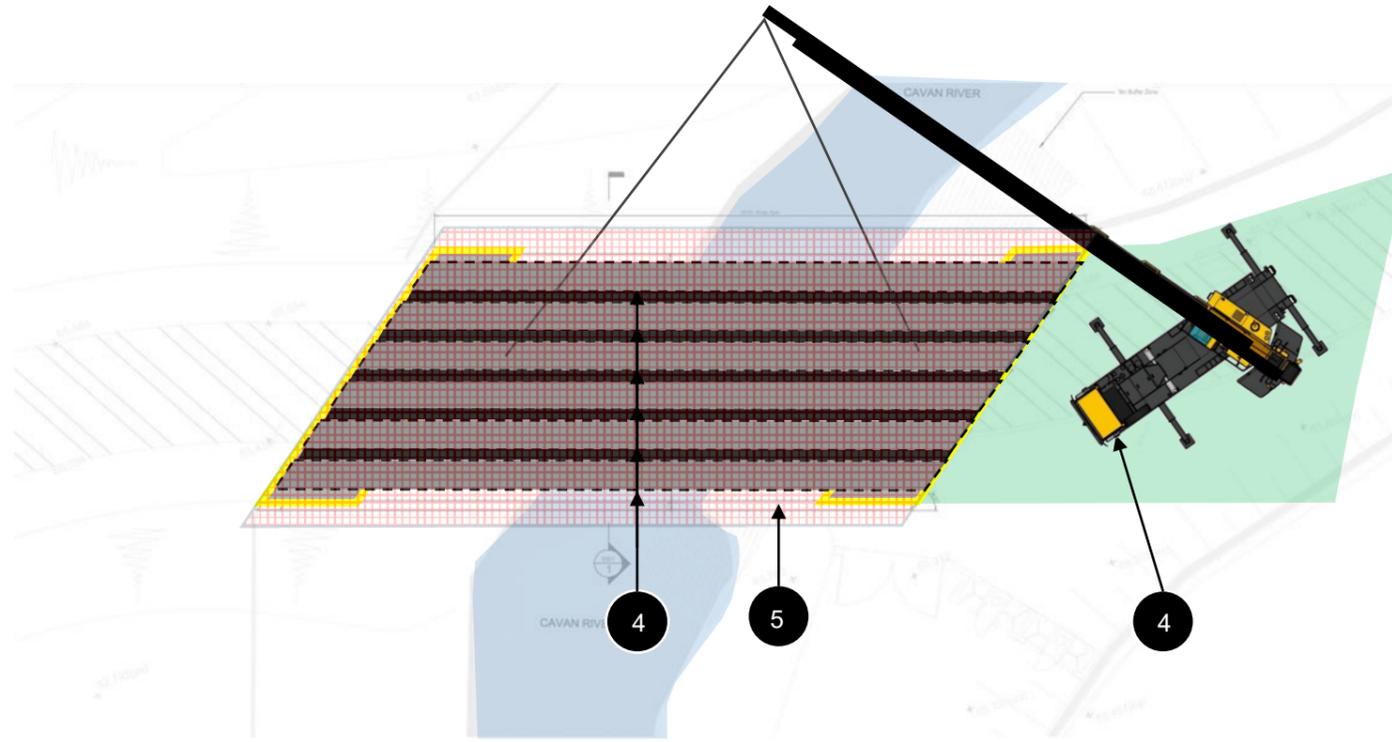
Preliminary Construction Sequence

An indicative construction sequence for the proposed bridge is as outlined below:

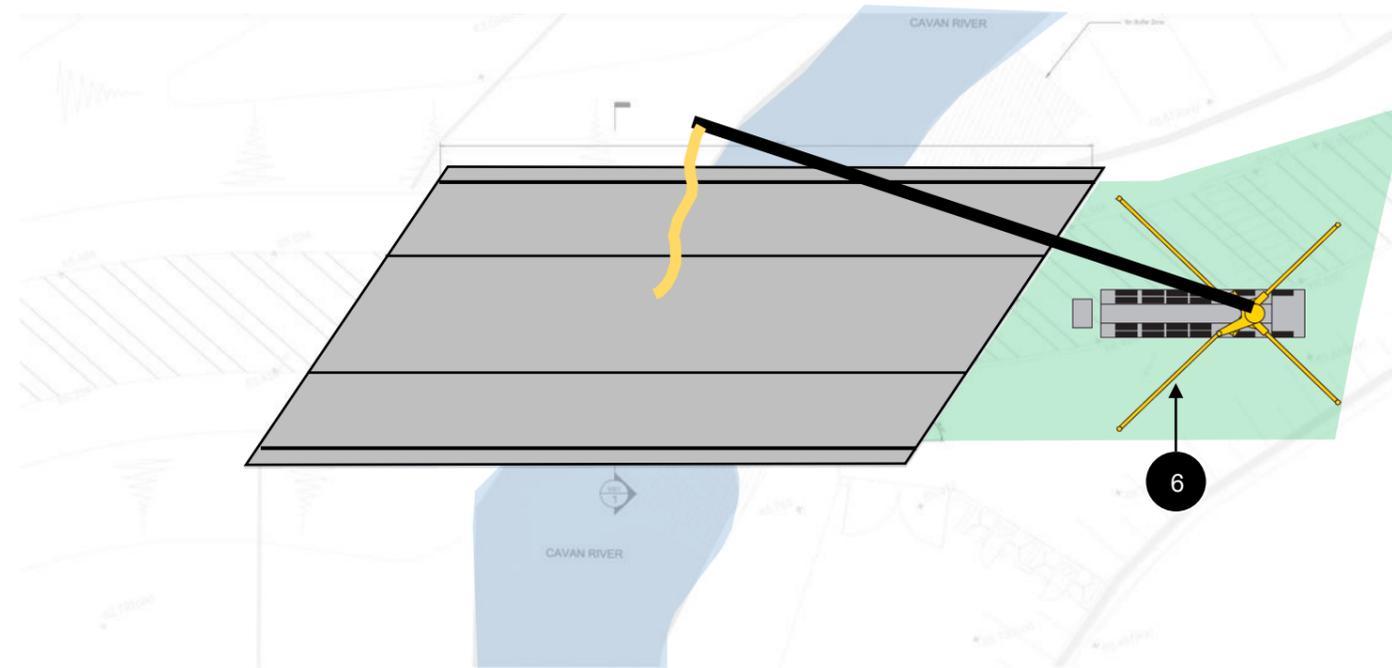
Stage 4 - Transportation and lifting of W beams into place onto the abutments. Beams will be temporarily supported on bearing/grout pads. The use of pre-cast concrete beams as the main load bearing members spanning the river, reduces the risk of contamination of the watercourse by minimising the quantity of in-situ concrete required in the deck construction. In addition, the beams are designed to support the wet weight of the in-situ concrete deck pour. Therefore, there is no requirement to introduce formwork or falsework within the watercourse during the deck construction.

Stage 5 - Tying of reinforcement and casting of deck monolithically to form a jointless integral construction between the precast beams and abutments. All reinforcement tying can be completed from the top surface of the pre-cast beams, minimising the risk of falling debris into the river. By adopting a jointless integral construction, the long-term risk of contamination to the watercourse is also reduced, by minimising surface contaminant pathways. In addition, this construction form does not require formal bearings, therefore reducing the need for ongoing maintenance works and inspection within the sensitive river environment.

Stage 6 - In-situ reinforced concrete pour to the bridge deck would commence. As before, the deck construction would be carried out using a controlled concrete pump and completed in a single pour, to minimise the risk of contamination. It is anticipated given the scale of the pour (~100m³), that a boom pump would be used for this operation.



STAGE 4 & STAGE 5



STAGE 6



Legend

- Granular Working Platform / Access Ramps
- Integral RC Abutment
- Carriageway Surface
- Waterproofing
- Pile Foundation
- # Construction Sequence Reference

Please note, the layout detailing the locations of each stage of the construction sequence should be considered indicative only and subject to development at detailed design stage. All in ground and foundation works are proposed to be carried out in Spring / Summer, where the probability of adverse weather conditions is considered low.

CONSTRUCTION METHODOLOGY STATEMENT

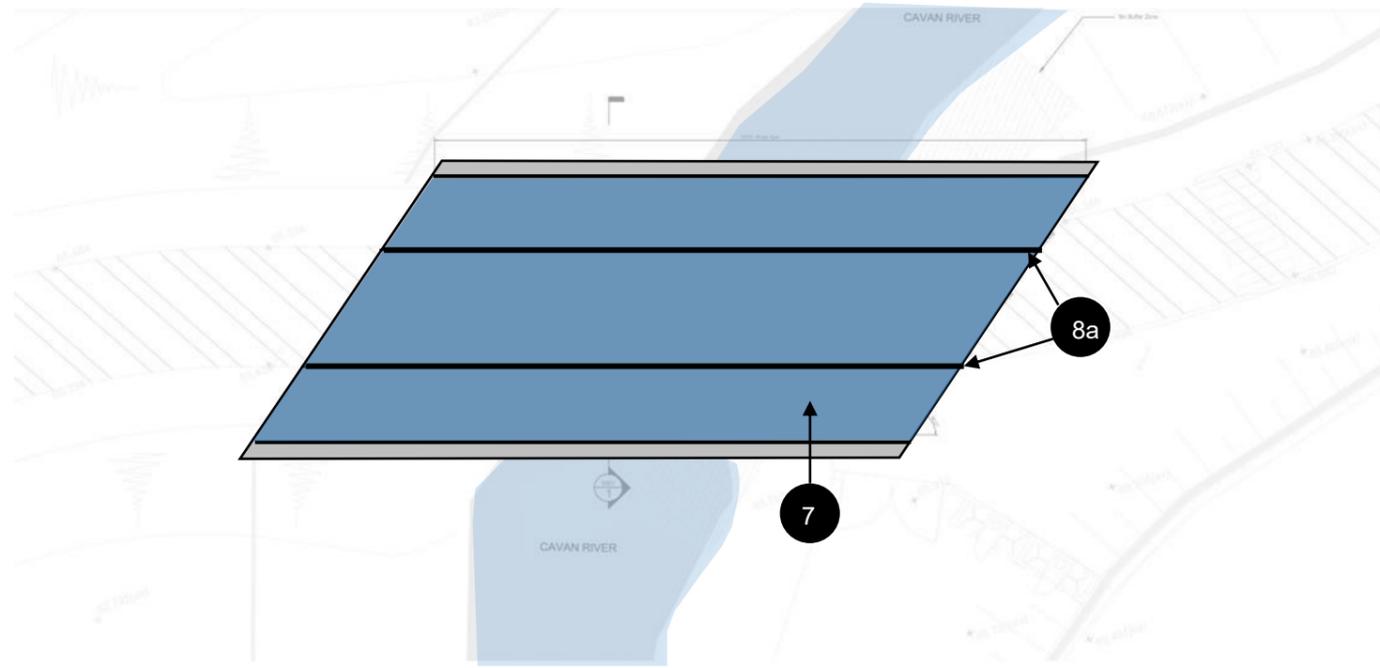
Preliminary Construction Sequence

An indicative construction sequence for the proposed bridge is as outlined below:

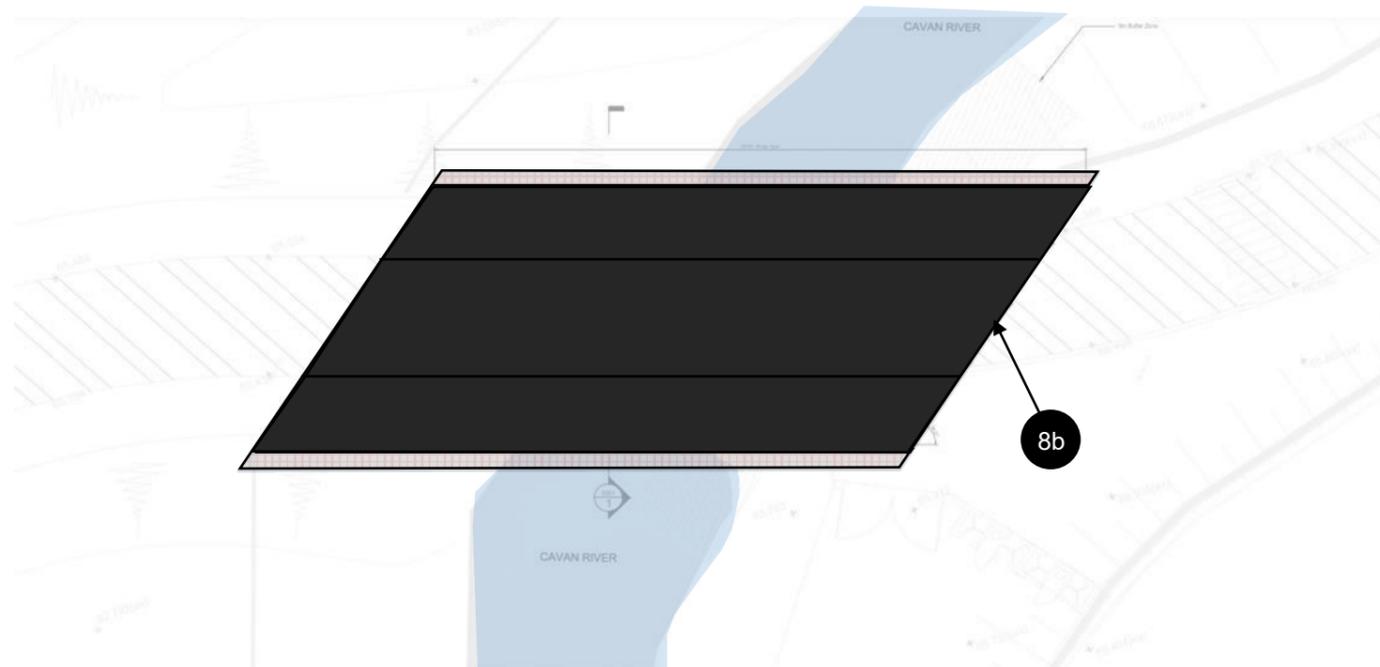
Stage 7 - Installation of waterproofing to bridge deck. The waterproofing would be installed across the full extent of the bridge deck to ensure all precast and permanent formwork joints are sealed, prior to the commencement of the carriageway surface. In the long term this system will ensure that the sensitive river environment is protected against any potential surface contaminants arising at carriageway level.

Stage 8 – Installation of kerbing to the carriageway extents, followed by the construction of the proposed road build-up. The road-build up would be constructed to suit drainage falls as required by the design.

Stage 9 – The final stage of the construction will be to carry out landscaping works and miscellaneous works to include but not limited to the installation of street lighting, vehicle restraint systems and appropriate road signage, where relevant.



STAGE 7 & 8a



STAGE 8b

Legend

-  Granular Working Platform / Access Ramps
-  Integral RC Abutment
-  Carriageway Surface
-  Waterproofing
-  Pile Foundation
-  Construction Sequence Reference

Please note, the layout detailing the locations of each stage of the construction sequence should be considered indicative only and subject to development at detailed design stage. All in ground and foundation works are proposed to be carried out in Spring / Summer, where the probability of adverse weather conditions is considered low.

Appendix 4: Development Phasing, Phase 1 and Phase 2

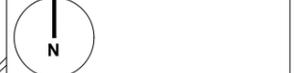
LEGEND

- 1** Sports Building
 - 2** Sports Arena
 - 3** Synthetic Hockey Pitch (non-water based)
 - 4** Athletics Track (400m)
 - 5** External Synthetic Multi-Sport Pitch
 - 6** Sand Mattress GAA Fields
 - 7** Covered Stands (3No.)
 - 8** Toilet Block
 - 9** Cricket Practice Nets
- SITE BOUNDARY
 - INTERFACE BETWEEN PHASE 1&2 WORKS
 - NATURAL TURF PITCH SURFACE
 - SYNTHETIC GRASS PITCH SURFACE
 - ATHLETICS TRACK - EPDM POLYMERIC RUBBER SURFACE
 - GRASS SURFACE / SOFT LANDSCAPED AREAS (Refer to Landscape Architects Drawings ref: CSC-MLA-XX-0-DR-L-2001)
 - EXISTING NATURAL LANDSCAPE AND HABITAT MAINTAINED
 - WILDLIFE HABITAT CREATION ZONE (Refer to Landscape Architects Drawings ref: CSC-MLA-XX-0-DR-L-2001)
 - CUT MATERIAL FROM SITE USED TO FILL TO PHASE 2 FORMATION LEVELS AND SURFACE SOWN WITH GRASS SEED
 - PEDESTRIAN PAVEMENT - ASPHALT / BITMAC
 - PEDESTRIAN PAVEMENT - NATURAL GRANITE AGGREGATE CONCRETE PAVING SLABS
 - VEHICULAR PAVEMENT - ACCESS ROAD / PARKING
 - EXISTING DENSE HEDGEROW VEGETATION
 - EXISTING TREE
 - PROPRIETARY CONCRETE BLOCK GEOSYNTHETIC REINFORCED SEGMENTAL RETAINING WALL SYSTEM (Refer to drawings CSC-MCA-01-XX-DR-A-8001 & 2)
 - TIMBER CRIBB RETAINING WALL STRUCTURE (Refer to drawings CSC-MCA-01-XX-DR-A-8001 & 2)
 - 12M HIGH BALL CATCH NET (Refer Detail B on Dwg A2156-800-02)
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 - 1.2M HIGH TIMBER POST & RAIL FENCE (Refer Detail H on Dwg A2156-800-03)
 - 2M HIGH TIMBER ACOUSTIC FENCE (Refer Detail C on Dwg A2156-800-03)
 - 600MM HIGH TIMBER KNEE RAIL FENCE (Refer Detail D on Dwg A2156-800-03)
 - PROPOSED ACCESSIBLE SHARED PEDESTRIAN AND CYCLE ROUTE LINKING DUBLIN ROAD AND KILNAVARRAGH LANE - Max Gradient < 1:21
 - PROPOSED LOCATION OF FLOODLIGHT COLUMN (Refer Detail L on Dwg A2156-800-03)
 - PROPOSED BOLLARD PATHWAY LIGHT (Refer Detail J on Dwg A2156-800-03)
 - PROPOSED LIGHTING COLUMN - SINGLE LUMINAIRE (Refer Detail K on Dwg A2156-800-03)
 - PROPOSED LIGHTING COLUMN - DOUBLE LUMINAIRE (Refer Detail K on Dwg A2156-800-03)
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 - PROPOSED REMOVABLE BOLLARD - STAINLESS STEEL WITH VISIBILITY BAND. REFER TO LANDSCAPE MATERIALITY SHEET CSC-MLA-XX-00-DR-L-3001
 - PROPOSED LITTER BIN. REFER TO LANDSCAPE MATERIALITY SHEET CSC-MLA-XX-00-DR-L-3001
 - PROPOSED EV CHARGING PARKING SPACE
 - PROPOSED ACCESSIBLE PARKING SPACE
 - PROPOSED LEVELS

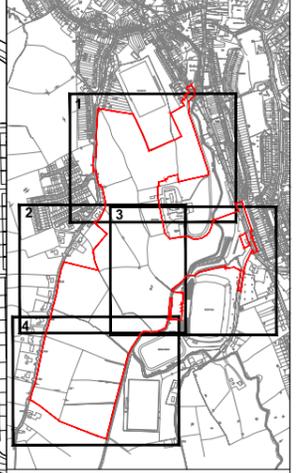


NOTES

- 1. All measurements shown are in metres, and all levels are to ordnance datum unless otherwise indicated
- 2. All Coordinates are to Irish Grid, unless otherwise noted.



KEY PLAN



Rev	Issue Date	Description	App

Status	PLANNING
Client	Cavan County Council
Project	Cavan Regional Sports Campus
Drawing	Proposed Site Plan - Phase 1 - Overall
Scale	1:1250 @ A0

McAdam
ENHANCING LOCAL COMMUNITIES

Contact Details: 10 Montgomery House, 478 Castleknock Road, Belfast, BT5 6BG. T: 028 9040 2000, E: adam@mcadamdesign.co.uk, www.mcadamdesign.co.uk

Drawn	moc	Checked	pa	Approved	moc
Date	26/02/24	Date	26/02/24	Date	26/02/24
Project Number	A2156	Drawing Number	100-20	Revision	-

LEGEND

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- SITE BOUNDARY
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- 3.0M HIGH OPEN MESH FENCING (Refer Detail G on Dwg A2156-800-03)
- 4.2M HIGH OPEN MESH FENCING (Refer Detail G on Dwg A2156-800-03)
- 1.3M HIGH GALVANISED STEEL SAFETY RAILINGS (Refer Detail F on Dwg A2156-800-03)
- 1.2M HIGH TIMBER POST & RAIL FENCE (Refer Detail H on Dwg A2156-800-03)
- 2M HIGH TIMBER ACOUSTIC FENCE (Refer Detail C on Dwg A2156-800-03)
- 600MM HIGH TIMBER KNEE RAIL FENCE (Refer Detail D on Dwg A2156-800-03)
- PROPOSED ACCESSIBLE SHARED PEDESTRIAN AND CYCLE ROUTE LINKING DUBLIN ROAD AND KILNAVARRAGH LANE - Max Gradient < 1:21
- PROPOSED LOCATION OF FLOODLIGHT COLUMN (Refer Detail L on Dwg A2156-800-03)
- PROPOSED BOLLARD PATHWAY LIGHT (Refer Detail J on Dwg A2156-800-03)
- PROPOSED LIGHTING COLUMN - SINGLE LUMINAIRE (Refer Detail K on Dwg A2156-800-03)
- PROPOSED LIGHTING COLUMN - DOUBLE LUMINAIRE (Refer Detail K on Dwg A2156-800-03)
- ELECTRIC VEHICLE (EV) CHARGE POINT
- PROPOSED DUCTING PROVIDED FOR FUTURE EV CHARGING POINT
- PROPOSED FIXED BOLLARD - STAINLESS STEEL WITH VISIBILITY BAND. REFER TO LANDSCAPE MATERIALITY SHEET CSC-MLA-XX-00-DR-L-3001
- PROPOSED REMOVABLE BOLLARD - STAINLESS STEEL WITH VISIBILITY BAND. REFER TO LANDSCAPE MATERIALITY SHEET CSC-MLA-XX-00-DR-L-3001
- PROPOSED LITTER BIN. REFER TO LANDSCAPE MATERIALITY SHEET CSC-MLA-XX-00-DR-L-3001
- PROPOSED EV CHARGING PARKING SPACE
- PROPOSED ACCESSIBLE PARKING SPACE
- PROPOSED LEVELS



- NOTES
1. All measurements shown are in metres, and all levels are to ordnance datum unless otherwise indicated
 2. All Coordinates are to Irish Grid, unless otherwise noted.



KEY PLAN



Rev	Issue Date	Description	App

Status: **PLANNING**
 Client: Cavan County Council
 Project: Cavan Regional Sports Campus
 Drawing: Proposed Site Plan - Phase 2 - Overall
 Scale: 1:1250 @ A0

McAdam
 ENHANCING LOCAL COMMUNITIES

Contact Details: 10 Montgomery House, 478 Castleagh Road, Belfast, BT5 6BQ. T: 028 9040 2000, E: adam@mcadamdesign.co.uk, www.mcadamdesign.co.uk

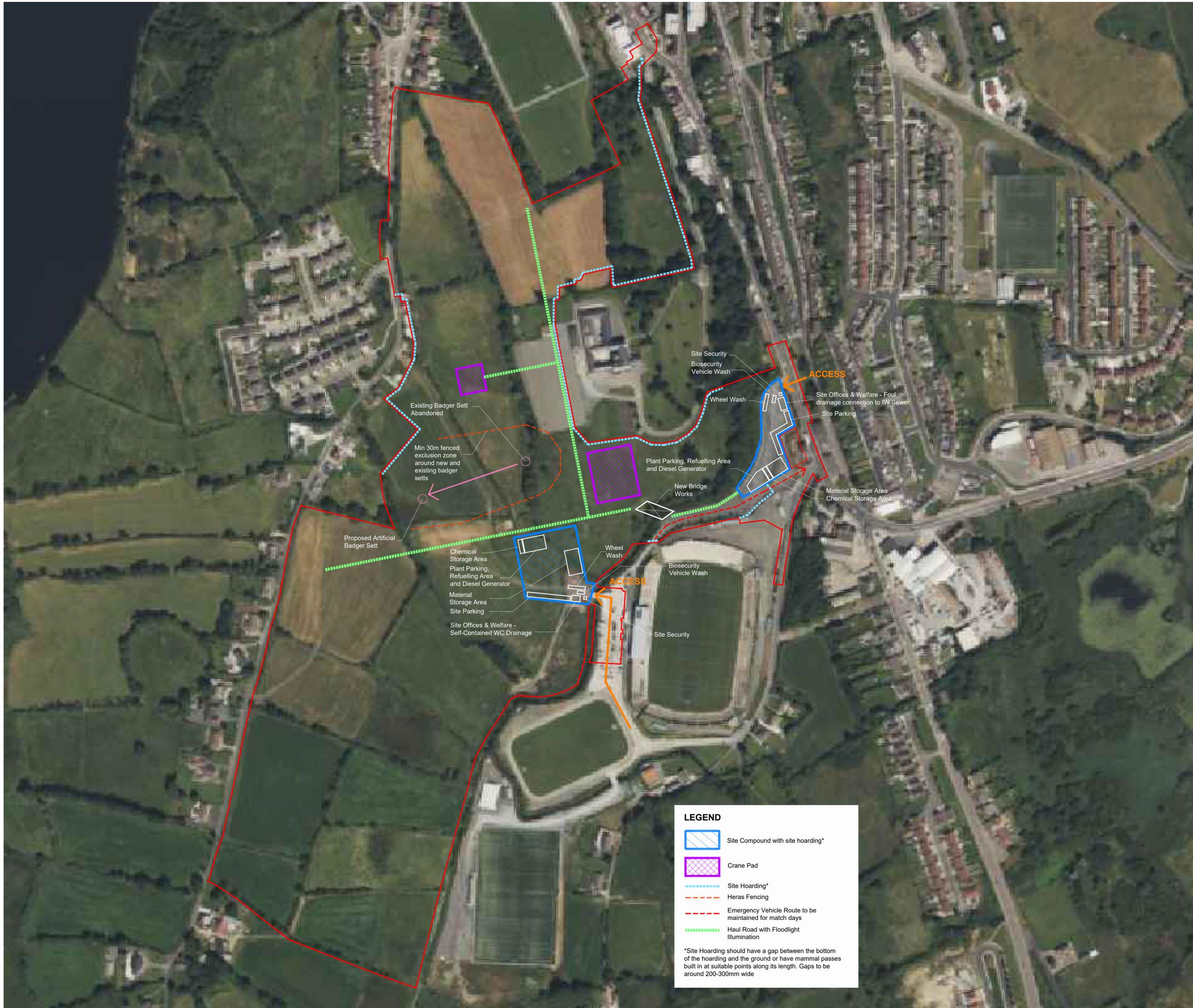
Drawn	Checked	Approved
mmc	pa	oc
Date: 26/02/24	Date: 26/02/24	Date: 26/02/24

Project Number: A2156
 Drawing Number: 100-30
 Revision: -

All dimensions are in metres. Figured dimensions to be taken in preference to scale dimensions. Dimensions to be checked on site. © 2024 McAdam Design Ltd.



Appendix 5: Construction Layouts, Phase 1 and Phase 2



NOTES

1. All measurements shown are in metres, and all levels are to ordnance datum unless otherwise indicated
2. All Coordinates are to Irish Grid, unless otherwise noted.

LEGEND

- Site Compound with site hoarding*
- Crane Pad
- Site Hoarding*
- Heras Fencing
- Emergency Vehicle Route to be maintained for match days
- Haul Road with Floodlight Illumination

*Site Hoarding should have a gap between the bottom of the hoarding and the ground or have mammal passes built in at suitable points along its length. Gaps to be around 200-300mm wide

Rev	Issue Date	Description	App
-	-	-	-

Status **PLANNING**

Client **Cavan County Council**

Project **Proposed Phase 1 Construction Layout**

Drawing

Scale **1:2000 @ A1**



Contact Details 1c Montgomery House 478 Castlereagh Road Belfast, BT5 6BQ T: 028 9040 2000 E: admin@mcadamdesign.co.uk www.mcadamdesign.co.uk

Drawn moc	Checked pa	Approved moc
Date 28/02/24	Date 28/02/24	Date 28/02/24

Project Number A2156	Drawing Number 100-40	Revision -
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All dimensions are in metres. Figured dimensions to be taken in preference to scale dimensions. Dimensions to be checked on site. © 2021 McAdam Design Ltd.



NOTES

1. All measurements shown are in metres, and all levels are to ordnance datum unless otherwise indicated
2. All Coordinates are to Irish Grid, unless otherwise noted.

Plant Parking, Refuelling Area and Diesel Generator
Chemical Storage Area
Material Storage Area

Wheel Wash
Biosecurity
Vehicle Wash
Site Security

Site Parking
Site Offices & Welfare - Foul drainage connection to IW Sewer

Plant Parking, Refuelling Area and Diesel Generator

Material Storage Area

Chemical Storage Area

Artificial Badger Sett
Site Parking

ACCESS

Site Security
Biosecurity
Vehicle Wash
Wheel Wash

Site Offices & Welfare - Foul drainage connection to IW Sewer

LEGEND

- Site Compound with site hoarding*
- Crane Pad
- Site Hoarding*
- Interface between Phase 1&2 Works
- Haul Road with Floodlight Illumination

*Site Hoarding should have a gap between the bottom of the hoarding and the ground or have mammal passes built in at suitable points along its length. Gaps to be around 200-300mm wide

Rev	Issue Date	Description	App
-	-	-	-

Status **PLANNING**

Client **Cavan County Council**

Project **Proposed Phase 2 Construction Layout**

Drawing

Scale **1:2000 @ A1**



Contact Details 1c Montgomery House 478 Castlereagh Road Belfast, BT5 6BQ T: 028 9040 2000 E: admin@mcadamdesign.co.uk www.mcadamdesign.co.uk

Drawn moc	Checked pa	Approved moc
Date 28/02/24	Date 28/02/24	Date 28/02/24

Project Number A2156	Drawing Number 100-41	Revision -
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All dimensions are in metres. Figured dimensions to be taken in preference to scale dimensions. Dimensions to be checked on site. © 2021 McAdam Design Ltd.

Appendix 6: Environmental Incident Response Form

ENVIRONMENTAL INCIDENT RESPONSE FORM

Incident date	Incident time	Report date	Report time

Incident Ownership		
Division	Sub Division	Unit or Dept

Description of what happened

Exact incident location			
On or off site		Location	Sub-area

PERSON INVOLVED

Category of person (✓)
Employee () Contractor () Visitor () Environmental () Member of public ()

Nature of involvement (✓)
Witness () First person on scene () Other ()

Person's name					
Name:	Mr/Mrs/Miss/Ms	First name:		Last name:	

OTHER INFORMATION

Site Manager in attendance (If applicable)	
Reported in Duty Log/Site Book?	Yes () No () N/A ()

Type of Incident (✓)

Breach of limits/Licence Cond. () Oil & Chemical Storage () Spillage/Spillage Response ()
 Waste Storage & Disposal () Serious Public/Other Complaint () Water Abstraction/disposal ()
 Third Parties and Supply Chain () Smoke, Fumes & Odour () Natural Environment & Wildlife ()
 Light Pollution () Noise Nuisance () Other ()
 If 'Other', please describe:

Is this a reportable incident?

Yes () No () Unknown ()

If yes, which agency?

What are the actual or foreseeable potential consequences known at this time? (✓)

Prosecution () Enforcement Notice (Imp/Proht) () Civil Claim ()
 Clean Up/Restoration () Breach of Licence Requirements () Adverse Publicity/Reaction ()
 Adverse Customer Reaction () Contamination of Water () Habitat or Species ()
 Health Effects ()

Please provide any other relevant material**What immediate actions have been taken?****Incident reported by**

Name:

Tel No:

Date:

Appendix 7: Works Method Statement and Site Risk Assessment (examples)

The Method of Works Statements references in this appendix is based on advice and guidance contained in Guidance for Pollution Prevention Works and maintenance in or near water: GPP 5 Version 1.2 February 2018

What should a Method Statement include?

There is no universal format for the contents of a method statement as every job is different and therefore all method statements should be job or site specific. This Method Statement is presented in this appendix and main points are highlighted on these introductory pages and also references other measures set out in other appendices.

Basic Contract/Job Information

Site of Proposed Development: The extent of the site area is shown on the enclosed proposed site plan in **Appendix A** of this OCEMP.

Description of Proposed Development: Proposed intercommunity development

Contract/Job Details

Required Information	Details
The name and address of the company undertaking the works	
The intended start date on site	
Details of the nature of the work that is to be undertaken	
The number of operatives/workers who will be involved in the works	
The name (s) of the supervisor(s) or person(s) responsible for health and safety	
The anticipated date for completion of the works	

Method of Work

Information Required	Details
A description of how the works are to be carried out in relation to the task and site-specific hazards	
A schedule of the works and a sequence of the operations/tasks	
Details of where the work is to take place and whether this designated area requires segregation.	
Where applicable the inclusion of details regarding other subcontractors who may affect your works or details of how you will affect the works of other subcontractors	
For high risk works provide a detailed description of intended emergency procedures	
A description of how the works are to be carried out in relation to the task and site-specific hazards	



Site Specific Risk Assessment

R.A. No

01

General Risk Assessment

Created by:		Full Address and OS Reference	
Tel:			
Job Ref:			
Start Date and Time			
End Date and Time			

Emergency

Designated Meeting Place:	
Nearest Access Point:	
Means of Access (4x4, On Foot, etc:)	
Suitable for Helicopter Operations:	
Nearest Hospital and Tel:	

Description of Work Environment and Activity Undertaken

Select Hazards Likely to be Encountered

Working at Height []	Slips Trips Falls []	Manual Handling []	Entanglement in Rotating Plant []
Impact Injury []	High Pressure Injection []	Hot Surface / Liquid []	Electricity []
Cutting Grinding []	Hazardous Atmosphere []	Access / Egress []	Ingestion of Hazardous Chemicals []
Asphyxiation []	Noise []	Entrapment []	Wells Disease []
Contact with Chemicals []	Exposure to Biological Dangerous Agents []	Fire []	Explosion
Adverse Weather []	Crushing []	Leakage / Spills []	Safety Equipment Failure []
Collapsed Structure []	Environmental Contamination []	Vibration []	Aggressive Behaviours []
Water / Drowning []	Plant / Vehicle movement []	Stress []	Hot Works []
Aggressive Animals []	Confined Space Entry []	Compressed Gases []	Working at Night []
Lifting / Slings []	Falling Objects []	Lone Working []	Other []
If Other Specify:			



Site Specific Risk Assessment

R.A. No

01

Attach Rescue Plan if Required

N/A

Permission to Work

I agree to work within the conditions indicated on this permit and accept the responsibility as the person directly in charge of the work. I declare that all work at height will be carried out in accordance with the requirements published in the most current version of Health and Safety at Work (Northern Ireland) Order 1978 and in consideration of the SMS that applies to my workplace.

Performing Authority	Name		
	Signature		Date

I hereby declare that the person identified on this permit is authorised to carry out the work at height subject to the terms and conditions of this permit

Area Authority	Name		
	Signature		Date

Job Completion / Cancellation

All work associated with this permit has been completed. All equipment associated with this permit has been returned in serviceable condition and the job site is clear of any hazards associated with this work.

Performing Authority	Name		
	Signature		Date

Work completed and area inspected and satisfactory.

Area Authority	Name		
	Signature		Date

Were there any incidents or near misses associated with this work?

No Yes (Near Miss report to be completed if so)

Appendix 8: Spill Response Procedures and Risk Assessment (example)

**INFORMATION WITHIN THIS APPENDIX IS EXTRACTED FROM:
GUIDANCE FOR POLLUTION PREVENTION DEALING WITH
SPILLS: GPP 22 Oct 2018 (VERSION 1)**

Common causes of spills include

- overfilling or poor handling of containers
- damaged containers
- containment failure
- failure of pipework or underground tanks
- collision or accident
- weather related problems e.g. flooding, fires, vandalism

Assess the risk

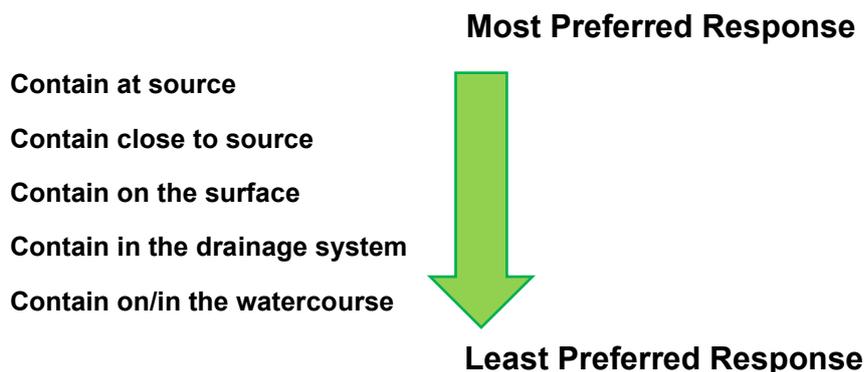
Risk assessment that needs to be considered:

- physical, chemical and biological properties of any material that maybe spilt;
- how materials are stored or transported and the condition of storage containers;
- possible effects of accidents, flooding, vandalism and failure of containment;
- location, including how close you are to local water courses, sensitive groundwater locations, public
- water abstraction points and environmentally sensitive areas;
- surface water drains and foul sewers that flow off your site;
- any sustainable drainage systems you have on your site;
- operations and layout of your site, or factors to look out for in road traffic collisions;
- risks posed to people and the environment and the extent of the possible damage;
- local landscape and different weather conditions and the flood risk that could be reasonably expected at and around your site.

A risk assessment can be carried out in stages:

- A. identify the materials you store or handle on site and activities that may be a hazard;**
- B. identify and assess potential links between each hazard source, pathways and receptors;**
- C. assess the likelihood and magnitude of any potential harmful effects.**

Refer to Part D of this Appendix for risk assessment forms.



- The most effective place to stop a spill is where the spill is happening, **at the source**.
- If you can't stop the spill where it's happening, aim to stop it **as close to** the source as possible.
- If the spill is spreading, aim to **stop the material** getting into drains or onto any unsurfaced ground.
- If the spill has entered the drainage system, try to **keep it there** and stop it entering the environment.
- If the spill has escaped into a watercourse, you may be able to limit the environmental damage by **containing it** on or in the watercourse

Spill Response Procedure

If the spill cannot be safely contained or if the spill is causing a threat to life, evacuate the area and call **999** from a safe location

IF SAFE TO DO SO

STOP > CONTAIN > NOTIFY > CLEAN-UP

STOP

- Stop work immediately
- Stop the leak or eliminate the source of the spill
- Eliminate ignition sources and provide natural ventilation

CONTAIN

- Use pollution control equipment (e.g. spill kits, drip trays, bunds of earth and sand) to contain the spill
- Check the spill has not reached any drains, water courses or other sensitive areas
- Cover all drains / manholes to prevent the spill from entering the drainage system

NOTIFY

- Once the spill has been contained notify your emergency contact. Details at the bottom of the page.

CLEAN-UP

- Attempt to soak up the spill using absorbent material
- Always follow your Duty of Care for waste when disposing of contaminated materials including spill kit/equipment.

EMERGENCY CONTACT DETAILS (Complete with your business details)

NAME	TELEPHONE	NEAREST SPILL KIT

Appendix A: Example Risk Assessment

Hazard <i>What has the potential to cause harm?</i>	Source <i>Source(s) of hazard</i>	Pathway <i>How can the hazard reach the receptor?</i>	Receptor(s) <i>What/who is at risk?</i>	Risk management actions <i>What measures will be taken to reduce the risk?</i>	Exposure probability <i>How likely is this to happen?</i>	Consequence <i>What harm can be caused?</i>	Overall Risk <i>What is the risk?</i>
Fuel/chemicals/oil leak	Fuel oil storage areas Refuelling areas Site plant/machinery	Land, groundwater and air	Ground Surface water/groundwater Local school to the north of the site Local residents (located in the residential area to the north west of the site)	Follow refuelling protocol at all times Only use suitable containers to store fuel/oil and store these according to the oil storage regulations and away from sensitive receptors Store solvents, chemicals and parts in accordance with the COSHH data sheets Bulk fuel storage should be integrally bunded or kept within a bunded area Use drip trays/plant nappies for plant / machinery Implement and follow procedures for storage, use, delivery, inspection and monitoring of polluting substances	Possible	Water pollution Contaminated ground Odour nuisance	Low if the risk management techniques are applied
Dust / Particles	Site surfaces (dry and windy weather) Soil stockpiles Earthworks using mobile plant	Air	Site personnel/visitors Local school Local residents	Damp down earthworks during dry weather Locate stockpiles out of the wind (or if necessary provide wind breaks) Vegetate soil stockpiles Minimise the height of fall of materials during earthworks	Likely – esp. during summer months	Dust nuisance	Low if the risk management techniques are applied

Hazard <i>What has the potential to cause harm?</i>	Source <i>Source(s) of hazard</i>	Pathway <i>How can the hazard reach the receptor?</i>	Receptor(s) <i>What/who is at risk?</i>	Risk management actions <i>What measures will be taken to reduce the risk?</i>	Exposure probability <i>How likely is this to happen?</i>	Consequence <i>What harm can be caused?</i>	Overall Risk <i>What is the risk?</i>
Odours	Biodegradable waste on site	Air	Site personnel/visitors Local school Local residents	Store waste away from site boundary, main access roads and downwind of sensitive receptors Use covered containers for organic waste (e.g. food, weeds and other vegetation) and remove wastes frequently	Likely	Odour nuisance	Low if the risk management techniques are applied
Leachate	Stored wastes	Ground	Surface water/ groundwater	Use covered containers suitable for their contents Ensure waste storage containers are in good order i.e. not corroded or worn out Store waste away from sensitive receptors i.e. water environment, drains. Store waste in areas away from vehicle movements to minimise the risk of impact	Possible	Water pollution	Low if the risk management techniques are applied

Appendix 9: Complaints Form

Example Complaints Forms	
1	Have any complaints been received? If so, please detail:
2	The name and contact details of the complainant
3.	Date and time of the complain
4	Nature of complaint
5	Action taken to resolve issues
6	Date of complaint handover
7	Name of person addressing the complaint Company Signature