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Adamstown Boulevard Phase 1, Adamstown SDZ

Construction & Environmental Management Plan

Prepared by

Quintain Developments Ireland Ltd

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1. Introduction

Quintain Developments Ireland Limited has prepared this Construction and Environmental Management Plan (CEMP) for submission to South Dublin County Council. This proposed Phase 1 of the Boulevard Tile at Adamstown SDZ, is described generally as: -

- Provision of 257no. terraced and semi-detached housing units ranging from 2 to 3-storeys in height
- Outline permission is also being sought for 161no. apartments units in a block of 6-storeys (5+ penthouse) in height. As this block of apartments cannot be built on foot of an Outline Permission only, this CEMP does not address same, rather these issues will be addressed in a subsequent Application Consequent of Outline Permission. This approach is confirmed in Figure 1.0 below where an indicative construction phasing is set out, excluding the apartments.
- Provision of public open space including a Pocket Park and a Linear Park which stretches from Adamstown Way to Station Road allowing a continuation of the Aderrig Park to the north
- The provision of vehicular access points to the development from Adamstown Avenue, Adamstown Way and Station Road with connection to the Celbridge Link Rd at Adamstown Way.
- All associated and ancillary site development, infrastructural, landscaping and site boundary works.

Planning Reg. Reference SDZ22A/0007, granted on October 3rd, 2022.

This Construction and Environmental Management Plan sets out the proposed arrangements and measures which may be undertaken during the construction phase of the project to mitigate and minimise disruption/ disturbance to the area around the site.

The purpose of this CEMP is to summarise the possible impacts of the construction work activities and measures to be implemented to guide the main contractor who will be required to develop and implement the Planning Compliance Construction Management Plan post grant of planning permission on site during the construction period.

The purpose of this plan is to provide information to the planning authority to ensure that the management of construction at site is undertaken by the main contractor in accordance with current regulatory and best practice industry standards.

As is normal practice, the main contractor for the project is responsible for the construction methodology and the sequencing of construction works on site and to ensure that statutory and regulatory obligations including Local Authority requirements, compliance with planning conditions and health, safety & environmental legislation are complied with.

The main contractor is also responsible for the design and installation of all temporary works and associated safety required to complete the permanent works. This plan should be used by the main contractor before the commencement of Adamstown Boulevard Phase 1 works to develop their construction management plan during the execution stage and is subject to agreement with South Dublin Co. Co. as part of any requirements to comply with stated conditions of planning.



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This CEMP will act as a Method Statement which describes the anticipated construction programme and the nature of the activities to be undertaken. It identifies the environmental considerations associated with these activities and outlines appropriate measures that will be implemented for their mitigation.

This assessment has been made using the experience of the Applicant and their professional advisors based on the typical construction methods and strategies that can be reasonably anticipated at this stage of the process.

This CEMP will be reviewed post planning approval stage to ensure any conditions appended to same are assessed appropriately prior to commencing the work.

The issues that have been considered in this document are as follows:

- Construction programme and phasing:
- Enabling works.
- Infrastructure works.
- Description of works.
- Site logistics.
- Indicative construction methods.
- Safety, health, and environmental provision.

2. Construction Programme & Phasing

It is proposed that the Housing component only of Phase 1 of Adamstown Boulevard will be built under one construction programme. It should be noted that the Phase 1 Apartment Block which is under an Outline Planning Application will not be constructed alongside the Houses and will require a full planning grant for construction to commence, as such this will happen at a later date and this CEMP relates to the Housing component of Phase 1 delivery only.

The proposed construction phasing for the Phase 1 Houses is set out below. The intention is to service the construction of the Houses from west to east; Phases 1 to 5 on the below Phasing Plan. The public open spaces are to be constructed in tandem. At each stage of the Development some or all the following activities will be required.

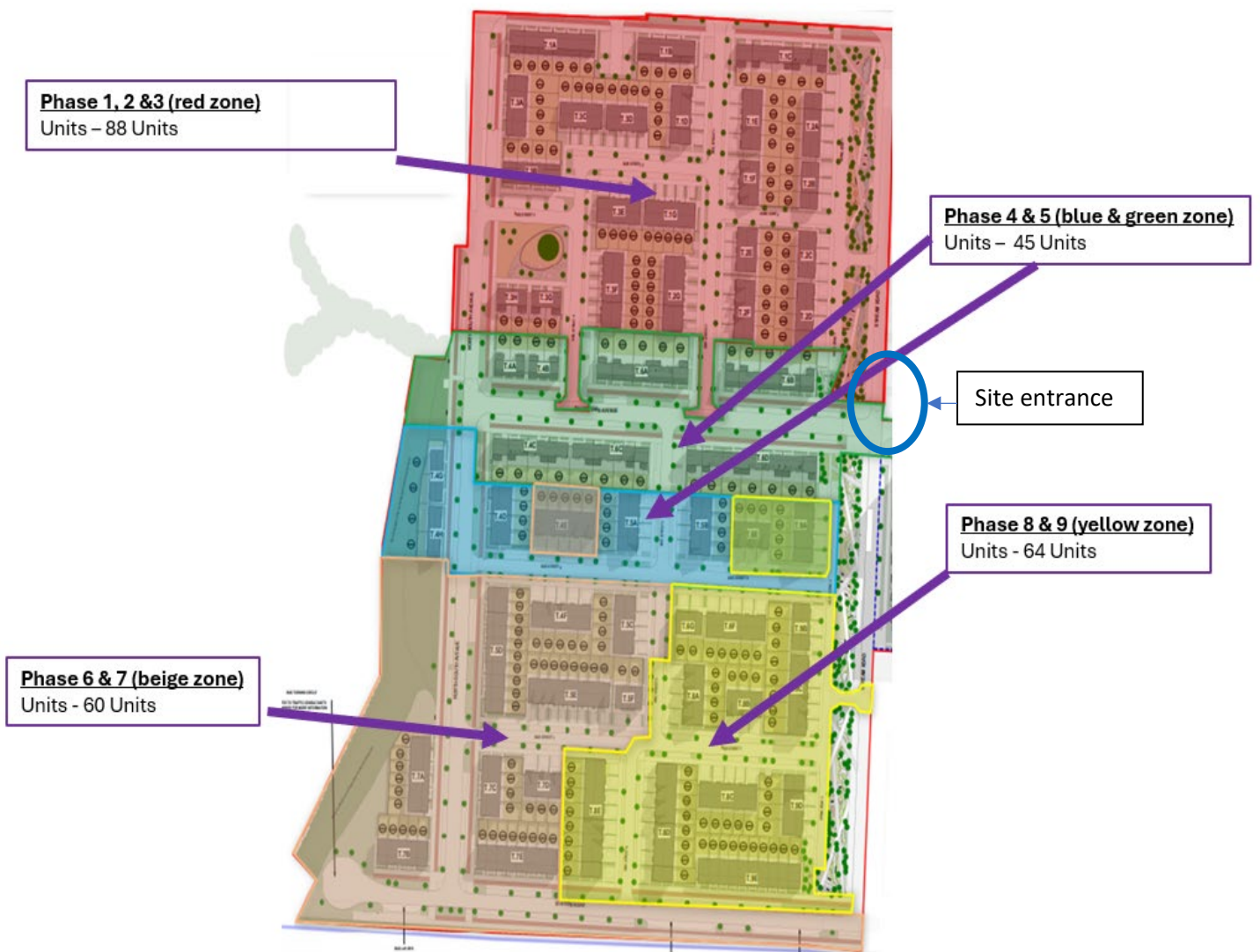
- Geotechnical Investigation.
- Site clearance and enabling works.
- Service infrastructure works.
- Sub-structure works.
- Super-Structure works.
- External works and finishes.

The northern section of the Linear Park will initially be used as a car parking area for the development's Showcourt. The proposed Part V units have been agreed with SDCC and are located throughout the Phase. They will be completed in sequence together with the housing and public open spaces.



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Fig 1.0 Indicative
Construction Phasing
Plan



Construction Phasing Plan



3. Site Enabling Works

Site enabling works will include but will not be confined to the following:

- Securing of site boundary and erecting of fencing or hoarding as required.
- Service terminations and positive identification of any services on the site by the utility providers.
- Provision of temporary power, lighting, and water services.
- Set up of site accommodation and welfare facilities.
- Pending Site Investigation Results
- Identification of the trees and hedgerow that are required to be removed and/or retained. This will be done in consultation with the appointed Arborist.
- Identification of any hazardous materials on site or in the structures that are required to be demolished during the construction period.

3.1 Indicative Enabling Works Methodology

The methodology for the completion of the enabling works will be finalised during the tender and appointment stage. The outline of methodology is as follows:

Live services will be terminated and where possible will be removed off site, with the cooperation of the utility providers.

Temporary power and water services will be arranged for the site accommodation and welfare facilities. The site accommodation and welfare facilities will be set up in a location as not to be in the way of the construction, and at a point close to the site entrance. We are proposing to use the Station road entrance until such time as the new bus turning area has been completed and buses are switched over.

On the set up of the site accommodation, tree and hedgerow protection fencing will be installed in accordance with BS5837 (2012): Trees in relation to Design, Demolition and Construction. This will be carried out in consultation with the appointed Arborist. Following the fencing of any protected trees, the remaining trees that are required to be removed will have to be identified and removed along with the scrub on site.

During any demolition works, where practical, materials will be segregated, considering the constraints of safety and space on site. Dust suppression will be carefully monitored and controlled with the careful use of water.

Noise levels will be controlled and works undertaken in such a way as to minimise the detrimental impact on adjoining property and residents.

- Night (23.00 – 07.00) = 45dB
- Evening (19.00 – 23.00)= 55dB
- Day (07.00 – 19.00) = 65dB



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3.2 Infrastructure Works

The site infrastructure works include the provision of the permanent entrance to the site and the permanent connection of all the utilities and services required for the site.

Utility Infrastructure

Provision of the permanent infrastructure to the site will be carried out as early as possible in the programmed works as to possibly incorporate the temporary site requirements with the permanent requirements.

Engagement with the service and utility providers will be entered into early in the design stage to allow for adequate planning of utility infrastructure.

It is the intention of the applicant to minimise disruption of existing services and public roads and pathways in the providing of services to the site, this will be done in consultation with the service providers and the Local Authority.

Prior to any works on site or on the boundaries to connect services a desktop study followed by a physical survey will be carried out to identify all existing services. As part of the physical survey, trial holes, slit trenching and CAT scans may be required.

Utilisation of single trenches for multiple services where possible will be encouraged.

Where possible services will be provided to 'future-proof' the development.

3.3 Road Infrastructure

The Site entrance will be via existing gate at Stream Road/ Castlegate Hall junction as indicated in Fig 1.0 above. All construction traffic will utilise this entrance however a new entrance utilising the existing gate at Station & Stream Road Junction will be required as Phase 2 concludes.



4 Construction Traffic and Site Access

4.1 Construction Route and Access

Routes for construction traffic involved in the delivery of goods to and from the site will be agreed with site management prior to deliveries happening. As part of the Construction Stage Safety Plan for the works a Traffic Management Plan (TMP) will be prepared for the site activities and for any works required on the public road.

It is proposed that construction vehicle movements would be restricted to the main arterial routes and not pass through predominantly residential areas (see figure 2 below).

The number of Heavy Goods Vehicles (HGV) required to service the site during the duration of the construction has been calculated and the peaks occur at the early and mid-stages of the project. Movements of large or abnormal loads will be addressed in advance with the relevant authorities.

Certain trades will require parking on site for vehicles due to transportation of specialist equipment/plant requirements. There will be a provision for 60 Vehicles in a specially designated parking area located beside the site compound and storage area. Any parking of Heavy Goods Vehicles will be inside the site and in designated areas which will be clearly marked out. Heavy goods vehicles will generally only be carrying out deliveries to site. During timber frame construction heavy goods vehicles will be directed towards and a clearly marked out exclusion zone.

The site access gates will be established at both access points and egress points, as well as a dedicated pedestrian access routes for site personnel.

In accordance with Condition 30 (i) (a) Provision of wheel wash facilities will be made available from the start of the project to the completion of the project. The wheel wash will be stationed before egress offsite. The cleaning of vehicles will be carried out by the gateman onsite. This will be used for all heavy goods vehicles leaving the site daily. A road sweeper will also be utilised as required on the public road at vehicular access / egress points **in accordance with Condition 30 (i) d** There will be a potential 2 no site access which will be maintained at all times.

It is planned that internal roads will be prioritised enabling vehicles to drive along clean roads prior to exiting the site.

4.2 Off Loading and Storage Areas

Vehicles will be directed to the delivery points for holding/off-loading/storage, these deliveries will be controlled by a dedicated person allocated to overseeing all deliveries and controlling the entrance. All deliveries will be notified to the site management team prior to the deliveries.

4.3 Personnel and Vehicle Segregation

All pedestrian routes will be adequately segregated from vehicular routes across the site. All vehicle crossing points will have appropriate signage to alert pedestrians of vehicle crossing points.

All site operatives will be given a specific site induction, giving information on the pedestrian access routes.

4.4 Temporary Road Closures

Road closures are not anticipated, however if they are required for the delivery of large items of plant or materials then such temporary road closures will be planned and approved by the Local Authorities and relevant authorisation will be sought.



5 Site Logistics

General Principles

Set out below are the general principles of the site logistics, these will be developed in greater detail as the site progresses. We will endeavour to leave the Park and Ride carpark insitu for as long as possible as can be seen from the phasing plan but part of the disused area of the Park & Ride may be required for materials as the site becomes developed.

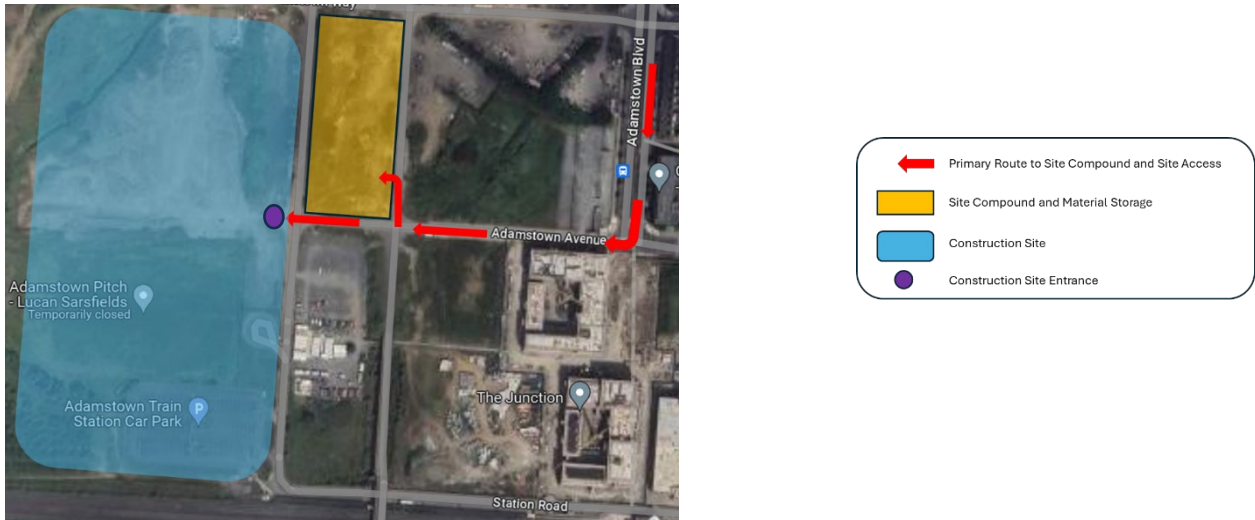


Figure 2.0: Site Logistics

5.1 Site Establishment and Security

- At site set up stage the site will be made secure, and the public will be separated from the site by means of fencing and hoarding.
- All site facilities will be contained within the site area.
- The main entrance gate will be controlled by site personnel (gateman) for deliveries.
- Lighting and a camera security system may be used to secure the site during out of hour working times.
- Site lighting will be set up with consideration for adjoining properties.
- **As per Condition 32(c)** a public notice shall be erected and maintained at the agreed construction access points. This notice shall contain the name of the operating company and contact details, including out of hours contact, which may be used in the event that any person wishes to contact the operator in respect of any disruptive aspect of the construction activity.

5.2 Consent and Licenses

All statutory consents and licences required to commence an onsite activity will be obtained ahead of work commencing and giving the appropriate notice periods. These will include,

- Construction notices
- Connections to existing utilities and main sewers
- Licence to discharge from the site to public systems



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5.3 Access and Egress

- One vehicular access point is proposed from Station Road
- Separate pedestrian accesses will be developed at the access points to the site to maintain vehicle and pedestrian segregation.
- Access will be strictly controlled via security personnel at each of the access points to the site.

5.4 Material Storage and Handling

- Quintain Developments Ireland Ltd will strive to maintain a tidy site and to operate a “just in time” policy for the delivery and the supply of materials for the works, particularly the final phase of the works when on site storage will be at a minimum
- Materials will be securely stored on site as to minimise the risk of damage. Not materials to be stored on any road **in accordance with Condition 30 (i) (f)**
- A teleporter will be used for general unloading during the structural and envelope works. Unloading over the public roadway and path will be avoided.

5.5 Crane Operations

- A mobile crane will be used for elements of the superstructure.
- Loading areas will be used to minimise storage on site, and “just in time” deliveries for each unit will be used to load materials.
- Detailed lifting plans and RAMS (Risk Assessment / Method Statements) will be compiled for all activities involving cranes.

5.6 Site Accommodation

- It is the intention to provide a main site accommodation and welfare facility on site. The location of these facilities has been determined and marked on site logistics map.
- The principal contractor will be responsible for providing canteen and welfare facilities for the on-site operatives.
- These facilities will be maintained by the main contractor.

5.7 Visitor Management

- Visitors will only be allowed to enter the site via designated vehicular / pedestrian access gates and must report to the site security office to sign-in and for obtaining any additional PPE required.
- Visitors will be expected to attend a specific site safety briefing and be always accompanied by a member of the site team.



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6 Description of Works and Indicative Construction Methods

6.1 Construction Sequence

The construction sequence is outlined herein. Details may change subject to the detailed design development of the proposed construction.

6.2 Enabling Works

- Secure site and set up contractor welfare facilities and site accommodation.
- Locate and terminate existing live services.
- Protect and identify existing 600mm dia watermain.
- Install tree protection and remove trees that are required to be felled.
- Excavate and remove material to the required formation. This will require a bulk excavation and removal from the site.
- Maintain existing entrances and incorporate new roads and hardstanding as required.
- Make good and install any finished boundary treatments that can be installed at this stage
- A Site Specific plan is to be developed to make provision for the prevention of spillage or deposit of clay, rubble or other debris on adjoining public roads during the course of any construction works that fully complies with all of the requirements of the Councils Road Maintenance, Traffic Management and Waste Enforcement Sections as appropriate. This is to be submitted in writing to the council pre commencement.

6.3 Sub-Structure

- Excavate foundations.
- Excavate, lay, and test underground drainage and watermain.
- Coordinate and install all incoming services.

6.4 Superstructure

- Foundations.
- Floor slab formation.
- Complete civil works; roads, footpaths, cycle tracks, SuDs devices.
- Timber frame units.
- Blockwork.
- Roof work.
- External rendering.
- Blockwork boundary walls and fencing.

6.5 Fit Out and Finishes

- Fit out of the residential units will use traditional fit out techniques and finishing trades.
- Gardens and public open space areas will be landscaped and planted in accordance with the landscaping proposals for the scheme.



7 Safety, Health and Environmental

7.1 General Health, Safety and Environmental Consideration

Construction works will be carried out in such a way as to limit, as far as practicable, adverse environmental impact.

Works will be carried out in accordance with the following general provisions:

- Planning approvals from the Local Authority
- Requirements of the Local Authority

As part of the Construction Method Statement, the process will ensure that construction techniques and materials used are a fundamental consideration of the design and intended long-term use, the aim below is achieved:

- Design for durability and low maintenance.
- Design for flexibility and adaptability.
- Use of materials from sustainable sources.
- Use of local materials where possible.

Safety, health, and environmental issues on the Development are a primary consideration in the construction methods adopted. The construction team will develop detailed health and safety plans, specific environmental, fire and accident procedures to suit the construction sequence of the Development.

Contractors involved in the Development will ensure that all non-English speaking employees are provided with relevant Health and Safety information in their national language.

All contractors will be required to adopt the relevant skills certification required for that element of the works.

A site-specific Safety Statement and a detailed Construction Stage Safety & Health Plan will be compiled prior to any works on site and will be in accordance with the Health & Safety Authority and Local Authority guidelines.

7.2 Control of Substances Hazardous to Health

The strategy for controlling all substances and all work processes that may generate hazardous substances will have to be addresses and control measures put in place.

Some of the control measures to be employed include the following: In **accordance with Condition 30 (i) (e)**

- All fuel and chemicals to be stored in designated areas, with deliveries of hazardous materials supervised.
- Storage tanks and container facilities will be appropriately banded with capacity of 110%.
- In the case of spills or discharges, remedial action will be taken as soon as possible in accordance with company procedures.
- Personal protective equipment (PPE) suitable to the pertaining conditions will be used by all site personnel.



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7.3 Environmental, Emergency and Accident Procedure

Measures will be carried out to avoid environmental incidents, however if these occur then the following types must be reported to the responsible person in the construction team as per the Quintain Developments Ireland Ltd Accident and Emergency Procedure.

The overall strategy in the event of a spillage will be to “Stop-Contain-Notify” in the event of:

- Spills or discharge to the atmosphere, water supplies, sewage systems, rivers, and other watercourses, or to the ground:
 - Any chemical products
 - Oils or fuels
 - Effluent/fumes and gases
 - Waste or contaminated materials
- Damage to existing:
 - Trees and wildlife
 - Flora and existing local habitats
- Any environmental incidents that could lead to:
 - Local Authority or regulatory enforcement
 - Public complaint

Emergency routes and procedures will be continuously adapted to suit the construction sequence and stage of the Development. An Emergency and Evacuation Plan will be prepared following the guidelines detailed below and updated on a regular basis during construction.

- Definition of the management organisation and responsibility for safety.
- Definition of appropriate fire prevention measures, including good housekeeping of site, welfare facilities and offices.
- Adequate provision of fire extinguishers across the site.
- Use of non-flammable/fire retardant materials for protection of finished works.
- Safe use and safe storage of flammable materials of all categories, whether solid, liquid or gas.
- Appropriate waste management procedures.
- Monitoring the type and frequency of fire inspections/audits.
- Development of evacuation plans, to include escape routes, muster stations, means of sounding alarms and general emergency procedures.
- Site safety inductions and fire drills.
- The application of permit systems for Hot works, Confined Space Entry and Electrical Access Control.
- The provision of first aiders. Checking of emergency routes are always available and unobstructed.
- Liaison with the emergency services and occupants of the adjacent buildings.

First aid facilities will be established and at least one trained first aider will be always present on-site. In addition, trained Fire Wardens / Fire Marshalls will be in place on-site to address fire safety.



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7.4 Health, Safety & Environmental Considerations

Work in Proximity to Trees & Hedgerows

Contractors appointed for works near trees & hedgerows and in consultation with the arboriculture and landscape consultants undertake specific tree protection measures and procedures for the execution of their works to protect the trees.

Where trees or hedgerows are identified for retention construction will be undertaken in accordance with the relevant guidelines.

Retained trees will be adequately protected from damage throughout the demolition and construction works, tree protection measures will include some of the following:

- Assessment of location of the roots.
- The Root Protection Area (RPA) will be designated as a construction exclusion zone (CEZ) within which trees will be protected from activities that have a potential to cause damage. CEZ's will be appropriately protected e.g., fencing.
- Prepare detailed Arboriculture Method Statement for specific operations near trees.
- Training (e.g., toolbox talks) in how to avoid tree damage.
- Facilitation pruning.
- Supervision of sensitive operations.
- Appropriate tree protection fencing and barriers.
- Appropriate Ground Protection measures.
- Contingency planning.

7.5 Air Quality

General Provisions

Construction and demolition works will be carried out in such a way as to limit the emission to air of pollutants, employing best practices.

- The site will be managed in accordance with the CEMP to minimise potential effects on air quality from construction.
- Air monitoring will be undertaken throughout the construction period as may be deemed necessary.
- The storage and handling of construction materials can be significant dust emission source. The appropriate dust control measures will greatly reduce dust emissions from these sources and ensure that the adverse effect will be reduced or eliminated. These include covering waste tips, scaffold netting, use of water to suppress dust, provision of hard stand access for truck and vehicles.
- Handling and storage areas will be sited as far away as is reasonably and practically possible from public/residential areas. Prolonged storage of materials will be avoided where possible. Transportation of materials that may be dusty will be sheeted down to prevent any escape of materials.
- The burning of materials is prohibited on all Quintain Developments Ireland Ltd project sites.

7.6 Construction Plant

Construction plant can be a significant source of emission although control measures can be implemented to minimise any adverse impacts. The following measures will be employed:

- Site plant and equipment will be serviced regularly and maintained in good condition and in accordance with the manufacture's specifications. Allowing for economic constraints, the plant will be selected based on which has the least potential for dust and emissions.
- Plant will not be left running when not in use.
- Plant with dust suppression equipment will be used where practicable.



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7.7 Vehicle Movements

Vehicle movement may result in dust emissions and exhaust emissions. However, several control measures can be adopted to eliminate or minimise such emissions:

- Damping down the site haul roads during prolonged dry periods.
- Regular cleaning of hard surfaces at the site entrance.
- Ensuring that materials are transported appropriately (sheeting used over dusty materials)
 - Confinement of plant and machinery to designated haul routes on site
 - Speed restrictions on site will be enforced (15 km/h).
- Hoarding to site boundaries where practical which will aid in the reduction of windblown dust-off site.

7.8 Dust – In accordance with Condition 30 (i) c

Dust control will be best achieved at sources, and if possible, activities will be carried out in a manner as to preclude dust generation.

If dust is generated, steps will be taken to protect workers in the vicinity who shall, as a minimum, be issued with appropriate dust masks. Dust will, as far as is reasonably practicable, be contained in the area where it was generated. Dust suppression will be carried out to ensure that dust nuisance affecting neighbouring properties is minimised.

Dust emissions from construction will be controlled through careful pre-project planning and effective site management. The following control measure and good practices, will be employed:

- Burning of materials is prohibited on all Quintain Developments Ireland Ltd Project sites.
- Loading and unloading will only be permitted in designated areas.
- Provision of water sprays in dust sensitive locations will be introduced, e.g., demolition areas, concrete cutting etc.

7.9 Noise and Vibration

General Provision

Noise and vibration levels will be controlled as set out below to ensure that the Development is operated in a way that minimises detrimental impact to the amenities of residents. **As per Condition 32 (b)** The applicant / owner or developer shall provide occupiers of noise sensitive properties within 100 metres of agreed construction access points to the development as approved with appropriate contact details which may be used in the event that any such person wishes to inform the operator of any incident that could give rise to a disruptive aspect of construction activity, or otherwise to make an observation in respect of an aspect of construction activity. All applicable residents in the Aderrig development will be provided with the applicable contact details in accordance with this condition if construction access points are opened with 100m of their properties.



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Construction Noise.

During the construction of the works the following codes and regulations will be adhered to:

- BS 5228:2009 Code of Practice for Noise and Vibration Control on Construction and Open Sites, Part 1, and part 2
- Safety, Health and Welfare at Work (General Application) Regulations 2007 to 2016, Part 5 Noise and Vibration

Noise limits to be applied for the duration of the works are those specified in the Transport Infrastructure Ireland (TII) publication *Guidelines for the Treatment of Noise and Vibration in National Road Schemes*:

- Monday to Friday 07:00 to 19:00hrs: 70 dB
- Monday to Friday 19:00 to 22:00hrs: 60 dB
- Saturdays 08:00 to 16:30hrs: 65 dB

Noise levels will be monitored continuously and a threshold value of 70 dB $L_{Aeq,1hr}$ free field at residential noise sensitive locations in the vicinity of the development will be adopted. Where noise levels exceed this threshold, adequate steps will be taken by the site management to review works and implement additional mitigation measures.

Some off-site infrastructure works, excavations and concrete works will be significant activities for example at storm and foul outfall/ connection locations. The activities are likely to generate the most noise over prolonged periods will be excavation and concrete activities.

The general mitigation principles and methods will include.

- Avoidance of unnecessary revving of engines and switching off equipment when not required.
- Keeping internal haul roads well maintained.
- Minimise drop heights of materials.
- Start-up plant sequentially rather than together.
- Where practical enclose noise sources.
- Where possible keep site equipment away from sensitive areas.
- Regular maintenance of plant and equipment.

As the buildings within the proposed development rise above the ground, there will be some noise from scaffold and formwork erecting.

On occasions it may prove necessary to carry out noisy activities outside normal working hours, these activities will be discussed with the effected parties before they are carried out.

No heavy construction equipment/machinery (to include pneumatic drills, construction vehicles, generators, etc.) shall be operated on or adjacent to the construction site before 07.00 or after 19:00 Monday to Friday, and before 08:00 and after 13:00 on Saturdays (as per previous planning grant for phase 1C ABP-305619-19).



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No activities shall take place in site on Sundays or Bank Holidays. No activity, which would reasonably be expected to cause annoyance to residents in the vicinity, shall take place on site between the hours of 07.00 and 19.00. No deliveries of materials, plant or machinery shall take place before 07:00 in the morning or after 19:00 the evening. Delivery of materials shall be organised, so the deliveries are minimised at the morning and evening periods of peak traffic flow.

Vibration limits to be applied for the infrastructure works are to be specified in the NRA document Guidelines for the Treatment of Noise and Vibration in National Road Schemes (NRA, Revision 1, 2004). These limits are outlined below:

Allowable vibration (in terms of peak particle velocity) at the closest part of the sensitive property to the source of vibration, at a frequency of.

| <u>Less than 11Hz</u> | <u>11 to 50 Hz</u> | <u>50 to 110 Hz (and above)</u> |
|-----------------------|--------------------|---------------------------------|
| 3mm/s | 3 to 8mm/s | 8 to 11mm/s |

7.10 Soils and Contamination

Existing Conditions

The ground conditions at the location of the proposed works have been confirmed by means of site investigation.

- Ground Investigations Ireland Adamstown Boulevard Ground *Investigation Report (April 2022)*
- Ground Investigations Ireland Adamstown Boulevard – Subsoil Assessment Report (April 2022)

Strategy

The strategy for controlling and mitigating potential adverse environmental and/or health and safety effects during construction will be to adopt the procedures and methods set out within this CMP.

Operation Control

The strategy for controlling and mitigating potential adverse environmental or health and safety effects during construction will include the following, as appropriate:

- Identification and assessment of the potential for residual ground contamination to be presented prior to the start of any excavation works.
- Minimisation of potential risks to site workers as required by the Safety, Health and Welfare (Construction Regulations) 2013.
- Testing and sampling of excavated soils to assess the suitability of materials for re-use on site. Soft materials and surplus soils that are excavated will be reused, for bunds, landscaping etc.
- To mitigate densification of the soil due to construction activities, all topsoil shall be removed and stored in advance of earthworks, the surface shall be scarified, and the topsoil replaced and reseeded upon completion.
- Dust suppression from any contaminated soils by the regular use of water spray during any dry conditions, sheeting of haulage vehicle loads.
- Stockpiling of contaminated materials will be avoided where possible.
- Stockpiles will be treated to prevent windblown dust.
- Adequate drainage will be designed and installed during construction work to manage surface water runoff, with the emphasis on installing SuDs devices as soon as practicable.
- The handling and storage of any potentially hazardous liquids on site, e.g., fuels and chemicals, will be controlled and best practice guidelines. Storage tanks/container facilities will have appropriate bunding within the designated area with the provision of a storage/retention capacity of 110% of tank storage.



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- If hazardous liquids escape, remedial action will be taken as soon as possible.
- Where unforeseen contamination is identified during the work period, specific investigations will be carried out in the areas in question and appropriate health and safety procedures will be implemented during the removal of the material.

A strategy will be prepared to identify, analyse, segregate and control existing contaminated materials on site.

Procedures will be drawn up to control all potentially contaminated materials brought to site.

Table 3- 1: Schedule of Surface Water Mitigation Measures (Condition 22)

| No. | Risk | Possible Impact | Mitigation | Result of Mitigation |
|-----|---|---|--|--|
| 1 | Hydrocarbons from carparking area entering the watercourse. | Water quality impacts Reduction in habitat quality Mortality of aquatic key ecological receptors/qualifying interests | Designated parking at least 50m from any watercourse. | Ensures no soil disturbance or hydrocarbons leak near aquatic zone |
| 2 | Pollutants from site compound areas entering the watercourse. | Water quality impacts Reduction in habitat quality Mortality of aquatic key ecological receptors/qualifying interests | The site compound will be located at least 50m from any watercourse. | Prevents pollution of the aquatic zone from toxic pollutants |



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| 3 | Pollutants from material storage areas entering the watercourse. | <p>Water quality impacts</p> <p>Reduction in habitat quality</p> <p>Mortality of aquatic key ecological receptors/qualifying interests</p> | <p>Fuels, oils, greases and other potentially polluting chemicals will be stored in bunded compounds at the Contractor's compound or at a location at least 50m from any body of water. Bunds are to be provided with 110% capacity of storage container. Spill kits will be kept on site at all times and all staff trained in their appropriate use.</p> <p>Method statements for dealing with accidental spillages will be provided the Contractor for review by the Employer's Representative.</p> | Prevents contamination of aquatic zone by toxic pollutants |
| 4 | Concrete/cementitious materials entering the watercourse from washdown. | <p>Water quality impacts</p> <p>Reduction in habitat quality</p> <p>Mortality of aquatic key ecological receptors/qualifying interests</p> | A designated wash down area within the Contractor's compound will be used for cleaning of any equipment or plant, with the safe disposal of any contaminated water. | Prevents contamination of aquatic zone by suspended solids or pollutants, ensures invasive species material is not transported off site |
| 4 | Concrete/cementitious materials entering the watercourse from concrete pours. | <p>Water quality impacts</p> <p>Reduction in habitat quality</p> <p>Mortality of aquatic key ecological receptors/qualifying interests</p> | Pouring of cementitious materials will be carried out in the dry. | Prevents contamination of aquatic zone by suspended solids or pollutants, ensures invasive species material is not transported off site |



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| 5 | Leaching of contaminated soil into groundwater. | <p>Water quality impacts</p> <p>Reduction in habitat quality</p> <p>Mortality of aquatic key ecological receptors/qualifying interests</p> | <p>Spill kits will contain 10 hr terrestrial oil booms (80mm diameter x 1000mm) and a plastic sheet, upon which contaminated soil can be placed to prevent leaching to ground water</p> | <p>Prevents contamination of aquatic zone by petrochemicals</p> |
| 6 | Pollutants from equipment storage/refuelling area entering the watercourse. | <p>Water quality impacts</p> <p>Reduction in habitat quality</p> <p>Mortality of aquatic key ecological receptors/qualifying interests</p> | <p>Any refuelling and maintenance of equipment will be done at designated bunded areas with full attendance of plant operative(s) within contained areas at least 50m from any watercourse</p> | <p>Prevents contamination of aquatic zone by petrochemicals</p> |
| 7 | Runoff from exposed work areas and excavated material storage areas entering the watercourse. | <p>Water quality impacts</p> <p>Reduction in habitat quality</p> <p>Mortality of aquatic key ecological receptors/qualifying interests</p> | <p>Contractor to prepare a site plan showing the location of all surface water drainage lines and proposed discharge points to the sewer. The plan will include the location of all surface water protection measures, including monitoring points and treatment facilities.</p> | <p>Prevents contamination of aquatic zone by suspended solids or pollutants.</p> |



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Silt Fences, Cut-off Trenches and Settlement Ponds

To prevent silt runoff from the development site the contractor will install a temporary silt fence along the pond at the northwest of the site prior to any works taking place and will be maintained during the duration of the works, should a detailed risk assessment require one. Other on-site treatment measures will be installed to treat surface water run off when silt fences are not suitable. Therefore, cut-off trenches, settlement ponds, silt traps and petrol interceptors will be installed at suitable locations as required based on a site-specific risk assessment during construction.

A silt fence is made of a woven synthetic material, geotextile, and acts to filter run-off. Silt fence installation includes the installation of the geotextile fabric and the support post and can be done manually by experienced labours. The geotextile must be trenched and backfilled in. The material is durable and will last for more than one season if properly installed and maintained. The silt fence will provide a physical barrier that will filter run-off and prevent silts caught in runoff entering into the Pond.

The silt fence will be installed prior to any works taking place. Silt-fences will be maintained accordingly for the duration of the works. The silt fence will be inspected daily to assure that there is no damage to same and that is working correctly. If any damage is detected, it should be repaired immediately, and an assessment of possible run-off southwards of the silt-fence should be carried out, where necessary. Where silt fencing is unsuitable for use, cut off trenches will be installed with settlement pond / silt trap at the end with an overflow. A typical detail of a silt fence is shown in Figure 4- 1 below.

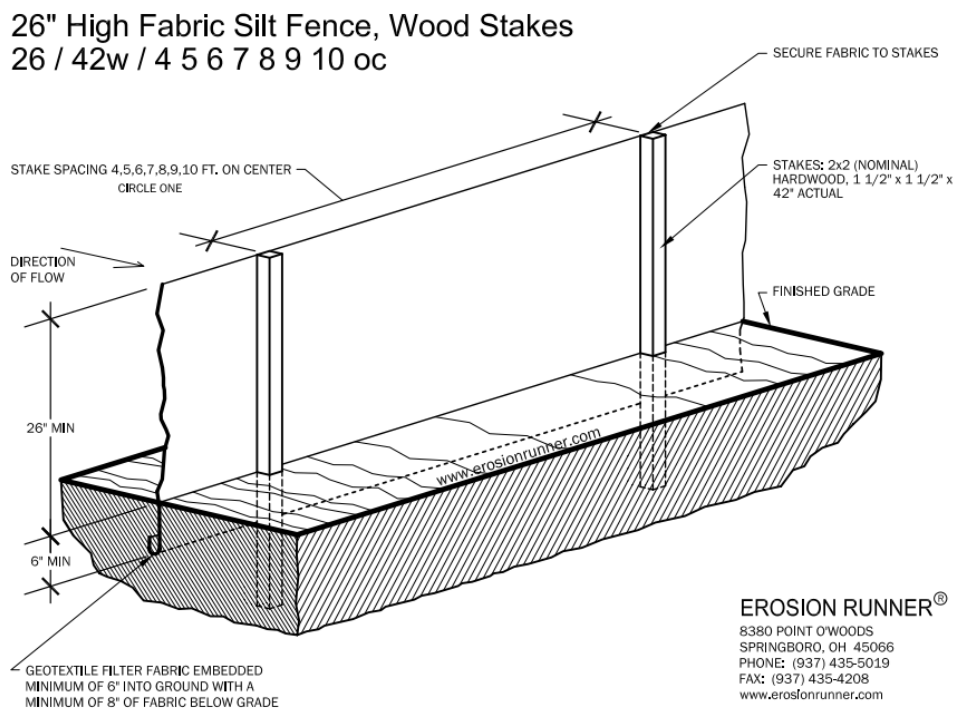


Figure 4- 1: Typical silt fence detail

Cut-off trenches and settlement ponds can be installed at suitable locations within the site to control and treat construction run-off and maintain water quality protection. Proprietary surface water treatment systems, including Class 1 full retention petrol interceptors and spill protection control measures will be installed. These cut off trenches will be connected to a temporary settlement area. Straw bales that allow water throughput, or an alternative filter, will be placed within the cut off trenches at strategic locations and at the outfall from the settlement area. Temporary settlement areas/ponds will be sized to deal with surface run-off and any groundwater encountered.



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Silt fence and/or cut-off trench with settlement ponds/silt traps will be implemented and properly maintained during the construction phase to prevent silt runoff into the existing ditches / watercourses during the drainage works. These measures are to be assessed and modified, where required, throughout the construction period as flow paths of surface water changes throughout the phasing of the development.

Installation and maintenance of silt fences, silt traps, settlement ponds, straw bales and other such measures will be overseen by the Project Ecologist to ensure that they are installed correctly and remain effective throughout the construction phase. A sampling chamber with shut down valve will be installed downstream of the settlement area/pond and water quality monitoring will be carried out here prior to discharge to natural watercourses.

All measures will be approved prior to commencement with South Dublin County Council.

7.11 Transport

General Provisions

Estimates of construction traffic generations for the construction phase are compiled.

The works will be carried out in such a way that inconvenience to the public arising from increase in traffic flows and disruptive effects of construction traffic on local and main roads is limited wherever practical.

The key principle of the traffic management plan is to ensure the safety of all personnel (drivers & pedestrians). This means a segregated entrance for vehicles and pedestrians. The onsite traffic flow will change through the course of the Development. All site traffic will be subject to speed restrictions.

Vehicles and pedestrians will be segregated at the site entrance. Site operatives will be required to wear high-vis clothing on site. Plant and truck operators will be required to have valid qualifications for the plant/trucks that they are operating.

Specific material storage will be identified and will be managed for on-site movement by the mobile crane or the forklift.

For large, wide, or abnormal loads, guidelines will be followed.

A Traffic Management Plan will be developed for the project prior to commencing works. It will be reviewed and updated to reflect the changing access requirements and route availability. The Traffic Management Plan will be reviewed and updated in line with the construction programme and will typically include details of the following:

- Temporary Traffic Operations Supervisor (TTOS).
- Temporary traffic control measures.
- Temporary and permanent access to the works – vehicle and pedestrian.
- Off-loading and storage areas.
- Traffic management procedures for waste disposal vehicles.
- Personnel and vehicle segregation.
- Equipment e.g., road cones, temporary fencing, and signage etc.
- Ensuring all work is planned and method statements prepared and detailing safe systems of work.
- Ensuring that all sub-contractors make adequate provision for vehicle selection and supervision of drivers.
- Making vehicle safety an integral part of the development safety & health plan.
- Defining standards for driver competence, vehicle safety and maintenance.
- Ensuring the coordination and cooperation between contractors.



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- Ensuring that all workers receive site induction training, detailing safe traffic routes and site rules for operating vehicles. Establish safety monitoring procedures for the use of vehicles on site.

7.12 Waste

General Provision

All works carried out as part of these works will comply with all Statutory Legislation including the Waste Management Act & Local Government (Water Pollution) Acts, and the contractor will co-operate in full of the Environmental Section of the Local Authority.

The disposal of waste generated during construction, including bulk excavation, will be managed to maximise the environmental and development benefits from the use of surplus materials and to reduce any adverse effects of disposal. In general, the principle of waste management hierarchy, which favours waste minimisation, re-use material and recycle over disposal to landfill will be favoured.

Construction and Demolition Waste

Methods for waste reduction will form the basic strategy for construction waste management from the start. These materials will generally be inert or environmentally benign and may have alternative uses on site or perhaps another site. Excavated material where possible shall be reused on site.

Control during Construction

The contractor will ensure minimisation of waste arising on site and reuse where possible, either directly or by recycling, waste monitoring and setting of targets. Recyclable materials such as metal, timber, cardboard, and office paper will be put in colour coded bins, ready for collection by the appropriate contractor.

Initiatives to reduce other waste streams include as far as practically possible:

- Minimising raw material waste through analysing design and construction techniques where possible.
- Liaison with suppliers to enable packaging materials to be sent back for reuse, the use of off-cuts where possible and the recycling of off-cut materials by suppliers.
- Engaging contractors in the process of maximising the use of recycled aggregates for hardcore.
- The entrance to the site will be kept clean as to minimise dust and pollution to the water course.

To ensure compliance with legislative requirements, only local authority licenced waste hauliers, waste contractors are permitted to collect and remove waste from site. All waste removed from site will be deposited at a licensed waste facility.

Waste delivery dockets must be completed and given to site management for recording purposes.

Suitable protection measures will be incorporated in the design of the waste management area to prevent pollution, and regular inspections carried out to ensure that stored waste is covered by present accidental spillage and from being blown away.



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7.13 Water Resource

The works will be carried out and working methods adopted to ensure that construction activities do not adversely affect surface water and ground water quality. In particular, the potential impacts of any outflows from the site on the any streams which flow from area. The most damaging being concrete leachate, oils and chemicals and suspended solids.

The following best practice measures will be adopted:

- Use of bunds, silt fences and silt bags to contain surface water run-off from the site.
- No refuelling or maintenance of vehicles and equipment shall be carried out within 20 meters of any ditch/ drainage network or other water body.
- Discharge to public sewers – after prior agreement with the local authority.
- The existing storm water drainage system will be retained where possible during construction, with modifications as necessary to prevent ingress of debris.
- Control of spoil and other materials to prevent spillage.
- Oils/Fuels/Hazardous Wastes will be stored in bunded areas or in bunded containers with the provision of a storage/retention capacity of 110% of tank storage.
- Washout from concrete trucks will be contained to designated impermeable areas or prohibited on site.
- All drainage arrangements will be determined in consultation with the Local Authority
- Surface water as arising during excavation works will be discharged to the surface water system.
- Sediment control will be implemented where surface water is contaminated with silt.

7.14 Waste Management Plan

At the outset a site waste management plan will be produced for this project. This will include a waste forecast identifying options for reuse, recycling, and avoidance of landfill and to record actual waste.

7.15 Construction Consultation & Local Liaison

Prior to commencement the below items to be submitted to the Council: The names, job functions and phone numbers (both fixed line and mobile numbers) of all key personnel for the construction of the development as approved are to be submitted to the Council prior to the commencement. Subsequently all changes in these personnel or particulars in the course of construction must also be notified to the Council as soon as they occur.

Quintain shall provide occupiers of noise sensitive properties within 100 metres of agreed construction access points to the development as approved with appropriate contact details which may be used in the event that any such person wishes to inform the operator of any incident that could give rise to a disruptive aspect of construction activity, or otherwise to make an observation in respect of an aspect of construction activity.

A public notice shall be erected and maintained at the agreed construction access points. This notice shall contain the name of the operating company and contact details, including out of hours contact, which may be used in the event that any person wishes to contact the operator in respect of any disruptive aspect of construction activity.



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7.16 Employment and Management of Workforce

Working Hours

Working hours will be restricted to 07:00 to 19:00 Monday to Friday & 08:00 to 13:00 on Saturdays. No Sunday or Bank Holiday work will be permitted (as per previous grant for Aderrig SDZ20A/0017). Out of hours working will be only permitted by arrangement with site management. Work outside of normal hours will be subject to approval by South Dublin City Council and under permit from Adamstown Station & Boulevard Limited site management.

If there is any occasion where work may be carried out outside normal daytime working hours, South Dublin City Council residents and businesses in the area which are likely to be affected by the proposed works will be notified in advance in the form of a letter or leaflet containing the following information:

- Name, address, and telephone number of person responsible for carrying out works.
- Nature of the works and reasons for carrying out at the proposed time.

The PSCS will liaise with the Client to agree specific arrangements for activities outside of normal working hours that will minimise the risk and disruption to residents and members of the public. All reasonable precautions will be taken for the operation of plant and equipment to avoid nuisance and excess noise impact on the surrounding residents.

Temporary Site Accommodation

Site accommodation will be contained within the site boundary. The principal welfare accommodation will comprise of site offices, toilets, canteen, and drying rooms. These will be prefabricated where possible. Preventative pest control measures will be put in place, and regular inspections will take place to ensure good housekeeping. **As per Condition 30 (i) (b)** on site car parking facilities will be provided for all site workers required throughout the project. See Fig 2 for Location.

7.15 Site Security

It is intended to provide a fully enclosed site utilising the existing perimeter walls and fencing where possible. This will be accomplished through a combination of IBEX fencing, palisade fencing, timber hoarding and a security-controlled access gate.

Designated vehicular and pedestrian access will be established and all other potential access points to the site secure so far as is reasonably practicable.

It is proposed to use a “Monitored Security Camera” system on site.

7.16 Key Site personnel:

As per Condition 32 (a)i

Construction Director: Niall O Boyle - 0876316708
Senior Project Manager: David O Toole – 0867824558
Senior Site Engineer: Cathal Caulfield - +447415924312

8 Environmental Management

8.1 Construction Phase Measures - Pollution Prevention

Works will follow best practice guidance as outlined in *Guidelines on the Protection of Fisheries during Construction Works in and Adjacent to Waters* (IFI, 2016), *Control of Water Pollution from Construction Sites* (CIRIA 2001) and *Environmental Good Practice on Site* (CIRIA 2005). Although the risk of any significant impact on water quality in any receiving water bodies is extremely low given the lack of running water features on the site. Best practice will be always implemented in relation to all construction activities to avoid any accidental pollution events occurring to the wet ditches in the area or polluting the ground water table.

This will include the following actions:

- SuDS will be constructed in line with manufacturer's guidelines / best practice methods.
- Detention basins have been designed as off-line basins to cater for the 1in 100-year storm events. The design of the detention basin is in accordance with CIRIA SuDS Manual C753 2015. Please refer to the accompanying drawings for further information.
- During construction, any surfaces which are intended to enable infiltration must be protected from compaction. This includes protecting from heavy traffic or storage materials.
- Excavated soils where required, will be stored a minimum of 20m from any ditch/drainage network or other water body.
- Excavation and stockpiling works will be curtailed during sustained wet weather periods.
- Water contaminated with silt will not be allowed to enter a watercourse or drain as it can cause pollution. All parts of the drainage system will be protected from construction runoff to prevent silt clogging the system and causing pollution downstream. Measures to prevent this include soil stabilisation, early construction of sediment management basins, channelling run-off away from watercourses using bunds/slit trenches and surface water drains and erosion prevention measures.
- Following construction, subsoil that has been compacted during construction should be broken up prior to the re-application of topsoil to reinstate the natural infiltration performance of the ground.
- Areas of SuDS that have been compacted will be refurbished.
- Pipe systems and orifices will be checked for blockages or partial blockages.
- Silt deposited during construction will be removed.
- Soils will be stabilised and protected from erosion whilst planting becomes established.
- Hydrocarbons or any hazardous chemicals will be stored in specific bunded areas with the provision of a storage/retention capacity of 110% of tank storage. Refuelling of plant and machinery will also be carried out in bunded areas to minimise risk of any potential pollutants being discharged from the site.
- Any soil contaminated from an accidental spillage will be contained and treated appropriately and disposed of in accordance with the Waste Management Act 1996-2011.
- Pollution control measures will be implemented to control run-off from the site and prevent run-off which is potentially contaminated with sediments or hazardous chemicals entering the drainage network.
- Pouring of cement-based materials for works will only be carried out in dry conditions. Pumped concrete will be monitored to ensure there is no accidental discharge. Mixer washings and excess



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concrete will not be discharged directly into the drainage network. Concrete impermeable washout areas will be created to avoid any accidental discharge from the proposed development site.

- Foul drainage from site offices and compounds will be connected to existing infrastructure, however in the event they are 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.
- A response procedure will be put in place to deal with any accidental pollution events and spillage kits will be available on site. Construction staff will be familiar with the emergency procedures and use of the equipment.
- The existing temporary site drain traversing the southern end of the site parallel to the train line is to be protected. This is currently connected to the Storm management network but no longer required as stream through Aderrig is now connected. This connection will be blocked off to avoid any potential contaminated discharge into the local storm network. The temporary drain will be removed to install new Foul and Storm infrastructure.
- There shall be no direct pumping of contaminated water from the works to a watercourse at any time.
- If pumping is required from excavations during pipe laying then the water is to be pumped to a suitably sized settlement pond before discharge to the drainage network or watercourse. All discharges will follow the European Communities (Surface Water) Regulations 2009 and the European Communities (Groundwater) regulations 2010, or any discharge licences issued by the Local Authorities. Local Authority to be consulted prior to discharge to ensure adequate capacity to accept the predicted discharges from settlement ponds or otherwise.
- It will be the responsibility of the Main Contractor to manage all connection of foul pipework to avoid any entry of solids to the surface water network. A dedicated person in charge is to be nominated and SDCC to be notified in writing of the appointment. The person in charge is to be nominated from the Civil Engineering Site Supervision Team monitoring the works on commencement.
- Guidance from the interim document “Nature-based Solutions to the Management of Rainwater and Surface Water Runoff in Urban Areas Water Sensitive Urban Design Best Practise” will be utilised where possible. This will be utilised during all design of temporary water storage solutions on site.

8.2 Measures to Reduce Impacts of Habitat Loss

A Hedgerow Mitigation Strategy has been proposed by the project Landscape Architect and Ecologist, this will be followed and adhered to during construction. Care will be taken to ensure that trees and hedges being retained are incorporated into the development without being impacted upon. Protective fencing will be provided around trees and hedge vegetation being retained and this will enclose their Root Protection Areas (RPAs). The fencing will be at least 1.9m high and constructed in accordance with figure 1 of BS 5837 2012 see fencing detail in the ‘Tree Protection Strategy Report’ of the Arboriculture Assessment report. The fencing will be made up of Heras mesh fencing.

Substantial native tree and hedgerow planting will be planted on the site. There are two public open space areas proposed and existing hedgerows to be retained will be reinforced with additional native planting.



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8.3 Measures to Reduce Impacts on Bats

Lighting proposals for the construction phase will adhere to the advice provided in *Bats and lighting – Guidance for Planners, Engineers, Architects and Developers* (Bat Conservation Ireland 2010), *Guidance Notes for the Reduction of Obtrusive Light GN01* (Institute of Lighting Professionals, 2011) and *Bats and Lighting in the UK – Bats and the Built Environment Series* (Bat Conservation Trust UK, January 2008). Construction stage lighting shall be reviewed by a qualified bat ecologist. If necessary, the bat ecologist shall recommend adjustments to directional lighting (e.g. through cowls, shields or louvres) to ensure minimum light spill onto vegetated areas, and above lighting columns (reducing light spill to vegetated areas to below 3 lux where possible).

Should any tree (with low bat roost potential) require felling, it shall be checked for signs of bats. Rigged felling shall be used to lower the limbs and trunk carefully to ground. This tree shall then be left in situ on the ground for 48 hours prior to its removal (or relocation). In the unlikely event that bats are encountered, works upon this tree shall cease immediately and a bat ecologist should be contacted directly.

8.4 Measures to Reduce Impacts on Birds

To limit the potential impact of construction on breeding birds, vegetation removal will be restricted to the non-breeding season (September to February, inclusive). Where the construction programme does not allow this, an ecologist will undertake a breeding bird check immediately prior to vegetation clearance. Where no breeding birds are present clearance may proceed without requiring a licence. However, given that breeding birds and their nests of all bird species are protected under the Wildlife Acts, a licence would be required from the NPWS to permit the destruction of nest sites and disturbance to breeding birds during the bird breeding season (1st March to the 31st of August). Depending on the species in question licences may or may not be granted and therefore avoidance of the breeding bird season is by far the best option to avoid delays during vegetation clearance.

8.5 Measures to Reduce Impacts on Amphibians

The drainage ditches will be checked for the presence of amphibians prior to works on them commencing. If amphibians are found, a license will be required from the National Parks and Wildlife Service before works can proceed. To protect suitable amphibian breeding habitat, measures to avoid the release of silt into the local drainage network during vegetation clearance and construction at this site will be required to be put in place prior to works commencing.