Project

Richmond Road SHD

Report Title

Preliminary Construction & Environmental Management Plan

Client

Birkey Limited

INFRASTRUCTURE

DBFL CONSULTING ENGINEERS

December 2021

Job Title: **Richmond Road SHD**

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Report Title: **Preliminary Construction & Environmental Management Plan**

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Date: **December 2021**

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1.0 INTRODUCTION

This document is an initial Preliminary Construction & Environmental Management Plan (PCEMP) associated with the construction of the proposed development. It includes an outline description of the proposed works and they will be managed for their duration. It includes details of the Preliminary Construction Management Traffic Plan.

This project is currently at planning stage. At construction stage, this preliminary document will be issued to the contractor to be further developed into their final Construction and Environmental Management Plan for the project.

This PCEMP seeks to demonstrate how works can be delivered in a logical, sensible and safe sequence with the incorporation of specific measures to mitigate the potential impact on people and the surrounding environment.

The construction and environmental items addressed in this plan include noise and vibration, traffic management, working hours, pollution control, ecology, archaeology, arboriculture, dust control, road cleaning, compound / public health facilities and staff parking.

2.0 PROPOSED DEVELOPMENT

Birkey Limited intend to apply to An Bord Pleanála for permission for a strategic housing development at this c. 0.61 hectare (c. 6,067 sq m) site at No. 146A and Nos. 148-148A Richmond Road, Dublin 3 (Eircodes D03 W2H1, D03 T6P0, D03 Y8R9, D03 PX27, D03 K6F7, D03 E447 and D03 HR27). The site is bounded to the north-east by Richmond Road and the Leyden's Wholesalers & Distributor Site, to the north-west by an apartment development (Deakin Court), to the south-west by the Tolka River and to the south-east by a residential and commercial development (Distillery Lofts). Improvement works to Richmond Road are also proposed including carriageway widening and a new signal controlled pedestrian crossing facility on an area of c. 0.08 hectares (c. 762 sq m). The development site area and road works area will provide a total application site area of c. 0.69 hectares (c. 6,829 sq m).

The proposed development will principally consist of: the demolition of all existing structures on site (c. 2,346 sq m) including warehouses and 2 No. dwellings; and the construction of a part 6 No. to part 10 No. storey over basement development (with roof level telecommunications infrastructure over), comprising 1 No. café/retail unit (157 sq m) at ground floor level and 183 No. Build-to-Rent apartments (104 No. one bedroom units and 79 No. two bedroom units). The proposed development has a gross floor area of c. 16,366 sq m over a basement of c. 2,729 sq m. The proposed development has a gross floor space of c. 15,689 sq m.

The development also includes the construction of a new c. 126 No. metre long section of flood wall to the River Tolka along the site's southern boundary. The new flood wall is positioned at the top of the existing river bank and will connect to existing constructed sections of flood wall upstream and downstream of the site. The top of the wall will be set at the required flood defence level resulting in typical wall heights of c. 1.2 to 2 metres above existing ground levels. The development will also include the repair and maintenance of the existing river wall on site adjacent to the River Tolka.

The development also provides ancillary residential amenities and facilities; 71 No. car parking spaces including 8 No. electric vehicle spaces, 4 No. mobility impaired spaces and 1 No. car share space; 5 No. motorcycle parking spaces; bicycle parking; electric scooter storage; a drop off space; the decommissioning of the existing telecommunications mast at ground level and provision of new telecommunications infrastructure at roof level including shrouds, antennas and microwave link dishes; balconies facing all directions; public and communal open space; a pedestrian/bicycle connection along the north-western boundary of the site from Richmond Road to the proposed pedestrian/bicycle route to the south-west of the site adjoining the River Tolka; roof gardens; hard and soft landscaping; boundary treatments; green roofs; ESB

Substation; switchroom; comms rooms; generator; lift overruns; stores; plant; and all associated works above and below ground.

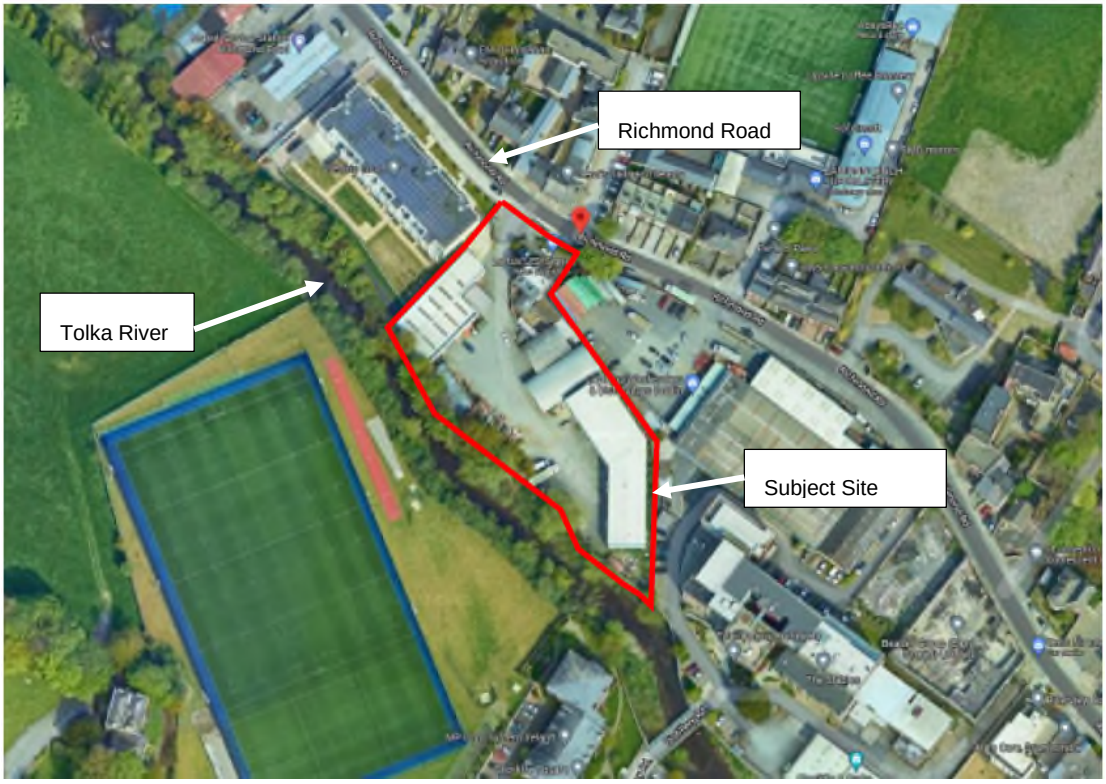

Figure 1 - Location of Subject Site (Google Earth)

The site is immediately adjacent to the Tolka River, existing residential properties and Richmond Road which are important factors in the consideration of the construction of the development.

3.0 SITE WORKS

3.1 Works Sequence

The proposed order of construction of key elements is subject to detailed review by the Contractor at construction stage and in general will be as follows:

- Site Setup.
- Service terminations and 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.
- Identification of the trees that are required to be removed and the removal of these along with scrub and vegetation, in accordance with the aboricultural report.
- Identification of trees to be retained and protection of same.
- Identification of any hazardous materials on site
- Designation of exclusion zones for the demolition/dismantling.
- Demolition and site clearance.
- Undertaking remaining site investigations / sampling.
- Earthworks, including cut and fill and disposal of excess material off site.
- Construction of new flood defence wall.
- Construction of basement substructure.
- Construction of superstructure, roofs and glazing / windows / facades.
- Internal fit out.
- External site works/ infrastructure.
- Construction of external / hardstanding areas.
- Landscaping.

If required, prior to construction archaeological test trenching, should be carried out under licence, by a suitably qualified archaeologist. Where possible, enabling or other groundworks should be deferred until after the archaeological test trenching programme has been completed. Any enabling or demolition works that must be carried out prior to completion of the testing programme should be the subject of a programme of archaeological monitoring by a suitably qualified archaeologist.

3.2 Site Setup

Immediately after access to the site is made and it is secure, the site compound will be established. Existing site services will be identified/isolated in conjunction with the ESB and the provision of a temporary builder's power supply.

The site will be secured with hoarding on all open sides and accessible approaches.

3.3 Demolition Works

Demolition works will be carried out by a suitably qualified demolition contractor, who will be required to submit a detailed method statement including the sequence of works, segregation and disposal process and outline all proposed health and safety measures.

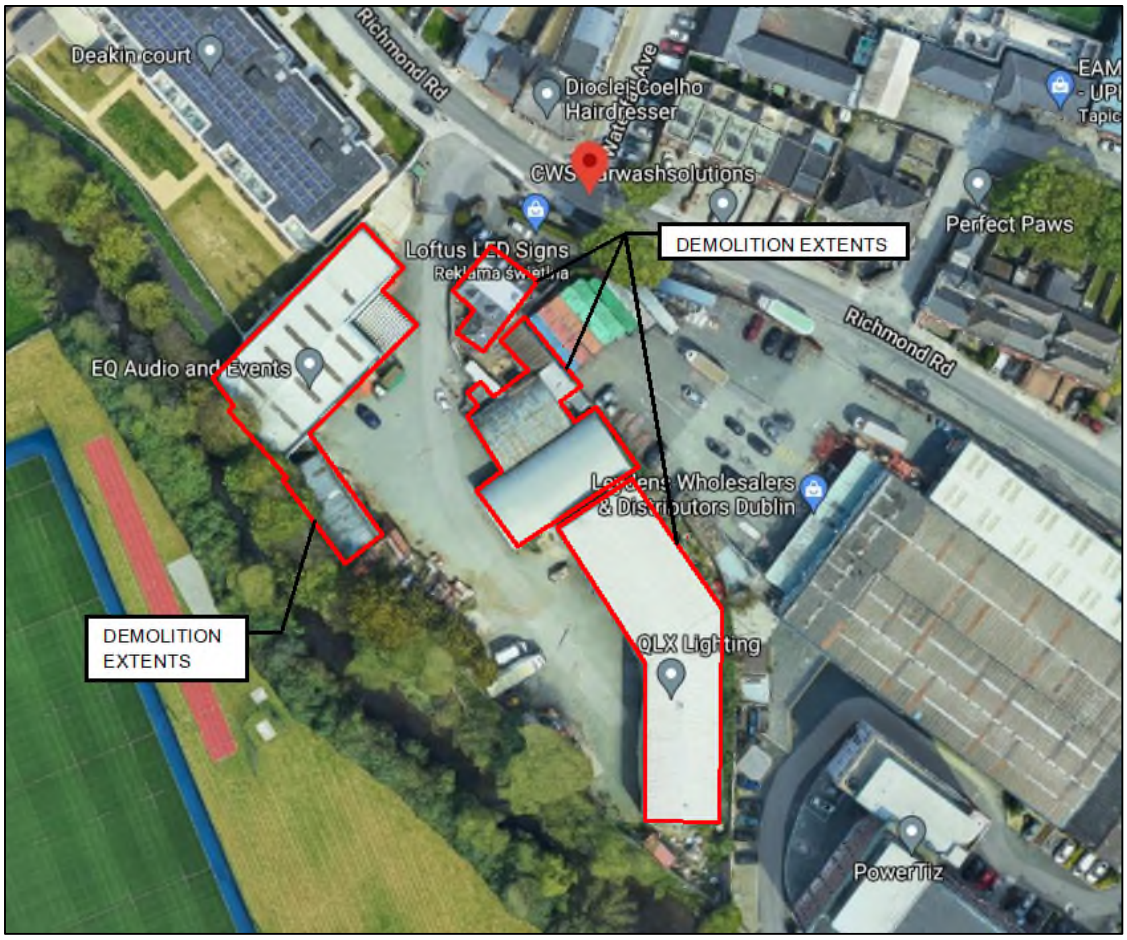

Figure 2 Scope of Demolition Works

Demolition works require the provision of temporary fencing on site to define any exclusion zones or protected areas. The works will be separated from outside traffic and passing public. Protective screens will be used, where necessary, to ensure that no debris enters the grounds of the neighbouring Deakin Court apartment development to the west and The Distillery to the east.

Demolition warning signage will be erected around the site and the main site safety notice will be erected at the site entrance outlining the safety requirements for the site. Task specific signs will be erected inside the site as required.

The relevant utility suppliers will be contacted to arrange disconnection for each utility service identified on-site in accordance with the current legislation, *"Safety, Health and Welfare at Work (Construction) Regulations (2013)".*

Possible utilities include but not limited to:

- Electricity – ESB Networks;
- Telecommunications – Virgin Media;

Prior to starting construction, a Materials Management Plan will be carried out. This would cover handling of any potentially contaminated material prior to removal off site and during construction and would include the following steps:

1. Carry out trial pits on site in areas that were inaccessible pre-demolition of existing structures
2. Identify and delineate any areas that require remediation and management at the site to mitigate against risk to human health and the environment
3. Develop a dig plan for the site construction works
4. Detail a workplan to ensure material generated during excavation is categorised, segregated and managed appropriately on site prior to re-use or removal off-site
5. Provide waste classification information to receiving sites of any materials being disposed of.

3.4 **Infrastructure Works**

The site infrastructure works include the provision of the permanent entrance to the site and the connection of all the utilities and services required for the site. Provision of the permanent infrastructure to the site will be carried out as early as possible in the programmed works.

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 aspiration 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 Dublin City Council.

Indicative Enabling Works 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.
- During any demolition works, all work done will be according to method statements detailed by both contractor and consultant method statements.
- 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 local residents.

3.5 **Earthworks**

Earthworks will consist of reducing existing levels for the proposed sub-structure and foundations. Excess material will be disposed offsite to a suitably licensed facility in accordance with the construction waste management plan.

3.6 **Structure**

The construction will follow traditional methods with temporary works to support the excavation for the reinforced concrete basement. Foundations will bear on adequate bearing strata and will be piled or conventional pad footings as existing ground conditions dictate. Superstructure will be a concrete structure with lateral support provided by stair & lift cores, along with shear walls where necessary.

3.7 **Flood Defence Wall**

The works include the continuation of the existing flood defence wall located at the south east corner of the site. The wall will generally follow the top of the existing slope along the boundary with the Tolka River. The wall will be circa 1m above adjacent ground level (5.8mAOD on the upstream side and 5.3mAOD on the downstream side.

The construction of the flood defence wall will be carried out in accordance with the requirements of Dublin City Council, the OPW, and in accordance with Inland Fisheries Ireland (IFI), “Guidelines on Protection of Fisheries During Construction Works in and Adjacent to Waters”. Refer to Section 7.0 for further details.

As noted in the Slope Stability Assessment carried out by GDG, and included as part of the Basement Impact Report, a flood wall is constructed should any vegetation be stripped away from the river bank slope. Therefore, construction of the flood wall must follow immediately after vegetation is removed.

4.0 CONSTRUCTION TRAFFIC MANAGEMENT PLAN

4.1 General Site access / Egress

All traffic for required works will enter the site via Richmond Road and will be routed to the site via the primary road network in the area. Warning signage will be provided for pedestrians and other road users on all approaches in accordance with Chapter 8 of the Traffic Signs Manual and the Contractor's Traffic Management Plan.

As part of Construction Stage Safety Plan for the works, a Traffic Management Plan (TMP) will be prepared in accordance with the principles outlined below, and shall comply with the requirements of:

Chapter 8 of the Department of the Environment Traffic Signs Manual, current edition, published by The Stationery Office, and available from the Government Publications Office, Sun Alliance House, Molesworth Street, Dublin 2.

Guidance for the Control and Management of Traffic at Road Works (June 2010) prepared by the Local Government Management Services Board.

Any additional requirements detailed in the Design Manual for Roads and Bridges & Design Manual for Urban Roads & Streets (DMURS).

All major deliveries/removals that may affect access for emergency vehicles or cause blockage to the existing road system shall be undertaken outside normal working hours and shall be agreed in advance. Trucks will turn around within established site areas.

During demolition, the majority of vehicle movements will result from the removal of material, typically carried out by 8-wheel trucks and Roll on/Roll off rubbish skips. All excavated suitable material from construction of proposed infrastructure works will be reused for construction and fill activities where possible and appropriate. Any unsuitable material will be disposed of off-site at a suitably licensed landfill facility.

Construction traffic will include the following categories:

- Private vehicles owned and driven by site construction and supervisory staff.
- Excavation plant and dumper trucks involved in site development works and materials delivery vehicles.
- Mobile crane for lifting of prefabricated units.

With the objective of actively managing all vehicle movements via the site access / egress on Richmond Road appropriate Traffic Management Procedures will be put in place to have a safe and coordinated access and egress of construction vehicles to the site as they pass by the local sensitive areas such as schools, businesses and local residential areas. Speed limit signs will be posted as well as warning signs to notify construction vehicles of nearby schools and residential areas and alert these people of the construction site. The contractor will liaise with

both primary and secondary schools regularly in relation to significant site works to avoid clashing school activities. Prior to commencement on site and further to discussions with key stakeholders including the local schools it may prove beneficial to have an operative manning the site access to minimise disruption to school related traffic during school start and finish times.

4.2 Staff and Parking

On-site employees will generally arrive before 08:00, thus avoiding the morning peak hour traffic, and will generally depart after 18:00. Construction traffic will not be permitted to park on the public roads or within the general area outside the main site. In general, the impact of the construction period will be temporary in nature.

4.3 On Site Accommodation

Facilities will be provided by the contractor within the confines of the site hoarding as follows;

- Adequate materials drop-off and storage area;
- Set down areas for trucks;
- Dedicated staff parking and visitor parking;
- Staff welfare facilities i.e. toilets etc.

4.4 Minimisation of Movement and Impact

Construction vehicle movements and their impact will be minimised through;

- Consolidation of delivery loads to / from the site and management of large deliveries on site to occur outside of peak periods;
- Delivery of materials by HGV's will not be permitted to site during school drop off and pick-up times;
- Use of precast / prefabricated materials where possible;
- "Cut" materials generated by the construction works to be re-used onsite where possible, through various works;
- Scheduling of movements to outside peak traffic times and school pick-up / drop-off times.

4.5 Public Roads

The following measures will be taken to ensure that the site and surroundings are kept clean and tidy;

- A regular programme of site tidying to be established to ensure a safe and orderly site.
- Mud spillages on roads and footpaths outside the site to be cleaned regularly and will not be allowed to accumulate.
- Wheel-wash facilities or similar will be provided for vehicles exiting the site if deemed appropriate or when significant vehicle movements are planned (e.g. disposal of topsoil from site).
- Dedicated road sweeper will be put in place if site conditions require.
- Provision will be made for the cleaning by a road sweeper etc. of all access routes to and from the site, during the works. Road cleaning shall be undertaken daily during the completion of the works. A wheel wash facility will also be provided on site to clean site traffic leaving the site. Wastewater generated at this washing facility will be suitably treated on site and all settled silts will be disposed offsite to a licensed landfill.
- All road sweeping vacuum vehicles will be emptied off site at a suitably licensed facility.

5.0 WORKING HOURS

Working hours will be strictly in accordance with the granted planning conditions with no works on Sundays or Bank Holidays. If work is required outside of these hours, written approval will be sought by the contractor from the Local Authority.

It is anticipated that normal working hours may be 8am to 7pm Monday to Friday and 8am to 2pm on a Saturday. Working outside these hours will be subject to agreement with the Local Authority.

Deliveries of material to site will be planned to avoid high volume periods to avoid clashing with school activities. There may be occasions where it is necessary to have deliveries within these times. The Contractor will develop, agree and submit a detailed Traffic Management Plan for the project prior to commencement.

6.0 NOISE & VIBRATION

During the construction works the Contactor shall comply with:

- BS 5228: 2009 Code of Practice for Noise and Vibration Control on Construction and Open Sites, Part 1, and Part 2.
- Guidelines for the Treatment of Noise and Vibration in National Road Schemes (NRS, Revision 1, 2004).
- Safety, Health and Welfare at Work (General Application) Regulations 2007, Part 5 Noise and Vibration.

The following noise limits and considerations related to noise and vibration have been indicated in the Noise &Vibration Impact Assessment report by AWN Consulting Limited.

- The noise limits to be applied for the duration of the works are those specified in the A Category of BS 5228. These limits are summarised below and will be applied at the nearest sensitive receptors to the works.
  a) Night (23:00-07:00) = 45dB
  b) Evening (19:00-23:00) = 55dB
  c) Daytime (07:00 – 19:00) and Saturdays(07:00 – 13:00) = 65dB

- The total noise (LAeq) which should not be exceeded during daytime is therefore 65dB.
- Vibration limits to be applied for the works are those specified in the BS 7385.
- BS 7385 states that there should typically be no cosmetic damage if transient vibration does not exceed 15 mm/s at low frequencies rising to 20 mm/s at 15 Hz and 50 mm/s at 40 Hz and above.
- BS 5228-2 recommends that, for soundly constructed residential property and similar structures that are generally in good repair, a threshold for minor or cosmetic (i.e. non-structural) damage should be taken as a peak particle velocity of 15 mm/s for transient vibration at frequencies below 15 Hz and 20 mm/s at frequencies above than 15 Hz. Below these vibration magnitudes minor damage is unlikely, although where there is existing damage these limits may be reduced by up to 50%. In addition, where continuous vibration is such that resonances are excited within structures the limits discussed above may need to be reduced by 50%.
- It is acknowledged that humans are particularly sensitive to vibration stimuli and that any perception of vibration may lead to concern. In the case of traffic, vibration is perceptible at around 0.5 mm/s and may become disturbing or annoying at higher magnitudes. Higher levels of vibration, however, are typically tolerated for single events or events of short duration. For example, during piling, one of the primary sources of vibration during construction, vibration levels may typically be tolerated at up to 2.5 mm/s. This guidance is applicable to the daytime only; it is unreasonable to expect

people to be tolerant to such activities during the night-time (or if they are trying to sleep during the daytime).

In general, the contractor shall implement the following mitigation measures during the proposed works:

- No plant used on site will be permitted to cause an ongoing public nuisance due to noise.
- The best means practicable, including proper maintenance of plant, will be employed to minimise the noise produced by on site operations.
- All vehicles and mechanical plant will be fitted with effective exhaust silencers and maintained in good working order for the duration of the contract.
- Compressors will be attenuated models fitted with properly lined and sealed acoustic covers which will be kept closed whenever the machines are in use and all ancillary pneumatic tools shall be fitted with suitable silencers.
- Machinery that is used intermittently will be shut down or throttled back to a minimum during periods when not in use.
- During construction, the contractor will manage the works to comply with noise limits outlined in BS 5228-1:2009+A1 2014. Part 1 – Noise.
- All items of plant will be subject to regular maintenance. Such maintenance can prevent unnecessary increases in plant noise and can serve to prolong the effectiveness of noise control measures.
- Limiting the hours during which site activities which are likely to create high levels of noise or vibration are permitted.
- Monitoring levels of noise and vibration during critical periods and at sensitive locations.
- Establishing channels of communication between the contractor/developer, Dublin City Council and residents so that receptors are aware of the likely duration of activities likely to generate higher noise or vibration.
- The Contractor appointing a Site Environmental Manager (SEM) responsible for matters relating to noise and vibration.
- Furthermore, it is envisaged that a variety of practicable noise control measures will be employed. These may include:
- Selection of plant with low inherent potential for generation of noise and/ or vibration.
- Erection of good quality site hoarding to the site perimeters which will act as a noise barrier to general construction activity at ground level.
- Erection of barriers as necessary around items such as generators or high duty compressors; and
- Situate any noisy plant as far away from sensitive properties as permitted by site constraints.

- A site representative responsible for matters relating to noise and vibration will be appointed as part of the Construction & Environmental Management Plan (construction stage).
- A noise and vibration monitoring specialist will be appointed to periodically carry out independent monitoring of noise and vibration during random intervals and at sensitive locations for comparison with limits and background levels. It is proposed that noise and vibration levels be maintained below those outlined above as part of these infrastructure works.

7.0 POLLUTION CONTROL

All works carried out as part of these infrastructure works will comply with all Statutory Legislation including the Local Government (Water Pollution) acts, 1977 and 1990, Inland Fisheries Ireland (IFI), "*Guidelines on Protection of Fisheries During Construction Works in and Adjacent to Waters*" and will be carried out in compliance with the Environmental Section of Dublin City Council.

All works adjacent to the Tolka River to be carried out in accordance with Inland Fisheries Ireland (IFI), "Guidelines on Protection of Fisheries During Construction Works in and Adjacent to Waters". Contact will be made with IFI to ensure the works comply with the provisions of the Fisheries Act and Habitats Regulations, and in accordance with any detailed operational and construction requirements issued by IFI.

Works will be carried out in such a manner to minimise the loss or damage to bankside cover, including the removal of trees, shrubs and bankside root masses and to minimise the risk of pollution of waters, during the construction stage.

The Site Management Team will maintain a record of all receipts for the removal of toilet or interceptor waste off site to insure its disposal in a traceable manner. These will be available for inspection by the Environmental Section of Dublin City Council.

During the phases of demolition, large amounts of refuse is produced predominantly from the soft strip of the buildings scheduled for demolition, in which all furniture, fixings, trimmings and waste rubbish which remaining inside the buildings will be segregated and sorted. Any items wished to be retained by the client is to be pointed out to the contractor prior to commencement of the works. Any deleterious materials will be identified prior to the commencement of the works and removed in accordance with the statutory regulations. Refuse produced during demolition between floor levels will be lowered by teleporters or similar.

During phases of the construction of infrastructure, refuse is produced predominantly by delivery package material such as protective timber pallets, polymer straps and plastic covers. Additional refuse may include discarded construction materials, material containers, contractor's sundries, hoarding/shutter boards, and tools.

Waste skips will be provided in designated skip drop zones will be dropped into skip storage zones during both demolition and construction.

All relevant refuse from both demolition and construction is to be disposed off-site to licensed disposal facilities for processing and recycling where possible.

The Natura Impact Statement report by Enviroguide Consulting has described the mitigation measures to be implemented to prevent the contamination of ground water and watercourses as described in the following sections 7.1 and 7.2 of this report.

7.1 Contamination of Groundwater

Shallow groundwater may be encountered during the construction works of the basement excavation. The following measures will be taken:

- Where water must be pumped from the excavations, water will be managed in accordance with best practice standards (i.e., CIRIA – C750) and regulatory consents. Water will not be discharged to open water courses (e.g., the Tolka River) and will be disposed to foul sewer as per the conditions of a consent/licence issued under Section 16 of the Local Government (Water Pollution) Acts and Regulations that must be obtained from Irish Water.
- Any such discharge licence will be subject to conditions regarding the flow (rates of discharge, quantity etc.); effluent quality prior to discharge and pre-treatment (e.g., settlement/filtration, hydrocarbon separation etc.) and monitoring requirements. All dewatering will be undertaken in strict compliance with the conditions of the discharge licence for the project.
- A treatment system will be installed for the duration of the Proposed Development to meet the requirements of the discharge licence and will typically include a number of stages of settlement and filtration to remove sludge, suspended solids, free-phase hydrocarbons (oils), dissolved phase hydrocarbons and lime from cement.
- A monitoring programme will be implemented to ensure that water quality criteria set out in the discharge licence are achieved prior to discharging to the sewer.
- Excavation works should be carried out at low tide regimes (in the event that there is a tidal influence on shallow groundwater at the site).

7.2 Contamination of Watercourse

The below measures will be implemented to prevent the release of hydrocarbons, polluting chemicals, sediment/silt and contaminated waters into the receiving surface water network and into the Tolka River:

- A suitably qualified Ecological Clerk of Works (ECoW) will be present on-site during the works being undertaken along the river bank i.e., the installation of the flood wall and associated bank works.
- A construction methodology will be drawn up detailing the approach to the flood wall construction in order to best prevent sedimentation of the stream.
- It will be ensured that all river protection measures will be maintained in good and effective condition for the duration of the proposed works and checked regularly to ensure that the silt fencing and other mitigation measures are operating effectively.
- To prevent elevated levels of erosion and sedimentation at the Site during the Construction Phase, surface water at the Site will be managed and controlled for the

duration of the construction works, until the permanent surface water drainage system (including attenuation and storage) for the Proposed Development is complete.

- Entry to the river channel by vehicles will be avoided where possible, while vehicle usage along the banks will be restricted as much as practicable. Any machines working in the watercourse must be protected against leakage or spillage of fuels, oils, greases and hydraulic fuels.
- Works will be carried out from the bank side, and in-stream works will be restricted to the period 1st July through 30th September, to comply with the seasonal restrictions in salmonid rivers.
- Works involving the breaking of river banks e.g., any reprofiling of the river bank, will be carried out with suitable and effective mitigation in place to minimise/ prevent sediment release to the river i.e., cofferdams, Silt-traps and other suitable in-stream measures for the collection/filtration of sediment.
- Suitable temporary erosion control measures will be employed where required, to prevent sedimentation/erosion arising from any newly profiled banks until new vegetation establishes e.g., jute/coir mesh blankets (plastic should be avoided where possible).
- Features such as silt fencing and berms, will be installed prior to the commencement of construction to ensure the protection of the river during construction works. A silt fence set back at least 10m, and preferably up to 50m from the watercourse will be required, to be constructed of a suitable geotextile membrane to ensure water can pass through, but that silt will be retained.
- An interceptor trench will be required in front of the silt fencing where space allows. The silt fence must be capable of preventing 425µ (micron) and above sediment from passing through. It should also be resistant to damage during deformation resulting from loading by entrapped sediment.
- The silt fences will be monitored to ensure that they remain functional throughout construction of the Proposed Development. Where necessary, maintenance will be carried out on the fences to ensure that they continue to be effective. This will be particularly important after heavy rainfall events. The checks will be undertaken by a suitably qualified person nominated to act as Ecological Clerk of Works (ECoW). The frequency of monitoring will depend on the stage of works, and local environmental conditions. Daily checks may be appropriate during the initial site clearance, during works in the vicinity of the watercourse, and during and after storm events. Weekly or bi-weekly checks may be appropriate at other times.
- When cofferdams are being kept dry by pumping, the discharge must be routed to an approved settlement facility before return to the river.
- Every care must be taken to insure against spillage of concrete or leakage of cement grout within cofferdams.

The following Construction Best Practise will be implemented:

- Location of stilling/settling ponds will take into account groundwater vulnerability at the site and will be located in suitable areas.
- Discharge water generated during placement of concrete will be stored and removed off site for treatment and disposal.
- There will be no washing out of any concrete trucks on site.
- Specific areas for storage, delivery, loading/unloading of materials will be designated, which will have appropriate containment/spill protection measures where required.
- Leachate generation from stockpiles or waste receptacles will be prevented by using waterproof covers.
- Prolonged exposure of contaminated soils or groundwater to the atmosphere will be avoided where practical or unnecessary.
- Appropriate bunding, storage and signage arrangements for all deleterious substances will be used.
- Robust and appropriate Spill Response Plan and Environmental Emergency Plans will be included within the Contractor's CEMP and the details of which will be communicated, resourced and implemented for the duration of the works.
- Control measures and spill clean-up equipment adequate to treat spills at the Site will be available and staff will be trained and experienced in using said equipment.
- A register will be kept of all hazardous substances either used on site or expected to be present. The register shall be available at all times and shall include as a minimum: valid safety sheets; Health & Safety, environmental controls to be implemented when storing, handling, using and in the event of spillage of materials; emergency response procedures/precautions for each material; the Personal Protective Equipment (PPE) required when using the material.
- All existing services will be mapped, and a plan will be put in place to decommission/divert and manage any drains or sewers which are associated with the Site.
- A plan for dealing with any unknown drains or services which may be encountered during the works will be set out and implemented.
- Any drains or sewers which could act as pathways for contamination from the Site will be blocked where required.
- Any surface water inflow into the main areas of excavation will be minimised where possible.

In addition to the above measures indicated by Enviroguide Consultant, it can be noted that also the following measure will be implemented:

- All oils, fuels, paints and other chemicals will be stored in a secure bunded construction hardstand area. Refueling and servicing of construction machinery will take place in a designated hardstand area which is also remote from any surface water features (when not possible to carry out such activities off site).
- Discharge from any vehicle wheel wash areas is to be directed to on-site settlement tanks/ponds, debris and sediment captured by vehicle wheel washes will be disposed off-site at a licensed facility.
- The cleaning of public roads in and around the subject site will be undertaken to reduce environmental impacts and care will be taken to prevent any pollution of watercourses from this activity.

8.0 ECOLOGY

An 'Ecological Impact Assessment' has been carried out of the subject site by *Enviroguide*. Reference.

In addition to the recommendation and measures included in the Natural Impact Statement, the above report indicates the following mitigation measures in relation to small mammals and bats to be implemented during the construction of the development.

- During the Construction Phase of the Proposed Development Hedgehogs in particular have the potential to be significantly impacted through the loss of suitable hibernation and nest sites in the form of piles of dead wood, vegetation and leaves on site.
  This can be mitigated through the careful removal of dead wood/leaves to another part of the site where they will not be affected. Woody debris from the proposed management of hedgerow/treeline areas on site should also be left in this out-of-the way area as compensatory hedgehog habitat during the Construction Phase.
- Work likely to cause disturbance during hibernation – for example removal of hibernation habitats such as log piles and dense scrub/hedgerow – should not take place during Winter i.e., 1st November to 1st March, but also must take into account the breeding bird season in order to avoid potential nest destruction and bird mortality.
- As such, it is recommended that any removal of the western scrub be carried out in September/October in order to ensure the best biodiversity outcome and to comply with the Wildlife Acts 1976 and Amendments.
- Bat specialist will be retained to examine the Site prior to the demolition of buildings for evidence of roosting bats. Should bats be present, a derogation will be acquired from NPWS before such a building can be removed. (Demolition of a confirmed bat roost without a licence is an offence under the Wildlife Act 1976 as Amended).
- As per the recommendations of the bat report, 3 x Schwegler 2 F bat boxes shall be installed for local bats. The boxes will be installed on the western section of the Site, towards the River Tolka, and most boxes will be installed to face south or in a southerly direction. A bat specialist will be consulted on the optimal locations for these boxes during installation (on buildings or suitable trees or poles).
- The minimisation of night-time lighting emitted during both the Construction and Operational Phases of the Proposed Development (once health and safety requirements are met).
- The avoidance of direct lighting of the River Tolka, and treelines and hedgerows at the Site, as well as areas of planting. Bollard level lighting is proposed for the pedestrian greenway along the western boundary of the Site.
- Unnecessary light spill controlled through a combination of directional lighting and hooded / shielded luminaires.
- Where appropriate, luminaires on the site boundary will be fitted with light baffles to prevent light spill onto adjacent habitats.

- Areas around the perimeter should not be lit up nor lighting directed towards it. Lighting in these areas should not increase beyond existing night-time lux levels or 1 lux, whichever is the lesser.
- Vertical light spill at light sources should be below 3m to avoid potential bat flight paths.
- No floodlighting should be used – this causes a large amount of light spillage into the sky significantly impacting bats. The spread of light should be kept below the horizontal.
- Hoods, louvres, shields or cowls should be fitted on the lights to reduce light spillage.
- Lights will be of low intensity. It is better to use several low intensity lights than one strong light spilling light across the entire area.
- Narrow spectrum lighting should be used with a low UV component. Glass also helps reduce the UV component emitted by lights.
- The source of light should be Light Emitting Diodes (LEDs) as this is a narrow beam that is highly directional and a highly energy efficient light source.

9.0 ARBORICULTURE

An Arboricultural Report has been prepared by *The Tree File* Consulting Arborists and should be referred to for a detailed description of the tree protection strategy to be adopted in tandem with this Construction & Environmental Management Plan for the proposed development.

The aforementioned report specifically outlines the main requirements in relation to the existing trees on the subject site and these are summarised as follows:

- Identification of existing trees to be removed from the site.
- Site Monitoring during Construction Works including assessing the impact of plant, equipment, vehicles and compacting of the ground has on the soil profiles.

Reference should be made to the above specialist report and associated drawings for further details and all construction works proposed shall take account of same.

The Arboricultural Report has identified the presence of Invasive Alien Plant Species that are listed in Part 1 of the Third Schedule of the European Communities (Birds and Natural Habitats) Regulations 2011 (SI 477 of 2011, as amended). A site survey was carried out on the 8th of April 2021 by *Invasive Plant Solutions.*

A Site Assessment Report & Management Plan for the Invasive Alien Plant Species was prepared by *Invasive Plant Solution*.

The following recommendations are included in the report:

- As confirmed in this report, viable Japanese knotweed and giant hogweed stands have been identified at a number of locations across the land holding, and along the bank of the Tolka river.
- We have noted in section 7 that the southern half of the riverbank, between the fenced boundary of the site and the Tolka river itself, was inaccessible for the purpose of safely carrying out a detailed I.A.P.S. survey. Based on the limited and restricted views of this section of riverbank, gained from within the property fence line, there was no obvious evidence of I.A.P.S. present. When safe access is available, and in advance of any development proceeding, this area should be surveyed, to validate the conclusions contained in this report. If further invasive alien plant species are observed then this management plan should be revised and updated accordingly.
- It is possible that, in the future, plants could present both beyond the limits of those recorded, and/or be introduced onto the site. In applying the “precautionary principle”, on-going site monitoring should be maintained.
- Given the high number of recordings of giant hogweed upstream of the site in the Tolka river corridor, as well as evidence of seed dispersal and plant growth on the property itself, it is likely that further plants will present on the site as a result of seed dispersal from off-site.Ttherefore particular attention should be given to the on-going site

monitoring and treatment programme, which should include multi-annual site visits across the giant hogweed growing season, from march to September each year.

- Given the position of the Japanese knotweed stand JK 2, located against the property's eastern boundary wall, there is a risk that the plant could present on the opposite side of this wall. Follow up inspections should include monitoring to this section of boundary wall on the neighbouring property to the east.
- A further formal site survey should be scheduled for the 2021 summer growing period, to inspect for newly emergent I.A.P.S., particularly giant hogweed seedlings and juvenile plants, as well as to validate the current full extent of the emergent Japanese knotweed stands JK 1 & JK 2 – **This survey has been completed, see section 16 of the report.**
- All I.A.P.S. locations should be securely fenced off without delay, including an appropriate buffer zone, where possible. fencing should be sturdy and stable, and incorporating appropriate warning / advisory signage 2 – **This task has been completed, see section 16 of the report.**
- The Japanese knotweed and giant hogweed are healthy and suitable for the commencement of a multi-annual herbicide treatment programme, in accordance with the management plan section of this document. The giant hogweed stands, in particular should be treated at the earliest possible juncture, to mitigate the risk to human health posed by unprotected skin contact. – **This treatment has commenced and should continue, see section 16 of the report.**
- This management plan, and any potential treatment methodology, may need to be screened for potential impacts on ecological receptors and sensitivities, where they exist, to fully consider the requirements of S.I. 477 of 2011 – the European communities (birds and natural habitats) regulations 2011 and S.I. 155 of 2012 – the European communities (sustainable use of pesticides) regulations 2012.
- When using herbicides as part of the management plan and treatment programme, consideration must be given to the proximity of ecological receptors and designated sites. typically only non residual, aquatic approved, herbicides should be specified for chemical treatments.
- This report and management plan should be circulated to the relevant members of the design team for the proposed development, as well as any prescribed authorities and adjoining landowners affected by the I.A.P.S. presence, where either relevant or appropriate to do so.
- All relevant staff and site visitors should be briefed on the identification, risks and dangers of Japanese knotweed and other I.A.P.S., and on the specific measures, restrictions and protocols to be deployed for any site activities.
- No ground maintenance, opening up or any other ground disturbance should take place within the fenced area, without prior consultation with, and the direction of, an invasive alien plant species specialist, and then only under strict supervision.

- If access to an infested area is necessary, and particularly if any essential work has to be carried out within a fenced location, then this must only be done following formal approval in advance, and after the preparation and agreement of a “task specific” method statement. no viable plant material or rhizome should be disturbed in, or removed from, the zone of infestation.

10.0 ARCHAEOLOGY

An archaeological impact assessment has been completed for the site by *Rubicon Heritage*. The results of this assessment indicate that the development site as a whole is an area of archaeological potential and it is expected that any impacts to archaeology would occur as a result of construction groundworks.

The following mitigation measures are recommended:

- The site shall be subject to a programme of pre-construction archaeological test trenching, under licence, by a suitably qualified archaeologist in order to identify the nature, extent and location of any sub-surface archaeological material. Note where possible enabling or other groundworks works should be deferred until after the archaeological test trenching programme has been completed. Any enabling or demolition works that must be carried out prior to completion of the testing programme shall be the subject of a programme of licensed archaeological monitoring by a suitably qualified archaeologist.
- A report on the results of the test trenching programme shall be submitted to Dublin City Council, the Heritage and Planning Division, Department of Housing, Local Government and Heritage (DHLGH) and the National Museum of Ireland prior to the commencement of the main construction programme. This report will include:
  a) The archaeological and historical background of the site to include industrial heritage.
  b) An appropriate paper record of any historic buildings and boundary treatments.
  c) An updated impact statement of the proposed development on any surviving archaeological material and describe any appropriate further mitigation measures required in the event that the trenching programme confirms the presence of archaeological features or deposits.
- Where preservation in situ cannot be achieved, either in whole or in part, then a programme of full archaeological excavation should be implemented to ensure the preservation by record of any archaeological features that will be directly impacted upon.
- Any such further mitigation measures required must be agreed in advance with the City Archaeologist (Dublin City Council) and the National Monuments Service (DHLGH).

11.0 DUST CONTROL

The Contractor shall put in place a regime for monitoring dust levels in the vicinity of the site during the works. The level of monitoring and adoptions of mitigation measures will vary throughout the construction works depending on the type of activities being undertaken and the prevailing weather conditions at the time.

The Construction team will monitor the construction regime on an ongoing basis throughout the project to endeavour to minimise impact on a surrounding community.

During the proposed infrastructure works the following mitigation measures shall be implemented to minimise dust emissions:

- Construction techniques shall minimise dust release into the air.
- Spray exposed site haul roads during dry and / or windy weather.
- Provide wheel washing facilities at all exit points.
- Provide tarpaulins over all unacceptable excavated materials being carted off site.
- Control vehicle speeds and impose speed restrictions, (speed can mobilise dust).
- Sweep hard surface roads, inside and outside the site, to ensure roads are kept clear of debris, soil or other material.
- Locate stockpiles away from sensitive receptors, (i.e. Deakin Court -apartment block to the West of the subject site).

During dry spells and if deemed necessary, monitoring of dust levels shall be carried out using the Bergerhoff Method i.e. analysis of dust collecting jars left on-site (German Standard VDI 2119, 1972). Results will be compared to the TA Luft guidelines (TA Luft, 1972). Should an exceedance of the TA Luft limit occur during, additional mitigation measures, for example more regular spraying of water, shall be implemented.

Particular attention will be given to the control of dust using the measures listed above given the location of the proposed development in the vicinity of Deakin Court.

A complaints log shall be maintained by the construction site manager and in the event of a complaint relating to dust nuisance, an investigation shall be initiated.

12.0 SITE COMPOUND FACILITIES AND PARKING

The compound shall be constructed using a clean permeable stone finish and will be enclosed with security fencing. A recommended layout for the site compound for both the demolition of existing buildings and construction of required infrastructure works is illustrated as per Figure 3 below. The contractor may provide their own layout, which will be subject to approval from both the client and the resident engineer. It is expected that the layout will adapt over the construction period.

Figure 3: Indicative Site Compound Location

Warning signage will be erected along the approaches to the site on Richmond Road. Vehicles that are required to remain on site or park for any duration they will be required to enter the site therefore providing clear access to the day-care centre. A series of 'way finding' signage will be provided to route staff / deliveries into the site and to designated compound / construction areas.

Areas within the designated site compound include site accommodation providing suitable washing / dry room facilities for construction staff, canteen, sanitary facilities, first aid room, office accommodation etc. Access to the compound will be further security controlled and all site visitors will be required to sign in on arrival and sign out on departure.

Recommended security protocols should ensure that entrance gates always remain closed whilst the entrance is not in use. The opening and closing of the security gates will be the responsibility of a designated gate man provided by the contractor, whole role involves controlling the vehicles entering and exiting of the site. All site visitors will be required to sign in on arrival and sign out on departure, recorded details of visitors will be made by the designated by the gate man at kept at the site office.

All vehicles will be positioned on the site in designated parking spaces, with large delivery and construction vehicles entering, leaving, or manoeuvring within the site be accompanied by a trained and competent banksman provided by the contractor. Delivery and construction vehicles will not be permitted to park outside the day-care centre.

Site Parking will provide a permeable hardstand area for contractors, consultants, and the client. This area is only intended for small vehicles such as passenger vehicles, and vans.

The delivery and storage zone will provide an area for delivery vehicles to offload goods, and the storage of both construction and demolition plant and materials. The area will also provide designated zones for refuelling of plant and processing required materials for construction such as mixing of concrete mortar. If necessary, the area can be used for temporary storage of excavated material that is intended to be disposed of, however, measures of mitigating pollution including dust control need to be implemented.

Skip storage areas will be used for the temporary storage of refuse. Any reusable materials will be set aside in a designated area of the site for transport to licensed recycling facilities. The area is located to allow for easier collection and disposal of refuse to off-site licensed disposal facilities for processing and recycling.

Processed materials may be segregated on site into recommended categories such as:

- Mixed C&D Waste
- Recycling
- Timber
- Scrap Metal
- Clean Rubble

Teleporters will be used for general unloading during the structural and envelope works, unloading over the public roadway and path will be avoided, however if required, all relevant contact, procedures and authorisation will be made with the relevant local authority.

All works carried out within the skip storage areas, delivery and storage zones will need to comply with overall construction methodology, especially with reference to mitigating issues identified as being of risk and/or concern of contributing to pollution, including dust control.

The contractor 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. On completion of the works all construction materials, debris, temporary hardstands etc. from the site compound will be removed off site and the site compound area.

13.0 CONCLUSION

A Construction & Environmental Management Plan (construction stage) will be prepared and agreed with Dublin City Council prior to commencement on site and will incorporate the recommendations of this planning report, recommendations of all specialist reports, and any planning conditions relating to construction activity.