City Quay

Outline Construction Management Plan

Bakkala Consulting Engineers

Report No. B1876-BLP-RP-C-003
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Revision 02

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Contents

1 Introduction

1.1 Introduction

ByrneLooby have been engaged by Bakkala Consulting Engineers (Bakkala), on behalf of Ventaway Ltd., to complete an Outline Construction Management Plan (CMP) for the proposed development at City Quay in Dublin City Centre.

1.2 Report Objectives

The report will outline the preliminary Construction Management Plan for the implementation of the construction phase of the proposed redevelopment of the City Quay site in Dublin 2. The plan shall set out typical arrangements and measures which may be undertaken during the construction phase of the project in order to mitigate and minimise disruption or disturbance to the area around the site. The purpose of this report is to summarise the possible impacts and measures to be implemented and to guide the Contractor who will be required to develop and implement the Construction Management Plan when on site.

This report includes the preliminary Construction Management Plan for the following works phases:

- Demolition and site clearance
- New construction of development

A separate Resource and Waste Management Plan (RWMP) has also been prepared by ByrneLooby and is included as part of the submission. In addition, AWN Consulting have carried out a separate Operational Waste Management Plan which is included as part of the overall submission.

1.3 Limitations

The preliminary Construction Management Plan is indicative only and should not be construed as representing the exact method or sequence in which the construction works shall be carried out. As is normal practice, the Main Contractor for the project is responsible for the methods in which the demolition and construction works are carried out and to ensure that best practices and all legal obligations including Local Authority requirements and Health and Safety Legislation are complied with. The Main Contractor is also responsible for the design and installation of all temporary works required to complete the permanent works. This plan can be used by the Main Contractor to develop their final Construction Management Plan and Waste Management Plan. The Applicant reserves the right to deviate from the contents of this report, while complying with all relevant Local Authority requirements and legislation.

2 Site Description & Proposed Works

2.1 Site Description

The site is located in the Dublin City Centre, at the junction between Moss Street and City Quay, as shown in Figure 2.1. The site is currently made up of a derelict three storey commercial property which borders City Quay and Moss Street in the northwest of the site. The south of the site is made up of hardstanding areas.

The area surrounding the site is generally made up of commercial premises. The River Liffey and Talbot Memorial Bridge are located directly north of the site. Access to the site is currently available from City Quay at the northeast corner of the site, as well as from Moss St., close to the southwest corner of the site.

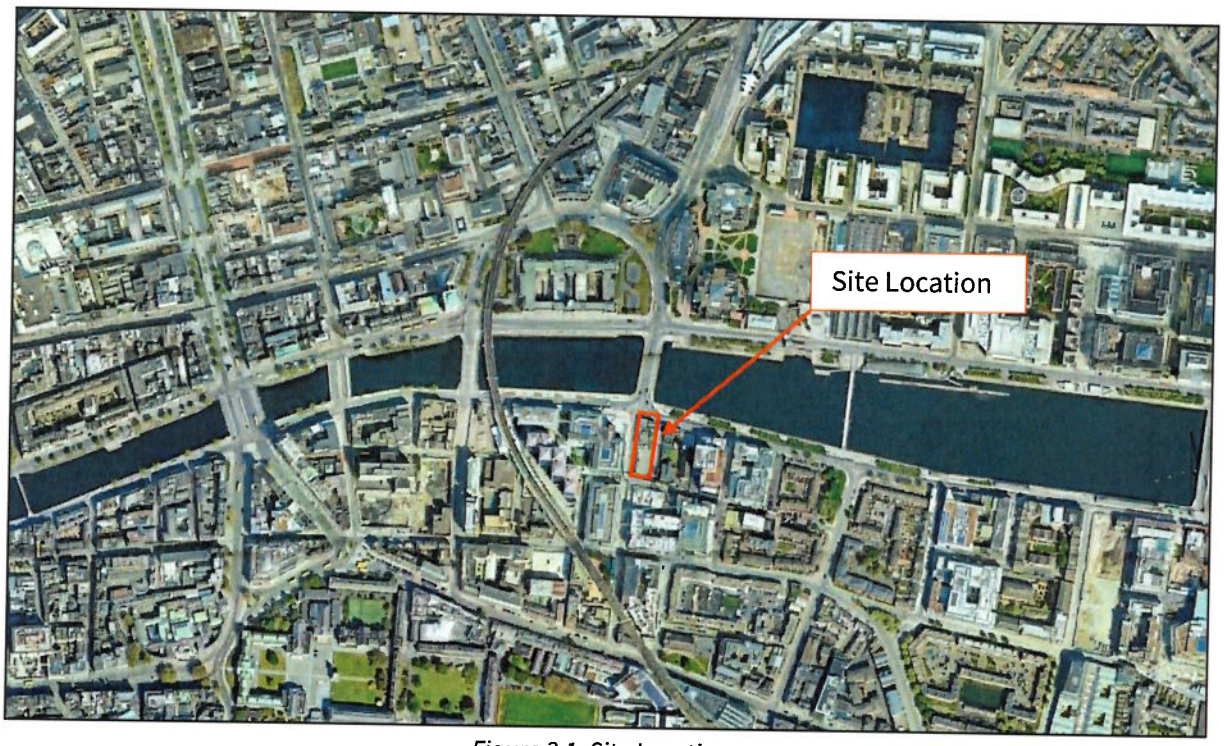

Figure 2.1: Site Location

2.2 Neighbouring Structures

The site borders City Quay, directly north of the site, Moss Street, directly west of the site, and Gloucester Street South directly south of the site. Park Rite City Quay Car Park and City Quay Covid-19 Test Centre borders the site in the north east of the site, while City Quay National School borders the site along the south east boundary. It is currently understood that these adjacent structures do not have any basements.

2.3 Proposed Works – Demolition & Site Clearance Phase

The proposed demolition and site clearance phase will consist of the following:

- Demolition of existing structures on site, including foundations
- Demolition of boundary walls including foundations and entrance archway
- Installation of new temporary site hoarding
- Removal of slab and foundations of previously demolished structures that are present on site

The total site footprint area is circa 2100m^2. The existing studio building occupies a footprint of circa 700m^2. A full description of the works is outlined in the Planning Report prepared by John Spain & Associates which accompanies this submission.

The existing building is an amalgamation of a red bricked 3 storey building with pitched roof and an open plan studio type building with flat roof. The buildings are loadbearing brick masonry construction with timber joist floors. Referring to OS historical mapping, we understand that the property was constructed in the 1850's. Access to the existing building was limited to a visual inspection of one floor in each block.

Figure 2.2: Existing site – post demolition

2.4 Proposed Works – Construction Phase

The proposed construction phase will consist of the following:

- Basement Construction and Excavation Works to include the installation of an embedded retaining wall around the perimeter of the site to allow basement excavation;
- Basement Construction Works of the two-level basement sub-structure and relevant foundations for the superstructure;
- Superstructure Construction of the 24 storey building;
- Service Connections to relevant statutory providers; and
- Fit out and completion of overall finishes

A cross section showing the proposed development is shown as Figure 2.2, with the proposed double level basement footprint shown as Figure 2.3.

The existing road and surface levels around the site boundaries range from approximately 2.95m to 3.15m OD. The ground floor level of the proposed building will vary between street level at the building entrance, rising to 4.000m OD at the lift and stair lobby. The proposed development will have a two-level basement, with the lowest finished basement floor level set at -4.9m OD, a depth of 8.9m below the highest ground floor level.

The site's main vehicular access will be provided from Gloucester St. South, via a car lift to basement -2 level, where vehicle parking spaces will be provided. Pedestrian access will be provided from the respective street frontages. Cyclist access will also be provided from Gloucester St. South, via the car lift and a stair core with wheel ramp to basement -1 level, where cycle parking spaces will be provided.

Figure 2.2: Proposed Development Section

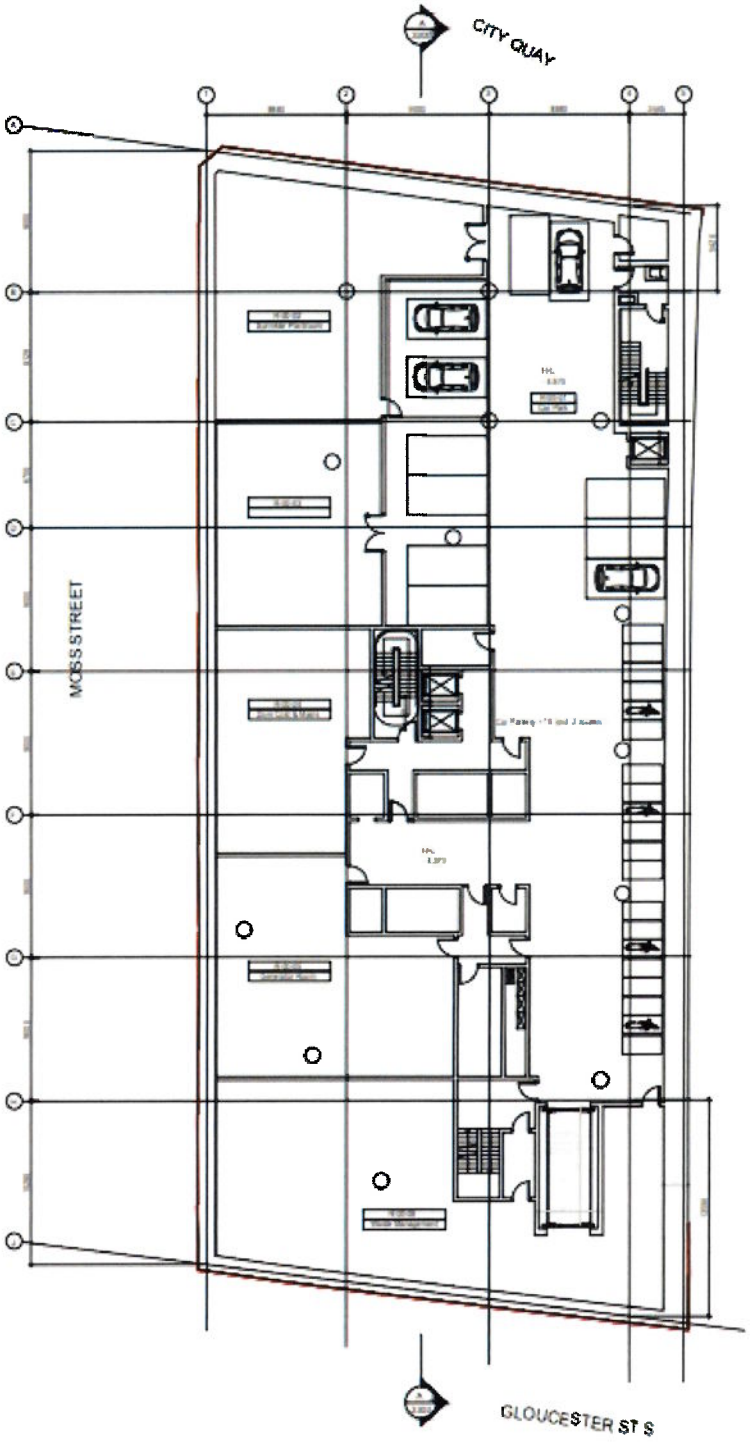

Figure 2.3: Proposed Development Basement -2 Footprint

3 General Site Set-up and Pre-Commencement Measures

3.1 Engagement with Neighbouring Property Owners and Occupiers

Prior to the commencement of the onsite works, the Contractor and Project Manager for the scheme shall engage with neighbouring property owners and occupants in order to develop a working relationship between all parties. This will enable any concerns with the proposed construction phase to be understood and incorporated into the construction stage plans and methodologies.

3.2 Pre-condition Surveys

Detailed condition surveys (including photographs) will be carried out on adjacent/adjoining third-party properties and infrastructure prior to any work being carried out on site. The purpose of these surveys is to record the initial condition of the relevant properties and infrastructure before the works commence. Copies of these survey reports would be provided to the relevant third-party owners.

The surrounding infrastructure including roads and footpaths shall also be assessed, with a detailed condition survey (including photographs) completed. This will be completed to record the condition of the streets and footpaths around the site prior to works commencing.

3.3 Initial Site Set-up

A site compound including offices and welfare facilities will be set up by the Contractor in locations to be decided. The size and extents of the compound will be altered to facilitate the expected workforce during each stage of the development.

Prior to any site works commencing, the Contractor will investigate and identify the exact location of all services and utilities around and through the site. These shall be tagged and identified and recorded on a set of service drawings. These investigations shall be completed with the assistance of the relevant DCC technical divisions and the relevant utility companies. These records shall be continuously updated as the works progress.

3.4 Site Security and Hoarding Lines

Hoarding lines and site security will be set up within the development site as required. Hoarding and security fencing will be required along the site boundary against the public interfaces for all stages of construction. It may be necessary to extend such hoarding and fencing onto the surrounding footpaths and public roads during the construction works and for construction of the new entrance to the site. A detailed traffic management plan will be prepared by the Main Contractor and agreed with DCC as the Road Authority prior to commencing works on the public road or footpaths.

The interface with the properties to the east will be carefully managed to reflect the ongoing use of these third-party properties.

Any necessary licenses or permissions for such hoarding or fencing shall be obtained prior to erection of the security measures.

4 Deliveries and Access Management

4.1 Traffic Management

A traffic management plan shall be prepared by the Contractor prior to commencement. This will identify staging areas, proposals for delivering materials, strategy for large concrete pours, removal of demolition waste and soils during the basement excavation and all associated traffic routes.

To ensure the security of the site and safety of persons interacting with the site entrance, access gates will be operated by a dedicated flagman who will divert incoming and outgoing vehicles and pedestrians in order to minimise the disruption to general traffic and the public.

Given the close proximity of the school and church, any major activities that require substantial coordination shall be planned outside peak hours and drop off/collection times.

4.2 Deliveries and Access

Deliveries and access to the development site will typically be made via the existing site entrances along City Quay and Moss Street. Temporary alterations to these entrances, such as widening or extending, shall only be made in agreement with DCC.

The Main Contractor shall strictly adhere to the Cordon Area for HGV's as outlined in the *DCC Heavy Goods Vehicles – Cordon Restrictions Map*. City Quay, to the north of the development site, is a designated HGV route and therefore all large vehicles, 5 axles or over, will access the site from City Quay. Should a large vehicle require access from another entrance, the contractor will apply for a loading/unloading permit in line with DCC policy.

In the event that large concrete pours are required, which may result in congestion at the entrance to the site, the deliveries will be organised such that concrete trucks will queue at pre-determined staging locations and will then be called to be site by radio as needed, via a pre-determined route to the required access gate. All large concrete pours will be co-ordinated with the road department of DCC. Other good practice measures are as follows:

- Set procedures and designated wash-out areas will be provided, or alternatively vehicle wash-out will be prohibited if a suitable wash-out area is not identified.
- All delivery vehicles will be co-ordinated as required by a flagman on duty at the relevant access point.
- At no time should construction associated vehicles be stopped or parked along the routes
- Haulage vehicles should not travel in convoys of greater than two vehicles at any time
- Haulage vehicles should be spaced by a minimum of 250m at all times
- Strictly at no time should haulage vehicles be parked or stopped at the entrance to the site.

- All loading of excess material will occur within the site boundary
- All off-loading of deliveries will take place within the site, away from the public road and will access via the construction site access.

The routes to and from the site shall depend on where the delivery has originated or where the off-site load is destined (e.g. demolition material, excavated soils etc.). The above locations will be identified at a later stage and appropriate routes will be agreed with Dublin City Council as part of the Contractors more detailed construction management plan and traffic management plan.

The increase in traffic as a result of construction shall be minor and can be readily accommodated within the existing road network. However, the site is located in an urban area where restricted road and junction space is shared with vulnerable road users and the flow of construction traffic will need to be marshalled and regulated to ensure that potential conflicts are avoided as much as possible.

4.3 Parking and Storage

There is no space to accommodate parking on site during the construction stage. The site is well served by public transport including Dublin Bus and Irish Rail. The Contractor will organise off-site parking and shared car arrangements if required.

The Contractor will be required to schedule deliveries on a daily basis. If necessary, the Contractor will be required to provide a secure material staging compound for the development.

4.4 Working Hours

The construction traffic will occur outside of peak background traffic hours within a six-day week with minimal impact on the operation of the existing road network.

Site works shall be completed as per the following general working hours, in line with standard construction working hours:

- Working Days – Monday to Saturday
- Working Hours
    - Weekdays – 07.00 to 19.00
    - Saturdays – 07.00 to 14.00
    - Sundays and Public Holidays – not permitted unless agreed separately with DCC

However, it must be noted that these are guideline times only, and in certain circumstances it may be necessary for works to take place outside of these hours, however such occurrences shall be coordinated with DCC and the neighbouring property owners.

General deliveries to site of any plant or materials shall be completed within the proposed working hours outlined above and outside periods of peak traffic.

Coordination with the neighbouring school shall ensure deliveries are avoided during the main drop off and collection times.

5 Site Works

5.1 General

The construction works will involve an indicative sequence of works, with a brief description outlined below. The Contractor will clearly outline works which impact public spaces within the Construction Management Plan that shall be submitted and agreed with Dublin City Council.

5.2 Demolition & Site Clearance Phase

Following demolition of freestanding boundary walls, the site area will be enclosed with a free-standing temporary hoarding, details of which are to be agreed with DCC. Hoardings panels will be maintained and kept clean for the duration of the project. This will involve erecting the hoarding around the proposed site perimeter in line with the finished development description.

The restricted confines of the site may require the contractor to set up an off-site Construction Staging Area. This off-site facility should be suitably located to allow efficient delivery of materials and personnel to site. A "Just in Time" approach will be required for the delivery of particular building materials & equipment for the works. The location of this facility should be highlighted within the contractors Construction Management Plan.

Based on visual inspection, the building consists of a masonry framed structure clad in brick, supporting timber floors and steel beams. The frame consists of solid brick walls and piers supporting steel beams and timber joists. There is one number concrete lifts and one concrete stair core. The flat roof consists of loose stone on an asphalt / insulation build-up on a timber deck. All internal partitions are lightweight and there is a suspended ceiling throughout. There is one level of basement.

The following is a high-level method statement for the demolition of the building:

- Establish a site set-up and welfare facilities, on the site
- Carry out temporary works assessment to design floor propping for safe access and provide temporary covering to existing holes in suspended floors.
- Carry out an intrusive asbestos survey to identify the presence of any carcinogenic materials, in particular as possible fire protection to steel work, and in plant areas
- Carry out a detailed services survey of the site to identify all buried services, determine what services are live, redundant and potentially serve neighbouring properties; to be performed before any demolition is performed on site. This will include a full drainage assessment of the site including surface and foul connections.
- Carry out any necessary services diversions and decommissioning works

- Carry out a soft strip of the building to remove free-standing units, office furniture, floor finishes, ceiling tiles, window blinds, partitions, doors and door frames, ceiling bulkheads, M&E services, radiators, light fittings, fixtures and fittings, first fix joinery, kitchens and toilet areas

- Seal off all drain branches connecting into site. Erect dust curtains. Close public footpath around site perimeter & set up traffic management in accordance with DCC requirements.

- Demolish the building using high reach concrete crushing machines. The High Reach Demolition Excavator fitted with a concrete pulveriser will process the walls, piers, columns, and roof & floors at high level and will continue to work down the floors towards the ground level. Once the building has been reduced down to lower level of approx. two storeys suitable excavators will be deployed to demolish and remove the remaining section of building at low level.

- Dig out the basement structure & remove all U/G walls and foundations

- Demolish single story structure and dig out its foundations

- Take down existing boundary walls and dig out its foundations

- Remove slab and foundations of previously demolished structures that are present on site

The above works shall ensure the site is suitably prepared for the proposed development.

5.3 New Construction Phase

The site level will be graded to a uniform level following demolition and removal of the building foundations and redundant services. The temporary site level shall be lower than external footpath levels to prevent any outward migration of water runoff.

The main construction works following demolition shall be installation of an embedded pile retaining wall to facilitate the excavation and construction of the proposed basement. The following is a high-level sequence of works expected.

- A suitably designed piling platform shall be installed to support the piling rig and prevent rutting and softening of surface soils on site.

- The embedded pile retaining wall will be constructed around the site boundary, to facilitate deep excavation. This will involve the installation of augered or bored piles. The augering of the piles will generate spoil that must be disposed at an appropriate licensed facility off-site. The spoil shall be stockpiled on site ahead of disposal.

- Waste Acceptability Classification testing will be carried out on all stockpiled spoil prior to the material leaving the site. This will ensure that it is disposed of in line with legislative requirements and local requirements.

- The concrete operations associated with the pile wall construction will require concrete and steel reinforcement deliveries to site which will be managed in accordance with the Contractors Construction Management Plan. Pile reinforcement cages can be stored on site and concrete deliveries managed within the site footprint.

- Following installation of the pile wall, excavation of the basement will commence. This excavation phase shall be informed by a detailed phase of site investigation and chemical testing of the soils to develop a phased dig plan for the site. Any contamination identified during the investigation phase and subsequently the excavation phase will be segregated, removed and disposed in an appropriate registered facility. Any Made Ground excavated on site should be stockpiled separately to natural soils to avoid any potential cross contamination of the soils prior to removal from site

Surface water management will be imperative during construction works, especially the initial development stages. All site runoff associated with the construction will be directed to onsite sumps or percolate to ground during each of the initial demolition and construction phases. This shall be crucial during the basement excavation and construction. Groundwater shall be controlled during the excavation stage by installation of the perimeter pile wall which shall act as a cut off wall to limit groundwater flows. Any groundwater encountered within the basement excavation shall be directed to sumps within the excavation and passed through settlement tanks. A temporary discharge licence shall be agreed with DCC for discharge of water during the basement excavation and the follow-on construction stages once infiltration to ground is no longer available.

Where works take place near surface water gullies in the existing surface water network, standard environmental controls will be implemented by the Contractor. These controls will follow best practice as recommended by CIRIA 2010 and ISO 14001:2015 – Environmental Management Systems.

The proposed measures for surface water management during the demolition include the following:

- To ensure that there will be no contamination of surface water, following environmental testing, any excess excavated material will be immediately removed to a licensed fill facility

- The short-term storage and removal/disposal of excavated material will be planned and managed such that the risk of pollution from these activities is minimised. No surface water will be allowed to exit the site unmitigated during demolition.

- Hoarding and silt fencing will be erected and maintained in place during the initial phase of the demolition and will remain until such time as the integrity of the re-instated ground/material has been fully established

- The silt fencing will be checked twice daily during construction and once per day thereafter to ensure that it is working satisfactorily until such time as the re-instated ground/material has been fully established

- Sediment traps (such as earthen berms and/or settlement ponds) and/or silt fences will be provided to prevent run-off from the site.

- Drainage channels beside construction areas will flow into settlement sumps in series to allow primary and secondary settlement of sediment. Each sump series will have an outfall directly downstream in which final settlement can take place and the outflow to the existing network can be monitored. Outfall manholes will be regularly emptied of sediment during periods of heavy rainfall. These measures will prevent run-off from the site and total suspended solid levels in all discharge shall be in compliance with the Quality of Salmonid Water Regulations(SI 293:1988).

- Through all stages of the construction phase the contractor will ensure that good housekeeping is maintained at all times and that all site personnel are made aware of the importance of the freshwater environments and the requirement to avoid pollution of all types.

- The storage of oils, hydraulic fluids etc. will be in a bunded facility with filling and take off points within the bunded area in accordance with current best practice

- The pouring of concrete, sealing of joints, application of water proofing paint etc. will be completed in the dry to avoid pollution of the freshwater environment. As grout /cementitious materials are highly toxic to aquatic life all such works must be contained in complete isolation of all waters and storm water systems

- Outfall from site shall be managed with DCC, with a suitable discharge licence agreed for the construction phase.

6 Environmental Issues

6.1 Dust and Dirt

Nuisance dust emissions from construction activities, are a common and well recognised problem. Fine particles from these sources are recognised as a potential significant cause of pollution.

The Contractor will be required to implement dust prevention measures for control of any site airborne particulate pollution, and to demonstrate that nuisance dust and fine particle emissions from the site are adequately controlled and are within acceptable limits.

Dust and fine particle generation from construction and demolition activities on the site can be substantially reduced through carefully selected mitigation techniques and effective management. Once particles are airborne, it is very difficult to prevent them from dispersing into the surrounding area. The most effective technique is to control dust at source and prevent it from becoming airborne, since suppression is virtually impossible once it has become airborne.

The following are techniques and methods which are widely used throughout the construction industry, and which may be used in the proposed development:

- The roads around the site are all surfaced, and therefore dust is not anticipated to be generated from sealed surfaces. However, a regime of 'wet' road sweeping can be set up to ensure the roads surrounding the site are as clean and free from dust or dirt arising from the site, as practically possible.
- Footpaths immediately around the development can be cleaned by hand, with damping as necessary.
- High level walkways and surfaces such as scaffolding can be cleaned regularly using 'wet' methods rather than 'dry' methods.
- Vehicle set down areas or hard standings can be regularly inspected and kept clean by brushing or vacuum sweeping, and regularly sprayed with mist to keep moist, if necessary.
- Vehicle and wheel washing facilities can be provided at site exists where practical. Where necessary, vehicles can be washed down before exiting site.
- Netting can be provided to enclose scaffolding in order to mitigate escape of airborne dust from the site.
- Vehicles and equipment should be turned off when not in use.
- Engines and exhaust systems should be maintained so that exhaust emissions do not breach stationary emission limits set for vehicles or equipment type and mode of operation.
- Servicing of vehicles and plant should be carried out regularly, rather than just following breakdowns.

- Internal combustion plant should not be left running unnecessarily.
- Exhaust direction and heights should be such as not to disturb dust on the ground and to ensure adequate dispersal of emissions.
- Where possible, fixed plant such as generators should be located away from sensitive boundaries.
- The number of handling operations for materials should be kept to a minimum in order to ensure that dusty materials are not moved or handled unnecessarily.
- The transport of dusty material or aggregates should be carried out using covered or sheeted lorries.
- Material handling areas should be clean, tidy and free from dust.
- Vehicle loading should be dampened down and drop heights for material to be kept to a minimum.
- Drop heights for chutes and skips should be minimised.
- Dust dispersal over the site boundary should be minimised using static sprinklers of watering methods, as necessary.
- Stockpiles of materials should be kept to a minimum and if necessary, they should be kept away from sensitive receptors such as residential areas.
- Stockpiles where necessary, should be sheeted or watered down.
- Methods and equipment should be in place for immediate clean-up of spillages of dusty material.
- No burning of material will be permitted on site.
- Earthworks excavations should be kept damp where necessary and where reasonably practicable.
- Cutting operations should be limited as much as possible, with prefabricated methods used as much as possible.
- Equipment and techniques for cutting, grinding, drilling, sawing, sanding etc., which minimise dust emissions and which have the best available dust suppression measures should be employed.
- Where scabbling is to be employed, tools should be fitted with dust bags. Residual dust should be vacuumed up rather than swept away, and areas to be scabbled should be screened off.

- Wet processes should be used to clean building facades if possible. If dry grit blasting is unavoidable then ensure areas of work are sealed off and dust extraction systems are used.
- Where possible pre-mixed plasters and masonry compounds should be used to minimise dust arising from onsite mixing.

Prior to commencement, the Contractor should identify the construction operations which are likely to generate dust and to draw up action plans to minimise emissions, utilising the methods highlighted above. Furthermore, the Contractor should prepare environmental risk assessments for all dust generating processes which are envisaged.

The Contractor should allocate suitably qualified personnel to be responsible for ensuring the generation of dust is minimised and effectively controlled.

6.2 Noise and Vibration

Noise and vibration is a major issue associated with construction sites particularly in residential and commercial areas located away from major arterial roads and motorways. Noise and vibration can be generated from various activities such as excavators, dumpers, concrete pumping, generators and compressors. Existing noise sources will primarily be from city centre traffic.

The Contractor shall deal with the immediate dangers to hearing associated with high noise and vibration levels and the impact of such on construction operatives. This shall be managed by means of risk assessment and mitigation measures, including protective equipment, in accordance with all current health and safety legislation.

The Contractor shall carry out a noise and vibration assessment in relation to the proposed works for all stages of the development. This noise and vibration assessment should be carried out by a competent person or specialist firm, with suitable training in the area. The assessment should include the following elements:

- Identify and list all construction work activities where there is a likely significant hazard of noise or vibration.
- Determine the hazards and nuisance.
- Identify all third parties likely to be exposed to the noise or vibration nuisance.
- Calculate the risk – in dBA or PPV.
- Consider and implement control measures
- Control exposure
- Record the findings of the assessment.
- Review and revise as necessary during the development.

In the absence of any statutory Irish guidance relating to the maximum permissible noise and vibration level that may be generated during the construction phase of a project, it is proposed that the construction works will incorporate:

- Best practice measures relating to the control and minimisation of as set out in BS 5228 (2009) Parts 1 and 2 noise during all phases of the work
- Selection of quiet plant with low vibration emissions and proprietary acoustic enclosures to compressors and generators
- Provision of anti-vibration mounts on reciprocating plant
- Control of rattling and grinding noises by fixing resilient materials between the contact surfaces.
- Regular maintenance of all plant
- The siting of mechanical plant as far away from residential areas as possible
- Limitation of vibration from construction activities to the levels recommended in BS 5228
- Materials to be lowered rather than dropped and
- Resilient materials to be provided on surfaces onto which materials are being lowered.

Ref: *British Standard BS 5228 (2009): Code of Practice for Control of Noise and Vibration on Construction and Open Sites , Part 1 Noise & Part 2: Vibration.*

6.3 Groundwater

The excavations for the basement, drainage pipes, water supply, utilities and foundations are anticipated to encounter some portions of groundwater on site. The Contractor shall develop and appropriate dewatering regime to keep all excavations free from water.

For any discharge of water from excavations during the development the quality of discharge shall be monitored to ensure it is suitable. The water quality shall be managed through the provision of settlement tanks and monitoring for suspended solids and hydrocarbons. Regular laboratory testing of discharge water samples will be completed in accordance with the requirements of DCC and/or Irish Water.

All necessary discharge licenses will be acquired from DCC and/or Irish Water in respect of discharges from construction stage dewatering operations.

6.4 Site Control Measures

The designated and operational on-site control measures, which will be established and maintained at this site, will include:

- Use of properly designed access and egress points to minimise impact on both external traffic and amenity of residents
- Designated hard routes through site
- Each departing vehicle to be checked by banksman
- Use of banksman and/or traffic lights to control exit of construction vehicles onto public road
- Wheel wash facility at egress point
- Provision and facilities to cover lorry contents as necessary
- Controlled loading of excavated material to minimise risk of spillage of contents
- Spraying/damping down of excavated material on site by dedicated crews
- Use of known routes for lorries to monitor impact on local area
- Controlled off-site HGV holding area where deliveries are called up as required. No HGV's waiting outside site
- Facility to clean local roads if mud or spillage occurs.
- Hazardous materials to be stored in a designated area on site with appropriate drip trays/bunding and fire extinguishers to contain any spillages. Harmful materials shall be stored on site for use in connection with the construction works only. These materials shall be stored in a controlled manner. Where on site fuelling facilities are used there shall be a bunded filling area using a double bunded steel tank at a minimum.

7 Contents of Contractors Construction Management Plan

7.1 Temporary Signage

The Contractor is required to provide appropriate signage which must conform to the requirements of Chapter 8 of the Traffic Signs Manual.

7.2 Temporary Road Markings

The Construction Management Plan shall include proposals for any proposed Temporary Road Markings. These markings must conform to the requirements of Chapter 8 of the Traffic Signs Manual.

7.3 Operation of a Contra Flow

There are no proposals to operate a Contra Flow system.

7.4 Temporary Road Closure

There are no proposals to introduce temporary road closures. Any proposals should conform to the requirements of Chapter 8 of the Traffic Signs Manual. Any road closure can only be operated under agreement with the Local Authority.

7.5 Temporary Traffic Signals

There are no proposals to operate Temporary Traffic Light Signals. Any proposals should conform to the requirements of Chapter 8 of the Traffic Signs Manual.

7.6 Arrangements for Local Access, Pedestrian and Cyclist Access

There are no proposals to alter the existing local access to the surrounding areas. The temporary hoarding along the site perimeter will necessitate the erection of temporary footways. Covered footways if required shall be built in accordance with Traffic Management Guidelines.

7.7 Proposed Lighting Arrangements

There are no proposals to alter the existing lighting arrangements in the area. Any proposals to alter existing lighting arrangements can only be carried out under agreement with the Local Authority. Adequate lighting should be provided within the temporary hoarded walkway.

7.8 Proposed Use of Flag Men

The use of Flag Men/Banks Men is to be incorporated into the Construction management Plan to direct vehicles accessing/egressing and shall be agreed with the Local Authority as part of the Contractors construction management plan. There will be a requirement for a Flag man/Banks man at each point of entry and point of exit at all times. This requirement will be on a permanent basis during site opening times regardless of traffic movements. The method of control for access/egress traffic will be by means of a "stop/go" board.

7.9 Community Engagement and Management Plans

As part of the coordination of the development within the local community, the Contractor shall be responsible for engaging with local representatives and neighbouring property owners/occupants in order to ensure early stage engagement. This shall include regular updates, forums for feedback and complaints as well as opportunities for improvements to management plans and controls.

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APPENDIX 7: PEDESTRIAN REALM PEOPLE FLOW STUDY PREPARED BY BAKKALA CONSULTING ENGINEERS

APPENDIX 8: CITY QUAY ADDITIONAL VERIFIED PHOTOMONTAGES PREPARED BY DIGITAL DIMENSIONS