

CONSTRUCTION AND ENVIRONMENTAL MANAGEMENT PLAN

**St. Vincent's Hospital Redevelopment,
Richmond Road and Convent Avenue,
Fairview, Dublin 3**

**PROJECT NO. R517
MARCH 2023**



OCSC
O'CONNOR | SUTTON | CRONIN

Multidisciplinary
Consulting Engineers



CONSTRUCTION AND ENVIRONMENTAL MANAGEMENT PLAN

**St. Vincent's Hospital Redevelopment,
Richmond Road and Convent Avenue,
Fairview, Dublin 3**

PROJECT NO. R517

MARCH 2023

CONSTRUCTION AND ENVIRONMENTAL MANAGEMENT PLAN

for

**St. Vincent's Hospital,
Richmond Road and Convent Avenue,
Fairview, Dublin 3**



OCSC

O'CONNOR | SUTTON | CRONIN

Multidisciplinary
Consulting Engineers

NOTICE

This document has been produced by O'Connor Sutton Cronin & Associates for its client, *St Vincent's Hospital*. It may not be used for any purpose other than that specified by any other person without the written permission of the authors.



DOCUMENT CONTROL & HISTORY

OCSC Job No.: R517	Project Code	Originator	Zone Volume	Level	File Type	Role Type	Number	Status / Suitability Code	Revision
	R517	OCSC	XX	XX	RP	S	002	S2	P08
Rev.	Status	Authors	Checked		Authorised		Issue Date		
P08	S2	SD/MH	MOR		MOR		29.03.2023		
P07	S2	SD/MH	MOR		MOR		29.03.2023		
P06	S2	SD/MH	MOR		MOR		24.03.2023		
P05	S2	SD/MH	MOR		MOR		23.03.2023		
P04	S2	SD/MH	MOR		MOR		02.03.2023		
P03	S2	SD/MH	MOR		MOR		15.02.2023		
P02	S2	SD	MOR		MOR		20.10.2022		
P01	S2	SD	MOR		MOR		27.09.2022		

Contents

1.0 INTRODUCTION.....	1
1.1 Proposed Demolition Works.....	4
1.2 Material Re-use / Recovery Rate.....	6
2.0 OUTLINE DEVELOPMENT PROGRAM	7
3.0 INDICATIVE SITE SETUP.....	8
3.1 Introduction.....	8
3.2 Site Offices & Compound.....	8
3.3 Site Delineation.....	8
3.4 Pedestrian Access.....	9
3.5 Vehicle Access.....	9
3.6 On Site Parking.....	9
3.7 Working Hours	10
3.8 Construction Vehicle Numbers.....	10
3.9 Traffic Management Plan	11
3.10 Site Craneage	11
3.11 Material Storage and Handling	12
4.0 SITE MONITORING, SECURITY & MANAGEMENT.....	13
4.1 Monitoring.....	13
Pre-Commencement Condition Surveys.....	13
4.2 Site Security & Management	13
4.2.1 Wheel Washing Facilities:	13
4.2.2 Covered Vehicles:	14
4.2.3 Dust Suppression:	14
5.0 SAFETY, HEALTH AND ENVIRONMENTAL ISSUES DURING CONSTRUCTION	15
5.1 General Health, Safety and Environmental Consideration.....	15
5.2 Control of Substances Hazardous to Health.....	16
5.3 Environmental, Emergency and Accident Procedure.....	16
5.4 Soils and Contamination.....	18
Suspended Solids	18
Cement / Concrete Works	20
Hydrocarbons and Other Construction Chemicals.....	20
Wastewater Management	21
Surface Water Flow and Quantity.....	22
5.5 Biodiversity.....	23
5.6 Air Quality	25
Communications	25
Site Management.....	26

Preparing and Maintaining the Site	26
Operating Vehicles / Machinery and Sustainable Travel	26
Operations	27
Waste Management	27
Measures Specific to Demolition	27
Measures Specific to Earthworks	28
Measures Specific to Construction	28
Measures Specific to Trackout	28
Monitoring	29
5.7 Climate	30
5.8 Construction Plant.....	31
5.9 Vehicle Movements.....	31
5.10 Noise and Vibration.....	32
Selection of Quiet Plant	33
Noise Control at Source	33
Screening	34
Hours of Work.....	35
Liaison with the Public	35
Monitoring	35
Vibration Control	35
5.11 Disposal of collected water (Rainfall run-off and perched water)	36
5.12 Transport	38
5.13 Waste	41
5.14 Archaeology and cultural heritage	43
Archaeology	43
Cultural Heritage.....	43
5.15 Architecture	44
General Mitigation Measures	44
Recording of Buildings Scheduled for Demolition	45
Salvage Strategy	45
Historic Boundaries and Landscaping Strategy	45
6.0 METHODOLOGY FOR DEMOLITION OF STRUCTURES.....	47
7.1 Health & Safety	47
7.3 Sequencing of Demolition Works	47
7.4 C&D Materials Arising's	48
7.0 BASEMENT, GROUND FLOOR & SUPERSTRUCTURE CONSTRUCTION.....	49
8.1 Construction Sequence.....	49
8.2 Enabling Works	49
8.2 Substructure	49

8.3	Superstructure	51
	Residential Superstructures.....	51
	Stability lift and stair cores	52
	Roof Construction	52
	Hospital Substructure & Superstructure.....	52
8.4	Health & Safety.....	52
8.5	Sequencing	53
8.0	PROPOSED CONSTRUCTION HAUL ROUTES.....	54
9.1	Introduction.....	54
9.2	Construction Delivery & Haul Routes	54
9.3	Construction Route Option	54
	54	
9.0	CONSTRUCTION STAGE COMMUNITY LIAISON	56
10.1	Introduction.....	56
10.2	Respect the Community	56
10.3	Community Liaison Manager	56

1.0 INTRODUCTION

O'Connor Sutton Cronin & Associates (OCSC) and AWN Consulting have been commissioned to undertake this Construction and Environmental Management Plan associated with the site at St. Vincent's Hospital, Richmond Road and Convent Avenue, Fairview, Dublin 3. The exact site location can be seen in *Figure 1* below. The site is accessed via Richmond Road.



Figure 1: Site Location Map

In summary, the proposed development can be described as follows:

- Provision of a new part two and part three storey hospital building, providing mental health services, accommodating 73 no. beds, associated facilities, a single storey facilities management building, plant rooms and service areas, associated car and cycle parking, access roads, and open space, all on a proposed hospital site of c. 2.67 ha.

- Refurbishment and repurposing of existing buildings on site including Brooklawn (RPS Ref.: 8789), Richmond House, including chapel and outbuildings (RPS Ref.: 8788), the Laundry building and Rose Cottage for ancillary uses associated with the new hospital. The existing gate lodge building will remain in residential use and used by visiting members of staff to the new hospital.
- Change of use, refurbishment, alterations and extensions, to the existing hospital building (part protected structure under RPS Ref.: 2032), to provide residential amenity areas, a gym, a café, co-working space, a library, a childcare facility, and a community hall (referred to as Block K).
- The proposal includes the demolition of existing structures on site with a GFA of 5,872 sq.m, including the (1) westernmost range of the hospital building, which includes St. Teresa's and the Freeman Wing, (2) extensions to the south and north of the main hospital building, including the conservatory extension, toilet block extension, an external corridor, toilet core, lift core, and stair core (which are all part of / within the curtilage of RPS Ref.: 2032), (3) hospital buildings and outbuildings located to the north of the existing main hospital building, (4) St. Joseph's Adolescent School located in the southeast of the site, (5) Crannog Day Hospital located in the southwest of the site, and (6) extensions to the Old Laundry Building and Rose Cottage.
- Provision of 9 no. residential buildings (Blocks A, B, C, D-E, F, G, H, J, and L) providing a total of 811 no. residential units, including 494 no. standard designed apartments (in Blocks A, B, C, G, H, J, and L) and 317 no. Build to Rent apartments (in Blocks D-E and F). Residential amenities and facilities are proposed in Block C, D-E, J and K. A retail unit is proposed in Block A and a café in Block F. Block J is proposed as an extension of the existing hospital buildings (protected structure RPS Ref.: 2032- referred to as Block K).
- The building heights of the proposed residential blocks range from part 2 to part 13 storeys. A proposed basement / lower ground level, containing car and cycle parking and plant areas, is located below and accessed via Blocks C, D-E and F.
- Access to the new hospital and associated grounds is provided from Richmond Road and Convent Avenue, with separate internal access points. A separate

vehicular access to the residential development is provided from Richmond Road. The development includes a proposed pedestrian / cycle connection to Griffith Court, requiring alterations to the service yard of the Fairview Community Unit, pedestrian / cycle connections to the Fairview Community Unit campus to the north (providing an onward connection to Griffith Court), a pedestrian / cycle connection to Grace Park Wood, and makes provision internally within the site for a potential future connection to Lomond Avenue / Inverness Road.

- The proposal includes public open space, including allotments, children's play areas, a central park, a linear park and an entrance plaza, with a set down area at Richmond Road, and communal open space at surface level. The proposal includes communal roof terraces on Block C and Blocks D-E and private balconies / terraces for the apartments.
- The proposal also includes provision of internal access roads, car and cycle parking, pedestrian and cycle infrastructure, associated set down areas, alterations to existing landscape features, landscaping, boundary treatments, lighting, telecommunications infrastructure at roof level of Block B, green roofs, lift overruns and plant at roof level, site services, including a watermain connection / upgrade via Griffith Court, Philipsburgh Avenue and Griffith Avenue, site clearance, and all associated site works.

This report sets out the Construction and Environmental Management Plan (CEMP) for the proposed development as described in section 1 of this report. This CEMP, is a preliminary plan written by OCSC Multidisciplinary Consultant Engineers and AWN Consulting and will be subject to detailed development by the main contractor on appointment. This CEMP has been written and coordinated in two stages, firstly the Construction Management aspects of the project by OCSC and then the Environmental aspects of the Construction works are also discussed by AWN. The Environmental aspects of the proposed construction works have been coordinated with the EIAR mitigation works by AWN.

The Construction Management aspects of this report set out likely and anticipated construction methodology and phasing which will be developed by a main contractor prior to commencement of construction on site. The main contractor

will then develop their own fully detailed construction management plan prior to commencement of works on site.

1.1 Proposed Demolition Works

The existing site is occupied by numerous buildings as outlined below of various vintage and historical importance. Please refer to the Architectural Conservation Report prepared by STW for more details on the existing historical fabric and use. The following is taken from the architectural reports which outline the various elements to be demolished and also note the approximate age. Please also note that there are a number of items identified in the Architectural Heritage packages that are to be retained and kept for later use. Please refer to separate packages for details of same.

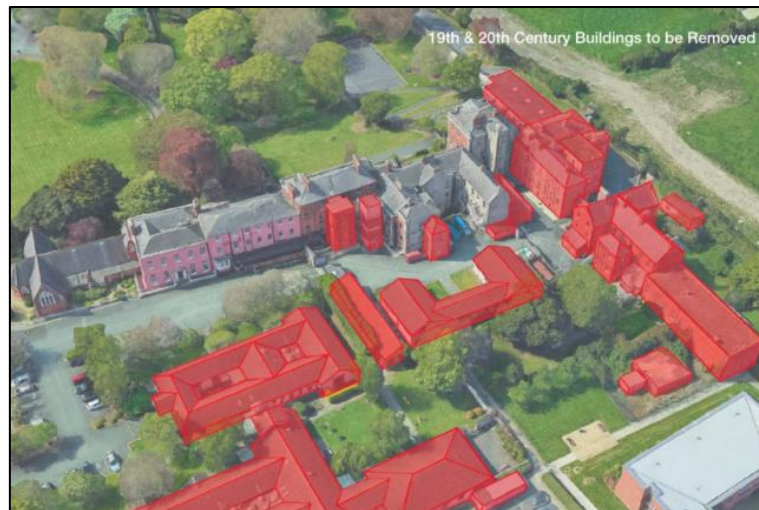


Figure 2: Proposed 19th and 20th century structures demolition



Figure 3: Proposed protected structures demolition

The following is an outline description of some of the major structures to be demolished on the existing site. There are also some internal modifications to the remaining structures on the site. These have been allowed for within the demolition volumes however prior to any of these internal modifications being undertaken the element in question will need to be assessed to check if its is load bearing. If it is load bearing then an appropriate temporary works strategy will be required prior to removal to retain elements it is supporting.

20th Century Buildings to be demolished

These buildings were constructed in the 20th century and are assumed to be of no historical significance. These are all single story structures assumed to be constructed of brick and masonry external leaf with plastered ceilings undercut timber slated roof and ground floor consisting of a concrete slab on ground. Foundations are assumed to be of traditional strip foundations.



St Theresas and Freeman Wing

St Theresa's was designed by Ralph Byrne of W.H. Byrne and Sons in 1910. It was extended with a concert hall in 1930. This building is currently unoccupied and is assumed to be constructed of brick and masonry external leaf with timber joist floors under T and G flooring with plastered ceilings, cut timber slated roof and ground floor consisting of a concrete slab on ground. Foundations are assumed to be of splayed brick or corbelling brick if they occur at all. The Freeman Wing was built in 1979 onto the end of the Hospital Phase 2 and was refurbished in 2011.



In preparation for the construction phase the site will need to be cleared and all proposed demolition will be undertaken in line with the proposed construction programme. It is unclear at this point due to the scale of the proposed works if phasing will be undertaken or if certain works will take precedence to allow the contractor mobility and lay down space. This will be assessed by the contractor once mobilisation occurs.

These existing structures will be demolished and removed as well as existing hard surfaces on-site prior to construction works commencing. This may be carried out on a phased basis. Please note that the bulk demolition will not be undertaken until the proposed new Hospital building is completed. Then when the facilities have relocated into this new building demolition can be undertaken in the now unused structures.

1.2 Material Re-use / Recovery Rate

Careful extraction of materials will be undertaken to ensure that the highest proportion of the materials can be re-used. This will reduce the level of new materials required for the proposed site. This in turn reduces the impact on new resources and carbon emissions associated with the extraction, manufacture and transportation of materials to the site. Undertaking some demolition and enabling works upfront ensures that more time can be spent on the careful recovery of materials on site. Where appropriate, excavated material from the development site should be reused on the subject site. If any of the excavated spoil is found to be clean/inert, the site manager will investigate whether nearby construction sites may require clean fill material, to both minimise the costs of transport and to reuse as much material as possible. Any material used on another site will be done under Article 27 of the European Communities (Waste Directive) Regulations 2011.

2.0 OUTLINE DEVELOPMENT PROGRAM

As the development is subject to the planning application process, it is not possible to put exact dates against a timeline at this stage. However, key project milestones are considered as follows:

- Receipt of a Grant of Planning Permission;
- Progression through detailed design stage;
- Issue of tender documents to shortlisted main contractors followed by period for tender returns, assessment and award of contract;
- Mobilisation of contractor;
- Completion of works.

The above is a very high-level estimate of the key project milestones. Associated durations of the respective stages are also dependent on a number of factors but a high level, preliminary estimate would suggest the construction works including infrastructure works will take approximately 48 to 60 months upon commencement.

A more detailed programme will be developed by the Contractor once appointed and included in the updated version of this plan.

All statutory consents and licences required to commence an onsite activity will be obtained ahead of work commencing and giving the appropriate notice periods. These will include but are not limited to:

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

The contractor will provide a list of all consents and licenses required in their Construction Management Plan at construction stage.

3.0 INDICATIVE SITE SETUP

3.1 Introduction

Due to the scale of the existing site there is ample location and possibilities for proposed welfare and site set up facilities. These will need to be coordinated with the client to overlap with any existing site use. It is the intention to provide a main site accommodation and welfare facility on site. The principal contractor will be responsible for providing canteen and welfare facilities for the on-site operatives. These facilities will be maintained by the main contractor.

3.2 Site Offices & Compound

It is expected that the site compound will initially be set up along the Southern boundary of the site. This will allow for the efficient spread of resources through the site for construction traffic. The compound will be moved dependent on construction needs. Site offices will be provided on site for construction and management personnel. Appropriate levels of welfare facilities will be provided along with secure facilities for the storing of construction materials.

Segregation will be employed on site to separate pedestrians from heavy equipment. Fenced off pedestrian walkways will be provided close to the site offices.

3.3 Site Delineation

The initial work on site will include the erection of an appropriate standard hoarding around the entirety of the site in order to protect the workers and members of the public. The boundary to the site will be maintained at all times. In addition, the hoarding will assist in the reduction in noise levels.

Construction traffic will access the site via Richmond Road and exit via same however there are other options available and will need to be discussed with the various Stakeholders in the vicinity. Adequate site security will be maintained throughout the contract period.

3.4 Pedestrian Access

Pedestrian access will be strictly controlled. Only *Safe Pass* accredited personnel will be permitted on site and daily in-out attendance records will be maintained. Access will be strictly controlled via security personnel at the access point to the site.

Visitors will only be allowed to enter the site via designated vehicular / pedestrian access gates and must report to the site security office to sign-in and for obtaining any additional PPE required.

Visitors will be expected to attend a specific site safety briefing and be accompanied by a member of the site team at all times.

3.5 Vehicle Access

Vehicular access to the site will be via Richmond Road access and will egress similarly. The site access road will be strictly managed and controlled – see *Site Monitoring, Security & Management* section following. A traffic management plan will be prepared in order to safely control construction traffic.

Separate pedestrian access will be developed at the access point to the site in order to maintain vehicle and pedestrian segregation.

3.6 On Site Parking

Taking into consideration the need to balance the promotion of sustainable travel against the risk of over spill parking, appropriate and limited on-site provision will be made for car parking by site construction personnel.

Adequate numbers of cycle parking will be provided for site personnel and personnel will be encouraged to use public transport which is available in the surrounding area. A limited number of spaces will be provided for critical use such as the delivery of materials, tools etc. to prevent overspill parking onto the local road network. All vehicular access will be controlled at the gate where all access and egress will be recorded. All site personnel and delivery drivers will have to undergo site induction.

3.7 Working Hours

Working hours will be restricted to 07:00 to 19:00 Monday to Friday & 08:00 to 14:00 on Saturdays and in line with advices offered in the planning process. No Sunday or Bank Holiday work will be permitted. Out of hours working will be only permitted by arrangement with site management. Work outside of normal hours will be subject to approval by Dublin City Council.

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

3.8 Construction Vehicle Numbers

Experience of buildings of a similar scale to the St Vincent's development suggest an estimated maximum vehicle/ truck movements per day at peak production and an estimated average vehicle/ truck movements to complete the development as detailed. However, this is to be confirmed based on the contractor's construction management and traffic plan and the program for delivery of the development.

These estimates are summarised as follows:

- 60 no. private vehicles per day from staff and site visitors i.e., 120 no. vehicle movements.

- 40 no. light goods vehicles per day from subcontractor staff i.e., 80 no. vehicle movements.
- 100 no. heavy goods vehicles per day during peak excavation process i.e., 200 no. vehicle movements.
- 40 no. heavy goods vehicles per day outside of the peak excavation periods i.e., 80 no. vehicle movements.

3.9 Traffic Management Plan

As detailed in the earlier paragraphs this development will have a notable number of movements for construction goods and people during the building phase. It is noted that the traffic management plan will be developed by the contractor on the basis of this document for the scheme and this will be discussed with Dublin City Council (DCC). Sections 4, 5 and 9 of this report include traffic management measures in relation to proposed traffic routes, vehicle cleaning and segregation from pedestrians which will form the basis of any future contractor's traffic management plan.

3.10 Site Craneage

Given the scale of the site it is evident that a number of cranes will be required for each phase in order to provide efficient site coverage. Whilst the exact number will be dictated by the programme and the specific construction requirements, it is likely that one to two cranes will be required per block. It is noted that to maximise efficiency of the tower cranes they will be supplemented by mobile cranes to facilitate lifts at and beyond the extremity of the reach of the cranes.

A mobile crane may be used for elements of the structure and external works. Loading areas will be used to minimise storage on site, and "just in time" deliveries for each floor level will be used to load materials before the floor for the next level is placed. Detailed lifting plans and RAMS (Risk Assessment / Method Statements) will be compiled for all activities involving cranes by the contractor. All licenses

and liaison required to erect these cranes will be undertaken and applied for by the contractor once specific details of these cranes are known.

3.11 Material Storage and Handling

It is envisaged that the contractor will 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. All materials will be stored on site as to minimise the risk of damage. A teleporter will be used for general unloading during the structural and envelope works. Unloading over the public roadway and path will be avoided.

4.0 SITE MONITORING, SECURITY & MANAGEMENT

4.1 Monitoring

Pre-Commencement Condition Surveys

A Visual Condition Survey (VCS) will be carried out of all shared boundaries and surrounding streets prior to any site works commencing. The appointed Demolition Contractor will liaise with DCC Roads & Traffic Department to agree any changes to load restrictions and construction access routes for the site. Measures will be put in place as required to facilitate construction traffic whilst simultaneously protecting the built environment.

4.2 Site Security & Management

The site will be closely managed on a day-to-day basis by site management. Security and control will be provided at the main site access to record and control all personnel entering and leaving the site and to record and control all materials entering and leaving the site. Appropriate manned security will be maintained at the site access gate in order to secure the site, to control vehicular access and to monitor and record all deliveries and removals operations. The main construction works will be conducted within the permitted working hours, as will be outlined in permitted planning permission.

4.2.1 Wheel Washing Facilities:

A properly sized and designed wheel wash will be provided and maintained on site as necessary for the earthworks and superstructure elements of the project. Appropriate water collection and filtering will take place prior to discharge to the public sewer system to prevent runoff into the canal or Tolka River. Gate staff will be trained to inspect vehicles for cleanliness prior to egress to the public road network and any trucks that have been inadequately cleaned will be re-washed. A road sweeper will also be utilised as required on the public road at vehicular access / egress points.

4.2.2 Covered Vehicles:

Cover systems will be used as appropriate on vehicles transporting spoil or materials with the potential to cause air pollution to and from site so as to minimise dust arising on surrounding streets. Trucks leaving the site will, as previously noted, pass through a wheel washing system. In addition, these trucks will be watered down and covered. This will be carried out in a dedicated wash down zone with dedicated site personnel.

4.2.3 Dust Suppression:

The use of appropriate water-based dust suppression systems will greatly reduce the amount of dust and windborne particulates as a result of the demolition process. This system will be closely monitored by site management personnel particularly during extended dry periods and in accordance with site management methods discussed earlier.

5.0 SAFETY, HEALTH AND ENVIRONMENTAL ISSUES DURING CONSTRUCTION

5.1 General Health, Safety and Environmental Consideration

Construction and demolition works will be carried out in such a way as to limit, as far as practicable, adverse environmental impact. Please refer to the latter sections of this report where these items are discussed in detail.

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

- Planning approvals from Dublin City Council;
- Requirements from Dublin City Council.

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

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

Safety, health, and environmental issues are a primary consideration in the construction methods adopted. The construction team will develop detailed health and safety plans, specific environmental, fire and accident procedures to suit the construction sequence of the Development. Contractors involved in the Development will ensure that all non-English speaking employees are provided with relevant Health and Safety information in their national language.

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

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

5.2 Control of Substances Hazardous to Health

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

Some of the control measures to be employed include the following:

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

5.3 Environmental, Emergency and Accident Procedure

Measures will be carried out to avoid environmental incidents, however if these occur then the following types must be reported to the responsible person in the construction team.

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

- Spills or discharge to the atmosphere, water supplies, sewage systems, rivers and other watercourses, or to the ground:
 - Any chemical products
 - Oils or fuels
 - Effluent/fumes and gases
 - Waste or contaminated materials

- Damage to existing:
 - Trees and wildlife
 - Flora and existing local habitats
- Any environmental incidents that could lead to:
 - Local Authority or regulatory enforcement
 - Public complaint

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

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

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

5.4 Soils and Contamination

A strategy will be prepared to identify, analyse, segregate and control existing contaminated materials on site. Procedures will be drawn up to control all potentially contaminated materials brought to site.

As referenced from Chapter 5 (Land, Soils, Geology and Hydrogeology), and Chapter 6 (Hydrology) of the EIAR the following construction stage mitigation will be adhered to.

Suspended Solids

As there is potential for run-off to indirectly discharge / recharge to a watercourse / groundwater (Tolka River/ Dublin GWB) underlying the site and in order to manage the potential impact associated with sediment and sediment runoff the following mitigation measures will be implemented during the construction phase.

- During earthworks and excavation works care will be taken to ensure that exposed soil surfaces are stable to minimise erosion. All exposed soil surfaces will be within the main excavation site which limits the potential for any offsite impacts.
- Silt reduction measures on site will include a combination of silt fencing and settlement measures (silt traps, silt sacks and settlement tanks/ponds).
- Any hard surface site roads will be swept to remove mud and aggregate materials from their surface while any unsurfaced roads shall be restricted to essential site traffic only.
- A power washing facility or wheel cleaning facility will be installed near to the site compound for use by vehicles exiting the site when appropriate,
- A stabilised entranceway consisting of an aggregate on a filter cloth base that is located at any entry or exit point of the construction site.
- Aggregate will be established at the site entrance points from the construction site boundary extending for at least 10 m.
- The temporary storage of soil will be carefully managed. Stockpiles will be tightly compacted to reduce runoff and graded to aid in runoff collection.

- Construction materials, including aggregates etc. will be stored a minimum of 20-meter buffer distance from any surface water bodies and surface water drainage points.
- Aggregate materials such as sands and gravels will be stored in clearly marked receptacles within a secure compound area to prevent contamination.
- Movement of material will be minimised to reduce the degradation of soil structure and generation of dust.
- Excavations will remain open for as little time as possible before the placement of fill. This will help to minimise the potential for water ingress into excavations.
- Weather conditions will be considered when planning construction activities to minimise the risk of run-off from the site.
- Any surface water run-off collecting in excavations will likely contain a high sediment load.

In addition to the measure above, prior to excavation works occurring further detailed Waste Soil Classification (WSC) will be undertaken which will inform the contractor of the potential outlets for disposal/remediation as required. All excavated materials will be visually assessed by suitably qualified persons for signs of possible contamination such as staining or strong odours. Should any unusual staining or odour be noticed, samples of this soil will be analysed for the presence of potential contaminants to ensure that historical pollution of the soil has not occurred. Should it be determined that any of the soil excavated is contaminated, this will be segregated and appropriately disposed of by a suitably permitted/licensed waste disposal contractor.

Surface water discharge from the site will be managed and controlled for the duration of the construction works until the permanently attenuated surface water drainage system of the proposed site is complete. A temporary drainage system shall be established prior to the commencement of the initial infrastructure construction works to collect and discharge any treated construction water during construction.

Cement / Concrete Works

Where feasible all ready-mixed concrete will be brought to site by truck. A suitable risk assessment for wet concreting will be completed prior to works being carried out which will include measures to prevent discharge of alkaline wastewaters or contaminated storm water to the underlying subsoil.

No wash-down or wash-out of ready-mix concrete vehicles during the construction works will be carried out at the site within 10 meters of an existing surface water drainage point. Washouts will only be allowed to take place in designated areas with an impervious surface where all wash water is contained and removed from site by road tanker or discharged to foul sewer submit to agreement with Irish Water / DCC.

The construction contractor will be required to implement emergency response procedures, and these will be in line with industry guidance. All personnel working on the Site will be suitably trained in the implementation of the procedures.

Hydrocarbons and Other Construction Chemicals

The following mitigation measures will be implemented during the construction phase in order to prevent any spillages to ground of fuels and other construction chemicals and prevent any resulting to surface water and groundwater systems:

- Designation of bunded refuelling areas on the Site;
- Provision of spill kit facilities across the Site;
- Where mobile fuel bowers are used, the following measures will be taken:
 - Any flexible pipe, tap or valve will be fitted with a lock and will be secured when not in use;
 - The pump or valve will be fitted with a lock and will be secured when not in use;
 - All bowers to carry a spill kit and operatives must have spill response training;
 - Portable generators or similar fuel containing equipment will be placed on suitable drip trays.

In the case of drummed fuel or other potentially polluting substances which may be used during the construction phase, the following measures will be adopted:

- Secure storage of all containers that contain potential polluting substances in a dedicated internally bunded chemical storage cabinet unit or inside a concrete bunded area;
- Oil and fuel storage tanks shall be stored in designated areas, and these areas shall be stored within temporary bunded areas, doubled skinned tanks or bunded containers to a volume of 110% of the capacity of the largest tank/container. Drainage from the bunded area(s) shall be diverted for collection and safe disposal.
- Clear labelling of containers so that appropriate remedial measures can be taken in the event of a spillage;
- All drums to be quality approved and manufactured to a recognised standard;
- If drums are to be moved around the Site, they will be secured and on spill pallets; and
- Drums will be loaded and unloaded by competent and trained personnel using appropriate equipment.

Refuelling of construction vehicles and the addition of hydraulic oils or lubricants to vehicles will take place in a designated area or within the construction compound (or where possible off the site) which will be away from surface water gulleys or drains minimum 20 m buffer zone). In the event of a machine requiring refuelling outside of this area, fuel will be transported in a mobile double skinned tank. An adequate supply of spill kits and hydrocarbon adsorbent packs will be stored in this area. All relevant personnel will be fully trained in the use of this equipment. Guidelines such as "Control of Water Pollution from Construction Sites, Guidance for Consultants and Contractors" (CIRIA 532, 2001) will be complied with.

The construction contractor will be required to implement emergency response procedures, and these will be in line with industry guidance. All personnel working on the Site will be suitably trained in the implementation of the procedures.

Wastewater Management

Foul wastewater discharge from the site will be managed and controlled for the duration of the construction works.

Site welfare facilities will be established to provide sanitary facilities for construction workers on site. The main contractor will ensure that sufficient facilities are available at all times to accommodate the number of employees on site. Foul water from the offices and welfare facilities on the site will discharge into the existing sewer on site (the cabins may initially need to have the foul water collected by a licensed waste sewerage contractor before connection to the sewer line can be made).

The construction contractor will implement emergency response procedures, and these will be in line with industry guidance. All personnel working on the Site will be suitably trained in the implementation of the procedures.

Surface Water Flow and Quantity

During construction a site drainage and protection system will be built to reduce the flow of run-off from the site, prevent soil erosion, and protect water quality in the Tolka River. Temporary excavated channels, bunds, or ridges or a combination of the three, may be constructed to divert sediment-laden water to an appropriate sediment retention structure. These will be installed to provide permanent diversion of clean stormwater away from erosion exposed soil areas, or to provide a barrier between exposed areas and unexposed areas of the construction site. Runoff diversion channels/bunds need regular maintenance to keep functioning throughout their life.

Silt fences will be installed around the perimeter of the site where construction is proposed to detain flows from runoff so that deposition of transported sediment can occur through settlement. Inspection and maintenance of the silt fences during construction phase is crucial to ensuring that they work as intended. They will remain in place throughout the entire construction phase.

It is envisaged that a number of geotextile lined settling basins and temporary mounding's and/or silt fences will be installed to ensure silts do not flow off site during the construction stage. This temporary surface water management facility will throttle runoff and allow suspended solids to be settled out and removed. All inlets to the settling basins will be 'riprapped' to prevent scour and erosion in the vicinity of the inlet

Surface water discharge from the site will be managed and controlled for the duration of the construction works until the permanently attenuated surface water

drainage system of the proposed site is complete. A temporary drainage system shall be established prior to the commencement of the initial infrastructure construction works to collect and discharge any treated construction water during construction.

5.5 Biodiversity

As referenced from Chapter 7 (Biodiversity) of the EIAR the following construction stage mitigation will be adhered to.

- A project ecologist will be appointed and consulted in relation to all onsite mitigation and drainage during works. Mitigation measures outlined in the Biodiversity, Chapter 5, (Land, Soils, Geology & Hydrogeology), Chapter 6 (Hydrology), Chapter 8 (Air Quality), Chapter 10 (Noise and Vibration) and Chapter 15 (Material Assets) of the EIA Report will be carried out.
- All site clearance works methodologies will have prior approval of a project ecologist.
- Staging of project will be carried out to reduce risks of onsite drainage to the River Tolka and subject to the approval of a project ecologist. A drainage strategy has been outlined for the construction stage. This will be followed and monitored by the project ecologist.
- Local drainage connections, gullies and watercourses will be protected from dust, silt and surface water throughout the works.
- In order to prevent the accidental release of hazardous materials (fuels, paints, cleaning agents, etc.) during site activity, all hazardous materials should be stored within secondary containment designed to retain at least 110% of the storage contents. Temporary bunds for oil/diesel storage tanks should be used on the site during the construction phase of the project. Safe materials handling of all potentially hazardous materials should be emphasised to all construction personnel employed during this phase of the project.
- All onsite drainage network connections will be blanked off and sealed at the first phase of the construction works.

- There will be no entry of solids or petrochemicals to the drainage network or groundwater during the works.
- The Site Manager will be responsible for the pollution prevention programme and will ensure that at least daily checks are carried out to ensure compliance. A record of these checks will be maintained.
- Spill containment equipment shall be available for use in the event of an emergency. The spill containment equipment shall be replenished if used and shall be checked on a scheduled basis.
- No bats were found roosting on site during on site surveys. However, bats may roost on site between the initial surveys and the commencement of the project. A pre-construction inspection for bats will be carried out on buildings to be demolished or existing buildings that are to be upgraded. If bats are found roosting on site during the pre-construction inspection a derogation licence will be required from the NPWS.
- In order to reduce the potential for light spill from construction works impacting on bat foraging on site, lighting on site during construction will be subject to approval of the project ecologist.
- No mammals of conservation importance were noted on site. However, mammals of conservation importance may begin utilising the site between the initial surveys and the commencement of the project. A pre-construction inspection for mammals of conservation importance will be carried out on site and consultation carried out with NPWS if mammals of conservation importance are noted on site.
- Relevant guidelines and legislation (Section 40 of the Wildlife Acts, 1976 to 2012) in relation to the removal of trees and timing of nesting birds will need be followed e.g. do not remove trees or shrubs during the nesting season (1st March to 31st August). This includes mitigation included building roofs for potential nesting herring gulls.
- Trees to be retained. Retained trees will be protected from root damage by machinery by an exclusion zone as outlined in the arborist tree protection drawing.
- A total of 35 bird boxes (including swift boxes) and 10 bat boxes will be placed on site as an enhancement measure. The position of these boxes will

be carried out in consultation with an ecologist and where indicated in the landscape strategy.

- A pre construction inspection for invasive species will be carried out.

5.6 Air Quality

As referenced from Chapter 8 (Air Quality) of the EIAR the following construction stage mitigation will be adhered to. The proposed development has been assessed as having a high risk of dust soiling impacts and a medium risk of dust related human health impacts during the construction phase as a result of demolition, earthworks, construction and trackout activities (see Section 8.5.2 of the EIAR). Therefore, the following dust mitigation measures shall be implemented during the demolition and construction phases of the proposed development. These measures are appropriate for sites with a high risk of dust impacts and aim to ensure that no significant nuisance occurs at nearby sensitive receptors. The mitigation measures draw on best practice guidance from Ireland (DCC, 2018), the UK (IAQM (2014), BRE (2003), The Scottish Office (1996), UK ODPM (2002)) and the USA (USEPA, 1997). Specific attention has been given to the measures required by Dublin City Council in their document *Air Quality Monitoring and Noise Control Unit's Good Practice Guide for Construction and Demolition* (DCC, 2018). These measures will be incorporated into the overall Construction Environmental Management Plan (CEMP) prepared for the site. The measures are divided into different categories for different activities.

Communications

- Develop and implement a stakeholder communications plan that includes community engagement before works commence on site. Community engagement includes explaining the nature and duration of the works to local residents and businesses.
- The name and contact details of a person to contact regarding air quality and dust issues shall be displayed on the site boundary, this notice board should also include head/regional office contact details.

Site Management

- During working hours, dust control methods will be monitored as appropriate, depending on the prevailing meteorological conditions. Dry and windy conditions are favourable to dust suspension therefore mitigations must be implemented if undertaking dust generating activities during these weather conditions.
- A complaints register will be kept on site detailing all telephone calls and letters of complaint received in connection with dust nuisance or air quality concerns, together with details of any remedial actions carried out

Preparing and Maintaining the Site

- Plan site layout so that machinery and dust causing activities are located away from receptors, as far as is possible.
- Erect solid screens or barriers around dusty activities or the site boundary that are at least as high as any stockpiles on site.
- Fully enclose specific operations where there is a high potential for dust production and the site is active for an extensive period.
- Avoid site runoff of water or mud.
- Keep site fencing, barriers and scaffolding clean using wet methods.
- Remove materials that have a potential to produce dust from site as soon as possible, unless being re-used on site. If they are being re-used on-site cover as described below.
- Cover, seed or fence stockpiles to prevent wind whipping.

Operating Vehicles / Machinery and Sustainable Travel

- Ensure all vehicles switch off engines when stationary - no idling vehicles.
- Avoid the use of diesel or petrol powered generators and use mains electricity or battery powered equipment where practicable.
- Impose and signpost a maximum-speed-limit of 15 kph haul roads and work areas (if long haul routes are required these speeds may be increased with suitable additional control measures provided, subject to the approval of the nominated undertaker and with the agreement of the local authority, where appropriate).

- Produce a Construction Logistics Plan to manage the sustainable delivery of goods and materials.
- Implement a Travel Plan that supports and encourages sustainable travel (public transport, cycling, walking, and car-sharing)

Operations

- Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction, e.g. suitable local exhaust ventilation systems.
- Ensure an adequate water supply on the site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and appropriate.
- Use enclosed chutes and conveyors and covered skips.
- Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate.
- Ensure equipment is readily available on site to clean any dry spillages and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods.

Waste Management

- Avoid bonfires and burning of waste materials.

Measures Specific to Demolition

- Prior to demolition blocks should be soft striped inside buildings (retaining walls and windows in the rest of the building where possible, to provide a screen against dust).
- During the demolition process, water suppression should be used, preferably with a hand-held spray. Only the use of cutting, grinding or sawing equipment fitted or used in conjunction with a suitable dust suppression technique such as water sprays/local extraction should be used.

- Drop heights from conveyors, loading shovels, hoppers and other loading equipment should be minimised, if necessary fine water sprays should be employed.
- Avoid explosive blasting, using appropriate manual or mechanical alternatives.

Measures Specific to Earthworks

- Re-vegetate earthworks and exposed areas/soil stockpiles to stabilise surfaces as soon as practicable.
- Use Hessian, mulches or trackifiers where it is not possible to re-vegetate or cover with topsoil, as soon as practicable.
- Only remove the cover in small areas during work and not all at once.
- During dry and windy periods, and when there is a likelihood of dust nuisance, a bowser will operate to ensure moisture content is high enough to increase the stability of the soil and thus suppress dust.

Measures Specific to Construction

- Avoid scabbling (roughening of concrete surfaces) if possible.
- Ensure sand and other aggregates are stored in bunded areas and are not allowed to dry out, unless this is required for a particular process, in which case ensure that appropriate additional control measures are in place.
- Ensure bulk cement and other fine powder materials are delivered in enclosed tankers and stored in silos with suitable emission control systems to prevent escape of material and overfilling during delivery.
- For smaller supplies of fine power materials ensure bags are sealed after use and stored appropriately to prevent dust.

Measures Specific to Trackout

- A speed restriction of 15 kph will be applied as an effective control measure for dust for on-site vehicles.
- Street and footpath cleaning must be undertaken during the demolition and ground works phase to minimise dust emissions. This can be carried out using water-assisted dust sweeper(s). If sweeping using a road sweeper is

not possible due to the nature of the surrounding area then a suitable smaller scale street cleaning vacuum will be used.

- Avoid dry sweeping of large areas.
- Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport.
- Inspect on-site haul routes for integrity and instigate necessary repairs to the surface as soon as reasonably practicable.
- Record all inspections of haul routes and any subsequent action in a site log book.
- Install hard surfaced haul routes, which are regularly damped down with fixed or mobile sprinkler systems, or mobile water bowsers and regularly cleaned.
- Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site where reasonably practicable).
- Ensure there is an adequate area of hard surfaced road between the wheel wash facility and the site exit, wherever site size and layout permits.
- Access gates to be located at least 10 m from receptors where possible.

Monitoring

- Undertake daily on-site and off-site inspections, where receptors (including roads) are nearby, to monitor dust, record inspection results in the site inspection log. This should include regular dust soiling checks of surfaces such as street furniture, cars and windowsills within 100 m of site boundary, with cleaning to be provided if necessary.
- Increase the frequency of site inspections by the person accountable for air quality and dust issues on site when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions.
- Monitoring of construction dust deposition along the site boundary to nearby sensitive receptors during the demolition and ground works phases of the proposed development is required to ensure mitigation measures are working satisfactorily. This can be carried out using the Bergerhoff method

in accordance with the requirements of the German Standard VDI 2119. The Bergerhoff Gauge consists of a collecting vessel and a stand with a protecting gauge. The collecting vessel is secured to the stand with the opening of the collecting vessel located approximately 2m above ground level. The TA Luft limit value is 350 mg/m²/day during the monitoring period of 30 days (+/- 2 days).

5.7 Climate

As referenced from Chapter 9 (Climate) of the EIAR the following construction stage mitigation will be adhered to.

Embodied carbon of materials and construction activities will be the primary source of climate impacts during the construction phase. Section 7 of the Demolition Justification Report prepared by Passive Dynamics which accompanies this planning application details a number of measures to reduce the embodied carbon of the demolition works. These include:

- Creating a demolition & construction program which allows for sufficient time to determine reuse and recycling opportunities for demolition wastes.
- Appointing a suitably competent demolition contractor who will undertake a pre-demolition audit detailing resource recovery best practice and identify materials/building components that can be reused/recycled.
- Materials will be reused on site within the new build areas where possible.
- The project has committed to complying with the requirements set out in the EU taxonomy in relation to circular economy. This is specific to reuse, recycling and material recovery of demolition and construction wastes.

During the construction phase the following best practice measures shall be implemented on site to prevent significant GHG emissions and reduce impacts to climate:

- Prevention of on-site or delivery vehicles from leaving engines idling, even over short periods.
- Ensure all plant and machinery are well maintained and inspected regularly.
- Minimising waste of materials due to poor timing or over ordering on site will aid to minimise the embodied carbon footprint of the site.

- Sourcing materials locally where possible to reduce transport related CO2 emissions.

5.8 Construction Plant

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

- Site plant and equipment will be serviced regularly and maintained in good condition and in accordance with the manufacture's specifications. Allowing for economic constraints, the plant will be selected on the basis of which has the least potential for dust and emissions. In addition, the contractor will ensure that each item of plant and equipment complies with the noise limits quoted in the relevant European Commission Directive 2000/14/EC;
- Plant will not be left running when not in use;
- Plant with dust suppression equipment will be used where practicable.

5.9 Vehicle Movements

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

- Damping down the site haul roads during prolonged dry periods;
- Regular cleaning of hard surfaces at the site entrance;
- Ensuring that materials are transported appropriately (sheeting used over dusty materials);
- Confinement of plant and machinery to designated haul routes on site;
- Speed restrictions on site will be enforced;
- Hoarding to site boundaries where practical which will aid in the reduction of windblown dust off site.
- Vehicles will not be left running when not in use.

- As stated in section 4.2, a properly sized and designed wheel wash will be provided and maintained on site as necessary for the earthworks and superstructure elements of the project.

5.10 Noise and Vibration

As referenced from Chapter 10 (Noise and Vibration) of the EIAR the following construction stage mitigation will be adhered to.

The appointed contractor will be required to take specific noise abatement measures to the extent required and comply with the recommendations of BS 5228-1 (BSI 2014a) and S.I. No. 241/2006 - European Communities (Noise Emissions by Equipment for Use Outdoors) (Amendment) Regulations 2006. In addition, the Dublin City Council's (DCC) "Air Quality Monitoring and Noise Control Unit's Good Practice Guide for Construction and Demolition" outlines a risk assessment methodology to be followed for construction activities which will be undertaken as part of the site control measures.

These measures will ensure that:

- During the Construction Phase, the appointed contractor will be required to manage the works to comply with the limits detailed in Section 11.2.1 using methods outlined in BS 5228-1 (BSI 2014a) and control measures outlined in the DCC Air Quality Monitoring and Noise Control Unit's Good Practice Guide for Construction and Demolition risk assessment document; and
- The best means practicable, including proper maintenance of plant and equipment, will be employed to minimise the noise produced by on-site operations.
- BS 5228-1 includes guidance on several aspects of construction site practices, which include, but are not limited to:
 - Selection of quiet plant;
 - Control of noise sources;
 - Screening;
 - Hours of work;
 - Liaison with the public; and

- **Monitoring.**
- The contractor will put in place the most appropriate noise control measures depending on the level of noise reduction required during specific phases of work (i.e. based on the construction threshold values for noise and vibration set out in Section 10.5.1 of Chapter 10 of the EIAR). Reference to Table 10.19, Table 10.20 and Table 10.21 of Chapter 10 of the EIAR indicates where intrusive works associated with construction occur. These areas will need specific noise control measures to reduce impacts.

Selection of Quiet Plant

The potential for any item of plant to result in exceedance of construction noise thresholds will be assessed prior to the item being brought onto the site. The least noisy item of plant will be selected wherever practicable (e.g. plant items with sound attenuation incorporated). Should a particular item of plant already on the site be found to exceed the construction noise thresholds, the first action will be to identify whether the item can be replaced with a quieter alternative.

The appointed contractor will evaluate the choice of excavation, breaking or other working method taking into account various ground conditions and site constraints. Where alternative lower noise generating equipment are available that will provide equivalent structural / excavation / breaking results, these will be selected to control noise within the relevant thresholds, where it is practicable to do so.

The decision regarding the type of excavation technique or other construction activity to be used on a site will normally be governed by a range of engineering and environmental constraints. In these instances, it may not be possible for technical reasons to replace an item of plant with a quieter alternative. In some instances, the adoption of a quieter method may prolong the overall process, with the net result being that the overall disturbance to the community will not necessarily be reduced.

Noise Control at Source

The following measures will be implemented, if required, by the appointed contractor to control noise at source. These measures relate to specific site considerations:

- For mobile plant items such as dump trucks, cranes, excavators and loaders, the installation of an acoustic exhaust, utilising an acoustic canopy to replace the normal engine cover and / or maintaining enclosure panels closed during operation can reduce noise levels by up to 10 dB;
- For percussive tools such as pneumatic concrete breakers and tools a number of noise control measures include fitting a muffler or sound reducing equipment to the breaker 'tool' and ensuring any leaks in the air lines are sealed;
- Where compressors, generators and pumps are located in proximity to NSLs and have the potential to exceed the construction noise thresholds, these will be surrounded by acoustic lagging or enclosed within acoustic enclosures providing air ventilation; and
- Resonance effects in panel work or cover plates can be reduced through stiffening or the application of damping compounds, while other noise nuisance can be controlled by fixing resilient materials in between the surfaces in contact

Screening

Screening is an effective method of reducing CNLs at a receiver location and can be used successfully as an additional measure to other forms of noise control. The effectiveness of a noise screen will depend on the height and length of the screen, its mass, and its position relative to both the source and receiver. BS 5228-1 (BSI 2014a) states that on level sites the screen should be placed as close as possible to either the source or the receiver. The construction of the barrier will be such that there are no gaps or openings at joints in the screen material.

Erection of localised demountable enclosures or screens will be used around Piles, breakers or drill bits, as required, when in operation in proximity to NSLs with the potential to exceed the construction noise thresholds. Annex B of BS 5228-1 (Figures B1, B2 and B3) provide typical details for temporary and mobile acoustic screens, sheds and enclosures that can be constructed on-site from standard materials. A well placed and designed mobile temporary screen around a pile, breaker or excavation can effectively reduce noise emissions by 10 dB(A).

In addition, careful planning of the construction site layout will also be considered. The placement of site buildings such as offices and stores between the site and sensitive locations can provide a good level of noise screening.

Hours of Work

Standard working hours for construction will be 7.00am to 7.00pm Monday to Friday and 7.00am to 14.00pm on Saturday (if required), with no works on Sundays or Bank Holidays except in exceptional circumstances or in the event of an emergency.

Liaison with the Public

For the proposed development, the duration of excavation, breaking and other high noise or vibration activities is usually short in relation to the length of construction work as a whole, and the amount of time spent working near to sensitive areas can represent only a part of the overall period.

The contractor will establish clear forms of communication that will involve the appointed contractor to NSLs in proximity to the works, so that residents or building occupants are aware of the likely duration of activities likely to generate noise or vibration that are potentially significant.

Monitoring

During the construction phase the contractor will carry out noise monitoring at representative NSLs to evaluate and inform the requirement and / or implementation of noise management measures. Noise monitoring will be conducted in accordance with ISO 1996-1 (ISO 2016) and ISO 1996-2 (ISO 2017).

Vibration Control

On review of the likely vibration levels associated with demolition/construction activities, construction activities associated with the proposed development are not expected to give rise to vibration that is either significantly intrusive or capable of giving rise to structural or cosmetic damage to buildings.

Vibration from demolition/construction activities will be limited to the values set out in Table 10.3 of Chapter 10 of this EIAR to avoid any form of potential cosmetic damage to buildings and structures. Monitoring will be undertaken at identified sensitive buildings, where proposed works have the potential to be at or exceed the vibration limit values in Table 10.6 of Chapter 10 of the EIAR.

In the case of vibration levels giving rise to human discomfort, in order to minimise such impacts, the following measures shall be implemented during the Construction Phase

- A clear communication programme will be established by contractor to inform adjacent building occupants in advance of any potential intrusive works which may give rise to vibration levels likely to result in significant effects as per Table 10.7 of Chapter 10 of the EIAR. The nature and duration of the works will be clearly set out in all communication circulars as necessary; and
- Appropriate vibration isolation shall be applied to plant (such as resilient mounts to pumps and generators), where required and where feasible.

5.11 Disposal of collected water (Rainfall run-off and perched water)

Rainfall at the construction site will be managed and controlled for the duration of the construction works until the permanently intercepted and attenuated surface water drainage system of the proposed site is complete. Dewatering water from excavation works within overburden deposits will be contained within the site, treated (if required) and discharged. Depending on the quality of this water the discharge of this treated water will occur to either; to surface water (via the storm water network to the Tolka River); or to Ringsend WWTP (via the combined foul wastewater network). A staged treatment system (treatment-train) will be in place during construction works that will ensure the quality of the discharge water to foul sewer and storm sewer is maintained in accordance with discharge permit conditions. The dewatering will occur via suitably installed dewatering wells/sumps containing pumps to abstract groundwater and surface water (rainfall landing on the site) into a flocculation system and settlement and floating oil adsorption lined pond system from which compliant water will be abstracted via floating pumps that take water preferentially from near the surface. The system will contain sensors that will record live data to monitor discharge rate (Flow), cumulative volume, pH, temperature, turbidity (proxy for suspended solids), rainfall and water level which will display on a remotely monitored telemetry and integrated automation system. This system contains automatic controls to switch on and off

pumps remotely based on the live data received from sensors on the site, meaning it can detect the water quality in the treatment system and divert the discharge to either the foul sewer, the storm sewer or cease pumping depending on compliance with the discharge licence conditions (i.e. if pH approaches pH 9, then flow will divert from storm to foul, if flow approaches pH 10, discharge ceases or pumping ceases from certain areas of the site only until suitable mitigation or treatment is applied. The telemetry system will also be monitored by a competent person who also checks the

CCTV cameras that are installed in the system to monitor water quality. Water samples will be taken at the frequency that the discharge licence dictates and sent to an accredited laboratory for analysis. Weekly discharge licence reports will be submitted to the licensing authorities containing details of emission limit value compliance and flows. The aim of employing this technology is to assist in achieving a 100% Dry Compliant Site.

The treatment system will ensure that the discharge to foul sewer does not exceed the following parameters (or otherwise stipulated by discharge permit conditions); Temperature (Maximum 35 degrees C), pH (6-10 pH units), Suspended Solids (24hr Average 100mg/l, Maximum 200mg/l), BOD (24hr Average 100mg/l, Maximum 200mg/l), COD-Cr (24hr Average 200mg/l, Maximum 400mg/l), Total Petroleum Hydrocarbons (24hr Average 5mg/l, Maximum 5mg/l), Mineral Oils (24hr Average 10mg/l, Maximum 10mg/l). Maximum allowable daily load (kg/day) will also be stipulated for each of the emission limit values (apart from pH and temperature).

The treatment system will ensure that the discharge to storm sewer does not exceed the following parameters (or otherwise stipulated by discharge permit conditions); Temperature (Maximum 25 degrees C), pH (6-9 pH units), Suspended Solids (24hr Average 20mg/l, Maximum 30mg/l), BOD (24hr Average 5mg/l, Maximum 10mg/l), COD (24hr Average 20mg/l, Maximum 40mg/l), Phosphates (as PO₄-P) (Maximum 1mg/l), Sulphates (as SO₄) (Maximum 100mg/l), Ammonium as N (1mg/l), Nitrates as N (Maximum 10mg/l N), Total petroleum

hydrocarbons (Maximum 1mg/l). Maximum allowable daily load (kg/day) will also be stipulated for each of the emission limit values (apart from pH and temperature).

The discharge to surface water sewer is subject to agreement with Dublin City Council (DCC); and the discharge to the combined foul sewer are subject to agreement with Irish Water (IW). The quality of discharged water to the foul and storm network is expected to be compliant with respective licence conditions following treatment and management. In case of any exceedances of the above parameters (or otherwise stipulated by discharge permit conditions), water will be retreated on site, or disposed of to a licenced facility.

The discharges to storm water and combined foul water network shall comply with the requirements established in the discharge licence to Dublin City Council (for storm water network) and/or Irish Water (for foul water network).

5.12 Transport

As referenced from Chapter 14 (Traffic and Transportation) of the EIAR the following construction stage mitigation will be adhered to.

This stage of the development will be dealt with by the appointed contractor through the development and implementation of a Construction & Environmental Management Plan. This plan will be agreed upon with the Local Authority prior to the commencement of construction and will ultimately include details on the following:

- Daily and weekly working hours;
- Agreed haul routes for incoming materials;
- Licensed hauliers to be used;
- Disposal sites, if necessary;
- Travel arrangements for construction personnel;
- Appropriate on-site parking arrangements for construction personnel to prevent overspill parking on the local road network;
- Wheel wash facilities if required;
- Road cleaning and sweeping measures to be put in place as required;

- Temporary construction signage to be put in place and maintained;
- Any proposed traffic management measures such as temporary traffic lights and signage on any public roads and dedicated parking provided for construction personnel.

Estimates of construction traffic generations for the construction phase are compiled and are discussed earlier within this report.

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

The key principle of the traffic management plan that's will be produced at Construction stage by the contractor is to ensure the safety of all personnel (drivers & pedestrians). This means a segregated entrance for vehicles and pedestrians. The onsite traffic flow will change through the course of the Development. All site traffic will be subject to speed restrictions. The Traffic Management Plan will be reviewed and updated in line with the construction programme and will typically include details of the following:

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

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

Relative to the operation stage, the construction period will be temporary. Construction traffic is expected to consist of the following categories:

- Private vehicles owned and driven by site construction staff and by full-time site supervisory staff and occasional professional supervisory staff i.e. design team members and supervisory staff from utility companies;
- Materials delivery and removal vehicles.

It is difficult to assess the exact quantum of traffic that will be generated during the construction period. Nevertheless, based on experience from similar developments, it is expected that this stage will generate less vehicle movements per day than the operational phase of the development. However, the following points are noted concerning construction traffic:

- In general, the construction day will begin and end outside of peak travel hours. As a result, the majority of workers travelling to and from the site will arrive before the a.m. peak hour and depart after the p.m. peak hour;
- Limited on-site parking will be provided for use by critical staff only with the remainder of staff encouraged to travel by the numerous public transport options serving the locality;
- Adequate on-site compounding will be provided to prevent any potential overflow onto the local transport network;
- A Mobility Management Plan has been prepared for the development which includes objectives and measures to facilitate and encourage travel by sustainable means during the construction stage;
- The potential for construction staff to be brought to the site in vans/minibuses will be investigated. This would serve to reduce the overall trip generation potential of the construction period;

- Delivery vehicles travelling to and from the site will be spread across the course of the working day meaning the number of HGVs travelling during peak hours will be relatively low

5.13 Waste

As referenced from Chapter 15 (Waste) of the EIAR the following construction stage mitigation will be adhered to.

The following mitigation measures will be implemented during the construction phase of the proposed development:

As previously stated, a project specific RWMP has been prepared in line with the requirements of the requirements of The EPA, Best Practice Guidelines for the Preparation of Resource and Waste Management Plans for Construction & Demolition Projects' (2021) and is included as Appendix 15.1 of Chapter 15 of this EIAR. The mitigation measures outlined in the RWMP will be implemented in full and form part of mitigation strategy for the site. The mitigation measures presented in this RWMP will ensure effective waste management and minimisation, reuse, recycling, recovery and disposal of waste material generated during the excavation and construction phases of the proposed development.

- Prior to commencement, the appointed Contractor(s) will be required to refine / update the RWMP (Appendix 15.1 of Chapter 15 of this EIAR) in agreement with DCC and in compliance with any planning conditions, or submit an addendum to the RWMP to DCC, detailing specific measures to minimise waste generation and resource consumption, and provide details of the proposed waste contractors and destinations of each waste stream.
- The Contractor will implement the RWMP throughout the duration of the proposed excavation and construction phases.

A quantity of soil, stones, clay and made ground will need to be excavated to facilitate the proposed development. Correct classification and segregation of the excavated material is required to ensure that any potentially contaminated materials are identified and handled in a way that will not impact negatively on workers as well as on water and soil environments, both on and off-site.

In addition, the following mitigation measures will be implemented:

- Building materials will be chosen to 'design out waste';
- On-site segregation of waste materials will be carried out to increase opportunities for off-site reuse, recycling and recovery. The following waste types, at a minimum, will be segregated:
 - Mixed C&D;
 - Concrete rubble (including ceramics, tiles and bricks);
 - Plasterboard;
 - Metals;
 - Glass;
 - Slate;
 - Asbestos; and
 - Timber.
- Left over materials (e.g. timber off-cuts, broken concrete blocks / bricks) and any suitable construction materials shall be re-used on-site, where possible; (alternatively, the waste will be sorted for recycling, recovery or disposal);
- All waste materials will be stored in skips or other suitable receptacles in designated areas of the site;
- Any hazardous wastes generated (such as chemicals, solvents, glues, fuels, oils) will also be segregated and will be stored in appropriate receptacles (in suitably bunded areas, where required);
- A Resource Manager will be appointed by the main Contractor(s) to ensure effective management of waste during the excavation and construction works;
- All construction staff will be provided with training regarding the waste management procedures;
- All waste leaving site will be reused, recycled or recovered, where possible, to avoid material designated for disposal;
- All waste leaving the site will be transported by suitably permitted contractors and taken to suitably registered, permitted or licenced facilities; and
- All waste leaving the site will be recorded and copies of relevant documentation maintained.

Nearby sites requiring clean fill material will be contacted to investigate reuse opportunities for clean and inert material, if required. If any of the material is to be reused on another site as by-product (and not as a waste), this will be done in accordance with Regulation 27 of the EC (Waste Directive) Regulations (2011-2020). EPA approval will be obtained prior to moving material as a by-product. These mitigation measures will ensure that the waste arising from the construction phase of the proposed development is dealt with in compliance with the provisions of the Waste Management Act 1996, as amended, associated Regulations and the Litter Pollution Act 1997, and the EMR Waste Management Plan 2015 – 2021. It will also ensure optimum levels of waste reduction, reuse, recycling and recovery are achieved and will promote more sustainable consumption of resources.

As noted previously a separate "*Resource Waste Management plan*" prepared for the scheme by AWN Consulting and has been submitted with this application under a separate cover.

5.14 Archaeology and cultural heritage

As referenced from Chapter 12 (Archaeological and Cultural Heritage) of the EIAR the following construction stage mitigation will be adhered to.

Archaeology

All topsoil stripping associated with the proposed development will be monitored by a suitably qualified archaeologist. If any features of archaeological potential are discovered during the course of the works further archaeological mitigation may be required, such as preservation in-situ or by record. Any further mitigation will require approval from the National Monuments Service of the DoH/LGH and the Dublin City Archaeologist.

Cultural Heritage

A full written and photographic record will be made of the remains of the demesne wall CH01, prior to commencement of construction.

Where necessary, appropriate signage and protective measures will be installed prior to construction phase to avoid any indirect impacts on the cultural heritage resource

5.15 Architecture

As referenced from Chapter 13 (Architectural Heritage) of the EIAR the following construction stage mitigation will be adhered to.

General Mitigation Measures

All interventions have been discussed as a part of regular design team meetings to consider rationale of decisions with the view to balance the needs of the brief, economy, practicality, health and safety, accessibility and conservation. These meetings should be considered part of the assessment/mitigation process. Various mitigants have been put in place to ensure that the historic fabric and special architectural character of the complex's significant buildings and site are preserved during the repair and upgrading works.

General mitigation measures to be applied to all interventions require that:

- Proposed conservation works must be carried out by an experienced main contractor and specialist subcontractors or crafts people.
- The delivery of a heritage induction to all contractors and subcontractors should be carried out.
- Where repair and upgrading to historic fabric is required, the conservation method statement and guidelines of product manufacturers must be followed by the contractor so that works can be carried out appropriately.
- Works must be supervised by the design team.
- Works have been carefully designed and are guided by the international conservation principles.
- Historic fabric will be adequately protected during all site stages.
- Demolitions and strip out will be guided by the design team and carefully conducted to ensure the protection of historic fabric and features.
- To prevent damage to adjacent fabric or substrates, where possible, power tools will be avoided.
- In so far as is possible, MEP services will use pre-existing pathways or joist notching. New services will also be surface mounted to ensure reversibility.
- Where historic building fabric cannot be reused within the complex for repairs, it will be salvaged and sent to a reputable salvage yard.

- If structural timbers such as joists are found to be non-performing, they will be retained and strengthened via coupling of members and or splicing. However defective timbers that show signs of spores/fungus attack or larvae will be removed to prevent the occurrence of a future breakout.
- To ensure quality, appropriate methods and materials, as series of samples will be required by the conservation and architectural teams including doors, joinery, sash windows, plaster removal and plastering, cornice running, cleaning.
- The contractor will provide submittals of materials and products for the approval of the design team. Only high quality and fabric-compatible materials will be used during conservation and upgrades.
- Careful detailing is to be produced to provide a high-quality design and finish; this should be presented to the conservation consultant for comment where requested.
- All works undertaken will be monitored by qualified conservation architects and contractors.

Recording of Buildings Scheduled for Demolition

Demolition is only proposed where there is not considered to be a viable use for an existing structure or where its retention will comprise the overall progress of the development, preventing the provision of a new mental health facility and in turn the conservation of the designated protected structures on the site.

In the event of the demolition of any heritage structure on the site irrespective of their origin and level of significance, it is recommended that they be preserved by record, by means of measured survey and photographic record of original features supplementing recording already undertaken in the Appendices of Chapter 13 of this EIAR. This should be completed when the buildings are vacated and cleared of debris.

Salvage Strategy

It is proposed to salvage as much of the historic fabric of St. Teresa's as possible prior to demolition. This is outlined in detail in Appendix 13.9 of Chapter 13 of this EIAR.

Historic Boundaries and Landscaping Strategy

Where possible the new landscaping strategy will seek to reference the location, form and materiality of the historic plot and boundary conditions. Where robust historic materials can be reused, they will be integrated into the landscape design strategy. Further detail is provided in Appendix 13.8 to Chapter 13 of this EIAR.



6.0 METHODOLOGY FOR DEMOLITION OF STRUCTURES

7.1 Health & Safety

Health & Safety issues will be the primary concern for the appointed Demolition Contractor. This will apply in respect of persons working on and in the vicinity of the site and in respect of passing pedestrians, motorists or other transport carriers. In this regard the highest possible care will be taken in providing a detailed Construction Stage Health and Safety Plan in advance of works commencing on site.

It is intended to operate a Health, Safety & Environmental Management System in line with ISO 18001 & ISO 14001. This Management System translates the company policy into processes to ensure safety, health and environmental responsibilities and performance can be monitored, reported, and improved.

A suitably qualified and competent *Project Supervisor Design Process (PSDP)* and *Project Supervisor Construction Stage (PSCS)* will be appointed in line with the requirements of the Safety, Health and Welfare at Work Construction Regulations 2013.

7.3 Sequencing of Demolition Works

The appointed demolition contractor will engage with the professional design team to reach early agreement on an acceptable demolition sequence. The following demolition sequencing is however envisaged:

- Set up site Access and Compound.
- Completion of Pre-Demolition Surveys including an asbestos survey and bat survey prior to works commencing;
- Stripping of hazardous materials.

- Removal of existing fixtures and fittings such as floors, doors, partitions, ceilings, windows, mechanical equipment and non-buried pipping & electrical services;
- Removal of all roof coverings and building envelope finishes.
- Support and then cut remaining roof structures before lowering to ground level for dismantling;
- Demolish internal walls and columns;
- Remove ground floor slab;
- Separation of demolition debris into different waste streams;
- Removal of all waste from site.

7.4 C&D Materials Arising's

The control, management and monitoring of construction waste associated with this development is dealt with under a separate "*Resource Waste Management Plan*" prepared for the scheme by AWN Consulting.

7.0 BASEMENT, GROUND FLOOR & SUPERSTRUCTURE CONSTRUCTION

8.1 Construction Sequence

It is proposed to initially demolish selected existing buildings and existing hardstanding surfaces. In addition, the ground will be removed/remediated/re-used as appropriate, to facilitate the basement structures.

Following excavation of the basement, piling will be installed. The Basement slab, walls and columns and cores will be constructed to support the ground floor /podium areas.

Once the ground floor and podiums are constructed, the Superstructures described below will be constructed.

8.2 Enabling Works

- Secure site and set up contractor welfare facilities and site accommodation;
- Locate and terminate existing live services;
- Install tree protection and remove trees that are required to be felled;
- Demolish existing structures on the site as per section 7.3;
- Excavate and remove material to the required formation including pile mat construction. This will require a bulk excavation and removal from the site;
- Maintain existing entrances and incorporate new roads and hardstanding as required;
- Make good and install any finished boundary treatments that can be installed at this stage.

8.2 Substructure

The substructure consisting of the basement, foundations and ground floor will be constructed with standard construction techniques.

The piling Contractor will be required to carry out their works such that the effect of vibration on the adjacent buildings and surroundings is minimised, and that no damage to these results from construction activity on site.

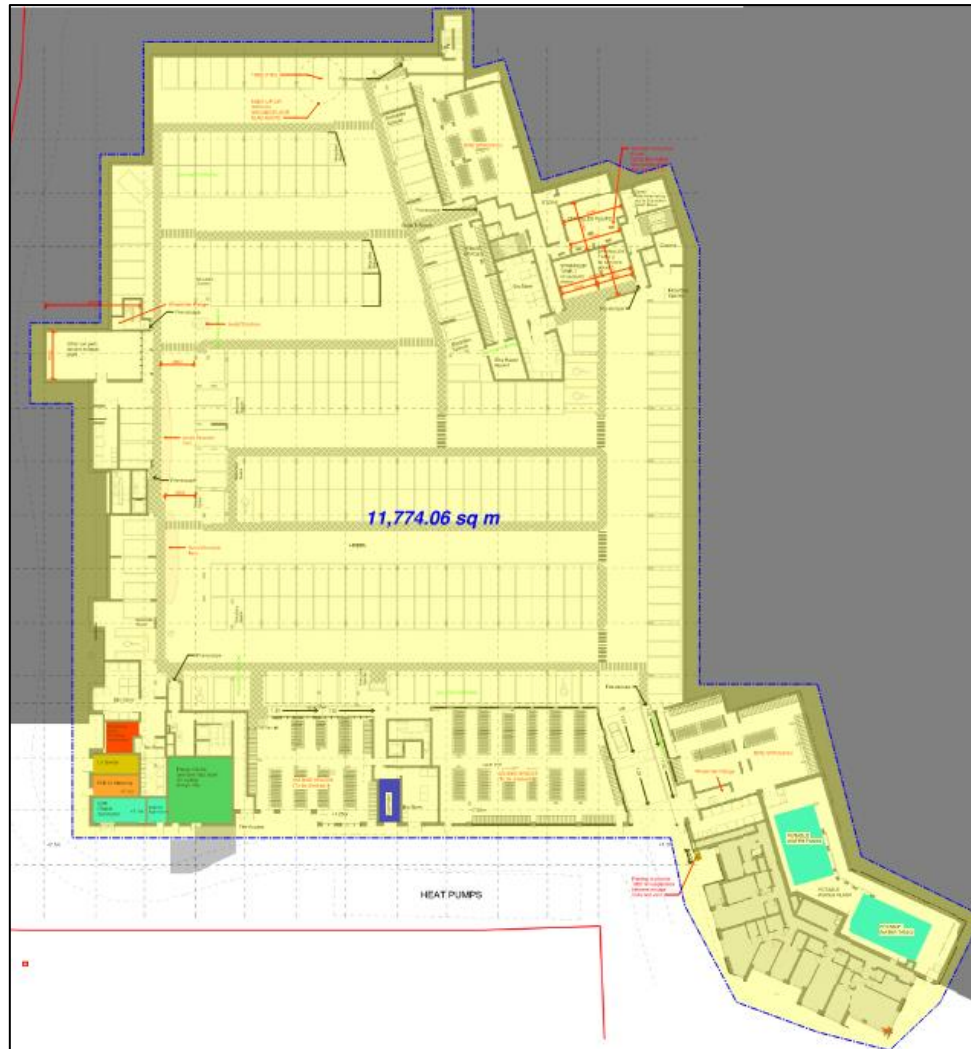


Figure 4: Basement Layout

The basement will be constructed of Reinforced concrete. It is expected given the heights of the proposed superstructures that the foundations will be supported on pile groups with insitu pile caps. The basement will span between these pile groups and will be constructed in approximately 450mm thick concrete slab. The basement walls will also be constructed in cast insitu concrete in the order of 300mm thick. It is intended that an external waterproof membrane will be incorporated to provide grade 2 protection to the basement carparking area. A

second line of waterproof defense will be provided at core areas and habitable areas within the basement. Refer to the Basement Impact Assessment for more details.

8.3 Superstructure

The podium slab is intended to be in Cast insitu concrete in the order of 450mm thick, suitably stepped to provide lower areas for landscaped courtyard build-up and street/hard landscape build-ups.

Ground Granulated Blast Furnace Slag will be used throughout the cast insitu concrete works to reduce the overall volume of cement used within the development. The percentage GGBS within the concrete mix will be established at detailed design stage in consideration with the program /striking replacements however the intention is to aim for 50% replacement of cement.

As the basements are located at a sufficient distance to the boundaries, it is proposed at this stage, subject to detailed geotechnical investigations, that the basements would be excavated using bermed excavations, avoiding the need for sheet-pile or secant pile temporary works.

Residential Superstructures

The superstructure layouts are generally repetitive on a floor-by-floor basis and therefore we are proposing to use precast wide slab concrete construction in the order of 225mm in depth spanning to cast insitu walls and blade columns on a grid of approximately 7.5m.

The internal leaf of the external façade will be constructed in a suitably insulated lightweight pressed metal "SFS Type system" with external waterproof membrane. The external leaf will be constructed in solid brick, stonework and glazing as noted on the Architects elevations. The external leaf will be supported at alternate floor levels using a brick relieving angle fixed to the concrete floor slab.

Stability lift and stair cores

Access /stability lift and stair cores will be constructed of solid or precast concrete, of suitable thickness to resist horizontal stability wind loads, vertical loads, and fire ratings. These will be in the order of 250mm in thickness.

Roof Construction

The roofs are intended to support a selection of blue roofs for attenuation purposes, green biodiverse roofs, and landscaped areas. The supporting roof will be of concrete proprietary warrantied waterproofing system.

The entire development comprises of low to medium rise buildings. In this regard it is not considered that any specialised construction techniques will need to be applied on the site.

Hospital Substructure & Superstructure

The proposed scheme consists of strip & pad RC foundations which support rising loadbearing blockwork walls. These walls in turn support precast concrete floors & roofs which are topped with a structural screed. Provision for both vertical and horizontal ties has been included per the requirements for healthcare facilities. The sloping site conditions have been addressed by placing the new scheme, in both plan and elevation, in the optimum position to ensure a balanced mixture of cut and fill of the existing site levels. Based on the above and confirmed by the targeted SI, the ground floor slab has been designed as ground bearing. In this regard it is not considered that any specialised construction techniques will need to be applied on the site.

8.4 Health & Safety

Health & Safety issues will be a primary concern for the Main Contractor. This will apply in respect of persons working on and in the vicinity of the site and in respect of passing pedestrians, motorists or other transport carriers. In this regard the highest possible care will be taken in providing properly designed scaffolding.

The following general principles will apply:

- Toe boards will be provided.
- There will be no lifting of materials over live footpaths or roadways.
- A sloped fan will be provided at second floor level and will move upwards as construction advances (where necessary);
- Debris netting will be provided for the full scaffold perimeter.
- Fully recorded inspections will be carried out of the scaffolding for the full duration of construction.

8.5 Sequencing

The Main Contractor will engage with the professional design team to reach early agreement on an acceptable construction sequence.

8.0 PROPOSED CONSTRUCTION HAUL ROUTES

9.1 Introduction

Given the site is located in an inner suburban residential area it is critical that appropriate construction traffic/removal haul routes be identified, and a *Traffic Management Plan* is implemented by the appointed Contractor. In sections 4 and 5 of this report, various elements of the traffic management plan have been discussed including estimated vehicle numbers, vehicle cleaning and separation between vehicles/pedestrians. The below sections detail a proposed route for the construction traffic.

9.2 Construction Delivery & Haul Routes

It is important that the most appropriate construction routes be identified in order to bring materials to and from the site in the most efficient and environmentally sensitive manner. It is noted that specific haul routes will be agreed and licensed between the appointed contractor for the enabling works package and DCC. Movements of large or abnormal loads will be addressed in advance with the relevant authorities.

9.3 Construction Route Option

The site is located in Fairview within a heavily trafficked area thus deliveries to and from the site will need to be carefully planned to prevent congesting the adjacent roads and also prevent delay of materials and resources to the site. The route for construction traffic is to be confirmed by the main contractor in the construction management plan based on their source of materials etc. Due to the central location the preferred haul route is open for discussion with all stakeholders. As it can be seen by the Google map extract below there are many possibilities for feeding the site.

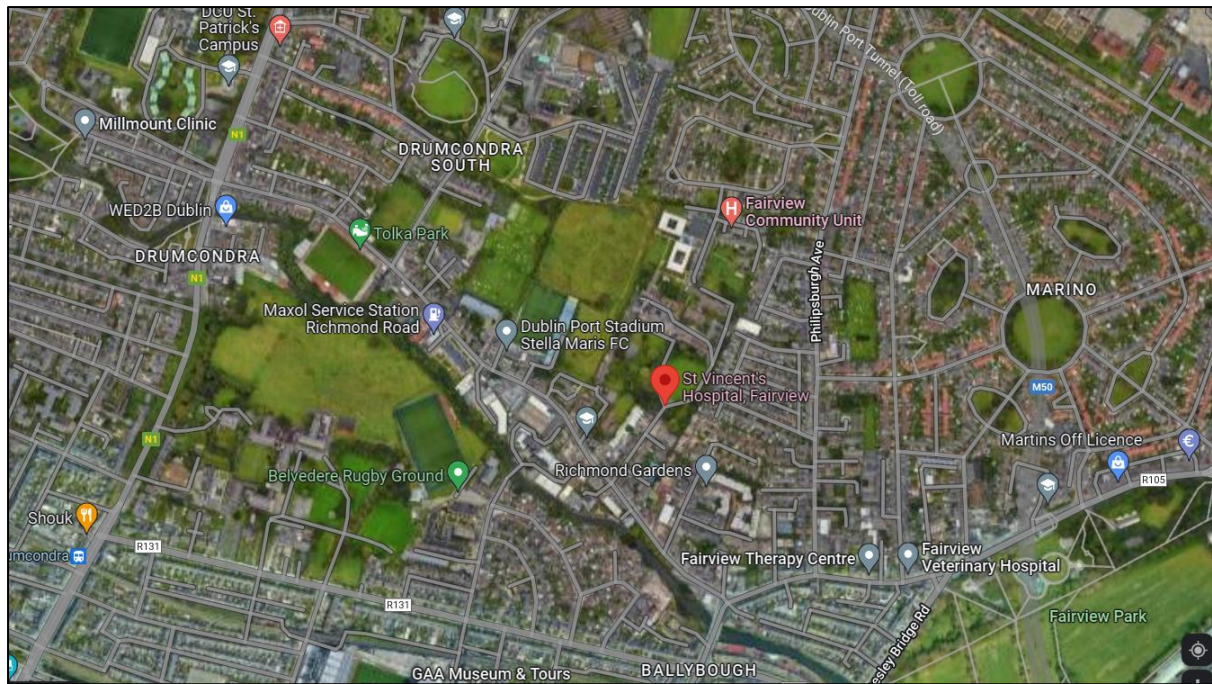


Figure 5: Construction Route Options

9.0 CONSTRUCTION STAGE COMMUNITY LIAISON

10.1 Introduction

It is imperative that discussions with local residents, businesses and the general public commence well in advance of work commencing on site. The appointed contractor will be required to follow best practice '*Considerate Constructor*' guidelines. The Considerate Constructor experience in Ireland and the U.K. has been that early positive and proactive engagement with businesses and residents impacted by building works is the best approach.

10.2 Respect the Community

Constructors should give utmost consideration to their impact on neighbours and the public by informing, respecting and showing courtesy to those affected by the work. This shows itself in minimising the impact of deliveries, parking and work on the public highway.

10.3 Community Liaison Manager

A Community Liaison Officer (CLO) will be appointed by the Main Contractor to lead and manage all community related issues. The CLO will initially host and attend regular community meetings. Following the initial meetings, the CLO will compile a list of stakeholders in the area. These stakeholders will be kept informed of progress and planned works on the site.



OCSC

O'CONNOR | SUTTON | CRONIN

Multidisciplinary
Consulting Engineers

9 Prussia Street
Dublin 7
Ireland

T | +353 (0)1 8682000
F | +353 (0)1 8682100
W | www.ocsc.ie

Dublin | London | Abu Dhabi | Belfast | Cork | Galway | Glasgow | Libya | Poland | Romania | Russia