ARUP

Dublin City Council

St. Anne's Court in Raheny, Dublin 5

Part 8 – Outline Construction and Demolition Management Plan

Reference: SAC-ARUP-ZZ-XX-RP-C-0030

C03 | 20 December 2023

Job number 288354-00

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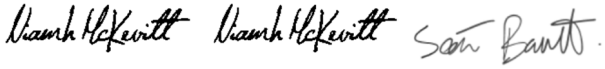
		Signature			
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Contents

1. Introduction

This Outline Construction and Demolition Management Plan includes a description of the proposed works and how these works will be managed for the duration of the works on site. This plan will be managed and updated in advance of, and throughout, the construction phase as required by the appointed Main Contractor.

This document presents an outline construction delivery sequence supported by project construction methodologies and techniques that may be adopted during the construction of the proposed development.

This Outline Plan seeks to demonstrate how such works can be delivered in a logical, sensible and safe sequence. It shows how specific measures to mitigate the potential impact on people, property and the environment can be incorporated, while mitigating the risk to the local amenities.

Nothing stated in this document shall supersede or be taken to replace the terms of the Contract or the detailed design description issued with the Contract tender or the conditions of planning. This methodology will be required to be interrogated by the Main Contractor prior to commencing works on site.

It is noted that this Document should be viewed as an Outline Plan with the Detailed Construction and Demolition Management Plan to be developed by the Main Contractor in consultation with Statutory Undertakers / Authorities and affected Stakeholders prior to works commencing on site. The Contractor shall develop the Detailed Construction and Demolition Management Plan with reference to the Air Quality Monitoring and Noise Control Unit's *"Good Practice Guide for Construction and Demolition"* document (accessible at: https://www.dublincity.ie/sites/default/files/2022-03/construction-and-demolition-good-practice-guide-15-03-2022.pdf). Note that this site is classified as a "High Risk Site".

1.1 Project Description

The project is a proposed demolition of an existing senior citizen complex of 5 two-storey blocks of 61 bed-sits and Community Room, on a 0.598 hectare site bound on three sides by All Saints Park in Dublin 5. The site enjoys its own access and site parking and is separated from neighbouring properties by public roads. The proposed development, which will be managed by Dublin City Council, will provide a new high-quality scheme consisting of:

- 102 new Senior Citizen dwellings (UD & UD+) in 4no. blocks arranged along the perimeter of the site around a central courtyard
- Community Centre
- Associated Site Works

Figure 1 outlines the site boundary.

Figure 1 Aerial view of St. Anne's Court in Raheny, Dublin 5

1.1.1 The Site

The site is located adjacent to All Saints Park, north of St. Anne's Park in Dublin 5. The site currently has 5 two-storey blocks, all orientated in the same direction, and is covered by a mix of landscaping and hardstanding, including an access road and carparking. There are a number of existing mature trees across the site area. The site sits in close proximity to an existing school, Nai-Scoil Ide, toward the North-East corner. School pick-ups and drop-offs take place along All Saints Park road on this corner of the site.

1.1.2 Proposed Development

The proposed redevelopment will consist of the complete demolition of the existing 5no. two-storey residential blocks, to be replaced with 4no. four-storey blocks arranged around the perimeter of the site. Landscaping will form an important part of the development with a shared garden courtyard in the centre of the site which is integral to the water management strategy on the site and provides shared amenity space for the residents.

The building works will be completed in a single phase, with all current residents decanted and the full site redeveloped before being occupied.

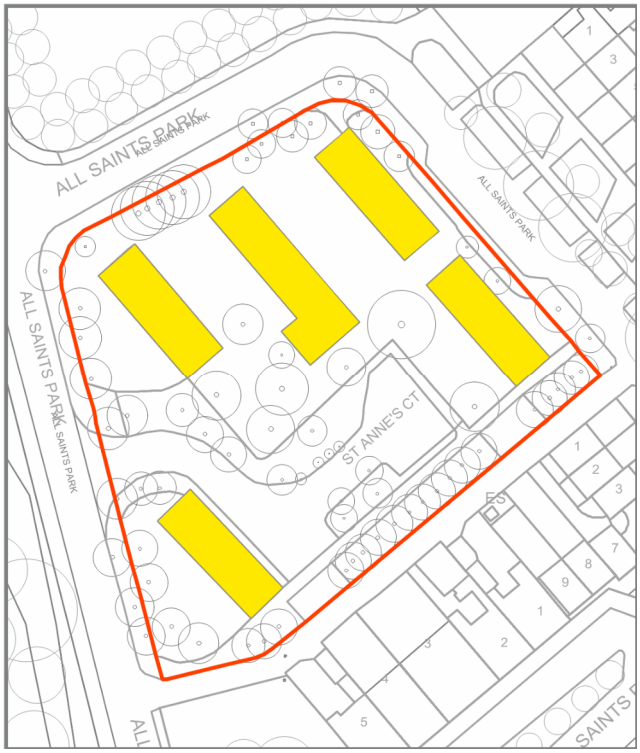

Figure 2 Existing Block Configuration on St. Anne's Court site

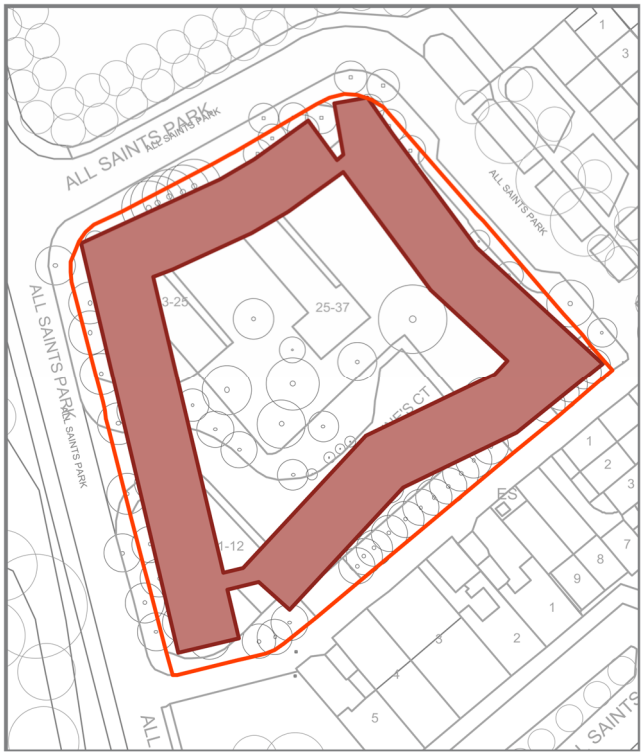

Figure 3 Proposed Block Configuration on St. Anne's Court site

2. Construction Programme and Phasing

Subject to successful grant of planning, it is intended for the main works to commence in 2024. The proposed development is anticipated to be constructed over a single Contract phase which is estimated to last 27 months.

The development is proposed to be constructed on the following basis:

- Full decant and power down of the existing blocks
- Site hoarding erected around the full perimeter of the site
- Demolition of the existing blocks
- Construction of proposed blocks with associated utilities and infrastructure.

2.1 Perimeter Hoarding

Following possession of the site, the Main Contractor will erect a suitably robust hoarding around the perimeter. This will provide separation of the construction works from areas of public access, along with provision of protection to the existing access routes, below ground utilities, and landscaping adjacent to the works area. The plan alignment of the hoarding may not remain constant for the entire works and may change to meet the particular requirements and constraints of the construction sequence and interfaces with the surrounding infrastructure.

The hoarding will typically take the form of standard plywood hoarding to a height of 2.4m, as illustrated in Figure 4 below. Controlled access points to the site, in the form of gates or doors, will be kept locked at any time that these areas are not monitored (e.g. outside working hours).

Figure 4 Sample detail of site perimeter hoarding

The hoarding will be well maintained and painted and may contain graphics portraying project information.

Certain work phases or activities, such as service tie-ins, may be required to be undertaken outside the general hoarding line with appropriate localized protection measures, such as Heras fencing, adopted for the duration of these activities. Given the footprint of the development relative to the Site extents, a mobile crane will be required outside the general hoarding line in order to be able to complete the building works. An indicative layout of the hoarding line for the construction phase for St. Anne's Court is in Figure 5 below.

The roads leading to the nearby existing school will only be used temporarily for hoarding installation and general upkeep.

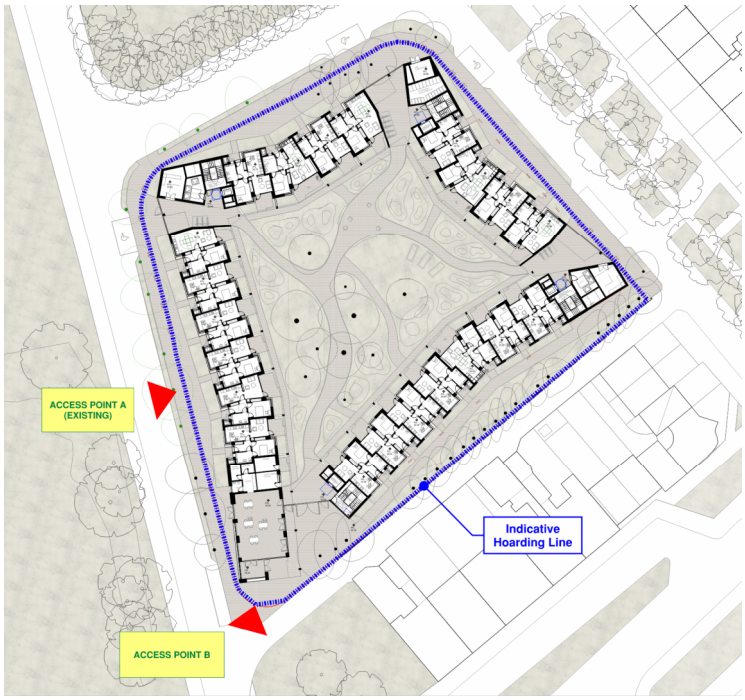

Figure 5 Indicative Hoarding Line for Construction

2.2 Tree Protection

According to the advice of the arborist, a number of trees across the site footprint have been earmarked to be retained, as shown in Figure 6 below. The Design Team's proposals, as well as the Contractor's hoarding line and construction activities will be developed and implemented with these trees and their root protection zones in mind.

Figure 6 Tree Retention Strategy

2.3 Construction of Proposed Works

2.3.1 Building Works

The "demolition" works will be the first on site. Existing buildings will be stripped of furniture, floors, ceilings, partition walls and services. Handheld tools and small machinery will be used to dismantle these elements. Material will be segregated and recycled where possible. If a particular material cannot be recycled it will be disposed of in accordance with relevant legislation.

Demolition of the existing residential blocks will then take place. Excavators and concrete crushers will be used to demolish the shallow concrete foundations, blockwork walls and steel / concrete roofs. Concrete will be crushed and recycled where possible.

A number of existing underground services will be turned off and capped at the boundary to the site, for reconnecting to once the construction works are completed.

Following the site establishment for the new building works, construction of the foundations for the new blocks will begin. Due to the low-rise nature of the buildings shallow footings in the form of pad and strip foundations are anticipated to be required. Any spoil generated through these groundworks will be classified and disposed of in accordance with relevant waste management legislation. If spoil is found to be acceptable, a portion may be used as fill to raise the site levels elsewhere (to suit the courtyard landscaping for example).

Following foundation works, underfloor services will be installed before the ground floors are cast. The reinforced concrete cores at either end of each block will be cast, which will incorporate access stairs, lifts, and service risers. These cores, along with a number of shear walls, will provide the main stability elements for the building. Tower cranes and mobile cranes will be used.

The superstructure for each of the blocks will then commence and may utilise reinforced concrete, precast concrete and/or Cross Laminated Timber construction.

Depending on the specifics of the Contractor's detailed methodology, mobile cranes may be utilised for the erection of the precast frame, using temporary props and braces as necessary to ensure that the structure is stable at all times during the construction process. The precast elements will be prefabricated off-site and delivered to site on a 'just-in-time' manner to facilitate erection direct from the truck. This will mitigate congestion of materials on site and reduce the amount of materials storage required.

Once the building structures have been well advanced, the completion of the façades can commence, as can the installation of mechanical and electrical services and building finishes. Final drainage and utilities

connections will be completed towards the end of the construction programme. Lastly, the surfacing, services and SUDs features will be installed.

Once complete, the development will be handed over in full to be occupied.

The constructional accuracy of the building and civil structures shall be consistent with the standards laid down in Table 1, BS5606: 1990: Guide to Accuracy in Buildings. Any dimensional deviations shall be assessed using methods given in Appendix C of the document. A suitable setting-out reference grid shall be established at each floor level to ensure that all elements of construction are set out to achieve the required level of accuracy.

The Contractor will develop a detailed Construction Management Plan which will highlight the preferred construction methodology and techniques, along with action plans to cover construction contingencies within the works areas.

3. Hours of Working

Construction operations on site will be limited to the Dublin City Council Environmental Guidelines, which state the hours of operation for building sites are:

- Monday to Friday 07.00 to 18.00
- Saturday 08.00 to 14.00
- Sundays and Public Holidays no noisy work on site

It may be necessary for some construction operations to be undertaken outside these times. For example, it may be necessary to make service diversions and connections outside the normal working hours.

Deviation from these times may be permitted in exceptional circumstances, where prior written approval has been received from the relevant local authority. Such approval may be given subject to conditions pertaining to the particular circumstances being set by the local authority.

Deliveries of materials to site will generally be between the hours of 07:00 and 18:00, Monday to Friday and 08:00 and 14:00 on Saturdays. There may be occasions where it is necessary to make certain deliveries outside these times, such as when large loads are limited to road usage outside peak times.

The construction shift times will ensure construction traffic will have limited impact on the traditional network peak periods of 08:00 and 09:00 in the morning and 17:00 and 18:00 in the evening, as it is envisaged that most construction staff will arrive on site before 07:00 in the morning and will leave after 18:00 in the evening.

4. Dirt, Dust, Noise and Vibration Control

4.1 Dirt

Given the volumes of traffic generated by aspects of the construction works, it shall be a requirement that the Main Contractor shall ensure, where appropriate:

- Wheel wash facilities are provided at each egress point from the site. The wheel wash will be a drive through type and all vehicles will be required to pass through the wheel wash facilities before exiting the complex and public road network. The wheel wash must be kept in place and used throughout the critical dirt generation activities of the construction works. Where appropriate, water supplies serving the wheel wash will be from recycled sources. All waters shall be drained through appropriate filter material prior to discharge.
- Road sweepers (suction type) are to be retained for the duration of the works with an increase in cleaning during the critical dirt generating works; and
- Regular road drain cleaning will be implemented.

4.2 Dust

A dust minimisation plan will be formulated for the demolition and construction phase of the project. The Main Contractor shall install continuous particulate (i.e., PM10 and PM2.5) monitoring stations capable of measuring ambient air pollutant concentrations in real-time. The location of particulate monitors shall be agreed with DCC prior to installation. The results of the monitoring shall be made available to DCC on request in an agreed format. The Main Contractor shall also put in place a regime for monitoring dust levels in the vicinity of the site during works using the Bergerhoff Method (German Standard VDI 2119, 1972). The minimum criteria to be maintained shall be the limit specified by the Environmental Protection Agency (EPA) for licensed facilities in Ireland which is 350mg/m²/day as a 30-day average. The Main Contractor shall monitor dust during construction to ensure the limits are not breached throughout the project.

The level of monitoring and adoptions of mitigation measures will vary throughout the construction works depending on the type of activities being undertaken and the prevailing weather conditions at the time. For instance, additional monitoring and mitigation such as damping down of earth mounds on site will be undertaken if the prevailing weather conditions are dry and windy.

The stockpiling of excavated materials on site is to be minimised with immediate removal of excavated materials envisaged for the majority of the works.

4.3 Noise

The Main Contractor is required to monitor the baseline noise levels at the site prior to commencement of the project, with a noise monitoring regime being developed for the duration of the construction works on site as part of a Noise and Vibration Management Plan (NVMP). The Main Contractor shall implement measures to minimise noise levels during construction. Specifically, noise levels shall be kept below those levels specified in Table 1, or further limits if imposed by the Local Authority.

Table 1 Noise Limit Criteria

Period over which criterion applies		Noise Impact Criterion (LAeq, 1hr)
Monday to Friday	Day – 07:00 to 18:00	70 dB
	All other times	The higher of 45 dB or the ambient level*
Saturday	Day – 08:00 to 14:00	65 dB
	All other times	The higher of 45 dB or the ambient level*
Sundays and Bank Holidays	All times	The higher of 45 dB or the ambient level*

** Construction activity at these times, other than that required for emergency works, will require the explicit permission of the relevant Local Authority.*

4.4 Vibration

A Specialist Sub-contractor shall be engaged by the Main Contractor to monitor, collate and report on vibration results for the duration of critical work activities, as part of the Noise and Vibration Management Plan.

Vibration monitoring stations should continually log vibration levels using the Peak Particle Velocity parameter (PPV, mm/s) in the X, Y, and Z directions in accordance with BS ISO 4866:2010:Mechanical vibration and shock – Vibration of fixed structures – Guidelines for the measurement of vibrations and evaluation of their effects on structures.

Traffic light system to be in place consisting of:

- Green – vibrations below all threshold limits – OK to proceed
- Amber – vibrations exceed first threshold limit – Stop and check
- Red – vibrations exceed second threshold limit – Stop and action

Table 2 sets out the vibration criteria to be adopted at nearby soundly constructed buildings to avoid cosmetic damage.

Table 2 Allowable vibration during construction phase for soundly constructed buildings

Allowable vibration (in terms of peak particle velocity) at the closest part of soundly constructed property to the source of vibration		
Less than 10 Hz	10 to 50 Hz	50 to 100 Hz (and above)
15 mm/s	20 mm/s	50 mm/s

Table 3 sets out the vibration criteria for buildings that are considered more sensitive due to their construction type or condition. These lower vibration limits are taken from the German Standard DIN 4150-3 (199-02) Structural Vibration – Effects of vibration on structure.

Table 3: Allowable vibration during construction phase for sensitive buildings

Allowable vibration (in terms of peak particle velocity) at the closest part of sensitive property to the source of vibration		
Less than 10 Hz	10 to 50 Hz	50 to 100 Hz (and above)
3 mm/s	3 to 8 mm/s	8 to 10 mm/s

5. Construction Traffic

5.1 Construction Traffic Routing

It is anticipated that, following grant of planning permission, construction will commence in 2024.

Construction traffic will use the site entrances as noted in Figure 5. This strategy will ensure minimum disruption to neighbouring properties during construction.

5.2 Vehicle Movements During Construction

5.2.1 Construction Activities

The volumes of traffic generated during the construction period is to be determined by the Contractor and included in their Detailed Construction and Demolition Management Plan.

An appropriate Traffic Management Plan will be developed by the Contractor in consultation with the design team to ensure safe access and egress procedures are implemented at all times during the works. All access points and roads leading to the nearby existing school will be maintained in a clean and safe condition for school pick-ups and drop-offs to remain undisrupted. No site deliveries will be allowed through these roads.

Existing emergency access routes across the site will be maintained by the Contractor at all times where required.

5.2.2 Staff

The St. Anne's Court Site is very accessible by walking, cycling, and public transport, so there is no requirement for dedicated staff car parking on site. . Construction traffic will overwhelmingly occur before 07:00 hence not impacting the peak traffic conditions.

The total construction traffic volumes per hour are not significant in terms of the overall existing traffic flows.

5.2.3 Minimise Construction Vehicle Movements

Construction vehicle movements will be minimised through:

- Consolidation of delivery loads to / from the site;
- Management of large deliveries to / from site to occur outside of peak traffic periods;
- Re-use on site, where possible, of 'cut' material generated by the construction works through various accommodation works;
- Provision of adequate storage space on site;
- Development of a strategy to minimise construction material quantities as much as possible; and
- Minimisation of construction staff vehicle movements by offering Travel to Work Scheme benefits to encourage car sharing.

5.2.4 Construction Phase - Mobility Management Measures

The Contractor will be required, as part of the Contract, to introduce a Mobility Management Plan for its workforce to encourage access to the site by another means other than private car. The Mobility Management Plan will form part of the Detailed Construction and Demolition Management Plan and will be agreed with DCC prior to works beginning on site.

There is excellent connectivity between the site and public transport links which serve the site. This includes a number of bus services which directly serve the Howth Road and originate from Abbey Street Lower in Dublin City Centre. Raheny train station is a 10-minute walk away from the site while Harmonstown train station is a 15-minute walk away from the site. Both of these stations are served by the Dart as well as the

Dublin-Drogheda-Dundalk Irish Rail service. The Contractor will issue an information leaflet to all staff as part of their on-site induction highlighting the location of the various public transport services in the vicinity of the construction site.

Cycle parking provision is scant in the vicinity of the proposed works and the Contractor should make allowance for providing dedicated cycle parking for construction staff. Additionally, to encourage cycling, lockers will be provided to allow cyclists to store their cycling clothes within the site compound.

Car sharing among the construction staff will be encouraged, especially from areas where construction staff may be clustered. The Contractor will aim to organise shifts in accordance to staff origins, thereby enabling higher levels of car sharing. Such a measure offers a significant opportunity to reduce the proportion of construction staff driving to the wider site area and will minimise the potential traffic impact on the road network surrounding this facility.

5.3 On-Site Accommodation

On site accommodation will be located within the hoarding line of the site and will consist of:

- Adequate materials drop-off and storage areas;
- Set down area for trucks; and
- Staff welfare facilities (i.e. offices, canteen, toilets, etc.). Connections to existing power, water and wastewater systems will be provided to the contractor.

6. Road Maintenance and Reinstatement of Roadway Lining and Signing

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

- A regular programme of site tidying will be established to ensure a safe and orderly site;
- Scaffolding will have debris netting attached to prevent materials and equipment being scattered by the wind;
- Food waste will be strictly controlled on all parts of the site;
- Mud spillages on roads and footpaths outside the site will be cleaned regularly and will not be allowed to accumulate;
- Wheel wash facilities or similar will be provided for vehicles exiting the site; and
- In the event of any fugitive solid waste escaping the site, it will be collected immediately and removed to storage on site. It will subsequently be disposed of in the appropriate manner.

7. Community Liaison During Construction

The Contractor will also be required to prepare a Community Liaison Plan, which will include details of how the community, road users and affected residents will be notified in advance of the scheduling of major works, any temporary traffic management and the progress of the construction works.

This plan will typically include details of the following:

- Contractor's community relations policy;
- Personnel nominated to manage public relations;
- A methodology for processing observations, queries and complaints from the general public, relevant authorities, the media, emergency services and the like; and
- The strategy for project wide liaison with all relevant parties.

A Project Liaison Officer (PLO) will be required to be appointed by the Contractor at the start of the works to manage all public relations issues relating to the construction works. The PLO will be responsible for community liaison matters, information issues, press related matters, liaison with Relevant Authorities, the public, the press and the media regarding the Contractor's operations.

The PLO will be responsible for informing the local community in advance of the activities being undertaken in their area. Amongst other measures to be proposed by the PLO, a monthly graphical newsletter is to be created by the PLO and issued to all affected residents. The PLO will be required to liaise with DCC, the Gardaí, property owners, resident groups and other bodies with regard to traffic management, construction and any other public relations matters, which may arise.

The Contractor will also be responsible for maintaining a dedicated telephone 'hotline' to deal with queries or complaints from the public during the construction works.

This telephone number will be posted on all construction site notice boards and on any other information or correspondence, which may be distributed from time to time.

The PLO will be responsible for addressing, where practical, queries or complaints made by the public.

8. Outline Construction and Demolition Waste Management Plan

This project is committed to ensuring the on-site segregation and on-off site reuse / recycling / recovery in terms of waste materials arising from the project. The appointed Contractor shall have regard to pollution prevention measures to be implemented during the construction phase of the proposed works. These will be outlined in the Detailed Construction and Demolition Waste Management Plan prepared by the Main Contractor. This Plan will outline the proposals and methodology to achieve compliance with the current Waste Management and associated Planning and EPA legislation.

The appointed Contractor shall be vigilant in ensuring that no activities will give rise to pollution of surface water pathways on site with suspended solids or other polluting substances, with particular care and consideration taken in the vicinity of the culverted water course on the southwestern corner of the site.

8.1 Demolition Waste

As is common and best-practice, pre-demolition surveys will be undertaken on all structures to be demolished which will consider waste streams from both non-structural (soft-strip) and structural demolition activities. To maximise the materials suitable for reuse / recycling / recovery, a selective demolition methodology involving a comprehensive 'soft strip' operation will be adopted. This methodology complies with the objectives of the National Construction Demolition Waste Council to promote construction and demolition waste prevention, reduction, reuse of materials, recovery and recycling. This has been adopted as construction best-practice and ensures minimum disposal to landfill.

This methodology also ensures a minimum impact on the environment, in that it ensures that all waste streams are properly segregated at the source and avoids cross-contamination of materials to be recovered from structural demolition at a later stage of the demolition sequence.

Materials to be removed off-site will make use of the construction traffic egress points. Materials will be removed from site in skips or using haulage trucks. Given the nature of the existing structures, it is anticipated that demolition waste materials will comprise mainly of structural concrete, metal and timber / timber composite. Waste asphalt will also be generated from the excavation of existing access routes and car parks across the proposed development area.

A partial asbestos survey has been undertaken to date and a limited amount of asbestos has been identified in the existing structure. Prior to any construction works taking place a full asbestos survey will be completed and all asbestos carefully removed and disposed of in accordance with relevant legislation by a suitably qualified and licenced Contractor.

8.2 Excavations

All waste arisings will be transported off site by an approved Waste Contractor holding a current waste collection permit. All waste arisings requiring reuse, recycling, recovery or disposal off site will be brought to facilities holding the appropriate certificate of registration, license or permit, as required.

Excavations will be required throughout the site to facilitate the formation to underground utilities. Detailed sampling and testing of the made-ground material has been undertaken and a watching brief discovery procedure for contaminated material should be prepared and adopted by the Main Contractor prior to excavation works commencing on site. These documents should detail how potentially contaminated material will be dealt with during the excavation phase. All potentially contaminated material to be excavated is to be segregated and temporarily stockpiled in a contained manner and characterised by a competent professional through laboratory testing.

Excavations for drainage works including any foul and surface water drain diversions will be carried out in a manner to prevent deleterious material discharging into the receiving systems.

Water will arise primarily from rainfall and to a lesser extent groundwater on the site during the construction phase. Any water generated during the construction phase will be treated prior to discharge to the receiving

surface water sewerage system under a temporary Discharge Licence submitted by the Contractor to Dublin City Council prior to works commencing on site.

Surface water run-off from construction activities has the potential to produce mildly contaminated water. The typical composition and source would be suspended solids arising from ground disturbance, excavation and stockpiling, hydrocarbons from accidental spillage and construction plant including storage depots, concrete / cementitious products arising from construction materials.

On-site treatment measures will be installed to treat surface water run-off from the site to 5 mg/l for hydrocarbons, 30mg/l for suspended solids and a PH range of between 6-10 prior to discharge to the receiving surface water sewer, at a controlled flow rate agreed with DCC. This treatment will be achieved by the installation / construction of settlement tanks / ponds, the installation of proprietary surface water treatment systems including Class 1 full retention petrol interceptors and spill protection control measures. Settlement tanks / ponds will be sized to deal with surface run-off and any groundwater encountered. These ponds will reduce the level of suspended solids and incorporate a series of baffles and be sized to ensure sufficient retention time that allows for the required level of settlement and treatment. The level of suspended solids will be reduced to meet the characteristics of the temporary discharge licence limits. Sludge removal from the settlement ponds will be required on a regular basis with removal by a licenced waste removal Contractor.

A sampling chamber with shut down valve will be installed downstream of the settlement pond / tank prior to discharge. Type and frequency of sampling is to be agreed with the Local Authority.

8.3 Construction Works

The Contractor will also ensure that no activities will give rise to pollution to the surface water drainage network. This will include adopting appropriate procedures in relation to a range of issues including:

- The safe storage of fuels for plant and machinery;
- The provision of a dedicated re-filling point;
- The control of excess concrete during concreting works;
- Treatment, prior to disposal, of any water generated during the works, as outlined in Section 8.2;
- Existing drains to be made redundant are to be sealed at source to avoid any contamination of the live drainage system; and
- Prior to completion of drainage works and final connection to the existing receiving system, the Contractor shall cleanse the system, remove any silt and debris, test the pipework and carry out a CCTV survey for inspection.

During the construction phase, waste will be produced from surplus materials such as broken concrete blocks or off-cuts of timber, plasterboard, concrete, tiles, bricks etc., waste from packaging (cardboard, plastic, timber), and oversupply of materials may also be generated. However, the Main Contractor will be required to ensure that oversupply of materials is kept to a minimum. Again, in a similar fashion to the demolition phase, waste materials will be segregated at source and placed in dedicated skips such as general waste, wood, mixed ferrous rubble and concrete rubble on site to maximise the opportunity for reuse / recycling / recovery of materials.