

7 Planning Scheme

Grangegorman

Provision of Services



Chapter 7:

Provision of Services

Purpose and Layout of this Chapter

This purpose of this chapter is to identify the existing availability of infrastructural services to the site and details the measures necessary to develop these services to provide adequate capacity for development of the site.

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- 7.2 Mechanical and Electrical Services Infrastructure
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7.1 Sanitary Services – Water Supply, Foul and Surface Water Drainage

7.1.1 Introduction

This chapter identifies the existing public water supply and drainage infrastructure in proximity to the SDZ site and identifies if there are any enhancements required to this infrastructure to ensure adequate capacity for the proposed development on the SDZ site.

The development of the Grangegorman Site will require the implementation of an internal site infrastructure scheme to distribute and collect all the wet services throughout the site in an orderly and coordinated manner. As the development is proposed to be gradually implemented it is envisaged that upgrading of elements of the public infrastructure outside the site will be required as the development progresses, Refer to Chapter 8 for details of Phasing and Implementation.

The proposed upgrading of the public infrastructure envisaged is based on preliminary calculations of the demand and volume of wastes generated by the development on the site and the indicative capacity of the public water supply and drainage infrastructure information received at the time of preparation of the Planning Scheme from Dublin City Council Drainage and Water Service Division. Alternative options for the upgrading of the public water supply and drainage infrastructure have been identified and are outlined in this section of the Planning Scheme, though the final solution will require more detailed assessment and co-ordination with Dublin City Council Drainage and Waste Water Service Division.

7.1.2 Services Infrastructure

The foul and surface water sewerage and watermain systems in the vicinity of the site and surrounding areas have been identified and studied. Engineering constraints were identified in the course of this study in relation to the proposed development of the site and, in consultation with Dublin City Council, measures to upgrade the local infrastructure to accommodate the development have been identified.

Both the existing and proposed arrangements are set out separately in general terms here for the Foul Drainage, the Surface Water Drainage and the Water Supply.



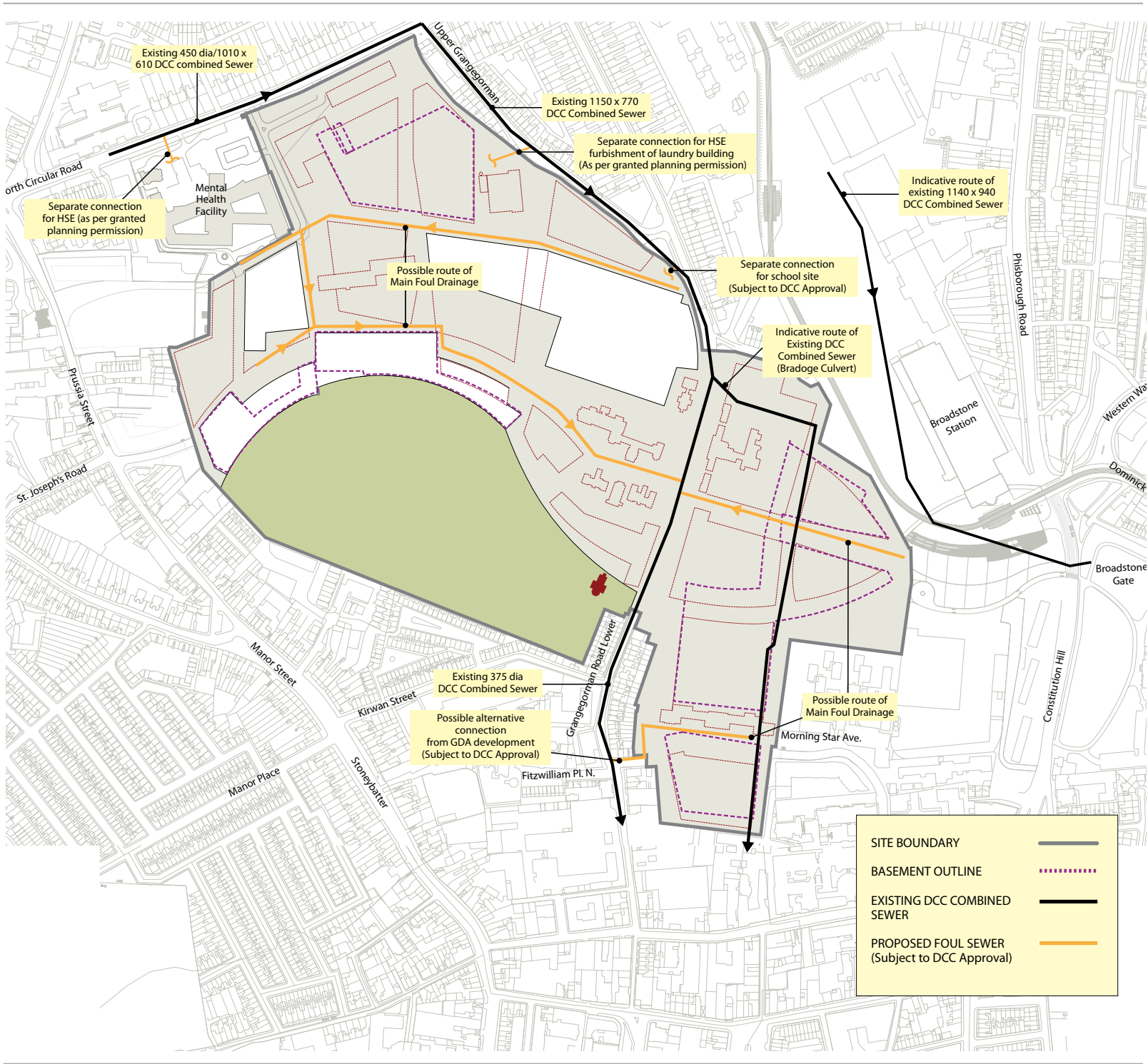
7.1.3 Existing Foul Drainage

The following Dublin City Council combined sewers are in the vicinity of the Grangegorman site. Please see Fig 7.1 for information on existing and proposed foul drainage.

- A 450mm sewer runs eastwards along the North Circular Road into a 1010 x 610mm sewer at the junction of Annamoe Parade. This sewers turns southwards down Grangegorman Upper and flows into a 1150 x 770mm sewer on Grangegorman Upper which forms part of the Bradoge River Culvert system. This sewer diverges at the junction of Marne Villas and Grangegorman Upper into a 600mm pipe discharging through the eastern section of the site before connecting to the 1500mm sewer on Brunswick Street North and a 375mm sewer routed down Grangegorman Upper, then southwards down Grangegorman Lower before connecting into a 1010 x 600mm sewer at the Stanhope Street junction.
- A 300mm sewer on Kirwan Street which drains both westwards to the 1350mm sewer on Manor Street and eastwards to the 300mm sewer on Grangegorman Lower.
- A 1030 x 610mm sewer on Prussia Street which drains southwards to the 1350mm sewer on Manor Street.

The existing foul drainage from the SDZ Site is divided into two areas. The SDZ site west of Grangegorman Lower discharges eastwards to the Dublin City Council combined sewers on Grangegorman Lower and the SDZ site east of Grangegorman Lower discharges both eastwards to the 600mm diameter Dublin City Council foul sewer (Bradoge River Culvert) and westwards to a 1010 x 600mm brick sewer on Grangegorman Lower.

Existing foul drainage from the SDZ site west of Grangegorman Upper/Lower is drained on a combined system with five outfall points to the Dublin City Council sewer on Grangegorman Upper. Four of these outfalls discharge to a 1150 x 770mm brick sewer and the fifth to the 375mm diameter sewer on Grangegorman Lower.



Existing foul Drainage from the SDZ Site east of Grangegorman Lower is drained on a combined system with 6 outfall points to the City Council sewers. Four of these outfalls discharge to the 600mm diameter sewer (Bradoge River Culvert) traversing the site while the remaining two discharge to the 375mm diameter sewer on Grangegorman Lower.

The Existing Drainage network on the site is mainly constructed of glazed earthenware with brickwork manholes.

7.1.4 Existing Surface Water/Sewerage

There are currently no Dublin City Council separate surface water sewers in the vicinity of the Grangegorman site. All collected surface water from the Grangegorman site currently drains into 'combined' sewers surrounding the site.

The Bradoge River runs southwards to the River Liffey through Grangegorman and has been integrated into the Dublin City Council sewerage system. It is understood that an objective of Dublin City Council is to restore this culverted river to the stormwater system in due course. See Fig 7.2 for information on existing and proposed surface water drainage.

7.1.5 Existing Watermains

The following Dublin City Council Watermains are in the vicinity of the Grangegorman site

- An eighteen inch and a seven inch diameter main on the North Circular Road.
- A five inch diameter main on Grangegorman Upper which changes to a six inch main on Grangegorman Lower. The five inch main connects into both the eighteen inch and seven inch diameter mains on the North Circular Road.
- A four inch and a nine inch diameter main on Prussia Street continuing down into Manor Street.
- A 150mm diameter main on Kirwin Street connecting to the six inch main on Grangegorman Lower and the nine inch main on Manor Street with a connection to a larger 300mm also on Manor Street.
- A 250mm and an 800mm diameter main on Brunswick Street North.
- A nine inch main on Phibsboro Road running into Constitution Hill.

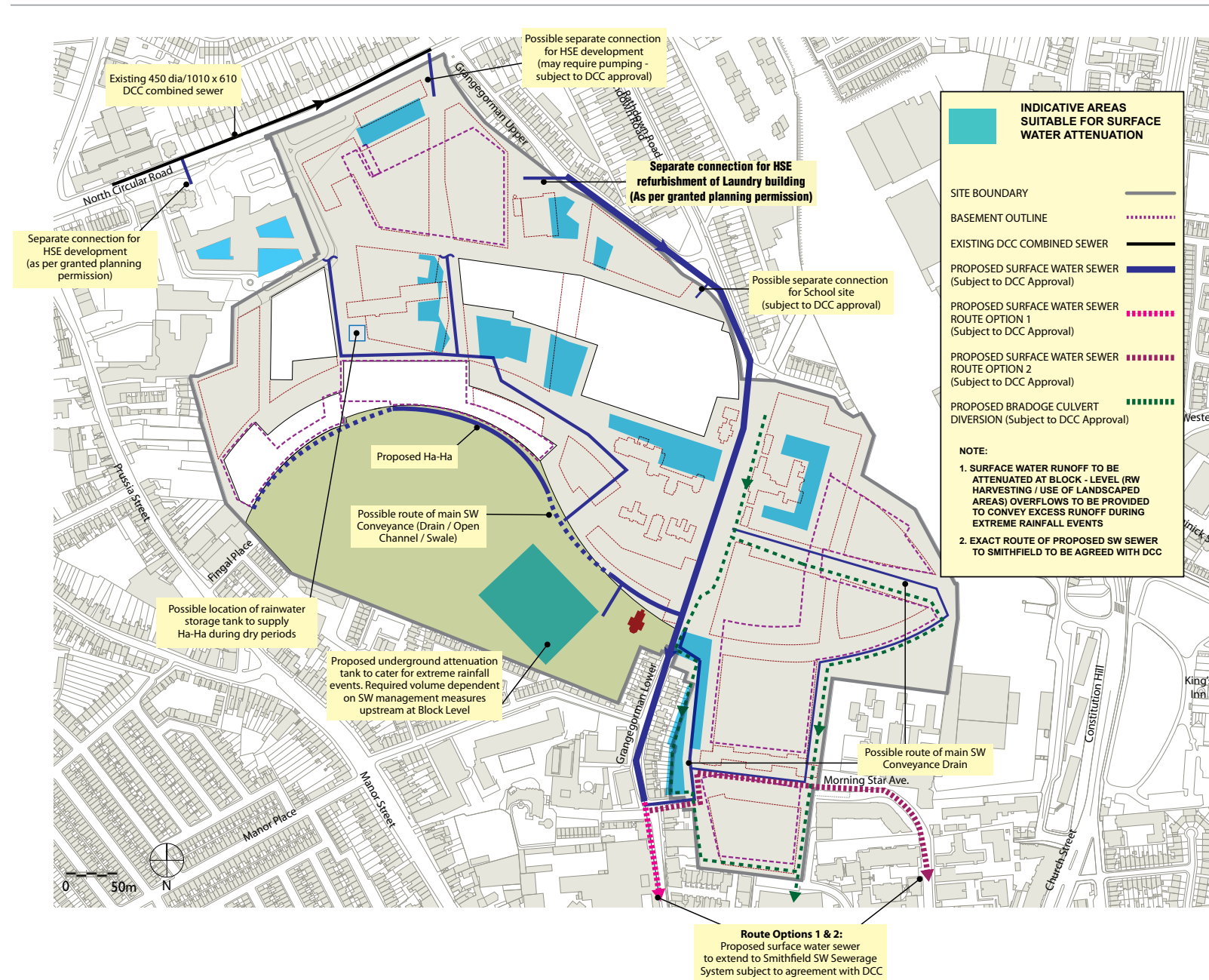


Figure 7.2 Existing and Proposed Surface Water

- An 800mm diameter main on Constitution Hill which is a continuation of the main on Burnswick Street North.
- A twelve inch diameter main on Constitution Hill.

Both east and west sides of the site are served off the existing Dublin City Council six inch diameter water main on Grangegorman Upper and Lower. There are two existing metered connections to the west and 2 metered connections to the east, with the Nurses Residences connection the only one in use on the east side.

7.1.6 Proposed Foul Drainage

Drainage from the proposed development shall be completely separate, with separate foul and surface water drains to be designed from each building before connection to separate foul and surface water sewers in the existing or new internal access roads throughout the redevelopment.

It is proposed that, subject to agreement with Dublin City Council, the existing 375mm diameter combined sewer on Grangegorman Lower will be utilised as the proposed foul sewerage outfall from the development to the 1500mm diameter foul sewer on Brunswick Street North. This sewerage system will be utilised for waste water connection only from the Grangegorman site.

The removal of existing surface water run-off, from the existing buildings and other hard-standing areas within the Grangegorman site, from the existing DCC combined sewer system will assist in reducing impacts of the proposed foul waste water system from the redeveloped site. In addition, the current practice of discharging foul sewer from Grangegorman site to the Bradoge will be discontinued with the redevelopment of the Grangegorman site.

The number of connections to the combined sewer from the site will be kept to a minimum.

It is intended that all drainage within the Grangegorman Site will be privately controlled. All drainage lines running along the main circulation routes within the Grangegorman Site shall be constructed to the following standards:

- (i) Part H of the Building Regulations 1997,
- (ii) Proposed waste water and surface sewers shall be a minimum of 225mm diameter
- (iii) Sewers shall comply with Dublin City Council Drainage Division's (DCCDD) "Code of Practice"



- (iv) Sewers and manholes shall be constructed to be equal or equivalent to the specification of Dublin City Council.

A disconnecting manhole shall be provided at each site boundary and shall be constructed to Dublin City Council Drainage Divisions requirements. Reference can be made to Arup's technical note on proposed wet services for further information.

7.1.7 Proposed Surface Water Drainage

At the time of submitting the Planning Scheme there was no separate DCC surface water sewer in the vicinity of the Grangegorman site. It is therefore intended that the construction of a new surface water sewer between the closest existing surface water sewer, which is located in Smithfield Plaza, up to Grangegorman Upper, subject to agreement with Dublin City Council and site surveys, will be required. The sewer will be constructed at an early stage of the proposed development as required to serve the phased implementation (see Chapter 8).

Surface water drainage from the proposed development of Grangegorman Site shall be drained on a completely separate system with separate foul and surface water

drains to be designed from each building before connection to separate foul and surface water sewers in the existing or new public access roads throughout the redevelopment.

In keeping with the Greater Dublin Strategic Drainage Study published in March 2005, Sustainable Drainage Systems (SuDS) techniques will be incorporated into the development. The drainage strategy developed for the site will also take due cognisance of the objectives of the Flood Resilient City Project, an EU-funded project which promotes an integrated approach to sustainable flood risk management. This project promotes 'Awareness, Avoidance, Alleviation and Assistance' when considering pluvial flood management.

Drainage designs can combine various techniques through a storm water management or treatment train approach to ensure that both runoff quantity and quality are addressed. Each individual building package, in addition to the Public Realm within the site will be required to incorporate these principles.

The following drainage design SuDS measures shall, where feasible, be incorporated into the development in line with appropriate sustainable drainage practices;

- Infiltration systems including infiltration trenches, infiltration basins, permeable paving, soakaways and green roofs (roof gardens);
- Filtration systems including swales, bioretention systems and filter strips;
- Retention systems including retention swales;
- Detention systems including underground tanks, underground attenuation, detention basins and filter drains;
- In addition extreme storm events can be accommodated by designing landscaped areas or playing pitches to temporarily flood and thus control the rate of outflow from the site.

Surface water drainage from the proposed redevelopment shall be discharged (post Attenuation) by gravity to the proposed new public surface water sewer in Grangegorman Lower at the appropriate greenfield run-off rate.

Preliminary landscape design of impermeable/permeable surfaces for the full Grangegorman development indicate that the total storage volume required for the 1 in 100 year event based on a site discharge of 21/sec/Ha is estimated at 6,600m³. The 1 in 1000 year event under the same flow conditions equates to an attenuation volume requirement of approximately 13,000m³. Design and construction planning shall incorporate suitable and best practice actions to reduce the risk of groundwater pollution and meet the requirements of the Groundwater Directives.

We propose to provide a range of Sustainable Urban Drainage System (SuDS) measures at all stages of the surface water drainage in line with best practice, starting at the outfall and working upstream, these will include the following:

- New 600mm dedicated surface water sewer to be provided connecting site to existing surface water at culvert Smithfield Plaza.
- Flow control provided at the outfall manhole restricting the surface water discharge from the site to the appropriate equivalent green field run-off rate.
- Underground geo-cellular storage sized to cater for the 1 in 30 year event. The unit will be situated under the southern most playing field.
- Engineered earth mounds will be constructed around the perimeter of the southern most playing field. This will then



act as a detention basin, providing contained storage for events greater than the 1 in 30 year event.

- A Ha-Ha is to be constructed with capacity to store storm volume while also providing amenity.
- Engineered swales and bio-swales are to be provided throughout the public realm spaces to provide drainage for run-off from impermeable surfaces.
- Where practical, permeable surfacing is to be implemented throughout public realm spaces. Ground levels to be contoured to facilitate over-ground flow to storm gullies during extreme events.
- Within each building plot the following SuDS measures will be considered and implemented appropriate – rainwater harvesting, green roofs, pond storage, swales, permeable surfacing. Each individual building plot will be required to control discharge to the equivalent green run-off rate for that site and provide appropriate attenuation storage within that site.
- Flood routing within the site will be such as to contain flood volumes for at least up to the 1 in 100 event within the site. Flood routing external to the Grangegorman Development to be considered for events that cannot be contained within the site. Detailed surface water drainage design including flood routing internal and external to the development to be submitted together with the public realm planning application.

The Bradoge River, which was originally a surface water system, is currently used by DCC as a combined sewer. A section of the Bradoge traverses the Grangegorman site. The GDA acknowledges the obligations imposed on DCC by the Water Framework Directive and the Eastern River Basin Management Plan concerning the environmental status of the Liffey and it's tributaries such as the removal of foul flows from the Bradoge. The GDA will work with DCC to assist it achieve its objectives for the Bradoge. As a first step, a joint study on Water Framework Directive compliance as regards the Bradoge will be carried out by DCC and the GDA. This joint study will also consider the flood attenuation requirements of the Bradoge and the GDA will favourably consider the accommodation of in-line and off-line attenuation within the development. The final configuration of the outdoor playing facilities may assist in this regard.

A Flood Risk Assessment has also been carried out by the GDA to identify historical flood issues and to assess any strategic flood risks and necessary mitigation measures. The report concludes that the Grangegorman site has no known historic flooding issues, lies in a zone of low flood risk, and with the implementation of appropriate on-site sustainable drainage and flood management systems, will pose minimal risk to the catchment downstream of the site. This assessment report is available as a reference document from the GDA.

7.1.8 Proposed Watermains

Based on discussions with Dublin City Council a new trunk watermain, to be funded and constructed by the GDA, between the North Circular Road and Brunswick Street North, Constitution Hill is envisaged to allow the Water Division to locally balance the supply to the North Inner City area. To facilitate this new trunk main and also to provide a good resilient supply to the Grangegorman development, the Grangegorman Development Agency proposes to incorporate a proposed trunk watermain route through the SDZ site which will be taken in charge by DCC. Alternative route options for this trunk watermain are shown in Fig 7.3 which offers opportunities for linking the existing high pressure 800mm watermain on Brunswick Street North (which runs up to Constitution Hill) to the existing eighteen inch diameter high pressure water main on North Circular Road. The design details, including the size and preferred route of the proposed water main are to be agreed with DCC Water Division, however, preliminary design work indicates that a 450mm diameter link main is required. Some of the route options also traverse third party lands which will require agreement of wayleaves with said parties. The GDA has secured a high level agreement in principle from CIE for routing through their property at Broadstone.

A new distribution watermain network is to be constructed within the Grangegorman site. Proposed Building Packages will be served by ring mains with sluice valves and fire hydrants located to the requirements of Part B of the Building Regulations and DCC standards. A minimum number of connections for the Grangegorman site are to be made from the proposed trunk watermain.

Sustainability proposals for reducing water consumption for the overall development will be promoted by the Grangegorman Development Agency. The GDA will develop a sustainability strategy for the entire site development to include water conservation proposals and each of the individual building packages will be evaluated in the context of this strategy. Where incorporated water conservation measures will be in accordance with the Dublin City Council Water Division Guidelines. Measures to be considered, where feasible, include grey water recycling, rain water harvesting, low flush appliances etc.

In addition, for the public realm areas, the feasibility of rainwater harvesting for any irrigation systems proposed

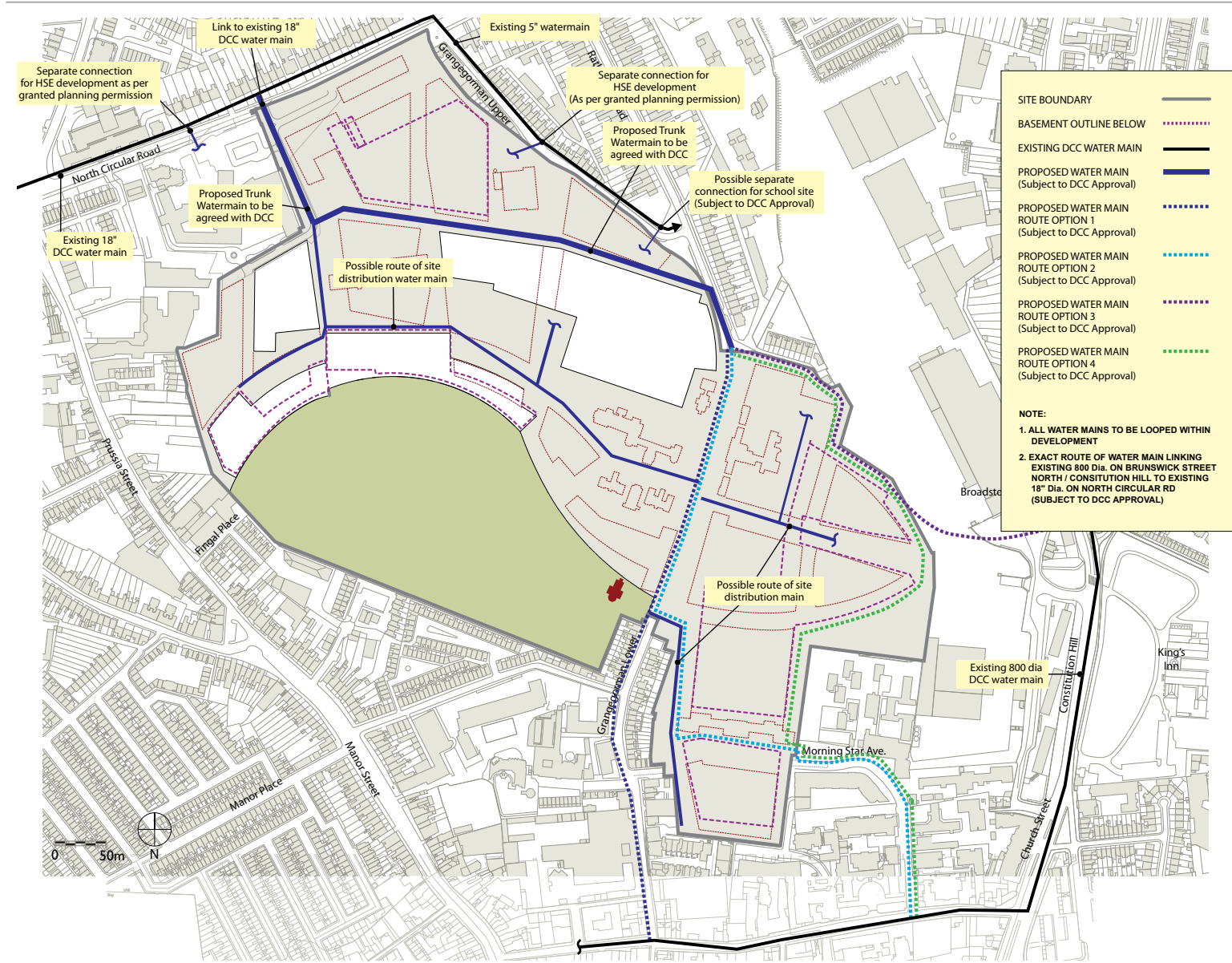


Figure 7.3 Existing and Proposed Watermains

for use associated with the playing fields, gardens and landscape areas including any fountains and water features etc will be explored. Grey water recycling and re-use for cleaning and maintenance will be investigated with a view to reducing the overall mains water demand.

7.1.9 New Infrastructure Design

All new site and public water supply infrastructure will be designed in accordance with the relevant requirements of Dublin City Councils Water and Drainage Divisions including

the "Specification for the Laying of New Water Mains in Private Property", and will be located within the public realm, with the appropriate wayleave clear of basement structures and not in large open green spaces. Fire fighting requirements of Dublin City Council Fire Brigade will be accommodated. Testing will confirm the suitability of the existing mains system and will determine the need if any for pressure boosting.

7.2 Mechanical and Electrical Services Infrastructure

7.2.1 Introduction

The Grangegorman Development Agency proposes a Central Energy Centre, incorporating a Central Heat Generation plant, Electrical Main Switchroom and adjacent to a Data Centre will be provided for new and refurbished buildings within the SDZ area.

The Grangegorman Campus will be developed in phases, with the Central Energy Centre currently scheduled for construction within the earlier phases. There will be a requirement to provide interim solutions for the provision of heat, power and telecommunications to those phases that are completed prior to the Energy Centre.

7.2.2 Gas

Bord Gáis Éireann Networks (BGE) have confirmed that there is currently sufficient capacity within the existing city network to serve the proposed Grangegorman campus.

The existing gas network within the St Brendan's Hospital site would be made redundant and removed as part of the site excavations.

Prior to the completion of the Central Energy Centre a temporary 'packaged' boiler plant may be installed local to the Phases completed before the Central Energy Centre.

Bord Gáis Éireann Networks (BGE) record drawings indicate an existing 25mbar gas connection to Connolly Norman House. There are no other below-ground gas pipes within the phase 1 site indicated on BGE drawings. However, an electromagnetic survey would be carried out on the site prior to the commencement of any excavations.

7.2.3 Heating

Heating will be provided to the new and refurbished buildings within the PS area on a centralised basis, served from the Central Energy Centre. It is proposed that this will be located at the western end of zone 2b, along with any associated fuel storage, such as wood chips. An in-ground distribution network for this heating system will form part of the initial infrastructure applied for as part of the public realm application.



The campus heating energy strategy may involve utilising a combination of Combined Heat and Power (CHP), Solar Water Heating, Biomass and high efficiency Gas Boilers. Solar water heating could be provided locally to the buildings. The potential for utilising direct geothermal heating is also being reviewed.

The base heating load could be delivered by the CHP unit and when available, roof mounted solar collectors could meet the domestic hot water requirements. The supplementary heating demand would be met with the use of modulating boiler plant.

In advance of the Energy Centre being completed (and where some development has been constructed and occupied), 'packaged' boiler plant could provide heat to the buildings on a temporary basis.

7.2.4 Cooling

The GDA aims to naturally ventilate the buildings as far as possible. The associated demand for cooling would therefore be minimised. Achievement of this natural ventilation strategy in lieu of mechanical cooling will be a key focus of individual building design.

Certain buildings such as laboratories and IT facilities will have particular cooling requirements. All other anticipated cooling loads will be minimised through low energy building design.

The provision for cooling will be limited to individual buildings, it is envisaged that cooling would be provided locally as appropriate for individual buildings.

7.2.5 Electrical/ Power

The site area will be connected to the ESB 10KV network via a medium voltage 10kV connection. Separate dedicated connections will be provided for the various principal occupying organisations.

Electricity demand will be met by a combination of external supply and locally generated power.

The MV ring networks will provide power to the buildings via a series of electrical sub-stations. These substations will comprise of MV switchgear, MV transformer and low voltage switchroom for local power distribution to each building. This MV ring will be capable of being extended for provision of power to future phases of either campus as required.

MV Power will be distributed by a cable network contained within buried PVC ducts. Power from the substations will then be distributed throughout the buildings and externally within buried PVC ducts. The power distribution network will be designed in accordance with current IEE regulations.

Other elements of the development (not part of DIT/ HSE networks) requiring power will be distributed via the ESB infrastructure and supplied to the end user at Low Voltage (LV- 400V).

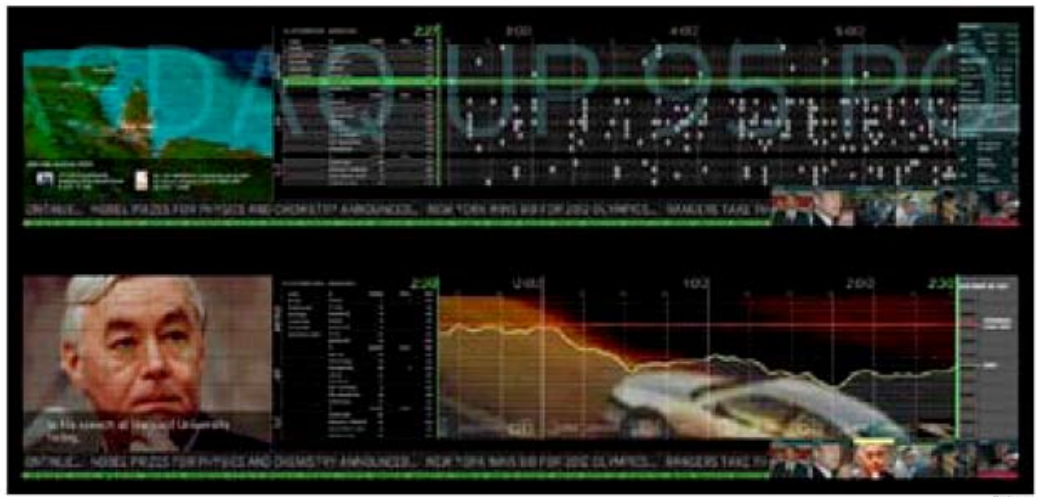
The current ESB infrastructure within the St Brendan's Hospital site will be decommissioned and removed as part of the excavation works. Any existing buildings affected by the decommissioning which require power during the enabling work will have their point of supply redirected.

To supplement power imported from the ESB network, Power generation is also planned to occur on-site via the use of the following:

- Combined Heat and Power (CHP) Plant
- Photovoltaics

7.2.6 Telecoms/Cable Television Distribution

The complete Planning Scheme area will be supported by a site-wide IT infrastructure. A network of in-ground ducts will distribute telecoms and cable television cabling required throughout the site to each building's communications rooms and distribution frames.



Typical IT and telecommunications services contained within buried duct network are Eircom main trunk routes, cable television services and any potential Wide Area Network (WAN) services which may be required. From the outset, the above ground telecommunications infrastructure will conform to a campus wide design approach, to ensure the quality of the built environment is not diminished.

Local telecoms connections will be required for the interim operation of the initial phase buildings as the main distribution infrastructure will not be in place. These initial phases will be connected directly to the existing service providers' network as an interim measure and will be re-connected to the main distribution infrastructure upon completion.

Any existing telecoms network on the St Brendan's Hospital site would not be suitable for use with the new campus and will be de-commissioned prior to any construction.

7.2.7 CCTV and Security Installation

It is intended that an integrated digital based CCTV and security system will eventually be installed throughout the site. It will be possible to link any building's CCTV and security system monitoring stations together through a network of buried ducts to allow complete site monitoring.

The CCTV systems associated with HSE Phase 1 will be operational in advance of any campus wide system and be monitored and controlled locally. This may be transferred to a possible future central site monitoring and recording facility at a later date.

Any existing CCTV network on the St Brendan's Hospital site would not be suitable for use with the new campus and will be decommissioned and removed.

7.3 Waste Management

7.3.1 Introduction

A separate waste strategy has been prepared for the site. This section summarises the waste strategy. The strategy sets out the management framework for waste generated during the demolition of existing buildings on the site, construction wastes and also operational wastes generated on a daily basis when the redevelopment is complete. The plan takes into account the requirements of the relevant national, regional and local waste policies.

7.3.2 Future Waste Regulations

The Department of the Environment, Heritage & Local Government (DEHLG) have issued the Waste Management (Food Waste) Regulations. This statutory instrument will require the producers of organic waste to separate this material out from the mixed waste stream. These Regulations have been taken into account in this waste strategy.

7.3.3 Construction and Demolition Waste Policy

It is an objective to ensure that the resource of C&D waste is employed in the most beneficial manner practicable through optimal reuse and recycling activities. The Agency will aim to reuse as much of the spoil generated as part of the construction works within the footprint of the development and to maximise the prevention and recycling of other construction wastes. Demolition and excavation material will be processed as required to ensure the maximum resource potential is achieved.

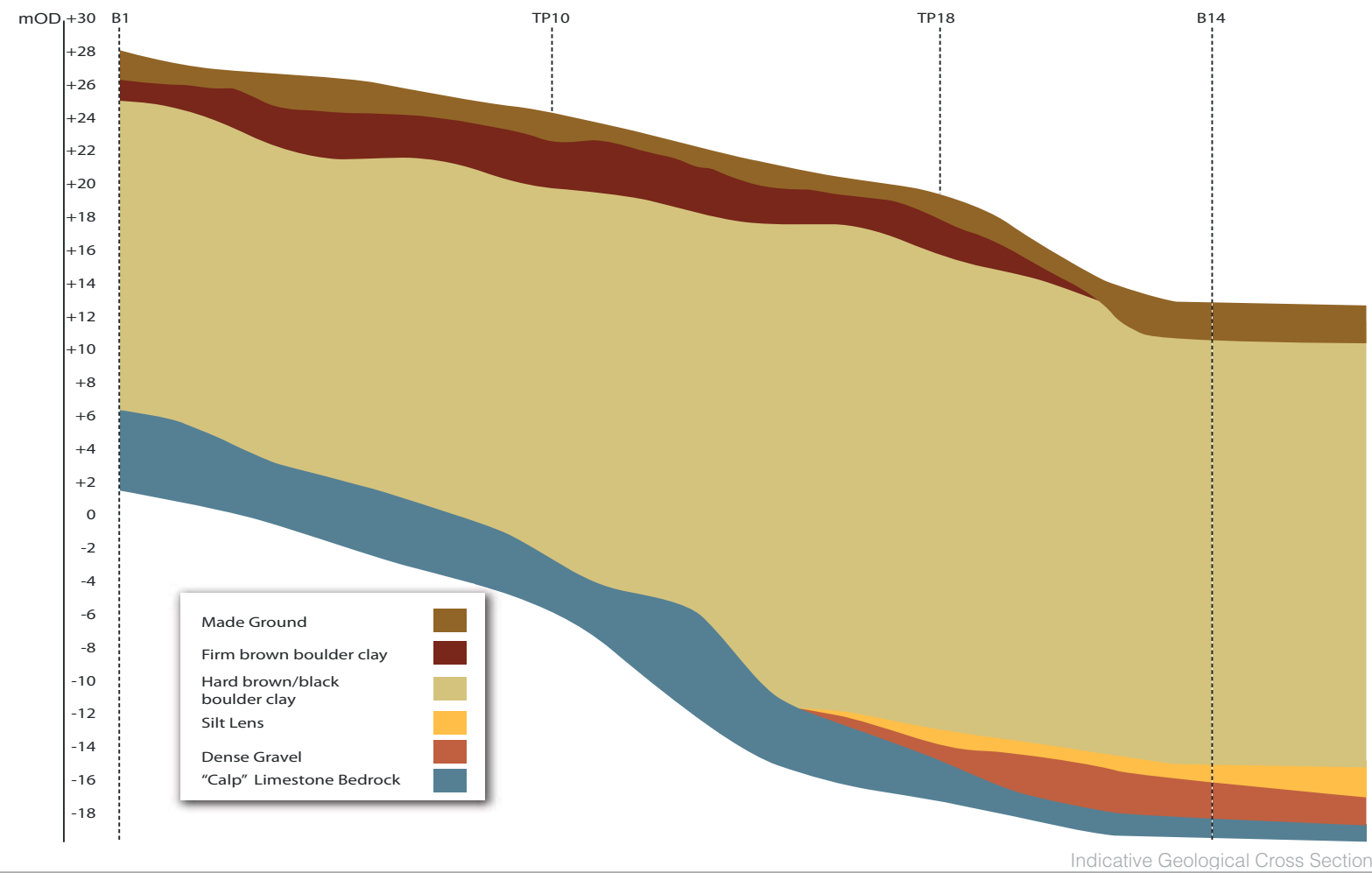
7.3.4 Management of Excavation & Demolition Waste

Best practices will be utilised for maximising the resource value of all materials generated during the excavation and demolition works at the Grangegorman site. This potential will be realised using the various methods highlighted in this section.

7.3.4.1 Sustainable Management of Excavation Materials

The excavated material generated during the development works can be divided into three broad categories. These are as follows and the strategy for the sustainable management of these materials is detailed below:

ground conditions



- 1. Clean Excavation Material
- 2. Contaminated / Made Ground
- 3. Hazardous Materials

Clean Excavation Material- Topsoil, Subsoil

As the Grangegorman site currently has large areas of green cover there is expected to be a significant volume of clean natural soil excavated on-site. This material will mostly be made up of topsoil interspersed with vegetation and subsoil.

It is planned to maximise the reuse on-site for all quantities of excavated topsoil and subsoil, provided that the material is suitable. Excavated material should be stockpiled with topsoil and subsoil and stored separately for subsequent re-use on-site and off-site.

Topsoil is a valuable resource which can be used for landscaping purposes and it is important the material is source separated and kept clean. Potential on-site applications for reuse of topsoil and subsoil include:

- Backfill – quantities of suitable subsoil will be reused during suitable excavation works.
- Base material – topsoil will be reused during the construction of landscaped areas.
- Land Remediation – some quantities of subsoil will be required in land remediation/levelling applications within the site although exact details are not available at this stage.
- Landscaping – topsoil will be reused, where possible, for new planting proposed around the site.

Contaminated / Made Ground

Initial site investigation works carried out on-site have found some pockets of contaminated ground requiring disposal off-site after excavation. The plots identified seem to be localised and do not extend across large areas of the site. Material suspected to be contaminated with heavy metals or hydrocarbons will be segregated from cleaner stockpiles and stored at a dedicated processing area on the Grangegorman site. Samples of materials will be taken and removed for testing at an approved laboratory. The material will be tested for a suite of parameters including heavy metals and organics. Based on the results from the laboratory this material will be removed off-site for disposal at a licensed landfill facility. If the material is unsuitable for landfill disposal a competent contractor will be employed to remove and transport the material to a specialist treatment facility as required. Material found to be contaminated with heavy metals or hydrocarbons will not be processed or made available for reuse.

Made ground is solid ground that has been formed by filling and compaction of hardcore and general fill material. It may contain any type of general fill materials including brick, rock, ceramic, clay, gravel or concrete. Investigation works carried out on-site have highlighted large areas of made ground across the site. Reported depths of made ground varied mostly across the site from 1-2 metres. However, depths of 3-3.9 metres were recorded in some areas. Made ground can be processed and segregated, however not all materials recovered during processing may be suitable for reuse on-site hence local authority approval is required to process such material.

Potential uses on-site for the reusable fraction of made ground mainly involve using the reprocessed and graded hardcore fraction as general fill for paving or groundwork. The reuse potential for made ground may vary depending on the quality and type of material excavated. As highlighted in the site investigation works, some pockets of made ground contain relatively high levels of lead contamination. These contaminated pockets and any other areas of contaminated ground encountered will not be suitable for reuse through basic reprocessing. Should the need arise during construction, further site investigations and testing may be required to classify other areas of ground where contamination is suspected.



Figure 7.4: Structures to be demolished

Hazardous Materials

Hazardous materials have not been identified during the initial site investigation works carried out. However, considering the age of the site, it is possible that some may be encountered. Any hazardous materials encountered during the excavation process will be segregated out from the mixed waste and placed in a sealed container/skip and taken off-site for storage. Hazardous waste will not knowingly be stockpiled or processed at the processing site. The hazardous waste container will be removed by a specialist contractor as required and recovered or disposed of at a licensed facility. Due to the age of some buildings there may be potential for encountering asbestos containing materials, further information on this is provided in Section 7.3.4.5.

7.3.4.2 Sustainable Management of Demolition Wastes

A number of existing structures have been earmarked for full or partial demolition on-site. Figure 7.4 details the structures to be demolished as part of the site clearance works for the planned Grangegorman development.

In order to maximise the reuse potential of all demolition wastes generated on-site a selective and staged demolition process will be used during all structural clearance works. This should be carried out using some or all of the following techniques as necessary:

- Selective demolition/deconstruction
- Material reprocessing
- Segregated storage.

7.3.4.3 Asbestos Materials

Due to the age of some of the buildings to be demolished or refurbished there will be a need to undertake an asbestos survey of these existing premises at the site. The aim of the survey will be to determine the presence of asbestos containing materials (ACMs) in the buildings.

If ACMs are found to be present a competent contractor must be employed to remove the materials prior to demolition or refurbishment works. After the competent contractor is appointed to carry out the works, a detailed methodology of the works will be prepared and submitted to the Health and Safety Authority (HSA) for approval.

7.3.4.4 Approvals

The aim during the development at Grangegorman will be to recover and reuse as much of the material generated during the demolition and excavation works as possible on-site. The recovery and reuse of material may be subject to regulatory controls for wastes with specific approvals (A Waste Permit or Certificate of Registration) required to be put in place prior to implementing waste management procedures.

7.3.4.5 Summary

The implementation of sustainable practices for the management of excavated and demolition materials at the Grangegorman site will deliver high levels of reusable materials. Appropriate controls will need to be put in place as required for the reuse of such materials.

7.3.5 Management of Construction Waste

Sustainable practices will be employed on-site when managing each of the following materials and wastes generated during construction:

- Concrete, Masonry and Slate Materials
- Packaging Waste
- Metal Materials
- Wood and Timber Materials
- Glass and Other Materials
- Removal of Hazardous Materials

Contractors appointed on-site will be required to comply with the sustainable management practices and develop some actions further.



7.3.6 Managing Operational Wastes

The mixed-use nature of the development means that there will be a wide selection of waste streams being generated. The waste strategy will set out a comprehensive management system for the collection and recycling of non-hazardous, hazardous and risk wastes when the site is operational.

The waste strategy for the Grangegorman development must comply with policy objectives of the Dublin Waste Plan and the Dublin City Council Bye-laws in relation to storage, source separation and presentation for collection of both household and commercial waste. The site will also include a Bring Centre for local residents, in lieu of the existing facility which is to be removed. This will be appropriately sized to accommodate waste generated on the site and from local residents.

The strategy deals with waste generation, waste storage and waste collection for all elements of the Grangegorman development when operational.

The proposals set out in the Strategy are designed to follow the policy objectives of the Dublin Waste Plan. This approach prioritises the waste management options higher up the waste hierarchy. The Waste Strategy for Grangegorman seeks to minimise the generation of waste and to maximise the level of reuse and recycling of resources generated.

The Grangegorman development includes buildings of several different uses: educational, administration, residential and retail as well as open public spaces. Each building will generate different waste stream, which will be managed in keeping with the objectives of the Dublin Waste Plan. A strategy based on source separation of materials will be employed at the site to maximise materials recycling and recovery.

Each building or cluster of buildings of similar type will accommodate a temporary collection area where waste from the building(s) will be collected before being transferred to a central storage area. The Strategy proposes two central storage areas based on the natural division of the site and the layout of the development, which means there will be two main (waste) activity centres on the site.

The Strategy complies with existing waste management policies and also took into account future waste legislation that was currently at draft stage and which had an impact on waste management at Grangegorman. It is also in keeping with Dublin City's 'Sustainable Vision' for future development in Dublin, which seeks a flexible strategy that incorporates key sustainability principles and can evolve as the development evolves.