

their own units and dispose of them appropriately. Further details on additional waste types can be found in Section 5.6.

## 5.2 Waste Storage – Retail and F&B Units

The retail and F&B tenants will be required to segregate waste within their own unit into the following main waste types:

- DMR;
- MNR;
- Organic waste;
- Glass;
- Plastic; and
- Carboard.

Tenants will be required to take their segregated waste materials to their designated commercial WSA and dispose of their segregated waste into the appropriate bins. Locations of all WSAs can found on the plans submitted with the application.

Suppliers for the tenants should be requested by the tenants to make deliveries in reusable containers, minimize packaging or to remove any packaging after delivery where possible, to reduce waste generated by the development.

If any kitchens are allocated in unit areas, this will contribute a significant portion of the volume of waste generated on a daily basis, and as such it is important that adequate provision is made for the storage and transfer of waste from these areas to the WSA.

If kitchens are required it is anticipated that waste will be generated in kitchens throughout the day, primarily at the following locations:

- Food Storage Areas (i.e. cold stores, dry store, freezer stores and stores for decanting of deliveries);
- Meat Preparation Area;
- Vegetable Preparation Area;
- Cooking Area;
- Dish-wash and Glass-wash Area; and
- Bar Area.

Small bins will be placed adjacent to each of these areas for temporary storage of waste generated during the day. Waste will then be transferred from each of these areas to the appropriate waste store within their unit.

A trolley/tug or suitable vehicle may be required to convey the bins to/from the WSAs.

All bins/containers in the tenants areas as well as in the WSAs will be clearly labelled and colour coded to avoid cross contamination of the different waste streams. Signage will be posted above or on the bins to show exactly which wastes can be put in each.

Other waste materials such as textiles, batteries, lightbulbs, printer toner/cartridges, cooking oil and WEEE may be generated infrequently by the tenants. Tenants will be required to identify suitable temporary storage areas for these waste items within their own units and dispose of them appropriately. Further details on additional waste types can be found in Section 5.6

### 5.3 Waste Storage – Hotel

The operator(s) will be required to segregate their waste within the development into the following main waste types:

- DMR;
- MNR;
- Organic waste; and
- Glass.

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Tenants will be required to take their segregated waste materials to their designated WSAs and dispose of their segregated waste into the appropriate bins. Locations of all WSAs can be found on the plans submitted with the application.

Suppliers for the development should be requested by the hotel operator to make deliveries in reusable containers, minimize packaging or to remove any packaging after delivery where possible, to reduce waste generated by the development.

Signage should be erected above internal bins and in the WSA to identify what waste types should be placed into each bin as appropriate. Bins/containers should be labelled, and colour coded to avoid cross contamination of the different waste streams.

The majority of waste materials collected in bins in the hotel rooms, common areas etc. will not be segregated and will be managed as MNR waste. Housekeeping and hotel cleaning staff will segregate waste, where possible, during cleaning by using segregated containers on their cleaning trolleys. Waste will be transferred from the cleaning carts to the appropriate bins in the WSA via the lifts and corridors.

The kitchen in the restaurant area will contribute a significant portion of the volume of waste generated on a daily basis, and as such it is important that adequate provision is made for the storage and transfer of waste from these areas to the WSA.

It is anticipated that waste will be generated in the kitchen throughout the day, primarily at the following locations:

- Food Storage Areas (i.e. cold stores, dry store, freezer stores and stores for decanting of deliveries);
- Meat Preparation Area;
- Vegetable Preparation Area;
- Cooking Area; and
- Dish-wash and Glass-wash Area;

Small bins will be placed adjacent to each of these areas as required for temporary storage of waste generated during the day. Waste will then be transferred from each of these areas to the WSA and placed into the segregated bins as detailed in Table 5.1.

All bins/containers in the kitchen, restaurant, bar and dining areas as well as in the WSAs will be clearly labelled and colour coded to avoid cross contamination of the different waste streams. Signage will be posted above or on the bins to show exactly which wastes can be put in each.

Other waste materials such as textiles, batteries, lightbulbs, printer toner/cartridges, cooking oil and WEEE may be generated infrequently by the tenants. Tenants will be required to identify suitable temporary storage areas for these waste items within their own units and dispose of them appropriately. Further details on additional waste types can be found in Section 5.6

## 5.4 Waste Storage – Office

The office tenant(s) will segregate waste into the following main waste streams:

- DMR;
- MNR;
- Organic waste;
- Glass;
- Plastic; and
- Carboard.

Personnel nominated by the office tenants will empty the bins in the AWSs, as required, and bring the segregated waste using trolleys/carts/bins to their allocated WSA. Locations of all WSAs can found on the plans submitted with the application.

The office unit(s) may be occupied by a single tenant or multiple tenants. It is recommended that the office tenants implement the 'binless office' concept where employees do not have bins located under desks and instead bring their waste to Area Waste Stations (AWSs) located strategically on the office floors, at print stations/rooms and at any canteens, micro kitchens or tea stations which may be provided within the tenant's office space. Experience has shown that the maximum travel distance should be no more than 15m from the employee's desk to the AWS. This 'best in class' concept achieves maximum segregation of waste in an office setting.

Typically, an AWS would include a bin for DMR and a bin for MNR. It is recommended that a confidential paper bin with a locked lid/door should also be provided for at each AWS and/or adjacent to photocopy/printing stations, as required. In addition, it is recommended that organic and glass bins should be provided at any canteens or micro kitchens or tea stations, where appropriate.

A printer cartridge/toner bin should be provided at the print/copy stations, where appropriate.

It is recommended that all bins/containers should be clearly labelled and colour coded to avoid cross contamination of the different waste streams. Signage should be posted on or above the bins to show which wastes can be put in each bin.

The binless office concept, in addition to assisting in maximising recycling rates and minimising associated landfill disposal costs, also has the advantage of substantially reducing cleaning costs, as cleaners visit only the AWSs on each floor, as opposed to each desk.

Suppliers for the tenants should be requested by the tenants to make deliveries in reusable containers, minimize packaging and/or to remove any packaging after delivery where possible, to reduce waste generated by the development.

It is proposed that confidential paper waste will be managed separately to non-confidential paper waste. Tenants will be required to engage with an appropriately permitted/licenced confidential waste management contractor for collection and shredding of confidential paper. It is anticipated that tenants will place locked confidential waste paper bins as required throughout their office areas. The confidential waste company will typically collect bins directly from the office areas, under agreement with the tenant, and bring the locked bin or bags of confidential waste via the lifts to their collection truck.

Other waste materials such as textiles, batteries, lightbulbs, printer toner/cartridges, cooking oil and WEEE may be generated infrequently by the tenants. Tenants will be required to identify suitable temporary storage areas for these waste items within their own units and dispose of them appropriately. Further details on additional waste types can be found in Section 5.6

## 5.5 Waste Collection

There are numerous private contractors that provide waste collection services in the Dublin City area. All waste contractors servicing the proposed development must hold a valid waste collection permit for the specific waste types collected. All waste collected must be transported to registered/permited/licensed facilities only.

A servicing management strategy prepared in conjunction with the design team by SWECO and has been provided for this development to cover 'the Masterplan' and the individual Sites. This plan can be viewed as part of the planning application and provides the location of all temporary waste collection areas.

A trolley/tug or suitable vehicle may be required to convey the bins to/from the collection area.

The facilities management team or the waste contractor will ensure that empty bins are promptly returned to the WSAs after collection/emptying.

Bin collection times/days will be staggered to reduce the number of bins required to be emptied at once and the time the waste vehicle is onsite. This will be determined during the process of appointment of a waste contractor.

It is currently envisaged that the below collection locations will be used so that each site can act independently of each other site prior to the completion of the Dublin Central Masterplan. The Dublin Central Masterplan includes the introduction of the Metrolink Station, which prevents vehicles from accessing basement waste stores. In addition, all WSAs which are at basement level have insufficient height clearance for a standard waste truck to access. Therefore, all waste will be collected at grade. Upon completion of the Dublin Central Masterplan, additional loading bays will be provided off the carriageway to improve access for service and waste collection vehicles. In addition, the Estate Management Company will manage all site-wide waste operations to ensure smooth transition during collections and ensure waste bins are not left idle on the street. Suitably sized vehicles will be procured to serve the site, typically smaller refuse vehicles, less than 8m in length. The private waste contractors will have fob access to the bin stores. This prevents bins from being left on street for collection.

The Dublin Central Masterplan proposes all bins will be collected and returned directly to the waste storage areas by the waste contractor or by the Estate Management Company. At no stage will bins be stored within the public realm.

### Masterplan

#### Site 1

Waste collections at Site 1 are proposed to occur via the proposed loading area on Moore Lane (north of O'Rahilly Parade).

#### Site 2AB

Waste collections at Site 2AB are proposed to occur via the proposed loading areas to the rear of 59 and 60 O'Connell St and via the proposed link between O'Connell Street Upper / Moore Lane.

### Site 2C

Waste collections at Site 2C are proposed to occur via the proposed loading area on Moore Lane (north of O'Rahilly Parade).

### This Application

### Site 3

Bins from the residential WSA will be collected from the existing loading area on Moore Street, while The waste truck will enter the passageway between block 3A & 3B to collect the commercial and hotel waste directly from the shared commercial and the hotel WSAs.

### Site 4

All commercial and residential bins from this development will be brought to a temporary collection point on Moore Street, from the WSAs by the waste contractor or facilities management company, immediately prior to collection. There are two bin stores in Site 4 – one in the north, the other in the south.

South: The waste vehicle will utilise the existing loading provision on Moore Street to access the southern bin store within Site 4, as existing. This bin store is approximately 20m from Moore Street. The commercial operator will collect the bins before emptying them and returning the empty bins to the bin store.

North: The waste vehicle will utilise the existing loading provision on Moore Street to access the northern bin store within Site 4, as existing. This bin store is approximately 22m from Moore Street. The commercial operator will collect the bins before emptying them and returning the empty bins to the bin store.

### Site 5

Waste vehicles will utilise the proposed loading area on O'Rahilly Parade to access the proposed Site 5 bin store directly. The waste contractor will return the bins to the bin store immediately after collection.

## **5.6 Additional Waste Materials**

In addition to the typical waste materials that are generated on a daily basis, there will be some additional waste types generated from time to time that will need to be managed separately. A non-exhaustive list is presented below.

### Green waste

Green waste may be generated from external landscaping and internal plants/flowers. Green waste generated from landscaping of external areas will be removed by external landscape contractors. Green waste generated from gardens internal plants/flowers can be placed in the organic waste bins.

### Batteries

A take-back service for waste batteries and accumulators (e.g. rechargeable batteries) is in place in order to comply with the Waste Management Batteries and Accumulators Regulations 2014 as amended. In accordance with these regulations consumers are able to bring their waste batteries to their local civic amenity centre or can return them free of charge to retailers which supply the equivalent type of battery, regardless of whether or not the batteries were purchased at the retail outlet

and regardless of whether or not the person depositing the waste battery purchases any product or products from the retail outlet.

The commercial tenants cannot use the civic amenity centre. They must segregate their waste batteries and either avail of the take-back service provided by retailers or arrange for recycling/recovery of their waste batteries by a suitably permitted/licenced contractor. Facilities management may arrange collection depending on the agreement.

#### Waste Electrical and Electronic Equipment (WEEE)

The *WEEE Directive 2002/96/EC* and associated Waste Management (WEEE) Regulations have been enacted to ensure a high level of recycling of electronic and electrical equipment. In accordance with the regulations, consumers can bring their waste electrical and electronic equipment to their local recycling centre. In addition consumers can bring back WEEE within 15 days to retailers when they purchase new equipment on a like for like basis. Retailers are also obliged to collect WEEE within 15 days of delivery of a new item, provided the item is disconnected from all mains, does not pose a health and safety risk and is readily available for collection.

As noted above, the commercial tenants cannot use the civic amenity centre. They must segregate their WEEE and either avail of the take-back/collection service provided by retailers or arrange for recycling/recovery of their WEEE by a suitably permitted/licenced contractor. Facilities management may arrange collection depending on the agreement.

#### Printer Cartridge/Toners

It is recommended that a printer cartridge/toner bin is provided in the commercial units, where appropriate. The commercial tenants will be required to store this waste within their unit and arrange for return to retailers or collection by an authorised waste contractor, as required.

Waste printer cartridge/toners generated by residents can usually be returned to the supplier free of charge or can be brought to a civic amenity centre.

#### Chemicals (solvents, paints, adhesives, resins, detergents etc)

Chemicals (such as solvents, paints etc) are largely generated from building maintenance works. Such works are usually completed by external contractors who are responsible for the off-site removal and appropriate recovery/recycling/disposal of any waste materials generated.

Any waste cleaning products or waste packaging from cleaning products generated in the commercial units that are classed as hazardous (if they arise) will be appropriately stored within the tenants own space. Facilities management may arrange collection depending on the agreement.

Any waste cleaning products or waste packaging from cleaning products that are classed as hazardous (if they arise) generated by the residents should be brought to a civic amenity centre.

#### Light Bulbs (Fluorescent Tubes, Long Life, LED and Lilament bulbs)

Waste light bulbs may be generated by lighting at the commercial tenants. It is anticipated that commercial tenants will be responsible for the off-site removal and appropriate recovery/disposal of these wastes. Facilities management may arrange collection depending on the agreement.

Light bulbs generated by residents should be taken to the nearest civic amenity centre for appropriate storage and recovery/disposal.

### Textiles

Where possible, waste textiles should be recycled or donated to a charity organisation for reuse.

### Waste Cooking Oil

If the commercial tenants use cooking oil, waste cooking oil will need to be stored within the individual units on a bunded area or spill pallet and regular collections by a dedicated waste contractor will need to be organised as required. Under sink grease traps will be installed in any cooking space.

If the residents generate waste cooking oil, this can be brought to a civic amenity centre.

### Furniture (and other bulky wastes)

Furniture and other bulky waste items (such as carpet etc.) may occasionally be generated by the commercial tenants. The collection of bulky waste will be arranged as required by the tenants. If residents wish to dispose of furniture, this can be brought a civic amenity centre.

### Abandoned Bicycles

Bicycle parking areas are planned for the development. As happens in other developments, residents sometimes abandon faulty or unused bicycles and it can be difficult to determine their ownership. Abandoned bicycles should be donated to charity if they arise.

### Covid-19 Waste

Any waste generated by residential and commercial tenants that have tested positive for Covid-19 should be managed in accordance with the current Covid-19 HSE Guidelines at the time that that waste arises. At the time this report was prepared, the HSE Guidelines require the following procedure for any waste from a person that tests positive for Covid-19:

- Put all waste (gloves, tissues, wipes, masks) from that person in a bin bag and tie when almost full;
- Put this bin bag into a second bin bag and tie a knot;
- Store this bag safely for 3 days, then put the bag into the non-recyclable waste/general waste wheelie bin for collection/emptying.

Please note that this guidance is likely to be updated by the time the development is open and occupied and the relevant guidance at the time will need to be reviewed.

## **5.7 Waste Storage Area Design**

The WSAs should be designed and fitted-out to meet the requirements of relevant design Standards, including:

- Be fitted with a non-slip floor surface;
- Provide ventilation to reduce the potential for generation of odours with a recommended 6-10 air changes per hour for a mechanical system for internal WSAs;
- Provide suitable lighting – a minimum Lux rating of 220 is recommended;
- Be easily accessible for people with limited mobility;
- Be restricted to access by nominated personnel only;
- Be supplied with hot or cold water for disinfection and washing of bins;
- Be fitted with suitable power supply for power washers;
- Have a sloped floor to a central foul drain for bins washing run-off;

- Have appropriate signage placed above and on bins indicating correct use;
- Have access for potential control of vermin, if required; and
- Be fitted with CCTV for monitoring.

The facilities management company, residents and tenants will be required to maintain the WSAs in good condition as required by the *DCC Waste Bye-Laws*.

## 6.0 CONCLUSIONS

In summary, this OWMP presents a waste strategy that addresses all legal requirements, waste policies and best practice guidelines and demonstrates that the required storage areas have been incorporated into the design of the development.

Implementation of this OWMP will ensure a high level of recycling, reuse and recovery at the development. All recyclable materials will be segregated at source to reduce waste contractor costs and ensure maximum diversion of materials from landfill, thus achieving the targets set out in the *EMR Waste Management Plan 2015 – 2021*.

Adherence to this plan will also ensure that waste management at the development is carried out in accordance with the requirements of the *DCC Waste Bye-Laws*.

The waste strategy presented in this document will provide sufficient storage capacity for the estimated quantity of segregated waste. The designated areas for waste storage will provide sufficient room for the required receptacles in accordance with the details of this strategy.



## 7.0 REFERENCES

1. Waste Management Act 1996 (S.I. No. 10 of 1996) as amended 2001 (S.I. No. 36 of 2001), 2003 (S.I. No. 27 of 2003) and 2011 (S.I. No. 20 of 2011). Sub-ordinate and associated legislation includes:
  - European Communities (Waste Directive) Regulations 2011 (S.I. No. 126 of 2011) as amended
  - Waste Management (Collection Permit) Regulations 2007 (S.I. No. 820 of 2007) as amended
  - Waste Management (Facility Permit and Registration) Regulations 2007 (S.I. No. 821 of 2007) as amended
  - Waste Management (Licensing) Regulations 2000 (S.I. No. 185 of 2000) as amended
  - European Union (Packaging) Regulations 2014 (S.I. No. 282 of 2014)
  - Waste Management (Planning) Regulations 1997 (S.I. No. 137 of 1997)
  - Waste Management (Landfill Levy) Regulations 2015 (S.I. No. 189 of 2015)
  - European Communities (Waste Electrical and Electronic Equipment) Regulations 2014 (S.I. No. 149 of 2014)
  - Waste Management (Batteries and Accumulators) Regulations 2014 (S.I. No. 283 of 2014) as amended
  - Waste Management (Food Waste) Regulations 2009 (S.I. No. 508 of 2009) as amended 2015 (S.I. No. 190 of 2015)
  - European Union (Household Food Waste and Bio-waste) Regulations 2015 (S.I. No. 191 of 2015)
  - Waste Management (Hazardous Waste) Regulations 1998 (S.I. No. 163 of 1998) as amended 2000 (S.I. No. 73 of 2000)
  - Waste Management (Shipments of Waste) Regulations 2007 (S.I. No. 419 of 2007) as amended
  - *European Communities (Transfrontier Shipment of Waste) Regulations 1994 (SI 121 of 1994)*
  - European Union (Properties of Waste which Render it Hazardous) Regulations 2015 (S.I. No. 233 of 2015) as amended
2. Environmental Protection Act 1992 (Act No. 7 of 1992) as amended;
3. Litter Pollution Act 1997 (Act No. 12 of 1997) as amended;
4. Eastern-Midlands Waste Region, *Eastern-Midlands Region (EMR) Waste Management Plan 2015 – 2021* (2015)
5. DCC Dublin City Council (*Storage, Presentation and Segregation of Household and Commercial Waste*) *Bye-Laws* (2018)
6. Department of Environment and Local Government (DoELG) *Waste Management – Changing Our Ways, A Policy Statement* (1998)
7. Department of Environment, Heritage and Local Government (DoEHLG) *Preventing and Recycling Waste - Delivering Change* (2002)
8. DoELG, *Making Ireland's Development Sustainable – Review, Assessment and Future Action (World Summit on Sustainable Development)* (2002)
9. DoEHLG, *Taking Stock and Moving Forward* (2004)
10. Department of Communications, Climate Action and Environment (DCCA), *Waste Action Plan for the Circular Economy - Ireland's National Waste Policy 2020-2025* (2020).
11. Environmental Protection Agency (EPA), *National Waste Database Reports 1998 – 2012*.
12. DCC, *Dublin City Development Plan 2016 – 2022* (2016)
13. Planning and Development Act 2000 (S.I. No. 30 of 2000) as amended 2010 (S.I. No. 30 of 2010) and 2015 (S.I. No. 310 of 2015).
14. European Waste Catalogue - Council Decision 94/3/EC (as per Council Directive 75/442/EC).
15. Hazardous Waste List - Council Decision 94/904/EC (as per Council Directive 91/689/EEC).

16. EPA, *European Waste Catalogue and Hazardous Waste List* (2002)
17. EPA, *Waste Classification – List of Waste & Determining if Waste is Hazardous or Non-Hazardous* (2015)
18. BS 5906:2005 *Waste Management in Buildings – Code of Practice*.
19. DoEHLG, *Sustainable Urban Housing: Design Standards for New Apartments, Guidelines for Planning Authorities* (2020).





## APPENDIX 16.1 SUMMARY OF NATIONAL MONUMENTS LEGISLATION

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### National Monuments Legislation

All archaeological sites have the full protection of the national monuments legislation (Principal Act 1930; Amendments 1954, 1987, 1994 and 2004). In the 1987 Amendment of Section 2 of the Principal Act (1930), the definition of a national monument is specified as: -

*"any artificial or partly artificial building, structure or erection or group of such buildings, structures or erections:*

- *any artificial cave, stone or natural product, whether forming part of the ground, that has been artificially carved, sculptured or worked upon or which (where it does not form part of the place where it is) appears to have been purposely put or arranged in position, any, or any part of any, prehistoric or ancient (i.) tomb, grave or burial deposit, or (ii.) ritual, industrial or habitation site, and*
- *any place comprising the remains or traces of any such building, structure or erection, any cave, stone or natural product or any such tomb, grave, burial deposit or ritual, industrial or habitation site..."*

Under Section 14 of the Principal Act (1930): -

*"It shall be unlawful...*

*to demolish or remove wholly or in part or to disfigure, deface, alter, or in any manner injure or interfere with any such national monument without or otherwise than in accordance with the consent hereinafter mentioned (a licence issued by the Office of Public Works National Monuments Branch),*

*or*

*to excavate, dig, plough or otherwise disturb the ground within, around, or in the proximity to any such national monument without or otherwise than in accordance..."*

Under Amendment to Section 23 of the Principal Act (1930), a person who finds an archaeological object shall, within four days after the finding, make a report of it to a member of the Garda Síochána or the Director of the National Museum.

The latter is of relevance to any finds made during a watching brief. In the 1994 Amendment of Section 12 of the Principal Act (1930), all the sites and 'places' recorded by the Sites and Monuments Record of the Office of Public Works are provided with a new status in law. This new status provides a level of protection to the listed sites that is equivalent to that accorded to 'registered' sites [Section 8(1), National Monuments Amendment Act 1954] as follows: -

- The Commissioners shall establish and maintain a record of monuments and places where they believe there are monuments and the record shall be comprised of a list of monuments and such places and a map or maps showing each monument and such place in respect of each county in the State.
- The Commissioners shall cause to be exhibited in a prescribed manner in each county the list and map or maps of the county drawn up and publish in a prescribed manner information about when and where the lists and maps may be consulted.

In addition, when the owner or occupier (not being the Commissioners) of a monument or place which has been recorded, or any person proposes to carry out, or to cause or permit the carrying out of, any work at or in relation to such monument or place, he shall give notice in writing of his proposal to carry out the work to the Commissioners and shall not, except in the case of urgent necessity and with the consent of the Commissioners, commence the work for a period of two months after having given the notice.

### **The National Monuments Amendment Act 2004**

The National Monuments Amendment Act enacted in 2004 provides clarification in relation to the division of responsibilities between the Minister of Environment, Heritage and Local Government, Finance and Arts, Sports and Tourism together with the Commissioners of Public Works. The Minister of Environment, Heritage and Local Government will issue directions relating to archaeological works and will be advised by the National Monuments Section and the National Museum of Ireland.

The Act gives discretion to the Minister of Environment, Heritage and Local Government to grant consent or issue directions in relation to road developments (Section 49 and 51) approved by An Bord Pleanála and / or in relation to the discovery of National Monuments: -

*14A. (1) The consent of the Minister under section 14 of this Act and any further consent or licence under any other provision of the National Monuments Acts 1930 to 2004 shall not be required where the works involved are connected with an approved road development.*

*(2) Any works of an archaeological nature that are carried out in respect of an approved road development shall be carried out in accordance with the directions of the Minister, which directions shall be issued following consultation by the minister with the Director of the National Museum of Ireland.*

Subsection 14A (4) Where a national monument has been discovered to which subsection (3) of this section relates, then the road authority carrying out the road development shall report the discovery to the Minister subject to subsection (7) of this section, and pending any directions by the minister under paragraph (d) of this subsection, no works which would interfere with the monument shall be carried out, except works urgently required to secure its preservation carried out in accordance with such measures as may be specified by the Minister.

The Minister will consult with the Director of the National Museum of Ireland for a period not longer than 14 days before issuing further directions in relation to the national monument.

The Minister will not be restricted to archaeological considerations alone but will also consider the wider public interest.

**APPENDIX 16.2 DUBLIN CITY DEVELOPMENT PLAN 2016 – 2022 – ARCHAEOLOGY**

It is the policy of Dublin City Council to: -

*CHC9: To protect and preserve National Monuments.*

1. To protect archaeological material in situ by ensuring that only minimal impact on archaeological layers is allowed, by way of the re-use of buildings, light buildings, foundation design or the omission of basements in the Zones of Archaeological Interest.
2. That where preservation in situ is not feasible, sites of archaeological interest shall be subject to 'preservation by record' according to best practice in advance of redevelopment.
3. That sites within Zones of Archaeological Interest will be subject to consultation with the City Archaeologist and archaeological assessment prior to a planning application being lodged.
4. That the National Monuments Service will be consulted in assessing proposals for development which relate to Monuments and Zones of Archaeological Interest.
5. To preserve known burial grounds and disused historic graveyards, where appropriate, to ensure that human remain are re-interred, except where otherwise agreed with the National Museum of Ireland.
6. That in evaluating proposals for development in the vicinity of the surviving sections of the city wall that due recognition be given to their national significance and their special character.
7. To have regard to the Shipwreck inventory maintained by the DAHG. Proposed developments that may have potential to impact on riverine, inter-tidal and subtidal environments shall be subject to an underwater archaeological assessment in advance of works.
8. To have regard to DAHG policy documents and guidelines relating to archaeology.

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*It is the policy of Dublin City Council: -*

- CHC10: To continue to preserve, and enhance the surviving sections of the City Wall and city defences – a National Monument, according to the recommendations of the City Walls Conservation Plan 2015 – with reference to the National Policy on Town Defences, adopted by the Department of the Environment in 2008.
- CHC11: To preserve historic place and street names and ensure that new street names should reflect appropriate local historical or cultural associations.
- CHC13: To support and pursue a World Heritage nomination for the Historic City of Dublin, in partnership with the Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs and other stakeholders.
- CHC14: To promote the awareness of Dublin's industrial, military and maritime, canal-side (including lock-keepers' dwellings) and rural (vernacular) heritage.
- CHC15: To preserve, repair and retain in situ, historic elements of significance in the public realm including railings, milestones, city ward stones, street furniture, ironmongery, and any historic kerbing and setts identified in Appendices 7 and 8 of the development plan, and promote high standards for design, materials and workmanship in public realm improvements. Works involving such elements shall be carried out in accordance with the Department of Arts Heritage and the Gaeltacht Advice Series: Paving, the Conservation of Historic Ground Surfaces.
- CHC18: To support and promote a strategy for the protection and restoration of the industrial heritage of the city's waterways, such as the River Dodder, including retaining walls, weirs and millraces.

*It is an objective of Dublin City Council: -*

CHCO10: 14. To implement and promote The Dublin Principles (ICOMOS, 2011) as guiding principles to assist in the documentation, protection, conservation and appreciation of industrial heritage as part of the heritage of Dublin and Ireland.



## APPENDIX 16.3 ARCHAEOLOGICAL ASSESSMENT METHODOLOGY

### Introduction

This assessment methodology has regard to the EPA assessment criteria (EPA 2017) and to the National Roads Authority (NRA) Guidelines for the Assessment of Archaeological Heritage Impact of National Road Schemes (hereafter referred to as the NRA Guidelines) (NRA 2005).

Archaeological and cultural heritage sites are a non-renewable resource, and such assets are generally considered to be location sensitive. In this context, any change to their environment, such as construction activity and ground disturbance works, could adversely affect these sites.

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### Significance / Sensitivity Criteria

In accordance with EPA Guidelines (EPA 2017), the context, character, significance and sensitivity of each archaeological / cultural heritage asset requires evaluation, and the significance of the impact is then determined by considering the significance / sensitivity of the asset and the predicted magnitude of the impact.

In accordance with the NRA Guidelines (NRA 2005), the significance criteria used to evaluate an archaeological site, monument or complex take into account the character and integrity of the asset and any available data regarding it. This can be ascertained by looking at the following criteria cited in the NRA Guidelines (NRA 2005): the existing status (level of protection), condition or preservation, documentation or historical significance, group value, rarity, visibility in the landscape, fragility or vulnerability, and amenity value (Table 1). While these criteria contribute to the significance of a feature they should not be treated as definitive. These criteria are indicators which contribute to a wider judgement based on the individual circumstances of these archaeological / cultural heritage assets.

Criteria	Explanation
Existing Status	The level of protection associated with an archaeological / cultural heritage asset is an important consideration.
Condition / Preservation / Integrity	The survival of an archaeological / cultural heritage asset's archaeological potential both above and below ground is an important consideration and should be assessed in relation to its present condition and surviving features. Well-preserved sites should be highlighted, this assessment can only be based on a field inspection.
Documentation / Data	The significance of a an archaeological / cultural heritage asset may be enhanced by the existence of records of previous investigations or contemporary documentation supported by written evidence or historic maps. Sites with a definite historical association or an example of a notable event or person should be highlighted.
Group Value / Character	The value of a single an archaeological / cultural heritage asset may be greatly enhanced by its association with related contemporary monuments or with monuments from different periods indicating an extended time presence in any specific area. In some cases it may be preferable to protect the complete group, including associated and adjacent land, rather than to protect isolated monuments within that group.
Rarity / Character	The rarity of some an archaeological / cultural heritage asset types can be a central factor affecting response strategies for development, whatever the condition of the individual feature. It is important to recognise sites that have a limited distribution.
Visibility in the landscape / Character / Integrity	Archaeological / cultural heritage assets that are highly visible in the landscape have a heightened physical presence. The inter-visibility between monuments may also be explored in this category.
Fragility / Vulnerability / Integrity	It is important to assess the level of threat to an archaeological / cultural heritage asset from erosion, natural degradation, agricultural activity, land clearance, neglect, careless treatment or development.

Amenity Value / Character	Regard should be taken of the existing and potential amenity value of a an archaeological / cultural heritage asset.
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**Table 1:** Explanation of Archaeology and Cultural Heritage Asset Assessment Criteria.

An evaluation of the significance / sensitivity of archaeological / cultural heritage assets is based on their designation and on the extent to which these assets contribute to the archaeological or cultural heritage environment, though their individual or group qualities, either directly or potentially. Table 2 presents the scale of significance / sensitivity together with criteria. It has been compiled by Courtney Deery Heritage Consultancy Ltd, based on standard authorities and guidelines. Undesignated archaeological or cultural heritage sites can be assigned a low, medium or high sensitivity value, taking into consideration the criteria cited in Table 1 (e.g., condition, character, integrity or preservation, data, group value, rarity, visibility in the landscape, fragility or vulnerability, and amenity value).

Sensitivity / Significance	Criteria
High	Sites of international significance: World Heritage Sites. National Monuments. Protected Structures (assessed by the NIAH to be of international and national importance), where these are also National Monuments. Undesignated archaeological and cultural heritage sites.
Medium	Recorded Monuments (RMP sites & SMR sites scheduled for inclusion in the next revision of the RMP) Protected Structures / NIAH sites (assessed by the NIAH to be of regional importance), where these are also Recorded Monuments. Newly identified archaeological sites, confirmed through archaeological investigation, to be added to the SMR. Undesignated archaeological and cultural heritage sites.
Low	Sites listed in the Dublin City Industrial Heritage Record (DCIHR) and National Inventory of Architectural Heritage (NIAH) Building for which there are no upstanding remains. Undisturbed greenfield areas and riverine environs, which have an inherent archaeological potential. Undesignated archaeological and cultural heritage sites.
Negligible	Assets with very little or no surviving archaeological and / or cultural heritage interest.

**Table 2:** Significance / Sensitivity Criteria.

## Definition of Site Destinations

### National Monument

The National Monuments Act (1930, Section 2) defines a 'National Monument' as: -

*"a monument or the remains of a monument the preservation of which is a matter of national importance by reason of the historical, architectural, traditional, artistic or archaeological interest attaching thereto".*

The National Monuments legislation legally protects access to and the visual amenity associated with National Monuments and requires consent from the Minister for invasive works in their vicinity.

The defences / town walls of medieval Dublin are a National Monument in accordance with national policy on town defences (Department of Environment, Heritage and Local Government 2008).

### Recorded Monuments

The primary source of information for archaeology is the Record of Monuments and Places (RMP) maintained by the Department of Housing, Local Government and Heritage (DHLGH). The RMP documents known upstanding archaeological monuments, their original location (in cases of destroyed monuments) and the position of possible sites in rural areas identified as cropmarks on vertical aerial photographs dating to before 1700 AD (with some later ones also being included). It is based on a comprehensive range of published and publicly available documentary and cartographic sources.

For the purpose of the assessment, the Sites and Monument Record (SMR) data and mapping as updated by the Archaeological Survey of Ireland ([www.archaeology.ie](http://www.archaeology.ie)) was examined so it could be used within an interactive identification and mapping system developed for Proposed Project.

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### Zones of Archaeological Potential

Zones of archaeological potential (ZAP) can be defined as areas within the urban and rural landscape that possess the potential to contain archaeological remains due to the settlement history of a place and or to the presence of topographical features such as rivers, lakes and high, defensible ground. An example of this is the RMP designated Historic City of Dublin, which is designated as a zone of archaeological potential covering an extensive area (RMP DU018-020).

### Non-Designated Sites

Newly identified archaeological sites that have been confirmed through archaeological investigation (monitoring, testing, excavation, geophysical survey) are considered to be of medium importance. Such sites are undesignated as they have yet to be added to the SMR.

Potential or undesignated archaeological sites identified through aerial photography, historic mapping, stray finds are considered to be of low sensitivity, as they have yet to be ground-truthed through archaeological investigation. Similarly, undisturbed greenfield areas and riverine environs, which have an inherent but as yet unproven archaeological potential are considered to be of low sensitivity.

### Magnitude of Impact

When assessing the impact magnitude, the following criteria need to be considered:

- Extent – size, scale and spatial distributions of the impact.
- Duration – period of time over which the impact will occur.
- Frequency – how often the impact will occur.
- Context – how will the extent, duration and frequency contrast with the accepted baseline conditions (see Table 3).

Criteria	Impact Magnitude
These impacts arise where an archaeological / cultural heritage asset is completely and irreversibly destroyed by a proposed development. A change such that the value of the asset is totally altered or destroyed, leading to a complete loss of character, integrity and data about the site.	High
An impact which, by its magnitude, duration or intensity alters an important / significant aspect of the environment. An impact like this would be where an archaeological / cultural heritage asset would be impacted upon leading to a significant loss of character, integrity and data about the site.  Or an impact which by its magnitude results in the partial loss of a historic structure (including fabric loss or alteration) or grounds including the part removal of buildings or features or part removal of demesne land (e.g. severance, visual intrusion or degradation of setting and amenity).	Medium

Criteria	Impact Magnitude
A permanent positive impact that enhances or restores the character and / or setting of a cultural heritage site or upstanding archaeological heritage site in a clearly noticeable manner.	
A low impact arises where a change to the site is proposed which though noticeable is not such that the archaeological / cultural heritage character / integrity of the site is significantly compromised, and where there is no significant loss of data about the site. A positive impact that results in partial enhancement of the character and / or setting of a cultural heritage site or upstanding archaeological heritage site in the medium to long-term.	Low
An impact which causes very minor changes in the character of the environment and does not directly impact an archaeological / cultural heritage asset or affect the appreciation or significance of the asset. There would be very minor changes to the character and integrity of the asset and no loss of data about the site.	Negligible

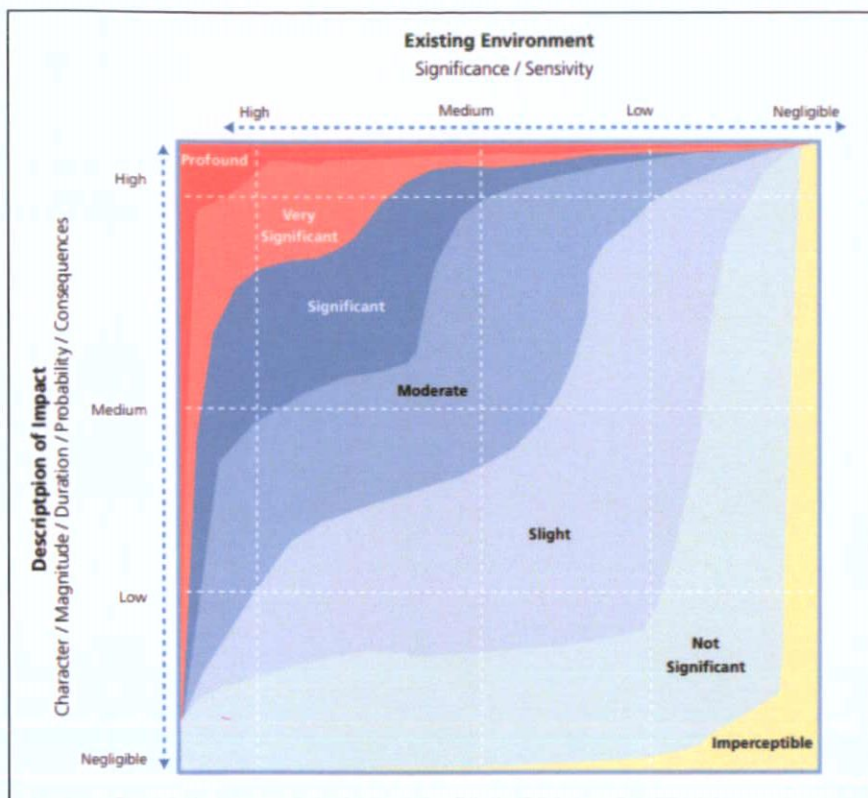
**Table 3:** Magnitude of Impact Criteria.

### Significance of Impact

The Draft EPA Revised Guidelines on the Information to be Contained in Environmental Impact Statements (EIS) (EPA 2015) added the two additional levels of significance of impact: Very Significant and Not Significant (Table 4 and Image 1).

Significance of Impact	Description
Very Significant	An impact which by its character, magnitude, duration or intensity significantly alters the majority of a sensitive aspect of the environment, for example in this case a monument
Not Significant	An impact which causes noticeable changes in the character of the environment but without noticeable consequences.

**Table 4:** Significance of Impacts (EPA 2015).



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Figure 1: Figure 3.5 Description of Impacts from the Draft EPA Revised Guidelines on Information to be Contained in EIS (EPA 2015).

The likely significance of impacts is determined by considering the baseline rating or sensitivity value of the asset upon which the impact has an impact and the magnitude of the impact (Image 1). The impact significance is defined as Imperceptible, Not Significant, Slight, Moderate, Significant, Very Significant, or Profound (Table 5).

Impact	Definition
Imperceptible	An impact capable of measurement but without noticeable consequences.
Not Significant	An impact which causes noticeable changes in the character of the environment but without significant consequences.
Slight	An impact which causes minor changes in the character of the environment and does not affect an archaeological / cultural heritage asset in a moderate or significant manner.
Moderate	A moderate impact arises where a change to the site is proposed which though noticeable, does not lead to a significant loss of character, integrity and data about the archaeological / cultural heritage asset.
Significant	An impact which, by its magnitude, duration or intensity, alters an important aspect of the environment. An impact like this would be where part or all of a site would be permanently impacted upon, leading to a significant loss of character, integrity and data about the archaeological / cultural heritage asset.
Very Significant	An impact which, by its character, magnitude, duration or intensity significantly alters most of a sensitive aspect of the environment.
Profound	Applies where mitigation would be unlikely to remove adverse impacts. Reserved for adverse, negative impacts only. These impacts arise where an archaeological / cultural heritage asset is completely and irreversibly destroyed by a proposed development.

Table 5: Defining Significance of Impacts.

APPENDIX 16.4

ARCHAEOLOGICAL TESTING REPORT

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**Appendix 16.4**

Archaeological Testing

of

Nos 40-41 and 50-51

O'Connell Street Upper, Dublin 1

Easting 715719, Northing 734868

Excavation Licence No. 20E0649

Site Director: Linzi Simpson

For Courtney Deery Heritage Consultancy Ltd

On behalf of

Dublin Central GP Limited







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## Executive Summary

This report refers to a programme of archaeological testing at two vacant sites within the Dublin Central development site located on the north side of the river Liffey (Easting 715719, Northing 734868). The entire site partially bounded by Parnell Street on the north (east side), Moore Street, O'Rahilly Parade, and Moore Lane on the west, O'Connell Street Upper on the east and Henry Street on the south. The Dublin Central site lies partly within the Zone of Archaeological Potential of Dublin City (DU018-020), it contains no specific Record of Monuments and Places (RMP) sites within the development block but there are two within the general environs, which may have extended into the site in the past. The first RMP site (RMP DU018-020504) is a large Viking-age cemetery or grave-field to the north of the site, thought to have spread over a large area and defined by a number of antiquarian findings of individual Viking warrior burials dotted throughout that area. The second RMP (DU018-020506) is a large early brick-works, which was located immediately east of the site and which was probably dated from the 17<sup>th</sup> century onwards, as it was defunct by 1756, when it is described as an 'Old Brick-field'.

Two vacant sites within the eastern side of the larger development site, Site A (nos. 40-41 O'Connell Street) and B (nos. 50-51 O'Connell Street), were available for testing in advance of planning, as they are open car-parks, stretching between O'Connell Street on the east and Moore Lane on the west. There have been few previous works in these locations. Site A was partially monitored in 2009 but revealed severe disturbance down to basement level, which is likely to have occurred when the Royal Dublin Hotel was constructed on the site in 1972 while Site B had no previous investigations.

The testing in Site A was carried out on the 28<sup>th</sup> of November 2020 and consisted of five trenches, none of which could extend any depth, as there was a deep layer of concrete, sitting over a layer of reinforced concrete. The previous monitoring programme in 2009, mentioned above, found this concrete to be up to 1m in depth, sitting over natural coarse gravels. In addition to this, an inspection of the site boundaries reveal that they are of modern date or shuttered out in concrete.

The second site, Site B, was tested on the 30<sup>th</sup> of November 2020 and consisted of three trenches, revealing very modern infill deposits up to 3m in depth. However, a substantial limestone footing and part of a floor was found perhaps suggesting that there was a cellar in this location originally. In addition to this, both the north and south standing boundary walls were found to be historic walls, constructed of brick and limestone and revealing the imprint of at least four buildings, dating from the middle of the 18<sup>th</sup> century onwards.

## 1. INTRODUCTION

- 1.1. This report refers to a proposed development located on the north side of the river Liffey (Easting 715719, Northing 734868) (Figs. 1-3). This site, known as 'Dublin Central', comprises a large urban block, measuring approximately c2.2 Ha in size and partially bounded by Parnell Street on the north (east end), Moore Street, O'Rahilly Parade, and Moore Lane on the west, O'Connell Street Upper on the east and Henry Street on the south. Henry Place is within the block at the southern end (Fig. 4). A Masterplan has been prepared by Dublin Central GP Limited set out the overall development vision for the Dublin Central project.
- 1.2. The testing is on foot of a Conservation Plan compiled by Molloy and Associates for the Dublin Central Project, and the archaeological baseline report accompanying it by Courtney Deery Heritage Consultancy Ltd (the Conservation Plan accompanies Chapter 15: Cultural Heritage (Architectural) of the EIA for the Dublin Central Masterplan area. The objective of the archaeological report (Appendix 1 in that report) was to provide a tool to inform the design stages of the proposed development through an understanding of its archaeological potential and significance. It sought to ensure that the proposed development is compatible with the recording, reinforcement, and enhancement of that significance during the planning and the construction stages. It also provided archaeological policies and guiding principles for the project. This testing is an outcome of Archaeological Policy 1 - *To carry out archaeological testing under licence to the DCHG in the open space/vacant plots areas of the Masterplan area1 in advance of planning in order to understand the nature, extent, and significance of the below ground deposits and the impact of the Masterplan on such archaeological material.*
- 1.3. This report refers specifically to testing in the two open yards within the larger development block at nos. 40-41 O'Connell Street (Site A) and at nos. 50-51 O'Connell Street (Site B) (Figs 3 and 4). Both sites are now car-parks but were originally house-plots with the houses fronting onto O'Connell Street, extending back south to Moore Lane. Site B also had stables/coach-houses on the Moore Lane side in 1756.
- 1.4. Site A (nos. 40-41) was partially tested during site investigations carried out previously on the O'Connell Street frontage, which was monitored by the writer, but this testing was confined to the basement area of a modern hotel, the Royal Dublin Hotel. Both original houses (nos. 40-41) were demolished in 1968 for this development and the new hotel completed by 1972. The hotel was subsequently demolished in 2009 and a number of enabling works were carried out to support the adjoining buildings, which were monitored by the writer. These works revealed the hotel had a deep basement, cut into exposed natural sticky clay and gravels, indicating the basement is likely to have removed any features of significance. No archaeological deposits or artefacts were found during this investigation.

- 1.5. The adjoining property on the southern side of Site A, no. 42, is the only surviving 18<sup>th</sup>-century house on this side of the street and is a Protected Structure (RPS Ref: 6022, NIAH Reg. no. 50010554). As most of the other shops (nos. 43-45, nos. 52-59) were built in the 1920s and 1930s, no. 42 house represents a significant survival, designed by the well-known architect Richard Castle and completed in c. 1752. The house was incorporated into the new hotel in 1972 but, thankfully, this building remained intact within the new build. There is a second Protected Structure (RPS Ref: 6022, Reg. no. 50010560) at the rear end of the same property (no. 42), fronting onto Moore Lane, which was built by George B. Beater in c. 1897, forming part of the Catholic Commercial Club, which occupied the house at this date.
- 1.6. The adjoining property of Site B on the southern side, no. 52, is also a Protected Structure (RPS 6025, NIAH Reg. no. 50010543) but is a modern build, an Art Deco cinema now known as Dr Quirkey's Good Time Emporium. This is still intact and in use as a casino.
- 1.7. The larger Dublin Central site does not include the National Monument, nos. 14-17 Moore Street, which lies to the south-east of the sites under discussion, outside the site boundaries (Fig. 4). The monument comprises a group of four original 18<sup>th</sup>-century houses, no. 16 representing the last head-quarters of the Irish patriots during the 1916 Easter Rising.
- 1.8. The urban block is located within the Zone of Archaeological Potential (ZAP) for Dublin City (DU020-018). There are no Record of Monuments and Places (RMP) sites within the entire development block, but archaeological evidence suggests that there is likely to be a large 9<sup>th</sup>-century Viking cemetery or grave-field to the north of the site, spread over a large area (DU018-020504). This feature is not defined topographically in the landscape and is based on a series of reports detailing the discovery of formally buried, furnished Viking warrior burials, the skeletons accompanied by personal weaponry.
- 1.9. A second RMP lies to the east of the site and this is a 17<sup>th</sup>/early 18<sup>th</sup>-century brickworks (DU018-020 506), which was very extensive in size, the main section positioned between Moore Street on the west and Moore Lane on the east. A large clay quarry is depicted within the site (between Site A and B) on maps by John Rocque, dated to between 1756 -57. Investigations by the writer to the rear of the National Monument, nos. 14-17 Moore Street, located one such quarry, where the boulder clay had been completely removed to a depth of 3m in depth down to the gravel layers. The clay quarry was then infilled with organic refuse originating from the city, the systematic dumping carried out in advance of preparing the area for the subsequent residential development that occurred. The investigations revealed the basements of nos. 14-17 are cut through the refuse deposits down to the natural gravels beneath. The intact refuse layers, up to 3m in depth, are still intact, however, in what was formerly the gardens to the rear of the houses, as there were no cellars in this location.

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- 1.10. In the site under discussion, five trenches were attempted in Site A but each established the presence of a very deep slab, which was impossible to remove, as there were two layers of concrete, sitting over reinforced concrete. While two layers of concrete were removed as this part of the works using a breaker, the third layer could not be removed because of vibrations caused in close proximity to the Protected Structure, no. 42 O'Connell Street. These concrete surfaces are associated with the recently demolished hotel and the enabling works carried out at this time, in 2009. Thus, the depth of the surfaces is known to be up to 1m in depth, sitting over natural coarse gravels. The investigations also located the temporary crane base put in in 2009, in the central area of the site on the northern side.
- 1.11. The site is currently accessed *via* Moore Lane by a ramp which was not tested and the composition of the material beneath this ramp, therefore, is not known. There are organic post-medieval deposits dumped over the temporary crane-base, mixed in with modern debris. This material may have originated somewhere in the immediate vicinity, perhaps in the ramp area.
- 1.12. In Site B, a total of three trenches were excavated and these revealed very modern loose demolition material including tiles, wires, mortar and concrete blocks, spread throughout the site. These deposits are suggestive of either modern dumping or infilling of a cellar. A substantial limestone wall was found at 2.70m below present ground level and this measured 1m in width by at least 0.50m in depth, orientated north-south. It is difficult to establish what exactly this stone build represents but it may have been related to a demolished cellar. It could not be located in an adjacent trench.
- 1.13. There are no historic boundaries in evidence in Site A but the north and south walls of the Site B can be dated from the 18<sup>th</sup> century onwards. The eastern end of the northern wall is likely to represent the original boundary wall, but this has been much modified with a building (no. 3) constructed up against it, which was evidently burnt down. At the western end the remains of what appears to be two buildings (nos 1 and 2), between 10m and 11m in width and each with a fireplace, the eastern one evidently a high status building. The western building (no. 1) fronting onto Moore Lane, is highly likely to incorporate part of the original stable/coach as depicted by Rocque in 1756. At the western end, the wall preserves the imprint of a long building (no. 3) likely to be earlier in date than no. 2 and perhaps comprising some sort of store room. The southern wall of the site can also be dated from the 18<sup>th</sup> century onwards and the eastern end also includes a section of the original boundary wall although much altered. This wall however, is dominated by a large 19<sup>th</sup> century limestone building (no. 4), up to 5m in height with an entrance (in brick) at the eastern and western end.
- 1.14. The testing was carried out on Saturday the 28<sup>th</sup> of November 2020 and 30<sup>th</sup> of November 2020 under licence no. 20E0649.



## 2. ARCHAEOLOGICAL BACKGROUND

### 2.1. Introduction

The site is located on the northern side of the Liffey where the earliest evidence of human occupation was found at Spencer's Dock where fish-traps were found in the old river bed, the remnants of the Mesolithic hunters/gatherers that originally lived and fished at the mouth of the river Liffey. Findings of flints and a fulachta fia (cooking place) at Temple Bar and Hammond Lane respectively attested to Pre-historic activity, the latter, the cooking place bronze age in date. By the 7th and 8th centuries it is likely that there was a monastery at Dubh-linn or the Black Pool, to the south of Dublin Castle. This was served, according to the historical sources, by two bishops and at least one abbot in this early period. The site is partially within the Zone of Archaeological Potential (ZAP) for the historic town of Dublin (DU018-020) and is in the vicinity of a number of RMP sites and a national monument located at 14-16 Moore Street.

### 2.2. *The Viking cemetery (DU018 020/495)*

The 9th century, however, saw a rapid explosion of population in Dublin when wave after wave of young Viking warriors arrived off the east coast of Dublin, setting up a pirate's camp at Dublin from where they raided up and down the coast, progressing into the interior of Ireland via the natural waterway systems. The monastic annals record these devastating raids and the large number of young men flooding into this new 'ship-camp' or longphort established probably in the late 8th century but a permanent feature in the landscape by 841. In one historical event at least 120 ships were recorded off the coast at Dublin, each probably capable of holding between 30 and 60 people. Conservative estimates put the figure of at least 5,000 such warriors (and their retinue) in Dublin, based on the number of deaths in battle recorded in the various monastic annals. While there have been fragmentary archaeological finds related to this first settlement, by far the most compelling evidence of this influx of population is found in a series of 'grave-fields' found strung out along the Liffey and Poddle rivers where the fallen warriors were buried.

Two potential cemeteries or grave-fields were found initially at Kilmainham and Islandbridge, both on important and historic crossings on the river Liffey (Figs 6 and 7). Here young warriors with their weaponry have been found during various works associated with the construction of the railways in the 19th and early 20th century. The weaponry included shield bosses, swords, spears, and daggers along with buckles, and sharpening stones (hone). Downstream, at the mouth of the Liffey, at the confluence of the Poddle, similar warrior burials (including a female) have been found along the south bank of the Poddle river, at South Great George's Street, Chancery Place and Ship Street Great, clearly representing another grave-field and possibly connecting up with the known burial ground in College Green known as 'Hoggen Green' (the 'hoggen' element of the place-name is derived from 'haugr', a Norse word meaning burial mound). This cemetery was marked by large mounds containing burials, two of which survived well into the 17th century before they were eventually destroyed.

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This proliferation of burials, both historic and modern, is relevant to the site under discussion, as similarly to the Kilmainham/Islandbridge cemeteries, antiquarian finds of warrior burials have been found to the north of the site under discussion stretching from Dominick Street in the west as far east as Mountjoy Square, and from Dorset Street in the north, to Parnell Street in the south (Figs 6 and 7). When examined collectively and based on the information from the south side of the river, the various findings are clearly suggestive of a large grave-field on the northern side of the Liffey also (a warrior grave was also found recently in the Phoenix Park). The first discovery of this northern grave-field was made as early as 1763 when a possible cemetery site (Recorded site DU-018 020/495) was suggested in a report by the Dublin Magazine of 'vast quantities of human bone' found during the construction of 'new gardens' at Parnell Square. These gardens were located in the current grounds of the Rotunda Hospital. More burials were uncovered in the immediate vicinity at Granby Row and Cavendish Row, the former producing 'a large sword with a spear of about two feet in length with crumbling pieces of iron resembling broad rivets' (RMP file DU018-020/495). A further account of Viking burials occurred in 1788 when human bones, a sword and shield boss, were uncovered during the excavation of foundations on Parnell Square North (Ó Floinn, R. 1998). The other find-spots were recorded in a variety of different sources.

The site under discussion is located along the southern line of the proposed cemetery raising the possibility of burials in this location. Findings of small amounts of medieval clays at nos 58-66 Parnell Street/Moore Street (outside the site under discussion) suggested the possibility of medieval horizons surviving, especially in the central area of the plots that stretched from O'Connell Street on the east as far west as Moore Lane.

### 2.3. *St Marys Abbey*

The northern suburb was dominated for most of the medieval period by the Cistercian abbey of St Mary and the site under discussion is most likely to have been farm-land associated with their grange or farm attached to the abbey. By the late 17th century, however, (after the Dissolution of the monasteries in the middle of the 16th century), the cartographic sources suggest that this area had become marginal land with little development, as depicted on Philip's map dated 1685 (Fig. 7). By 1728, while there was urban development along the western side, the eastern side (O'Connell Street side) was still open ground (Fig. 7).

### 2.4. *The brickworks (DU018-020/506)*

John Rocque's map of Dublin, dated 1756, captures the general development in this area, along Sackville Street (O'Connell Street) and Old Brick Field Lane (Moore Lane) (Figs 8 and 9). The block was almost fully developed with houses fronting onto Sackville Street in long plots that stretched as far west as Old Brick Field Lane. The plots had central gardens with most of the plots having a coach-house /stables at the Old

Brick Field Lane end, although they were absent from the northern end of the block. The map also captures the site of what was already an 'old' brickworks to the south and both Site A and Site B were positioned just west of the brickworks, a Recorded Monument. The brickworks were mostly confined to the west side of Moore Lane, as mentioned previously, and investigations by the writer at the Nos 14-17 Moore Street, a National Monument, in the plot to the rear of the houses located the remains of these clay quarries up to 3m in depth. After the clay was completely removed, the quarry holes were infilled with layers of organic refuse, evidently successively dumped in a deliberate fashion in the early 18th century. This generally reclaimed the land which was then developed as land for building.

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Although the map by Rocque in 1756 depicted most of the brickworks on the west, a large oval shaped clay quarry hole is depicted on the east within the Dublin Central site under discussion, roughly in the middle of the site, to the south of Site A and north of Site B (Fig. 10). Thus, there is archaeological potential for general deposits relating to the brickworks to survive in this general location along with the domestic infill, which is likely to be 17th and early 18th century in date. This was highlighted during excavation at nos 58-66 Parnell St/Moore St in the north-west corner of the block (but outside the current development site), which was excavated in its entirety in 2003 revealing a complex of house foundations, walls, vaults, drains, cobbled surfaces and other features, which extended across the entire site. Most significant, however, was the predominance of fire-burned clays evidently emanating from the brick clamps (kilns) where the bricks were fired on site. These could be very large features capable of firing up to 500,000 bricks at a time, in one firing.

### **3. DEVELOPMENT OF THE STREETScape (after Hession 2008)**

#### **3.1. *Early Post-Medieval period***

The character of the north-eastern section of the city around St Mary's Abbey changed dramatically after the Dissolution of the Monasteries. In 1537, the Abbey and its lands were parcelled out and granted in 1543 to Walter Peppard for a term of 21 years with a reversion in favour of James Fitzgerald, Earl of Desmond. In 1561 Matthew King, Clerk of the Cheque of the Army and Garrisons in Ireland acquired the interest in the lease from Gerald, the then Earl of Desmond, but owing to the latter's rebellion and attainder, the property reverted to the Crown. Subsequently in February 1610, James I granted to Henry King, son of the aforementioned Matthew, part of the lands of St Mary's Abbey, 50 acres of demesne and 30 acres of pasture, including 'a large messuage or slated house called the Fermorie, otherwise Fermor', besides an estate in Grange of Clonliffe. These lands were purchased from him by Sir Garrett Moore, first Lord Moore (after whom Moore Street is named), who in 1619, obtained a royal grant of them in perpetuity. Lord Moore, who was advanced to the dignity of Viscount in 1612, took up his residence in the abbey and his son the second Viscount, also used it as his town-house until the rebellion of 1641 drove him to take the field against the insurgents. On 7th August 1643, Lord Moore fell in action at

Portlester in Meath and the house in the Abbey was not used as a residence by his successors. The property however continued in their possession (Irish Georgian Society Records Vol. III).

The period following the destructive wars of the 1640s and the restoration of the monarchy in 1660 saw a rapid redevelopment of the city. In 1663, when Alderman William Hawkins built a sea wall from modern day Townsend Street to Burgh Quay, the land within the study area began to be developed for the first time (Bennett 1991). During the late 17th century, at the time of Bernard de Gomme's map, much of the area to the south of the proposed development site, being largely on reclaimed land, was still marshy mud flats still vulnerable to inundation from the sea.

### 3.2. *Post-medieval period*

At the end of the 17th century, the third Earl Henry Moore, who laid out the estate for building purposes, perpetuating his name and titles in the combination of Henry Street, Moore Street, Earl Street, Off Lane and Drogheda Street (formerly O'Connell Street), was forced to mortgage his life-interest to raise money for making out his claim to the Hamilton estates, which had been devised to him by his sister, the Countess of Clanbrassil. At his death in 1714 the trustees sold the estate to Luke Gardiner (Georgian Society Records, Vol. III).

The arrival of French Huguenots and Flemish settlers, particularly at the end of the 17th century, saw new architecture and industries flourish in the emerging post-medieval city. Private individuals, such as Luke Gardiner and Nathaniel Clements, became agents of urban development from the 1660s onwards and were played a particularly important role in the development of the city during the 18th century. Other landlords such as Viscounts Fitzwilliam and the Earls of Meath, held large areas as part of great estates, some of these holdings also providentially close to the growing city. Many of these estates had been granted to those loyal to the English crown as a means of colonisation and to maintain stability. Others saw the opportunities offered by property speculation and over time built up holdings of land with an eye to profit (Brady and Simms, 2001).

From the late 17th century onwards, these wealthy and ambitious citizens of Dublin set about acquiring the leases of large tracts of land bounding on the old walled city. The new streets on the estates of Lord Aungier (Aungier Street and Longford), Humphrey Jervis (Jervis Street, Mary Street and Capel Street) and in the early 18th century, the Moore family, Earls of Drogheda, (Henry Street, Moore Street, Earl Street, Off Lane and Drogheda Street) were in marked contrast to the narrow winding streets of the old town. The development of the current city streetscape from Capel Street to O'Connell Street and beyond to Parnell and Mountjoy Square occurred principally between the middle of the 17th and 18th century.

Nathaniel Clements and the first Luke Gardiner were jointly involved in the development of Georgian Dublin on the north side of the city. Gardiner purchased the Drogheda estate, which was part of the lands of Mary's Abbey, in Dublin in the early 18th century. This seems to have been Gardiner's first large

purchase (Craig, 1992). They were also closely associated with the architect Richard Castle. Castle and Clements became respectively Gardiner's architect and contractor after the great architect Edward Lovett Pearce's death. Nathaniel Clements (1705 –1777) in association with Luke Gardiner organized the building of Henrietta Street. Clements leased land and built houses in Sackville Street and built two houses on the west side of Sackville Street (within the proposed development area), on the site now occupied by the Royal Dublin Hotel. Clements also owned a house on the opposite side of the street that was situated on the site of the present Gresham Hotel.

### 3.3. **Parnell Street**

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It is clear that Parnell Street is sited on a highway that was present from at least the 17th century (its origin may be very much older). The street, formerly known as Great Britain Street, was first laid out for housing in 1728. Its original name was in honour of James I who in 1604 styled himself 'King of Great Britain' (McCready, 1892). The street was renamed on the 1st October 1911 following the unveiling by John Redmond MP of a statue of Charles Stewart Parnell political leader, in Sackville Street (Bennett, 1991).

Parnell Street consisted mainly of small shops with two- and three-storey houses above. The buildings were swept away in the 1970s and 1980s to make way for the present wide thoroughfare, which was intended to be part of the Inner Tangent Relief Road. A photograph of the block taken in 1975 prior to demolition indicates the elevation that these buildings presented to the street. Many of the buildings rose to four storeys in height. Many of the buildings were also re-fronted during Victorian times with the addition of segmental headed windows and stucco window surrounds (O'Donovan 2004).

### 3.4. **O'Connell Street**

By the early 18th century, as the city was expanding in all directions, the previously undeveloped lands of the northeast quarter were mainly used for commerce and fashionable residence. The development of the northeast quarter of the city, as outlined above, was largely undertaken by two great families - Gardiner and Jervis - while the study area itself was mainly developed by Luke Gardiner (Bennett 1991).

The street now known as O'Connell Street is a relatively late feature of the Dublin streetscape. The first cartographic reference to the street is an unnamed road, shown on Bernard de Gomme's map of 1673, marking the eastern boundary of the lands of St Mary's Abbey. Charles Brooking's 1728 map of Dublin (Fig. 7) shows the street, then named Drogheda Street, extending between Great Britain Street (now Parnell Street) and Abbey Street, but not as far as Bachelor's Walk along the river. Having purchased the lands that had originally belonged to St Mary's Abbey from Viscount Moore, Earl of Drogheda in 1714, Luke Gardiner set about the improvements to what would later become Sackville (and later O'Connell) Street in the 1750s by demolishing the houses between Great Britain Street and Henry Street. This had the effect of widening the northern end of Drogheda Street and set the scene for the creation of Sackville Street, with a mall (Gardiner's Mall) forming a spine down the middle at the northern end of modern

O'Connell Street. Only no. 42, to the south of Site A (formerly part of the Royal Dublin Hotel) still survives from the original streetscape (Bennett 1991). Rocque's map 1756 illustrates Gardiner's Sackville Street prior to its extension (Fig. 9).

The Wide Streets Commission established in 1757, later expanded on Gardiner's development as part of broader project which started with the provision of a suitably wide passage from Essex Bridge (now Grattan Bridge) to Dublin Castle. Drogheda Street continued to exist between Henry Street and Abbey Street until 1777, when the commissioners were given a grant to extend Sackville Street to the newly-formed quays and to build a bridge (to be called Carlisle Bridge) over the Liffey. The bridge, designed by James Gandon, was opened in 1795, though the extension of Sackville Street was under construction until 1800.

Sackville Street was first shown as the long wide street of today, extending down to the quays, on William Duncan's map of 1821. Two paintings in the National Gallery show the street in 1818 and 1853 as a wide mall, with no monuments along its length other than Nelson's Pillar. A photograph in the National Library, probably from the turn of the century, shows the street as a broad mall lined with buildings and lit from the centre with gas lights. Many of these buildings would be destroyed in the coming decades, most during the 1916 Rising.

#### 4. THE DEVELOPMENT SITES, A AND B

##### 4.1. *Site A (Nos 40-41, O'Connell Street Upper)*

By the time of the Ordnance Survey, dated between 1836-42, there has been considerable development in both sites under discussion, Site A and Site B. Site A was composed of two plots in the 18th century, both with a house fronting onto Sackville Street. On the first Ordnance survey, 1838-47, the northern plot (no. 40) is almost completely developed apart from a small open yard at the western end (Fig. 10). Thus, the house was still intact at the eastern end. The southern plot (no. 41) was not as developed and there was a large open area in the central area, possibly a garden. The house is still intact at the eastern end fronting onto Sackville Street (O'Connell Street) and at the western end there is an open yard with some sort of rectangular and L-shaped building. It should be noted that there are no coach-houses or stables shown on Rocque (1756) at the western end of either plot (Fig. 9).

By 1891, both plots have been amalgamated and are now The Richmond Institution for the Blind, established in 1810 (Figs 11 and 12) and by 1911, the buildings have changed little (Fig. 13).

##### 4.2. *Site B (Nos 50-51, O'Connell Street Upper)*

Site B is also composed of two 18th -century plots and, on Rocque's map of Dublin (1756: Fig. 9), they are fully developed with a house on the eastern end and a coach-house/stable building at the western end, with the area in between formal gardens. By the first Ordnance Survey, dated 1836-47, both plots are

very developed, but the garden boundary wall is still intact, indicating they were still separate plots (Fig. 14). The northern plot (no. 50) has narrow buildings running along the northern boundary wall with a large rectangular building at the western end, extending the full width of the plot. There was also a narrow open area, probably a yard, in the central area. The southern plot was also build up with a large rectangular building in the central area, flanking an open yard on the east. There was a second, much smaller open area, orientated north-south at the western end of the plot along with a rectangular building. Very little had changed by 1864 but this more detailed map illustrates that the southern building fronting onto Moore Lane was actually two buildings (Fig. 15). By 1891 the northern plot was completely built over (Fig. 16) while the southern plot still has small remnants of the eastern open area or yard with the western yard intact. The Ordnance Survey of 1911 reveals that 20 year later little had changed but the central open yards have been built on, with only the small western yard in the southern plot still open (Fig. 17). Most of the original houses are still intact (Figs 18 -20).

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#### 4.3. **Nos 14-17 Moore Street (National Monument)**

Nos 14-17 Moore Street is a National Monument in state ownership and is not part of the development site under discussion (Fig. 11). During the 1916 Rising no. 16 Moore Street was the place where the decision was taken by the Irish patriots to surrender to the British crown forces to prevent further bloodshed. After fleeing from the GPO the rebels got as far as Henry Place and, to avoid, heavy shelling, they tunnelled their way through the houses from Henry Place, up Moore Street as far as no. 16, where they set up what was to be their last head-quarters. A detailed architectural investigation of this block by Franc Myles of four houses revealed the actual holes broken through and subsequently repaired after the rebellion (Myles and Shaffrey 2012).

## 5. PREVIOUS INVESTIGATIONS

### 5.1. **Archaeological appraisal – nos. 40-42 O'Connell Street**

An archaeological appraisal of Site A (nos. 40-42 O'Connell Street) was carried out by in May 2008 (Hession 2008). This was a desk-based assessment, which surveyed the existing records and assessed the archaeological potential of the site. The study was carried out as part of a submission for planning, the main element of which was the demolition of The Royal Dublin Hotel (and associated office buildings), which originally occupied Site A.

An archaeological monitoring programme followed in December 2008 during the excavation of six engineering trial pits but these were confined to within the Protected Structure plot to the east (no. 42) and to the north-west, outside the site under discussion (Erikson, 2008). This exposed gravel deposits.

The most relevant investigation to the site under discussion was the excavation of trenches carried out in the same site (within Site A) in 2009 by the writer, after the demolition of the Royal Dublin Hotel

(Simpson L., Excavations Bulletin 2009, 321) (Figs 20 and 21). This modern hotel was constructed of concrete and had a substantial basement, extending to approximately 3m in depth. The purpose of the works, after demolition, was to excavate a continuous trench, the purpose of which was to provide a support for rakers for the adjacent buildings, which include no. 42, the Protected Structure on the eastern side and the A.I.B. bank on the west (no. 39). After the trench was completed, a total of nine trenches were excavated for the rakers at the eastern end of the site, in the area that had a modern basement (Figs 22-23).

The monitoring programme established that the original concrete floor of the basement of the hotel was very substantial and still in position, made of reinforced concrete and measuring over 1m in depth (Figs 24-26). This basement was cut into deep gravel and silt deposits, presumably originally riverine deposits associated with the River Liffey, before it was reclaimed between 1678 and 1728. The gravels were carefully examined but no archaeological features or artefacts found. In April 2009, three (nos 1-3) additional engineering test-trenches were excavated in the basement area of no. 40 and this was followed in May, after the complete demolition of the hotel (nos 40-41), by the casting of a temporary crane base (no. 4) (Fig. 27). In early June, the remaining trenches (nos 5-9) were excavated, with most of the excavation works taking place in the eastern half of the site close to the O'Connell street frontage. The basement floor slab was located at approximately 3m below (2.40m O.D) below present road level of O'Connell Street (5.40m O.D.).

A number of bore-holes were carried out in and around Site B in 1990 and again in 2000 (Nos 47 to 50 O'Connell Street and to the rear of No. 53 O'Connell Street) but without the presence of an archaeologist. However, the contractors recorded the inclusion of brick to 3m in depth suggests post-medieval deposits to that depth.

## 6. THE TESTING PROGRAMME

### 6.1. *Introduction*

The testing programme was confined to two open areas within the larger Dublin Central site, as these were open yards and available for testing (Figs. 28 and 29).

### 6.2. *SITE A (Nos. 40-41, O'Connell Street Upper)*

Site A was tested on the 28<sup>th</sup> of November and a total of five trenches (1-5) were attempted across the site (Figs. 28, 30-32), which was in use as a building compound at the time. The site is rectangular in shape, measuring roughly 62m east-west by 28m wide and has been reduced to basement level, as previously mentioned but with access down a concrete ramp at the southern end, from Moore Lane (note: this ramp was not available for testing). The programme of works established that there are at