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Final Report on archaeological investigations at the Metro North Mater Stop Box (MN106), Mater Misericordiae Hospital, Dublin 7

Director: James Hession
Report Author: Lyndsey Clark and James Hession
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EXECUTIVE SUMMARY

This report presents the results of archaeological investigations (test trenching and archaeological monitoring) in addition to the final results of an archaeological excavation undertaken at the Metro North Mater Stop Box Site, Mater Misericordiae Hospital Campus (Mater Hospital), Eccles Street, Phibsborough, Dublin 7. The work was undertaken to facilitate the construction of the diaphragm wall elements of the Metro North Mater Stop Box, in advance of the opening of the Mater Adult Hospital which is currently under construction. These works were undertaken for BAM Contractors Ltd. on behalf of the Railway Procurement Agency ('RPA') between 09 January and 22 February 2012 in accordance with the Metro North Archaeological Strategy and under Archaeological Excavation Licence No. 11E0458.

The proposed Metro North Mater Stop consists of an underground station structure (Box) constructed using diaphragm walls ('D-walls') that will be located beneath the proposed forecourt of the new Mater Adult Hospital (Mater Stop Box). The proposed Mater Stop Box will run south to north between Eccles Street and the North Circular Road. The underground structure will consist of two sections: the Main Box and the Second Entrance. On its western side the external wall of the Main Box will be located in close proximity to the building line of the Mater Adult Hospital. On its eastern side the external wall of the Main Box abuts the rear of the residential properties on Leo Street. The Second Entrance will be a subsidiary structure required to house the proposed southern pedestrian entrance to the Mater Stop Box and will be located within the future basement structure of the proposed National Children's Hospital of Ireland ('NCHoI').

Three archaeological investigations were conducted as a component of these works – archaeological testing, archaeological monitoring, and archaeological excavation. Archaeological test trenching was carried out between the 09 and 12 January 2012. A total of six test trenches were excavated across the proposed development site. Two features of possible archaeological merit were identified during the test trenching programme and after consultation and agreement between the RPA Project Archaeologist and the National Monuments Service, Dept. of Arts Heritage and Gaeltacht (DoAHG), it was agreed that these two features would be the subject of an archaeological excavation undertaken in parallel with the programme of archaeological monitoring at the site.

Archaeological monitoring of ground reduction works was undertaken between 10 January and 22 February 2012 as required by the construction programme at the site. This work was undertaken in tandem with both the archaeological testing and excavation and comprised the monitoring of site investigations test pits and the monitoring of bulk ground reduction

works. No additional archaeological features or deposits, to those identified by the testing, were identified during the monitoring programme.

Full archaeological excavation, of the features identified through archaeological testing, was undertaken at the site between 25 January and 1 February 2012. The archaeological excavation confirmed that only one of the two features identified by the archaeological testing was of archaeological significance. This feature is interpreted as an 18th or 19th century culvert, (005), and is believed to have functioned in the removal of water. The timber recovered from the culvert was identified as spruce, a non-native species to Ireland that was largely imported to the country during the 19th century; although this species was known to be included in private plantations from the early 18th century. The curvert is likely to be associated with a group of buildings, depicted on the 1st edition Ordnance Survey map of 1837, which front onto a small laneway to the north of Stable Lane. The ceramic and glass assemblage recovered from the excavation supports an 18th to 19th century date for the construction and subsequent demolition of the culvert. The domestic nature of both these assemblages suggests that the area was largely residential during this period.

1.0 INTRODUCTION

This report presents the final results of test trenching, archaeological monitoring and an archaeological excavation that was undertaken at the site of the proposed Metro North Mater Stop Box located within the Mater Misericordiae Hospital Campus (Mater Hospital), Eccles Street, Phibsborough, Dublin 7 **(**NGR: 715511, 735736; Figure 1). These works were undertaken for BAM Contractors Ltd. on behalf of the Railway Procurement Agency ('RPA) from 09 January to 22 February under Licence No. 11E0458.

1.1 Project background

Metro North will be a 16.5km combined underground and surface light rail service development linking Dublin City centre with Estuary (north of Swords) via Dublin Airport. An Bord Pleanála approved the Metro North Railway Order on 28th October 2010 with a number of modifications and conditions (NA003). In particular a Railway Order was not granted for the depot, stop and strategic Park & Ride facility at Belinstown. A Railway Order for the Metro North Dardistown Depot, to the south of Dublin Airport, was subsequently granted by An Bord Pleanala on 5 October 2011. The alignment for Metro North has been sub-divided into seven sections MN101-MN107. The Mater Stop Box lies within section MN106 which will commence in a cut and cover tunnel across Albert College Park before changing to a twin bored tunnel at the southern boundary of the park. From this point the twin tunnels will run in a southerly direction towards Drumcondra prior to turning southwest to pass under the Royal Canal to the proposed Mater Hospital stop located next to the eastern boundary of the Mater Hospital under the existing car park.

As currently proposed, Metro North Mater Stop Box consists of an underground station structure located beneath the forecourt of the Mater Adult Hospital which is currently under construction. The proposed Mater Stop Box runs south to north between Eccles Street and the North Circular Road. The underground structure will consist of two sections: the Main Box and the Second Entrance. On its western side the external wall of the Main Box will be located in close proximity to the building line of the Mater Adult Hospital. On its eastern side the external wall of the Main Box will abut the rear of the residential properties on Leo Street (Figure 3). The Second Entrance will be a subsidiary structure required to house the proposed southern pedestrian entrance to the Mater Stop Box and will be located within the future basement structure of the proposed National Children's Hospital of Ireland (NCHoI).

Due to the location of the Mater Stop Box, it would not be possible to construct the stop box at a future date without causing significant disturbance to the operation of the Mater Adult Hospital. A phase of enabling works was therefore required to facilitate the future

construction of the Mater Stop Box. Enabling works entailed the construction of *c.*80m of the western diaphragm wall (D-Wall) of the Mater Stop Box, which lies adjacent to the Mater Adult Hospital. These works comprised the establishment of the site compound, the reduction of existing ground level in order to create a level platform for the piling equipment and the construction of a temporary guide wall to set out the position of the D-wall. Subsequent to this the D-wall was excavated and constructed in panels *c.*2.8m wide, using specialist equipment including clam shovel drop and hydrofraise, to a depth of *c*.26m.

2.0 ARCHAEOLOGICAL AND HISTORICAL BACKGROUND (*AFTER RPA 2010 AND 2011*)

2.1 General Background

The proposed development site is situated to the north of the River Liffey and is located outside and to the east of the Anglo-Norman medieval settlement of Oxmanstown established in the 12th and 13th centuries. This settlement subsequently expanded throughout the 15th and 16th centuries to what is referred to as 'historic Dublin' a recorded monument and place (DU018:020) stretching from Marlborough Street in the east to Phoenix Park in the west and Parnell Square in the north. Examination of available 18th century cartographic sources for Dublin city, demonstrates that the site, which is located *c.*160m to the northwest of 'historic Dublin', was undeveloped throughout most of the 18th century during which time it comprised agricultural lands. Development in Dublin City, outside of its historic boundaries rapidly increased during the second half of the 17th century during which time extensive reclamation of the River Liffey marsh tidal flat was undertaken. Revetment walls, quays and bridges were constructed on the newly reclaimed land, the Stein, Poddle and Bradogue Rivers that flowed through the city were culverted, and the city began its eastern extension (RPA 2010).

This rapid development of Dublin's hinterland continued throughout the 18th century. At this time the lands of the Mater Hospital were in the ownership of the then lord Mayor of Dublin, Sir John Eccles. Part of the Eccles Estate, and the lands of St. Mary's Abbey were subsequently purchased by the Gardiner Family. The Gardiner family (later Barons and Viscounts Mountjoy) and the Viscounts Fitzwilliam of Merrion were hugely influential in developing large tracts of land to the northeast and southwest of the old city. During the 1770's Luke Gardiner Jr. commenced the development of Eccles Street a residential thoroughfare that would ultimately connect Dorset Street and North Circular Road (EIS[ervices] 2010). The city's growth continued unabated and by 1800 Dublin city was the sixth largest in Western Europe (RPA 2010). The Act of Union in 1801 had a huge impact on the city, however, and many of those whose power and wealth had sought and secured the development and extension of the city moved back to London. Although Dublin's prosperity was curbed to a large degree during this period, there were several improvements made to the infrastructure of the city including improvements to the city's water supply, street lighting and street widening. In addition, the General Post Office was opened in 1818 and in 1870 a tram system was introduced. The introduction of the latter was hugely influential in the increased growth of suburbs that ensued during this time (RPA 2010).

The Mater Stop Box is located, within the Mater hospital complex situated to the north of Eccles Street which defines the southern limits of the Mater Hospital. Eccles Street is considered to be one of the finest Georgian Streets on the north side of Dublin, reputedly built between the 1750s and 1820. The foundation stone for the Mater Misericordiae Hospital was laid in 1852 and it was opened to the public in September 1861. The hospital, designed by John Bourke, reflects Victorian fashion with its classical granite faced façade. The quadrangular structure was built in stages with the wings being added in 1868 and 1884.The hospital was founded and run by the Sisters of Mercy and had accommodation for forty patients. Five years later, during a cholera epidemic in 1866, it treated two hundred and forty eight patients in six weeks. The Mater Hospital received planning permission to demolish the entire north side of Eccles Street sometime post 1939 in order to build a large extension. It is now one of the largest teaching hospitals in the country. It has also developed to become the national centre for cardiac research and surgery. In 1977 William H. Byrne and Son were appointed to design a new ward for the hospital. Built in 1981-86, the L-shaped building is eight storey's high. It is accessed from the North Circular Road. The Mater Hospital is currently undergoing extensive redevelopment (Mater Campus Hospital Development) with works including the construction of dedicated adult and child hospitals (RPA 2010).

2.2 Cartographic Analysis

The site of the Mater Stop Box, as located parallel to the eastern boundary of the Mater Hospital, is first illustrated on Rocque's 1756 '*Map of the City of Dublin'* where it is shown to comprise the eastern extent of two agricultural fields to the west of Drumcondra Lane (now Dorset Street). The site is accessed from Drumcondra Lane by a small east-west laneway. The site of the Mater Stop Box is subsequently illustrated on Thomas Campbell's map of 1811 as two plots of open undeveloped ground, to the west of Dorset Street Lower. At this time the stop box site is defined in the north by present day North Circular Road and in the south by 'Stable Lane' (now Eccles Place). The stop box site is internally sub-divided into two distinct plots by 'Elizabeth Street' a curvilinear laneway leading from Synott Place (now Dorset Place) in the east to the site of the planned 'Royal Circus' in the west. The latter, though illustrated on various maps, was never constructed. Eccles Street is well developed at this time, and access to its rear mews buildings is provided by the aforementioned Stable Lane. The site of the Mater Stop box remains relatively unchanged from 1811 to 1837 when it is illustrated on the 1st edition Ordnance Survey (OS) map (Figure 2). However on this map the plot of land comprising the southern half of the stop box site (as defined by Stable Lane in the south and Elizabeth Street the north) is now shown to comprise two individual

plots. A number of structures are present on the southernmost plot and front onto Stable Lane.

The '*Mater Misericorde Hospital'*, construction of which commenced in 1852, is clearly illustrated on the 2nd edition OS Map of 1875 to the west of the Mater Stop Box site. However the site of the stop box remains unchanged from its previous illustration on the 1st edition OS map. The route of Elizabeth Street has been significantly shortened to the west by works associated with the development of the Mater Hospital. Stable Lane has been renamed Eccles Lane Lower. Construction of Leo Street, the buildings of which form the eastern boundary of the Mater Stop Box, commenced in 1890 (M'Cready 1892, 57). The 4th edition OS map of 1943 illustrates that construction of Leo Street, rear access to which is provided by an L-shaped road, has been completed. Significant development of the Mater Hospital has also taken place. All internal divisions on the site of the Mater Stop Box, including the remains of Elizabeth Street have been removed. The northern extent of Eccles Lane Lower (formerly Stable Lane/later Eccles Place) is now well developed and continuously lined by a series of buildings and their associated outbuildings, and access lanes.

Subsequent to this map the demolition of buildings on Eccles Street and Eccles Lane occurred as part of the ongoing expansion of the Mater Hospital and the site of the stop box was transformed into a surface car park. An access laneway and nurses home were constructed adjacent to the hospitals northern site boundary. The footprint of the latter is partially located within the stop box site. An additional ancillary hospital building was constructed towards the centre of the car park. This is also partially located within the footprint of the Mater Stop Box (RPA 2010).

2.3 Record of Monuments & Places (RMP)

There are no known RMP sites recorded either within the Mater Stop Box site or its immediate vicinity. The nearest RMP sites to the Mater Stop Box site are outlined in Table 1.

Table 1—RMP sites closest to the Mater Stop Box

RMP Number	National Grid Reference	Classification of Monument	Distance from Proposed Development Site
DU018:020	N/A	Historic city of Dublin	*c.*160m to the northwest
DU018:023	315776, 235756	Site of an 18th century 3 storey dwelling site on Dorset Street Lower	*c.*80m to the west

RMP Number	National Grid Reference	Classification of Monument	Distance from Proposed Development Site
DU018:024	315598, 235362	Former location of a 16th/early 17th century stone well	*c.*160m to the southeast

2.3 Recent investigations

The site of the Mater Stop Box has been the subject of recent intensive archaeological investigation both as a consequence of the proposed scheme and due to the ongoing redevelopment of the Mater Hospital Campus.

Environmental Impact Statement

The *Metro North Environmental Impact Statement* (RPA 2008) identified six heritage constraints (HCs) within the proposed Mater Stop Box area, outlined in Table 2

Table 2—Heritage Constraints within the site of the Mater Stop Box

Heritage Constraint Number	Classification
HC#35	Site of Archaeological Potential
HC#402	House (24 Leo Street, Dublin 7)
HC#403	House (25 Leo Street, Dublin 7)
HC#404	House (26 Leo Street, Dublin 7)
HC#405	House (398 North Circular Road, Dublin 7)
HC#406	House (400 North Circular Road, Dublin 7)

Heritage Constraint Numbers 402-406 relate to upstanding houses which will not be directly impacted upon by the proposed development. HC#35 was identified as a 'Site of Archaeological Potential' due to the discovery of human skeletal remains in conjunction with previous development works in 2002 (refer to Archaeological Impact Assessments).

Archaeological Impact Assessments

Human remains were initially identified during engineering site investigations in the northeast section of the Mater Hospital site, parallel to the North Circular Road boundary wall (Simpson 2002; Licence No. 02E0960). An archaeological impact assessment established that the location of the skeletal remains was confined to the boundary wall's foundation trench. Analysis of the human remains postulated that the bones were the result of amputations as the majority of the bones were from limbs and digits. The remains appear to have been dumped into the trench in the 19th century when the wall was initially

constructed. Sometime after the construction of this boundary wall *c*.1m of garden soil was introduced into the northeast corner of the Mater Hospital site. The deposition of this material resulted in disturbance to the boundary wall's foundation trench causing limited dispersal of disarticulated human remains. The deposit also contained residual 17th century ceramics.

Archaeological Monitoring

In 2008 monitoring of bulk excavation works associated with the construction of the Mater Adult Hospital to the immediate west of the Mater Stop Box was undertaken (McQuade 2009; Licence No. 08E970). This area of the site had been extensively disturbed through the construction of previous hospital buildings, their associated basements, an underground service tunnel and sub-surface oil tanks. This bulk excavation work included the excavation of a service trench within the site of the Mater Stop Box and parallel to the rear boundary wall of No's 5-26 Leo Street. This service trench measured approximately 110m in length by 1.67m in width and was excavated to a depth of 1.35m. Archaeological monitoring identified that the natural subsoil was located at an average depth of 0.95m in the vicinity of the proposed Mater Stop Box. On average the natural soil was overlain by 0.50m of post-medieval material predominantly comprising original sod layer, and introduced 18th/19th century garden soil containing 18th/19th century ceramics, slate, charcoal, animal bone and brick. The latter was truncated by 18th century agricultural features (linear furrows and drainage ditches). Two possible, partially truncated kitchen middens were also excavated into this garden soil in the vicinity of Eccles Street (15.50m OD). A further pit was similarly identified in the northwest corner or the site; however excavation was compromised by unsuitable ground conditions (EIS^{ervices} 2010).

Geotechnical Investigations

From 1999 to 2010 a number of geotechnical investigations were undertaken within the study area for the Mater Stop box (EIS^{ervices} 2010; Collins 2010; Dennehy 2009; Kerrins & McQuade 2009). The investigations include the excavation of utility slit trenches and boreholes. Hand dug inspection pits were excavated for the boreholes, to a depth of 1.20m prior to the commencement of boring. A total of six boreholes were excavated on behalf of the RPA within the Mater Stop Box, with a further five excavated in the surrounding study area to the south and west. Analysis of the stratigraphy recorded generally corresponds to that identified during the course of archaeological monitoring as described above; however subsoil was encountered at a slightly more substantial depth. The stratigraphy recorded within the inspection pits and associated cores indicates that fill, comprising hardcore and garden soil was present to a depth ranging from 0.00m-1.70/1.98m below present ground

level. Sub-soil was encountered at a depth of 1.70/1.98m below present ground level (Kerrins & McQuade 2009). Tiled floor surfaces were identified at a depth of 0.65m below present ground level in the vicinity of the site of Stable Lane/Eccles Place (Collins 2010). The surface may relate to remains of a former coach house or mews building associated with an 18th century Georgian buildings which once fronted onto Eccles Street. The potential presence of basements at a depth of 1.2m-3m was identified to the west of the Mater Stop Box site. The basement potential was noted due to a failure to gather material from coring. The location of this borehole corresponds to the site of a 20th century nurses building which once fronted onto North Circular Road.

In 2009 a utility slit trench was excavated adjacent to No.26 Leo Street (HC#404) 13m to the east of the Mater Stop Box site (Dennehy 2009). The utility slit trench was excavated to a depth of 1.08m below present road level at which point natural subsoil was identified. The stratigraphy comprised 0.00-0.35m of road surfaces including two distinct layers of cobbledock. A fill layer was identified from 0.35-0.65m which contained inclusions of redbrick, mortar, white glazed earthenware, cobbles slate and charcoal. A deposit similar to that interpreted within the Mater Stop Box and Mater Hospital site as representing original ground surface was recorded at a depth of 0.65m to 1.08m. It consisted of dark yellow-brown silty clay with 10% inclusions of stone and 2% inclusions of shell.

3.0 OBJECTIVES AND METHODOLOGY

3.1 Objectives

Archaeological Test Trenching

The objective of the test excavation was:

- to determine the nature, extent, date and significance of presently unknown archaeological deposits within the Mater Stop Box site by means of machine excavated test trenches.
- to record any archaeological features or deposits encountered.
- to assess the impact of the proposed scheme on any surviving archaeological deposits, as well as assessing the relative significance of any such deposits.
- to present possible mitigation measures in relation to any surviving archaeological deposits.

Archaeological Monitoring

The objective of the archaeological monitoring programme was to provide a watching brief during the removal of overburden at the Mater Stop Box site for the purpose of identifying

any archaeological features, deposits or artefacts that might be present at the site and which could be impacted upon by the development. The results of previous investigations undertaken in the vicinity of the proposed scheme suggested that between 0.95m and 1.98m of overburden existed across the site.

Archaeological Excavation

The objective of the archaeological excavation was the preservation-by-record through appropriate rescue excavation of any significant archaeological features or deposits, which were identified within the boundaries of the Mater Stop Box site, in advance of the construction programme, so as to mitigate the impact of the proposed scheme on *in situ* archaeological material.

3.2 Methodology

The programme of archaeological investigations at the Mater Stop Box site was carried out between 09 January and 22 February 2012 by James Hession in accordance with Licence No. 11E0458.

Archaeological Test Trenching

Archaeological Testing took place between 09 and 12 January 2012. A total of 6 trenches were excavated across the Mater Stop Box site. The test trenches were positioned to optimise the likelihood of identifying any archaeological material that may be present at the site, and therefore the design of the proposed scheme, as well as the topography and current condition of the site were taken into account. Excavation of the archaeological test trenches was conducted using a 360° tracked machine fitted with a 1.8m wide ditching (toothless) bucket under constant archaeological supervision. A total of approximately 12% of the accessible footprint of the proposed scheme was subject to archaeological testing.

Modifications to the proposed scope of works combined with the presence of underground utilities reduced the scope of the overall area subject to archaeological test trenching as follows:

- The northernmost area of the Mater Stop Box site, measuring 45m east–west by 18m, was omitted from the construction works. This area incorporated the proposed location of Test Trench 2 (Figure 3).
- The presence of live and defunct sewerage services along the route of Test Trench 1 and along the proposed location of Test Trench 3, as outlined on Figure 3, resulted in the exclusion of an area measuring 28m east–west by 18m from the test trenching programme. As a consequence Test Trench 3 was repositioned.

- Test Trench 7 was also omitted from the test trenching programme due to a delay in the completion of the Site Investigation works, which prevented access to this area (Figure 3). This area was subsequently archaeologically monitored.

At all times where potential archaeological material was identified, excavation ceased at the first archaeological level thus preserving any archaeological features or deposits intact. This process preserved the stratigraphic integrity of the site, while still ensuring that sufficient archaeological testing was undertaken to adequately characterise the features and deposits encountered.

Two features of possible archaeological significance (a linear culvert (005) and a pit (010)) were identified during the testing programme and upon consultation with the RPA Project Archaeologist and the National Monuments Service, Department of Arts, Heritage and Gaeltacht ('DoAHG'), it was agreed that the identified features merited archaeological excavation. The subsequent archaeological excavation which took place from 25 January to 01 February confirmed that only culvert (005) was of archaeological significance.

Archaeological Monitoring

All ground reduction across the site was undertaken under archaeological supervision. This included monitoring of:

- the removal of overburden across the footprint of the proposed piling mat (Figure 4);
- post-holes excavated in order to accommodate the erection of site hoarding along the southern and western site boundary;
- test pits excavated in advance of site investigation boreholes (Figure 3);
- a large rectangular pit excavated in the northwest corner of the site to accommodate the insertion of a substantial water storage tank;
- a test pit excavated in the north of the site to accommodate the construction of a test panel for the Mater D-Wall (Figure 3).

No additional archaeological features were identified during the concurrent archaeological monitoring programme undertaken at the site from 10 January to 22 February 2012.

Archaeological Excavation

The excavation of potential archaeological features identified by the archaeological testing programme was undertaken at the Mater Stop Box site between 25 January and 01 February 2012. The crew for the excavation consisted of 1 director, 1 supervisor and 3 site assistants.

In order to accommodate the complete exposure of the identified archaeological features it was necessary to fully remove all overburden material across the designated archaeological site. Overburden removal was conducted using a 360° tracked machine fitted with a 1.8m wide ditching (toothless) bucket under constant archaeological supervision. A total excavation area of 480m² was exposed. The resulting surface was cleaned and all potential features investigated by hand. All recording was carried out by Rubicon Heritage Services Ltd. standard method. Archaeological contexts were recorded by photograph (using digital cameras) and on *pro forma* record sheets. Registers are provided in the appendices (Appendices 1-6). Plans and sections were drawn at scales of 1:20 and 1:50 respectively. Ordnance Datum levels and feature locations were recorded using GPS and a total station theodolite.

Heavy rainfall over the course of the excavation coupled with the fact that the archaeological excavation constituted the lowest point on site resulted in the constant flooding of culvert (005) for the duration of the excavation.

Artefacts recovered during the excavation, comprising glass, ceramics and stone were assigned unique numbers and treated in accordance with National Museum of Ireland guidelines. Wood samples obtained from the excavation were taken following consultation with wood specialist and archaeobotanist Ellen O'Carroll. Treatment of artefacts adhered at all times to the requirements of the *National Museum of Ireland: advice notes for excavators* (2010), as well as general best practice guidance—*Conservation Guidelines for Archaeologists* (IPCRA 2009) *and First Aid for Finds* (RESCUE/UKIC, 1998).

As part of the post-excavation works artefacts and wood samples were analysed by the appropriate specialists and reports produced on the findings; these reports have been incorporated into this final report (see appendices).

4.0 RESULTS OF TEST EXCAVATION

Natural geological strata at the site was characterised by compact yellow-orange clays and gravels.

Trench 1

0.00-0.23m Hardcore (804 or similar)

0.23-0.58m Black silty clay with inclusions of animal bone, oyster shell, fragments of red brick and mortar. Creamwares and pearlwares were also noted within this layer

0.58-0.81m Red brick rubble, mortar fragments and occasional angular stone

0.81-1.16m Light brown silty clay with inclusions of charcoal flecks, red brick fragments and oyster shell. Creamwares, pearlwares and other 18th–19th century ceramics were noted within this layer

1.16-1.35m Interface[1]: light brown sandy clay with flecks of charcoal, decayed stone and occasional oyster shell

1.35m Natural subsoil: light yellow brown sandy clay with occasional small-sized stones and gravel

Trench 1 was excavated along the centre of the proposed stop box and extended north–south parallel to the rear of the properties that front onto Leo Street (Figure 3). Excavated in two sections due to site constraints, it measured 105m in length by 1.8m in width and on average measured 1.35m in depth (Plates 1 & 2).

The northernmost 20m of Test Trench 1 was characterised by a deep deposit—up to 2.60m—of made ground consisting of backfilled re-deposited natural mixed with angular stone (Plate 3). Modern construction refuse—mushroom caps, re-bar and plastic—was identified amongst this material. This deposit is believed to have originated from ground reconsolidation works associated with the removal of the basement of the Mater Hospitals nurse's accommodation during recent redevelopment works. The remaining part of Test Trench 1 reflected the stratigraphy (overburden) identified from previous archaeological

[1] The term interface as used here and throughout this report denotes a layer of soil (most likely the result of ploughing activity) between the natural ground level and the distinctive overlying manmade soils.

investigations in the Mater Hospital, with natural subsoil encountered between 0.72m and 1.50m below existing ground level.

Two features of possible archaeological merit, a culvert (005) and a pit (010) (cut directly into the natural geological strata), were identified 15m from the southern extent of Test Trench 1; culvert (005) was also identified in Test Trench 6.

Orientated east–west culvert (005) measured approximately 2m in width. An exploratory hand dug section into the culvert identified a stone wall along the northern edge of the cut and a timber plank (006) along the centre of the culvert, which was believed to represent the surface of a timber plank built conduit. The plank/possible conduit (006) was overlain by two distinct fills; a moist grey silty clay, which lay under a dark grey brown sandy clay that was dominated by inclusions of red brick rubble and large-sized stones. Frequent amounts of animal bone, glass and 18th/19th century ceramics were identified within this material (Plate 4).

A circular pit (010) was identified 0.50m to the south of the culvert/drain (005) and 11.5m from the southern extent of Test Trench 1. It measured approximately 2m in width by 0.15m in depth and extended beyond the eastern baulk of the trench. Investigative test excavation revealed that it was filled by (011), a dark grey brown sandy clay with inclusions of frequent rounded stones. Animal bone and 18th/19th century ceramics were also identified within this fill (Plate 5).

A series of agricultural plough furrows were identified cut into the natural subsoil within Test Trench 1. These were orientated north–south and positioned approximately 0.30m apart. Test excavation of one of the identified furrows (004) revealed that it measured 0.40m in width by 0.10m in depth and was filled by (003); light brown silty clay with inclusions of charcoal flecks, red brick fragments and oyster shell (Plate 6). The identified plough furrows demonstrated physical characteristics, such as a degree of straightness and spacing that clearly indicate a mechanised origin and suggest a date post *c.*AD 1700.

Throughout the length of Test Trench 1 the natural soil was overlain by approximately 0.40m of light brown silty clay. An introduced layer of black silty clay was identified above this, containing 18th/19th century ceramics (e.g. creamwares and pearlwares), slate, charcoal, animal bone and brick. Lenses of red brick rubble and mortar fragments were noted between these two main layers and are thought to represent rubble from demolished 18th/19th century buildings depicted on the first edition Ordnance Survey map of 1837 (Figure 2).

The presence of plough furrows throughout Trench 1 reflects the agricultural nature of this area as suggested by the cartographic analysis outlined in section 2.2 above. The remaining

features (cut into natural at the base of the trench) possibly indicate domestic activity. A number of buildings are depicted fronting onto a small laneway to the north of Stable Lane on the first edition Ordnance Survey map of 1837 and it is a possibility that culvert (005) was associated with these buildings. It is also a possibility that culvert (005) corresponds to a boundary ditch that is depicted in this area on the first edition OS map (Figure 2). On the basis of the available evidence this activity is likely to post-date 1750.

Trench 2

(Not excavated as this area will not be impacted upon under the current works contract)

Trench 3

0.00-0.10m Hardcore (804 or similar)

0.10-0.22m Black silty clay with inclusions of animal bone fragments of red brick and mortar. Creamwares and pearlwares were also noted within this layer

0.22-0.62m Light grey brown silty clay with inclusions of charcoal flecks, red brick fragments, mortar fragments, occasional angular stone and oyster shell. Creamwares and pearlwares were noted within this layer

0.62-0.72m Interface: light brown sandy clay with flecks of charcoal, decayed stone and occasional oyster shell

0.72m Natural subsoil: light yellow brown sandy clay with occasional small-sized stones and gravel

The presence of live sewerage services at the proposed original location of Test Trench 3 meant that it was repositioned approximately 30m further south. It was orientated roughly east–west, perpendicular to the existing eastern boundary wall and measured 17m in length by 1.8m in width, with a maximum depth of 0.72m (Figure 3; Plate 7).

A series of agricultural plough furrows orientated north–south and cut into the natural subsoil were identified within Test Trench 3. In addition a large tree stump was identified at the eastern extent of the trench with a partially bonded fragment of yellow brick walling identified amongst the overburden in the western section of the trench. No features of archaeological significance were identified within the excavated trench (Plate 8).

The identified stratigraphic layers were similar to those identified in Test Trench 1.

Trench 4

0.00-0.45m Hardcore rubble with gravel, sand and large-sized stones throughout

0.45-0.50m Layer of crushed mortar with fragments of red brick

0.50-0.77m A dark brown to dark purple silty clay with inclusions of red brick fragments, mortar, oyster shell and animal bone. Ceramics dating to the 18th/19th century were noted within this layer

0.77-1.22m Compact grey clayey silt with inclusions of 18th/19th century ceramics, occasional red brick fragments, crushed mortar and charcoal flecks

1.22-1.35m Interface: light brown sandy clay with flecks of charcoal, decayed stone and occasional oyster shell

1.35m Natural subsoil: light yellow brown sandy clay with occasional small-sized stones and gravel

Trench 4 was located at the southern end of the site and was orientated roughly east-west, across the site (Figure 3). It measured 20.50m in length by 1.8m in width and on average it measured 1.35m in depth (Plate 9).

The natural subsoil was identified at depths of between 1.20m and 1.35m across the trench, with the overburden deepest at the eastern end (the trench was excavated to a maximum depth of 1.50m). The layer of crushed mortar identified within the trench varied from 0.05m to 0.30m in depth. A modern concrete footing was identified just below the hardcore in the upper section of the overburden material and was interpreted as possible foundation material associated with a former building on the site. It may also have simply been backfilled rubble material (Plate 10).

A series of agricultural plough furrows orientated north–south were identified within Test Trench 4; cut into the natural subsoil, they correspond to the pattern of furrows identified within Test Trenches 1 and 3. No features of archaeological significance were identified within the excavated trench. The identified stratigraphic layers were similar to those identified in Test Trenches 1 and 3.

Trench 5

0.00-0.20m Hardcore

0.20-0.35m Black to purple brown silty clay with inclusions of animal bone, fragments of red brick and mortar. Ceramics dating to the 18th/19th century were noted within this layer

0.35-0.85m Compact grey clayey silt with inclusions of 18th/19th century ceramics, occasional red brick fragments, crushed mortar and charcoal flecks

0.85-0.90m Interface: light brown sandy clay with flecks of charcoal and decayed stone

0.90m Natural subsoil: light yellow brown sandy clay with occasional small-sized stones and gravel

Trench 5 was located 15m south of Test Trench 3 in the central portion of the site. It was orientated roughly east–west (Figure 3) and measured 16m in length by 1.8m in width and was excavated to a maximum depth of 0.90m (Plate 11).

A series of agricultural plough furrows orientated north–south were identified within Test Trench 4; cut into the natural subsoil they corresponded to the pattern of furrows identified within Test Trenches 1, 3 and 4. No features of archaeological significance were identified within the excavated trench. The identified stratigraphic layers were similar to those identified in Test Trenches 1, 3 and 4.

A concrete manhole and covering plate associated with the Mater Hospitals sewerage service was identified in the eastern extent of the trench. The sewerage works were left *in situ* and further test trenching in this area was avoided.

Trench 6

0.00-0.25m Hardcore (804 or similar)

0.25-0.60m Black silty clay with inclusions of fragments of red brick and mortar. Creamwares and pearlwares were noted within this layer

0.60-0.75m Red brick rubble, mortar fragments and occasional angular stone

0.75-1.20m Mid–light brown silty clay with inclusions of charcoal flecks, red brick fragments and oyster shell. Ceramics dating to the 18th/19th century were noted within this layer

1.20-1.37m Interface: light brown sandy clay with flecks of charcoal, decayed stone and occasional oyster shell

1.37m Natural subsoil: light yellow brown sandy clay with occasional small-sized stones and gravel

Trench 6 was located at the south-eastern end of the site and was orientated roughly north–south, parallel to Test Trench 1 (Figure 3). It measured 10.50m by 3m in width and on average was 1.37m deep (Plate 12). Test trench 6 was excavated to a maximum depth of 1.50m.

Culvert (005) was identified at the southern extent of Test Trench 6. Orientated east–west and interpreted as potentially extending across the entire site, it measured approximately 2m in width. An exploratory hand dug section confirmed that it presented differently within Test Trench 6 when compared to Test Trench 1. Within Test Trench 6 culvert (005) was defined

by a substantial layer of re-deposited natural. This material was truncated along its northern extent by a linear feature—later identified as a robber trench (008) (Plate 12). Frequent amounts of animal bone, glass and 18th/19th century ceramics were noted within the upper fill of the linear feature and on the surface of the layer of re-deposited natural.

Trench 7

The exclusion of Test Trench 7 from the test trenching programme resulted from a delay in the completion of the Site Investigation works, which prevented access to this area (Figure 3).

5.0 RESULTS OF ARCHAEOLOGICAL MONITORING

Monitoring of the removal of topsoil/overburden from the Mater Stop Box site took place intermittently between 10 January and 22 February 2012, as required by the construction programme. The programme consisted of monitoring: test pits in advance of SI investigations; the excavation of postholes for the erection of site hoarding; the excavation of a large rectangular pit excavated to accommodate a substantial water storage tank; overburden removal across the footprint of the piling mat and guide wall areas; and a pit required to accommodate the construction of a test panel for the Mater D-Wall.

Test Pit 1

0.00-0.20m Hardcore (804 or similar)

0.20-0.55m Black silty clay with inclusions of red brick and mortar fragments. Creamwares and pearlwares were noted within this layer

0.55-0.70m Red brick rubble, mortar fragments and occasional angular stone

0.70-1.15m Mid–light brown silty clay with inclusions of charcoal flecks, red brick fragments and oyster shell. Ceramics dating to the 18th/19th century were noted within this layer

1.15-1.20m Interface: light brown sandy clay with flecks of charcoal, decayed stone and occasional oyster shell

1.20m Natural subsoil: light yellow brown sandy clay with occasional small-sized stones and gravel

Test Pit 1 was located in the south-western corner of the site 10m west of Test Trench 1 (Figure 3). It measured 3.60m in length by 2m in width and was excavated to a depth of 1.20m (Plate 13).

No features of archaeological significance were identified within this test pit.

Test Pit 2

0.00-0.50m Hardcore (5 different coloured layers of modern gravel)

0.50-0.55m Dark Brown to black silty clay

0.55-0.75m Light yellow brown sandy clay with flecks of charcoal and decayed stone. Compact grey clayey silt with inclusions of 18th/19th century ceramics, occasional red brick fragments, crushed mortar and charcoal flecks

0.75m Natural subsoil: light yellow brown sandy clay with occasional small-sized stones and gravel

Test Pit 2 was located along the western perimeter of the site to the north of Test Trench 5 and 6.5m west of Test Trench 1 (Figure 3). It measured 3m in length by 2m in width and was excavated to a depth of 0.75m (Plate 14).

Two north–south orientated plough furrows were identified within this test pit. No features of archaeological significance were identified.

Test Pit 3

0.00-0.18m Hardcore

0.18-0.42m Light grey brown silty clay with inclusions of red brick rubble, mortar fragments and occasional angular stone

0.42-0.67m Black silty clay with inclusions of animal bone and red brick and mortar fragments. Creamwares and pearlwares were noted within this layer

0.67-0.85m Mid-brown silty clay with flecks of charcoal, decayed stone and occasional oyster shell

0.85m Natural subsoil: light yellow brown sandy clay with occasional small-sized stones and gravel

Test Pit 3 was located along the western perimeter of the site to the north of Test Trench 5 and 6m west of Test Trench 1 (Figure 3). It measured 3m in length by 2m in width and was excavated to a depth of 0.85m (Plate 15).

Two north–south orientated plough furrows cut into natural subsoil were identified within this test pit. No deposits, features or finds of archaeological significance were identified.

Test Pit 4

0.00-0.55m Grey hardcore material

0.55-1.55m Re-deposited natural mixed with gravels and modern construction refuse

1.55-2.05m Dark grey sandy clay with frequent inclusions of modern construction material (re-bar, wire and pieces of concrete)

2.05-2.30m Mid–light brown sandy clay with occasional inclusions of modern construction refuse (re-bar) noted

2.30m Natural subsoil not encountered

Test Pit 4 was located along the western perimeter of the site 12m west-north-west of Test Trench 1 (Figure 3). It measured 3.20m in length by 2m in width and was excavated to a depth of 2.30m (Plate 16).

No deposits, features or finds of archaeological significance were identified within this test pit.

Test Pit 5

0.00-0.10m Road/footpath surface

0.10-0.35m Hardcore footpath foundation material

0.35-0.65m Dark grey silty clay with occasional angular stone

0.65-1.05m Light yellow brown sandy clay with occasional small-sized stones and gravel

1.05-1.75m Dark grey brown sandy clay with inclusions of decayed and angular stone

Test Pit 5 was located in the north-west corner of the site 27m north-west of Test Trench 1 (Figure 3). It measured 3m in length by 2m in width and was excavated to a depth of 1.75m (Plate 17).

No deposits, features or finds of archaeological significance were identified within this test pit.

Postholes

Monitoring of postholes in association with the erection of site hoarding was carried out along the southern and western perimeter of the site. On average each posthole measured 0.70m in length by 0.50m in width and was excavated to a depth of 0.60m (Plates 18 & 19). Monitoring revealed that the site had a covering of 0.60m of hardcore material (804 or similar) along the southern and western perimeter. No deposits, features or finds of archaeological significance were identified and no archaeological soils were encountered.

Water tank

A large rectangular pit associated with the insertion of a substantial water tank was excavated in the north–west corner of the site, 13m west of the northern segment of Test Trench 1. It measured 12m in length by approximately 2m in width by 0.60m in depth. Monitoring revealed that this portion of the site had a covering of 0.20m hardcore overlying a deposit of made ground. This comprised 0.40m of re-deposited natural with inclusions of frequent gravel and angular stone. Occasional construction debris was also identified (Figure 3; Plate 20).

Bulk Excavation

The footprint of the proposed piling mat associated with the works measured 1975m². The overburden was removed across this entire area (Figure 4).

Monitoring revealed a similar stratigraphy to that identified in Test Trenches 1–6 and Test Pits 1–4. The site was reduced to the required formation level in three phases whereby the overburden was firstly removed from the central portion of the site (Plate 21), followed by the eastern section (Plate 22). The western part of the site was then stripped in parallel with the Mater Stop Box guide wall (Plate 23 & 24).

Monitoring revealed that the footprint of the piling area had a substantial covering of overburden material ranging from 0.72m to 1.35m in depth. The underlying sub-soil was light yellow brown sandy clay with frequent gravel and occasional medium sized stones.

A small rectangular pit (012) was identified 10m north of culvert (005) during overburden removal along the central portion of the site. It measured 1.10m in length by 0.62m in width by 0.42m in depth (Plate 25). Investigation of this feature confirmed that it was of modern origin and the result of previous phases of geological site investigation works (refer to Section 2.3).

The outline of a modern sewerage service orientated north–south along the western perimeter of the site was identified during this episode of archaeological monitoring (Plate 26).

No archaeological features or deposits were revealed during the monitoring of the development works.

Mater D-Wall Test Panel

A large rectangular pit required to accommodate the construction of a test panel for the Mater D-Wall was excavated in the northwest corner of the Mater Stop Box site, approximately 10m to the south of the site boundary (Figure 3). The following stratigraphy was encountered;

0.00-0.40m Hardcore (804 or similar)

0.40-1.50m Made ground (modern backfill)

1.5m-5m Grey sandy clay with frequent rounded and angular stone

No features, deposits or finds of archaeological significance were identified (Plates 27 & 28).

6.0 FINAL RESULTS OF ARCHAEOLOGICAL EXCAVATION

A total of four main phases of activity have been identified from the results of the excavation. Three of the identified phases of activity relate to culvert (005) which is post-medieval in date. The fourth phase relates to modern activity undertaken at the site.

The overburden across the site—a variable and disturbed mix of hardcore and soil deposits; generally mid-brown silty clays (001)—ranged in depth from 0.72m to 3m. Finds from this deposit included 19th to 20th century English Stoneware (11E0458:001:001-2). Natural geological strata (002) was characterised by yellow brown sandy clay with frequent gravel and occasional midsized angular stone.

6.1 The excavation

The area of excavation was located at the southern extent of the proposed scheme, extending over an area measuring approximately 16m north–south by 30m east–west or 490m² (Figure 3).

Phase I

Phase I represents the earliest activity on site and was characterised by a linear culvert (005) (Figure 4). This feature is thought to have functioned as a drain and most likely correlates to the plot boundary depicted on the first edition Ordnance Survey map of 1837. The culvert (005) was identified centrally within the excavation area (Figures 5-7). It was linear in plan with an east–west orientation and a broad u-shaped profile. The break of slope at the top, middle and base was sharp while the base itself was flat; it measured 11.50m in length by 3.40m in width by 1.30m in depth. The culvert terminus was semi-circular in shape, with a sharp break of slope at the top and base and steeply sloping sides. Two stone walls lined the northern (026) and southern (027) sides of the culvert and a stone-lined drain (028), capped by a series of four split plank timbers, was positioned centrally along the base (Plate 29). In addition a wooden platform (033) was identified above stone-lined drain (028) within the terminus of the culvert.

Dry-stone wall (026) partially lined the northern edge of culvert (005). This was linear in plan and was constructed from roughly hewn limestone blocks. The wall was 0.60m in width and constructed of two rows of large flat stones, with smaller stones identified within the interior and also utilised within the configuration. It measured 5.35m in length (east–west) by 0.70m in height. The wall at the eastern end had been almost completely robbed out, with only three stones remaining *in situ*. The western extent had also been heavily disturbed by the Phase III robber trench (008), although three courses of stone survived in this area (Figure 5; Plate 30).

Dry-stone wall (027) lined the southern edge of culvert (005). This was also constructed from roughly hewn limestone blocks and was linear in plan. It measured 0.50m in width and comprised two rows of large outer stones, with some smaller stones also noted. It survived to three courses in height and measured 9.80m in length (east–west) by 0.40m in height. It was heavily disturbed along its length and may have been robbed out after the culvert fell into disuse (Figures 5 & 6; Plate 31). It was sealed by a substantial deposit of re-deposited natural (021). This contained: 17th-18th century Tin Glazed Earthenware (11E0458:021:008); mid-18th-19th century Shell Edged Ware (11E0458:021:009); 18th-20th century Black Glazed Red Earthenware (11E0458:021:007); 19th-20th century Stoneware (11E0458:021:006) (Appendices 2 and 8); four neck and base fragments from 18th century free blown green glass bottles (11E0458:021:001-004); and the base fragment from a post-medieval free blown light green glass condiment/pharmaceutical bottle (11E0458:021:005) (Appendices 2 and 9).

A stone-lined drain (028) was identified centrally along the base of culvert (005). This was constructed from roughly hewn limestone boulders ranging in size from 0.25m by 0.13m by 0.15m to 0.37m by 0.21m by 0.11m; it created a straight central channel believed to have functioned in water management. The outer edges or sides of the stone-lined drain were very uneven, with the individual stones pressed into the natural rather than lining a purposely excavated cut (Figure 5-7; Plate 32). It measured 9.80m in exposed length (east–west) by 0.23m in width by 0.18m in depth. At the eastern extent, the base of drain (028) was lined by a timber post (Timber 8). The timber was identified as a boxed inner radial split spruce wood, with the presence of 45 annual tree rings suggesting an older tree was utilised. It was in a moderate state of preservation and measured 0.90m in length by 0.12m in width by 0.07m in depth; no evidence of tool marks was identified (Appendix 7). Drain (028) was filled by a single fill (032), which consisted of mid-grey silty clay with inclusions of small-sized stones and shell. The stone-lined drain was capped by a series of four tangentially split planks (006) placed atop of the stone lining (Timbers 1-4; Plate 36). Analysis of these timbers showed that they were constructed from spruce wood, with tree ring counts of between 18 and 23 indicating the use of young trees. The planks were in a poor to moderate condition, measuring 1.24m long by 0.20m by 0.02m thick on average; no evidence of tool marks was identified (Appendix 7).

The timber capping (006) and stone-lined drain (028) were sealed by deposit (007); a moderately compact light brown grey silty clay with inclusions of small-sized stones representing siltation within the culvert (Figure 5). It measured 9.80m in length by 1.70m in width by 0.12m in depth. Finds recovered from this deposit included: 18th century porcelain (11E0458:007:014); 18th-20th century Unglazed Red Earthenware (11E0458:007:007);

18th-20th century Black Glazed Red Earthenware pottery (11E0458:007:001-006 and 008-009) (Appendices 2 and 8); the neck fragment from a post-medieval free blown green glass wine/beer bottle (11E0458:007:002); clay pipe stems (11E0458:007:010-11) and a shard of possible window glass (11E0458:007:001; Appendices 2 and 9).

Timber platform (033) lay flush against walls (026) and (027) above fill (007) within the terminus of culvert (005); it is thought to have functioned as a surface or platform, given its position overlying the terminus of the drain (028) and lining the base of the culvert terminus (005), and had maximum dimensions of 1.40m in length (north–south) by 0.70m in width by 0.02m in depth (Figures 5 & 6; Plates 37 & 38). The surface was constructed from three horizontally placed, tangentially split planks of spruce wood (Timbers 5–7), measuring 0.98m in length (north–south) by 0.21m in width by 0.03m in thickness on average. These were in a poor to moderate state of preservation, with between six and 20 tree rings suggesting the use of young trees; no evidence of tool marks was identified (Appendix 7). Above this was moderately compact light brown grey silty clay with inclusions of small-sized stones (034). This deposit was only identified within the terminus of culvert (005) and may represent natural silting within the culvert terminus. It measured 1.40m in length (north–south) by 0.70m in width by 0.15m in depth. A rim fragment from an 18th-19th century small Creamware bowl (11E0458:034:001) was recovered from this deposit (Appendices 2 and 8).

Phase II

Phase II was characterised by a series of backfilled deposits representing an episode of disturbance or possibly the destruction of culvert (005). During this time the quarried stone (027) along the southern edge of the cut was partially removed and the culvert subsequently backfilled. It is therefore likely, that the culvert was no longer in use at this time. The identified fills within the culvert have been divided into three groups (lower, middle and upper) for ease of description.

Lower fills: Lower fill (009) consisted of loosely compacted brown grey silty clay with rust coloured mottling and organic material throughout (Figures 6 & 7). It was present along the extent of the culvert and measured 9.80m in length by 1.70m in width and between 0.10m and 0.40m in depth. A substantial amount of red brick rubble, angular stone and two fragments of architectural stone representing part of a window sill (11E0458:009:052-053; Appendices 2 and 10; Plate 41) were identified throughout this material, suggesting that it represented a dumped deposit, incorporating building rubble. It also produced a small, but varied, ceramic assemblage, including: 17th century Frechen stoneware (11E0458:009:010); 18th century porcelain (11E0458:009:022); 18th-19th century Creamware (11E0458:009:019-020); mid-18th-19th century Shell Edged Ware (11E0458:009:021; 023);

18th-20th century Sponge-ware (11E0458:009:024); 18th-19th century Painted Pearlware (11E0458:009:026); 18th-20th century Black Glazed Red Earthenware (11E0458:009:001-009; 018; 027); 18th-20th century Glazed Red Earthenware (11E0458:009:025); two roof tile fragments (11E0458:009:011; 016) and 18th-20th century Unglazed Red Earthenware (11E0458:009:012-015 and 017) (Appendices 2 and 8). A small glass assemblage, containing 24 base and neck shards from late 18th century free blown green wine or beer bottles (11E0458:009:028-051) (Appendices 2 and 9), was also recovered. The next fill (019) comprised a layer of re-deposited subsoil. It consisted of soft brown yellow silty clay with grey mottling and inclusions of small-sized stones and shell; it measured 1.20m in width by 0.21m in depth. Overlying this was a lens of soft mid-brown silty clay with inclusions of shell, organic material and red brick fragments (020); this measured 1.20m in width by 0.12m in depth. It was situated beneath another layer of re-deposited subsoil consisting of moderately compacted light brown yellow silty clay with occasional stone inclusions (021); this measured 2.50m in width by 0.30m in depth (Figures 6 & 7).

Middle fills: Middle fill (022) consisted of a lens of moderately compacted brown silty clay with grey mottling that had inclusions of pebbles and oyster shell. It was identified in section only and measured 0.30m in depth. Above this lay deposit (023) which consisted of moderately compact brown yellow grey silty clay with inclusions of oyster shell, pebbles, angular stone, red brick rubble, mortar and charcoal flecks. A sherd of 17th-early 18th century North Devon Gravel Tempered Ware (11E0458:023:001), representing a bowl possibly used in food preparation or for personal hygiene, was also recovered from (023) (Appendices 2 and 8). This material represents a dumped deposit measuring 9m in length by 0.90m in width by 0.20m in depth. Overlying this was a backfilled deposit comprising moderately compacted mid-brown silty clay (024), with inclusions of organic material, oyster shell, mortar and pebbles (Figures 6 & 7); it measured 9.80m in length by 1.10m in width by 0.20m in depth.

Upper fills: Upper fill (025) consisted of moderately compact brown yellow grey silty clay with inclusions of organic material, small pebbles, mortar, oyster shell and red brick; a base fragment from a 17th-18th century Tin Glazed Earthenware plate (11E0458:025:001) was also recovered from this deposit (Appendices 2 and 8). It measured 1.54m in length by 0.20m in depth. The uppermost fill (030) comprised friable grey brown silty clay with inclusions of mortar, red brick, shell and pebbles. It was cut by Phase III robber trench (008).

Phase III

Phase III was characterised by a robber trench (008), which was excavated through the backfilled deposits noted in Phase II, presumably to remove the quarried stone composing the northern wall (026) of culvert (005) (Figures 6 & 7; Plate 39).

It was identified along the northern side of the culvert and was linear in plan, with an east–west orientation. It had a deep u-shaped profile, with moderate breaks of slope at the top and base, steeply sloping sides and a concave but near flat base. It was filled by six distinct fills, which represent gradual siltation, therefore indicating that the trench was left open after the quarried stone had been removed. It measured 11m in length by 0.50m in width by 1.52m in depth. The basal fill (014) consisted of moderately compacted mid-brown grey silty clay with inclusions of small stone, oyster shell and organic material; it measured 0.21m in depth. Above this was moderately compacted light brown silty clay (015), which measured 0.11m in depth. This was situated beneath the main fill, which measured 0.75m in depth and consisted of friable mid-brown grey silty clay with inclusions of small pebbles, oyster shell and animal bone (016). A fragment from an 18th century small porcelain teacup or bowl (11E0458:016:003) and two sherds from an 18th-20th century Unglazed Red Earthenware flower pot (11E0458016:001-002) were also recovered from this deposit (Appendices 2 and 8). A lens of moderately compact mid-brown to green grey silty clay (031) was identified above deposit (016); this contained inclusions of charcoal, pebbles and oyster shell and measured 0.20m in depth. The next fill comprised moderately compacted dark grey brown organic silty clay (017), with inclusions of oyster shell, pebbles and animal bone; this measured 0.10m in depth. The uppermost fill (018) measured 0.24m in depth and comprised moderately compact dark brown silty clay, with inclusions of organic material and occasional pebbles.

Phase IV

Phase IV was characterised by a single pit. It was initially thought that this feature was contemporaneous with culvert (005); however, further investigation during the excavation confirmed that it was of modern origin and associated with a series of geotechnical test pits previously excavated across the site. These test pits were not part of the current archaeological investigations outlined in this report.

The pit (010) was located 0.85m south of culvert (005) (Figure 3). It was sub-circular in plan with a north–south orientation and a concave profile (Plate 40). The break of slope at the top, middle and base was gradual and the base was concave. It measured 2.20m in length by 1.79m in width by 0.16m in depth and was filled by a single fill that consisted of friable dark grey silty sand (011). This contained inclusions of red brick, animal bone, oyster shell,

rounded and angular stone, gravel (804 or similar) and occasional pieces of plastic. As this deposit was clearly a recent modern formation, none of this material was retained.

6.2 The finds and samples

A total of 82 finds and nine samples were retrieved during the investigations at the Mater Misericordiae Hospital (Mater Hospital).

Ceramic assemblage

The ceramic assemblage comprises 48 sherds of post-medieval pottery, two sherds of roof tile and two fragments of clay pipe; these derived from clearance/topsoil (001) and the fills contained within culvert (005).

The pottery assemblage dates from the 17th to 20th centuries and comprised a total of 33 vessels. Analysis indicated the presence of 12 different pottery types originating from Ireland, Britain and continental Europe. The assemblage is typical of a household/domestic situation, consisting of pottery types and vessel forms associated with food storage, preparation and consumption, and personal hygiene.

The clay pipe assemblage comprises two unmarked and undecorated stem fragments only. The absence of bowl fragments and decoration or a maker's mark on the stem fragments means that they cannot be precisely dated; clay pipes can date generally from the late 16th to 19th centuries.

Miscellaneous small finds

Two dressed stone/architectural objects (Plate 41) and a total of 31 glass (bottle) fragments (Plate 42) were retrieved during the excavation.

The architectural stones were hewn from a cut length of a sedimentary stone. And likely represent part of a window sill. The façade of the sill is moulded and follows a Neo-Classical style based on stylized classical entablature. A bead moulding forms the top of the sill, which surmounts a cove moulding above a frieze. Further ornamentation to the frieze (not as clear in relief due to weathering) in the form of a series of short vertical carved lines, again mimic a classical ornamentation know as a triglyph.

The glass assemblage comprised 29 fragments from free blown glass wine or beer bottles, along with one fragment of possible window glass. Sixteen of the recovered fragments represented bottle bases, all of which displayed disc pontil scars—the mark left on the base of a bottle made by the punty rod that held the bottle in place while the glass was being blown. All of the shards date from the 18th to early 19th centuries.

Wood

A total of eight wood samples were retained from the excavation; samples were obtained from all worked or possibly worked timbers identified at the site. All timbers from culvert (005) were of spruce wood (*Picea abies*) and were tangentially split.

The growth rate of the tree that the planks were fashioned from was moderate to slow, with the presence of between six and 23 annual tree rings on the sub-sampled wooden remains indicating the use of young trees. There was no tooling evidence noted on the analysed timbers.

The timbers associated with the wooden platform (033) were also identified as spruce wood. Three were tangentially split, while one showed evidence of a smaller boxed inner radial split. The growth rate was moderate and the boxed radial split contained over 45 annual tree rings suggesting a slightly older tree than the previously identified timbers. There was also no tooling evidence noted on these timbers.

No samples were submitted for radiocarbon dating as all of the wood was of a non-oak variety, therefore dendrochronological dating was not possible.

Soil

No further analysis of the single soil sample was undertaken as it was deemed insufficient to provide usable information on the broader contemporary environment and setting of the site.

7.0 DISCUSSION

The results of the excavation at the Mater Stop Box site identified a post-medieval culvert (005) that most likely functioned in water management. The excavation also identified a number of later disturbances to the culvert (presumably when it was no longer in use) associated with the removal of quarried stone from the side walls.

7.1 Phasing and Chronology

Analysis of the stratigraphy of the site indicates at least four phases of post-medieval activity. The first phase (Phase I) was represented by the construction of the stone-lined culvert (005). Phase II involved the disturbance or possibly the destruction of the culvert during which time the quarried stone (027), along the southern edge of the cut, was partially removed and the culvert subsequently backfilled. Phase III also comprised a period of later disturbance, with a robber trench (008) cut through the backfilled deposits associated with Phase II. Trench (008) is believed to have been excavated in order to remove/rescue the quarried stone comprising the northern wall (026) of culvert (005). Phase IV comprised modern activity at the site and was of no archaeological significance.

The ceramic assemblage from the site dates broadly to the 17th to 20th centuries, confirming a post-medieval date for the activity at the site. Though 17th century ceramics such as German Stoneware and North Devon ware are present within the assemblage, these generally occurred within backfill or dump deposits and so are most likely residual material redeposited within the site. They do suggest that some activity was occurring in the general area during the 17th century, but the culvert and main phases of activity encountered during the excavation are likely to be somewhat later.

A *terminus ante quem* for the construction of culvert (005) was provided by the presence of four sherds of 17th to 18th century pottery—including possible Frechen ware, North Devon Gravel Tempered Ware and Tin Glazed Earthenware. However, the majority of sherds are 18th to 20th century in date, suggesting that a later time frame is more likely for the construction of the culvert. As most sherds in the assemblage were recovered from redeposited natural and backfilled material, such as the deposit (021), they are mostly likely to be residual material—that is material redeposited in a secondary context—so are not a wholly reliable tool for dating the phases precisely. However, 14 sherds were recovered from natural siltation deposits relating to Phase I ((007), (034)) and Phase III (016), so reflect primary deposition, and these support an 18th to 20th century date for the site. The recovered glass assemblage general supports the findings of the ceramic assemblage, with the bulk of the material representative of 18th to 19th century domestic vessels.

7.2 Form and function

The culvert (005) excavated at the present site seems to have been specifically constructed to house the stone-lined drain (028), which likely functioned in the removal of waste or foul water from the area. This drain commenced at the terminus of culvert (005) beneath wooden platform (033) and continued due east towards present day Leo Street—outside of the boundary of the Mater Stop Box site. The semi-circular terminus suggests an origin point for the culvert and possibly indicates that it may have been housed inside a building or outhouse. Although no evidence of such a structure was identified during the course of the excavation.a number of structures are depicted for this location, on the first edition Ordnance Survey map (1837) (Figure 2).Two stone window sill fragments (11E0458:009:052 and 053; Appendices 2 and 10) were recovered from the backfilled material (009), however, and these possibly originated from an associated building that was demolished when the culvert fell out of use. Similar window sills to those recovered were commonly used during the period between the 18th and early 20th centuries, especially in Georgian and Victorian house architecture (Appendix 10). It is therefore possible that the culvert may have an association with one of these early 19th century structures.

All of the timbers used in the construction of culvert (005) were analysed as *Picea abies*, more commonly known as spruce wood. This species is not native to Ireland and was imported from the Baltic States (Appendix 7); this possibly suggests a date for the construction of culvert (005). While it was commonly imported in the mid- to late 19th century (Appendix 7), recent excavations have provided evidence for its importation as early as the late 17th century (Simpson 2008). In addition, private planting in Ireland from the early 1700s until the 1880s often included spruce. It is therefore possible that the timbers may be as early as the late 17th or 18th century in date, though, given the associated artefact assemblage, an 18th or 19th century date is probably most likely.

The majority of the timbers had been tangentially split—the preferred method of conversion for commercially produced timber of the period—with the exception of Timber 8 from the terminus of culvert (005). This showed evidence of a boxed inner radial split. Slow to moderate growth rates were indicated by the timbers, with tree ring counts suggesting that the majority of the wood was relatively young—again with the exception of Timber 8, which was identified as coming from an older tree (Appendix 7). The similarities between Timbers 1-4 (006) used to cap the stone-lined drain (028) and Timbers 5-7 of platform (033) suggests a degree of contemporaneity and the deliberate sourcing or construction material. The different age of the wood and splitting technique used for Timber 8 may indicate that this was from a separate phase of activity; however, given its position lining the base of the drain, this seems unlikely. It is probably that it reflects the utilisation of salvaged timber—

perhaps originally a load-bearing element or structural component—during the construction of the drain as well as deliberately sourced material.

The use of spruce wood for the construction of conduits such as water mains and culverts, as well as tanning pits, has been documented at a number of sites in Dublin, including the water main from Islandbridge to Dublin city, which was constructed in the mid-18th century (Rynne 2006, 414); and a 19th century tannery in St. James' Street (Comey 2004). It was also utilised in the construction of buildings, such as those excavated at Kevin Street Garda Station (Simpson 2008), which are believed to be late 17th-century out-buildings associated with the archiepiscopal palace of St. Sepulchres (now Kevin Street Garda Station).

The pottery assemblage recovered from the excavation contained a variety of vessel types originating from Ireland, England, Scotland and Germany. The majority of the pottery types within the assemblage were represented by between one and eight sherds or fragments; however, 20 sherds of Black Glazed Red Earthenware representing a total of 11 vessels were retrieved (Appendices 2 and 8). The large quantity of this pottery type—when compared to the smaller number of sherds from the other types present—may suggest that it was produced locally; although analysis suggested that 10 of the vessels had a similar fabric to those manufactured in Wales, with only one vessel comprised of a fabric that was possibly produced in Ireland. The assemblage as a whole is that typical of a household or domestic occupation, consisting of vessel-types associated with food storage, preparation and consumption and personal hygiene. This would further support the interpretation that culvert (005) was associated with a residential building.

7.3 Conclusions

The excavation at the Mater Stop Box site identified a post-medieval culvert, which likely functioned in the removal of waste or foul water from the area. The timber recovered from the culvert was identified as spruce, a non-native species to Ireland that was largely imported to the country during the 19th century; although this species was known to be included in private plantations from the early 18th century. It is likely to be associated with a group of buildings, depicted on the 1st edition Ordnance Survey map of 1837, which front onto a small laneway to the north of Stable Lane. The ceramic and glass assemblage recovered from the excavation supports an 18th to 19th century date for the construction and subsequent demolition of the culvert. The domestic nature of these assemblages suggests that the area was largely residential during this period.

8.0 ARCHIVE QUANTITIES

The site archive is comprised of the following materials:

Item	Quantity
Context Sheets	34
Plans	4
Sections	3
Photographs	414
Registers	6
Notebooks	N/A

Storage of the archive in a suitable format and location is required in order to provide for any future archaeological research. The archive is currently stored in the offices of Rubicon Heritage Services Ltd., Unit 2, Europa Enterprise Park, Midleton, Co. Cork. It will be deposited with the Dublin City Council Archaeological Archive for longterm archival storage. Preparation of the archive for deposition has adhered to the guidelines and requirements set down by the *Dublin City Archaeological Archive Guidelines* (DCC 2008).

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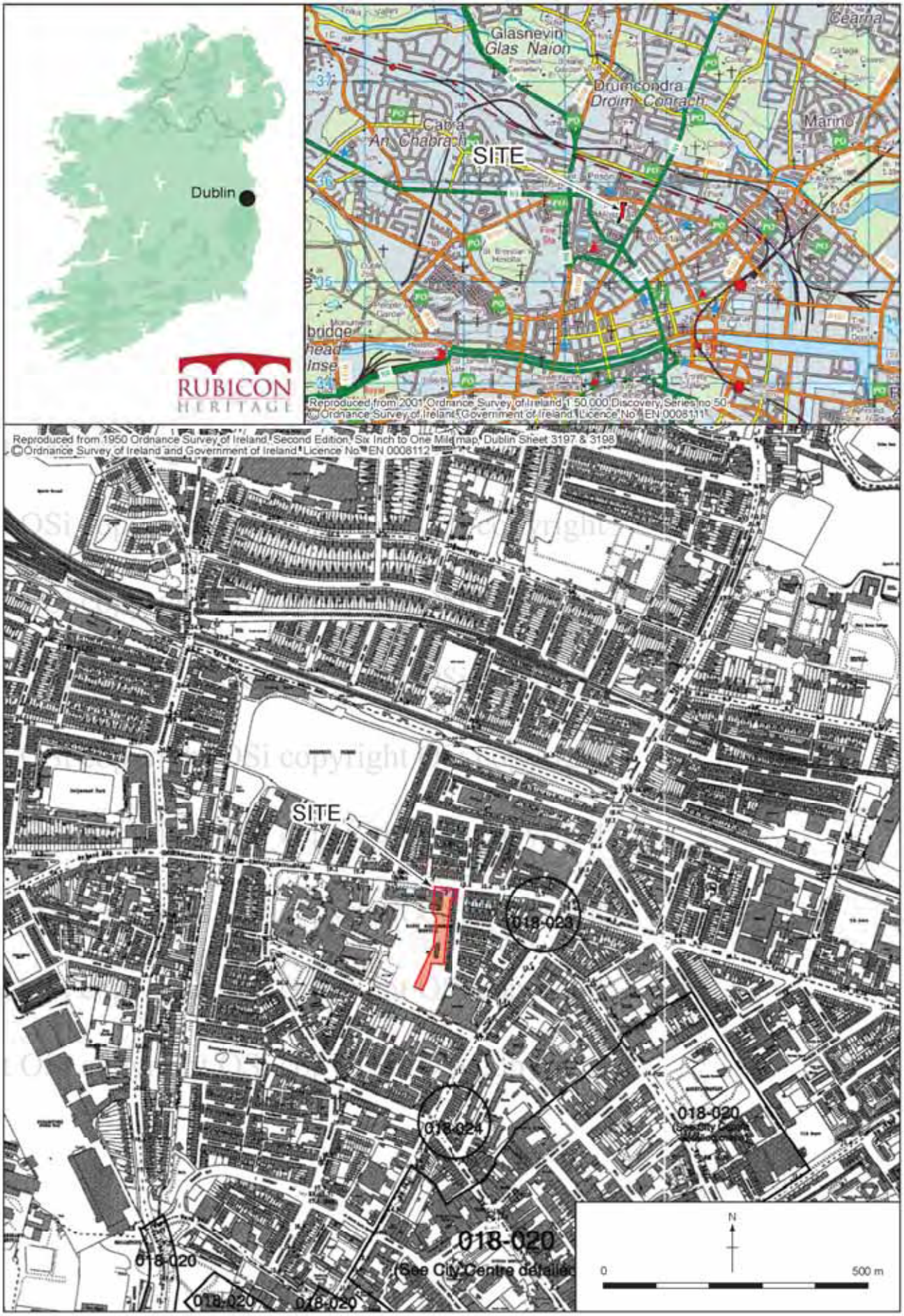

Figure 1 - Metro North Mater Stop Box, Co. Dublin:
Location of Metro North Mater Stop Box site and extract from RMP.

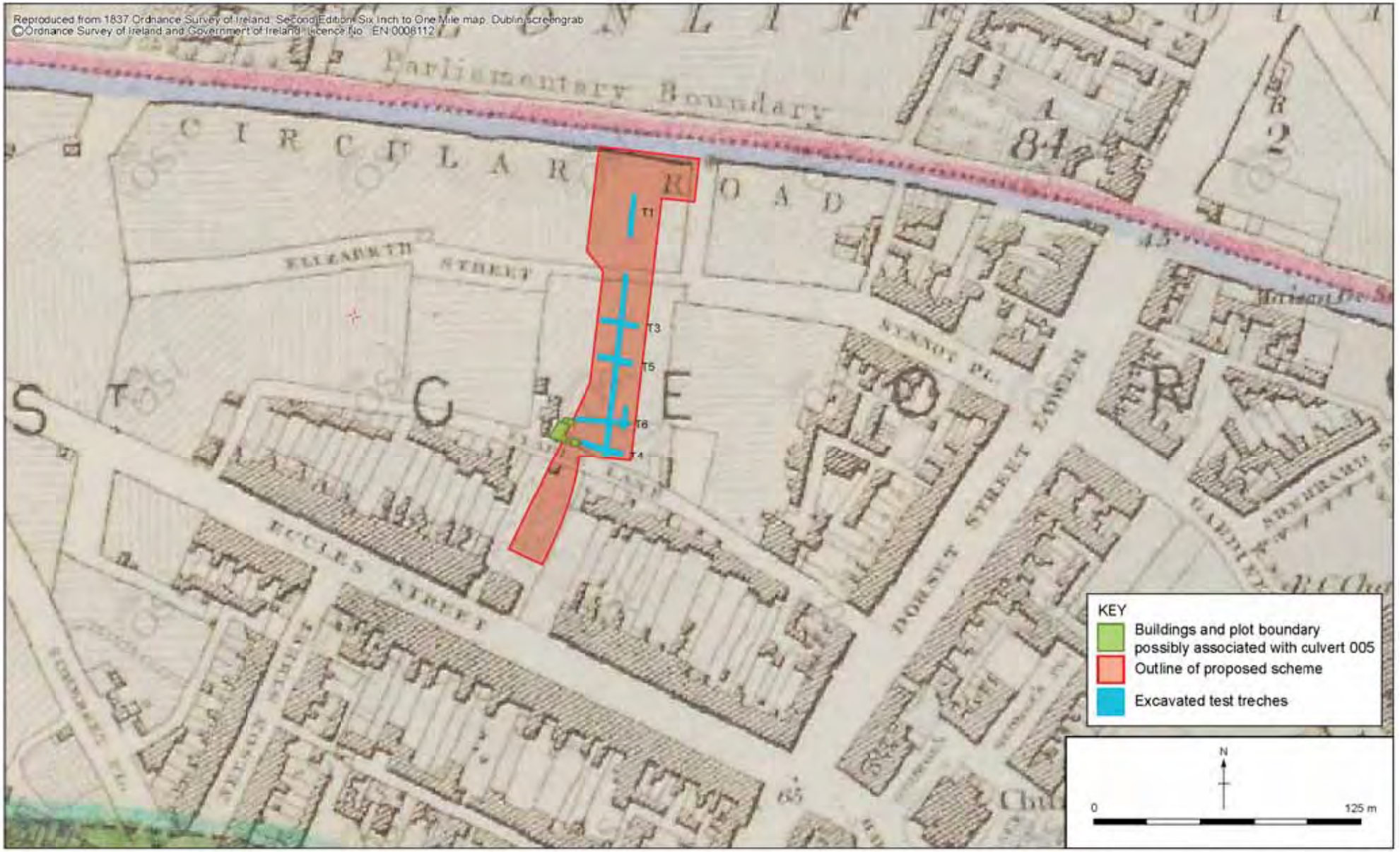

Figure 2 - Metro North Mater Stop Box, Co. Dublin: Area of investigation overlaid on 1st edition Ordnance Survey Map 1837.

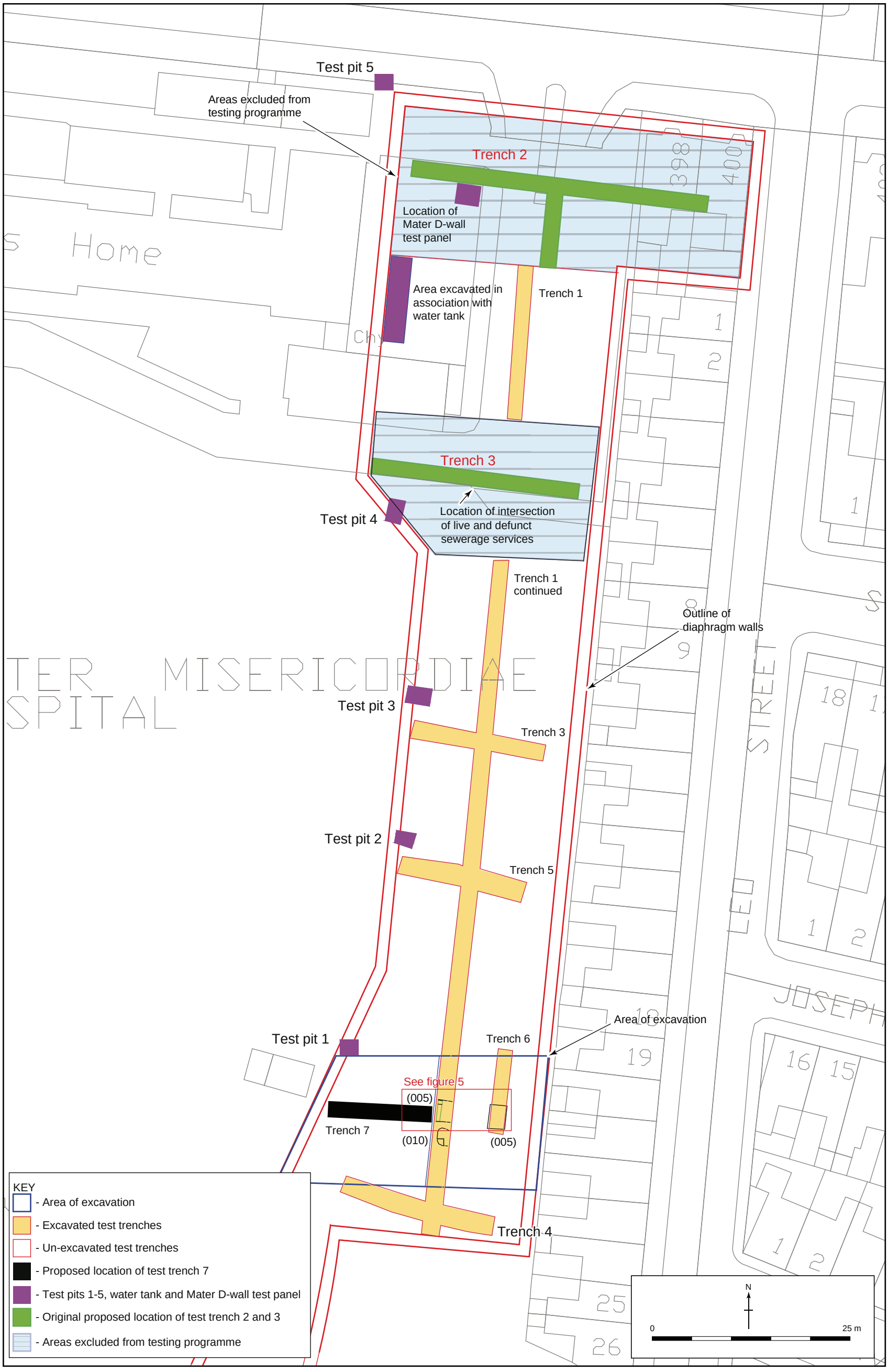

Figure 3 - Metro North Mater Stop Box, Co. Dublin: Location of excavated test trenches, test pits and area of excavation; with areas excluded from testing programme also highlighted.

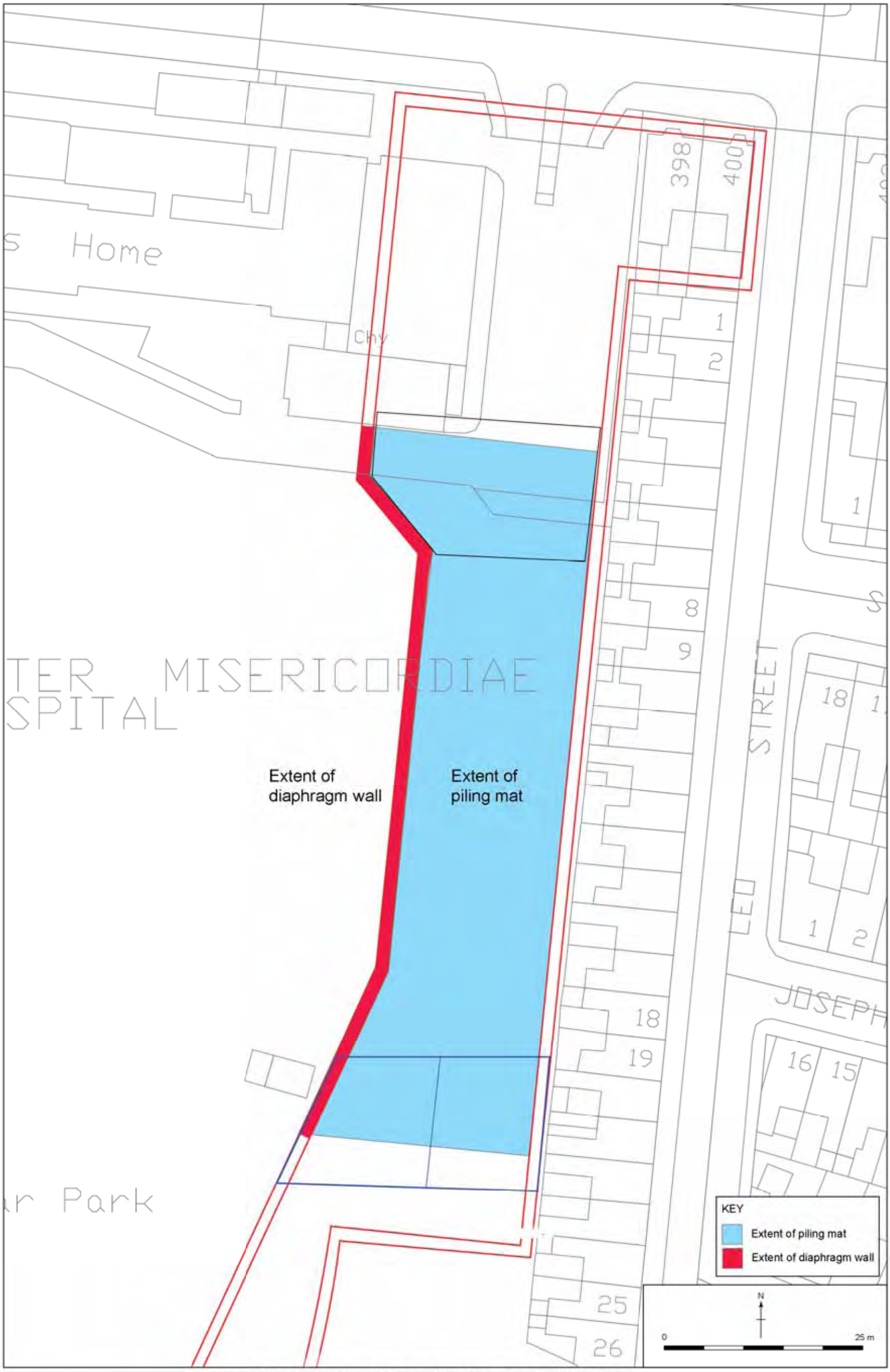

Figure 4 - Metro North Mater Stop Box, Co. Dublin: Extent of piling mat and diaphragm wall.

Figure 5 - Metro North Mater Stop Box, Co. Dublin: Mid excavation plan of culvert (005).

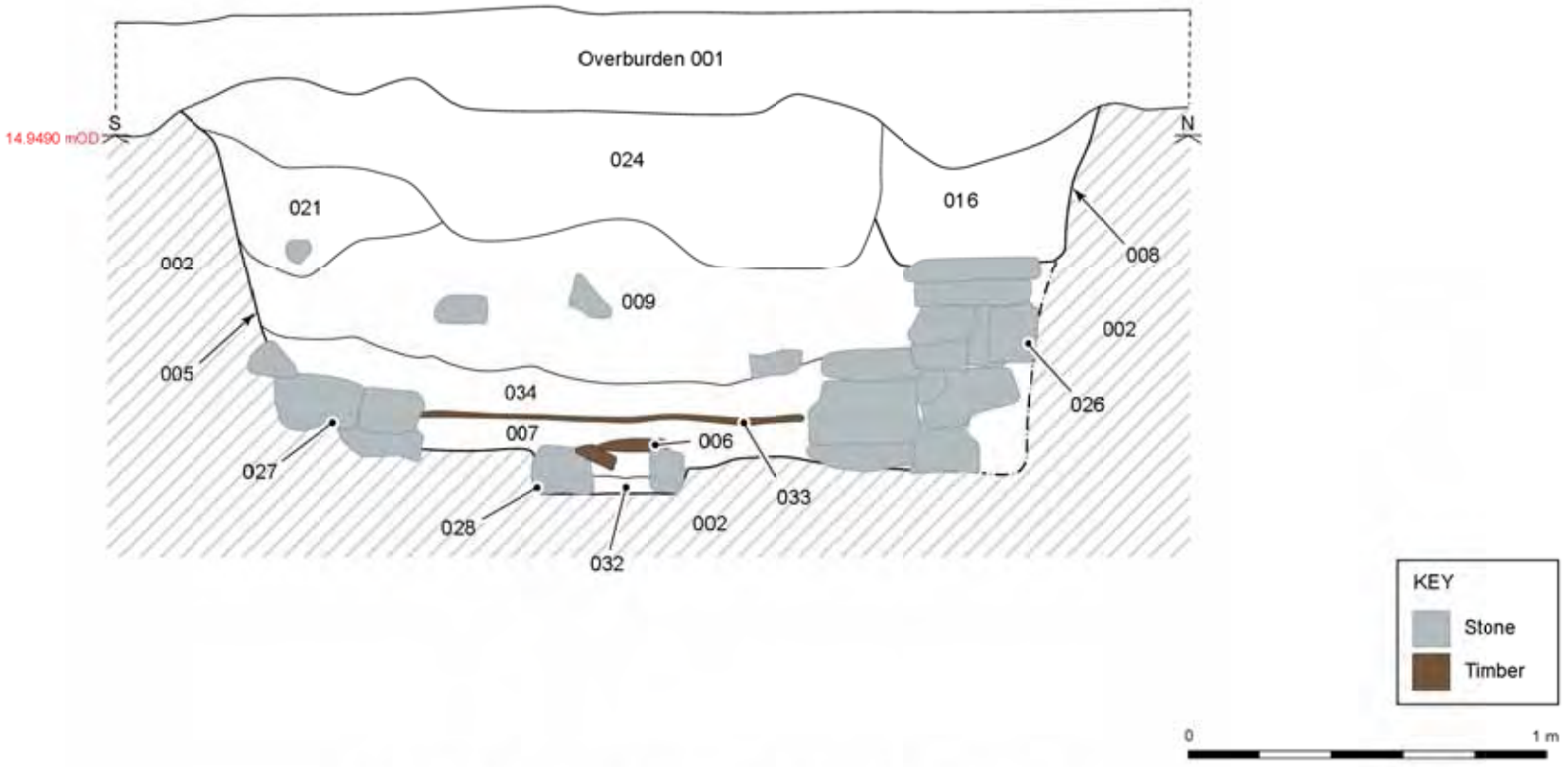

Figure 6 - Metro North Mater Stop Box, Co. Dublin: East-facing section through culvert (005) drain (028) and robber trench (008) and associated fills.

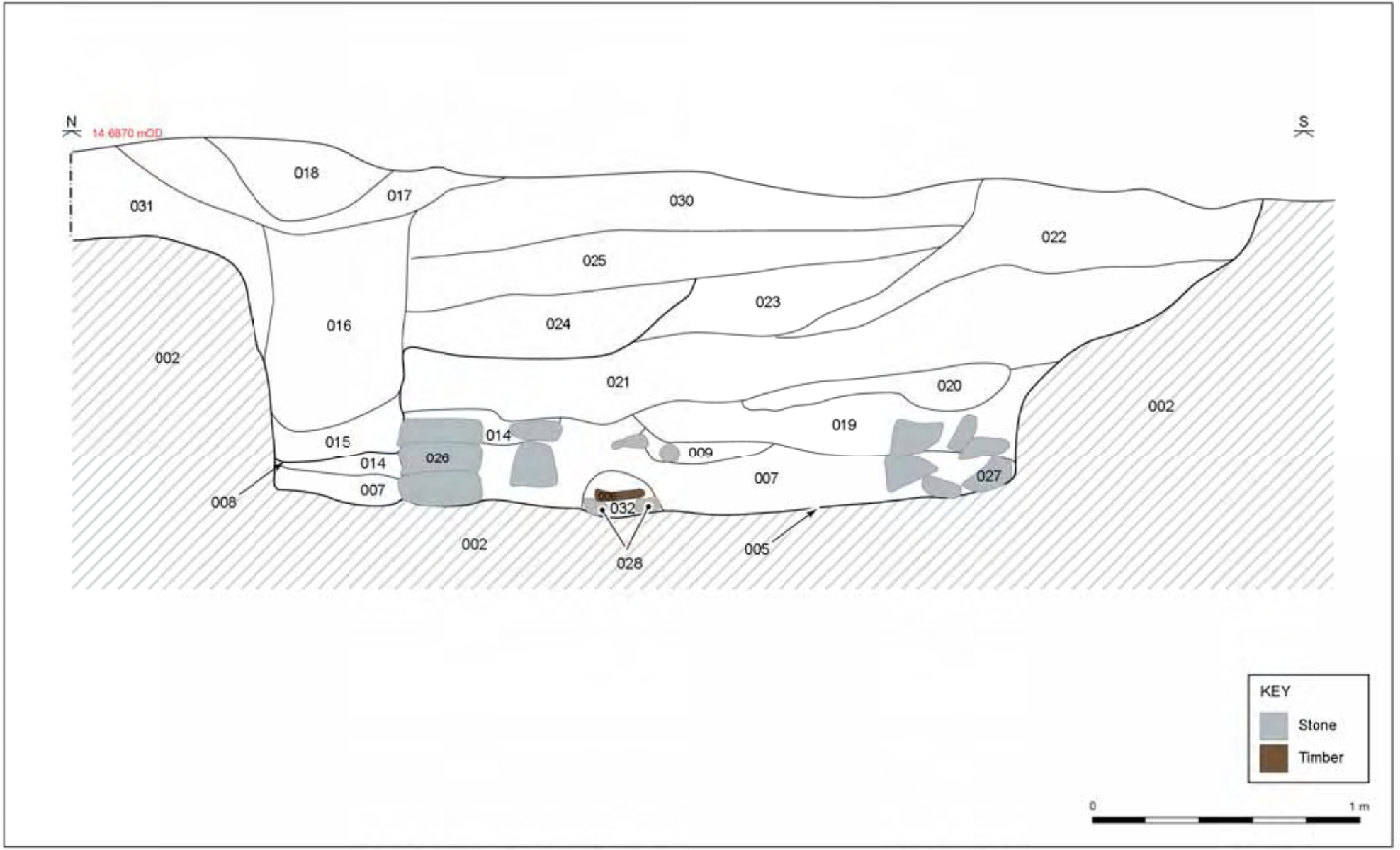

Figure 7 - Metro North Mater Stop Box, Co. Dublin: West-facing section through culvert (005) drain (028) and robber trench (008) and associated fills.

Plate 1. Northern extent of Test Trench 1 facing north.

Plate 2. Test -Trench 1 facing south.

Plate 3. Made ground identified in northern extent of Test Trench 1.

Plate 4. Culvert (005) within Test Trench 1 facing southeast.

Plate 5. Possible pit (010) facing east TT3.

Plate 6. Plough furrow (003) within Test Trench 1 facing south.

Plate 7. Test Trench 3 facing west, note tree trunk at eastern extent.

Plate 8. Substantial tree stump within Test Trench 3 facing west.

Plate 9. Test Trench 4 facing west.

Plate 10. Concrete footing within Test Trench 4 facing south.

Plate 11. Test Trench 5 facing west.

Plate 12. Culvert (005) within Test Trench 6.

Plate 13. Site Investigation Test Pit 1 facing northwest.

Plate 14. Site Investigation Test Pit 2 facing north.

Plate 15. Site Investigation Test Pit 3 facing south.

Plate 16. Site Investigation Test Pit 4 facing west.

Plate 17. Site Investigation Test Pit 5 facing south.

Plate 18. Monitoring of postholes associated with site hoarding along western boundary facing south.

Plate 19.Monitoring of postholes associated with site hoarding along southern boundary facing west.

Plate 20. Monitoring of water tank area facing south.

Plate 21. Monitoring of overburden removal through centre of the site facing south.

Plate 22. Monitoring of overburden removal along eastern side of the site facing south.

Plate 23. Monitoring of overburden removal along western side of the site facing south.

Plate 24. Monitoring of stop-box guide wall excavation along western boundary facing south-east.