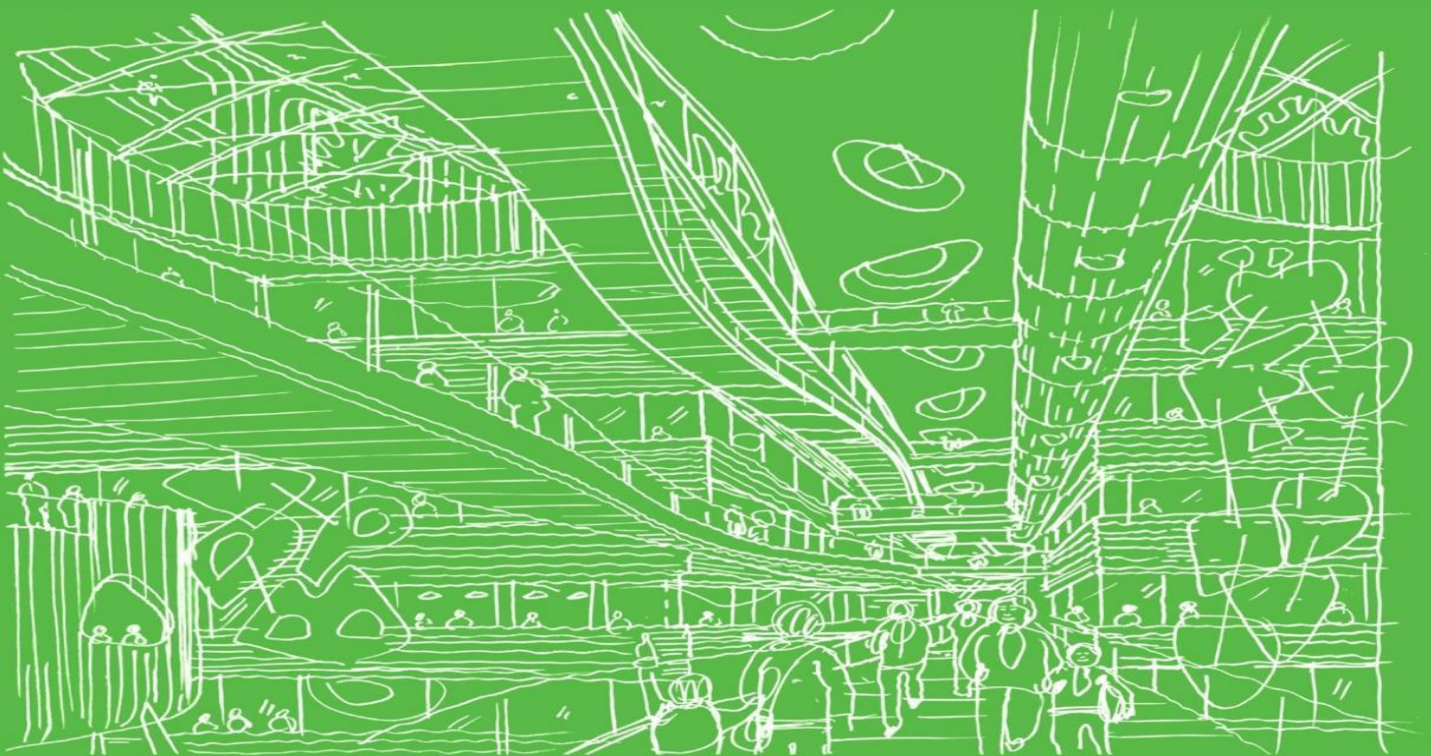


# National Paediatric Hospital Project

## Planning Application

### Appendix 16.1 – Chapel Survey



August 2015

**COURTNEYDEERY**   
Heritage Consultancy



---

## Appendix 16.1 Chapel

---

### 1 Introduction

This appendix has been produced as a record and assessment of a chapel on the campus of St James's Hospital and within the site of the proposed new children's hospital. The proposed development of the children's hospital would require the demolition of the chapel.

### 2 Building survey

#### 2.1 Exterior

*Plate 1: Southern elevation of chapel*



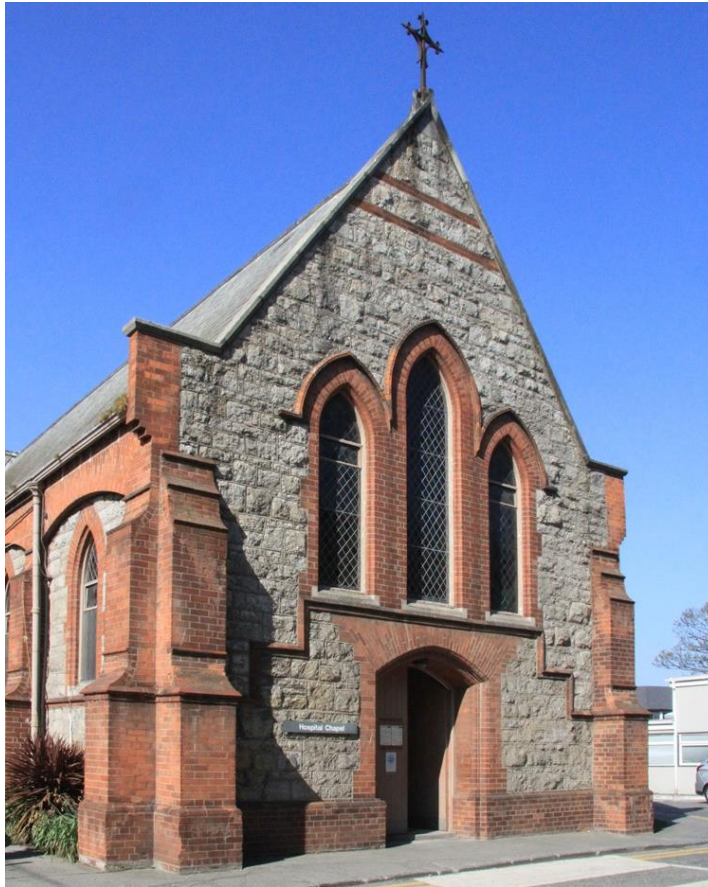
The chapel on the campus of St James's Hospital is cruciform in plan and is not aligned to the traditional ecclesiastical cardinal points. The main door faces almost towards the north-east, rather than the west and the altar is at the south-western end, instead of the east. This orientation appears to have been chosen so that the main entrance is directly on the line of the original avenue leading from the South Dublin Union workhouse across to the Auxiliary Workhouse site. This avenue led through the centre of the building that is now known as Hospital 7 and towards the doorway to the chapel.

The chapel is cruciform in plan. The nave is fifteen metres long and eight metres wide, while the transepts are the same width, but just seven metres in length. The chancel is narrower, at 6.5 metres, and five metres in length, measured externally. Within the chapel the chancel is shallow, extending only 1.5 metres from the crossing, the greater part of the chancel being given over to use as a sacristy and ancillary spaces. The only interruption to the cruciform plan is a small wc structure set into the angle between the chancel and the south-facing transept.

The chapel is constructed of granite rubble, laid to courses, and with all decorative features faced with red brick. This includes the main doorway, subsidiary doorways buttresses, window linings, a plinth, a string course, arches at the eaves and a vent at the apex of the gables of the transepts and the chancel.

The external surfaces of the chapel are examined in greater detail on the following pages.

*Plate 2: Gable end of nave and main entrance*



2

The gable end of the chapel facing Hospital 7 has the main entrance to the nave at its centre. This is the north-eastern end of the chapel, though the ecclesiastical west end.

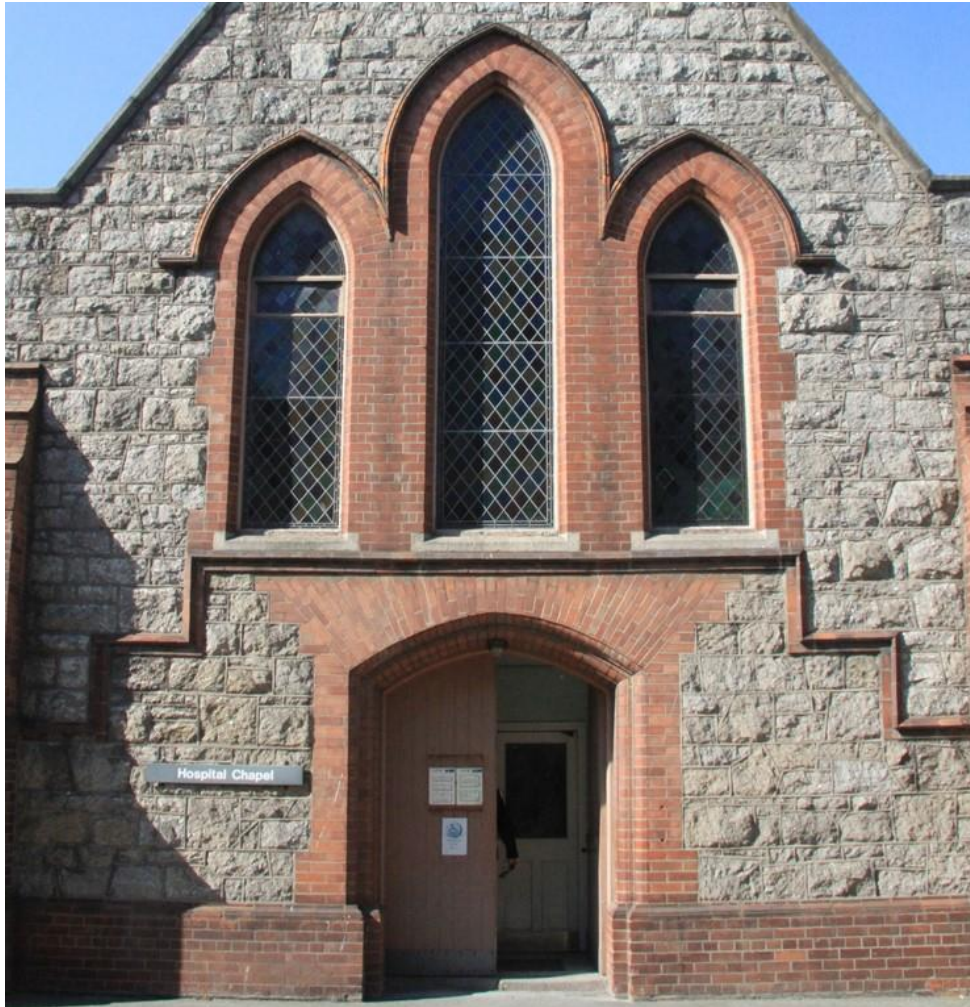
The base of the building is a red brick plinth with seven courses of brick laid in English garden wall bond and capped with a course of moulded brick. Above this the walling is of granite rubble with stones of random size, roughly squared and brought to course of approximately 300mm. Two courses of brick cross the gable near the apex. The gable is topped by chamfered cut granite copings at an angle of approximately forty-five degrees. This is crowned by an apex stone with cruciform roll mouldings on the upper surface, from which a wrought iron cross rises. At the base of the coping the walling runs out to cover the eaves terminating in a brick wall seventeen courses high and 500mm wide, corbelled out to run beyond the gutters at the side of the nave.

At each corner a pair of buttresses runs out, one to the front, the other to the side. These are of red brick, laid in English garden wall bond and each is approximately 650mm wide. At the base of each is a continuation of the main plinth, above which the shaft of the buttress rises fifteen courses to meet a projecting course on which sits a moulded brick drip course. Above this the face of the brick curves in to meet the upper section of the buttress, which runs in again in two stages near, but not at, the top of the wall.

A moulded brick string course runs from the level of the moulded brick at the lower projecting course on the buttress, stepping up twice to run above the arch over the main door and below the windows above the door.



*Plate 3: Main door and windows*



3

The doorway to the chapel is lined with brick. This rises from the plinth at a width of approximately 400mm, stepping in to c.300mm after five courses and running up to the level of the spring of the arch. The margin of the ope is in two orders, each with ovolo mouldings. The arch over the doorway is three-centred and faced with gauged brick which rises approximately 250mm at the crown of the arch to reach the underside of the string course below sill level. Across the full width of the arch the brickwork splays to the string course, executed in gauged brick. The spandrel rests on a series of skewbacks, each formed with three courses of brick.

The door is double-leaf and each leaf is timber sheeted with a segmental head.

Above the doorway is a three-light window comprised of gothic-arched lancets lined with brick having cavetto mouldings at the window edges. The sills are of granite. A hood moulding in brick runs above the windows, fitting to the three gothic arches.

The windows are diamond-leaded and set with coloured glass. Two narrow bands of coloured glass run around the margins. A small bottom-hung casement extends across each of the flanking windows, just below the springs of the arches. The window glazing is set in a timber frame.

*Plate 4: North-western side of chapel*



The external features on the other sides of the chapel repeat the language of the entrance front, with variations on the theme. The north-western side, which is the ecclesiastical south, is seen in the photograph above. This is four-bay along the nave and two-bay at the sides of the transept.

The walling is of granite rubble, brought to courses and with a two-brick string course below sill level, continuing the mouldings of the buttresses.

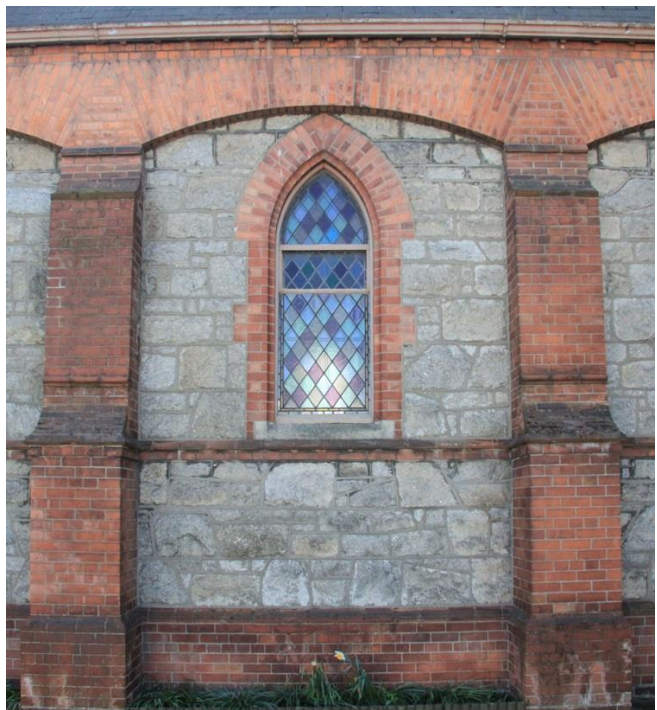
The buttresses are similar to those at the gable end and carry an arcade of segmental brick arches at the eaves, springing from a triangular brick skewback at the head of each buttress. The arches are similar to that over the door, described above. They are formed of gauged brick and are corbelled out from the wall by half a brick thickness.

4

The arcade carried two courses of brick at the eaves, above which is an ogee-profile cast iron gutter.

The windows along the sides of the nave are smaller versions of those in the gable end. They have granite sills and brick linings with cavetto mouldings and have pointed segmental gothic arches. The windows have diamond-lead glazing with two narrow glazed bands at the margins and all of the glass is coloured. A bottom-hung casement is placed just below the spring of the arch.

*Plate 5: Detail of north-western wall*





*Plate 6: North-west-facing transept*



The transept on the north-western side has a tripartite window in the gable, similar to that above the entrance to the chapel. The windows are lined with brick, with gothic arches and have coloured diamond-lead glass with slender margins. The gable has chamfered granite copings terminating in projecting brick walls. The apex of the gable is of brick, rising from a brick string course and with a louvered vent. The capping of the apex is of granite, with a roll moulding.

*Plate 7: Eastern face of transept*



The two sides of the transept have walling similar to that of the nave, described above. Each side of the transept is two-bay and the buttresses support segmental brick arches. On the eastern face of the transept is a doorway lined with brick with an ovolo moulding and with a simple segmental arch. The door is timber-sheeted.

*Plate 8: Western face of transept*



As has been noted, the chancel also houses the sacristy and ancillary accommodation.

The chancel is narrower than the nave and transepts and as a result there is a change in the height of the ridge and a small area of granite rubble gable wall rises up to achieve the change. There is a cut granite apex stone with a crossed roll moulding on the top, from which rises a simple wrought iron cross.

The walling on either side of the chancel is simpler than that on the nave and lacks the gauged brick arcade. Instead, the buttresses support a brick corbel with ovolo moulding, above which are five courses of red brick on which sits the ogre-profiled cast iron guttering. There is a uPVC hopper and downpipe.

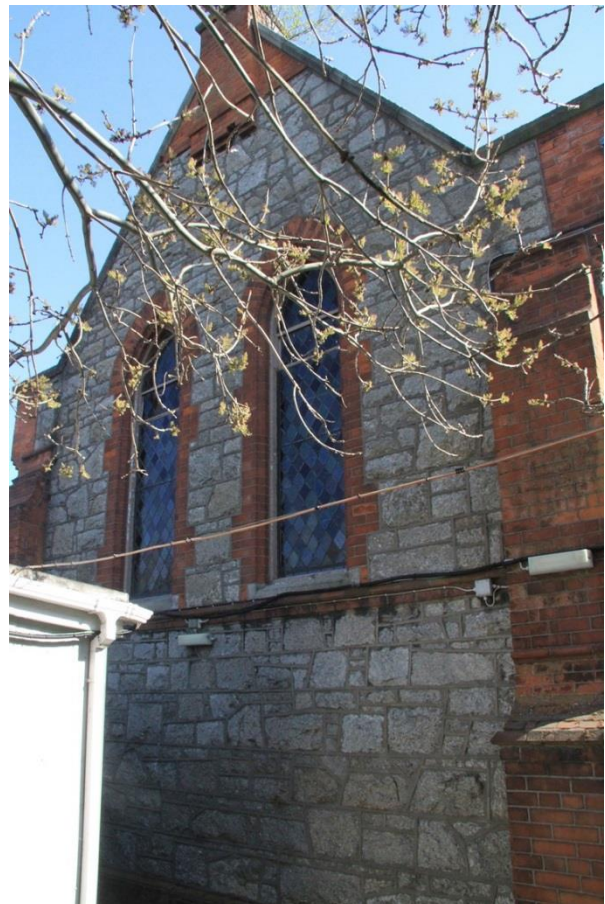


*Plate 10: Side wall of chancel*

The gable of the chancel is flanked by brick buttresses. The walling is of rubble granite and a brick string course crosses below sill level. There are two lancet windows in this gable, both of similar description to those described above, with brick linings and coloured glass. At the apex of the gable there is a small brick chimneystack



*Plate 9: Junction of chancel and transept*



*Plate 11: Gable end of chancel*





*Plate 12: Lean-to in corner between chancel and transept*

In the corner between the chancel and the transept on the southern side of the chapel there is a small lean-to structure. This is constructed of the same materials as the rest of the chapel, though in a simpler style. The roof is of slate and the walls of rubble granite, rising off a brick plinth. The one free corner has brick quoins. A small cast iron window is set in an ope lined with brick, with ovolo mouldings. The sill is of granite. There is no external door to this projecting element. The gutter is ogee-profiled cast iron and feeds into a cast iron hopper and downpipe; these are fixed to a timber fascia. There is a cast iron soil vent pipe.

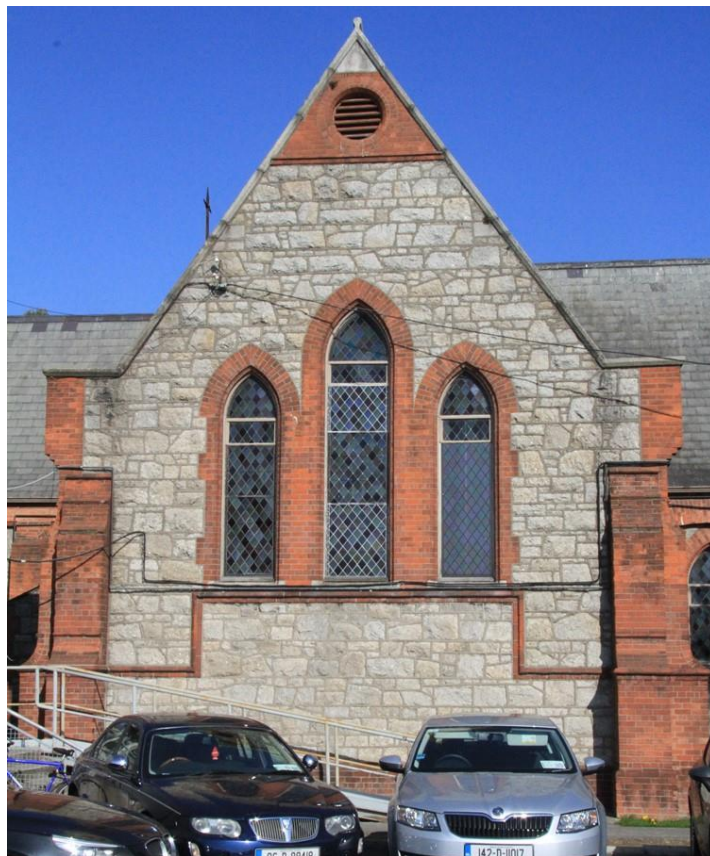


*Plate 13: Roof of lean-to and brick arch in transept wall*



*Plate 14: South-eastern side of chapel*

The south-eastern side of the chapel is a mirror image of the north-western side, described above. The walls are of rubble granite with red brick detailing, including the plinth, string course, buttresses, window and doors opes and the arcade over the buttresses on the nave and transepts. The nave is four-bay with four lancet windows, while the sides of the transept are two-bay and there is a doorway in the north-east-facing side of the transept.



*Plate 15: Gable of transept on south-eastern side of chapel*





*Plate 16: Roof at junction of chancel with crossing and transept*

The roof of the chapel is steeply-pitched and has a covering of slate, with sprocketed eaves. The ridge tiles are ceramic, with a roll moulding on the top surface. The gables are parapetted with granite copings and with wing walls terminating the parapets. The gutters are ogee-profiled cast iron.



*Plate 17: Eaves and guttering at junction of transept and chancel*



*Plate 18: Roof of transept on north-western side*

## 2.2 Interior



*Plate 19: View up the nave, towards the altar*

The interior of the chapel is cruciform, with a shallow chancel and an open nave without side aisles. The walls are plastered and painted and are unadorned, other than a simple dado rail. The window openings are splayed and lack any mouldings or projecting sills.



*Plate 20: View down nave towards organ loft*

There is a balcony above the main entrance and this serves as an organ loft. Beneath the balcony there is an internal timber porch with a pair of glazed doors separating it from the nave.





*Plate 21: Chancel arch*

The shallow chancel stands behind a pointed segmental chancel arch with an inner arch supported on conical corbels. A pointed segmental hood mould runs parallel to the chancel arch. Behind the chancel arch the ceiling of the chancel slopes down on either side from a ridge.

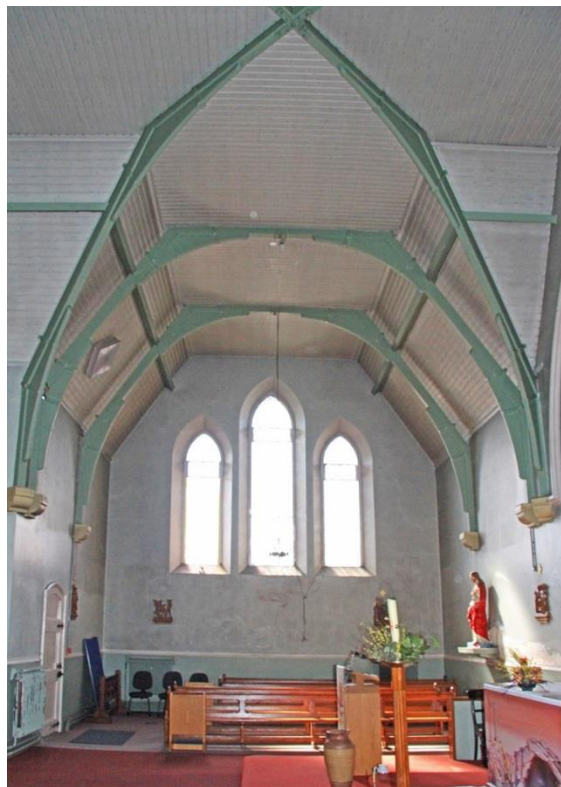
*Plate 22: Oblique view of chancel*





*Plate 23: Transept on north-western side of chapel*

The two transepts are similar to the nave, having plain plastered and painted walls, adorned only by a dado rail. The three lancet windows in each transept are slightly splayed and are devoid of mouldings at the arrises.



*Plate 24: Transept on south-eastern side of the chapel*

It is noted that the transept on the north-western side is the ecclesiastical south transept, while that on the south-eastern side is the ecclesiastical north transept.





*Plate 25: Ceiling of chapel*

The ceiling of the chapel is clad in timber sheeting, running lengthways down the sloping sections of the ceiling on either side and crossways on the flat section in the centre. High up on the sloping section at a point equivalent to the mid-point of the rafters, a purlin runs on each side of the roof structure. These are supported on a series of trusses running at the intermediate points between the windows and supported on painted granite corbels. Each of the trusses is bound with wrought iron straps at the joints, where they are reinforced by timbers moulded to the angles. At the crossing trusses run diagonally, meeting in the middle, where there is a small pulley, evidently intended for the suspension of a lamp. A cruciform strap is bolted to the trusses where they meet at the crossing. The boarding of the flat sections of the ceiling runs to the intersection of the trusses in the crossing, forming a square pattern towards the centre.

13

*Plate 26: Ceiling and trusses at the crossing*



*Plate 27: Granite corbel*



*Plate 28: Balcony or organ loft*

The balcony at the rear of the chapel, over the entrance porch, runs forward across the first window to a point just short of the second window ope. At the front of the balcony is a balustrade with decorative cast iron balusters supporting a timber handrail.

The balcony is accessed via a winding stair guarded at the top by a simple balustrade with stick balusters.

*Plate 29: Balustrade at stairs*



There is an organ in this loft.



*Plate 30: Organ*





*Plate 31: Detail of windows above main entrance*

The nature of the windows has been noted above in the examination of the exterior and has also been alluded to when noting the wall surfaces.

The windows are diamond-lead, with two narrow margin bands, and all glass is lightly coloured, the colours distributed at random.

The window heads are pointed segmental and there is an opening light – a bottom-hung casement – just below the spring of the arch.

The internal walls are plastered, without any moulding to mark the arrises of the window opes. The opes are slightly splayed.

## Sacristy

The area behind the altar is separated by a stud partition wall from the main body of the chapel. This space accommodates the sacristy. This area has been subdivided by light partitions a little over two metres in height to provide two rooms, a store and a connecting corridor. The doors are hollow doors with flush faces, suggesting that this subdivision may be a mid-twentieth century alteration.

In the adjacent photograph the view is from the inner room, at the southern end of the sacristy, viewing through the door to the corridor, with the door to the chapel visible at right in the distance, opposite the doorway to the other room.



*Plate 32: Sacristy*

16



*Plate 33: Sacristy*

The second photograph is from the same viewing point, looking through the room towards the three-light window in the gable end of the chapel.

The sacristy is generally plain with no decorative features or fixtures. There is no hearth or chimneypiece, notwithstanding the presence of a chimney stack on the apex of the gable. The only surviving early features are two doors, examined below, and tongued and grooved wainscoting that covers the three external walls to above the heads of the doors. This extends into the doorway leading to the WC, described below.



*Plate 34: Wainscoting on external walls of sacristy*

There is an external door on the north-western side of the sacristy. This is a framed and sheeted door with a segmental head, set in a timber architrave with roll moulding.

The ceiling of the sacristy has a covering of softboard that appears to date from the mid-twentieth century.

*Plate 35: External door*



The electric fuse board is in the sacristy. The fuses are all ceramic cartridges, apart from a small addition to the board that has circuit breakers. It would appear that the chapel has not been rewired since the mid-twentieth century.



*Plate 36: Ceiling of sacristy*



A doorway on the south-eastern side of the sacristy leads in to the small lean-to structure that was noted above in examining the exterior. This is a wc.

This doorway is faced with timber sheeting on either side and in the soffit. The door is timber sheeted.

*Plate 37: Doorway to WC*



*Plate 38: Window of lean-to*

The wc is lit by a timber casement window in a simple splayed opening. The sanitary fittings are of more recent date, probably late twentieth century. There is a significant level of damp in this wc. There is also paint peeling from the walls, probably through inappropriate choice of paint type and damp.

*Plate 39: WC in lean-to to side of sacristy*





## 3 Conservation context

### 3.1 Record of Protected Structures

The chapel at St James's Hospital is not included in the Record of Protected Structures as set down in the Dublin City Development Plan 2011-2017.

### 3.2 Conservation areas

The chapel is not within, or adjacent to, any conservation area.

### 3.3 National Inventory of Architectural Heritage

The hospital chapel is included in the survey of part of Dublin city that was carried out on behalf of the National Inventory of Architectural Heritage. This rates the chapel as being of Regional significance for its special architectural, artistic and social interest. The appraisal of the chapel states that:

*'This small-scale chapel built for staff and patients of Saint James' Hospital retains much of its original form and fabric. Certain characteristic ecclesiastical features render the function of this building instantly recognisable, such as its stained glass windows and cross finials. The visual and textural contrast between the limestone walls and red brick detailing makes a striking impression, enlivening the appearance of the building and making a positive architectural contribution to the complex within which it lies. Built in 1900, this is one of the later additions to the hospital, which was built as the city workhouse in 1703, and much developed throughout the eighteenth and nineteenth centuries.'*

## 4 Appraisal

The chapel at St James's Hospital is a pleasant building, utilising warm red brick and yellowish granite rubble and incorporating the growing availability of machine-made detailing such as brick specials to provide an ecclesiastical gothic flavour. Notwithstanding its rating as being of regional significance, the church is not outstanding and can be compared with many small churches, meeting houses and church halls that were erected in the late nineteenth and early twentieth centuries.

As part of a previous planning application in 2009, (Dublin City Council Pl. Ref: 2751/09, ABP Ref: PL29S.236070), a report on the chapel prepared by David Young, of Hamilton Young Architects, a grade I conservation architect made the following points:

*As a building of architectural merit the chapel is of minor interest as an example of an unsophisticated late Victorian Gothic design. It is a simple building reflective of its original purpose and construction budget. It was built to serve the original Workhouses and its utilitarian finishes are indicative of this.*

*Features of interest are limited to the method of roof construction and the church organ. Construction detailing is restricted to the use of brick specials on the pilasters and string courses on the exterior, and some limited moulded plaster over the altar.*

*While in no doubt an attractive building for its type, it is not a rare or particularly fine example of the period or architectural style. The former Convent building, located in front of the main entrance to St. James's Hospital is constructed in a similar style, with arguably more interesting detail, prominence and sustainable usefulness.*

The possibility of dismantling the chapel and reconstructing it on a new site could be entertained. However, such an approach would be not be likely to achieve a satisfactory result. The potential for dismantling in sections would be extremely unlikely to result in a seamless reconstruction, even if it were possible to dismantle the building without damage to the bricks, which would be a virtual impossibility.

Even if lime-based mortar was used, taking the building apart would also be likely to result in damage to brick. At the period when the chapel was constructed many buildings were built with cement-based mortar, which would almost inevitably render it impossible to separate the bricks without extensive damage.

The Dublin City Conservation Officer's comments on the previous planning application<sup>1</sup> for a co-located private hospital on the St. James's Hospital site, were cited by the An Bord Pleanála inspector during the appeal, as follows:

*'The principal criterion for listing, is a building's age and quality, combined with scarcity. Between 1850-1914, greater selection is necessary to identify the best examples and only buildings of a definite quality and character should be included on the RPS. The subject chapel was designated of local interest. There are many, more significant, examples of ecclesiastical buildings in the gothic revival style in the city. The chapel was assessed on the basis of architectural and historic merits.'*

In the appraisal of the chapel building the city council had judged it to be of local interest only and had decided that the chapel was not of such significance as to warrant its retention at the expense of the construction of the proposed development.

In his report on that application, the Bord's Inspector made the following comments:

*'I tend to concur with the planning authority assessment of the chapel in the context of this development. The chapel is closely bounded by adjoining structures and there is no interaction with, or contribution to, the adjoining streetscape or residential conservation areas. The relocation of the chapel elsewhere on the site was considered at further information stage. I do not consider that the grounds on which such relocation was discounted, [to be] are unreasonable.'*

## 5 Conclusion

Whatever qualities that the chapel exhibits, they are not so great as to warrant retention at the expense of the opportunity to realise the provision of a new children's hospital of national importance and strategic necessity. The memory and detail of the chapel can be retained for the future through the detailed recording of the building through measured drawings, photographs and written description that have been provided as part of the background preparation of the proposal for the children's hospital. In addition, features of architectural interest will be salvaged during the demolition process.

The location of the chapel is such that the site could not be developed effectively and efficiently with the chapel remaining in place. It is located mid-way across the east-west breadth of the site and in the centre of the southern half of the site for the proposed children's hospital, thereby ensuring that no meaningful large-scale development of the land could take place while leaving the chapel in place.

The potential for dismantling and re-erecting the chapel has been shown not to be a viable option. There is thus no alternative but to take down the chapel if the development of the new children's hospital is to be achieved.

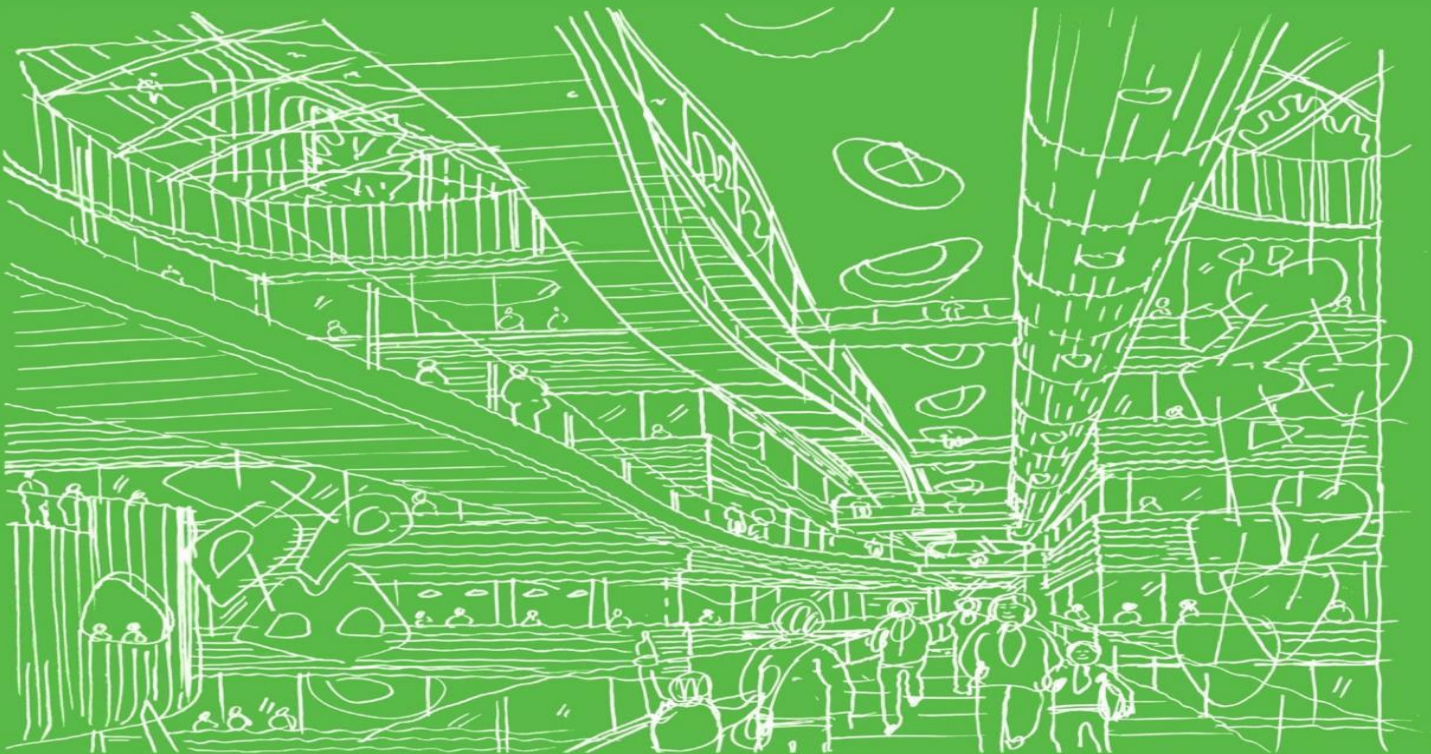
<sup>1</sup> Planning authority reference 2751/09, An Bord Pleanála reference PL29S.236070.



# National Paediatric Hospital Project

## Planning Application

Appendix 16.2 – Garden Hill Survey



August 2015

**COURTNEYDEERY**   
Heritage Consultancy





## Appendix 16.2 Garden Hill

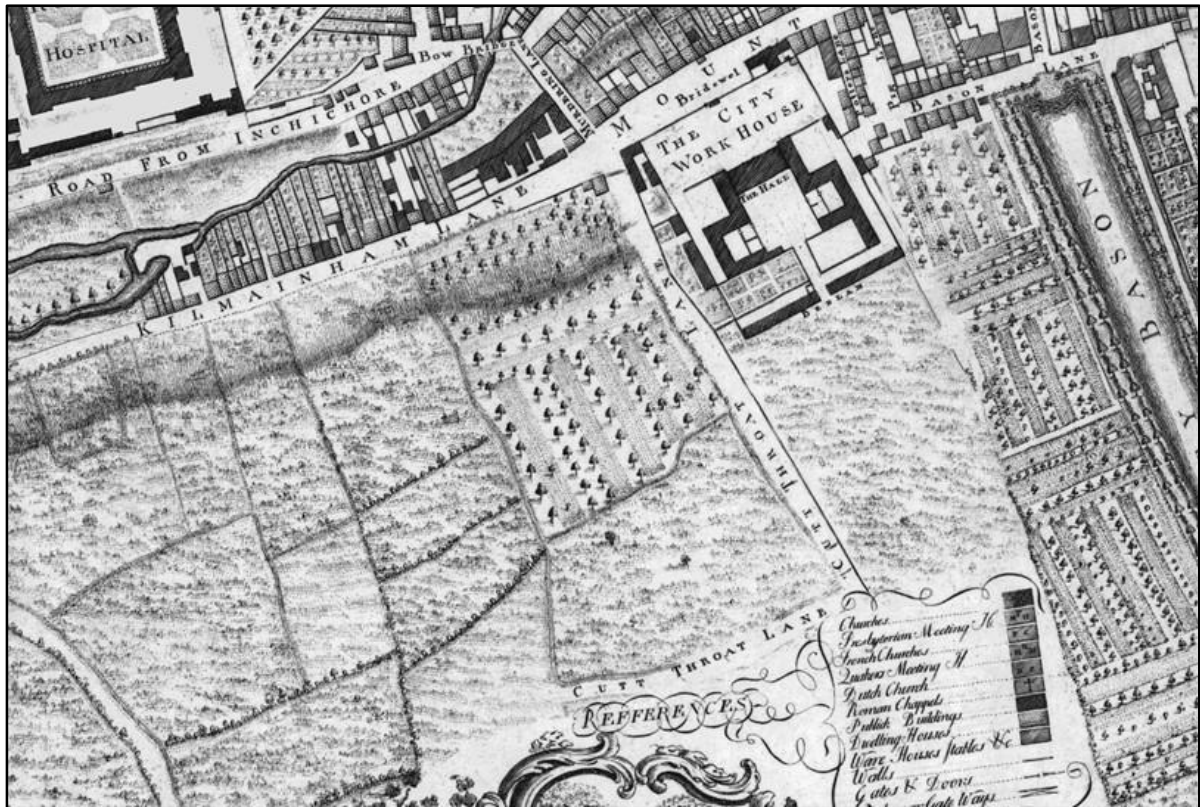
### 1 Introduction

This report has been produced as a record and assessment of an early nineteenth-century house, known as Garden Hill, on the campus of St James's Hospital and within the site of the proposed new children's hospital. If the proposed development of the children's hospital is to be implemented it would require that the house be demolished.

### 2 Historical background

From its architectural style it is clear that Garden Hill is an early nineteenth century villa-type residence. However, there is always the possibility that a building has been remodelled to modernise its appearance, possibly at the same time as enlarging it. For this reason, the earlier history of the site needs to be examined.

Figure 1: Rocque's map of 1756



The majority of maps of Dublin city that were published in the eighteenth and early nineteenth centuries restricted their area of coverage to the built-up area of the city and did not extend as far west as Garden Hill. Some did, however, as these show the site as it was on various dates. John Rocque's maps of Dublin city, published in 1756, and Dublin county, published in 1760, show the future site of Garden Hill – on the 1756 map it is at the western margin. The land is depicted as fields on the maps and no buildings were shown.

Rocque's map was updated by Bernard Scalé in 1773, though no change was recorded on the site of Garden Hill or in the fields around about.

In 1811 Thomas Campbell published a map of Dublin, though at a smaller scale than Rocque's city map. It was nonetheless a larger map than had been produced for publication in the intervening years. Unlike the larger-scale productions, Campbell did not depict individual buildings along the streets, preferring to show blocks of buildings to note which streets were built up. However, where there were lower densities of buildings, or where buildings were isolated from other development, Campbell showed them clearly.

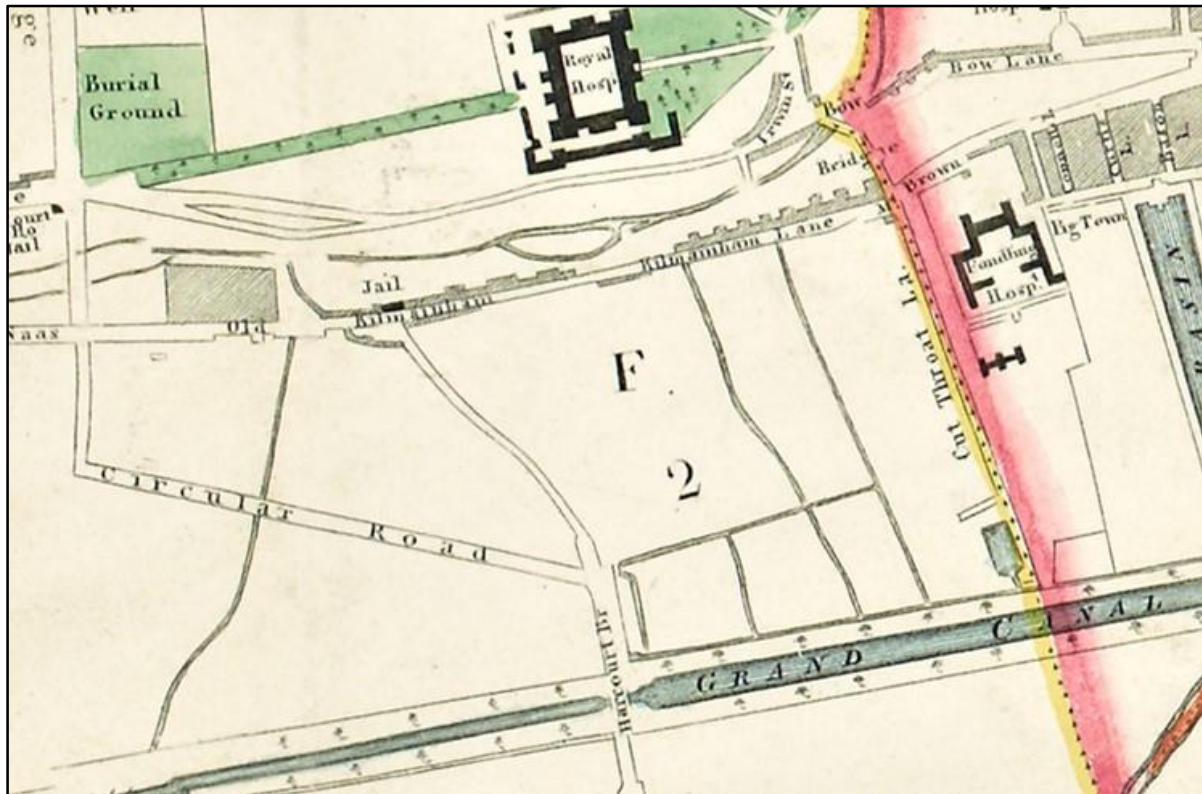
In the south-western section of the map Campbell showed the City Workhouse and the adjacent lands and this may be seen in the extract from the map that is reproduced below. As with the maps produced by Rocque, Scalé and others, Campbell's map shows the site of Garden Hill and the surrounding area as still open land.

In 1822 James Cooke produced a map of Dublin and this extended west as far as Kilmainham and included the future site of Garden Hill. The information portrayed on the map has the appearance of precision, with the buildings

## Garden Hill

and line-work shown clearly. There is nothing on or near the site of Garden Hill to suggest that there was a building present at that time. In the detail of Cooke's map that is reproduced below the letter "F" denotes that this is within St James's parish, while the number "2" indicates that this is part of the liberty of Kilmainham. These both refer to the general area and not specifically to the site.

*Figure 2: Detail of Cooke's map of 1822*



The Post Office Directory for 1843 lists Robert R Moore, barrister, living at Garden Hill, Mount Brown. The directories for 1835 and 1836 make no mention of Garden Hill, though there was a William Moore listed amongst the inhabitants of Mount Brown. The 1832 directory does not list anyone by the name of Moore at Mount Brown. From the mid-1840s it becomes clear that William Moore was the occupant of Garden Hill and he continued in occupation until about 1860.

The first map evidence for the existence of Garden Hill appears on the unpublished Ordnance Survey six-inch map of 1837. This is seen more clearly in the larger scale manuscript map produced in the following year by the Ordnance Survey and this was updated in 1843. Garden Hill may be seen in the extract below.

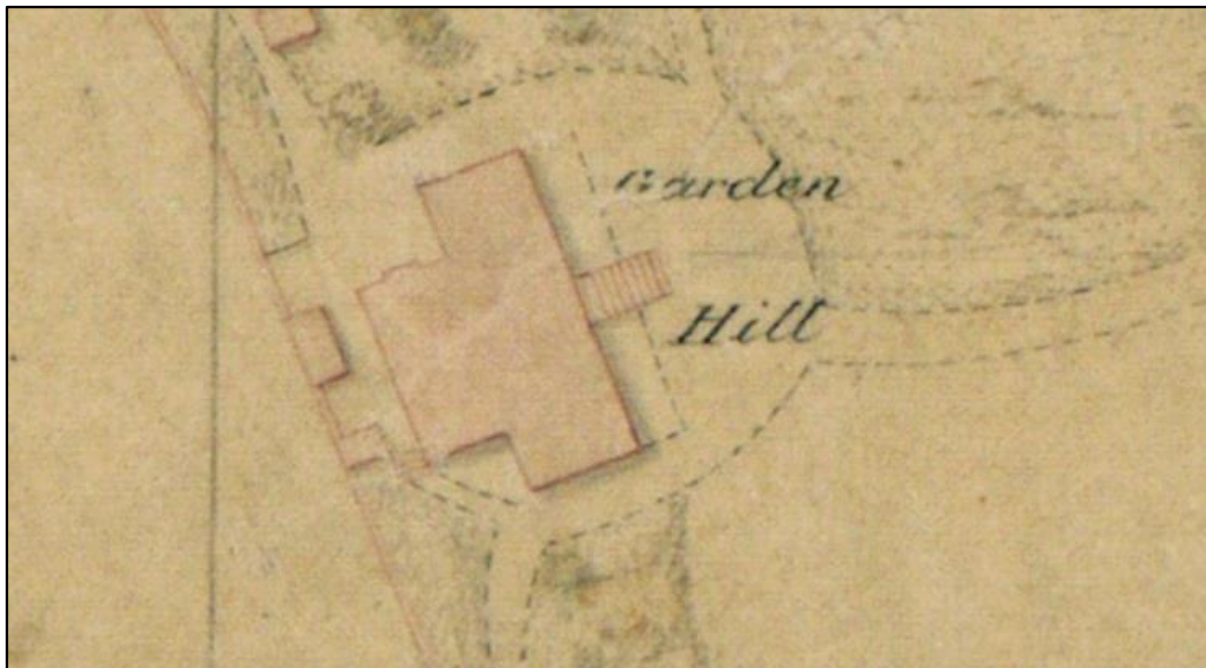


*Figure 3: Detail of OS manuscript map 22, 1838-43*



The house appears at the bottom left of the map and hence is off-centre in the extract above. The extract shows the house approached from Mount Brown by a long curving driveway through gardens.

*Figure 4: Enlarged detail of Ordnance Survey map of 1838-43*

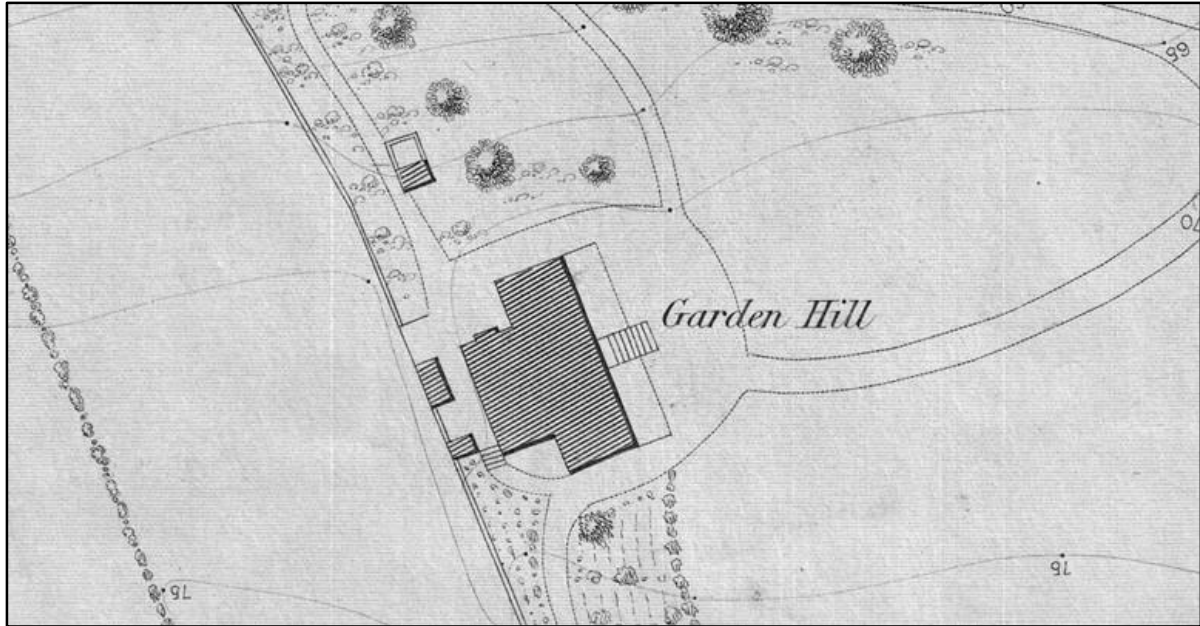


The enlargement of this map reproduced above shows the house as T-shaped, with a slight projection on the northern side of the projecting rear return. A flight of steps leads down at the south-western corner of the house.

## Garden Hill

The house was shown again on the published large-scale map of 1847, with no apparent change since the preparation of the previous map.

*Figure 5: Garden Hill, seen on OS map of 1847*



The draft Ordnance Survey maps of 1837, 1838 and 1843 had been the first maps to show Garden Hill and the first published map to show it was the six-inch sheet published in 1843. Cooke's map of 1822 had been large enough to have included the house, but it is absent from the map. Hence from map evidence it would appear that Garden Hill was built sometime between 1822 and 1837. The evidence from directories show that William Moore was in residence in Mount Brown in 1835, though apparently not in 1832. This suggests that the house was built in the early 1830s.

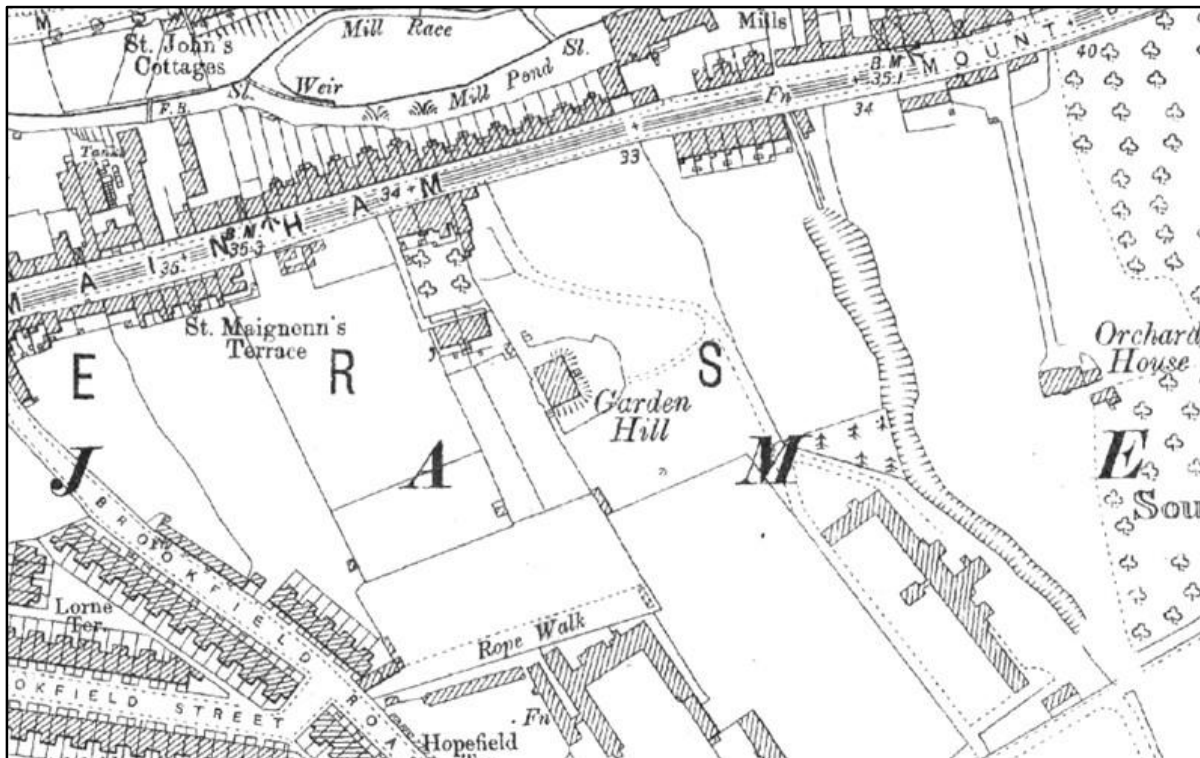
The Ordnance Survey map of 1876, reproduced below, shows the house and its grounds at that date. The house is still depicted as having a narrower rear section, as shown on the earlier maps.

*Figure 6: Detail of OS map of 1876*





Figure 7: Ordnance Survey map of 1907



A major change that is seen on the 1876 map is the appearance of an auxiliary workhouse on the land to the south of Garden Hill, off Watery Lane and South Circular Road.

In the late nineteenth century the South Dublin Union expanded its premises, developing the land between its original campus off James's Street and its auxiliary campus off South Circular Road. At the same time the Union acquired additional property to the north of its auxiliary workhouse, including Garden Hill and its lands.

The extract from the Ordnance Survey's 1 : 2500 map of 1907, reproduced above, shows Garden Hill as not yet surrounded by buildings. The only clue to the change of ownership is that the driveway to Garden Hill from Old Kilmainham now connects through to the south, leading to a new range of buildings that were part of the South Dublin Union complex. By this stage Garden Hill had become the residence of the Master of the South Dublin Union. This map also shows that the house was altered, the space on both sides of the rear return being infilled and the house becoming rectangular.

With the closure of the South Dublin Union workhouse in the 1920s the healthcare functions of the workhouse remained on the campus and were expanded to take over the entire building complex under the name St Kevin's Hospital. Garden Hill became the residence of the Medical Superintendent of the hospital.

In more recent years the hospital was further expanded to incorporate hospitals that were closed, such as the City of Dublin Hospital and Sir Patrick Dun's Hospital. With this came a change of name to St James's Hospital. Garden Hill was converted to offices to accommodate part of the expanded functions to be carried out on the hospital campus.

### 3 *Building survey*

#### 3.1 *Exterior*

##### 3.1.1 *Front*

*Plate 1: Garden Hill, seen from the south-east*



Garden Hill is a double-pile, five-bay, single-storey over basement villa-type house dating from the second quarter of the nineteenth century. The façade is rendered, ruled, lined and painted on both levels, with a projecting stone string course at entrance floor level. The four windows in the front façade on the entrance floor are two-over-two timber sliding sashes, while those at basement level are similar, though smaller.

The front door is approached via a broad flight of seven granite steps flanked by wrought iron railings with a wrought iron hand rail and with a volute at the lower end on each side. The mid-point of each baluster is marked by a cast iron boss. The front door has six raised-and-fielded panels and is flanked by timber pilasters carrying scroll brackets supporting a frieze and simple cornice. The doorway is surmounted by a near-semi-circular fanlight with its original divisions. The whole assemblage is surrounded by a plaster roll moulding and sits on a pair of plinths. The roof has a moderately low pitch and is slated with ceramic ridge tiles; the eaves are sprocketed. The parapet walls at the gables are capped with painted granite coping stones. The rainwater goods are of cast iron and the gutters are held on a timber fascia; the soffit has paired scrolled brackets.

## Garden Hill

*Plate 2: Garden Hill, seen from the north-east*

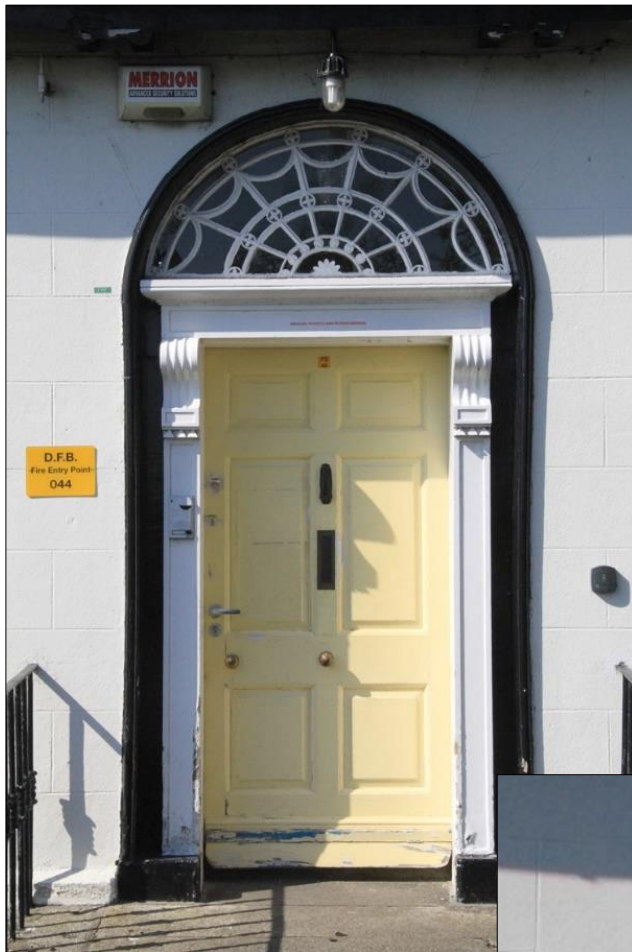


*Plate 3: Steps to front door*





*Plate 4: Front door*



*Plate 5: Typical entrance floor  
front window*



### 3.1.2 Side

*Plate 6: Gable and chimney stack*



The front section of the roof has chimney stacks at the gables, rising from the ridge. These rise straight from the top of the gable as broad stacks before reaching a slender moulding, above which they narrow by means of a pyramidal fillet, to a more slender stack, finishing with a slightly-projecting broad moulding. Each stack carries three Dublin-style pots in a straight line.

The stacks on the rear section of the roof are quite different, the shafts rising through the full height with the basic width unchanged, except for a slight projecting moulding as a collar and a corbelled section near the top. The stack on the southern gable end at the rear projects from the gable through its full height and carries two simple cylindrical pots. Two further stacks rise from the ridge of the rear section and both are of similar style to the southern stack, though wider and carrying three cylindrical pots each. There is no stack on the northern gable at the rear.

All five stacks are rendered and painted, as per the main external facades.

*Plate 7: Southern gable end*



At the southern gable end a drain runs from the central valley and feeds to a cast iron downpipe. A cast iron soil stack rises alongside the projecting rear stack on this elevation and vents above roof level.

### **3.1.3 Rear**

*Plate 8: Rear of Garden Hill, viewed from the south-west*





## Garden Hill

At the rear of the house there is an asymmetrical array of windows on the upper level, with a blank wall facing the rear towards the southern end. There is a scar in the render near the southern end that suggests there was a window here in the past. The head of this apparent window seems to have been lower than the other windows and would have been near the level of the mid-point of the upper sash of the adjacent surviving window.

Three of the four sash windows on the upper floor are two-over-two timber sliding sashes with curled horns. The exception is the second window from the south, which lights the staircase, and which is described below.

At basement level there are four sash windows, three of which are two-over-two sashes with curled horns, while the fourth is a modified version with a single obscure-glass pane in the lower sash. These are arrayed asymmetrically, with no window beneath the right-hand of the upper floor bays and a pair of windows beneath the right-hand or southern upper floor window, as seen in the view below. There is also a door at the lower level, faced with steel, and with a simple rectangular over-light.

In the southern gable of the rear section of the building there are two side-facing sash windows.

*Plate 9: Southern end of upper floor at rear*



*Plate 10: Staircase window*



The staircase window has obscured glass central panes with coloured glass margin lights.

*Plate 11: Rear of Garden Hill*

*Plate 12: Rear door at basement level*





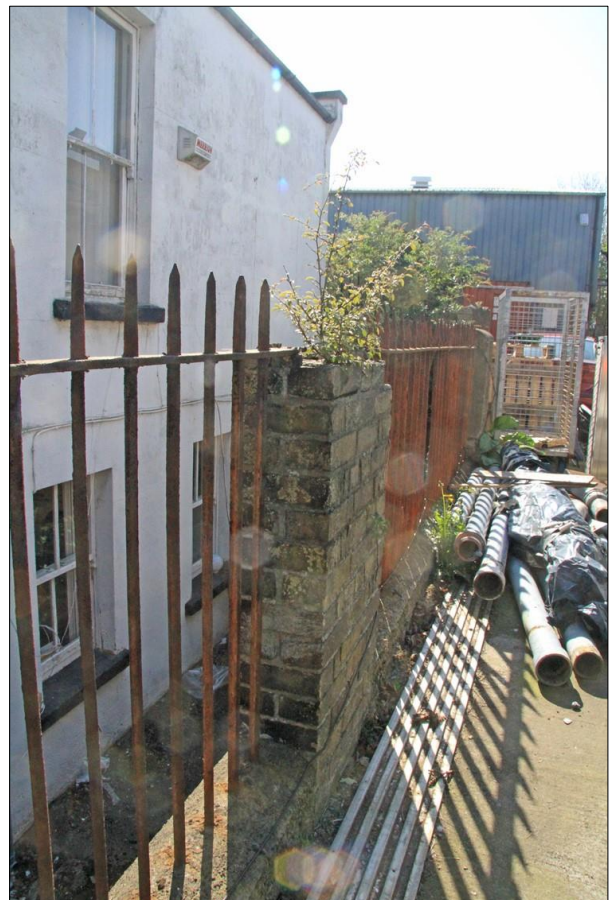
## Garden Hill

The basement at the rear of the house is below ground level, with a narrow basement area. This area is protected by a wrought iron railing with spiked finials and intermediate spikes on the bottom rail. Mid-way across the width of the house there is a pier of yellow Dolphin's Barn brick, while towards the southern end the railing gives way to a wall faced with sand and cement render and with a rounded top.

*Plate 13: Railing at rear of Garden Hill*



*Plate 14: Railing and brick pier*

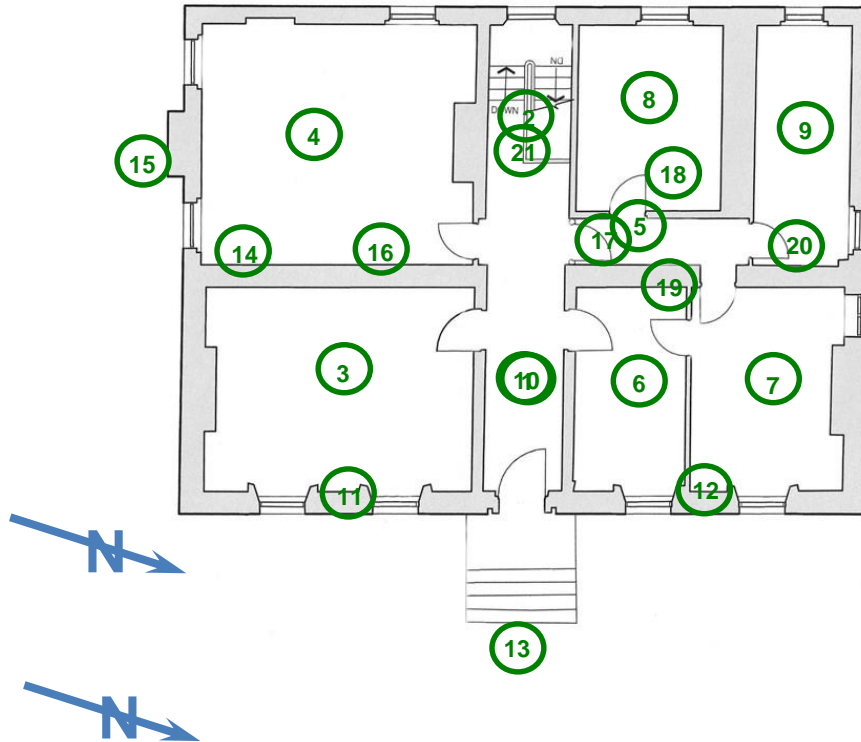




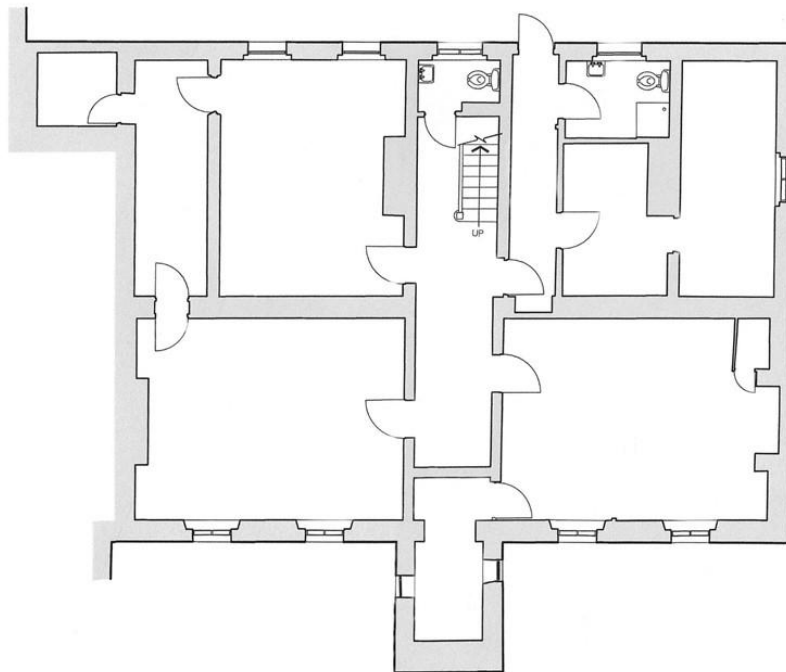
### 3.2 Interior

The floor plans below show the rooms on each of the two floors, with the room numbering adopted for the purposes of this report.

*Figure 8: Floor plan at entrance level*



*Figure 9: Floor plan at lower level*



### 3.2.1 Interior – entrance level

#### 1 Entrance hall

The entrance hall is relatively narrow, being little more than the breadth of the front door and its surround. The walls are painted and there is a timber dado rail. The ceiling of the entrance hall has a simple run cornice and there is no centrepiece and the hall is otherwise devoid of decorative features, other than the front door.

The front door is six-panelled and is set in a frame flanked by simple pilasters supporting a small cornice, above which is the interior of the fanlight.

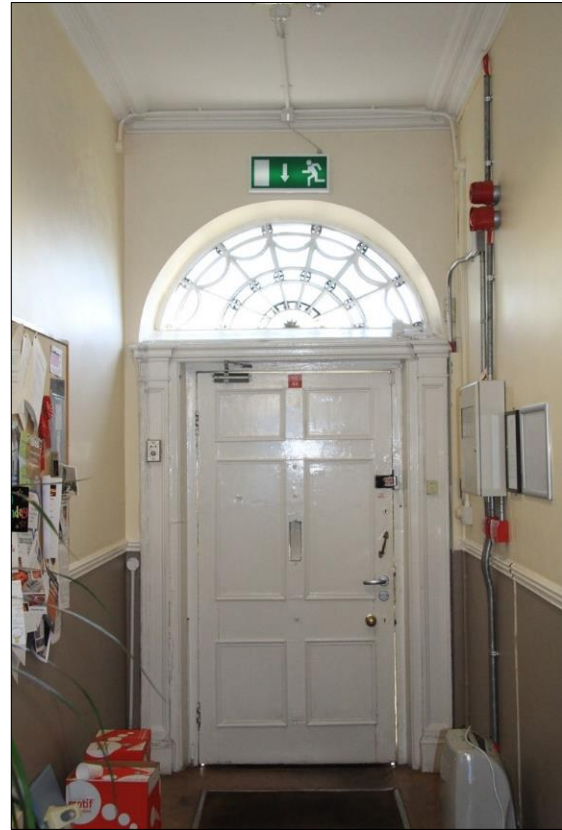
At the rear of the hall there is a beam projecting down from the ceiling and this has stopped roll mouldings at the two visible edges. A doorway leads off the hall on either side, immediately to the front of the beam. Each of these doorways has a moulded timber architrave and a six-panelled door.

*Plate 15: Front section of entrance hall*



*Plate 17: Doorway to room 4*

To the rear of the beam a doorway opens on either side of the hall. The opening to room 4, to the left, as seen from the front door, has a frame that runs up to ceiling level, where it is carefully cut so as not to break the cornice. This frame has a quadrant moulding. It is divided by a similar timber into a doorway in the lower section and a plain-glazed overlight above. This frame is a later insertion.



*Plate 16 (above): Front door*





*Plate 18: Beam at rear of front entrance hall*



*Plate 19: Ceiling over staircase to rear of beam*



*Plate 20: Detail of frame over window above door to room 4*

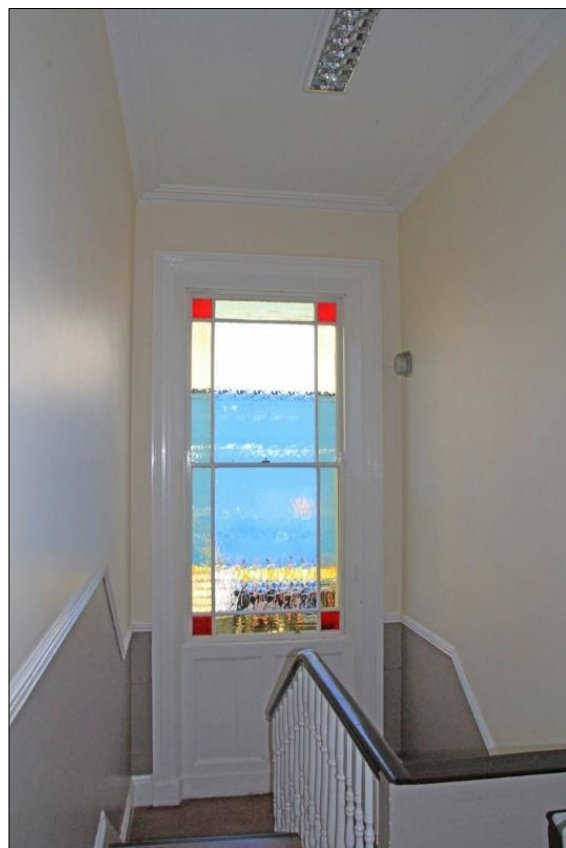


## 2 Staircase

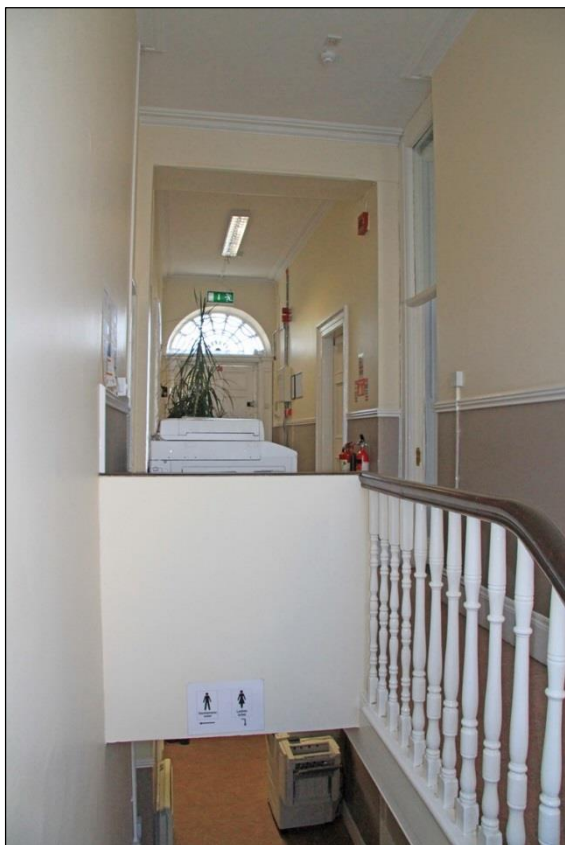


*Plate 21: Upper level of staircase*

The staircase leads down at the rear of the entrance hall. This is an open-string staircase with plain tread-ends and with turned balusters supporting a hardwood handrail. The return of the balustrade at the rear of the entrance hall is solid. The stair leads down through a dog-leg to the floor below.



*Plate 22 (above): Window above staircase*



*Plate 23: Upper level of staircase*

At the turn in the stair there is a timber sash window with a large central pane of obscured glass in each sash and with coloured side-lights. The window is set in a moulded timber architrave and below it is a panelled base board.



*Plate 24: Turn of balustrade at half landing*

The stairs have a covering of vinyl, with aluminium nosings.

The balustrade runs through a curve at the turn in the stair and at the base it terminates at a substantial turned newel with a finial. This newel is unusual for the period of the house and may have been inserted later in the nineteenth century.



*Plate 25: Newel at foot of stairs*



*Plate 26: Lower flight of staircase*



### 3 Large front room

*Plate 27: Windows to front*



The larger front room is in the south-eastern corner of the house. It has two windows facing the front, each of which is a two-over-two timber sliding sash, set in a moulded timber architrave and with panelled shutters. There is a plain run cornice and no centrepiece to the ceiling. A chimneybreast projects into the room from the southern wall, though the hearth has been stopped up and there is no chimneypiece.

*Plate 28: North-western corner of room with door to entrance hall*





*Plate 29: Cornice over chimneybreast*



There is staining over the chimneybreast, suggesting that there is a problem with the flashing of the chimneystack, or some similar problem.

The door from the entrance hall is six-panelled and is set in a moulded timber architrave. The door set is chrome plated and is of later twentieth century date. There is a self-closer at the top of the door.

There is a wash-hand basin fixed to the wall inside the door.



*Plate 30: Door*



*Plate 31: Detail of window*

#### 4 Large rear room



*Plate 32: Southern wall of room 4*

The larger room at the rear is in the south-western corner of the entrance level. This room has two windows in the gable end of the house, facing south, and one at the northern end of the rear elevation. Each of these windows is a two-over-two timber sliding sash with curled horns and is set in a moulded timber architrave without shutters.

The room is entered via a six-panelled door set in the timber frame with glazed panel over, as described above in the examination of the entrance hall and stairs. The door has chrome-plated door furniture of late date.

The ceiling in this room is suspended, with acoustic tiles and recessed fluorescent light fittings. A chimneybreast projects into the room from the northern wall, but the hearth is stopped up and there is no chimneypiece.

*Plate 33: Chimneybreast and door*



*Plate 34: Rear wall*

### 5 Side corridor

Leading off the rear of the hall towards the north there is a doorway to a corridor, which in turn gives access to two small rooms. The doorway has a simple architrave on each side, without mouldings; the door is six-panelled. This corridor has a simple run cornice on either of the long sides of the ceiling, though not on the short sides. The wall between the corridor and the hallway appears to be a later partition.

*Plate 35: View northwards along corridor*



*Plate 36: View southwards along corridor*

The doorway at the southern end has a simple architrave without mouldings and a hollow door of late date. A doorway without architrave leads to room 7 at the front of the house. A doorway with moulded timber architrave leads to room 8 at the rear.

*Plate 37: Southern end of ceiling*



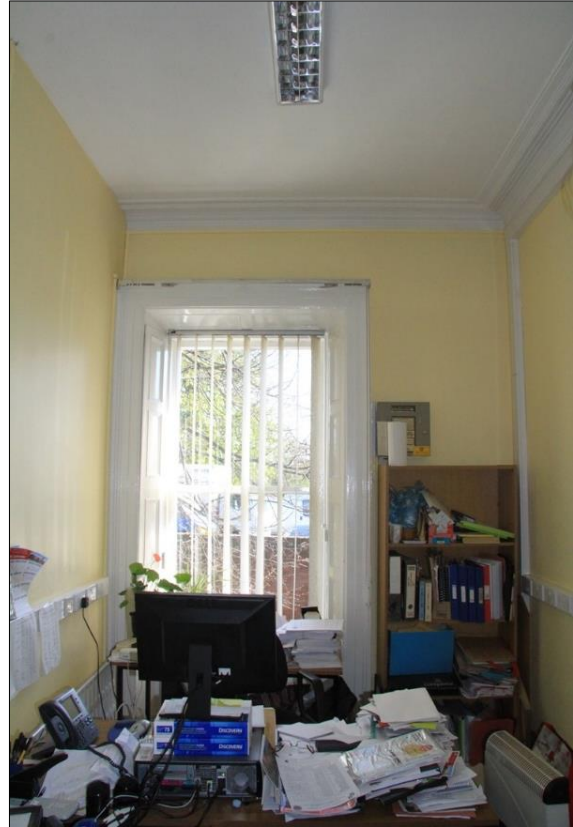


### 6 Front office

A small front office leads off the entrance hall to the north. The door from the hall is six-panelled and is set in a moulded timber architrave. There is a second doorway directly opposite that leads to another small office to the north; this is a hollow door and is set in a plain timber architrave.



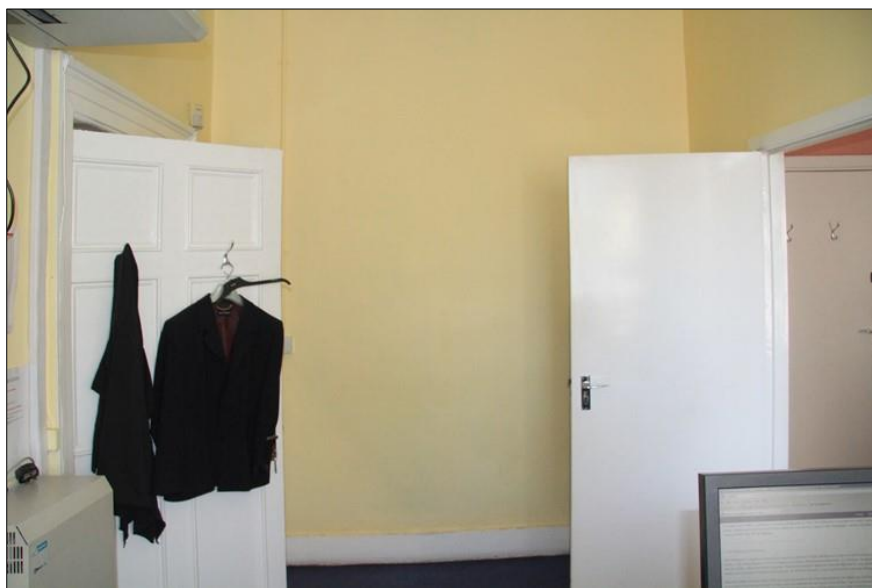
*Plate 39: Detail of window*



*Plate 38 (above): Front of room and window*

The window faces the front of the building and is a two-over-two timber sliding sash with curled horns, set in a moulded timber architrave with panelled shutters.

A simple run cornice runs around three sides of the ceiling and is missing from the partition wall separating this office from the adjoining office to the north.



*Plate 40: Rear of room and doors*

**7 Front office**



*Plate 41: North-eastern corner of room*

The small office at the north-eastern corner of the entrance floor has a chimneybreast projecting into the room on the northern gable end wall, though the hearth is stopped up. There is a small timber casement window to the western side of the chimneybreast. There is a simple run cornice around three sides of the ceiling, the exception being the partition wall separating this room from room 6, in which there is a doorway with a hollow door and a plain timber architrave. A similar doorway with a hollow door and simple timber architrave leads to the corridor at the rear (room 5). There is a simple timber dado, apparently of late date.



*Plate 42: Western wall with door to rear*

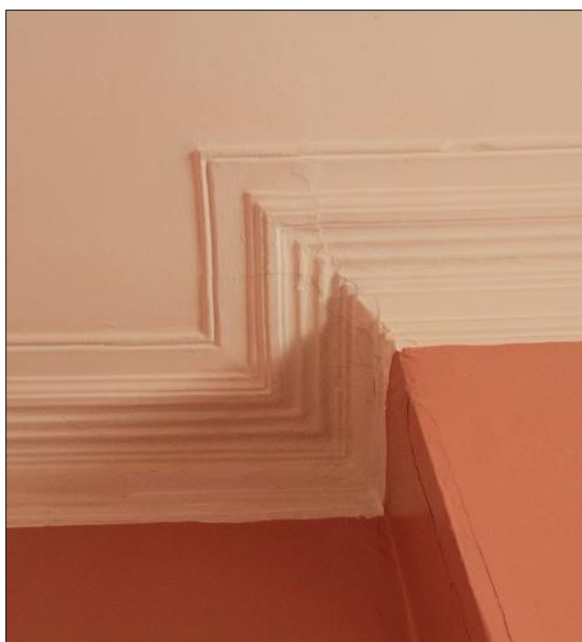
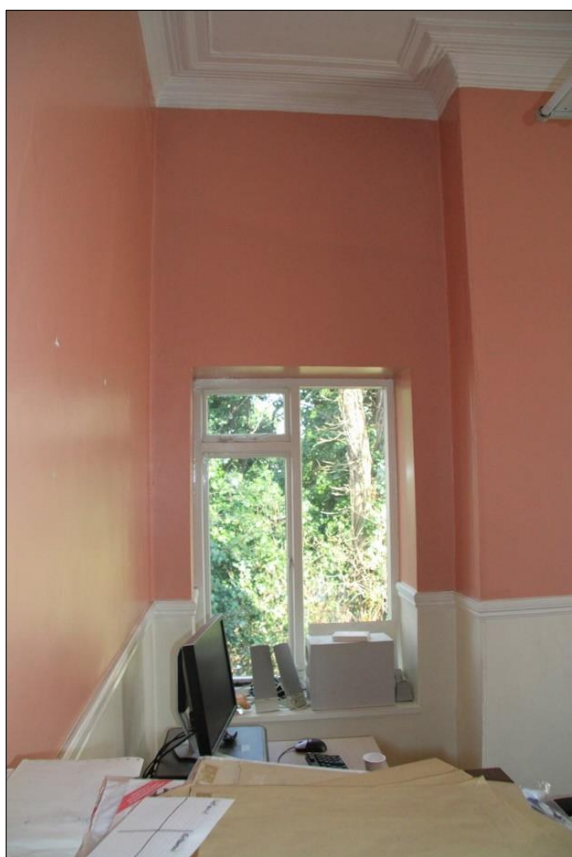
The north-facing casement window is visible at right in the photograph above.

*Plate 43: Detail of front window*

*Plate 44: Doors*



*Plate 45: Detail of cornice*



*Plate 46: North-facing window*



**8 Rear office**



*Plate 47: Rear office*

The rear office on the northern side of the entrance hall is entered via a hollow door set in a moulded timber architrave. The rear-facing window is a two-over-two timber sliding sash set in a moulded timber architrave without shutters. There is no chimneybreast in this room and no hearth. There is no cornice or centrepiece on the ceiling.



*Plate 49: Window*



*Plate 48: Doorway*

### 9 Small room

A small, narrow room is located at the north-western corner of the entrance floor. This room is entered via a hollow door set in a plain timber architrave. There no cornice or centrepiece at the ceiling

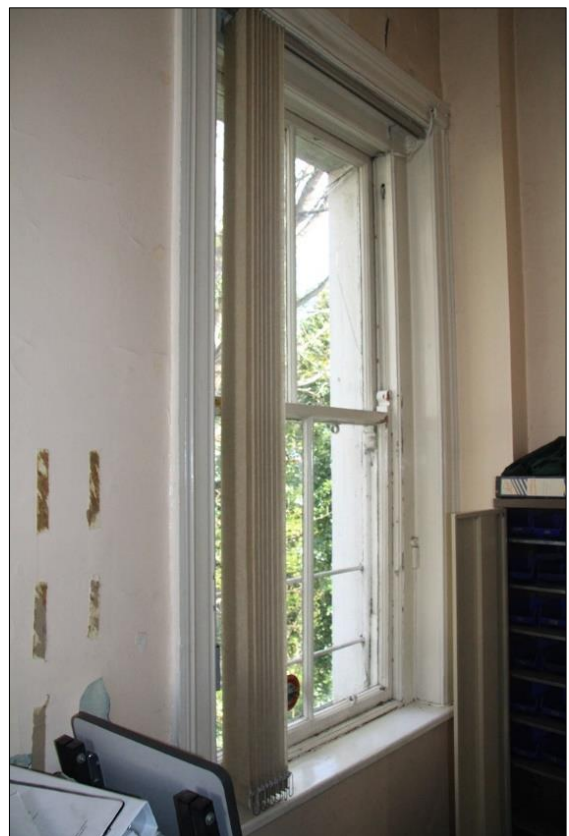
A two-over-two timber sliding sash window with curled horns faces the rear, to the west, while a similar window faces north on the gable end. Both windows have moulded timber architraves and no shutters.



*Plate 51: View to front, or east*



*Plate 50: View to rear, or west*



*Plate 52: Detail of north-facing window*

### 3.2.2 Interior – lower level

#### 10 Corridor



*Plate 53: Corridor on lower level*

At the foot of the stairs on the lower level there is a corridor leading back towards the front of the building. This is an enclosed space with no windows, other than the window at the half-landing above. There is no cornice. There is a dado rail, probably of late date.

Four doorways lead off this corridor, three of which have moulded timber architraves. The exception is the doorway leading towards the north at the foot of the stairs.



*Plate 54: Corridor and staircase*



## 11 Front room



*Plate 55: South-western corner of front room*

The front room on the southern side of the lower floor is in use as an office. There is a projecting chimneybreast on the southern wall, though the hearth has been stopped up. The room is entered via doorway in the middle of the northern wall. The door is six-panelled and there is a moulded timber architrave. Another door, also with a moulded timber architrave, leads towards the rear from the south-western corner of the room. This has a solid door and leads to room 14. The two windows to the front of this room are two-over-two timber sliding sashes without



shutters or architraves. There are many surface-mounted services in this room.

*Plate 56: Windows in front room*

*Plate 57: Door*

**12 Front room**



*Plate 58: Windows in northern front room*

The front room in the north-eastern corner of the building has two windows facing the front, both of which are two-over-two timber sliding sashes with curled horns and without architraves or shutters. This appears to have been the original kitchen, as there is a substantial open hearth on the northern wall, now converted to book shelves and seen in the photograph below.



*Plate 59: Northern wall, with hearth*



*Plate 60: Southern wall of room*



*Plate 61 (above): Detail of window*

There are two doors in this room. One, seen at left in the photograph above, leads to a lobby beneath the steps to the front door; this is a hollow door in a plain architrave. The other door, seen at right above and seen in the right-hand photograph below, is a six-panelled door with traditional panelling on the outer face, while on the inner face the styles and rails around the panels are stop-chamfered. On the outer side there is a moulded timber architrave, while the architrave on the inner face is narrow and plain.



*Plate 62: Outer face of door*



### ***13 Area beneath front steps***

The doorway leading off room 12, adjacent to the front of the building, leads to a small lobby beneath the front entrance hall. This houses the electrical switch gear for the building. The walls are plastered and painted and show significant evidence of damp, particularly in the upper area of the front walls. A large ope leads to the area beneath the front steps.

*Plate 63: Lobby*

*Plate 64: Area beneath front steps*



The area beneath the steps to the front door is plastered and painted, the soffit of the steps being vaulted. There is extensive evidence for damp, with the walls blistering and the plaster bursting.

On either side of this area there is a small steel window, the faces of the ope being plastered and painted, including the sills.

*Plate 65: Side window*



#### **14 Rear file store**

In the south-western corner of the lower floor there is a small, narrow room in use as a file store. The walls are plastered with hard-wall plaster and are painted. The ceiling is also a replacement.

*Plate 66: File store*



*Plate 67: File store*

#### **15 Small store**

In the south-western corner of the building at basement level a small space leads off towards the south. This is a small store in an extension added to the south of the southern gable.

As with the other store, the walls and ceiling are faced with a hard-wall plaster of later date.

*Plate 68: Small store on southern gable*





**16 Rear room**



*Plate 69: Rear room*

The rear room in the south-western corner of the building has two windows facing into the rear basement area. These are two-over-two timber sliding sashes with curled horns and do not have architraves or shutters.

A chimneybreast projects into this room from the northern wall, though there is no hearth or chimneypiece. The walls and ceiling have coverings of hard-wall plaster.

The door into this room is six-panelled and is set in a moulded timber architrave. The door to the adjacent file store (room 14) is flat and is set in a frame with no architrave.



*Plate 70: Chimneybreast*

*Plate 71: Rear window*



### ***17 Rear corridor***

Leading off the area at the foot of the stairs is a narrow corridor that gives access to a WC at the rear and to two other rooms, one of them indirectly. This corridor is accessed via a hollow door through a doorway without architraves. At the far end, to the west, is a fire door that was seen in the photographs of the rear exterior of the building above.

The walls and ceiling in this corridor are faced with a hard-wall plaster. In common with much of the basement of this building there are extensive conduits, trunking and other service runs mounted to the surface of the walls and ceiling.

The door opens to the WC at the rear and to the adjacent corridor (room 19) have plain narrow architraves.

At the eastern end of the corridor there is a niche in the wall, suggesting that there is a stopped-up doorway here that formerly led to the room to the front (room 12).



*Plate 72: View westwards along corridor*



*Plate 73: View eastwards along corridor*

**18 WC**

At the rear of the building, accessed via the corridor described above (room 17) is a shower and WC room. The fittings in this room are all of comparatively late date. The room is lit by a two-over-one timber sliding sash with obscured glass.

The door into this room is set in a simple timber architrave and is a hollow door of late date.

*Plate 74: Shower/WC*



*Plate 75: Window in shower/WC*

**19 Internal room**



*Plate 76: Doorway from room 19 to room 20*

Leading off the corridor (room 17) is a small room with no walls or windows to the outside. A doorway without architrave leads to another room in the north-western corner of the building. The internal room has a thick wall adjacent to the door to the next room and this appears to have been a chimneybreast, though the hearth is stopped up and there is no chimneypiece.

The doorway leading to the adjacent corridor (room 17) has a simple timber architrave and a hollow door. The walls and ceiling in this room are faced with hard-wall plaster.

*Plate 77: Door to adjacent corridor*





*20 Rear room*



*Plate 78: Rear of room*

The room at the north-western corner of the building is in use as a rest room/kitchenette. This is fitted with kitchen units, tiles and equipment of comparatively recent date. The walls and ceiling are faced with hard-wall plaster.



*Plate 79: Eastern end of room with window*

There is no rear-facing window in this room. A two-over-two timber sash window without architrave or shutters faces north and is set in the northern gable end.

The door to this room is a hollow door, set in a plain architrave.

**21 WC**

At the rear of the building, beneath the stairs, there is a WC room. This has a low ceiling, as the half-landing is above.

The room is lit by a two-over-two timber sliding sash with curled horns and with obscured glass. This window has no shutters or architrave. The window is squat in shape to accommodate it to the low ceiling height.

The sanitary ware in this room is of comparatively late date.



## **4 Conservation context**

### **4.1 Record of Protected Structures**

Garden Hill is not included in the Record of Protected Structures as set down in the Dublin City Development Plan 2011-2017 and hence is not a protected structure

### **4.2 Conservation areas**

Garden Hill is not within, or adjacent to, any conservation area.

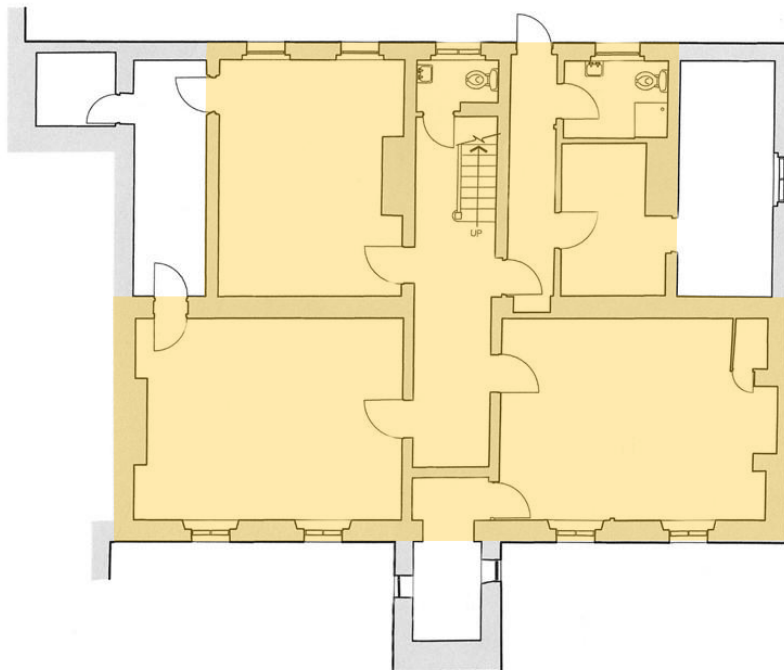
### **4.3 National Inventory of Architectural Heritage**

Garden Hill is not included in the surveys carried out for and published by the National Inventory of Architectural Heritage.

## **5 Analysis**

### **5.1 Original form and late nineteenth century alterations**

The historical background has shown evidence that Garden Hill was built at some time in the early to mid-1830s and the style of the house would support such a date. The early depictions of the house on Ordnance Survey maps show the house as having a narrower rear section. This may be seen in the plan form of the house, in part on the entrance floor, but more clearly on the lower floor. The coloured overlay on the floor plan reproduced below is the suggested original extent of the building, based on the basement floor plan, with the front of the house at the bottom. .



*Figure 10: Apparent original extent of Garden Hill*



The map evidence suggests that this plan form lasted until the later nineteenth century, as the original form with the narrower rear section is still visible on the Ordnance Survey map of 1876. It seems likely that the change took place following the acquisition of Garden Hill by the South Dublin Union in the later years of the nineteenth century.

The architectural evidence supports this suggested original layout and the dating. It is evident in the plan in figure 11 above that the windows on the rear elevation are concentrated within the coloured area. It was also noted in the building survey descriptions of the chimney stacks, as given above, showed that those in the front section of the house are quite different to those at the rear – the latter having a later style and simple cylindrical pots, which are also indicative of a later period. The northern chimney stack in the rear of the house is not located on the northern gable, but a distance in from the gable. This corresponds with the suggested original end of the building and it is noted that the large-scale Ordnance Survey maps reproduced in figures 5 and 6 above show a projecting chimney stack on the northern elevation at the rear.

The reconstruction of the rear of the building would also explain the form of the staircase, which has thick hardwood handrail and a large turned newel, both of which are indicative of late nineteenth or early twentieth century date, as compared with a smaller painted softwood rail on which a slim hardwood handrail would be mounted, which is more common in the earlier nineteenth century.

It is also noted that the style of windows found throughout the house is two-over-two timber sliding sashes with curled horns. The two-over-two sash was not used on houses of this type prior to the abolition of glass tax in 1845, while curled horns did not come into use until the later nineteenth century. During the 1830s it would be expected that the windows would have been small-paned, probably six-over-six, and they would have had quadrant horns.

The above evidence points to a major restructuring of Garden Hill in the late nineteenth century and it is possible that the projecting eaves to the front, with brackets, also dates to this period as this would be unlikely in houses of this style and date.

## ***5.2 Twentieth century alterations***

It is also clear from the examination of the house that it has been substantially altered again at a later date. A significant number of partitions have been inserted into the house and it seems probable that this took place in the latter half of the twentieth century, along with the breaking open of a number of new doorways. The historical background has indicated that Garden Hill was the residence of the medical superintendent of St Kevin's Hospital until the foundation of St James's Hospital in the 1970s, when the house was converted to offices and this would be the most likely time when the subdivisions and other alterations took place.

The alterations would also have included the removal of all of the chimneypieces and the stopping up of the hearths. They appear to have been much more extensive, however, as the walls and ceilings at basement level have been replastered with a hard-wall plaster, which only came into use in the twentieth century. Other features such as the simple narrow architraves at many of the doorways and the hollow doors that accompany them are very much of the mid-twentieth century, as are the door sets such as the chrome-plated door handles.

## ***5.3 Character***

Much of the original character of Garden Hill survives in the front elevation, with its granite steps, front door and fanlight, together with the window layout and chimney stacks. The windows themselves depart from this original character, as has been indicated above. As has also been shown, the rear of the building owes its form and appearance to the later nineteenth century, including the width of the building, the chimney stacks and pots and the sash windows. It is probable that the railings behind the house also date from this period.

Internally, the surviving original character is mixed with later periods. The simple cornices on the ceilings at entrance floor level would appear to date from the original building, as may some of the doors and their architraves, though a significant number of the six-panelled doors and their moulded architraves seem to date from the later nineteenth century reconstruction. As has been seen, the staircase is also of this later date.

The twentieth-century alterations have removed most of the original character from the basement level, through the use of hard-wall plaster, the stopping up of hearths and the introduction of many doors and architraves.

## ***5.4 Significance***

The absence of Garden Hill from either the Record of Protected Structures or from the National Inventory of Architectural Heritage strongly suggests that neither Dublin City Council nor the National Inventory of Architectural Heritage considered Garden Hill to be of such significance that it should be accorded a significance and official recognition.

The house certainly has a certain character and it would be reasonable to accord it a “local” significance. The Planning Acts do not differentiate between buildings on the basis of levels of significance or a grading system of protection. However, the National Inventory of Architectural Heritage uses a system of grading whereby buildings or other structures are designated as having an international, national, regional or local significance, “record only” or no significance at all<sup>1</sup>. Under this system, “local” is defined as follows:

These are structures or sites of some vintage that make a contribution to the architectural heritage but may not merit being placed in the RPS separately. Such structures may have lost much of their original fabric.

This would appear to be a reasonable assessment of Garden Hill, which makes a modest contribution to architectural heritage, has not been added to the RPS (Record of Protected Structures) and has lost much of its original fabric.

### **5.5 Conclusion**

In according a local significance to Garden Hill no suggestion is made that the building should be added to the Record of Protected Structures, or that it should be protected. The house is one of many small villa-type houses that were built around the Dublin area in the second quarter of the nineteenth century and is not either unique or a particularly good example of its type. It was altered significantly in the later nineteenth century and then substantially altered internally in the third quarter of the twentieth century, as a result of which it has lost much of its original form and character.

The house is located centrally in the northern half of the site for the proposed children’s hospital and its retention would render this part of the site impossible to develop for any substantial building complex; working around the building would cause a serious reduction in the development capacity of the site, while also leaving the house isolated in a modern complex to a much greater degree than it is in its present context.

The significance of the building is not such as to warrant its retention, nor to require a significant alteration to the proposal to construct a hospital of national significance on the site in order that the house could be retained. It would be sufficient to leave a detailed record of the house through written description photographs and measured drawings.

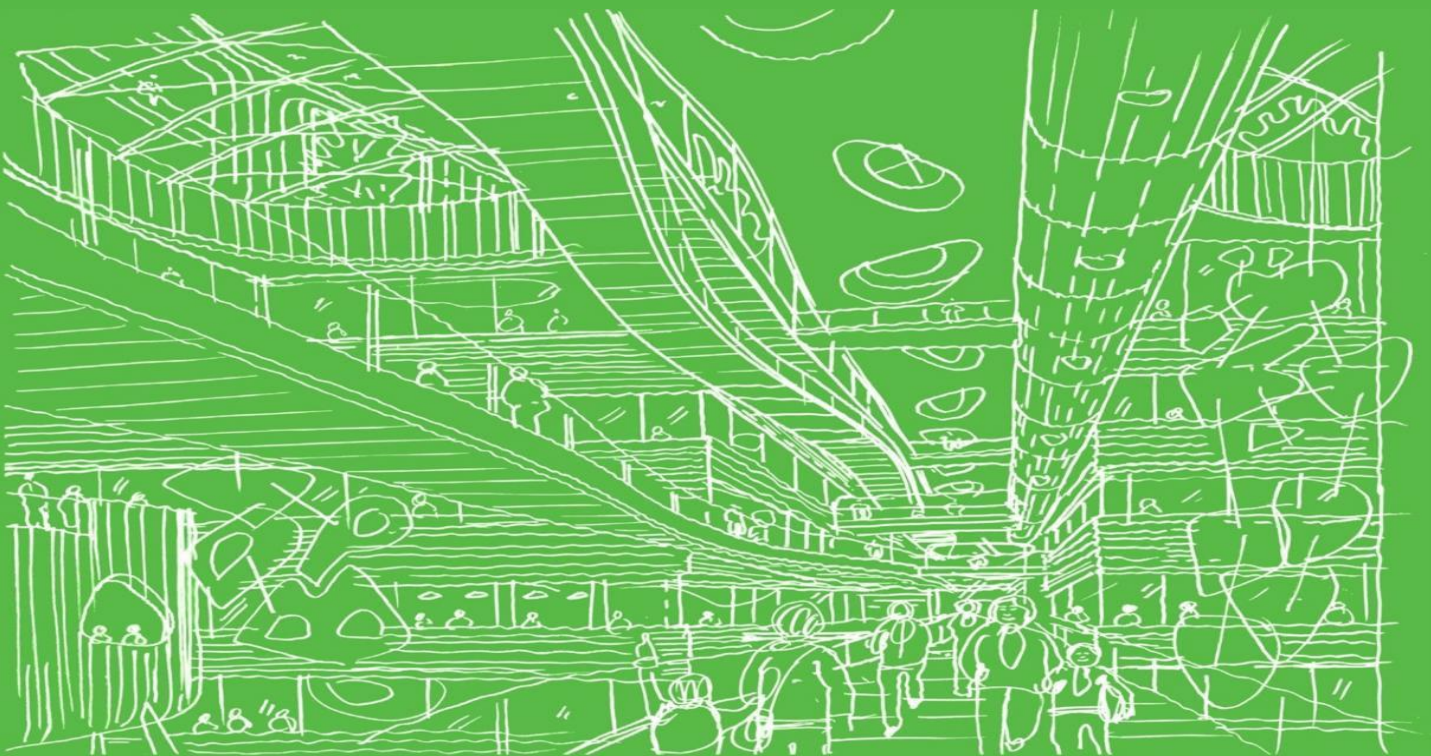
---

<sup>1</sup> NIAH Handbook, edition of March 2013, page 22

# National Paediatric Hospital Project

## Planning Application

Appendix 16.3– Legislation



August 2015





## **Appendix 16.3: Legislation**

### **Architectural Heritage (National Inventory) and Historic Monuments (Miscellaneous Provisions) Act, 1999**

This Act provides for the establishment of a national inventory of architectural heritage and historic monuments.

Section 1 of the act defines “architectural heritage” as:

- (a) all structures and buildings together with their settings and attendant grounds, fixtures and fittings,
- (b) groups of such structures and buildings, and,
- (c) sites

which are of architectural, historical, archaeological, artistic, cultural, scientific, social or technical interest.

Section 2 of the Act states that the Minister (for Arts, Heritage, Gaeltacht and the Islands) shall establish the NIAH, determining its form and content, defining the categories of architectural heritage, and specifying to which category each entry belongs. The information contained within the inventory will be made available to planning authorities, having regard to the security and privacy of both property and persons involved.

Section 3 of the Act states that the minister may appoint officers, who may in turn request access to premises listed in the inventory from the occupiers of these buildings. The officer is required to inform the occupier of the building why entry is necessary, and in the event of a refusal, can apply for a warrant to enter the premises.

Section 4 of the Act states that obstruction of an officer or a refusal to comply with requirements of entry will result in the owner or occupier being guilty of an offence.

Section 5 of the Act states that sanitary authorities who carry out works on a monument covered by this Act will as far as possible preserve the monument with the proviso that its condition is not a danger to any person or property, and that the sanitation authority will inform the Minister that the works have been carried out.

The provisions in the Act are in addition to and not a substitution for provisions of the National Monument Act (1930–94), and the protection of monuments in the National Monuments Act is extended to the monuments covered by the Architectural Heritage (National Inventory) and Historic Monuments (Miscellaneous Provisions) Act (1999).

*Architectural Heritage (National Inventory) and Historic Monuments (Miscellaneous Provisions) Act, 2000 and the Local Government (Planning and Development) Act 2000*

The Architectural Heritage (National Inventory) and Historic Monuments (Miscellaneous Provisions) Act provides for the establishment of a national inventory of architectural heritage and historic monuments.

Section 1 of the act defines “architectural heritage” as:

- (a) all structures and buildings together with their settings and attendant grounds, fixtures and fittings,
- (b) groups of such structures and buildings, and,
- (c) sites, which are of architectural, historical, archaeological, artistic, cultural, scientific, social or technical interest.

The Local Government (Planning and Development) Act, 1999, which came into force on 1st January 2000, provides for the inclusion of protected structures into the planning authorities’ development plans and sets out statutory regulations regarding works affecting such structures, thereby giving greater statutory protection to buildings. All structures listed in the development plan are now referred to as Protected Structures and enjoy equal statutory protection. Under the 1999 Act the entire structure is protected, including a structures interior, exterior, the land lying within the curtilage of the protected structure and other structures within that curtilage. This Act was subsequently repealed and replaced by the Planning and Development Act, 2000, where the conditions relating to the protection of architectural heritage are set out in Part IV of the Act.

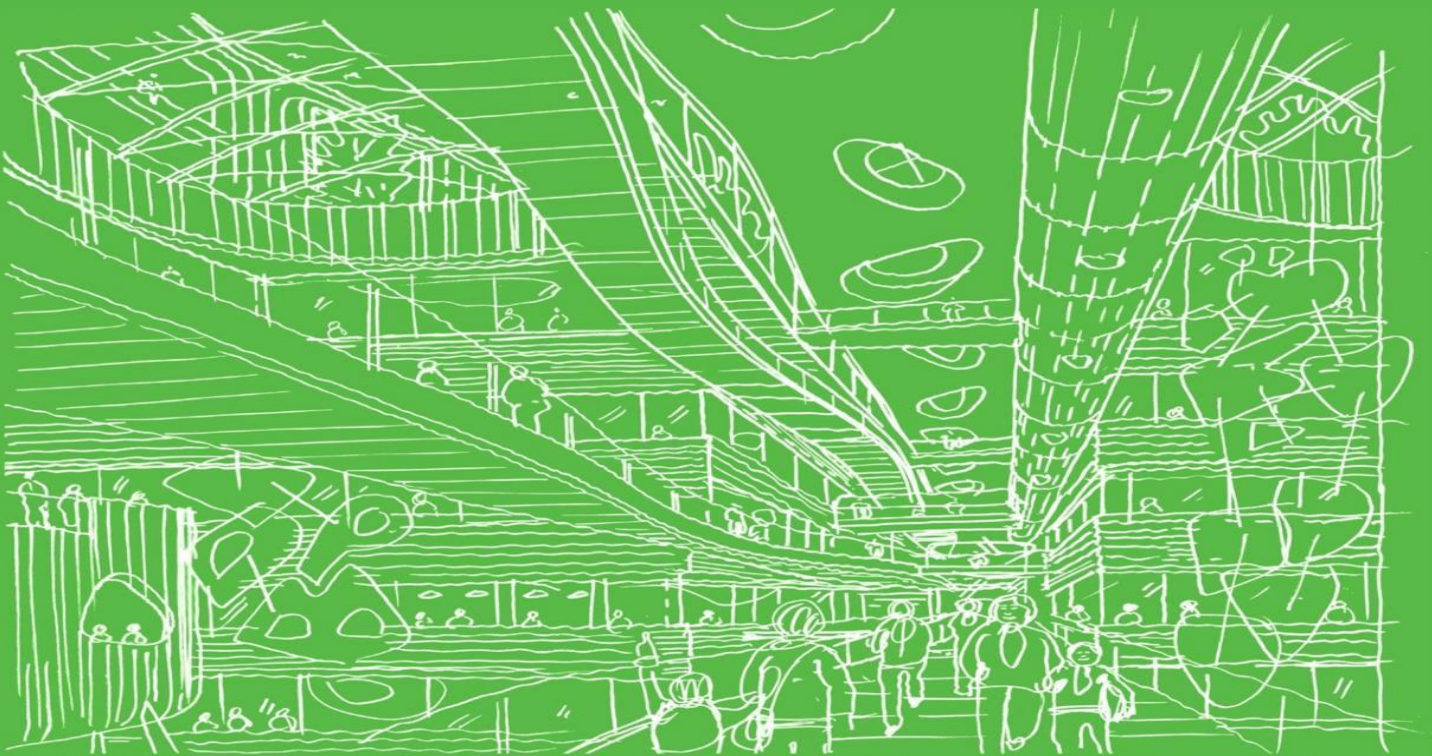




# National Paediatric Hospital Project

## Planning Application

Appendix 16.4 – Structures of architectural heritage merit within  
1Km of proposed new children's hospital, satellite centres and  
Davitt Road.



August 2015

**COURTNEYDEERY**   
Heritage Consultancy



**Appendix 16.4: Structures of architectural heritage merit (within c.1km of the proposed new children's hospital satellite centres and Davitt Road)**

*Protected Structures in the vicinity of the proposed compound at Davitt Road*

<b>GOLDENBRIDGE</b>				
<b>RPS No.</b>	<b>Structure</b>	<b>Description</b>	<b>Distance</b>	<b>Impact</b>
7816	Sisters of Mercy Convent, Goldenbridge	19 <sup>th</sup> century convent	c. 170m north	None
7817	Chapel, Goldenbridge	RC Chapel within Goldenbridge Cemetery	c. 95m northeast	
7818	Goldenbridge Cemetery	Cemetery, including walls and gate lodge	c. 95m northeast	None
<b>INCHICORE</b>				
<b>RPS No.</b>	<b>Structure</b>	<b>Description</b>	<b>Distance</b>	<b>Impact</b>
Addition to RPS (adopted 2012)	Former St Michael's CBS Building St Vincent's St. West, Inchicore	Former St. Michael's CBS building and stone flanking pavilion buildings, formerly known as Richmond / Keogh Barracks, including rubble stone boundary walls.	c. 300m northeast	None
RPS 875 (NIAH Ref. 50080104)	Griffith Bridge, Grand Canal View	Single-arch limestone bridge carrying road over the Grand Canal, dated 1791, some later rebuilding to north abutment. (NIAH Regional rating)	c. 770m east	None
RPS 2639 (NIAH Ref. 50080092)	St Michael's RC Church, Emmet Road, Inchicore	Former Church of Ireland Church, originally built as the garrison church for Richmond Barracks, c. 1845.	c. 540m northeast	None
RPS 3988 (NIAH Ref. 50080043)	Congregational Church, Inchicore Road	Detached three-bay single-storey former Presbyterian church and former Meeting House, built c.1800, now in use as house.	c. 930m northeast	None
RPS 3989 (NIAH Ref. 50080042)	House, No. 59, Inchicore Road	Semi-detached two-bay three-storey miller's house, built c.1820, now disused	c. 870m northeast	None
RPS 3990 (NIAH Ref. 50080041)	House, No. 59a, Inchicore Road	Semi-detached three-bay two-storey over raised basement former miller's house, built c.1820, now in use as apartments	c. 870m northeast	None
RPS 3991 (NIAH Ref. 50080040)	Former St Jude's Church – spire, No. 68, Inchicore Road	Octagonal-plan spire, with carved trefoil vents, and wrought-iron wind vane on a detached square-plan three-stage bell-tower, built 1864, formerly part of Saint Jude's Church of Ireland church.	c. 780m northeast	None
RPS 3992	Boundary wall, Inchicore Terrace South, Inchicore Road	Boundary wall on south side of terrace, facing Nos 17-30 Inchicore Terrace South	c. 600m northeast	None
RPS 3290 – 3299	Houses, 1-10 Granite Terrace, Inchicore	Terraced houses	c. 500m north	None
RPS 3300	Boundary wall, Granite Terrace, Inchicore	Boundary wall along south boundary of open space facing Granite Terrace	c. 500m north	None
RPS 7475 (NIAH Ref. 50080379)	Cleary's Licensed Premises, No. 53 Sarsfield Road, Inchicore	Public House, formerly The Great Southern and Western Railway House built c.1850.	c. 750m north	None
RPS 7476 (NIAH Ref. 50080055)	Inchicore National Schools & Railway Works Site, Sarsfield Road, Inchicore	Inchicore National Schools c. 1853, plus sundry stone walls and ironwork. The stone boundary walls formed part of the Inchicore Railway Works Site, enclosing the Works Estate and Inchicore Model School, a notably intact example of a 19 <sup>th</sup> century industrial village.	c. 720m north	None



RPS 8192 (NIAH Ref. 50080386)	Bank of Ireland, 2-4 Tyrconnell Road, Inchicore	Bank	c. 470m north	None
RPS 8193	Church of Mary Immaculate, Tyrconnell Road, Inchicore	Roman Catholic Church and adjoining archway.	c. 250m northwest	None
<b>KILMAINHAM</b>				
<b>RPS No.</b>	<b>Structure</b>	<b>Description</b>	<b>Distance</b>	<b>Impact</b>
RPS 3986 (NIAH Ref. 50080050)	Kilmainham Courthouse, Inchicore Road	Detached five-bay two-storey courthouse, built 1820. Given a National rating in NIAH.	c. 950m northeast	None
RPS 3987 (NIAH Ref. 50080046 to 50080048 & 50080328)	Kilmainham Gaol, Inchicore Road	Former prison, built 1796, including boundary walls. National Monument No.675 & RMP site DU018-125. Given a National rating in NIAH.	c.870m northeast	None
<b>DRIMNAGH</b>				
<b>RPS No.</b>	<b>Structure</b>	<b>Description</b>	<b>Distance</b>	<b>Impact</b>
RPS 4832 (NIAH Ref. 50080447 & 50080448)	Drimnagh Castle, Long Mile Road	Anglo-Norman masonry castle (RMP site DU018-036)	c. 970m southwest	None

***NIAH Sites in the vicinity of the proposed compound at Davitt Road***

<b>INCHICORE</b>				
<b>NIAH Ref.</b>	<b>Structure</b>	<b>Description</b>	<b>Distance</b>	<b>Impact</b>
50080402	Lock, Tyrconnell Road,	3rd Lock, Grand Canal. Double chamber canal lock, built c.1775, consisting of three mitre gates with timber footboards and balance beams, set within cut limestone lock chamber having limestone coping and splayed ends. Dressed limestone steps between centre gates and tail gates.	c.250m west	None
50080102	Lock, Davitt Road,	2nd Lock, Grand Canal. Canal lock, built c.1775, consisting of two pairs of steel mitre gates with timber footboards and balance beams, set within cut limestone lock chamber with limestone coping and splayed ends.	c.315m east	None
50080103	Lock, Suir Road,	1st Lock, Grand Canal. Double chamber canal lock, built c.1775, consisting of three mitre gates with timber footboards and balance beams, set within cut limestone lock chamber having limestone coping and splayed ends. Dressed limestone steps between centre gates and tail gates.	c.585m east	None
50080378	Seven Oaks Convent, Sarsfield Rd	Detached three-bay two-storey over raised basement former house, built c.1870. Former residence of the engineer-in-chief of the Great Southern and Western Railway Company. Now in use as apartments.	c. 800m north	None
50080088	Inchicore United Workman's Club, 187 Emmet Road	Attached five-bay two-storey workmen's club, built c.1890	c. 700m north / northeast	None
50080089	McDowells, 137-9 Emmet Road	Attached pair of three-bay two-storey former houses with attic accommodation, dated 1868, now in use as public house	c. 700m north / northeast	None
50080156	Inchicore Library, Emmet Road	Detached seven-bay single-storey Art Deco library, built 1937	c. 700m north / northeast	None
50080157	Inchicore College of Further Education, Emmet Road	Detached complex-plan multiple-bay single-storey and two-storey former technical school, built 1953-58	c. 700m north / northeast	None

50080160	Tom Tavey / Inchicore Motorcycles, 118-120 Emmet Road	Pair of terraced two-bay three-storey houses, built c.1870	c. 700m north / northeast	None
50080162	85-89 Emmet Road	Terrace of three two-bay two-storey over basement houses, built c.1850	c. 700m north / northeast	None
50080164	13-27 Emmet Road	Terrace of eight two-bay single-storey over raised basement houses, built c.1880	c. 700m north / northeast	None
50080165	5-11 Emmet Road	Attached terrace of four two-bay single-storey over raised basement houses, built c.1890	c. 700m north / northeast	None
50080166	1-3 Emmet Road	Attached pair of two-bay two-storey houses, built c.1890	c. 700m north / northeast	None
50080350	Milestone, Tyrconnell Road	Rectangular-profile granite milestone, erected c.1780, inscribed on front (south-east) elevation. Inscription reads '2 / ED / DUBLIN'	c. 200m northwest	None
50080392	Scoil Mhuire Gan Smál, Tyrconnell Road	Detached eleven-bay two-storey primary school, built 1936	c. 330m northwest	None
50080393	Oblate House of Retreat, Tyrconnell Road	Detached ten-bay three-storey house of retreat, built 1858-62	c. 330m northwest	None
50080394	Church of Mary Immaculate, Tyrconnell Road	Freestanding gable-fronted double-height Roman Catholic church, built 1876	c. 330m northwest	None
50080395	Church of Mary Immaculate grotto, Tyrconnell Road	Full-scale replica grotto of Lourdes, built 1928-30 in reinforced concrete, with attached single-storey flat-roofed building to south-west.	c. 330m northwest	None
50080443	Post box, Tyrconnell Road	Freestanding cast-iron pillar post box, erected c.1960, comprising moulded neck, shallow domed cap and curved hinged door having aperture. Maker's mark 'CARRON SCOTLAND' to plinth. Located on west side of Tyrconnell Road to east of Catholic Church	c. 330m northwest	None
50080478	Rosedale house, Tyrconnell Road	Detached five-bay two-storey over basement former house, built c.1830, with projecting porch.	c. 300m northwest	None
50080045	Spencer Terrace, 40-52 Inchicore Road	Terrace of seven two-bay two-storey over raised basement houses, built c.1870	c. 960m northeast	None
50080479	Frankfort Lodge, 70 Inchicore Road	Detached three-bay two-storey house, built c.1900	c. 785 north	None
<b>DRIMNAGH</b>				
<b>NIAH Ref.</b>	<b>Structure</b>	<b>Description</b>	<b>Distance</b>	<b>Impact</b>
50080182	RC Church, Sperrin Road, Drimnagh	RC Church of Our Lady of Good Counsel, 1942.	c. 285m southeast	None
50080185	National School Sperrin Road, Drimnagh	Our Lady of Good Counsel National School. 1943	c. 285m southeast	None

***Protected Structures in the vicinity of the new children's hospital satellite centre at Tallaght Hospital***

<b>RPS No.</b>	<b>Structure</b>	<b>Description</b>	<b>Distance</b>	<b>Impact</b>
RPS 197	White Hall (House), Ballymount Road	Two-storey and single-storey house	c. 825m northwest	None
RPS 262	St Mark's Youth & Family Centre, Cookstown Road	Detached three-bay two-storey house	c. 780m northwest	None
RPS 269	Tallaght Castle Gate, The Priory, Tallaght village	RMP site DU021-037010	c. 1km east / southeast	None
RPS 270 (NIAH Ref. 11215001)	St Mary's Dominican Priory, Tallaght village	Detached multiple bay three-storey Gothic Revival priory, built 1863	c. 1km east / southeast	None
RPS 271 (NIAH Ref. 11215004)	St Maelruain's Church & Monastic Enclosure, Tallaght village	Detached gable-fronted Gothic Revival church, built 1829, restored and remodelled in 1891. Also includes medieval tower, font, cross, graveyard	c. 730m southeast	None

RPS No.	Structure	Description	Distance	Impact
		(RMP Sites DU021-037002, 003, 004, 006 & 009)		
RPS 272 (NIAH Ref. 11215005)	Semi-detached houses, Blessington Road	Pair of semi-detached single-storey houses with attic	c. 825m southeast	None
RPS 273 (NIAH Ref. 11215021)	St Mary's Dominican Church, Tallaght village	Detached gable-fronted Gothic Revival church built 1886	c. 1km east / southeast	None
RPS 197	White Hall (House), Ballymount Road	Two-storey and single-storey house	c. 825m northwest	None
RPS 262	St Mark's Youth & Family Centre, Cookstown Road	Detached three-bay two-storey house	c. 780m northwest	None
RPS 269	Tallaght Castle Gate, The Priory, Tallaght village	RMP site DU021-037010	c. 1km east / southeast	None
RPS 270 (NIAH Ref. 11215001)	St Mary's Dominican Priory, Tallaght village	Detached multiple bay three-storey Gothic Revival priory, built 1863	c. 1km east / southeast	None
RPS 271 (NIAH Ref. 11215004)	St Maelruain's Church & Monastic Enclosure, Tallaght village	Detached gable-fronted Gothic Revival church, built 1829, restored and remodelled in 1891. Also includes medieval tower, font, cross, graveyard (RMP Sites DU021-037002, 003, 004, 006 & 009)	c. 730m southeast	None
RPS 272 (NIAH Ref. 11215005)	Semi-detached houses, Blessington Road	Pair of semi-detached single-storey houses with attic	c. 825m southeast	None
RPS 273 (NIAH Ref. 11215021)	St Mary's Dominican Church, Tallaght village	Detached gable-fronted Gothic Revival church built 1886	c. 1km east / southeast	None

*Protected Structures in the vicinity of the new children's hospital satellite centre at Connolly Hospital*

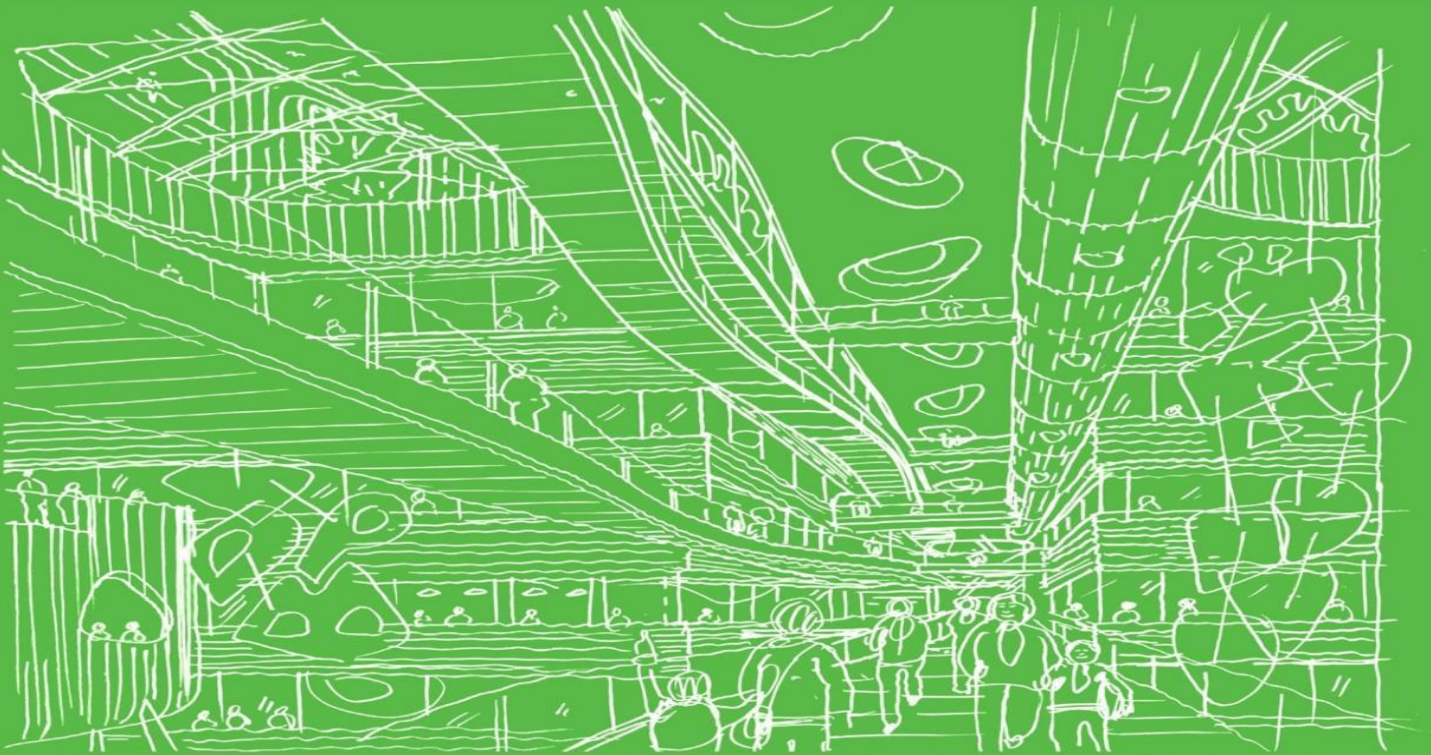
RPS No.	Structure	Description	Distance	Impact
RPS 683	Former Abbotstown House, Snugborough Road, Sheephill	Five-bay two-storey house with six-bay wing, c.1860, Farmyard complex to north. now in use as a Veterinary Research Laboratory.	c. 750m northeast	None
RPS 684 (NIAH Ref. 11354005)	Church and Graveyard, Snugborough Road, Abbotstown	Remains of small church and burial ground (RMP site DU013-020)	c. 520m east / northeast	None
RPS 685	Mound, Dunsink Lane	Archaeological site (RMP DU014-032)	c. 900m east	None
RPS 689	Cemetery, River Road, Castleknock	Archaeological site (RMP DU014-043)	c. 890m southeast	None
RPS 694 (NIAH Ref. 11354003)	Ranelagh Bridge, Royal Canal, Blanchardstown	Stone-arched bridge over Royal Canal, just before M50 on closed-off section of road, c.1810.	c. 700m southeast	None
RPS 695 (NIAH Ref. 11354003)	Talbot Bridge, Royal Canal, Old Navan Road, Blanchardstown	Stone-arched bridge over Royal Canal, also known as 'Old Bridge', c.1810.	c. 620m south / southeast	None
RPS 696 (NIAH Ref. 113540052)	Granard Bridge, Royal Canal, Castleknock Road, Blanchardstown	Stone-arched bridge over Royal Canal, c.1810.	c. 700m south / southwest	None
RPS 703 / NIAH Ref. 11354001	St Brigid's RC Church, Blanchardstown	Detached three-bay gable-fronted Roman Catholic church, built 1858	c. 500m southwest	None



# National Paediatric Hospital Project

## Planning Application

Appendix 16.5: Structural Impact Assessment  
of Children's Research and Innovation Centre  
Basement Construction on Houghton Institute  
and Adjoining Residential Properties



August 2015



**OCSC**  
O'CONNOR | SUTTON | CRONIN

Multidisciplinary  
Consulting Engineers



**NOTICE**

This document has been produced by O'Connor Sutton Cronin & Associates for its client [National Pediatric Hospital Development Board (NPHDB) and the nch Design Team]. It may not be used for any purpose other than that specified by any other person without the written permission of the authors.

<b>Job No.: N187</b>			<b>Document Ref.:</b>			
			[L:\Linda's Documents\2015\07-August\Reports\N187 Structural Assessment Report\N187 Structural Assessment of CRIC Basement Construction (PH).docx]			
Rev.	Status	Authors	Checked	Reviewed	Authorised	Issue Date
8						
7						
6						
5						
4						
3						
2						
1						
0	Issued for Planning	PH	PMCS	IC	PH	August 2015





## INDEX

<b>1.0</b>	<b>INTRODUCTION &amp; SCOPE .....</b>	<b>1</b>
1.1	Introduction .....	1
1.2	Scope .....	1
<b>2.0</b>	<b>BACKGROUND &amp; REVIEW OF ENVIRONS .....</b>	<b>3</b>
2.1	Proposed Building Location and Haughton Institute .....	3
2.2	McDowell Avenue Properties and Boundary Walls .....	4
2.3	On-Site Investigations /Surveys.....	5
<b>3.0</b>	<b>ANALYSIS OF BASEMENT EXCAVATION.....</b>	<b>7</b>
3.1	Proposed Basement and Foundation Proposals.....	7
3.2	Secant Pile Wall Ground Retention.....	7
3.3	Secant Pile Installation and Vibration Considerations.....	8
3.4	Settlement.....	10
<b>4.0</b>	<b>DAMAGE, ASSESMENT, CONTROL MEASURES &amp; MITIGATION.....</b>	<b>11</b>
4.1	General.....	11
4.2	Possible Building Damage due to Piling.....	11
4.3	Monitoring.....	11
4.4	Damage Classification.....	12
4.5	Corrective Action.....	13
4.6	Follow up monitoring.....	13
<b>5.0</b>	<b>CONCLUSIONS &amp; RECOMMENDATIONS.....</b>	<b>14</b>
5.1	Conclusions.....	14
5.2	Recommendations.....	14





## 1.0 INTRODUCTION & SCOPE

### 1.1 Introduction

This Children's Research & Innovation Centre (CRIC) building is located in the northeast corner of the St. James's Hospital (SJH) campus as shown below in Figure 1.1. Whilst separate from the main new children's hospital (nch) development - located in the western side of the campus- it is noted that there are significant synergies and clinical benefits in locations and providing direct connectivity with the well-established Trinity Centre for Health Sciences located to the east of this proposal.

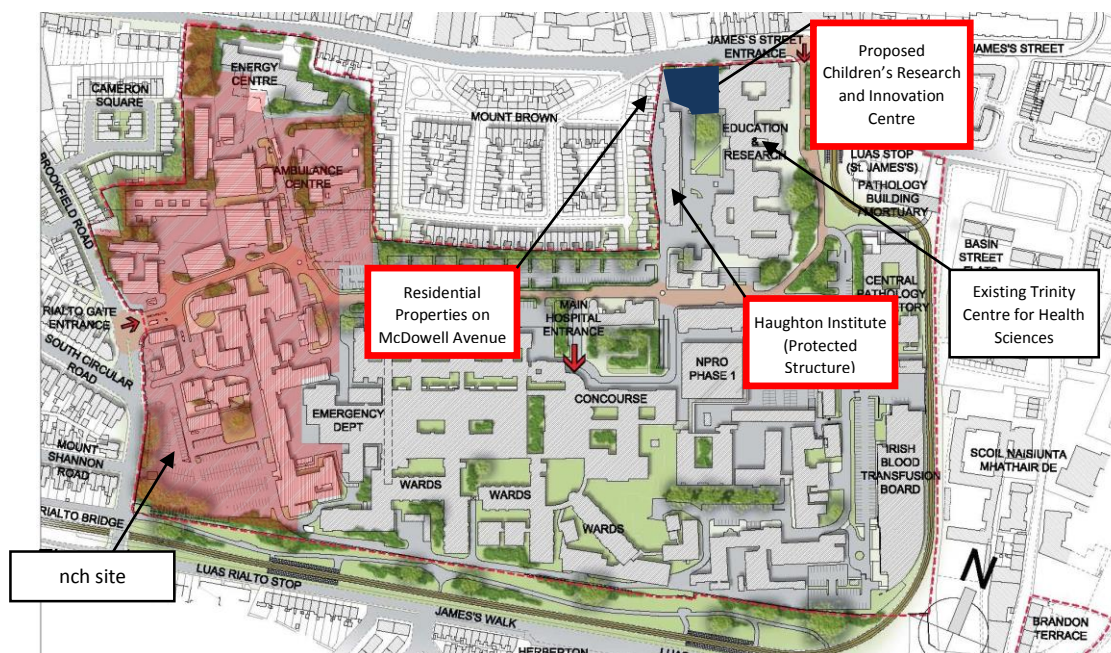


Figure 1.1 Proposed Children's Research & Innovation Centre location within SJH Campus

As illustrated, the proposed Children's Research & Innovation Centre fronts out onto St. James's Street, sandwiched on the east side by the modern Trinity Centre for Health Sciences (built in c.2001), south west corner by the listed Houghton Institute building and to the west by the rear boundary wall residential properties along McDowell Avenue, Ceannt Fort. The southern boundary fronts out onto a landscaped square.

### 1.2 Scope

As part of the Built Heritage Assessment report undertaken by Historic Building Consultants for this Planning Application, the location of the CRIC development adjacent the Houghton Institute is identified as presenting a possible risk to this listed building. In particular, due to the close proximity of the below ground elements of the CRIC, the excavations and associated works are considered more likely to be cause for concern.

It is noted that the protected structure known as the Houghton Institute and surrounding residential properties to the west (McDowell Ave and boundary wall) will require all necessary precautions and mitigation measures to be taken to ensure that the proposed CRIC development and in particular the basement construction will not have any adverse effects on these structures.

The CRIC basement construction will require the introduction of an auger bored secant pile wall together with temporary propping as the means of ground retention to allow the basement excavation to take place. The augering process can result in vibrations propagating through the sub-soil. In addition, as the site level is reduced during excavation, the increased height of retained earth can cause deflections of the pile wall and hence possible settlement of adjoining structures.

This report carries out an assessment and review of the proposed basement proposals with regard to potential structural impacts on these sensitive buildings and areas together with a review of control and mitigation measures to safeguard these buildings. The effects of vibration and settlement has also been considered on these adjoining areas.

## 2.0 Background & review of environs

### 2.1 Proposed Building Location and Haughton Institute

The proposed new CRIC development is located as described earlier under Section 1.1. The general ground level (currently providing surface car parking) is at a level of 20.0 to 20.5 mOD with a considerable drop in level to the footpath along St. James's Street, varying from 17.7m in the northeast corner down to 15.75m in the northwest, a fall of c.2m. Refer to Figure 2.1 below for current topography view, looking north.



*Figure 2.1 General Topography looking north.*

The Haughton Institute building currently accommodates the Department of Medical Gerontology, School of Nursing & Midwifery and School of Physiotherapy.

The northern end of the building, adjacent the proposed site of the CRIC development is three-storey, five-bay and double-pile with a hipped roof that has partial gables to the sides. Attached to this is the southern section which is two-storey, sixteen bay and single pile, with a later addition along the rear (west) elevation. The two original parts of the building are constructed in rubble calp limestone (refer Figure 2.2 below) and considered to have been built in the 18<sup>th</sup> century. This building is a protected structure and is considered to be of regional Architectural and Historic interest.





Figure 2.2 Haughton Institute (northern 3-storey end)

The property is considered to be in good structural condition of robust construction and well maintained. A detailed structural review or opening-up investigation works has not been carried out or considered necessary as part of this assessment, however as described below, more detailed condition and dilapidation surveys will be undertaken by the contractor prior to commencement of construction.

## 2.2 McDowell Avenue Properties and Boundary Walls

The McDowell Avenue properties and boundary walls are located to the west of the proposed CRIC building and their location with regard to the proposed basement development are described later under section 3.1. The residential properties are primarily 2 storey in nature and of robust brick construction with ground floor levels stepping to follow the varying nature in ground/road profiles. No. 1 McDowell Avenue fronting onto James 'Street is the closest residential property to the site of the proposed CRIC building and is separated and set back from the western side of the boundary wall. The external ground and building floor levels to No. 1 are approximately 1.5 metres below the general current ground level on the SJH campus site.



Figure 2.3 No. 1 McDowell Avenue



The boundary walls vary in height from approximately 3.0m to 3.5m (measured within the SJH campus side) and are constructed of solid stone (possibly Ashlar with a mixture of brick) with a more recent concrete capping – refer to fig 2.4 below:



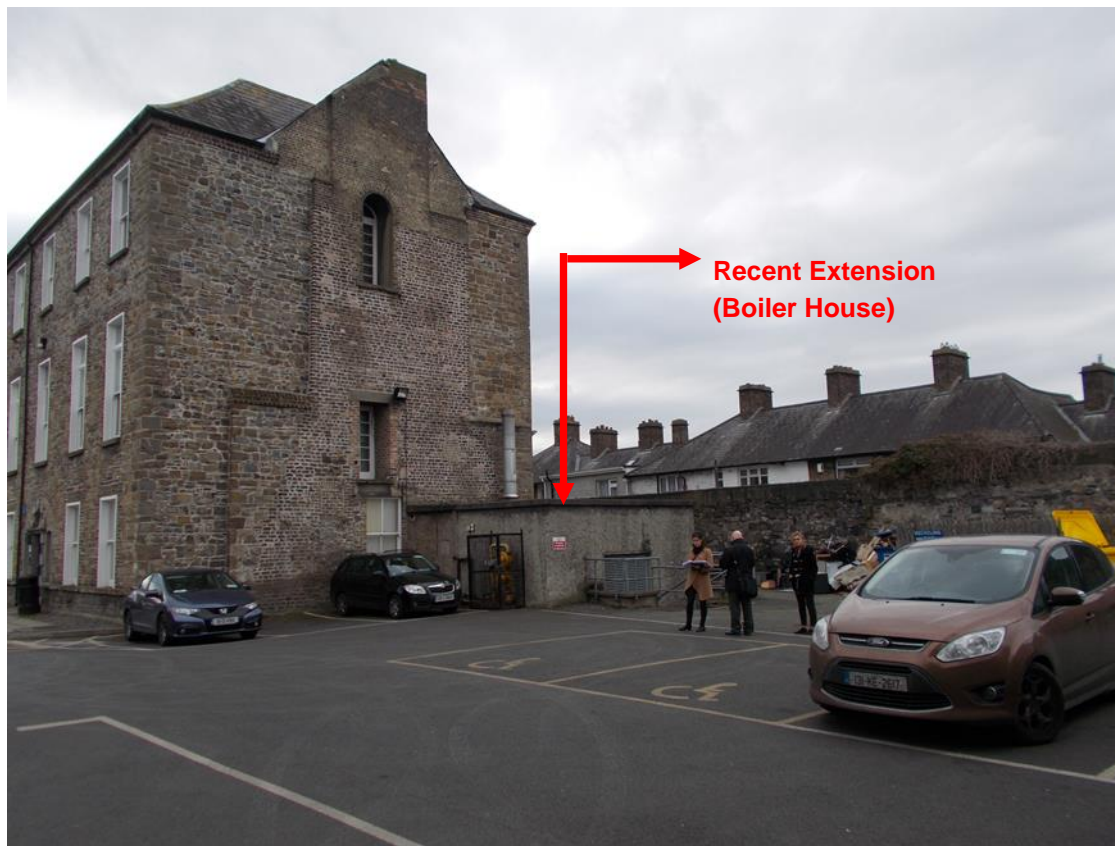
Figure 2.4 Adjoining Boundary Walls – Part View

## 2.3 On-site Investigations/Surveys

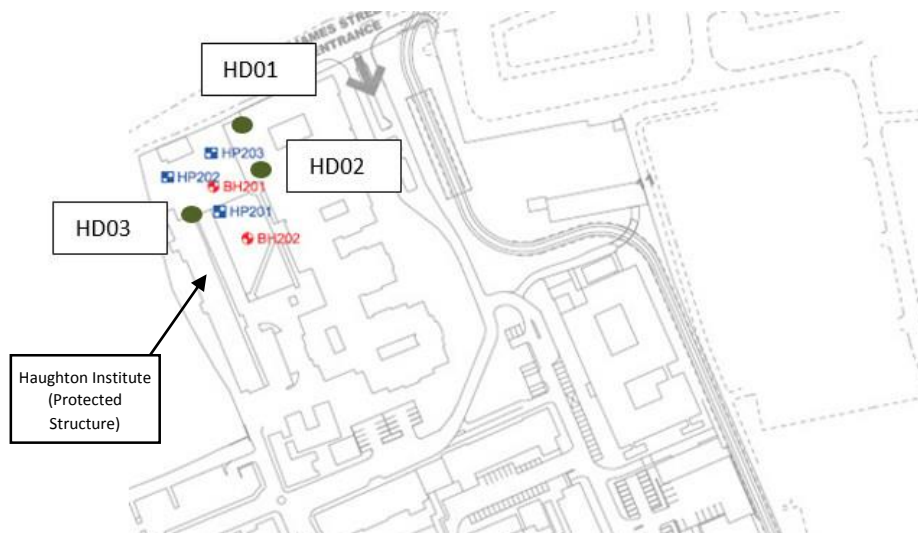
A Geotechnical Site Investigation commissioned by NPHDB was carried out during November 2014 to January 2015. Two No. boreholes ref: BH 201 and BH 202 together with 3 No. trial pits, HP201 to HP203 were carried out and reported in Causeway Geotech report ref. 14-973 dated January 2015. The prevailing ground conditions recorded in the BH can be summarised as follows:

DESCRIPTION	BH201 (m)bgl	BH202 (m)bgl
Made Ground / FILL	2.3m	1.8m
Stiff to Firm brown sandy gravelly CLAY	–	1.8 to 3.8m
Firm to Stiff brownish sandy gravelly CLAY	–	3.8 to 4.5m
Stiff to very stiff dark grey sandy gravelling CLAY	2.3m	4.5m

Refer to Figure 2.6 below for investigation locations



*Fig 2.5 Haughton Institute – North Elevation*



*Figure 2.6 Borehole and Site Investigation Locations*

In addition to the above, Causeway acting under direction of OCSC carried out 3 No. hand dug trial pits, 2 No. of which, HD01 and HD02 were excavated to a depth of 1200 and 1100mm respectively adjacent the existing TCD Education Building with a 3<sup>rd</sup>, HD03 excavated to a depth of 1100mm adjacent the Haughton Institute to examine the depth and profiling of foundations. HD03 did not reach the foundation formation to the Haughton Institute building which is considered present at further depth, likely to be founded on or close to the Firm to Stiff sandy gravelly CLAY.

### 3.0 ANALYSIS OF BASEMENT EXCAVATION

#### 3.1 Proposed Basement and Foundation Proposals

The proposed building and basement are located around some sensitive receptors, namely the adjacent Haughton Institute and the McDowell Avenue residential properties and boundary wall to the rear. Refer Figure D3.1 below. A secant pile wall is the proposed ground support system along the boundary/interfaces and has been set-back and away from these in recognition of their sensitivities. Along the Haughton Institute the pile wall has been located at least 2.25m (from the pile centre) away at the closest points and along the rear of McDowell properties, the pile wall is 3.5m at its very closest (N/W Coner) to 11.5m at its widest from the boundary wall. It is noted that the gable wall to no 1. McDowell Avenue (main building being detached from the boundary wall) is a further 1.5 –2 m away.

Foundations for this CRIC building comprise traditional pad/strip footings founded on the stiff and very stiff gravelly CLAY, integrated within the basement floor slab and retaining walls, together with basement watertightness by means of a full tanking. Thus with the current ground levels (west side) at approximately 20m OD and the proposed building foundation formation at approximately 15m OD, this will result in a c.5m deep excavation.

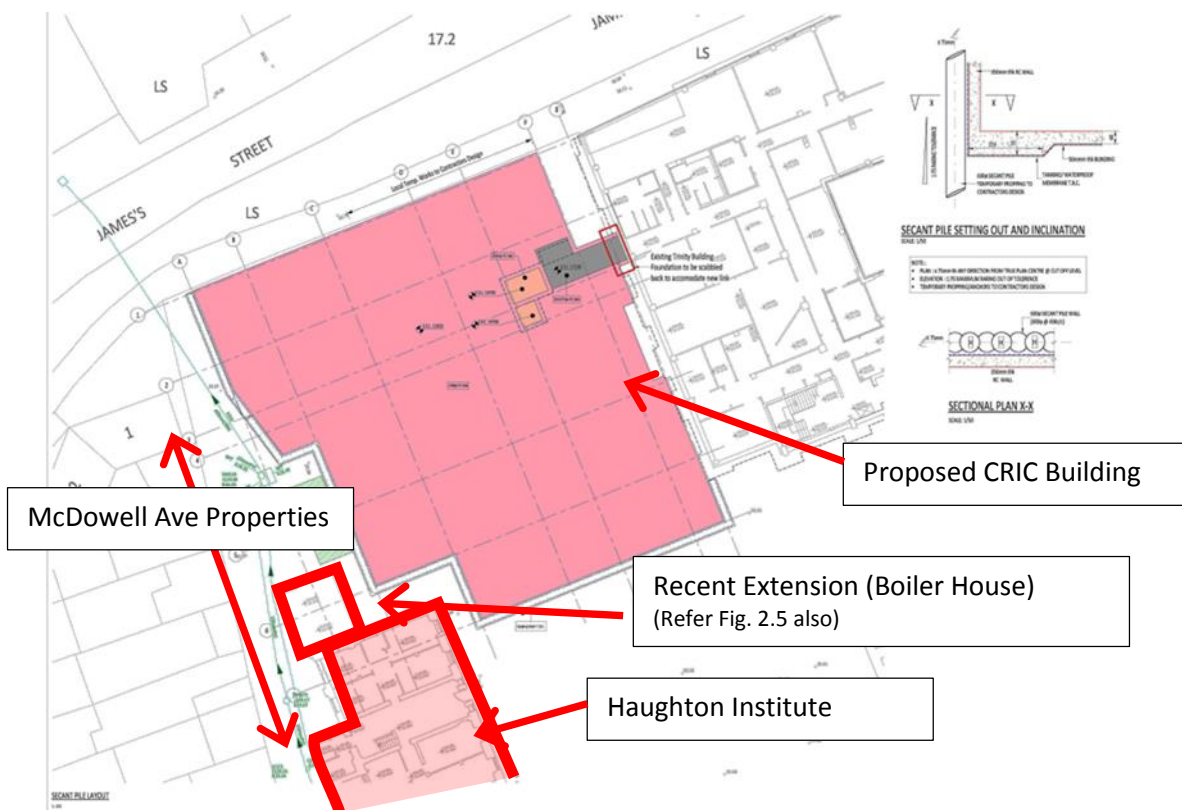


Figure 3.1 Typical Basement Structural GA

#### 3.2 Secant Pile Wall Ground Retention

As referenced above, the proposal to construct a secant pile wall as temporary ground support to adjoining areas will involve the installation of male/female auger bored piles. Depending on the Contractors' design and extent of temporary propping envisaged, the piles are likely to be of the order of 450mm to 600mm diameter. Considering a 600mm diameter pile, the spacings are likely to be at approximate 525m spacings and augered to a depth of approximately 12 to 15m below ground level. The proposed secant pile wall is



a tried and trusted method of facilitating deep excavations in city centre locations. It is a method that has been adopted by the Project Team on a number of developments within Dublin City Centre including works in close proximity to existing protected/listed structures. Examples of such similar secant pile wall construction adjacent a protected structure is shown below in Figure 3.2.



Figure 3.2 Secant Pile Wall (Temporary Works) Adjacent Protected Building

Under the current proposals for the CRIC ground support systems, the secant pile wall is propped in a temporary condition to support the lateral soil and any groundwater pressures together with local surcharging from adjoining Haughton and Residential buildings by a series of diagonal structural members supported on the foundation.

### 3.3 Secant Pile Installation and Vibration Considerations

The main source of vibration during the construction programme is likely to be the piling process. Auger bored piling is proposed for the CRIC building and is considered to minimise vibration levels generated due to it being a non-percussive piling technique. However, the augering process of the secant pile wall installation can result in vibrations propagating through the sub-soil, and this process creates a particular form of vibration known as *ground borne vibration*.

Ground borne vibration is the physical response received through the ground transfer path due to construction activity. BS 7385: Part 2 "Evaluation and Measurement for Vibration in Buildings – Guide to Damage Levels from Ground Borne Vibration" gives guidance on the assessment for properties, such as the Haughton Institute and is the industry recognised standard for such assessment. In addition, BS 5228: Part 2:2009 + A1: "Code of Practice for noise and vibration control on construction and open sites – Part 2 Vibration" gives further detailed guidance specifically on the effect of piling on neighbouring structures. The recommendations in this standard are lower than those in BS 7385.

Similar (but slightly more onerous) values to BS5228-2 are given in the German Standard DIN 4150 -3 (1999-02). "Structural Vibrations – Effects of vibration on structures" which states that for short term vibrations (such as piling) in buildings, the values set out below in Table 1 should be adopted.

It is recommended that the vibration during construction (in terms of peak particle velocity (ppv)) at the



closest foundation in any building should normally be limited to the values given in the table. However for sensitive/ historic buildings and structures such as the Haughton Institute, the recommendation is that the values should be reduced to 3mm/s ppv for frequency vibrations less than 10 Hz, 3 to 8mm/s for frequency range 10-50 Hz, and 8 to 10mm/s for frequencies of vibration above 50 Hz. Similarly for residential buildings, the values are set –out below in Table 1

Property Type	Allowable vibration (in terms of peak particle velocity) at the closest part of sensitive property to the source of vibration, at a frequency of		
	Less than 10Hz	10 to 50Hz	50 to 100Hz (and above)
Commercial, Industrial or similar	20 mm/s	20-40 mm/s	40-50 mm/s
Dwellings or similar	5 mm/s	5-15 mm/s	15-20 mm/s
Particularly Sensitive	3 mm/s	3-8 mm/s	8-10 mm/s

*Table 1: Allowable Vibration during construction phase for Sensitive Buildings*

BS 5228-2:2009 provides data on the vibration caused by a 600mm diameter auger working in sands and gravels over chalk at 12m depth with a peak particle velocity of 2.4mm/sec caused at a plan distance of 3.5m and 1.7mm/sec at a plan distance of 8mm/sec. These values are considered max peak and measured for the auger hitting the base of the hole. Considerably lower values are recorded for general augering advancing through the overburdens.

The peak particle velocity at the closest property locations relevant to the BS 5228-2:2009 data for vibration due to augering can be approximately predicted - albeit the attenuation of vibration over distance is a function of the ground conditions - by extrapolation of the above values relative to a distance 2.25m from the augering. On this basis a predicted peak particle velocity value of 2.6mm/sec is calculated and noted to be lower than the acceptable criterion set-out in Table 1 above.

This is below the tolerable level of vibration for the most sensitive and structurally fragile of buildings. The Haughton Institute building structure and adjoining residences/boundary walls do not appear to exhibit such sensitivity and considered as robust construction. Visual assessment of some of the adjoining residential properties to McDowell Avenue were undertaken from exterior roads and public areas at this time. Prior to commencement of constructing more detailed condition / dilapidation surveys of these properties shall be undertaken. Furthermore, as the frequency during auguring is likely to be greater than 10Hz, the calculated vibration will be of a level which will neither be expected to cause structural damage nor likely to cause discomfort to occupants



*Fig 3.3 North Gable Elevation*

### **3.4 Settlement**

It will be necessary to ensure that the excavations necessary for the CRIC basement do not give rise to settlement or have any adverse effects on the stability of the adjoining structures. The installation of the secant pile wall together with the comprehensive design of an adequate regime of temporary propping will be the primary means of mitigating and preventing the occurrence of settlement.

The issue of potential settlement of existing buildings is generally analysed on a 'case by case' basis. The ground conditions, standard of original construction, extent of structural alterations etc. are all unique to each building. Prior to commencement on site, a full and detailed Structural Dilapidation Survey will be carried out to reconfirm the following:

- Nature and condition of foundations;
- Condition of load-bearing elements;
- Confirmation of load paths;
- Observation and details of structural cracking ( if present);
- Location and type of structural alteration.

## 4.0 DAMAGE ASSESSEMENT, CONTROL MEASURES AND MITIGATION

### 4.1 General

The potential damage to proximal buildings/structures caused by ground movements resulting from adjacent construction activity in terms of the physical condition of the elements is an important consideration. Cosmetic and structural damage presenting in the form of cracks /crazing or other similar distress in building materials will be monitored and of course where applicable corrected. The occurrence and presence of potential cracks in buildings and the likely implications of such distress are considered below with respect to guidance presented in BRE Digest 251<sup>1</sup>.

### 4.2 Possible Building Damage due to Piling

BS 7385 states that there should typically be no cosmetic damage if transient vibration does not exceed 15mm/s at low frequencies rising to 20mm/s at 15Hz and 50mm/s at 40 Hz and above. These guidelines relate to relatively modern buildings and should be reduced to 50% or less for more critical buildings.

BS 5228-2 recommends that, for soundly constructed residential property and similar structures that are generally in good repair, a threshold for minor or cosmetic (i.e. non-structural) damage should be taken as a peak particle velocity of 15mm/s for transient vibration at frequencies below 15 Hz and 20 mm/s at frequencies above 15 Hz. Below these vibration magnitudes minor damage is unlikely, although where there is existing damage these limits may be reduced by up to 50%.

As set out above, German DIN 4150-3 adopts more onerous limits (per table 1 above) which have been adopted for incorporation here to provide a higher level of control.

### 4.3 Monitoring

For a project of the scale of the new children's hospital (including CRIC), it is likely that a suitably qualified and experienced Specialist Monitoring Consultant is appointed to inspect, record, monitor and report on monitoring outputs during the course of the works at agreed regular time intervals. All monitoring data shall be gathered and logged / reported by such an independent specialist who shall be responsible for distribution to relevant parties and stakeholders.

In the first instance, the monitoring will be carried out by visual inspection of the building fabric, generally from ground/ floor levels. Structural surveys and dilapidation/ photographic records of adjoining buildings and structures will be undertaken prior to works commencing on site in order to confirm the condition of the receiving environment with careful attention to sensitive components of protected structures such as the Haughton Institute and as appropriate to the residential properties. Where distress is evident, this will be further supported by extensive "real time" monitoring to ensure vibration and cracking levels do not pose any risk of damage to the existing buildings. This monitoring, with both audio and visual display will be continuous for the duration of the basement and sub-structure works.

In addition, a monitoring regime will be set up to ensure that any potential building movements are carefully analysed as work progresses. BRE sockets will be installed to survey the vertical and horizontal movement of the façade. Electrolevels and tiltmeters will also be installed on the building walls to monitor any tilt or rotation. Special attention shall be taken should any areas be encountered where local repairs or alterations have been previously undertaken. These areas may be susceptible to opening up due to movement and should be visually inspected at each time of monitoring. The building and any changes from the dilapidation survey shall be recorded. Tell Tale gauges will be installed on any areas of distress or where noticeable repairs and movement has previously taken place.

<sup>1</sup> Building Research Establishment (BRE), Digest 251, "Assessment of damage in low – rise building, 1995

<sup>2</sup> Burland J.B, Broms, BB and de Mello, V.F.B (1977). Behaviour of foundations and structures. State-of-the Art Report, Proc

9<sup>th</sup> Int. Conf. Soil Mech and Foundation Eng, Balkema: Rotherdam Vol. 3, 495-546

<sup>3</sup> Burland J.B, 1995. Assessment of risk of damage of buildings due to tunnelling and excavations. Invited Special Lecture to IS-Tokyo '95:

#### 4.4 Damage Classification

To assess the severity of damage an assessment is made using the classification system proposed by Burland *et al* (1977)<sup>2</sup> as shown in Table 2. The system of classification in Table 2 is based on 'ease of repair' of the visible damage. Thus, in order to classify visible damage, it is necessary to assess what type of work would be required to repair the damage.

The following important points should be noted:

- The classification related only to the visible damage at a given time and not to its cause or possible progression which are separate issues.
- The strong temptation to classify the damage solely on crack width must be resisted. It is the ease of repair which is the key factor in determining the category of damage, as described by Burland (1995)<sup>3</sup>.
- The classification was developed for brickwork or blockwork and stone masonry, which is the nature of the construction of the historical buildings such as the Haughton Institute and adjoining properties / boundary walls. It can also be adapted for other forms of construction materials.
- More stringent criteria may be necessary where damage may lead to corrosion, penetration or leakage of harmful liquids and gases or structural failure.

While Table 2 gives damage categories up to very severe, it is not anticipated that as a consequence of the CRIC Construction, that any such events would exceed category 2 ( Slight degree of damage) on the scale. The higher levels on the scale are provided here only for completeness of demonstrating the assessment paradigm.

Category of damage	Normal degree of severity	Description of typical damage (Ease of repair is underlined) <u>Note:</u> Crack width is only one factor in assessing category of damage and should not be used on its own as a direct measure of it.
0	Negligible	Hairline cracks less than about 0.1 mm
1	Very Slightly	<u>Fine cracks which are easily treated during normal decoration.</u> Damage generally restricted to internal wall finishes. Close inspection may reveal some cracks in external brickwork or masonry. Typical crack widths up to approximately 1 mm.
2	Slight	<u>Cracks easily filled. Re-decoration probably required. Recurrent cracks can be masked by suitable linings.</u> Cracks may be visible externally and <u>some repointing may be required to ensure weathertightness.</u> Doors and windows may stick slightly. Typical crack widths up to approximately 5 mm
3	Moderate	<u>The cracks require some opening up and can be patched by a mason. Repointing of external brickwork and possibly a small amount of brickwork to be replaced.</u> Doors and windows sticking. Service pipes disrupted. Typical crack widths are approximately 5mm to 15mm or several closely spaced cracks >3mm
4	Severe	<u>Extensive repair work involving breaking-out and replacing sections of walls, especially over doors and windows.</u> Windows and door frames distorted, floor sloping noticeably <sup>1</sup> . Walls leaning <sup>1</sup> or bulging noticeably, some loss of bearing in beams. Service pipes disrupted. Typical crack widths are 15 to 25mm but also depends on the number of cracks
5	Very Severe	<u>This requires a major repair job involving partial or complete rebuilding.</u> Beams lose bearing, walls lean badly and require shoring. Windows broken with distortion. Danger of instability. Typical crack widths are greater than 25mm but depends on the number of cracks.

**Table 2** Classification of visible damage to walls with particular reference to ease of repair of plaster and brickwork or masonry (after Burland 1977)

<sup>1</sup> Note: Local deviation of slope, from the horizontal or vertical, of more than 1/100 will normally be clearly visible. Overall deviations in excess of 1/150 are undesirable



We would note that this damage classification system is the same system adopted within the Dublin area for previous planning application to An Bord Pleanála, such as the Metro North application. The Expert's report for An Bord Pleanála prepared by Dr. K Rainer Massarch in connection with the Metro North project was appointed by the Board as their expert advisor. Dr Massarch examined the submissions from RPA with regard to building damage assessment, which detailed the Burland method as described above. It is noted that the proposed approach takes account of the sensitive nature of the historic buildings. The method proposed is stated to be detailed and measurable in the context of the fragile features of 18<sup>th</sup> century buildings such as plaster ceilings, covings, etc. In review of this (RPA) submission, Dr Massarch stated that he endorsed the proposed method in relation to historic buildings. He advised that special methods should be implemented to monitor and report on any noticeable change at an early construction stage.

#### **4.5 Corrective Action**

As noted earlier under 4.3 "Monitoring", all existing cracks/ defects/ distress will be continuously monitored throughout the basement works using *real – time* Monitoring techniques. However, should a new crack or defect occur in a structure, this will be placed on a list for frequent assessment. For cracks up to 1 mm, the crack will be allowed to exist and in this case the crack will be monitored (as above). The trigger level for immediate repair will be set at 2.0 mm for historic and hospital /clinical buildings and 3 mm for residential buildings. During an agreed period, the repair shall take place in accordance with the requirements of Table 2. An investigation into the possible causes of the event will be carried out in parallel to this enhanced monitoring. The crack will subsequently be given a higher status for observation with monitoring including frequent visual inspections with regular review/ inspection and use of fixed date, real time logging instrumentation such as a crack meter.

Where a repaired crack reopens or an increase occurs in any individual crack from its original state (including new cracks) to the upper limit of category 2 on the scale, affecting activities will be suspended to allow an investigation into the nature and cause of the cracks to be conducted. The suspension of work shall encompass a period over which either the activity is shown to be non – contributory to the crack formation, or the crack has been shown to be stabilised by results from inspection and monitoring related to the initial rate of observed formation/movement.

Where more than one related crack occurs within a property which extend at its widest point to greater than 2mm, the contractor shall be required to adjust or modify the method of performing the affecting work in such a way that there is no direct risk of increased damage to the building. This may include suspension of work activities until such time as a method is identified by which those specific work activities may recommence without a threat of reoccurrence or increase of the impairment.

#### **4.6 Follow up monitoring**

Following the completion of the critical basement works and if in the unlikely event of defects / distress arising due to the CRIC development, it is proposed to take follow up readings for an agreed period of time (initially proposed 3 months and thereafter 6 months) or until movements have demonstratively ceased or stabilised. This analysis will be carried out by a suitably qualified monitoring specialist.

The frequency of the monitoring will be dependent on the stage of works, on the results received during the works and on these being acceptable to the relevant parties during the works. The frequency of monitoring will be increased if considered necessary during critical activities.

## 5.0 CONCLUSIONS & RECOMMENDATIONS

### 5.1 Conclusions

It is acknowledged that the Haughton Institute being a protected structure is sensitive and potentially vulnerable during the basement and most particularly the excavation for the CRIC development. Similarly it is noted that some of the adjoining residential properties to the rear of McDowell Avenue whilst not listed may be vulnerable during the CRIC basement works. Accordingly particular care and attention has been paid to the mitigation strategy chosen with specific methodologies to be implemented that will have least effects, resulting in minimal impacts to both the Haughton Institute and adjoining properties. The proximity and safe guarding of these was a primary consideration of the proposals for developing the CRIC building and formed a key component of the design constraints.

Structural Surveys and detailed dilapidation / photographic records of the adjoining Haughton Institute and adjoining residences / boundary walls shall be undertaken prior to any construction works commencing on site in order to confirm the condition of the receiving environment with particular attention to sensitive components of these structures. “*Real Time*” monitoring shall be implemented to ensure vibration limits as set out earlier will not be exceeded and thus will not pose any risk of damage. This monitoring with both audio and visual display will be continuous for the duration of the works, but most particularly during basement works. Similar monitoring for evidence of settlement and deflections shall be undertaken.

### 5.2 Recommendations

Precedence has shown that similar buildings (Georgian Typology) to the Haughton Institute and of such robust form around Dublin City (including McDowell Avenue residences) can easily accommodate ground settlements up to 10mm before the onset of any structural damage. Minor or cosmetic damage classified as “easily repairable” per table 2 above might be expected in extreme circumstances. The continuous monitoring regime highlighted and recommended earlier shall ensure that movements and vibrations will be kept within acceptable limits and construction activity controlled, or sufficiently altered to mitigate and minimise impacts. This can be achieved by reducing the outputs for the piling machines and increasing the extent and effectiveness of temporary propping and supports to limit deflections and potential for movement. With careful choice of equipment, techniques and implementation of above monitoring controls in consideration of the prevailing receiving environment, no adverse effects or impacts are considered likely to affect the Haughton Institute and adjoining McDowell Avenue residences and boundary walls.