Geophysical Survey Report No. 11

Castle Hill, Dungannon
Co. Tyrone

Castle Hill, Dungannon

A topographic and geophysical survey carried out on behalf of

The Environment Heritage Service: Built Heritage,
Department of the Environment, Northern Ireland.

by

The Centre for Archaeological Fieldwork,
School of Geography, Archaeology and Palaeoecology,
Queen's University,
Belfast.
BT7 1NN.

Ronan McHugh and Steven Trick
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1 Introduction

1.1 A programme of topographical and geophysical survey was undertaken at Castle Hill, Dungannon, County Tyrone (Fig. 1) (Grid ref. H79906262) on the probable site of the stronghold of the O'Neills, one of the most powerful of the Gaelic families. The site is registered in the Northern Ireland Sites and Monuments Record as TYR 054:017. The survey was undertaken on the undeveloped, east-facing slopes immediately below the summit of Castle Hill (Fig. 2). The objectives of the survey were to determine whether there were discernable remnants of early activity or structures on the site, either imprinted on the landscape itself, or preserved beneath the modern ground surface. The survey was commissioned by the Environment and Heritage Service: Built Heritage in advance of the proposed opening of the grassland site to the public by Dungannon and South Tyrone Borough Council in 2007. The opening of the hill to the public is planned to coincide with the "Return of the Earls" event in 2007 organised by the Borough Council to commemorate the 400 year anniversary of the "Flight of the Earls".

1.2 The place name "Dungannon" is reportedly an Anglicisation of the Irish *Dun Geannun*, or the Fort of Geannun (Marshall 1929, 5)a mythical individual who is variously described as a druid Priest of the first century AD (Rowan 1979, 254), or a deity or king of a time prior to the introduction of Celtic languages (Pringle 1935, 12). The element *Dun* in the placename implies that Dungannon was a site of some importance from early historic times. It is interesting to note that Davies, in an early site inspection report on Castle Hill held on the EHS SM 7 file, reports that the later structures were built on the site of a ring-fort, indicating an ancient site (Davies 1936, 70), although this interpretation is conspicuously absent from later descriptions of the site.

1.3 In historical terms, the town is probably best known as the centre of the O'Neill Lordship, and Marshall recorded that Dungannon became the residence of the O'Neills from the second half of the thirteenth century (1929, 8). The same author reported a single reference from the fourteenth century, a missive from Donal O'Neill to Pope John the XXII, dated 1318, from Dungannon (*ibid.*). Dungannon is attested as hosting a castle of some form since the fifteenth century (Hayes McCoy 1964, 8).

1.4 Documentary references to the association between the O'Neills and Dungannon become commonplace from the fifteenth century. These are listed in sources such as the Annals of the Four Masters, and have been comprehensively discussed in narrative accounts by the likes of Marshall (1929). It is not necessary to detail these here. However, the central role of the O'Neills and their capital in medieval Irish affairs is reflected in the quantity of recorded incidents of intrigue and conflict that centred on Dungannon Castle.

1.5 In 1498, the castle was taken by the Earl of Kildare (O'Donovan 1845-51, 1245) and two years later what is described as the "old castle" was demolished by O'Donnell (*ibid.* 1255). In 1505, the castle was taken from Donnell O'Neill by Teige O'Hagen, but it was almost immediately recovered by O'Neill, who exacted lethal vengence on his rival (*ibid.* 1281). In 1518, Dungannon Castle was in the hands of Art O'Neill, when it was again destroyed, this time by the Lord Justice, William Skeffington (*ibid.* 1341) and again in 1532 by the combined forces of O'Donnell of Tir Connaill and Maguire of Fermanagh (*ibid.* 1413).

1.6 When Hugh O'Neill acceded to the primacy of the O'Neill clan, he took steps to reinforce the family's traditional stronghold and he began to build a "magnificent castle" at Dungannon (Lewis 1837, 575). It was during this period that the O'Neill's well-recorded order of roofing lead for his "faire house" was placed – this is generally accepted as a ruse to disguise the use of the lead for ammunition manufacture (Hayes-McCoy 1964, 8).

1.7 With the intensification of O'Neill's campaign against the English towards the end of the sixteenth century, Dungannon Castle was again destroyed on at least two occasions. This time, the destruction was at the behest of O'Neill himself, presumably to prevent the Crown forces gaining any advantage from his stronghold. In 1595, the castle "stood very stately high in the sight of all our army," when the crown forces under Russell approached "but, by noon the next day, it was so low that it could scarcely be discerned" (Marshall 1929, 38). In 1602, O'Neill again set fire to his castle, in advance of Dungannon being taken by Mountjoy (Lewis 1837, 575).

Figure 3. Thomas Bartlett's depiction of O'Neill's castle at Dungannon, after it's capture by Mountjoy.

1.8 It was probably during the course of this latter occupation that Thomas Bartlett produced a schematic map of Hugh O'Neill's castle at Dungannon, which today provides a clue to the character and extent of O'Neill's castle (Hayes-McCoy 1964, 10) (Fig. 3). The castle is shown as a damaged tower with an entrance at the ground floor. A machicolation is visible at parapet level. The tower is set at one corner of a rectangular bawn, situated on a scarped mound. At the base of the mound is a series of nine cabins, while the entire complex is surrounded by a rock-cut moat crossed by a wooden bridge. A second, rectangular stone structure is set into the side of the rock-cut moat, at the base of the tower.

1.9 After his submission at Mellifont in 1603, Hugh O'Neill was regranted his lands, including Dungannon Castle (Lewis 1837, 575), but following his departure in the Flight of the Earls in 1607, Dungannon's position as the powerbase of the O'Neill's came to an end. The lands of Dungannon, including the castle, were

granted to Arthur Chichester in 1610 (Hill 1970, 315). Carew's survey of 1611 reported that Chichester commissioned the construction of his own castle soon after taking possession of Dungannon (Hill 1970, 551). By 1619, Pynnar's survey reported that "a fort of lime and stone, 120 feet square with four half Bulwarks and a deep ditch about it 20 feet broad, and counterscarped" stood on the site (Hill 1970, 552).

1.10 Marshall reports that, in 1624, Pynnar produced a sketch of Chichester's castle (Marshall 1929, 65), and this sketch is reproduced as Fig. 4. below. Although there is no scale on either illustration, and the degree of detail varies greatly, some similarities can be noted between between the drawings of Bartlett and Pynnar; both structures are dominated by a single tower set at one end of broadly rectangular bawn, although Chichester appears to have added square bastions, presumably the "half bulwarks" referred to by Pynnar. Both display some form of prominent access feature at the base of the tower and Pynnar's survey confirmed that Chichester's castle, like O'Neill's, was surrounded by a ditch or moat (Hill 1970, 552). Further, in both illustrations, the castle overlooks a collection of houses which is presumably a representation of Dungannon at an early stage, although Pynnar's sketch shows these to be conjoined and to have chimneys. Both illustrations show that the tower was set in a castle wall which did not directly overlook the village. The apparent similarities would strengthen the likelihood that Chichester built his castle from the remains of O'Neill's earlier structure, rather than embark on an entirely new structure.

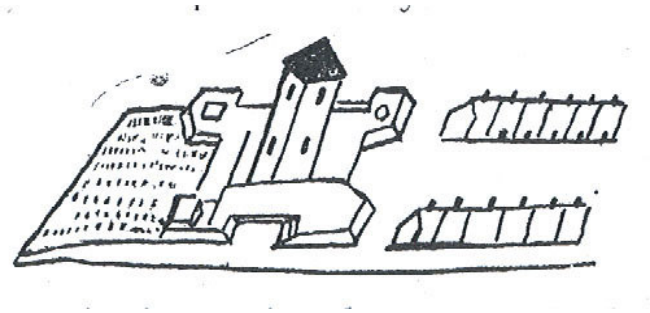

Figure 4. Pynnar's sketch of Chichester's castle at Dungannon (After Marshall 1929, 65)

1.11 Chichester's Castle was briefly seized back by Sir Phelim O'Neill between 1641 and 1646 (Lewis 1837, 575), before being recovered by the Crown. Lewis reports that the castle was dismantled in 1646 by order of Parliament and was rebuilt and re-garrisoned in 1689 (*ibid*,). In 1692, the site was sold to Thomas Knox and, in a relatively more peaceful environment, Knox (later Knox-Hannyngton) built a "gentleman's residence" on the site of the earlier castles around 1780-90 (Rowan 1979, 261). The Knox-Hannyngton structure was abandoned in 1856 (*ibid.*), by which time the first edition Ordnance Survey maps for Dungannon had been produced.

2 Cartographic Evidence

2.1 The first edition Ordnance Survey maps of Dungannon date to 1834, approximately 20 years before the reported abandonment of the house (Fig. 5). The Knox-Hannyngton residence is shown marked as “Castle” and the outline of the structure is well defined. The structure is broadly rectangular in shape with three circular towers at the northern, southern and western corners. The structure is situated on grounds marked by neatly arranged lines of trees, possibly indicative of landscaping, particularly to the south-east of the house. The site was enclosed by a series of angular boundaries. The south-western boundary contained a semi-circular feature, probably a rounded tower (Fig. 5, ‘Tower 1’), while the south-eastern boundary incorporated a pronounced corner and overlooked a tree plantation. The boundary turned north-west with a series of irregular angular bends before terminating in the north at the entrance to an unlabelled “L”-shaped building. The western boundary was provided by a roadway marked “Market Street”.

2.2 There was no obvious trace of the earlier castle in the 1834 street layout, but it is possible that some minor elements of the earlier fortifications have been retained. Two rounded towers or bastions are shown illustrated on the map. As mentioned above, one of these (Fig.5, ‘Tower 1’) was incorporated in the south-western boundary, while a second, probable tower (Fig. 5, ‘Tower 2’) was depicted to the south-east of this feature.

2.3 By the 1935 edition, the site had undergone significant change. The Knox-Hannyngton house was marked as a ruin (Fig. 6), although, at this stage, there were four extant corner towers, suggesting perhaps that the residence was modified in the 18 years between the publication of the first edition maps and the reported abandonment of the dwelling. There is now a north-eastern tower where none is depicted on the first edition map, enclosing a building somewhat smaller than previously depicted. Whether this is the result of modification or inaccuracies of the first edition is uncertain. Plate 1 is a photograph of the Knox-Hannyngton ruin dating to 1909, when four extant towers were visible. Richard Oram, in a description of the architecture of the building written in 1971, dated

some of the surviving building to *c.*1790, but intimated that the towers might have been a later addition (Oram 1971, 7). The cartographic evidence would seem to support this contention. The towers are situated on a circular mound denoted by hachures, strangely absent from the first edition. It is possible this represents the earthwork that Davies interpreted as a ringfort. The pathway shown on the first edition map around the castle was no longer visible by 1935, possibly again showing that the house had fallen into disuse. A linear feature marked with a double dotted line, extending from the north-east of the ruined "castle", appears to be the remnants of a servants tunnel referred to by Chapple (2003, 28).

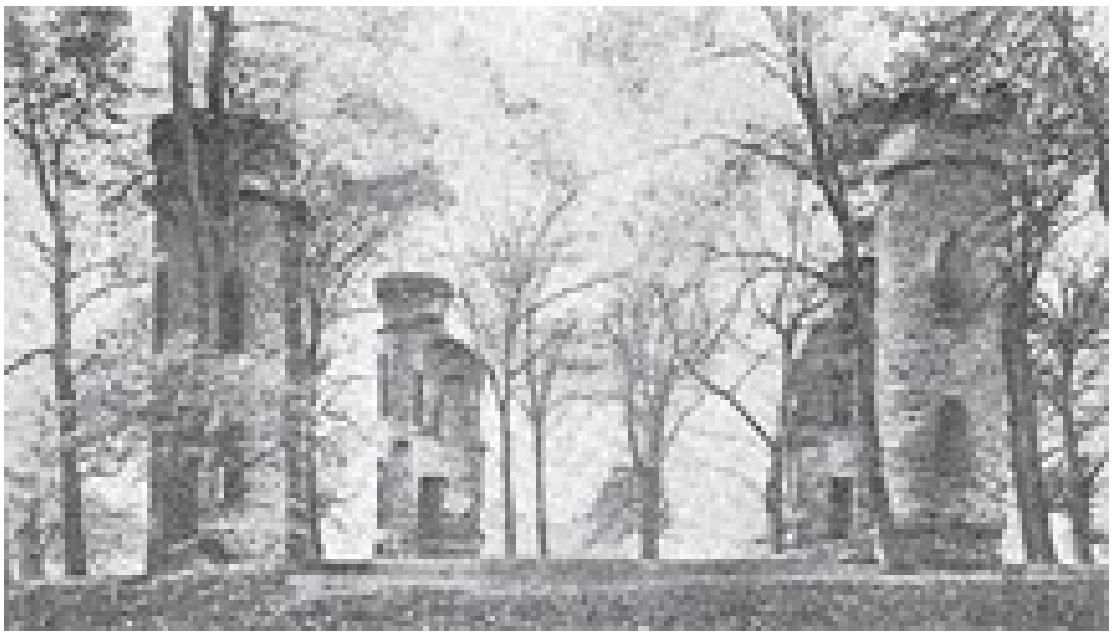

Plate1. Photograph of Knox-Hannyngton residence taken in 1909 (After McGuffin 1909, 8)

2.4 The site boundaries had undergone significant alteration by 1935. Market Street had been developed to the north by the erection of a reservoir and Orange Hall, and the southern stretch of the street had been renamed “Castle Hill”. An area of the previous castle-grounds at the southern end had been partitioned off, possibly to accommodate the RUC barracks or Fire Engine Station now shown depicted to the south of the castle site. The south-eastern boundary wall had been straightened by the removal of the corner, and the land to the east of this boundary had been developed for house plots. The angular north-western boundary of the castle-grounds was still visible, but it appeared to have been fragmented. This map also depicts a ruined chapel to the north-east of the castle. This is probably the remnants of the L-shaped structure shown on the first edition which marked the northernmost point of the castle grounds. A well was shown marked in a position approximately 35 m to the east of the castle.

2.5 A third circular, possible tower feature (Fig. 6, ‘Tower 3’) is depicted on the 1935 Ordnance Survey map, in the extreme north-east corner of the castle grounds. This corner was depicted on the first edition map, approximately 60 m to the east of the probable church site but no tower was shown in this position, suggesting either an omission in the first edition map or that this tower was built in the intervening period.

2.6 By the time of the Ordnance Survey 1973 map, only three of the Knox-Hannyngton towers remained. Most of Castle Hill had been developed at this stage; to the north of the ruins, in the area where the church ruins were depicted in 1935, a Territorial Army base (marked ‘T and AVR Centre’) had been constructed and only the hillside from the east to south-west of the ruin remains undeveloped. A roadway had been laid across the site to facilitate access to the Territorial Army centre and this appears to have truncated the eastern side of the mound depicted on the 1935 Ordnance Survey map (Fig. 7). The area of the castle grounds at the south of the site which has been shown as partitioned on the 1935 map had been reincorporated into the expanse of hillside by the removal of the wall or boundary.

2.7 The 1987 revision (Fig. 8) and the most up-to-date 2006 ACEmap of Castle Hill (the base mapping in Fig. 2) are uninformative as the detail of the hill summit has been removed for security purposes. The position of the well is marked however. The scarp in the south-east of the site is formally marked on these later maps with hachuring.

3 Site Description

3.1 The most impressive visible antiquities on Castle Hill are the remains of the Knox-Hannyngton residence. Two circular corner towers now survive in a relatively complete state (Plate 2) with the remains of a third tower visible to the north-east. These stand on the summit of Castle Hill, within the boundaries of the RUC (now PSNI) Barracks (Plate 1). The towers are set on a flat-topped earthen platform, which is probably the remnant of the mound depicted on the Ordnance Survey maps (Figs. 5 - 8). There are no discernable surface indications of any of the features excavated by Chapple in this area in 2003.

3.2 The 2006-07 survey was confined to the hillslope east of the Knox-Hannyngton structure, beyond the land used as the barracks. A protective corrugated-iron curtain-wall over 5 m in height served to protect the barracks and its grounds from attack during the Troubles in the 1970s and early 80s. This curtain-wall provided a boundary along the west of the survey area (Fig. 9), although it was being dismantled during the course of the survey.

3.3 The extreme northern boundary of the survey area was provided by the stretch of wall incorporating Tower 3. This stretch of wall extended for approximately 15 m and its condition varied greatly. It stood as a single course of irregular, angular blocks at its south-western end but rose to a height of almost 3 m in places (Plate 3). The tower was situated at the north-eastern end of the wall. It is poorly preserved and most of its north-eastern end no longer survives. However, the tower survives to a height of almost 2 m where it meets the old wall, although it was largely obscured by vegetation at this point (Plate 4).

Plate 2. The two substantially surviving towers associated with the Knox-Hannyngton structure (facing north - east)

Plate 3. North-east boundary wall (facing north-east)

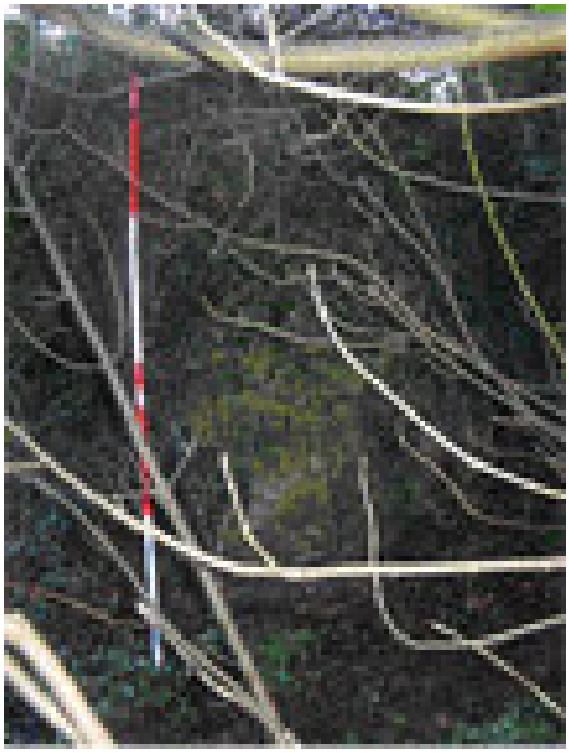

Plate 4.

Tower 3 (facing south-west).

This tower is badly damaged, and is overgrown with vegetation. It is set at the north-eastern end of a damaged stretch of wall.

3.4 The remainder of the survey area was enclosed by a succession of wall fragments, with the gaps being filled by wire fencing (Fig. 9). Most of the wall today constituting the south-east boundary post-dates the first edition 1834 map (Fig. 5) and is therefore not of significant antiquity, although the southern corner fragment is probably reflective of the boundary depicted on the first edition map. The south-western boundary wall incorporated the structure designated Tower 1 in this report, as well as a stretch of wall which appears to be contemporary with the tower. The south-western boundary wall is well preserved (Plate 5) and stands at a height of approximately 4 m above the street level to the south of the survey area (Plate 6).

3.5 The most elevated point in the survey area is along the western boundary fence, where the hilltop has been flattened to form a small, relatively flat plateau which abruptly slopes down towards the base of the hill on all sides. The slope to the north-east of the survey area is gradual, but becomes more undulating or stepped as it progresses southwards before achieving its steepest gradient towards the south of the survey area.

Plates 5 and 6. Two views of the tower labelled Tower 1. Above left, Plate 5 is taken facing south-west from inside the survey area. Plate 6 is taken facing north-east, and illustrates the extent of the tower and associated wall that survive today.

3.6 A prominent topographical feature is visible skirting the eastern and southern edges of the survey area. The prevailing slope flattens out before falling away in an appreciable scarp down to the boundary walls of the site. This scarped feature does not respect the contour of the hill; at its eastern-most corner, it curves abruptly to extend upslope towards the north-west, effectively creating a raised platform or enclosure on the hillslope that distorts the natural topography (Plate 7). This feature was identified as the probable remnants of the old south-eastern boundary of the castle site depicted on all of the Ordnance Survey maps since the first edition (Figs. 6-8), and is highlighted in Fig. 9.

3.7 The well that is marked on the Ordnance Survey maps since 1935 was located in the western corner of the site (Fig. 9). At this location today is a stone-built shelter, on a flat waterlogged platform suggesting the shelter houses a freshwater source (Plate 8 and 9). Immediately to the north of this structure was a brick-lined vertical flue which enclosed modern plastic pipes. This second feature was probably used in the exploitation of the water source in modern times (Plate 10).

Plate 7 View of the scarped feature (camera facing south). This illustrates the height differential created by this feature, which skirts much of the eastern and southern boundaries of the survey area.

Plates 8 (above left) and 9 (above right). Plate 8 is a view of the shelter containing the well (facing south-west). Plate 9 shows the stone-built fabric of the shelter.

3.8 The survey area was covered by a sparse growth of grass, which was mixed in places with dead and decaying vegetation, suggesting that taller scrub or plants had colonised the site but had died back during the winter. Truncated root stocks across the site suggested it had been strimmed shortly prior to the survey work. The undulating grassy slopes were interspersed with clusters of trees and bushes (Plate 11), while the northern edge of the scarped bank housed a number of mature trees. The corridor of land formed by the base of this scarp and the stone wall, along the south-eastern edge of the survey area was colonised by a growth of bush and scrub, rendering detailed survey of this area difficult. However, a short course of wall fragment extending perpendicular to the south-eastern boundary wall was recorded in this area.

Plates 10. Plate 10 shows the red-brick flue associated with the well.

Plate 11 is a panoramic view of the site (facing north-east) illustrating the trees in the north-east corner of the site.

4 Excavations on Castle Hill

4.1 The only recorded archaeological excavation on the site was carried out by Northern Archaeological Consultancy Ltd (NAC) in early 2003. This work was a rescue excavation in advance of the construction of a new communications tower being erected on the hilltop, close to the ruins of the Knox-Hannyngton house. The NAC were contracted by the PSNI to monitor mechanical evaluations of a series of 31 pits at the site. Each pit measured 1.5 x 2.1m, and each was destined to receive posts to support a fence around a communications mast. The site was rich in finds and structural remains, with all but two of the pits containing archaeological remains of medieval to post-medieval date.

4.2 Since the excavations recovered architectural remains of relevance to the present work, a summary of the 2003 intervention is provided below. A concise account of the excavations appeared in *Archaeology Ireland* (Chapple 2003) in 2003, while a more formal preliminary report was archived with the EHS in 2004 (Chapple 2004). Two main phases were identified at the site, a medieval phase, and a post-medieval phase. These are summarised in turn below. The *Archaeology Ireland* article provides a basic plan of the trenches excavated by NAC. For the present study, in order to provide better visualisation of the location of the excavation within the site as a whole, this plan was scanned and placed on the Ordnance Survey base mapping using GIS (see Fig. 10). This resulted in a slight rotation clockwise of the *Archaeology Ireland* plan, and hence a rotation of the north arrow present on the original. This suggests an error in the placement of the north direction in the original plan. For the summary of the archaeology encountered that follows below however, the original bearings quoted in the *Archaeology Ireland* article will be retained. The *Archaeology Ireland* figure is clearly preliminary – hopefully the final report on the 2003 excavations will resolve any orientation ambiguities. Figure 10 is an embellishment of the original plan in that the alignment of wall sections and ditches alluded to in the original discussion have been added as dashed lines and slightly extrapolated.

4.3 *Medieval phase*

4.3.1 The primary discoveries of the medieval phase were two sections of medieval walling. These appeared in one of the southern trenches and the larger of the eastern trenches (see Fig. 10, annotated 'medieval wall'), separated by an east-west distance of 17m, and in both cases the wall ran on a north-northwest/south-southeast alignment. The building style comprised a dug foundation trench onto which was inserted a lime-mortared stone foundation. Above this large, dressed stones formed the external faces of the wall, the interior of which was roughly-coursed lime-mortared rubble. The excavator interpreted the wall as representing fragments of outer defences rather than actual castle walls. No dateable material was found in the wall fabric; however 17th and 18th century material was found in the tumble layers against the walls. A trench in the southern end of the site contained a paved path, red brick inclusions indicating 18th century or later date, but also included a piece of stone dated to the 15th century.

4.3.2 Three adjacent trenches in the east of the site revealed a substantial ditch, 5m in width, running east-west (see Fig. 10). The ditch was recorded as being at least 2m deep before excavation had to be abandoned due to attainment of the maximum depth required by the development. Large amounts of animal bone were recorded from the ditch fills, with larger mammal bones showing butchery marks. Sherds of everted-rim ware were found. The material broadly dates between the twelfth and fifteenth centuries. Lower levels of the ditch contained neatly dressed stones tentatively dated to the 15th century, which the excavator interprets as possibly representing a late medieval phase of castle demolition.

4.3.3 Another ditch in the northern part of excavated area, ran north-east/south-west (see Fig. 10), truncated by later activity but still a maximum of 2.1m wide and 1.2m in depth. No conclusive dateable material was recovered from this feature.

4.4 *Post-medieval phase*

4.4.1 Most impressive discovery of the 18th century occupation of the hill was a servants' tunnel, associated with the Knox-Hannyngton house. This was revealed

in four of the trenches in the south-east of the site (see Fig. 10). Information from local individuals recorded at the time of excavation describe a tunnel running for 45m to emerge at the break of slope to the north-east, into what is believed to have been a farmyard. This description of the tunnel is supported by the Ordnance Survey mapping of 1935 which depicts a tunnel running from the Knox-Hannyngton house on this alignment (see Figs. 6 and 10). The construction method for the tunnel was lime-mortared stone for the vertical walls with a brick vault, giving an internal space of 1.4m width and 2m height. The tunnel was floored with sturdy cobbling in a distinct camber allowing water to run off each side. During excavation an entrance to a small side cellar was also located.

4.4.2 Floor cobbles were located in nine of the trenches across the site. The shape of the stones employed and the levels at which they were encountered varied widely. In one trench a portion of a step was found providing a possible explanation for the variety in floor levels. The majority of the cobbled areas were considered to be 18th century by the excavator; however at least one appears to pre-date the Knox-Hannyngton house since this area of cobbling is cut by the construction of the tunnel. This cobbled surface must therefore predate the 1790s (unless of course the tunnel is a later addition to the house).

4.4.3 In the north of the site, an area of cobbling measuring approx. 4 x 2.5m was uncovered. This lay above a black organic layer, approx. 0.1m thick. The black layer was rich in finds, containing numerous fragments of bone, oyster shell, pottery and glassware, suggesting a midden-like deposit was the origin for this material. The pottery, while post-medieval in date, including Bellarmine ware, also included sherds of everted-rim ware. The glassware included fragments of window glass, seventeenth century wine bottles and portions of drinking vessels.

4.4.4 Beneath the layers just described a stone-filled foundation trench was uncovered measuring 3m x 0.4m with a maximum depth of 0.6m. At its south-eastern end it turned through 90 degrees before disappearing in the section face. It is interpreted by the excavator as a foundation trench for an ancillary building of some sort although no firm dating could be attributed. This foundation cut

truncated the cut of a ditch of possible medieval date, the northernmost of the medieval ditches described above.

4.4.5 In conclusion, the rescue archaeology carried out by Northern Archaeological Consultancy Ltd. in 2003, even though it was keyhole in nature, (c. 100m^2 of the hilltop was opened), provided new insights into medieval and post-medieval occupation on the hill. The variety of material provided information on diet, economy and spatial organisation on the hilltop. This work suggests that larger scale excavation would extend this knowledge further, and answer many of the remaining questions regarding occupation of the hilltop during this period.

5 Survey Results

5.1 The topographical survey was undertaken using a Leica TPS 705 Series Total Station. The survey area was divided into 30 m grids, and the survey was carried out at a resolution of 3 m x 3 m, with additional detail in areas of high relief. The data obtained during the survey were processed using Leica Liscad 6.0 software, and were reconciled with the Irish Grid using ESRI ArcGIS 9.1. The results of the survey are depicted in Figs. 11 and 12. Figure 11 is a contour plan produced from the survey data, while Fig. 12 is an alternative representation of the same data as a shaded relief plot, while Fig 13 is a 3 dimensional representation of the hillside. The topographical features present in these two figures are graphically summarised in Fig. 14. It is recommended that all three of these illustrations are continuously consulted to clarify the interpretive account of the topography that follows.

5.2 The topographical survey highlighted a number of features in the landscape that appear to be of anthropogenic origin. The topography at the summit of the hill is defined by an amorphous plateau (Topographical Feature “TF” 1, Fig. 14) which broadly follows the curve of the modern roadway. The slopes from this plateau are initially relatively steep, particularly towards the south of the survey area, and become less severe as they progress downslope. The ground comprising the plateau and the initial, steeper slopes around the summit is uneven and characterised by frequent outcrop and deposits of concrete and building rubble (Plates 12 and 13).

5.3 Employees of Dungannon and South Tyrone Borough Council confirmed that soil and debris was tipped down the slope during construction work on the site in the 1970s. Given that the plateau is at approximately the same level as the modern access roadway, it is probable that it (the plateau) has been created by build up of construction rubble and debris which was levelled to accommodate the roadway and the erection of the corrugated iron fence. This building debris has been pushed over the sides, creating the uneven ground surface and the relatively steep slopes immediately surrounding the plateau (TF 1). The topography of the upper portion of Castle Hill has therefore been probably been

greatly altered and surface remains of archaeological features have potentially been either destroyed or possibly obscured in this area.

5.4 The survey was successful in defining the morphology of the steep scarp (TF 2) which skirts the south-western to eastern boundaries of the survey area. This feature emerges from the south-western boundary approximately midway along the boundary wall and extends for approximately 25 m south-eastwards, before curving north-eastwards opposite the southern corner of the site (Fig. 14). At this southern end, the definition of the edge of the scarp is rounded and the gradient is relatively shallow. This aspect of the scarp is preserved for the first 50 m of the north-eastern course, at which point there is a curved distortion in the line of the bank. After this point, the character of the bank changes slightly; it becomes steeper and the definition of its edge becomes more linear. The feature extends for a further 100 m on this alignment, which follows the contours of the hill. At this point, the bank curves abruptly at almost 90 and extends north-westwards upslope for almost 40 m, gradually diminishing in height before it merges with the prevailing north-west-facing slope. The maximum height of the bank was recorded at its easternmost corner, where it stands almost 3 m above the ground immediately to the east (Plate 14). At the north-western extreme of the scarped feature (TF 2), it is overlooked by a low, rounded mound (TF 3) (Plate 15), suggesting that the steep break in slope caused by the scarp might have been overlooked by a bank or mound.

Plates 12 and 13. Two views of the rubble laden slopes around the level plateau at the top of Castle Hill.

Plates 14 (above) and 15 (below). Plate 14 illustrates the near vertical bank at the easternmost point of the scarped feature (TF 2) (facing south-south-east). Plate 15 depicts the north-western terminus of the feature (TF 2) with the small mound (TF 3) overlooking it (facing south-east).

5.5 Comparison with the Ordnance Survey maps confirmed that this feature (TF 2) is the remnant of an early boundary dating back at least to 1834. Figure 15 is an overlay of the survey results on the first edition map. Figure 15 demonstrates that the field boundary coincides with the scarp feature (TF 2) from a point approximately 50 m north-east of the southern corner of the feature (the slight deviation in the field boundaries can be attributable both to slight inaccuracies and the relatively small scale of the first edition Ordnance Survey maps). This is the point from where the scarp feature becomes steeper and more linear in its definition. The feature extends for a further 100 m on this axis before turning north-westwards, again following the course of the old field boundary depicted on the Ordnance Survey maps, although it does not, understandably, retain all of the acute angular corners evidenced on the first edition map. This more rounded profile, however, reflects the boundary as depicted on the Ordnance Survey maps 1935 – 1987 (Figs. 6 - 8). The scarp feature (TF 2) today diminishes after approximately 40 m of its north-westwards course and this is in contrast with the depiction on all of the Ordnance Survey maps, which show a continuation of the boundary beyond this point. On the 1987 edition map, however, this portion of the boundary is shown by a broken line, suggesting that the that old field boundary (TF 2) has been slighted at its north-eastern end in relatively recent times, probably due to construction work on the former Territorial Army base immediately to the north.

5.6 As noted, the level of the hillside retained upslope of the old boundary (TF 2) is significantly higher than the ground immediately beyond it. Although there was no evidence of stonework along the length of the bank, this is suggestive of revetment along the edge of the scarp at an earlier date. Interestingly, the small segment of wall fragment referred to in section 3.4 above was recorded in a position and on an alignment which coincides with the corner in the old field boundary shown on the 1834 map (Plate 16). If this wall is indeed relict of the old field boundary, it seems likely that the reminder of the boundary was similarly walled.

5.7 The old field boundary is not shown on any of the Ordnance Survey maps as extending south-westwards into the area today coinciding with the southern end

of the scarp feature (TF 2). It is therefore unlikely that this portion of the bank or scarp is associated with the field boundary. In this respect, it is noted that the addition of a hachured slope in this area only appears on the 1987 revision, and later Ordnance Survey maps (Fig. 8), so it is possible that the scarping at the southern end of the feature designated TF 2 in this report might represent recent modification of the landscape.

5.8 At the southern edge of the survey area is a strikingly regular rectangular terrace (TF 4), cut into the prevailing south-east facing slope. This feature is clearly visible to the eye. It measures approximately 35 m (north-east/south-west) x 18m (north-west/south-east) and is cut vertically into the surrounding terrain at its north-west and north-eastern sides, and there is low step down from the south-west of the terrace (Plate 17 and 18). The terrace provides the most level surface within the survey area, suggesting that the feature might have served as a platform or foundation for some temporary structure.

Plate 16. Stretch of old field boundary extending perpendicular to the south-east boundary wall.

5.9 Immediately to the north-west of the terrace, the south-west facing hillslope has been altered by the creation of a visible step (TF 5). The edge of this step is defined as being rigidly linear in Fig. 12. This step appears to have been truncated to the south-east by excavation of the rectangular terrace (TF 4), but the step is approximately parallel to the edge of the terrace, suggesting a possible relationship between these features.

5.10 Approximately 55 m to the north-east of the terrace feature (TF 4), midway down the south-east facing slope of Castle Hill, the gradual gradient is interrupted by two angular features that are similar in character to each other (TF 6 and TF 7). The earthwork denoted TF 6 is defined by two linear earthwork elements which intersect to form a sharp, approximate right angle. The first element of this feature presents as a linear earthen ridge with a rounded profile which extends from the base of the modern construction debris (TF 1) on a broad north-west/south-east alignment downslope for approximately 35 m. It has a maximum recorded width of 2.7 m and a maximum height of 0.34 m above the surrounding ground level.

Plates 17 (left) and 18 (right). Two views of the terrace feature (TF 4). Plate 17 is taken facing south-east from the summit of Castle Hill. Plate 18 is taken facing north-west.

5.11 At this point, the earthwork (TF 6) turns at a right angle and the second element extends south-west/north-east for approximately 55 m metres, at which point it appears to interrupted by an apparent east-west aligned ridge (TF 8 – see below). The south-west/north-east aligned element of this angular earthwork (TF 6) is lower, with a maximum recorded height of 0.28 m above the height of the surrounding terrain and it's surface is flatter and less rounded. It is approximately 2.4 m in width. This earthwork (TF 6) possibly extends beyond the point of intersection with the ridge feature (TF 8). Traces of an approximately south-west/north-east aligned earthwork of similar character extend for a further 20 m beyond this point. This possible extension of earthwork TF 6 has been denoted "TF 6a" as, although similar to TF 6, its alignment is slightly more towards the north.

Plate 19. The north-west/south-east aligned elements of the two earthwork features denoted TF 6 and TF 7. The scrub and bushes are situated on the corner of the two features, and hampered proper inspection of this area during the survey.

5.12 A second, similar angular feature (TF 7) is situated immediately upslope of feature TF 6, approximately 5 m, to the north. This second angular earthwork (TF 7) was almost completely obscured by vegetation and was not readily visible, but the survey has confirmed that it is of similar morphology to the nearby earthwork (TF 6), although it is smaller. This second feature is defined by a prominent linear bank (with a maximum width of 1.8 m and height of 0.31 m) extending approximately north-west/south-east downslope for approximately 25 m (Plate 19). As with the nearby earthwork (TF 6), it turns a corner and a second element continues on an approximate south-west/north-east course, almost at right angles to the first "arm" of the feature. The second, south-west/north-east aligned component of this feature (TF 7) extends for almost 40 m, with a maximum width of 1.3 m and height of 0.29 m, after which it becomes indistinguishable from the prevailing slope. The terrain retained by the two "arms" of this angular feature (TF 7) has a slightly domed aspect (Fig. 12).

5.13 The interpretation of these two earthworks (TF 6 and TF 7) is not certain but the combined effect of the two angular corners they form is to reduce the severity of the prevailing south-east facing gradient by creating two discrete "steps" in the slope. These features are responsible for the ostensibly haphazard topography which characterises the hillside in this area (Plate 20). The character and position of the two features, together with their morphology suggests that the features are related. The relationship is not perfectly symmetrical; the two roughly north-west/south-east aligned elements of the earthworks are not parallel and they visibly diverge from each other.

5.14 Approximately 62 m to the north-east of the corner of the two angular "step" features (TF 6 and TF 7) is the westernmost terminus of an east-west running ridge (TF 8) which appears to extend from a hollow in the base of the modern mound (TF 1), running for approximately 30 m, before terminating where it intersects with the south-west/north-east aligned element of the feature designated TF 6 at its north-eastern end (See above). This ridge (TF 8) is approximately 0.20 m in height and has a maximum recorded width of 1.2 m.

Plate 20 (taken facing south)**.** The undulating topography in this area of the site is created by the angular linear features TF 6 and TF 7, which have the effect of breaking up the slope into two discrete steps.

5.15 There is considerably less variation in the topography north of this point, and, with the exception of the north-west/south-east aligned course of the old field boundary (TF 2), there were no features visible to the naked eye. The survey, however, highlighted a number of subtle features in this area. Immediately to the north of the east-west ridge (TF 8), there are two faint rises, which are aligned approximately north-south (TF 9 and 10). These are possibly relict of cultivation on the relatively gentle north-east facing slope in this area and are approximately parallel to the ridge feature (TF 6a).

5.16 In the triangle of land forming the northern corner of the survey area, the topography on the whole consists of an even, east-facing slope. Heading south from the northern corner of the survey area is the faint trace of an elongated arc (TF 11) and a low ridge almost parallel to the current field boundary (TF 12) (Fig. 9). Comparison with the 1973 Ordnance Survey map illustrates that this former feature (TF 11) is the remnant of a recent field boundary, which is not shown on either the earlier or later edition Ordnance Survey maps, suggesting it was

relatively short-lived. The ridge (TF 12) is almost 40 m in length and is parallel to the current north-eastern boundary of the field. It does not extend beyond the area bounded by the disappeared field boundary marked by the elongated arc (TF 11) and the modern north-east field boundary, suggesting the ridge (TF 12) is relict of activity that was confined to this corner of the field when the earlier boundary (TF 11) was in place.

5.17 Two other small plateaus recorded in the survey can be identified as artificially cut terraces of relatively modern date. A small flat area has been excavated out of the hillside around the well feature (TF 14) (Plate 8). This area was waterlogged throughout the duration of the survey, and has probably been used to assist drainage or percolation from the well. Approximately 10 m to the north-north-east of the drain, a smaller terrace has been cut around the site of a small tree (TF 14).

6 Geophysical survey

6.1 A geophysical survey was conducted in tandem with the topographic survey in order to provide supporting information relating to the subsurface physicality of the site. Earth resistance techniques were chosen in this instance, due to the uneven nature of the terrain, and the expected archaeology. A frame-based, active instrument such as the resistance equipment is more capable of dealing with uneven topography and also provides less risk to the operator. Given the background of the site with its history of castles, together with the results of recent rescue excavations on the hilltop, it was expected that the survey might encounter buried walls, floors, tunnels and ditches. Earth resistance has a proven record in the location of such features (Gaffney and Gater 2003). Details regarding the survey methods and processing of the data are provided in the Appendix A (Geophysical Technical Appendix) of this report.

6.2 Geophysical methods provide complimentary evidence to topographic survey. Where geophysical and topographic anomalies correspond, they can provide information on the materiality of the a feature. Often, however, there is little spatial correlation between geophysical and topographic plots. In this instance geophysical results can add value to the topographic plot and suggest other features which may be present on the site and past land use.

6.3 Figure 16 shows the results of the resistance survey overlaid on the base mapping, Fig. 17 shows the interpretive diagram overlaid on the base mapping. Fig. 18 shows the raw resistance plot, and Fig. 19 shows the annotated interpretive diagram and is the primary diagram referred to in the discussion below. This discussion should be considered in conjunction with the topographic discussion above.

6.4 Amongst the most prominent landscape features highlighted by the topographic survey are the well-defined, stacked terraces with sharp angular corners (topo. features TF 3 and TF 6). These did not show up clearly in the geophysical plot, bar one area, which is manifest on the ground as a linear ditch between subtle linear banks. In the geophysical plot the banks show up as high resistance zones

demarcating a linear of average resistance, 2 m wide, and heading in a west-northwest alignment (**r1**) for 15m. This anomaly is likely to extend eastwards into the stand of trees indicated by the blank area on the geophysical plot. The higher resistance response of the banks suggests they have a core of stones or gravel, or that they are simply better drained that the surrounding areas which were generally waterlogged throughout the survey.

6.5 Another prominent topographic feature is the flat platform in the southern corner of the survey area (TF 4). The banks to the northeast and the northwest above this platform show up in the geophysical plot as linears, at right angles to each other, of above average resistance (**r2**). This is likely to be for the simple reason that they are better drained rather than any irregularities in their physical constituents. However within this platform is a clear low-resistance sub-rectangular anomaly (**r3**), approx. 6m x 10m. Topographically, this is manifest as a very subtle raised-area which is only visible from an elevated position with low-relief sunlight. The geophysical plot appears to show some internal detail with low-resistance 'spots' at regular intervals around the perimeter of the anomaly. The response of this anomaly suggests an area that has been excavated and backfilled with material of greater water-holding capacity than the surrounding soil. The size and shape of **r3** is suggestive of the footprint of a structure, and the low resistance points around the perimeter may represent post-holes for the support of the structure. However, it could also represent the remains of a subterranean feature that was excavated, e.g. a pond or septic tank.

6.6 The contour plan (Fig. 11) indicates that the terracing of the hillside at this level extends south and west beyond the square area discussed above (TF 5). The bank above the terrace area, along the south-western edge of the survey area, near to the wall-tower appears in the geophysical plot as a high-resistance linear anomaly (**r4**). Again this is seen as the result of differential drainage rather than irregularity in the physical make-up of the bank.

6.7 The clearest high-resistance anomalies in the plot are a pair of sub-linear shapes, which appear to run parallel to each other (**r5** and **r6**), on an east-west alignment. Anomaly **r5** is 1.5m wide at its narrowest point, and 8m at its fattest,

extending for a length of c. 30m. Anomaly **r6** is also 1.5m wide at its narrowest and 8m at its fattest and runs for a length of 26m, which would probably be longer if the survey were not obstructed by trees above the sheer bank. Anomaly **r5** is evident on the surface as a raised ridge (see TF 8) visible in the contour and shaded relief figures (Figs. 11 and 12). Anomaly **r6** is not discernible as a discrete topographic feature. The alignment of these anomalies is at odds with the majority of the topographic features illustrated in the contour and hillshade plots, and the alignment of the Knox-Hannington house on the hilltop. One of the ditches uncovered by the NAC excavations on the hilltop in 2003 was purported to be on an east-west alignment (Chapple 2003, and see account above). The high-resistance response suggests **r5** and **r6** represent the base of a stone wall or foundations for a structure. At 45m apart it is far fetched to suggest they are opposite walls of an individual room within a structure. At regular intervals across the northern half of the survey area there appear to be subtle east-west trends in the data on the same alignment as **r5** and **r6**. The alignment labelled **r7** in Fig. 19 is an example of these trends. This may have some impact on the interpretation of anomalies **r5** and **r6**. This trend possibly represent the faint traces of an historic ploughing pattern (see discussion of anomaly **r8** below), or alternatively could represent the natural, geological jointing of the bedrock, which is to be expected to be near the surface given the geographical context. Rather than being archaeological deposits therefore, it is possible that anomalies **r5** and **r6** have a natural origin in the bedrock at a shallow depth beneath the grounds surface.

6.8 Along the northeastern edge of the survey area, a number of evenly spaced, parallel low-resistance linear anomalies can be clearly discerned, in an otherwise high-resistance patch of ground (**r8**). These abruptly stop where a pair of low-resistance linear anomalies run perpendicular across their path (**r10**, see discussion below). The patterning at **r8** is interpreted as the result of historic lazy-bed cultivation, with the beds regularly spaced 3-4m apart.

6.9 The alignment of parallel anomalies marked **r10**, mirrors a field boundary marked on Ordnance Survey 1935 and 1973 maps and so these anomalies are

interpreted as an old hedge or fence-line. This interpretation further explains the abrupt limit to anomalies at **r8** which would have terminated at the field boundary.

6.10 Along the eastern side of the survey area, there is a wide swathe of low-resistance values (Anomaly **r9**), c. 20m wide at its northern end tapering to zero as it becomes indistinct at its southern end. Its length is c. 85m. Spatially it corresponds with a relatively flat area of ground between topographic features TF 2 and TF 6. Anomaly **r9** also widens out to the north in a similar way to the change in morphology of TF 6/TF 6a in this area. Its interpretation is unclear, however, the electrical homogeneity of this large anomaly would suggest it is the result of a single formative event. Given that **r9** corresponds spatially with a flat area of ground on the hillside it is possible that it relates to an episode of landscaping with common pattern of deposition/removal of materials across it.

6.11 One of the clearest, most geometric anomalies is **r11**, a high-resistance linear 1m wide and c.13m in length. The anomaly appears to be a continuation of the southern wall of the military hilltop enclosure east-southeast/west-northwest. The Ordnance Survey 1934 map shows that at one time this wall did indeed extend across the survey area to the other side. By the time of the Ordnance Survey 1973 map this wall was gone but at this position on the hilltop there were a couple of buildings, no longer standing. Anomaly **r11** is therefore interpreted as either the partial footing of the long wall across the survey area, or the base of one of the walls of these former structures.

6.12 Another striking anomaly is that of **r12**, a narrow, low-resistance curvilinear anomaly, c. 1m wide, and visible in the plot for a length of c. 25m. The high-contrast of this anomaly would suggest it is a buried feature that is freely assisting the current injected into the ground by the survey probes, most likely manifest as a metallic pipe. The fact that the eastern terminus of the anomaly coincides spatially with the well and nearby flue would seem to support his interpretation, and suggest it is related in some way to water management on the site. Since the history of the well is not fully understood it is difficult to relate this anomaly to any period of occupation.

6.13 Much of the western edge of the survey area comprises a relatively flat plateau which dips sharply down as the formation progresses eastward (see TF 1 in the topographic discussion). This is a modern levelling deposit created sometime in the 1970s to provide a flat surface for the road through the site to the army buildings. Only the eastern limits of this topographic feature are visible in the geophysical plot, where there is a subtle perimeter of high resistance values, suggesting that larger stones and rocks present in the spoil have come to rest at the bottom of the slope and have sunk into the ground to present as geophysical anomalies.

6.14 Much of the surface of the site was waterlogged and slippery underfoot, due to persistent rain and foggy atmosphere. This condition of the soil tends to lower the overall resistance values encountered on the site due to there being higher moisture content in the soil. One part of the site was particularly wet, with shallow standing water, resulting in a low resistance patch (**r14**). It can be assumed that here the site has reached field saturation and that any archaeological features present would not be discernible in terms of resistance above a general background.

7 Conclusion

7.1 Castle Hill has been a site of some importance certainly since the early 13th century and possibly for even longer. As a result of the pivotal position it held in Irish affairs the hill was constantly being attacked, resulting in a sequence of recorded incidents of destruction and rebuilding of the structures the site has housed. The scale of the damage and alteration to the structures associated with each episode in this sequence cannot be established, but doubtless each has had some impact on the survival of earlier material.

7.2 Of primary interest are the castles associated with the era of the O'Neill's at Dungannon, and in particular, the castle of Hugh O'Neill. Documentary sources attest to the destruction of this castle by O'Neill's own hand (Marshall 1929) and the building of a new castle at Dungannon by Chichester, but similarities in depictions of the respective castles of O'Neill and Chichester suggest that the latter probably adapted and fortified O'Neill's structure for his own use, rather than replace it altogether.

7.3 It is probably during the subsequent occupation of the site by the Knox-Hannyngton family that more drastic alterations to the castle site were made; a "gentleman's residence" does not require the same specifications as a castle designed in anticipation of warfare. Chapple (2003) has demonstrated with some certainty that the summit of Castle Hill still bears the remains of medieval activity in deep, well-preserved stratigraphy. The first accurate depiction of Dungannon in 1834, however betrays little that can be definitively interpreted as relict of the castles of O'Neill or Chichester on the summit or on the surrounding slopes. Today it is not possible to verify the size and shape of the grounds surrounding the respective castles and residences on the hill, and whether these were emphasised with defensive walls and moats (the latter attested by Bartlett's pictorial map of *c.* 1601).

7.4 A number of sturdy stone walls skirting the survey area, incorporating round towers or bastions at their vertices, have been highlighted as possibly indicative of the earlier defensive character of the site (Sections 2.2 and 2.6 above), but

none of these are conclusive, and might as readily be interpreted as decorative features as truly defensive ones. The respective positions of the two towers shown on the first edition map (Towers 1 and 2) is not consistent with their belonging to a single structure, so they are probably not contemporary. Tower 2 might conceivably be associated with Tower 3 as part of an encompassing structure, but there is no continuity in the boundary wall connecting these two towers on the first edition Ordnance Survey map, and the absence of Tower 3 from the first edition map must cast some doubt on its relative antiquity. A formal analysis and comparison of the building materials used in the towers and separate sections of walling, together with comparison with surviving structures on the hilltop and excavated remains may inform on the morphology of the castle grounds and temporal phasing of individual boundaries.

7.5 Within the survey area, there were few surviving features which were visible on the first edition Ordnance Survey maps of 1834. However, there is no tradition that the survey area has been used for anything other than grazing since 1834 and none of the Ordnance Survey maps show significant development in this area. The topographical survey has recorded an obvious dump of modern material (TF 1) around the summit of the hill which has undoubtedly affected its character, but this appears to be largely confined to the upper portion of the hill, and Chapple's excavation has shown that archaeological material has survived on the hill summit beneath the remnants of the modern activity, albeit it was buried at a relatively deep level. Moreover, the terraced nature of much of the slopes has probably resulted in the creation of zones of high preservation on the hillside where soil has built up against the banks of the terraces. It is therefore likely that, with the exception of cattle poaching of features and deposits, there has been little disturbance of archaeologically significant material further down the hillslope, at least since the latter days of the Knox-Hannyngton occupation of the site.

7.6 The most prominent feature visible in the survey area depicted on the first edition map is the old field boundary, which was recorded in the survey as TF 2. This feature demonstrably dates to at least the era of the Knox-Hannyngton structure, but is possibly older. The topographical survey has produced evidence of

significant structuring on the slopes of Castle Hill that appear to be associated with this boundary. Most obviously, the two angular stacked terraces recorded as TF 6 and TF 7 are arranged on a parallel alignment to the boundary (Figs 11 and 12). At the north-western edge of the boundary, the small mound (TF 3) directly overlooks the boundary, while, at the south of the survey area, the flat terrace feature (TF 4) has also been set out parallel to the line of the old field boundary. The step (TF 5) to the south-west of the terrace (TF 4) might, in addition, have been purposely created perpendicular to the boundary line, although this relationship is less obvious.

7.7 The survey does not ascribe a definitive temporal context to any of these features. As they are all retained by the boundary, however, it seems probable that they are contemporary with or later than this feature, which defines the area they occupy. The boundary itself has a terminus ante-quem of 1834 and it is suggested that all of the topographical features mentioned at Section 7.6 above pre-date 1856, when the Knox-Hannyngton structure was abandoned; as noted in section 7.5 above there is no cartographic record of significant development on the hillside since 1834, and the reported use of the area for cattle grazing would not have required such substantial alteration of the landscape.

7.8 The question of whether any of the recorded features can be placed further back, to either the O'Neill or Chichester period is more fraught. While this possibility cannot be discounted, none of the features recorded in either the topographical or geophysical surveys can readily be reconciled with the defensive walls, great ditches and moats depicted by Barlett (Fig. 3). It is therefore more probable that majority of the features surveyed, certainly those which display a spatial relationship with the field boundary (TF 2), date to the Knox-Hannyngton occupation and are remnants of landscaping of the house grounds, for use as part of an ornamental castle garden. Planned walled gardens incorporating features such as terraced platforms and ornamental gazebos, such as Lisburn Castle Gardens (O'Baoill 2003), became established in Ireland from the middle of the 17th century. In this respect, it is perhaps of significance that the 1834 map shows that the boundaries of the Castle Hill grounds (and therefore a number of the angular terraced features) are parallel to the sides of the house itself (Fig. 5),

suggesting that entire landscape depicted on the map might have been symmetrically arranged around the building of the house.

7.9 No detailed map or representation of Castle Hill in Knox-Hannyngton's heyday was available to confirm this hypothesis, but a idea of the landscape can be built up from the available evidence. The direction of the servants' tunnel depicted on the 1935 map, confirmed by the 2003 excavations, might suggest that the servants' quarters and store areas were to the north-east of the mansion house. The servants' tunnel heads directly for a building drawn but not labelled on the 1834 map. It is labelled however 'Chapel (ruins)' on the 1935 map. During the heyday of the Knox-Hannyngton residence in the early 18th century this building may have been a chapel, with the servants areas behind to the east, or it may have been a former chapel which was already in re-use by this time as an ancillary building to the mansion house. Chapple makes allusion to the tunnel opening out on to what was a farmyard (2003, 28). In this direction the land drops away sharply and this area may have been used intentionally in order to keep activities concerned with the vulgar, quotidian aspects of life out-of-view. In contrast the eastern slopes may have accommodated the formal gardens, and the winding pathway to the south of the house was a carefully designed promenade positioned to take in the best views of the garden and the landscape beyond. Provisional interpretation of the individual features revealed by the survey might best be made in this light. The gardens were enclosed by a curvilinear boundary, which was probably stone-revetted, and were elevated above the level of the ground outside. The two, probably-related, angular features (TF 6 and 7) were probably garden terraces which were set out on a parallel axis to the boundary wall to provide a formal structure within the garden. The flat platform feature (TF 4) commands excellent views to the south and west and the geophysical survey revealed the possible foundation of a structure (R3) in this area, possibly the remnants of a shelter or gazebo. The tower features were probably decorative adornments incorporated at various junctures into the garden's boundaries and the surrounding walls.

7.10 The topographical and geophysical surveys have served to highlight the location and broad character of the landscape features preserved at Castle Hill. This

report has sought to present the landscape features as recorded, and to outline a possible interpretation of the site based on the evidence to hand. Full interpretation of the surviving remains can only be achieved, however, through a programme of excavation and it is hoped that the survey results provide a valuable starting point to inform on any future excavation strategy. Fig. 20 presents a suggested test-trenching strategy which targets the most salient features recorded during the survey. A total of five trenches are envisaged.

- Trench 1 is intended to establish the nature of the old field boundary recorded as TF 2. It is aligned north-west/south-east. Trench 1 extends approximately 5 m to the north-west of the field boundary in order to determine whether features of archaeological significance have been buried by the accumulation of soil against the old boundary.

- Trench 2 is positioned over the two angular corners of the probable garden terrace features (TF 6 and TF 7) which have been shown in the geophysical survey to coincide with areas of high resistance (Anomaly r1). Trench 2 is again aligned north-west/south-east and will facilitate resolution of the purpose of these two features and the relationship between them.

- Trench 3 is positioned on the north-western extreme of the old field boundary (TF 2), where it is overlooked by the small earthen mound (TF 3). A high resistance anomaly (r6) is located in this position. Trench 3 is aligned east/west.

- Trench 4 is positioned to coincide with the curved ridge (TF 8) that was recorded in the geophysical survey as the high resistance anomaly (r5). Trench 4 is aligned east/west located at the eastern end of this feature to facilitate both the resolution of the nature of the ridge and also to assess its relationship with the probable garden terrace feature (TF 6/6a) which it appears to interrupt.

- Trench 5 is located on the flat terrace (TF 4) at the south of the site. A sub-rectangular low resistance anomaly (r3), possibly the footprint of a structure was recorded in this area, and Trench 5 will facilitate investigation of this hypothesis.

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Appendix A: Geophysical Technical Appendix

Equipment: Geoscan RM15 Earth Resistance Meter with MPX15 multiplexer
Probe configuration: Parallel twin (4 probe)
Probe separation: 0.5m
Traverse interval: 1m
Sample interval: 1m
Grid size: 30m
Survey pattern: zig-zag

The following software filters were applied:

- **Despike** filter was applied to remove spikes in the data caused by poor contact of the probes with the grounds surface, a phenomenon which is more common when using a 4 probe array such as the one employed here.

- **Interpolation** process was applied to fill in the gaps between the data and thus provide a smoother plot.

- **Clip** process was applied to spread the greyscale used in the plot across the more representative parts of the data set.

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