

# **Dingwall Viking Thing Project**

**Cromartie Memorial Car Park,**

**Dingwall, Highland**



**Report on Geophysical Survey**

**Ground Penetrating Radar**

OJT SURVEYS

November 2011

## REPORT DETAILS SHEET

|                                |  |
|--------------------------------|--|
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| <i>Address</i>                 | Cromartie Memorial Car Park, Church Street, Dingwall   |
| <i>Parish</i>                  | Dingwall   |
| <i>Council</i>                 | Highland   |
| <i>SMR</i>                     | MHG16352   |
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## 1.0 Introduction

This document presents the results of a ground penetrating radar survey undertaken by OJT Surveys at the Cromartie Memorial Car Park, Dingwall. The car park has been identified as the site of Dingwall's Viking thing mound, which is an important type of early medieval legal assembly site. The survey was aimed at assessing the car park and the immediate environs for buried archaeological remains relating to the historic mound, its use as an assembly site and Dingwall's historic environment more generally. The survey formed part of a wider project seeking to address key issues as to the character and origins of Dingwall's Viking assembly site or *thing*. This also included a resistance survey at the neighbouring site of St Clement's old parish church; the results are detailed in a separate report (O'Grady 2011; O'Grady & MacDonald 2011). The radar data includes the results of a timeslice survey across the car park interior and individual profiles recorded at several locations over the site and adjacent Church Street. Key findings from the survey include the identification of a possible ditch surrounding the mound; indications of a route-way connecting the church and mound; and considerable disturbance from post-medieval buildings particularly on the south side of the car park. This report presents the data alongside suggested interpretations and recommendations for further work. The author wishes to express sincere thanks to the Highland Council Members for granting exclusive access to car park for the survey. Thank you also to Ms Liz Cowie (Highland Council), David and Sandra MacDonald and family, and Jonathan McColl of Dingwall History Society. Members of the local community were also invited to take part and thanks to all those who assisted during the fieldwork for a warm welcome. Special thanks to David MacDonald for reading over a draft of this report and suggesting informative revisions to section 3.1; fault for any remaining errors rests with the author.

## 2.0 Location

The survey was confined to the Cromartie Memorial Car Park and Church Street, which flanks the site on the west and north (Figure 1). The car park is located a short distance north of Dingwall High Street and opposite Dingwall Old Parish Church. Dingwall is in Ross-shire and part of the Dingwall and Seaforth Ward of Highland Council. At approximately 3m OD, the car park is flanked by Tulloch Street to the east and Mart Road to the south. In the wider landscape, the channelised lower reaches of the River Peffery are located a short distance to the north and 1.5km from its confluence with the Cromarty Firth; the town of Dingwall being located at the head of the fertile and U-shaped Strathpeffer valley.

### 3.0 Archaeological Background

#### 3.1 Description

The car park has been identified as the site of Dingwall's thing-mound on the basis of recent historical and archaeological research by the author and Dingwall residents, David and Sandra MacDonald (O'Grady 2008; O'Grady & MacDonald 2011). Prior to the mid-20<sup>th</sup> century the area of the car park was the site of a mound, the presence of which is still visible as a slight inclination of the ground surface. This visibly rises to the base of a memorial garden located in the centre of the car park. Based on glimpses of the monument provided by early 20<sup>th</sup>-century photographs of the location, the earthen mound was substantial and flat-topped (Figure 2 and 3). However, after 1947 the monument was mostly reduced, after being feued to the town on the proviso that the land be specifically reserved for car parking facilities. The mound is in fact visible on Ordnance Survey maps until the 1959 1:10,560 edition, and does not feature on the 1965 1:2,500 edition. In the early 18<sup>th</sup> century, the site became the burial place of Sir George Mackenzie, first Earl of Cromartie (d.1714), and apparently also of other members of the Mackenzie family. The Earl in his lifetime erected a prominent obelisk monument on the summit and following his death he was interred in a vault inserted into the south side of the mound. A replica of the obelisk erected in 1921 occupies the centre of the car park within a small walled garden, created at the 1947 reorganisation (Figure 1; O'Grady 2008; O'Grady & MacDonald 2011). The site is within the Dingwall Conservation Area and the obelisk is a Class B Listed Building.

The mound itself was historically referred to as the "Mute Hill of Dingwall". 'Mute' is a Scots word meaning 'assembly' and is equivalent to Old Norse *þing*, in this context meaning a law court. The place-name Dingwall derives from the Old Norse words *þing-völlr* meaning 'assembly field', probably in reference to the venue for popular assemblies associated with an important early law-court. The mound was described in 1503 as the 'montem' 'beside the town of Dingwall', meaning a small hill. In 1672 what is presumably the same feature within the 'Hillyard' is called the Mute Hill, 'assembly-hill'. In 1875 the mound was excavated into during attempts to confirm the burial place of the first Earl of Cromartie. Digging is recorded on the west and south sides of the memorial, but may have been more extensive, leading to discovery of a lead coffin and other wooden coffins of indeterminate date (O'Grady 2008; O'Grady & MacDonald 2011).

Burgh land records of the early nineteenth century name, as the Hill Yard, the oval-shaped enclosure, shown on Wood's plan of 1821 to contain the mound and monument and, except on the south side, the car park's boundaries largely respect this enclosure's outline. In 1947 the enclosure, then named

as the Pyramid Ground, encompassed an area 60m x 50m in size and was surrounded by a wall. Further historic details are provided by the minister of Dingwall who in 1718 refers to a “ditch or sink” which “wants a bridge” “betwixt the church and the glebe”, apparently identifying the Trinity Croft, immediately west of both kirkyard and Hill Yard as that glebe. Moreover Bishop Pocock in 1760 directly described the Cromartie burial place as “fenced with a ditch”. In 1815 the town met the expense of filling the “pit at the Pyramid”. Pocock’s description also suggests that the mound may have had a stepped or terraced slope, perhaps similar to the celebrated Tynwald Hill on Man. In a sasine of 1802 the southern boundary of the Cromartie burial place is referred to as the ‘Common Strype or Fludder in which the sea enters’ (O’Grady & MacDonald 2011; pers comm. David MacDonald). Scots *Strype* can have the meaning ‘a small channel’ and may be a reference to the outflow of a ditch on the south side of the mound (see <http://www.dsl.ac.uk>). Historic maps of the site and boundaries recorded in the burgh sasine register show that the tidal shoreline originally flanked the site to the east and that the church, mound and the Trinity Croft were located on a small promontory north of the town (O’Grady & MacDonald 2011).

### 3.2 *Previous Archaeological investigation*

No modern archaeological investigations are recorded in the area of the car park. Archaeological works have taken place a short distance to the west at the Church Hall on Church Street in 2001 and at the site of a former Auction Market in advance of a supermarket development in 2003. An area 15m x 6m was evaluated west of Church Street, but no archaeological deposits were encountered below 0.5m of overburden or at the Church Hall (Cook 2003: 7).

### 3.3 *Geology*

The drift geology is sand and gravels with pockets of estuarine clay over a sedimentary solid geology of Old Red Sandstone.

## **4.0 Methodology**

A single channel radar device was utilised with a 400MHz antenna and dedicated data logger supplied by Utsi Electronics Ltd. Data was recorded using 60-80ns Tsweep settings and readings were taken every 14.75mm. For the timeslice survey parallel runs were recorded 0.5m apart. Single profiles were recorded at several trajectories to allow cross referencing of anomalies and maximise the efficiency of archaeological prospection. Survey tapes were used to measure the location of each surveyed profile and the data was subsequently located on an OS Mastermap plan using a

combination of off-set measurements from known points and GPS readings. Processing was undertaken using Reflex and involved standard background removal, application of gain function and bandpass butterworth smoothing. Data compression was also required to generate the overall timeslice model. Erroneous data recorded to avoid obstacles was removed and replaced with null readings. Calibration was achieved using curve fitting for a mean  $v$  of 0.1ms. The survey results were primarily intended to build on previous historical research that had identified the site as a thing mound. In addition the survey would inform subsequent research and conservation priorities for the site. The fieldwork was undertaken in bright but deteriorating weather conditions between Sunday 11<sup>th</sup> and Monday 12<sup>th</sup> September 2011.

## **5.0 Results**

The radar survey produced good quality data and although disturbance was evident from modern services and 20<sup>th</sup>-century works for the creation of the car park the survey was not adversely affected by the presence of tarmac or background geological deposits. This section describes the main readings that were deemed of archaeological significance followed by an overall interpretation statement.

### *5.1 Description*

Readings were recorded to a maximum depth of just less than 3m with archaeological deposits evident throughout. During the timeslice survey 112 parallel radar profiles were recorded with a further 16 individual profiles taken at different trajectories around the site. Disturbance from deposits relating to the town's post-medieval development were encountered in the upper 1.5m, but mostly confined to the southern half of the car park. These included clear reflections from service trenches, probable building foundations and demolition horizons indicated by uneven surfaces probably containing stone and/or brick debris. The historic extent of the mound was clearly defined, though several distinct anomalies across the body of the site indicate likely truncation of the lower deposits, in addition to the post-1946 works. Of particular note was a large curvilinear anomaly to the north, west and south of the mound, here interpreted as the remains of an enclosing ditch (see anomaly Dd).

#### *5.1.1 Anomaly A-E*

These linear anomalies are indicative of modern service trenches for pipelines and cables (Figure 4 and 5). These are evident from below surface level up to a depth of approximately 0.75m and anomaly B up to 2.2m. They are notably restricted to the south side of the car park and are indicative of the modern expansion of the town north of the high street, most probably having been excavated post 1946. The

majority appear to have avoided the historic area of the mound, excepting anomalies D and E that seemly cut through the body of the monument; in particular E that bisects the south side from west to east (Figure 4 and 5).

#### 5.1.2 *Anomaly F*

Anomaly F is an area of relatively coherent interfaces which is generally oval in plan and centred around the Cromartie Memorial. The readings are evident from below surface level to a depth of approximately 1.2-1.4m. The circumference of the anomaly has been demarked on the interpretive diagrams initially with line 'F' and below this denoted as an area anomaly 'F' (Figure 4-11). This most likely represents the historic body of the mound, truncated by post-medieval burials and reduced after 1946. This anomalies maximum depth may indicate the original ground level at the construction of the mound. The characteristics of the signal also indicate that the mound may be composed of horizontal and homogenous layers of re-deposited soil.

#### 5.1.3 *Anomaly G*

This anomaly relates to a series of linear readings at the south-west side of the car park and opposite the north wall of the neighbouring church hall (Figure 4 and 5). These are encountered from surface level to a depth of approximately 0.7m. The main outline of the anomaly coincides with a surface feature in the tarmac and the radar reading may in part be the result of surface undulations affecting the antenna rather than deeply buried deposits. Nevertheless, where the anomaly resolves as strong linear readings this may indicate the site of wall remains and the distinctive area of tarmac may reflect the original extent of a previously visible surface feature now removed. A derelict building is visible close to this general location on early 20<sup>th</sup> century photographs and this anomaly may indicate the demolition remains that possibly pre-dated the neighbouring church hall (Figure 3)? In addition there is a rectangular building shown at this general location on John Wood 1821 plan of Dingwall, which is marked as the property of one Mr Munro and was presumably a dwelling place. The location of the anomalies appears to contradict the 1947 boundary wall plan of the Hillyard. This means that the interpretation should remain provisional, but also introduces the possibility that the Hillyard enclosure may have changed during the modern era.

#### 5.1.4 *Anomaly H*

Anomaly H is a linear reading located on the south side of the car park between below surface level to approximately 0.5m depth (Figure 4 and 5). This coincides with the old southern extent of the Hillyard's boundary wall and represents the demolished remains of the post-medieval wall, which is still visible above ground at the south-east side of the car park. Below anomaly H a further signal of a different

character was encountered on the same line (see anomaly Y), probably representing a longer section of the same feature, and suggesting H may represent a better persevered section of the wall's foundations.

#### 5.1.5 *Anomaly I*

Anomaly I is a roughly rectangular zone of disturbance indicating the presence of uneven surface interfaces and possibly the presence of stone or rubble deposits (Figure 4 and 5). Encountered below surface level to a depth of approximately 0.45m this anomaly probably relates to demolition material associated with post-medieval buildings in this area. A row of rectangular buildings are shown in this position on the west side of what was Georges Lane, shown on John Wood's 1821 plan, later George Street.

#### 5.1.6 *Anomaly J*

Similar to anomaly I this zone of rectangular disturbance at the south side of the car park may relate to demolition deposits, resolved up to a depth of approximately 0.5m, below which the signals are more mixed in character, but still may relate to same features (Figure 4 and 5). These may relate to demolition deposits of buildings shown in this area on the 1<sup>st</sup> edition Ordnance Survey map in 1876.

#### 5.1.7 *Anomaly K*

This is a series of rectilinear and rectangular readings across the south side of the historic mound, extending south and south-eastward beside the Cromartie memorial (Figure 4 and 5). These are evident to a depth of approximately 0.55m and are interpreted as remains of Victorian excavations into the body of the mound that took place in 1875 as part of attempts to locate the burial place of George Earl of Cromartie.

#### 5.1.8 *Anomaly L*

Anomaly L is a generally rectangular area of distinctive interfaces at the south-east corner of the car park (Figure 4-7). The readings are encountered to a depth of approximately 0.9m. This may represent the remains of a small building or burial memorial within the Hillyard, the date of which is unclear, but apparently overlays the possible ditch feature in this area (see anomaly Ee).

#### 5.1.9 *Anomaly M*

M is a rectangular arrangement of readings located around the centre of the car park and Cromartie Memorial (Figure 4 and 5). Evident down to a depth of approximately 0.6m, this may represent the remains of an unrecorded enclosure around the summit of the mound, which could be associated with the

first 18<sup>th</sup>-century phase of the Cromartie burial memorial or importantly may have an earlier significance to do with the sites use as a court mound and/or Viking thing, although the shallow extent of the anomaly makes the less likely possibility.

#### 5.1.10 *Anomaly N*

This generally rectangular anomaly is located adjacent the north-west side of the Cromartie Memorial and evident from below surface level to approximately 0.65m (Figure 4 and 5). The most likely interpretation for these readings are the remains of a post-medieval burial memorial or Victorian trenching, but an earlier unknown derivation cannot be fully precluded.

#### 5.1.11 *Anomaly O*

Anomaly O is an irregular area of disturbance on the east side of the Cromartie Memorial and is evident up to a depth of approximately 0.75m (Figure 4 and 5). This may relate to post-medieval trenching of the mound or an area of burials. Similar to anomaly N an earlier significance cannot be fully discounted.

#### 5.1.12 *Anomaly P*

P is an irregular shaped area of disturbance on the north-east side of the mound, which is evident to approximately 0.77m depth (Figure 4 and 5). The derivation of this reading is not immediately clear, but it may relate to post-medieval disturbance or some form of burial deposit inserted into the mound at an undetermined date.

#### 5.1.13 *Anomaly Q*

This is an irregular shaped anomaly located on the north side of the car park and evident to a depth of approximately 0.45m (Figure 4 and 5). Interpretation is not immediately clear, but the poorly resolved character of the readings suggests this relates to a relatively ephemeral feature at the edge of the original mound.

#### 5.1.14 *Anomaly R*

R is a generally rectilinear anomaly at the north-west side of the car park and evident to a depth of approximately 0.5m (Figure 4 and 5). The interpretation of this reading is unclear, but as it is relatively shallow may relate to post-medieval excavations at the edge of the original mound that were recorded to have taken place on the west side of the site in 1875 (O'Grady and MacDonald 2011), or alternatively this may relate to a feature of unknown earlier derivation.

#### 5.1.15 *Anomaly S*

This is an irregular area of disturbance adjacent the west side of the Cromartie memorial and encountered between approximately 0.5m to above 3m depth (Figure 6-11). This may be remains of trenching undertaken in 1875, which are known to have affected the west side of the mound.

#### 5.1.16 *Anomaly T*

An irregular area of disturbance on the north-east side of the Cromartie memorial and noted between approximately 0.2m and above 3m depth, which may derive from post-medieval burials or trenching (Figure 6-9).

#### 5.1.17 *Anomaly U*

An irregular zone of disturbance east of the Cromartie memorial and evident between approximately 0.2m to above 3m depth (Figure 6-9). This may derive from post-medieval burials or trenching.

#### 5.1.18 *Anomaly V*

This irregular area of disturbance was located west of the old public convenience building between approximately 0.2m to 1.1m depth (Figure 6 and 7). This may derive from construction works for the adjacent building or may be related to the similar anomaly L, but this interpretation cannot be certain at this stage. The area is truncated by a modern service (see anomaly D and E).

#### 5.1.19 *Anomaly W*

Irregular disturbance located at the south-east corner between approximately 0.2m to 1.1m depth, which may be associated with adjacent post-medieval buildings or related to anomaly V and/or L, but this interpretation remains uncertain (Figure 6 and 7). The area is truncated by a modern service (see anomaly D and E).

#### 5.1.20 *Anomaly X*

Anomaly X is a prominent and generally curvilinear interface encountered in the south-west side from approximately 0.6m toward 3m when the signal begins to disperse (Figure 6-9). This reading is anomalous compared with responses from elsewhere in the area of the mound and surrounding area. Interpretation must remain uncertain, but it is proposed that anomaly X may represent an area of excavation into the south-west side of the mound, perhaps associated with building activity or service cutting associated with anomalies A, E or G (Figure 4 and 5). If so this would indicate truncation of the mound and possible ditch deposits in this area. Wood's plan of 1821 in fact shows a deviation of the Hillyard enclosure across this area, in slight contrast to the arrangements shown on the 1876 Ordnance

Survey 1<sup>st</sup> Edition and 1947 plan. This may suggest that the anomaly relates to an earlier layout of the Hillyard pre-dating at least 1876.

#### 5.1.21 *Anomaly Y*

Y is a generally linear anomaly on the south side of the car park between approximately 0.15m and 1m depth (Figure 6 and 7). This indicates a section of old Hillyard wall's foundations built in 1819 (O'Grady and MacDonald 2011).

#### 5.1.22 *Anomaly Z*

This is an area of mixed disturbance on the south side of the car park noted between approximately 0.4m and 1.1m depth, probably indicating demolition remains associated with post-medieval buildings at the northern end of the historic George Street (Figure 6 and 7).

#### 5.1.23 *Anomaly Aa*

Anomaly Aa is a general zone of mixed disturbance in the south-west corner adjacent the Church Hall from approximately 0.7m to 1.1m depth and probably relating to post-medieval demolition deposits (Figure 6 and 7).

#### 5.1.24 *Anomaly Bb*

This is a generally curvilinear anomaly on the south-west noted between approximately 0.2m and 1.25m depth (Figure 6 and 7). The signal may derive from post-medieval truncation of the mound and possible ditch deposits in this area (see anomaly X and Dd).

#### 5.1.25 *Anomaly Cc*

Cc is an extended area of disturbance around the northern edge of the car park, visible at approximately 0.2m to 1.3m (Figure 6 and 7). This is interpreted as the foundation remains of the old Hillyard wall.

#### 5.1.26 *Anomaly Dd*

Anomaly Dd is a large curvilinear response around the north and western edge of the car park and mound site (Figure 6-11). Evident from approximately 0.2m to the extent of survey at above 3m, this substantial anomaly is interpreted as the remains of a large ditch, which apparently surrounded the mound. Anomaly Dd can be cross-reference in the profile, which suggest the actual feature may only extend to a depth of 1.5 to 2m and the readings below this deriving from attenuation of the signal from moist basal deposits or natural clays (Figure 10 and 11; see profile T6 and T7). A possible terminus is noted at the north-east

extremity where the anomaly appears to widen and may coincide with an out-flow to what is likely to have been the old shoreline, now Tulloch Street, which could account for the lack of signal on the east side of the mound (Figure 9). Dd is apparently interrupted by anomaly X and Bb at the south-west, possibly indicating truncation of the ditch by post-medieval activity or perhaps some form of entrance-feature onto the mound (Figure 9 and 12). Anomaly Ff may also be significant for Dd as this appears to adjoin the inner side at the north-west (Figure 9; see anomaly Ff). Anomaly Ee has similar characteristics and amplitude of signal to anomaly Dd and is interpreted as the southern continuation of the ditch around the circumference of the mound (Figure 9 and 12; see anomaly Ee).

#### 5.1.27 *Anomaly Ee*

Anomaly Ee is a large and generally curvilinear response on the south and south-east side of the car park (Figure 6-11). This is noted from approximately 0.3m down to above 3m depth and interpreted as a section of ditch surrounding the mound, associated with anomaly Dd (see anomaly D). The anomaly is less prominent at higher levels than anomaly Dd and appears to have been truncated by possibly later features indicated by anomalies L, V and W (see Figure 9). The profile data indicates that the feature may not extend beyond 2m depth (Figure 10 and 11; see profile T2). The section of ditch may have terminated in the area now occupied by a defunct public convenience building, where presumably the ditch would have ended in an outflow onto the historic shoreline (Figure 9 and 12).

#### 5.1.28 *Anomaly Ff*

Anomaly Ff is roughly rectangular shaped and located at the north-west side of the site, between approximately 0.55 and above 3m (Figure 6 and 9). The location of this anomaly apparently adjacent the south side of anomaly Dd is of note and is a relationship that may inform an understanding of the archaeological feature Ff relates to (Figure 9). Should the interpretive framework proposed for Dd as a large enclosing ditch be sustainable then Ff could relate to some form of crossing point over the ditch (Figure 12). This might have been a ramp up onto the mound or the cut foundations for a bridge structure. A crossing point at this location would be given added significance because of the position of Dingwall's medieval parish church and might indicate a direct route-way between the mound and church.

#### 5.1.29 *Anomaly Gg*

Gg is a relatively subtle anomaly, roughly circular in plan and encountered at approximately 0.75m to 1.2m (Figure 6-7, 10-11). This is located west of the Cromartie Memorial and within the area of the historic mound. Interpretation cannot be certain at this stage, but the distinctive morphology of the anomaly and depth of the signal may indicate that this relates to a medieval or prehistoric feature near the

base of the mound, perhaps some form of burial deposit such as a cist or barrow. Proximity to anomaly S suggests the deposit may have been disturbed or truncated by post-medieval activity.

#### 5.1.30 *Anomaly Hh*

This is an irregular area of mixed disturbance at the west side of the car park and adjacent the modern vehicle entrance (Figure 6-11). Encountered at approximately 0.8m to 1.9m this may in part be a result of modern disturbance associated with anomaly Bb and X, and may relate to truncated remains of the possible ditch on the west side of the mound (anomaly Dd).

#### 5.1.31 *Anomaly Ii*

Ii is a prominent globular anomaly at the west side of the site, encountered at approximately 0.8m to 2.7m (Figure 8 and 9). This is located near the line of a service trench and may be a deeply cut feature associated with the modern service (anomaly A) or part of the wider disturbance associated with anomaly Aa.

#### 5.1.32 *Anomaly Jj*

This is a curvilinear interface between a quiet zone and area of noise in the SW corner of the car park, north of the Church Hall (Figure 8 and 9). Noted at approximately 1.1m to 1.9m this marks the old line of the Hillyard wall where it originally turned a corner from east-west to north-south as shown on a 1947 plan of the site.

#### 5.1.33 *Anomaly Kk*

An area of irregular disturbance at the north-east corner of the car park, encountered between approximately 1.3m and 1.9m (Figure 8 and 9). This probably relates to a lower foundation deposit of the Hillyard wall or modern disturbance in this area beside Tulloch Street.

#### 5.1.34 *Anomaly Ll*

This irregular area of disturbance is located in the north-east corner of the car park, encountered between approximately 1.3m and 1.9m (Figure 8 and 9). It probably relates to lower foundation deposits of the Hillyard wall or modern disturbance in this area beside Tulloch Street.

#### 5.1.35 *Anomaly Mm*

At approximately 1.3m to below 2m this irregular anomaly was located at the southern edge of the survey area (Figure 8-11). This anomaly is visible on the profile data as a steeply diving interface and has the

aspect of a large cut feature or ditch (Figure 11; see profile T2). One interesting possibility is that this could be the remains of the medieval burgh's boundary ditch on the northern edge of the tenement properties adjacent the High Street. Alternatively, the area was also associated with post-medieval building activity around what was previously George Street, or the reading might relate to major modern construction works for the recently created Mart Road.

## 6.0 Interpretation

This section summaries the data interpretation and provides a statement of the implications for archaeological understanding of the site. The historic footprint of the mound has been defined as approximately 40m east to west and 42m north to south, with an overall oval or heart-shaped plan, though this picture is moderated by uncertainty about the eastern extent (Figure 12). The key finding of the survey has been the first indications of a possible ditch having existed around the original base of the mound, mostly confined within the Hillyard. The radar also showed the old course of the Hillyard enclosure wall at the outer lip of the ditch around the northern perimeter and across the southern interior of the car park. The cut feature of the ditch would be likely to have originally functioned as the quarry for the mound's construction. The ditch may also have acted as a primary boundary for the fencing of assemblies held on the mound during the site's use as a thing and later Moothill. Photographic images of the mound are mostly restricted to the east side and do not show the earthwork of a ditch (Figure 3). However, historic descriptions do indicate that a ditch was visible up to the 18<sup>th</sup> century and it may be supposed that the declivity was in-filled or largely silted up by the modern era (O'Grady & MacDonald 2011). In fact there is reference to in-filling of a 'pit' at the site in 1815 (Pers comm. David MacDonald), which may be the ditch, and combination of soil creep and landscaping of the mound from the 18<sup>th</sup> century may have covered the ditch from view.

The indication of possible entrance points across the ditch at the south or south-west and north-west may be of significance for understanding how the site functioned in relation to the immediate environs and other sites therein (Figure 12). The possible bridge or ramp to the north-west suggests a direct connection with the neighbouring church of St Clement's, perhaps originally enhanced by a roadway between the two. Profile C1A has also provided initial indications of a buried road surface crossing Church Street between the mound and churchyard (Figure 10 and 11). This association between church and assembly site is a feature encountered at other thing sites and regionally important Scottish medieval court-sites more generally. The most widely known example is Tynwald Hill on the Isle of Mound, where a

processual way and enclosure linked St John's church and the thing-mound forming the core of the assembly site. Similarly at Law Ting Holm, the head law court for the Shetland Isles, Tingwall parish church is located in close proximity overlooking the promontory where the thing is thought to have been held. In a Scottish context several other church and mound connections are recognisable at assembly sites, most prominently at royal Scone, but also Govan and Old Aberdeen (O'Grady 2008). These sites appear to indicate an important link between the functionality of the court-site and church, either through actual ceremonial activities at one leading to the other or the inviolability of the court site being in some way recognised in connection with the sanctity of the church or vis versa. It may also be supposed that these assembly sites originated through their introduction by the early Gaelic monastic, under influence from customary legal practice in Ireland, or the Christianisation of pre-existing pagan gathering places (O'Grady 2008).

The other entrance way to the south or south-west may indicate access to the mound from the adjacent land known as the Trinity Croft or in the direction of the medieval burgh. A link with the Trinity Croft may be significant as this flat area is a good candidate for the 'assembly-field' indicated by the place-name Dingwall. If this were the case then a tripartite arrangement can be envisioned with the popular fair-field on the west, church site to the north and thing mound by the old shoreline on the east, perhaps with access points onto the court-mound connecting each feature of the 'thing complex' (Figure 12).

Several features which are likely to be later in date were also identified on and to the south of the mound. These include probable areas of trenching on the west and south sides, shown by rectangular anomalies, which probably derive from recorded investigations of the site in 1875. Further irregular anomalies in the area of the mound may be additional unrecorded burials, post-mediaeval in date or in some case possibly part of prehistoric or pre-Christian burial practices that would suggest the site may not have been initially created as an assembly mound. The largest area of probable truncation into the mound was on the south-west, where a large curvilinear anomaly suggests a feature in this area down to a significant depth (Figure 9). Interpretation of this feature remains unclear at present, in part because it is within the historic outline of the Hillyard enclosure, which is thought to have been preserved until 1947. This might indicate that a large area of disturbance occurred post-1946 when modern services were inserted and road surfaces upgraded. This may have occurred between 1959 and 1965 when the southern side of the Hillyard was reorganised. Alternatively as the curvilinear anomaly extends relatively deep it may relate to an early feature pre-dating the 20<sup>th</sup>-century reorganisation, but only physical investigation will clarify this.

## 7.0 Recommendation

The radar survey has provided essential information about the archaeological remains of Dingwall's Viking assembly mound - a site central to understanding the town's historic development. An important new finding is the potential identification of a substantial ditch, surrounding the historic footprint of the mound, which if verified by excavation has the potential to accurately date the site's construction and by inference the origins of Dingwall itself. This is the first Viking thing-mound and only the second medieval assembly site in Scotland to have been investigated in such detail. The findings are therefore of national and international interest. Several recommendations are advised based on the project findings, including further archaeological investigation:

### 1. *Excavation:*

Excavation is recommended as a key step in the site's understanding, interpretation and long-term conservation. At this stage the exciting discoveries suggested by the radar results require physical testing through archaeological excavation. Excavations can now be accurately and efficiently targeted with the aim of confirming the presence of specific features identified by the survey results. Archaeological excavations would involve the retrieval of artefacts and the sampling of deposits, the analysis of which would enhance understanding of the site's historic development. For instance, organically rich deposits could be recovered from the fill of the ditch to provide palaeoenvironmental information about the historic landscape and ecology. This could provide information about what trees and plants were growing nearby and whether crops and animals were being farmed in the vicinity or indeed eaten at the thing assemblies. Carbonised wood and artefacts from the site could also provide material for radiocarbon dating, which would scientifically verify the mound's chronological development. Excavation can now be accurately targeted and need not cause substantial disruption to the function of the public car park, though a larger area of excavation will provide more information and greater certainty of interpretation.

### 2. *Topographic Survey:*

A detailed topographic survey of the car park and Cromartie memorial is advised. This would involve a digital three-dimensional record being created of the surface and upstanding features of the car park and environs. This will provide an important record of the present condition of the site, assisting future interpretation and conservation of the site. The height information retrieved by a topographic survey will also provide essential data for the full adjustment of the radar profile data in advance of excavation. Funding is already in place by Dingwall History Society to support

a survey of this kind. A more definitive statement regarding the depth of subsoils and archaeological features will be forthcoming following such a survey.

3. *Interpretation:*

A heritage interpretation plan should be developed for the thing site and Dingwall's Viking history. This should be developed to integrate with public interpretation of the adjacent St Clement's churchyard. Interpretation of the mound could include installation of information boards to be developed in line with the international THING Project format for interpretation facilities, of which Dingwall and Highland Council are partners. Interpretation could explain and illustrate the site's history with the aid of reconstruction drawings and include simplified diagrams from the geophysics survey. Facilities could be installed at the existing car park enclosure or at the Cromartie Memorial, but this may create conflicting public health and safety issues with the current land-use. Consideration should be made about the site's current use as a car park being brought to an end and options explored for restoration and alternative uses more in keep with the site's heritage, perhaps geared toward recreation and outdoor events. Publication material about the survey results and site history could also be usefully developed, including an information leaflet and popular guidebook. Also, digital media could help disseminate understanding of the site's history more widely, which in the first instance could include making this report available through the internet, but options for the development of downloadable digital applications should also be explored. A planned feasibility study for a centralised heritage facility at the adjacent vacant public convenience building is a positive development.

4. *Further geophysical survey:*

There are limited grounds for undertaking further geophysical survey in the car park, however the value in undertaking more geophysics should be reviewed in five to ten years to accommodate advances in technology.

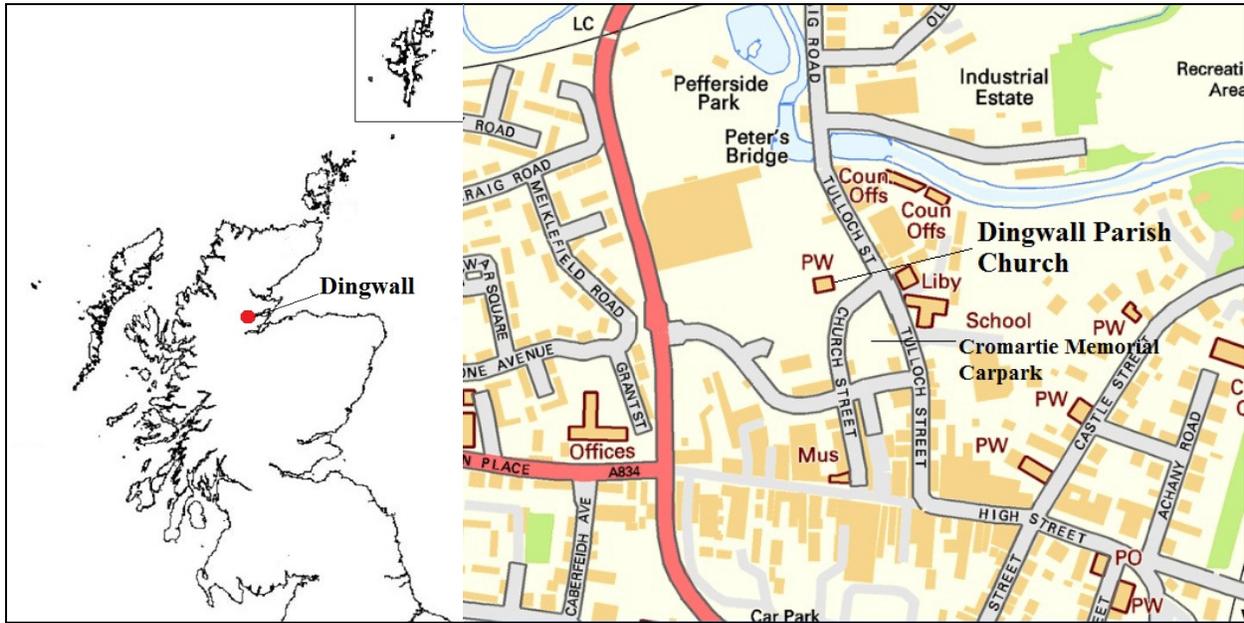
## 8.0 Bibliography

Cook, M. 2003 *Tesco, Dingwall Action Mart Site: Archaeological Works Data Structure Report*, AOC Archaeology Group.

Jones, D.M. (ed.) 2008 *Geophysical Survey in Archaeological Field Evaluation*, Swindon: English Heritage.

O'Grady, O.J.T. 2008 *The Setting and Practice of Open-air Judicial Assemblies in Medieval Scotland*, unpublished PhD thesis, University of Glasgow (<http://theses.gla.ac.uk/506/>)

O'Grady, O.J.T. & MacDonald, D. 2011 *Cromartie Memorial Car Park & Dingwall Old Parish Church, Dingwall, Highland: Project Design for Geophysical Survey*, unpublished document.



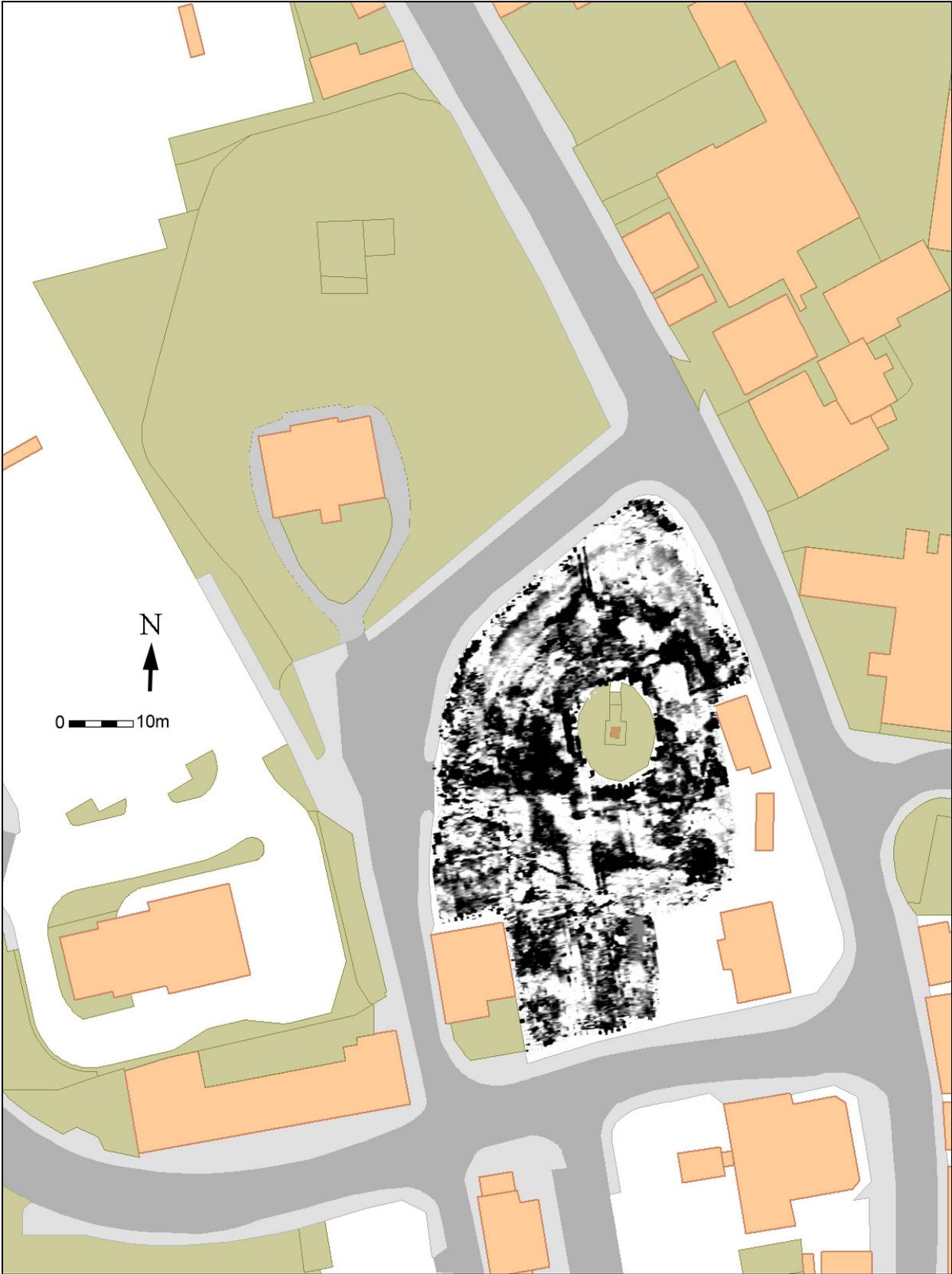
**Figure 1.** Site location  
Background mapping ©Crown Copyright, courtesy Highland Council.



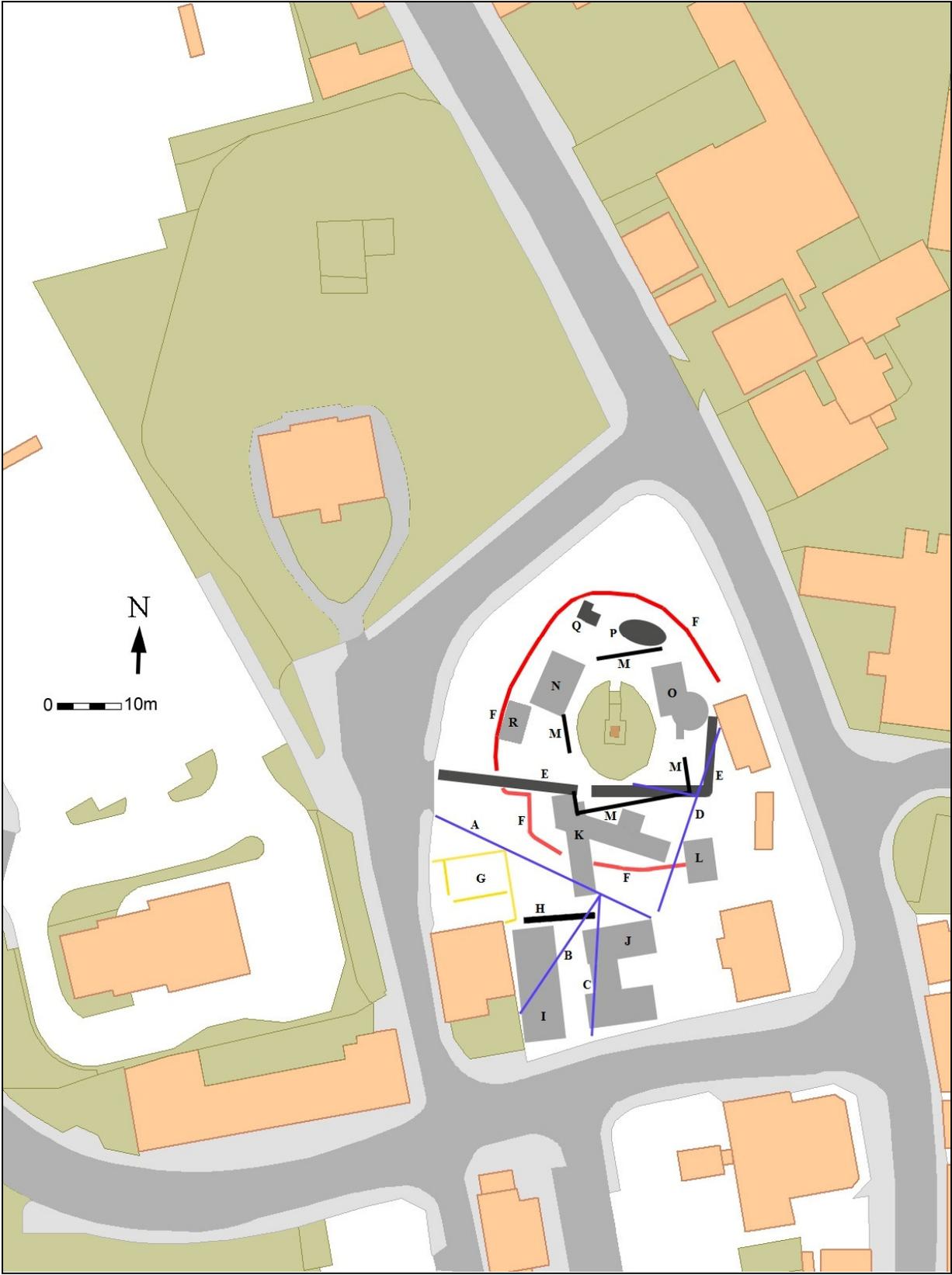
**Figure 2.** General view of the Cromartie Memorial Car Park from the south in September 2011.



**Figure 3.** Early 20<sup>th</sup>-century photograph of the mound prior to post-1946 reorganisation, taken from the north-east.



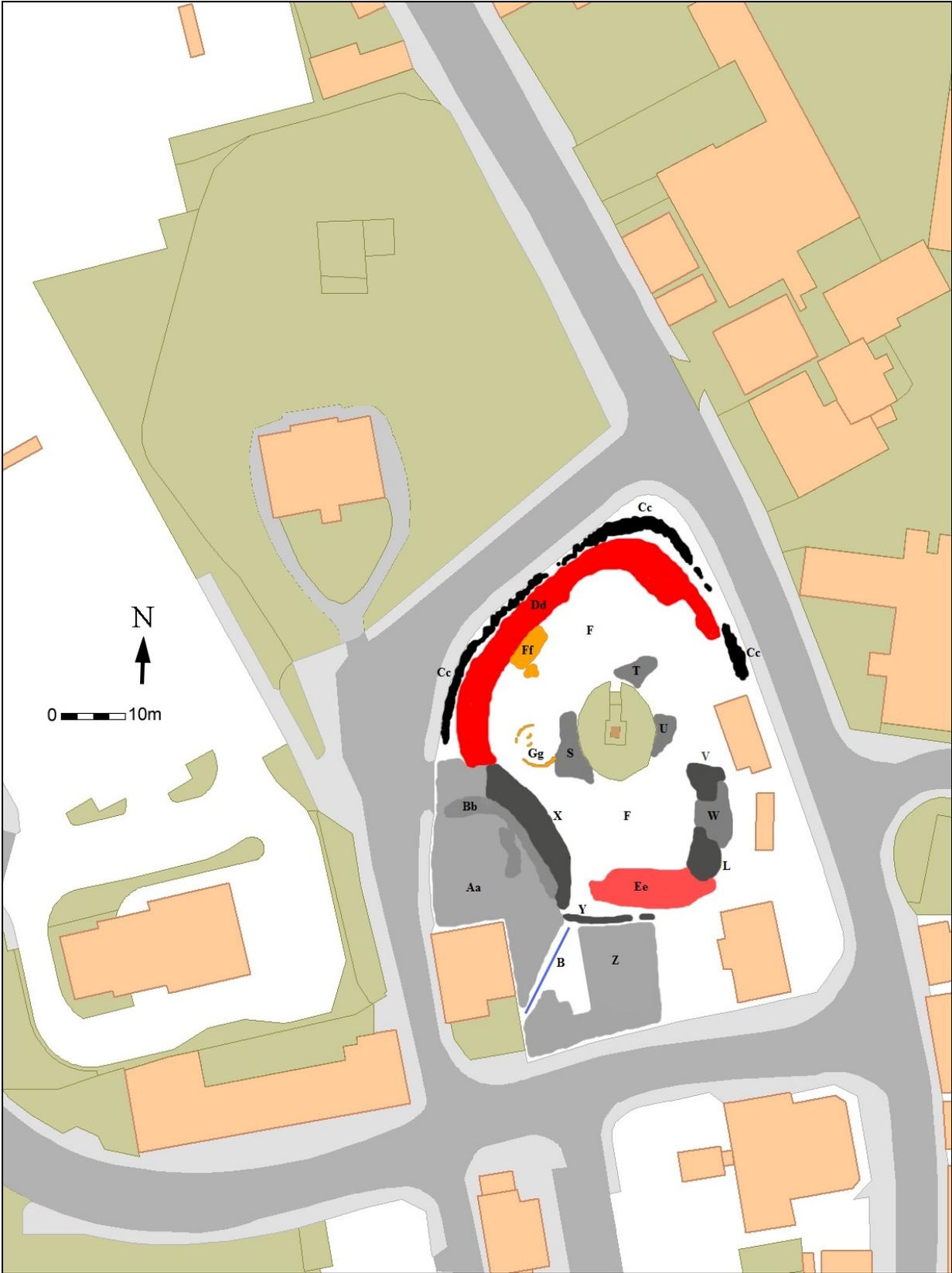
**Figure 4.** Radar timeslice at 0.2m depth.  
Background mapping courtesy of Highland Council.



**Figure 5.** Interpretation diagram based on radar timeslice at 0.2m depth.  
Background mapping courtesy of Highland Council.



**Figure 6.** Radar timeslice at 0.94m depth.  
Background mapping courtesy of Highland Council.



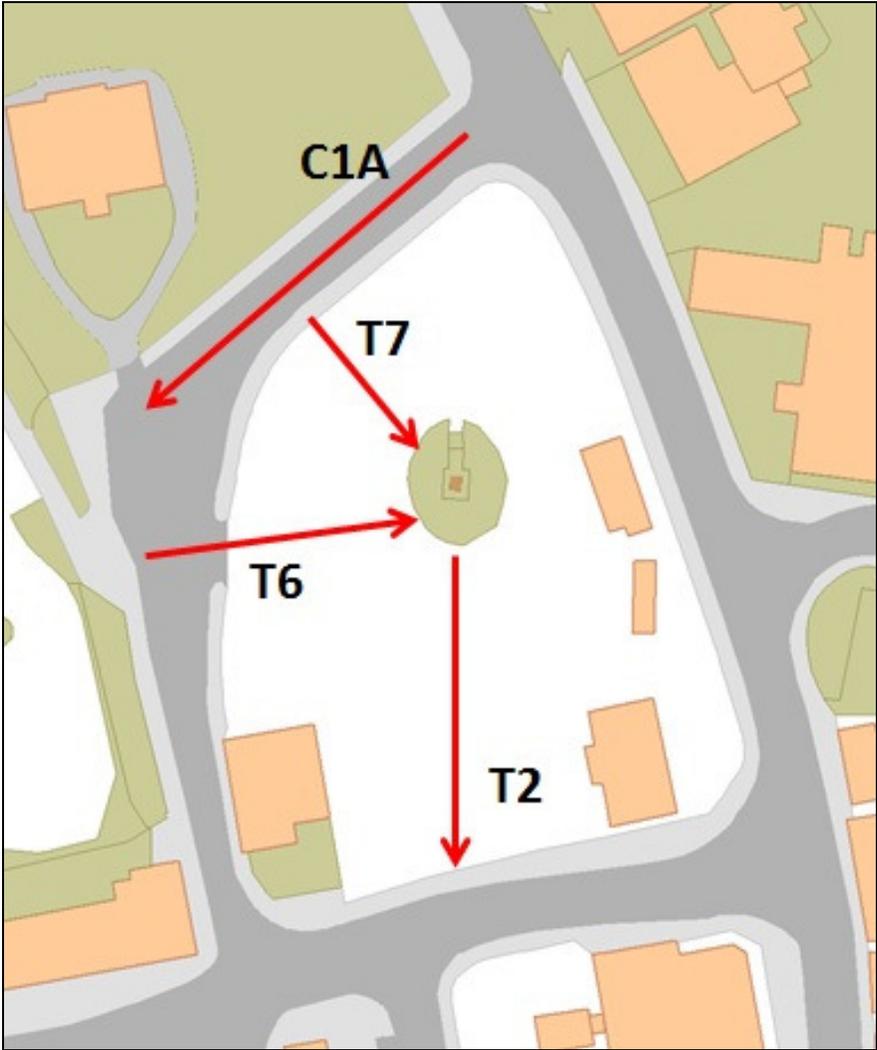
**Figure 7.** Interpretation diagram based on radar timeslice at 0.94m depth.  
Background mapping courtesy of Highland Council.



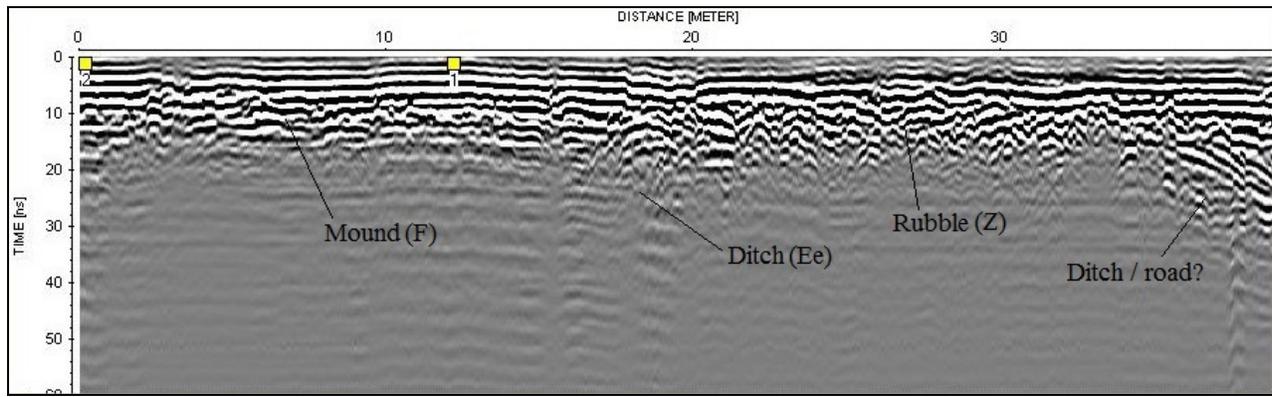
**Figure 8.** Radar timeslice at 1.86m depth.  
Background mapping courtesy of Highland Council.



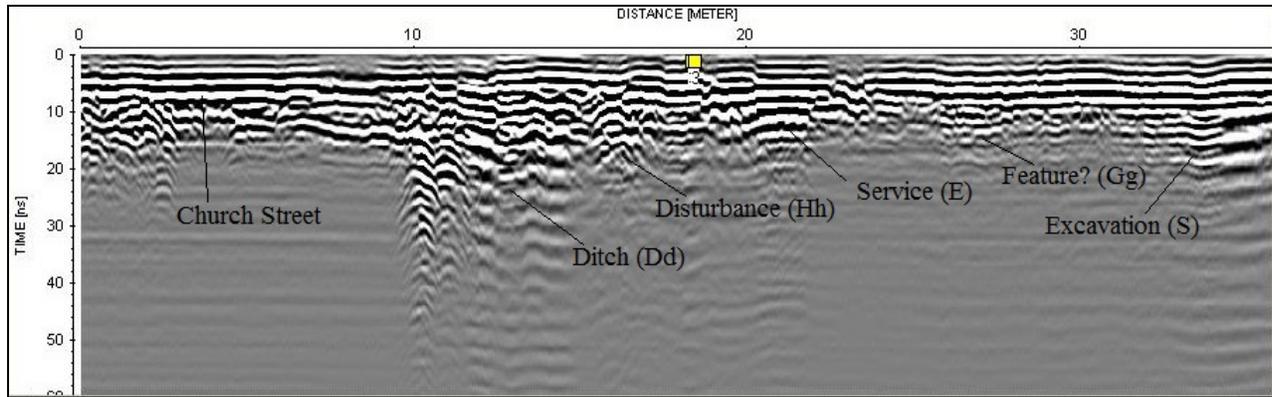
**Figure 9.** Interpretation diagram based on radar timeslice at 1.86m depth.  
Background mapping courtesy of Highland Council.



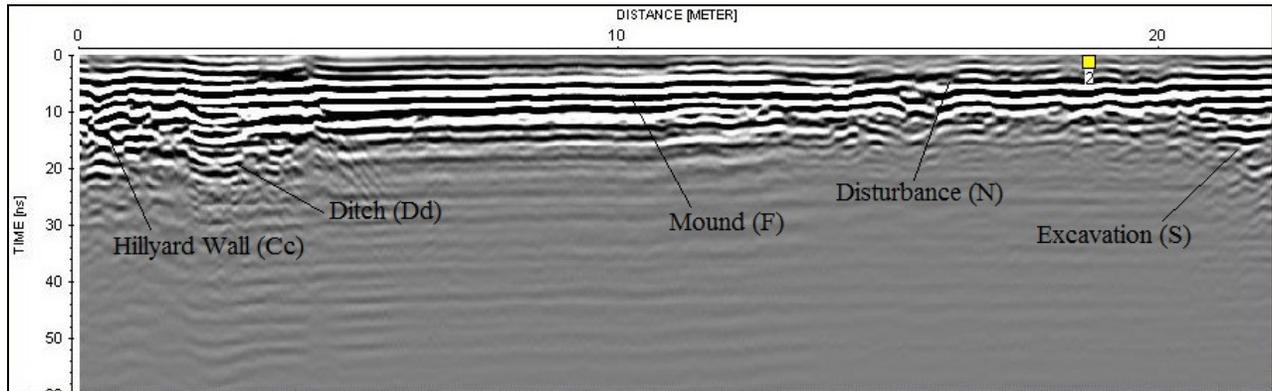
**Figure 10.** Map of radar profiles referred to in text (see Figure 11).  
Background mapping courtesy of Highland Council.



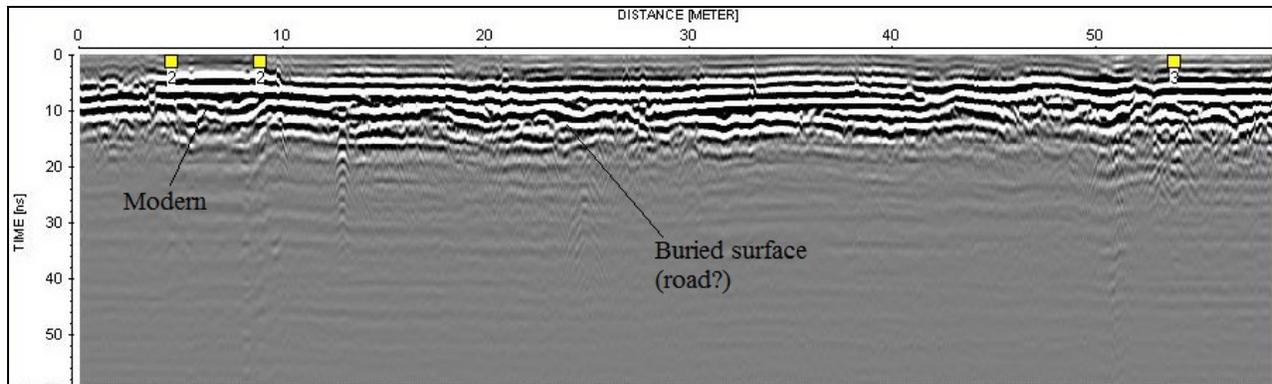
Profile T2



Profile T6



Profile T7



Profile C1A

Figure 11. Selected radar Profiles (Pending topographical adjustment).

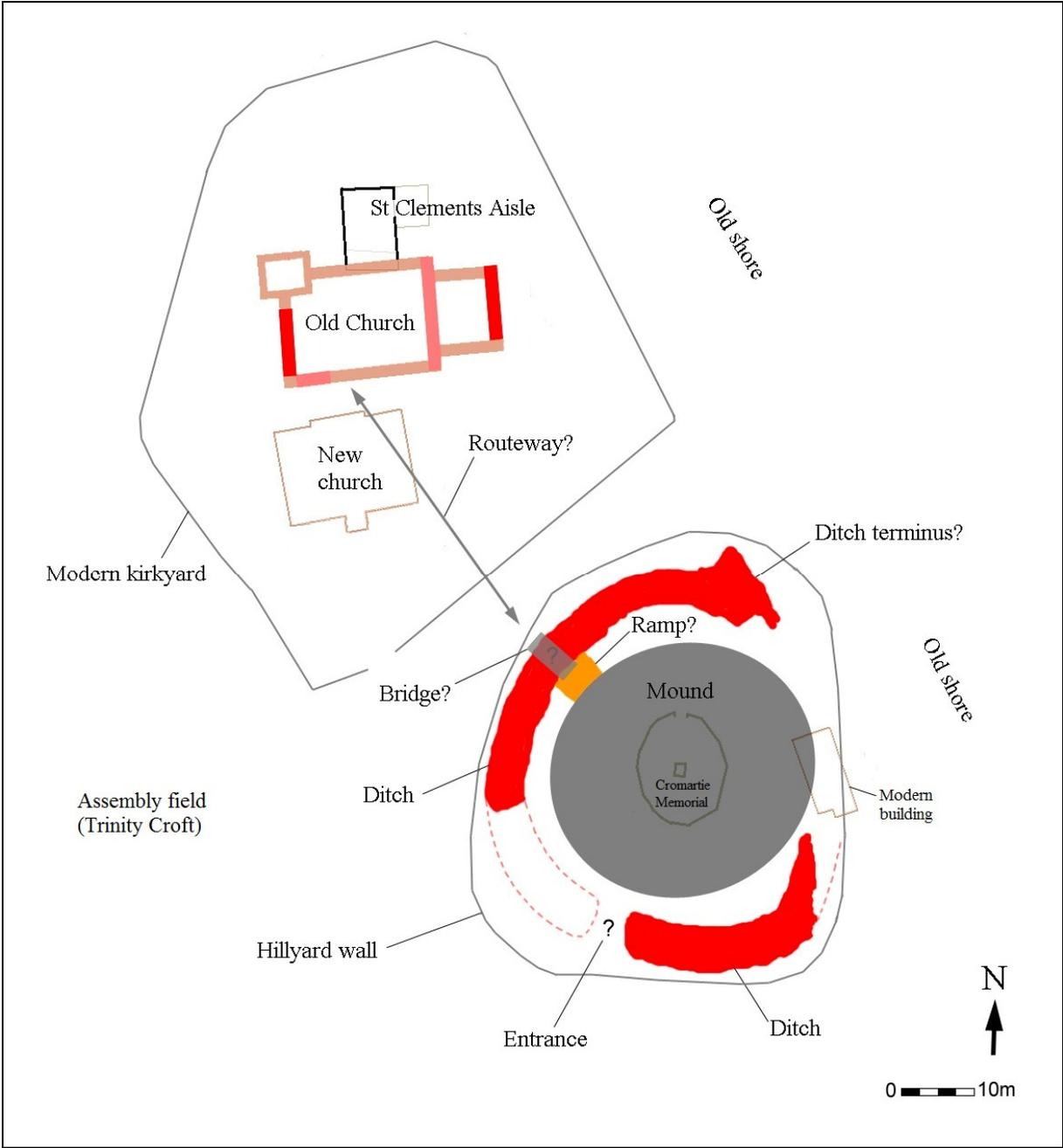


Figure 12. Interpretive diagram of the Dingwall thing mound and medieval church based on geophysics.

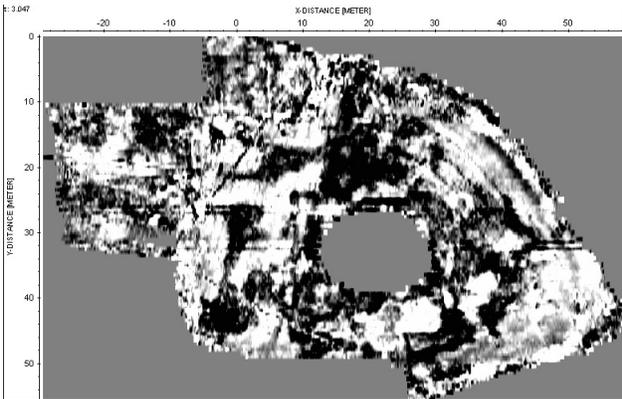
## Appendix

### A) Table of anomalies

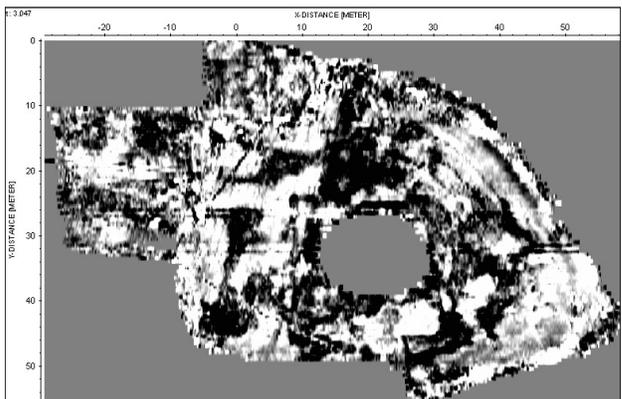
| ID | Location   | Depth (m)  | Shape       | Interpretation(s)   |
|----|------------|------------|-------------|---|
| A  | SW         | >0-0.75    | Linear      | Service trench  |
| B  | S          | >0-2.2     | Linear      | Service trench  |
| C  | S          | >0-0.75    | Linear      | Service trench  |
| D  | E          | >0-0.75    | Linear      | Service trench  |
| E  | Central    | >0-0.75    | Linear      | Service trench  |
| F  | N, central | >0-1.2/1.4 | Oval        | Mound   |
| G  | SW         | >0-0.7     | Rectangular | Walls? building?  |
| H  | S          | >0-0.5     | Linear      | Hillyard wall   |
| I  | S          | >0-0.45    | Rectangular | Post-medieval buildings                                   |
| J  | S          | >0-0.5     | Rectangular | Post-medieval buildings                                   |
| K  | S central  | >0-0.55    | Rectilinear | Post-medieval trenching                                   |
| L  | SE         | >0-0.9     | Rectangular | Post-medieval building or disturbance?                    |
| M  | Central    | >0-0.6     | Rectangular | Post-medieval enclosure wall?                             |
| N  | NW         | >0-0.65    | Rectangular | Post-medieval burial?<br>Victorian trenching?<br>Unknown? |
| O  | E          | >0-0.75    | Irregular   | Post-medieval trenching?<br>Unknown?                      |
| P  | NE         | >0-0.77    | Irregular   | Post-medieval disturbance?<br>Burial deposit? Unknown?    |
| Q  | N          | >0-0.45    | Irregular   | Unknown?  |
| R  | NW         | >0-0.5     | rectilinear | Post-medieval trenching?<br>Unknown?                      |
| S  | W central  | 0.5-3.0    | Irregular   | 1875 trenching?   |
| T  | NE central | 0.2-3.0    | Irregular   | Post-medieval burial or trenching?                        |
| U  | E central  | 0.2-3.0    | Irregular   | Post-medieval burial or trenching?                        |
| V  | E          | 0.2-1.1    | Irregular   | Modern disturbance?                                       |
| W  | SE         | 0.2-1.1    | Irregular   | Post-medieval or modern disturbance?                      |
| X  | SW         | 0.6-3.0    | Curvilinear | Post-medieval disturbance?                                |
| Y  | S          | 0.15-1.0   | Linear      | Hillyard wall foundations.                                |
| Z  | S          | 0.4-1.1    | Irregular   | Post-medieval buildings / demolition layers?              |

|    |    |          |             |   |
|----|----|----------|-------------|---|
| Aa | SW | 0.7-1.1  | Irregular   | Post-medieval buildings /<br>demolition layers?                             |
| Bb | SW | 0.2-1.25 | Curvilinear | Post-medieval buildings /<br>demolition layers?                             |
| Cc | N  |          | Curvilinear | Hillyard wall foundations.  |
| Dd | N  | 0.2-3.0  | Curvilinear | Ditch?  |
| Ee | SE | 0.3-3.0  | Curvilinear | Ditch?  |
| Ff | NW | 0.55-3.0 | Rectangular | Ramp? Bridge foundation?  |
| Gg | W  | 0.75-1.2 | Circular    | Burial? Barrow? Unknown?  |
| Hh | W  | 0.8-1.7  | Irregular   | Post-medieval disturbance?  |
| Ii | SW | 0.8-2.7  | Globular    | Modern service? Unknown?  |
| Jj | SW | 1.1-1.9  | Curvilinear | Hillyard wall foundations.  |
| Kk | NE | 1.3-1.6  | Irregular   | Hillyard wall? Modern<br>disturbance?                                       |
| Ll | NE | 1.3-1.9  | Irregular   | Hillyard wall? Modern<br>disturbance?                                       |
| Mm | S  | 1.3-2m   | Irregular   | Burgh ditch?<br>Post-medieval buildings?<br>Modern disturbance?<br>Unknown? |

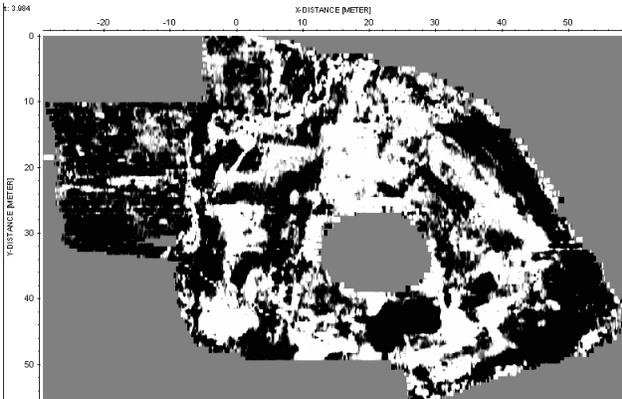
B) Radar timeslices



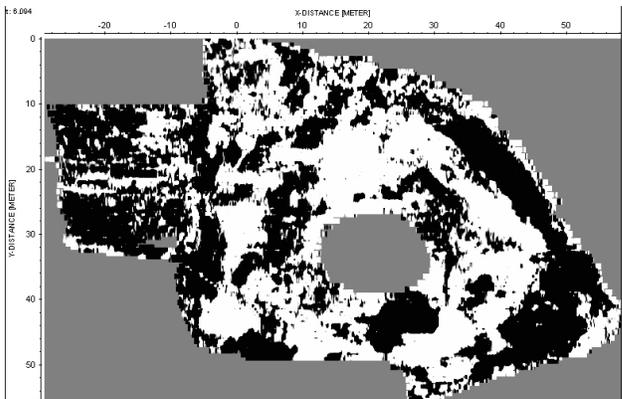
0.06m



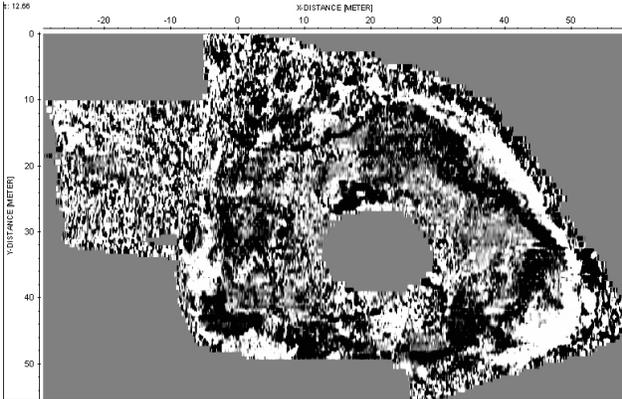
0.15m



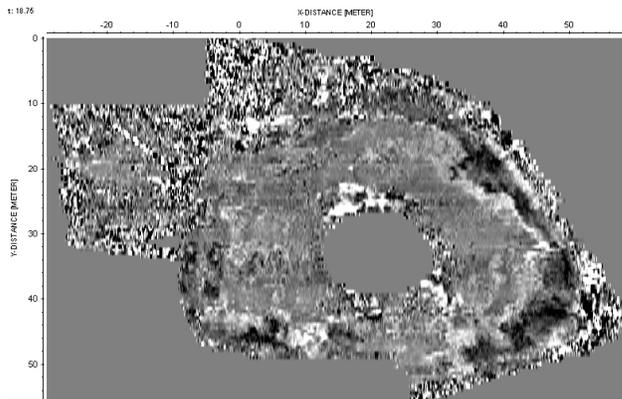
0.2m



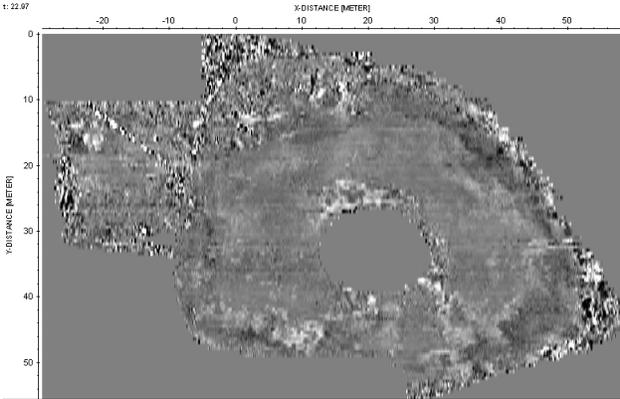
0.3m



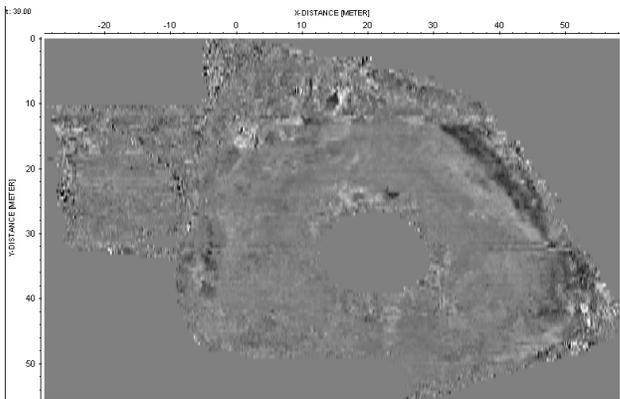
0.63m



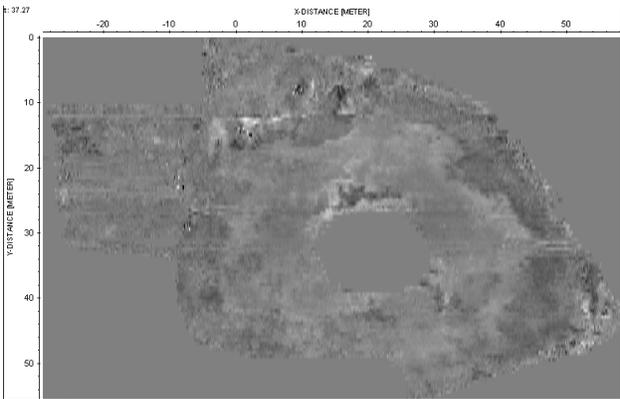
0.94m



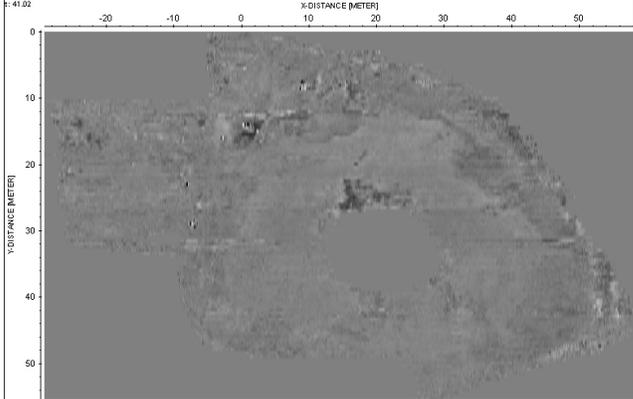
1.15m



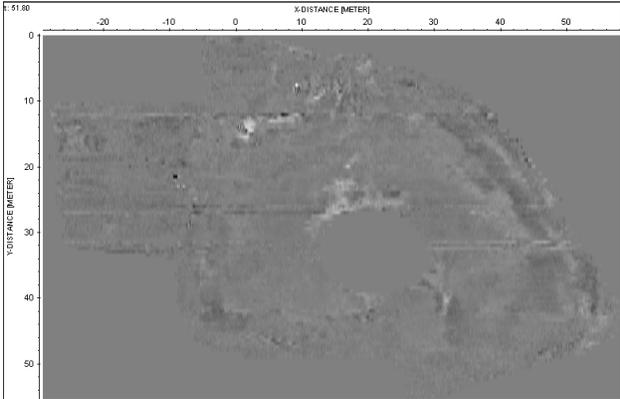
1.5m



1.86m



2.05m



2.59m

C) *Discovery & Excavation Scotland* entry

|   |  |
|---|--|
| <b>LOCAL AUTHORITY:</b>   | Highland   |
| <b>PROJECT TITLE/SITE NAME:</b>   | Dingwall Thing Project / Cromartie Memorial Car Park   |
| <b>PROJECT CODE:</b>  |  |
| <b>PARISH:</b>  | Dingwall   |
| <b>NAME OF CONTRIBUTOR:</b>   | Dr Oliver J T O'Grady  |
| <b>NAME OF ORGANISATION:</b>  | OJT Surveys  |
| <b>TYPE(S) OF PROJECT:</b>  | Geophysical survey   |
| <b>NMRS NO(S):</b>  | NH55NW 154   |
| <b>SITE/MONUMENT TYPE(S):</b>   | Viking Thing, Moothill, mound  |
| <b>SIGNIFICANT FINDS:</b>   | Mound, ditch   |
| <b>NGR (2 letters, 8 or 10 figures)</b>   | NH 54981 58916   |
| <b>START DATE (this season)</b>   | 11/09/11   |
| <b>END DATE (this season)</b>   | 12/09/11   |
| <b>PREVIOUS WORK (incl. DES ref.)</b>   |  |
| <b>MAIN (NARRATIVE) DESCRIPTION:</b><br>(May include information from other fields) | A ground penetrating radar survey was undertaken in the Cromartie Memorial Car Park, on the north side of Dingwall town centre, as part of a research and community project investigating the archaeology of Dingwall's Viking assembly site or 'thing'. Prior to 1947 the site was the location of a large earth mound, known from at least the 16 <sup>th</sup> century as the Moothill ('hill of assembly') and subsequently adapted as a burial memorial for the First Earl of Cromartie in 1714. The survey aimed to locate remains of the mound and assess the area for any other archaeologically significant deposits. A possible ditch approximately 5m wide and 2m deep was identified on the north, west and south side of the mound's historic footprint. Truncation of the site from modern services and post-medieval buildings were indicated across the south side of the car park. Anomalies probably relating to Victorian trenching at the mound in 1875 were also noted around the centre and south side of the mound site. Foundations of an enclosure wall built in 1819 and known as the Hillyard were also traced. |
| <b>PROPOSED FUTURE WORK:</b>  | A topographic survey is planned for February 2012.   |
| <b>CAPTION(S) FOR ILLUSTRS:</b>   | Local volunteers assist with radar survey at the site of Dingwall's Moothill.  |
| <b>SPONSOR OR FUNDING BODY:</b>   | Dingwall History Society, Society of Antiquaries of Scotland, Hunter Archaeological Trust, Strathmartine Trust, Highland Council.  |
| <b>ADDRESS OF MAIN CONTRIBUTOR:</b>   | 28B Wilson Street, Perth, PH2 OEX  |
| <b>EMAIL ADDRESS:</b>   | ojt.ogradey@gmail.com  |
| <b>ARCHIVE LOCATION (intended/deposited)</b>  | NMRS (intended), Highland Council (deposited)  |