

Nethermains Solar PV

Kilwinning, North Ayrshire

Archaeological Survey and Assessment

for

JBA Consulting on behalf of North Ayrshire Council

October 2015



Nethermains (photo 011)

Addyman Archaeology

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Thanks are also due to Martin O'Hare of the West of Scotland Archaeology Service who provided advice and guidance.

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Nethermains Solar PV

Kilwinning, North Ayrshire

Archaeological Survey and Assessment : October 2015

Executive Summary

Addyman Archaeology was contracted by JBA Consulting on behalf of the North Ayrshire Council to undertake an archaeological survey and Desk-Based Assessment (DBA) of a former landfill site known as Nethermains near Kilwinning, North Ayrshire.

Through the analysis of the available historical records, historic and current aerial images, and a thorough and detailed cartographic regression, the DBA identified a total of five possible cultural heritage sites within the boundaries of the development. Four of these sites were identified during the walkover survey, with one additional site recorded, bringing the overall total identified sites to five. All of the sites identified relate to the site's post-medieval / industrial heritage, and can be considered to be of moderate significance.

It was recommended that all sites identified on the ground be avoided during on-site works, with the limits of the sites physically marked-out by a team of qualified archaeologists. Four sites noted during the walk-over survey, including the likely remains of a boat house, the infrastructure associated with mineral extraction, and the former L.M.S.R. rail line from Irvine to Kilwinning require mitigation measures to ensure they remain unaffected by the development. Where construction is anticipated in these areas, it is recommended that these sites be thoroughly recorded through additional survey, and where preservation *in situ* is not an option, through a programme of archaeological investigation.

A record of the building recording (*OASIS ID: addyman1-226134*) has been deposited with the Online Access to the Index of Archaeological Investigations (OASIS) website hosted by the Archaeological Data Service and with *Discovery and Excavation in Scotland* (DES), the annual publication of fieldwork by Archaeology Scotland.

1. Introduction

i. General

Addyman Archaeology was contracted by JBA Consulting (contact: Phil Bennett-Lloyd) on behalf of North Ayrshire Council (contact: David Hammond) to undertake a Desk-Based Assessment and walkover survey in advance of a proposed solar photovoltaic scheme at the site of Nethermains near Kilwinning, North Ayrshire.

An initial Desk-Based Assessment (DBA) was undertaken prior to the walkover survey in order to identify any known archaeological sites or other features of cultural heritage importance within the proposed development area. The DBA also included the consultation of historic maps and any aerial photographs readily available online. Further to this, the research was then completed by assessing any known cultural heritage sites immediately beyond the proposed development boundary. The assessed sites are detailed in *Table 1* and *Table 2* below.

A walkover survey of Nethermains was undertaken on the 5th of October 2015 by Andrew Morrison. Weather conditions were windy with heavy rain at times. Ground visibility to the north was excellent due in part to ongoing livestock grazing, while visibility at the site's southern end was poor owing to thick and tall vegetation growth including Hogweed over 2.5m in height. The identification of archaeological features on the ground was hampered greatly by the growth and extent of the vegetation in the southern half of the site.

The walkover survey aimed to assess the character, extent and conditions of any sites, monuments, and landscape features identified in the DBA, whilst also identifying and assessing any other features of cultural heritage interest not originally detected in the desk-based study.

This report contains several maps reproduced by permission of the Trustees of the National Library of Scotland (NLS). To view these maps online, please visit www.nls.uk.

This report is prepared in accordance with standard Addyman Archaeology procedures and in line with the guidelines established by the Chartered Institute for Archaeologists (*CIfA*).

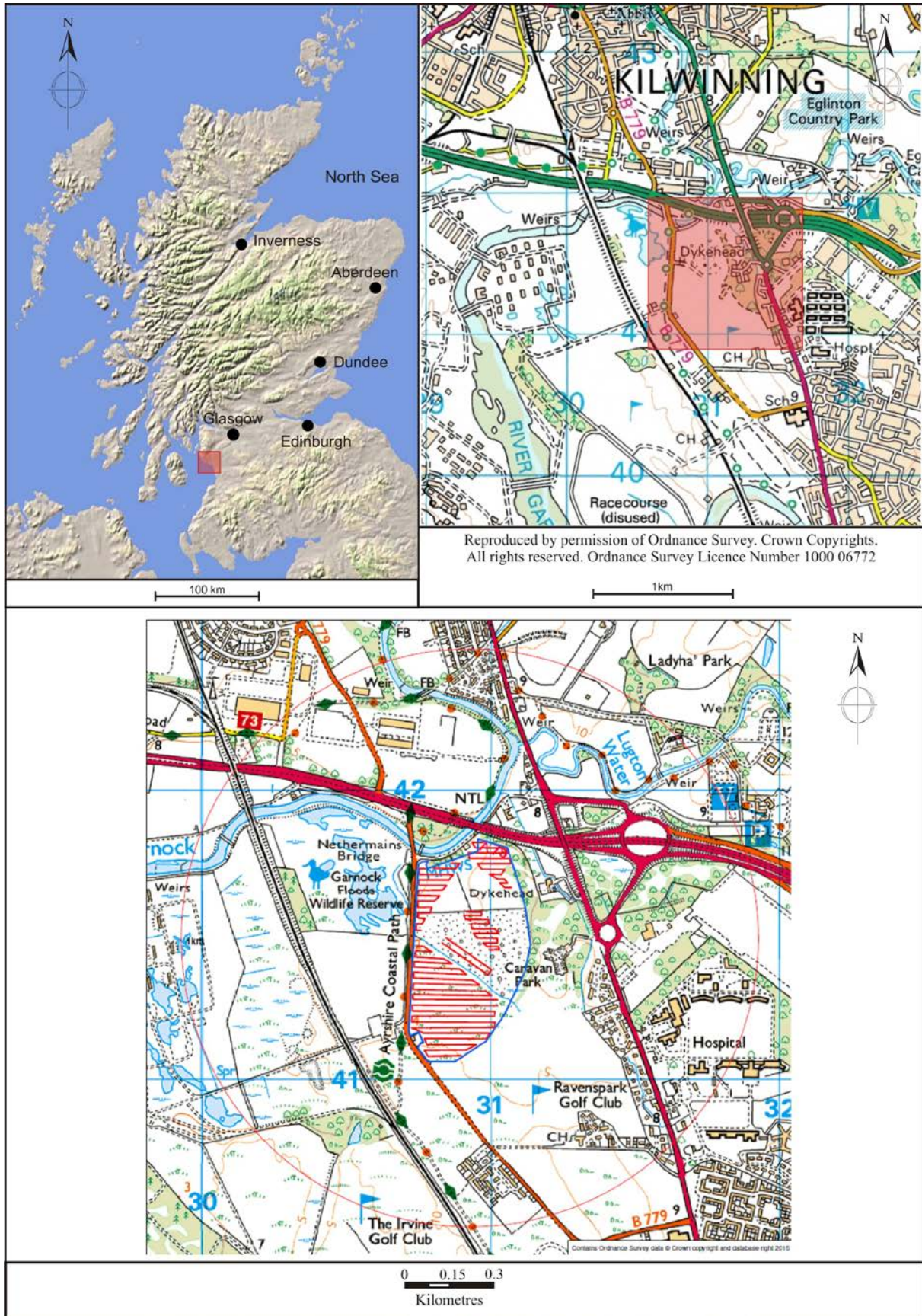


Figure 1 Site Location

ii. *Setting and geology*

Located to the south of Kilwinning in North Ayrshire, the proposed solar photovoltaic scheme at Nethermains covers an area of approximately 24.8 hectares, and is roughly centred on NGR NS 30823 41443. Slightly oblong in shape, the site is bound by the River Garnock to the north, tree stands and habitations to the east, Ravenspark golf course to the south-east, and the B779 and the Garnock Floods local nature conservation site to the west.

The proposed development area is a site of two halves, divided by a large open linear drain orientated north-west / south-east. The northern half of the site is dominated by a modern landfill, subrectangular in shape and overgrown with meadow grasses and vegetation. The heaped mound of the landfill forms a high-point in the surrounding landscape. Adjacent to the mounded landfill, two triangular plots of land to the north-east and the north-west make up the remainder of the northern half of the site; these plots are dominated by low grasses and stands of bramble, and are currently under active livestock grazing. South of the drain that bisects the site, the terrain is a relatively flat former river basin, now heavily overgrown with tall vegetation and Hogweed.

The underlying geology is predominantly sedimentary bedrock of the Scottish Middle Coal Measures formation. This deposit was formed between 310-312 million years ago in the Carboniferous period, in an environment characterised as a marginal coastal plain, and dominated by swamps, estuaries, and deltas. The overlying superficial geology is a Glacial Alluvium, deposited 2 million years ago in the Quaternary period. During this time the local environment was predominantly riverine, evidenced by deposits of clay, silt, sand, and gravel.¹

2. *Desk Based Assessment*

i. *General*

An analysis of readily available sources was undertaken to identify sites of cultural heritage significance. These included:

- The National Monuments Record of Scotland (NMRS)
- West of Scotland Archaeology Service (WoSAS) Historic Environment Record (HER)
- Historic Environment Scotland (HES) database of Scheduled Monuments
- The Inventory of Gardens and designed Landscapes in Scotland
- The Inventory of Historic Battlefields in Scotland
- Aerial imagery as held by the National Library of Scotland (NLS) and online platforms
- Map resources available from the NLS including all available OS maps
- www.aircrashsites-scotland.co.uk –this website is working towards providing comprehensive coverage of air-crash sites in Scotland

All sources consulted were the most up to date available.

Two known sites were identified within the development area as recorded in the National Monument Record of Scotland (NMRS) and the Sites and Monuments Record (SMR) of the West of Scotland Archaeology Service (WoSAS). These sites can be identified with their unique NMRS or SMR numbers and are detailed in *Table 1*. One of these sites (HER42195), a World War II Army depot, is generally accepted as having been a temporary site with no surviving physical remains. The second site (Site 003) is a late 19th century findspot of a shale bead and flint scraper in the vicinity of what is now the north bank of the drain.

¹ Geological information taken from <http://mapapps.bgs.ac.uk/geologyofbritain/home.html> - 01/10/15

A total of four other potential sites were identified through the interpretation of available aerial photographs and relevant maps. These sites, together with the HER and NMRS data, are shown in *Figure 2* below and detailed further in *Table 1*.

The following Desk-Based Assessment extensively covers all the known cultural heritage sites within the boundaries of, and thus directly affected by, the proposed Solar PV development. Due to the nature of the development, it is possible that the proposed Solar PV scheme may have an indirect impact on the setting of other monuments in the immediate vicinity of the site boundaries.

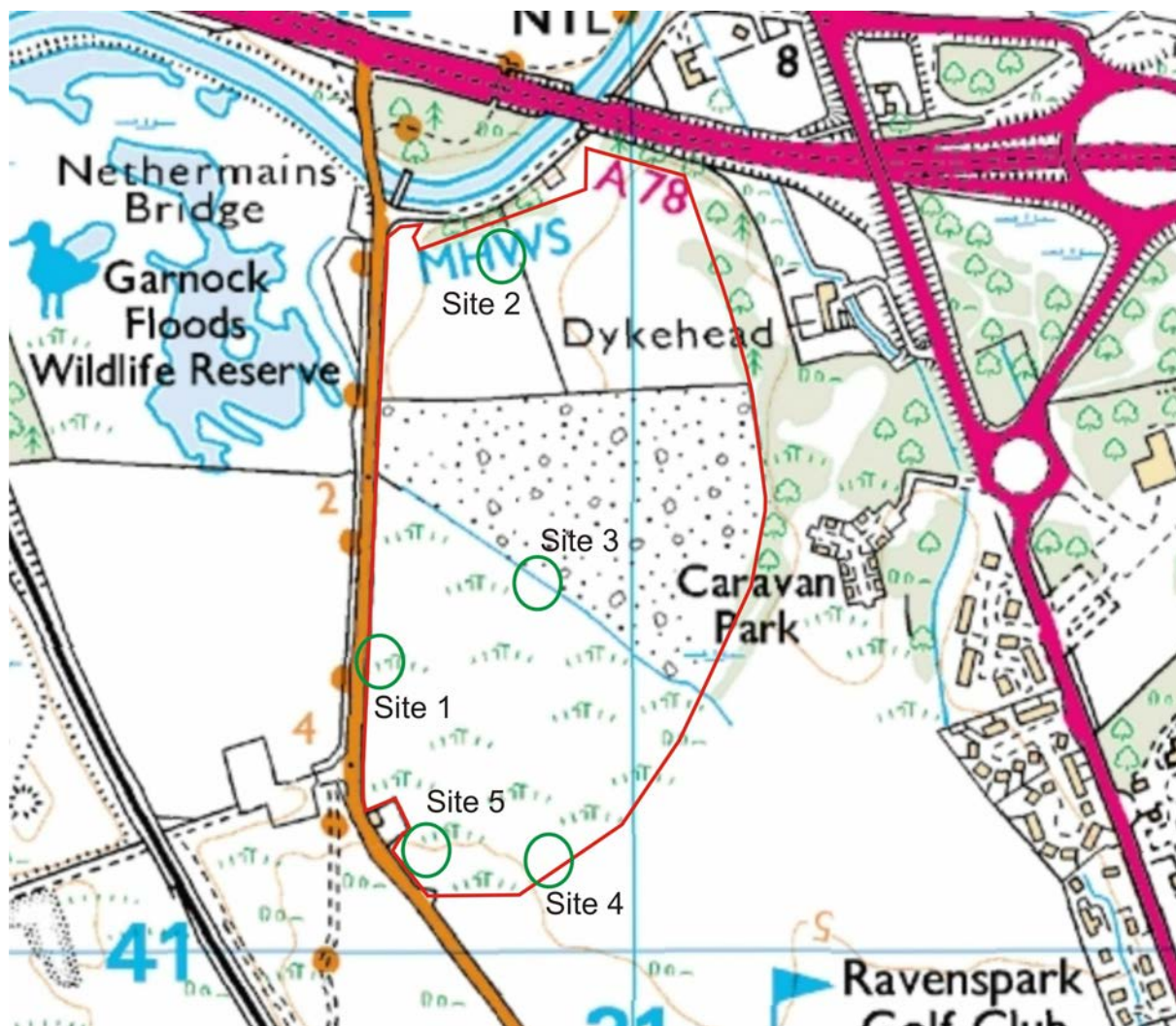


Figure 2 Indicative locations of sites within the development area as taken from NMRS and WoSAS SMR. (Addyman Archaeology after Ordnance Survey © Crown copyright. All rights reserved. Licence number 1000 06772)

ii. Statutory Designations

a. Scheduled Monuments

A Scheduled Monument is a monument that has been categorised as of national importance and is legally protected under the Ancient Monuments and Archaeological Areas Act 1979.

There are no Scheduled Monuments recorded within the boundaries of the proposed Solar PV scheme at Nethermains.

b. Listed Buildings

Listing is the recognition through the Planning (Listed Buildings and Conservation Areas) (Scotland) Act 1997 that a building or structure is of ‘special’ interest whether architecturally or historically.

There are no Listed Buildings within the boundaries of the proposed development.

There are, however, a number of Listed Buildings adjacent to the site boundary which have been classified by Historic Environment Scotland (HES) as being of regional or local importance (see Figure 3 and Table 2 below).

To the north-east of the development area, across the A78 and Lugton Water, lies the Eglinton Country Park- an 18th century castle and estate that includes a total of five Category B and three Category C listed buildings. The Gardener’s Cottage (Site B, ref: LB13658), Park Bridge (Site D, ref: LB7573), Tournament Bridge (Site E, ref: LB7570), Castle Stables (Site G, ref: LB7571), and Raquet Hall (Site H, ref: 7582) are all listed Category B, meaning they are deemed to be of regional importance; for the most part, the above sites date to the 18th century, except the Raquet Hall, which was built in the mid-19th century. Also part of Eglinton Country Park, the Kilwinning Gates (Site A, ref: LB7575), Walled Garden (Site C, ref: LB7574), and Eglinton Castle (Site F, ref: LB7569) are all likely to be 18th century in date and are listed Category C, meaning that they have been deemed to be of local importance.

Further listed buildings adjacent to the proposed development area are: The Ayrshire Central Hospital complex to the east (Site J, ref: LB35452) a mid-20th century hospital for infectious diseases listed Category B, and Kidsneuk Cottage to the south (Site K, ref: LB7644) a Category C listed 19th century cottage with a possible 17th century core.

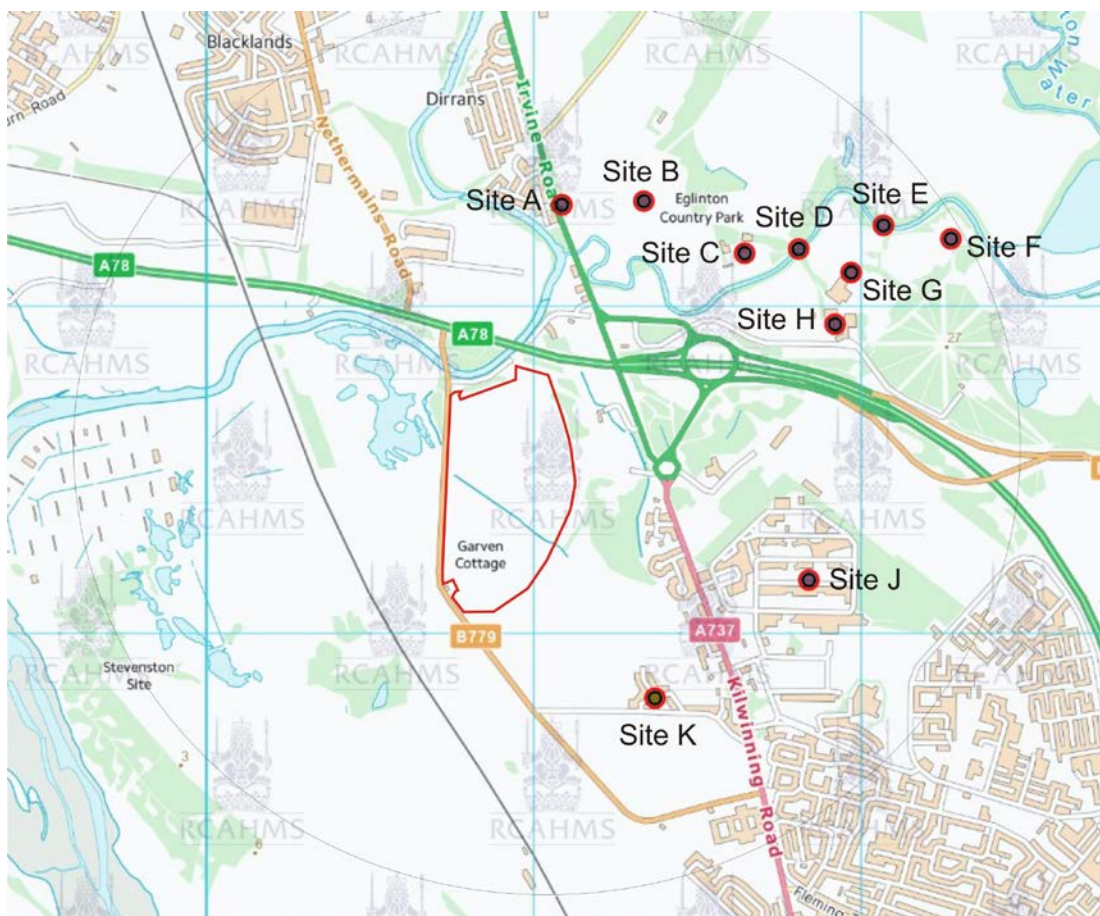


Figure 3 Location of Listed Buildings in relation to the site boundary (Addyman Archaeology after RCAHMS)

c. *Designed Gardens and Landscapes*

The Historic Environment Scotland Inventory of Gardens and Designed Landscapes lists a series of sites that have been considered to be of national importance in accordance with the criteria outlined in the Scottish Historic Environment Policy 2011.

There are no Gardens or Designed Landscapes recorded by HES within the proposed development area, though one is listed to the immediate north-east.

Located directly to the north-east of the site, the area known as Eglinton Park is recorded on the Inventory of Gardens and Designed Landscapes (ref: GDL00170) (Table 2). Though originally much more expansive extending further south to what is now Castlepark Road, the current extent of the country park covers an area of 337 hectares. The park was first described in 1608 as being “well planted and beautified with gardens, orchards and parks”², though the origins of the estate may be traceable back to the medieval period. Of the six value-based criteria Inventory Gardens and Designed Landscapes are assessed on, Eglinton Country Park scores Outstanding in one category and High in three categories³.

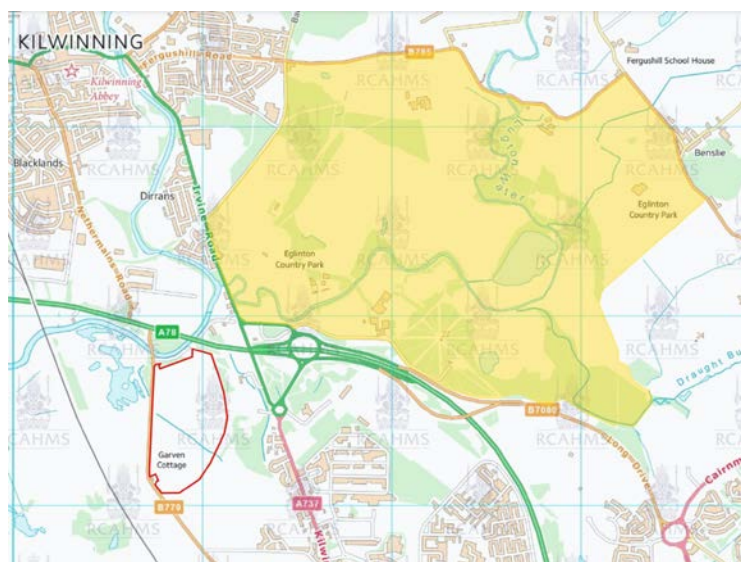


Figure 4 HES Inventory of Gardens and Designed Landscapes designated Eglinton Country Park (Addyman Archaeology after RCHAMS)

d. *Inventory Battlefields*

The Inventory of Battlefields held by Historic Environment Scotland (HES) is a list of nationally important historic battle sites that have been selected as meeting the criteria as outlined in the Scottish Historic Environment Policy 2011.

There are no battlefield sites recorded by HES in the Inventory either within, or directly adjacent to the site boundary.

e. *Treasure Trove*

Any artefacts or objects recovered either during mitigation work associated with the development, or during the groundworks associated with the planning, will be reported to the Queen’s and Lord Treasurer’s Remembrancer through the Treasure Trove process.

² <http://portal.historic-scotland.gov.uk/designation/GDL00170> -07/10/15

³ Idem.

Table 1 Cultural Heritage Assets within the development area located during the DBA

| Site No. | Name, Feature | OS Grid Reference | Reference | Designation | Description |
|----------|------------------------|-------------------|---|---------------------------|--|
| 000 | Dykehead Army Depot | NS 3100 4170 | 185800, 42195 | NMRS, HER | WWII military transport site. Nothing surviving. |
| 001 | Boat House | NS 3065 4131 | OS 1 st ed. OS 2 nd ed. | Map Regression | Boat House and associated features. |
| 002 | Railway Embankment | NS 3078 4173 | OS 2 nd ed. | Map Regression, Air Photo | Embankment of former L.M.S.R. Irvine branch to Kilwinning. |
| 003 | Nethermains- Find site | NS 3082 4145 | 42107, 6678 | NMRS, HER | Shale bead and flint scraper. Found 1880's. |
| 004 | Mineral Railway | NS 3092 4114 | OS 2 nd ed. | Map Regression | Mineral railway associated with Redburn Colliery. |
| 005 | Barney Pit | NS 3073 4114 | OS 2 nd ed. | Map Regression | Associated with Mineral Railway |

Table 2 Cultural Heritage Assets adjacent to the development area located in the DBA

| Site No. | Name, Feature | OS Grid Reference | Reference | Designation | Period |
|----------|---|-------------------|------------------|---|---------------|
| A | Kilwinning Gates, Eglinton Country Park | NS 31086 42310 | LB7575 | Category C | Post-medieval |
| B | Garden Cottage, Eglinton Country Park | NS 31336 42321 | LB13658 | Category B | Post-medieval |
| C | Walled kitchen garden, Eglinton Country Park | NS 31644 42162 | LB7574 | Category C | Post-medieval |
| D | Park bridge, Eglinton Country Park | NS 31809 42175 | LB7573 | Category B | Post-medieval |
| E | Tournament bridge, Eglinton Country Park | NS 32068 42247 | LB7570 | Category B | Post-medieval |
| F | Eglinton Castle / Eglinton Park | NS 32274 42206 | LB7569, GDL00170 | Category C, Gardens-Designed Landscapes | Post-medieval |
| G | Eglinton Castle stables | NS 31969 42103 | LB7571 | Category B | Post-medieval |
| H | Eglinton Country Park, Raquet hall | NS 31920 41945 | LB7582 | Category B | Post-medieval |
| I | Lady Jane's Cottage, Eglinton Country Park | NS 31299 42089 | 206579 | NMRS | Post-medieval |
| J | Ayrshire Central Hospital administrative building, maternity residences and gatelodge | NS 31840 41163 | LB35452 | Category B | Post-medieval |
| K | Kidsneuk Cottage | NS 31370 40802 | LB7644 | Category C | Post-medieval |
| L | Kidsneuk Sundial | NS 3137 4078 | 208575 | NMRS | Post-medieval |
| M | Kidsneuk Gatepiers | NS 31457 40761 | 208574 | NMRS | Post-medieval |
| N | Redburn Gates and Gatelodges | NS 31495 41380 | 206593 | NMRS | Post-medieval |

| Site No. | Name, Feature | OS Grid Reference | Reference | Designation | Period |
|-----------------|--|--------------------------|------------------|--------------------|----------------|
| O | Redburn House | NS 31367 41297 | 208458 | NMRS | Post-medieval |
| P | Ravenspark Golf Course | NS 31166 41022 | 308439 | NMRS | Post-medieval |
| Q | Kidsneuk Mound | NS 308 408 | 42115 | NMRS | Medieval |
| R | Ravenspark- Find Site | NS 30856 40731 | Ev5128 | HER | Post-medieval? |
| S | Ravenspark Hospital, Boiler House | NS 30962 40659 | 237033 | NMRS | Post-medieval |
| T | Ravenspark Hospital, Poor House | NS 31033 40632 | 208035 | NMRS | Post-medieval |
| U | Bartonholme Sandpit- Find Site | NS 3037 4082 | 42112 | NMRS | Prehistoric |
| V | Deepdraught Farmstead | NS 30280 40930 | 17709 | HER | Post-medieval |
| W | Bartonholme, Workers Rows; Smithy | NS 30440 41060 | 17708 | HER | Post-medieval |
| X | Bartonholme Cropmarks | NS 305 412 | 42106 | NMRS | Post-medieval |
| Y | Bartonholme Landfill Site | NS 30570 41280 | 169936 | NMRS | Post-medieval |
| Z | Longford Bridge | NS 3016 4191 | 139845 | NMRS | Post-medieval |
| AA | Nethermains Bridge | NS 3072 4181 | 139846 | NMRS | Post-medieval |
| AB | Nethermains Farm | NS 30661 42040 | 203900 | NMRS | Post-medieval |
| AC | Kilwinning Dirrans Mound | NS 3068 4230 | 42096 | NMRS | Prehistoric |
| AD | Dirrans Sawmill | NS 30871 42344 | 317679 | NMRS | Post-medieval |
| AE | Kilwinning Dirrans Air- raid Shelters | NS 309 425 | 205521 | NMRS | Post-medieval |
| AF | Lugton Mill | NS 311 421 | 317708 | NMRS | Post-medieval |

iii. *The History of the development area*

a. *General*

The site of Nethermains straddles the former course of the River Garnock, and has a long history of land-use and occupation.

b. *Prehistoric*

There are currently no known prehistoric sites within the boundaries of the proposed development area that are protected by statutory legislation, however a find site is recorded in the National Monuments Record Scotland (NMRS) and the Historic Environment Record (HER) of the West of Scotland Archaeology Service (WoSAS). The find site (Site 003) is the location of the discovery of an oil-shale bead and flint scraper in 1880. These finds were made within the drain that bisects the proposed development area within a deposit of river gravel (*Figure 5*)⁴. The River Garnock is known to have once flowed through the site's southern end, and the river gravels and sands that remain are likely to yield important archaeological information in the form of buried features and artefactual materials.

⁴ <http://canmore.org.uk/site/42107/nethermains>

In addition to the find described above, numerous additional prehistoric sites are recorded in the NMRS and the HER in the vicinity (*see Table 2*). The sites of Bartonholme Sandpit and the Kilwinning Dirrans mound have both produced artefacts or features indicative of prehistoric activity, a time period ranging from 11,800-800 BCE⁵- representing the Mesolithic to the Bronze-Age.

To the south west of the proposed development area, the find of a Mesolithic scraper was made at Bartonholme sandpit (Site U) in 1875⁶. The find was said to have been made within the sands of a former river basin at a depth of 3m below the surface (*Figure 5*). A second site, the Kilwinning Dirrans mound (Site AC) (*Figure 5*), is a possible burial mound located to the north of the development area along the bank of the River Garnock. The mound, discovered in 1881 and excavated in 1882 was described as “an ancient structure 18ins in diameter and 4ft deep...built of smooth, water worn whinstones...in the bottom were a few inches of fine greyish powdery material”⁷.

These finds and sites are indicators that the River garnock and Garnock river valley were important landscapes for prehistoric peoples for at least the past 11,000 years. It has been shown that the proposed development area lies within an area rich in prehistoric activity, and possesses the potential to yield new and important information regarding the prehistoric peoples of the area.

c. Medieval

There are currently no known medieval sites within the boundaries of the proposed development area that are protected by statutory legislation, or that are recorded in the National Monuments Record Scotland (NMRS) or the Historic Environment Record (HER) of the West of Scotland Archaeology Service (WoSAS).

Though there are currently no known sites within the boundary of the proposed development area, the site does lie within a region likely rich in medieval activity. The HER and NMRS record one site, Kidsneuk Mound (Site Q) (*Figure 5*) to the south of the proposed development area. Excavated in 1917, the site was described as an artificial ‘hogback’ shaped mound, 4.5m in height, with a peak diameter of 7.6m and a basal diameter of 31m by 22m. Excavations revealed a possible stone hearth, unglazed cooking pots, glazed pitchers, bone, and metals thought to date to the 13th to 14th centuries⁸. No remnants of the mound remain today.

Though no other medieval sites are listed in the NMRS and HER in the immediate vicinity, it is likely that many of the routeways and water-crossings, farmsteads, field systems, and indeed the Eglinton Estate can trace their origins back to the medieval period.

d. Post-Medieval

There is one Post-medieval site within the boundaries of the proposed development area that is recorded in the National Monuments Record Scotland (NMRS) and the Historic Environment Record (HER) for the West of Scotland Archaeology Service (WoSAS). A Second World War Army Depot (Site 000) (*Figure 5*) is shown to have existed in the northern half of the site, though it is accepted that no physical evidence of the site remains today, and its exact location is unknown.

A large number of Post-medieval sites exist adjacent to the development area boundaries as shown in *Figure 5* below; these will only be briefly touched upon here. To the west of the site, a concentration of associated sites known as Bartonholme are recorded. These sites: Bartonholme Landfill Site (Site Y)- a cluster of structures depicted on the OS 1st edition map, Bartonholme Smithy (Site W)- a row of workers houses with smithy also on the 1st edition OS map, and Bartonholme Cropmarks (Site X)- a

⁵ www.scottishheritagehub.com -07/10/15

⁶ http://www.wosas.net/wosas_site.php?id=6683 -07/10/15

⁷ http://www.wosas.net/wosas_site.php?id=6667 -07/10/15

⁸ <http://canmore.org.uk/site/42115/kidsneuk> -07/10/15

series of linear enclosures and pits identified through air photographs and likely relating to the mineral extraction works (*Figure 5*), are all likely 18th to early 19th century in date, or possibly earlier, and are indicative of the intensification of mineral extraction activities in the area in the early modern period. Also recorded is the farmstead of Deepdraught (Site V), shown on the OS 1st edition as an occupied farmstead, but with no visible remains still upstanding.

To the south of the development area, two main sites at Ravenspark and Kidsneuk are recorded. Ravenspark, south of the B779 Sandy Road is a collection of three separate records: Ravenspark Hospital and Poorhouse (Site T), Ravenspark Hospital Boiler (Site S), and the site of an archaeological evaluation within the compound that uncovered human remains and associated materials (Site R). Ravenspark was erected in 1857 as a poorhouse and mental health care facility to serve the needs of the local parishes. The site was taken over by the military during the First World War, and was then passed on to the council for use again as a hospital. The site was decommissioned in 1996, and is now the site of a housing estate⁹. Immediately adjacent to Ravenspark to the north-east, Kidsneuk is a collection of records that includes: Kidsneuk Cottage (Site K), Kidsneuk Sundial (Site L), and Kidsneuk Gatepiers (Site M) (*Figure 5*). The cottage, gatepiers, and sundial all date to the 19th century, though the cottage may contain a 17th century core.

To the east of the development area are two main groups of recorded sites at Redburn and the Ayrshire Central Hospital further to the south-east. The Ayrshire Central Hospital (Site J) is a collection of structures built in the mid-20th century as a centre for infectious diseases. Redburn House (Site O) and Redburn Gates and Gate-lodges (Site N) were once part of the Eglinton Estate, but have since been cut-off from the park by the A78 and are now part of a housing estate.

North of the proposed development area, Nethermains Farm (Site AB) (*Figure 5*) is a Post-medieval farmstead situated north of the River Garnock. Prior to the river's re-routing in the latter half of the 19th century, it is likely that a portion of the farmstead's cultivation lands fell within the proposed site boundaries. Also to the north of the site along the banks of the river are two recorded industrial sites of Lugton Mill (Site AF) and Dirrans Sawmill (Site AD). Both mills at Lugton¹⁰, and at Dirrans¹¹ are listed as water-powered mills and were both listed as operation on the 1860 Ordnance Survey. To the north-east of the site, along the Lugton water, a collection of sites associated with the Eglinton Estate are recorded, most of which have been detailed in *Table 2* and section 2.ii.b. above.

⁹ <http://www.workhouses.org.uk/Cunninghame/> -08/10/15

¹⁰ <http://canmore.org.uk/event/918985> -08/10/15

¹¹ <http://canmore.org.uk/event/918822> -08/10/15

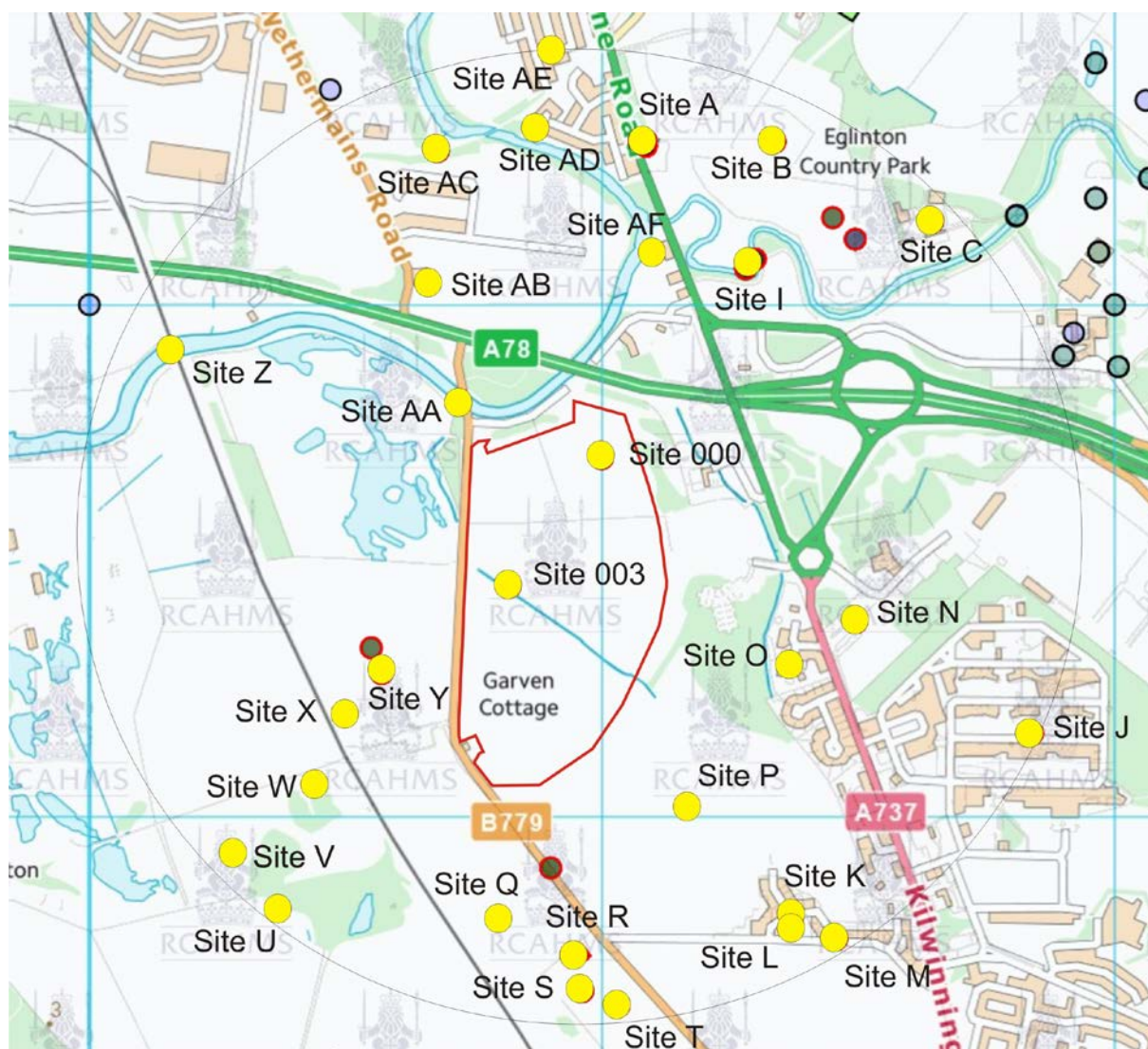


Figure 5 NMRS and HER sites within a 1km radius of the proposed development area (Addyman Archaeology after RCAHMS)

3. Map Regression

i. General

A large number of maps were consulted in order to assess the nature and evolution of the proposed development area as well as the environment in which it is situated. A summary of maps consulted can be viewed in *Appendix A*.

ii. Pre-Ordnance Survey maps of the area

Maps produced before the first Ordnance Survey of the area in the mid-19th century are by their nature extremely varied with regards to accuracy, scale, and level of detail presented. Maps of this age were produced by diverse groups of individuals who often possessed differing skill-sets and held specific goals that their maps were meant to achieve. The proposed development area at Nethermains is small in comparison to the scale that many of the consulted maps represent; as a result of this, although all available maps were consulted, many of them do not show the area in sufficient detail to prove particularly useful in this instance.



Figure 6 Extract from 'A mape of the west of Scotland containing Clydsdail, Nithsdail, Ranfrew, Shyre of Ayr & Galloway' by John Adair. 1685. NLS

The map 'A mape of the west of Scotland...' by John Adair 1685 (Figure 6) is the earliest map to show the region of the proposed development area in sufficient detail as to be able to roughly place the site in relation to illustrated rivers and towns. Not intended to provide information on land use or small-scale settlements or routeways, the Adair map succeeds in showing relatively accurate special relationships between towns, estates, and waterways. The location of Nethermains, loosely indicated by the red circle above, can be placed in relation to the towns of 'Irvin' to the south and 'Kilwhining' to the north, and directly below the confluence of the River Garnock and Lugton water as it flows from 'Eglintoun' to the east.

William Roy's 'Military Survey of Scotland' conducted between 1747 and 1755 revolutionised map making in Scotland, providing a superior level of terrain detail than had been previously seen. Roy's map was the result of 'rapid reconnaissance rather than a measured topographic survey'¹², though the various inaccuracies the map contains can be forgiven, as it provides us with the first cartographic view of Scotland with any real level of detail, giving us a snapshot of mid-18th century Scotland. Unfortunately the section of Roy's lowland map that depicts the proposed development area is obscured by a fold in the parchment and is of little use in this exercise.

John Thomson and William Johnson's 1828 map 'Northern Part of Ayrshire. Southern Part' (Figure 7) shows the region at a much smaller scale and in a greater amount of detail than had been seen previously. In this map, the courses of the River Garock and Lugton Water are fairly accurately depicted, with the proposed development area falling within the river bend encircled in red below. Redburn House is shown immediately to the east of the site, as are the sites of Bartonholme and the road and ford to Nethermains.

¹² Fleet C., Wilkes M. & Withers, C. 2011 *Scotland – Mapping the Nation*, 88



Figure 7 Extract from 'Northern Part of Ayrshire. Southern Part' by John Thomson and William Johnson. 1828.
NLS

iii. Ordnance Survey Maps

The earliest Ordnance Survey maps of this area were surveyed in 1856 and provide the first truly accurate cartographic evidence for the development of the site. The 1st edition 6 inch to 1 mile maps are the most useful in scale and detail for gaining an accurate, detailed view of the area (Figure 8).

The increased accuracy and detail of the Ordnance Survey maps, combined with the continued development of the site over a period of 28 years from the time of the Thomson-Johnson map, has led to a large number of noticeable changes within the proposed development area. The most noticeable changes are in the accuracy of the depiction of the water course and roadways, and also in the detailing of the field-systems, drains, railway lines, and park lands.

Structures and features are also depicted on the OS 1st edition not seen previously; these include: the site of Dykehead, numerous old coal pits, various ruins, a structure now known as Garven Cottage, and boat houses to the north of the site and along the western boundary. The Boat House shown along the western boundary of the site (Site 001) (Figure 8) is shown as a rectangular structure facing the road and set near to the banks of the River Garock; the map also shows an associated courtyard, field wall, path and well. It is unclear if the boat house was constructed between 1828 when the Thomson-Johnson map was produced and when the OS survey was conducted in 1856, or if the addition of these sites is simply the product of the accuracy and detail the Ordnance Survey maps provide.

The Ordnance Survey 2nd edition of 1895 depicts major changes to the landscape having taken place in the ensuing 39 year period since the surveying of the 1st edition in 1856. Major changes include: the establishment of the L.M.S.R. Railway Irvine to Kilwinning branch (Site 002), the re-routing of the River Garnock cutting-off the peninsula below Nethermains and the subsequent drying of the river bed, the re-routing of the road past Bartonholme to a more northerly alignment creating a new ford across the new river course, and the establishment of a Mineral Railway (Site 004) and Barney Pit (Site 005) at the south end of the site boundary (Figure 9). Here, the Boat House is shown next to the drained river with exposed river bed cobbles and an area of marshy ground to the east, the Barney pit shows the appearance of an associated mound in the southern end of the site, and a new drain has been dug orientated north-west / south-east along the mid-portion of the site.

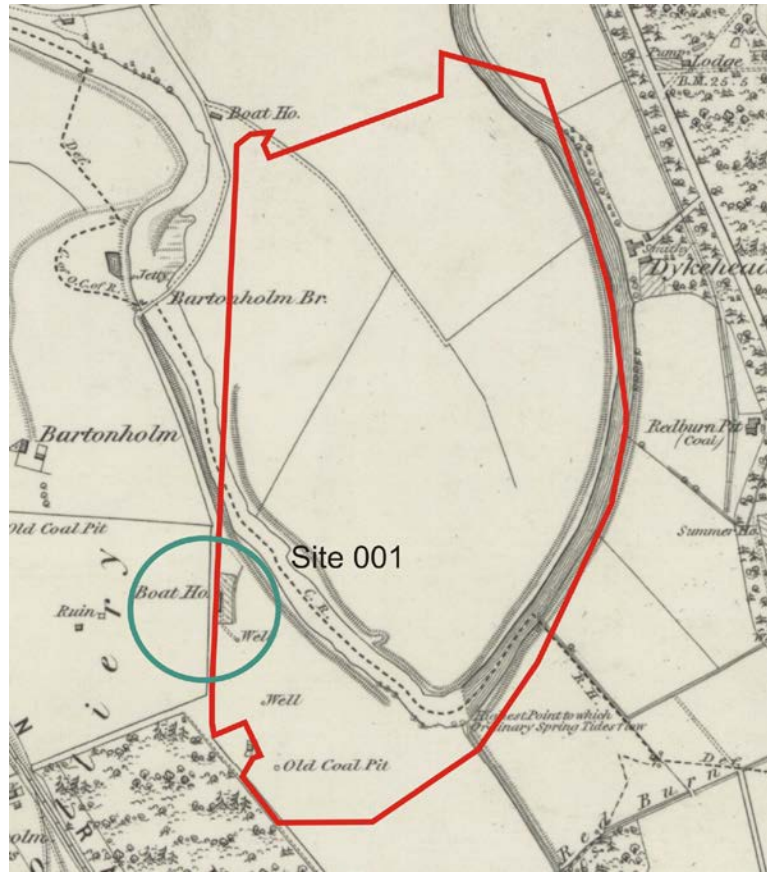


Figure 8 Ordnance Survey 1st edition. 6 inch to 1 mile. 'Ayrshire' Sheet XVI. Surveyed 1856. NLS

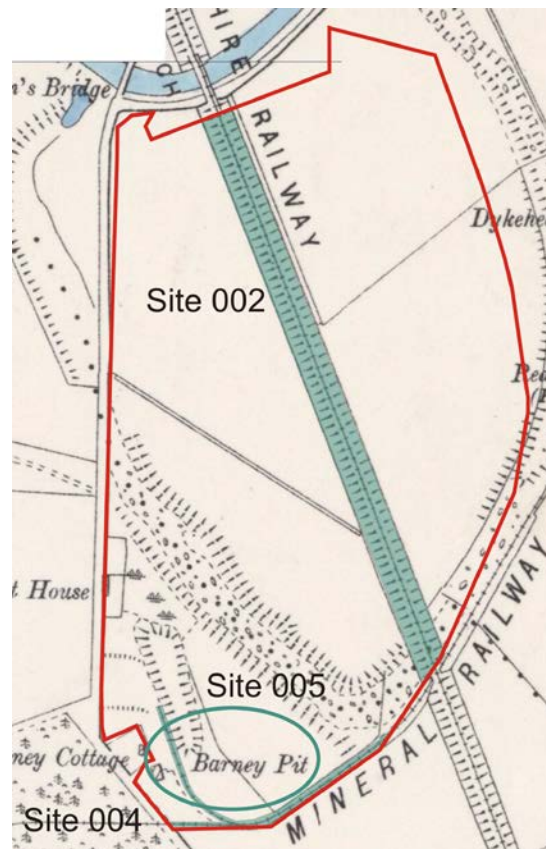


Figure 9 Ordnance Survey 2nd edition. 6 inch to 1 mile. 'Ayrshire' Sheet XVI.NE. Revised 1895. NLS

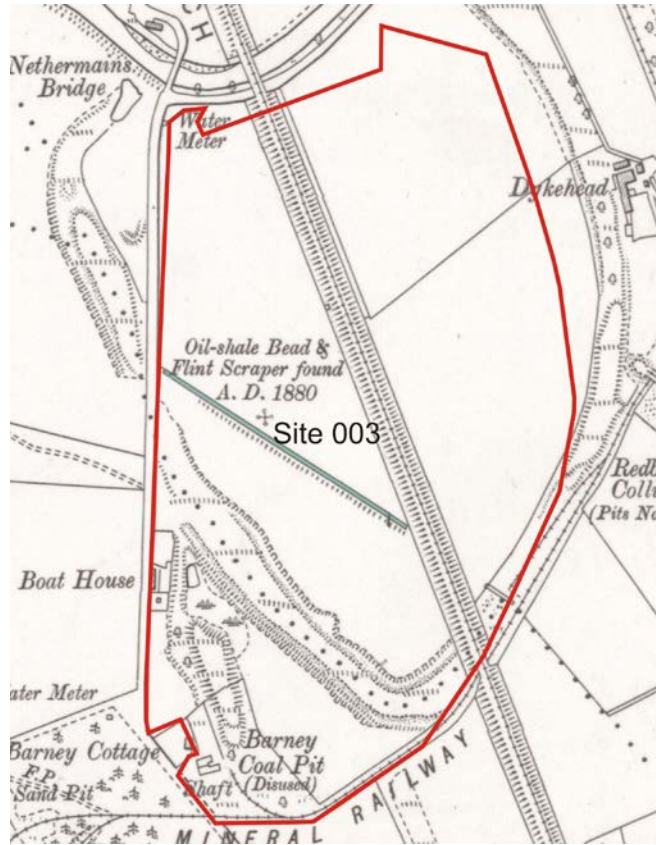


Figure 10 Ordnance Survey 2nd edition revision. 6 inch to 1 mile. 'Ayrshire' Sheet XVI.NE. Revised 1908. NLS

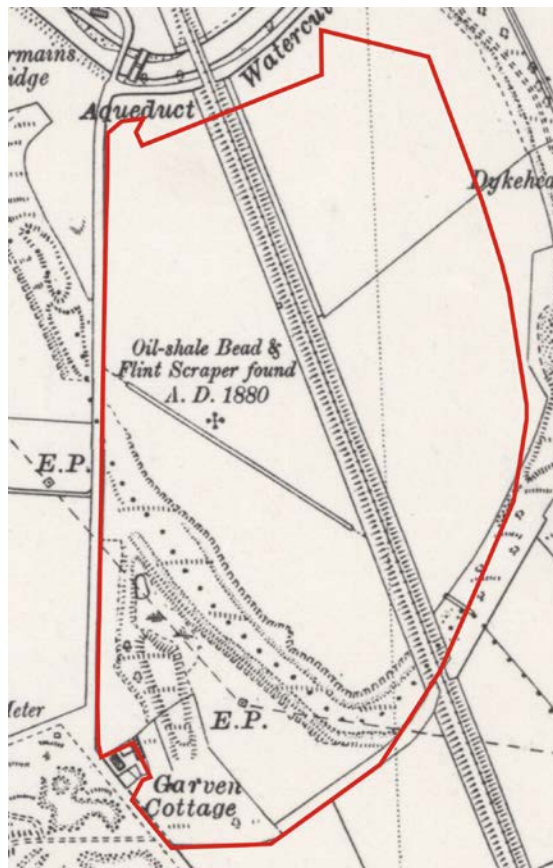


Figure 11 Ordnance Survey, 6 inch to 1 mile. 'Ayrshire' Sheet XVI.NE. Surveyed 1938. NLS.

Considerable changes are depicted from the time of the 1895 OS revision to the 1908 revision produced 13 years later (*Figure 10*). In this map, the dried and exposed riverbed now appears largely covered in marshy vegetation, and the enclosure around the boat house has been subdivided with the structure itself likely having been repurposed. Site 005, the Barney Pit, is still extant but is listed as 'disused', though the Mineral Railway (Site 004) appears to still be in operation. The find site of a shale bead and flint scraper (Site 003) is also listed along the course of the drain highlighted in green above.

The Ordnance Survey map, 6 inch to 1 mile of 1938 (*Figure 11*) again shows considerable changes to the landscape since the most recent survey 30 years prior. In this depiction, the Barney pit is no longer shown, though the associated mound remains, and the mineral railway is no longer extant and the rails have been removed. The Boat House (Site 001) shown on the earlier maps does not appear in this edition and there is no mention of ruins in the vicinity. It is possible that the structure was completely demolished leaving no visible upstanding remains, or that vegetation obscured the remains during the mapping survey.

iv. Summary

The cartographic research into the area of the proposed development at Nethermains is shown to be well documented in maps from the late 17th century onwards. Although many of the early maps cannot be considered reliable in terms of accuracy and are often drawn at a scale which precludes the identification of smaller features, it seems clear that the 1856 OS 1st edition likely depicts the development area more or less as it would have existed in the centuries prior. From 1895, the character of the site changed completely, with the establishment of rail lines, increased mineral extraction, re-routing of roads, the re-routing of the river, and loss of farmland and farmsteads.

4. Aerial Photographs

i. General

Aerial photographs of the proposed development area were consulted in order to assess the potential for previously unrecorded archaeological features to survive within the boundary. For this exercise, the Ordnance Survey air photo mosaics 1944-1950, available from the National Library of Scotland's online map resources were used, along with readily available satellite imagery available online from www.bing.com, www.google.co.uk. Google Earth also provided aerial views dated 31/12/2004, 28/01/2005, 23/07/2007, 27/04/2011, 10/06/2011, and 26/07/2011.

The aerial photographs were consulted with varying degrees of usefulness. A number of factors are important in revealing features on the ground in aerial photographs. The weather, cloud cover, time of day, time of year and height of the flight are all important factors affecting the usefulness of the picture, making it very important to view and assess as many images as possible. In addition the image itself may not be of great quality or sharpness, perhaps due to issues when the picture was taken.

The Ordnance Survey air photo mosaic from 1944 to 1950 (*Figure 12*) shows the area within the proposed site boundary at Nethermains as it existed prior to the foundation of the landfill in the central area of the site.

The photograph shows the site to be primarily farmland bisected by the now disused L.M.S.R. rail line (Site 002), and a mixture of sandy soils and overgrowth to the south. Analysis of the aerial image shows the possible location of the Boat House (Site 001) identified in the earlier OS maps along the western periphery of the site, to exist as a dark, linear feature within a larger enclosure of bisecting vertical and horizontal lines. The line of the north-west / south-east orientated drain (Site 003) is readily identifiable, as is the course of the Mineral Railway (Site 004) to the south and south-east of

the development area. The rail siding extending northwards towards the Barney Pit shown in *Figure 9* can faintly be seen branching from the rail's east-west running line in the lower extent of the site boundary. It may also be possible to faintly make out the rectangular form of *Site 005* Directly to the south-east of Garvan Cottage.

No new sites were recorded during the analysis of historic and modern aerial images in addition to those already identified during the map regression exercise.



Figure 12 Excerpt from OS Air photo mosaics of Scotland 'NS 33 N.W.' 1944-1950. NLS.

ii. Summary

The aerial images confirmed the interpretation of the site as mainly farmland to the north with remnants of past mineral extraction and transport to the south. The aerial images do suggest that the potential is there for the survival of sites not included in the 1938 Ordnance Survey map (*Figure 11*), increasing the likelihood that they may be identifiable on the ground.

5. Walkover Survey

i. General

The walkover survey was designed to provide comprehensive cover of the site whilst specifically targeting those areas identified from earlier research as being of potential archaeological significance. Undertaken within a single day, the locations of the sites identified in the walkover were plotted to within 4m accuracy by a Magellan Explorist 310 hand-held GPS, their dimensions recorded along with any relevant impressions. Each site was digitally photographed.

ii. Summary and discussion

A total of five sites were recorded during the walkover survey (*Figure 13*); of these, one was previously unrecorded. *Site 005*, the Barney Pit, was not recorded during the walk-over survey as no upstanding remains were encountered; this may be due to the thick and high vegetation cover in the southern portion of the site.



Figure 13 Overlay of site boundary and site location GPS coordinates

a. Site 001

Identified during the map regression as a 'Boat House' and possibly seen during the analysis of aerial photographs, the potential remains of *Site 001* were located during the walk-over survey. The area identified as *Site 001* was specifically targeted as the area of the Boat House based on the results of the map regression exercise. Maps indicated that a boat house and enclosure stood along the western periphery of the site bordering the B779, where it once overlooked the south-west bank of the former course of the River Garnock.



Plate 1 Location of Site 001 in relation to road, facing north (Photo 031)

Centred roughly on NS 30736 41304, a stand of deciduous trees, high grass and vegetation currently cover the location (*Plate 1*), and at first glance, no physical remains were readily apparent. Further investigation and the light probing of areas of flatter ground within the stand revealed the existence of a hard, concrete-like surface immediately below the grass cover (*Plates 2 and 3*).

Further probing indicated that this surface is rectangular, is orientated north-south, and measures approximately 2.5m in width by 6.0m in length. The possible low remains of a wall 0.70m in thickness were also recorded at the south end of the surface, surviving to a height of 0.50m, and a length of 1.2m. The possible wall was obscured by a thick cover of vegetation, and none of the potential fabric was seen. If *Site 001* represents the location of the boat house, the length of wall may represent either the remnants of a gable or enclosure wall. No identifiable features were noted on either the wall or the exposed ground surface.

Further investigation will be necessary to determine the full extent of *Site 001*, and to determine what these remains represent.



Plate 2 South-east end of Site 001, facing west
(Photo 026)



Plate 3 View of surface encountered at Site 001
(Photo 024)

b. Site 002

Site 002 has been identified as the remains of the railway embankment first seen on the 1895 Ordnance Survey map (Figure 9), and noted as out-of-use on the mid-20th century aerial photograph (Figure 12). The former embankment of the L.M.S.R. rail line from Irvine to Kilwinning survives in the northern extent of the site as a low, linear earthwork, orientated north-west / south-east, extending from below the landfill to the south and continuing into the tree stand to the north beyond the site boundary.



Plate 4 South-east extent of the earthworks associated with the Site 002 railway embankment, facing south
(Photo 010)



Plate 5 Surviving height of the railway embankment, north extent facing west (Photo 007)

Located at NS 30871 41757, the surviving embankment measures roughly 29.0m in width, and 0.50m in height (Plate 5), with a length along the western edge of 66m, and 47m along the eastern edge. The embankment is heavily worn, with a flat surface to the north and gently sloping sides to the west and east. The exposed south extent of the embankment at the limit of the landfill appears heavily eroded, with pronounced banks having been cut into by later a later path (Plate 4). Visual investigations revealed instances of brick and possible clinker within the embankment deposit.

c. Site 003



Plate 6 Site 003, north-west / south-east orientated drain, facing west (Photo 017)

The drain at *Site 003* was investigated as the find spot of a shale bead and flint scraper in the late 19th century. The north-west / south-east orientated man-made drain first appears on the 1895 OS map (*Figure 9*), and post-dates the diversion of the River Garnock. Its primary function is to transport water to the field lying to the south-east, where water was once drawn from the river itself. The drain measures approximately over 2.0m in depth, with a basal width of around 1.0m and an upper span between banks of over 5.0m (*Plate 6*). The open drain measures approximately 350m in length, though thick vegetation prevented the surveying of its entire length. No archaeological finds or features were noted in association with *Site 003*.

d. Site 004

Site 004, the Mineral Railway was first identified on the 1895 Ordnance Survey (*Figure 9*) as being associated with the Redburn Colliery to the east of the development area. The rail line was not shown on the 1938 OS map, indicating that, by this time, the rails had been removed. The analysis of the mid-20th century aerial images confirmed the main line of the mineral rail track and the northern siding towards the Barney Pit to still be visible as a series of banks, flat areas, and clearings (*Figure 12*).

The walkover survey confirmed the location of the Mineral Railway as a flat, linear area of ground free of large vegetation, and with a low earth embankment in places to the south. The area of the northern siding to the Barney Pit was also located, though thick vegetation prevented a more thorough investigation from taking place. The full extent of the mineral railway within the site boundaries was traversed, and no physical remains such as rails, ties, spikes or other Railway or Colliery paraphernalia were encountered.



Plate 7 Former location of Site 004 Mineral Railway, facing north-east (Photo 033)

e. Site 005

Site 005, the Barney Pit, was identified during the map regression exercise on the 1895 Ordnance Survey 6 inch to 1 mile map (Figure 9). The earlier 1856 OS map contains no mention of a Barney Pit, though an 'Old Coal Pit' is indicated at the same location (Figure 8). Analysis of the mid-20th century aerial imagery also revealed the existence of the mounded spoil heap shown on the later OS maps, as well as a possible rectangular feature or structure associated with the Barney Pit operations (Figure 12).

During the walk-over survey, no evidence of the Barney Pit or associated features were noted, though the thick growth of vegetation in the area greatly hampered the identification of archaeological features on the ground.

f. Site 006

Site 006 is a site newly recorded during the walk-over survey, and has been identified as the junction between the Mineral Railway (Site 004) and the L.M.S.R. Railway embankment (Site 002) as it crosses the eastern site boundary. Cartographic evidence shows the mineral railway orientated north-east / south-west, passing through a cut in the north-west / south-east orientated L.M.S.R. embankment beneath a small bridge supporting the larger rail line above (Figures 9 and 10). The mid-20th century aerial imagery shows the site after both rail lines had been decommissioned. Here, it is shown that the rails have been taken-up, the bridge has been removed, and the rail lines existing as a series of interacting earthworks.



Plate 8 View of Site 006 railway junction surviving as a series of embankments, facing east (Photo 036)

The walk-over survey identified Site 006 as a mound and bank, forming a rough L-shape in plan. Plate 8, above, depicts the site as it was encountered, and has been taken facing east; Ravenspark golf course lies beyond the trees in the background. The low area of ground in the fore-ground is likely the former surface of the mineral railway with its associated bank to the left of the 1m scale (Site 004). The former overpass of the L.M.S.R. railway is shown to the right of the 1m scale, and survives as a high mound continuing to the north-west. The junction was most apparent to the north, and was obscured both by vegetation and less pronounced elevations to the south.

Further investigation in to the survival of both rail lines within the southern half of the site was not possible due to the thick overgrowth in the area. It is thought likely that additional remains of both rail lines survives beneath the dense vegetation.

iii. Potential for the survival of unknown, buried heritage assets within the development area

The archaeological survey and assessment of Nethermains has shown that, despite the presence of a large late-modern landfill on site, there is significant potential for the survival of cultural heritage assets both to the north and south of the landfill site.

The desk-based assessment has illustrated the region's rich prehistory dating as far back as 11,800 years ago, and includes finds such as flint and shale recovered from the sands and river gravels of the former course of the River Garnock that once meandered through the proposed development area's southern extent.

The walk-over survey has shown that there is a potential for the survival of sites such as the boat house (Site 001) within the site boundary that were thought to be no longer extant. The survey has also demonstrated that the survival of remains representing the site's rich industrial heritage also survive, including sites associated with mineral extraction, and a former rail line linking Irvine to Kilwinning. Due to the thick overgrowth encountered during the survey, it is highly likely that additional unidentified cultural heritage assets exist within the proposed development area.

Any groundbreaking works associated with the proposed development could have a detrimental impact on buried and upstanding archaeological features.

6. Overall Conclusions and Recommendations

The DBA and associated research identified five known sites within the boundaries of the Nethermains development area. Four of these sites were located during the walk-over survey, where an additional site was also recorded, giving a total of five identified cultural heritage assets within the boundaries of Nethermains. These sites are of varying cultural heritage significance, and the majority will be impacted by the development to some degree. Though the site is characterised as a landfill site, cultural heritage sites were shown to exist to the north and south of the landfill mound.

It is recommended that the development avoid all visible, above ground sites recorded during the walk-over, and care is taken where possible to avoid those not visible above ground. The known sites will be marked out on the ground by a qualified archaeologist prior to site works commencing.

Further mitigation measures may be required to ensure that the identified cultural heritage assets remain unaffected by the development. Where construction is anticipated in these areas, it is recommended that these sites be thoroughly recorded through additional survey, and where preservation *in situ* is not an option, through a programme of archaeological investigation.

7. Archiving

Both a hard copy and a digital copy of this report in its final form will be submitted to the NMRS as held by HES. This will be accompanied by the project archive including selected email correspondence, site records, and digital copies of all site photographs.

A copy of this report will also be submitted to the West of Scotland Archaeology Service for inclusion on their Historic Environment Record.

An entry has been created on the online OASIS platform to ensure public access to the research and an entry will be submitted to *Discovery and Excavation in Scotland*, the annual journal produced by Archaeology Scotland charting fieldwork across Scotland.

Selected Bibliography

Selection of websites consulted:

www.aircrashsites-Scotland.co.uk

www.bing.com

www.canmore.org.uk

www.google.co.uk

www.historic-scotland.gov.uk

www.mapapps.bgs.ac.uk

www.nls.uk

www.pastmap.org.uk

www.scottishheritagehub.com

www.workhouses.org.uk

www.wosas.net

Appendix A Maps consulted

Maps consulted include:

Robert Gordon (1580-1661)

- ‘Cunningham’. Published c.1636-1652.

Joan Blau (1596-1673)

- ‘Cuninghamia / ex schedis Timotheo Pont’. Published c.1654.

John Adair (1650-1722)

- ‘A mape of the west of Scotland containing Clydsdail, Nithsdail, Ranfrew, Shyre of Ayre, & Galloway’. Published 1685.

Herman Moll (d.1732)

- ‘The Shire of Renfrew with Cuningham. The North part of Ayr’. Imprint 1745.

William Roy (1726-1790)

- ‘Military Survey of Scotland. Lowlands of Scotland’. Surveyed 1747-1755.

Andrew Armstrong (1700-1794)

- ‘A new map of Ayrshire’. Published 1775.

George Taylor (fl.1760-1788) Andrew Skinner (fl.1760-1788)

- ‘The road from Greenock to Irvine and Ayr; The road from Dumbarton to Row kirk and Portencaple’. Published 1776.

John Ainslie (1745-1828)

- ‘Ainslie’s Map of the Southern Part of Scotland’. Published 1821.

John Thomson (1777-1840) William Johnson (1806-1840)

- ‘Northern part of Ayrshire. Southern part’. Published 1828.

Land Utilisation Survey (1931-1935)

- ‘Sheet 78, Kilmarnock & Ayr’. Surveyed 1932-1933.

Ordnance Survey (1856 – Present)

- 6 inch to 1 mile, Ayrshire, Sheet XVI. Surveyed 1856 Published 1860.
- 25 inch to 1 mile, Ayr, Sheet XVI.8. Surveyed 1856 Published 1860.
- 6 inch to 1 mile, Ayrshire, Sheet XVI.NE. Revised 1895 Published 1897.
- 6 inch to 1 mile, Ayrshire, Sheet XVI.NE. Revised 1908 Published 1911.
- 6 inch to 1 mile, Ayrshire, Sheet XVI.NE. Surveyed 1938 Published 1947.
- 1:25,000 maps of Great Britain 1937-1961, NS34. Revised 1938-1955 Published 1958.
- Air Photo mosaics of Scotland, NS 33 N.W. 1944-1950.

Appendix B Photographic Register

| Image No. | Direction Facing | Date | Description | Initials | Portrait, Landscape |
|------------------|-------------------------|-------------|---|-----------------|----------------------------|
| 001 | SE | 05/10/2015 | Overall, Site from Sandy Road | AJLM | L |
| 002 | S | 05/10/2015 | Overall, Site from Sandy Road | AJLM | L |
| 003 | N | 05/10/2015 | Site 002, Railway Embankment, NW corner | AJLM | L |
| 004 | S | 05/10/2015 | Site 002, Railway Embankment, Looking south along west side | AJLM | L |
| 005 | V | 05/10/2015 | Site 002, Railway Embankment, Brick in deposit | AJLM | L |
| 006 | W | 05/10/2015 | Site 002, Railway Embankment, East profile | AJLM | L |
| 007 | W | 05/10/2015 | Site 002, Railway Embankment, East profile, Wide shot | AJLM | L |
| 008 | V | 05/10/2015 | Site 002, Railway Embankment, Clinker etc. in deposit | AJLM | L |
| 009 | N | 05/10/2015 | Site 002, Railway Embankment, West half | AJLM | L |
| 010 | S | 05/10/2015 | Site 002, Railway Embankment, East half | AJLM | L |
| 011 | SW | 05/10/2015 | Overall, Showing landfill height | AJLM | L |
| 012 | N | 05/10/2015 | Overall, NE corner | AJLM | L |
| 013 | S | 05/10/2015 | Height of landfill, East end | AJLM | L |
| 014 | S | 05/10/2015 | Height of landfill, East end | AJLM | L |
| 015 | S | 05/10/2015 | Overall, Looking down on water channel | AJLM | L |
| 016 | S | 05/10/2015 | Overall, Looking down on water channel | AJLM | L |
| 017 | E | 05/10/2015 | Site 003, Looking east | AJLM | L |
| 018 | W | 05/10/2015 | Site 003, Looking west | AJLM | L |
| 019 | E | 05/10/2015 | Overall, Landfill from road at gate | AJLM | L |
| 020 | N | 05/10/2015 | SW corner showing vegetation | AJLM | L |
| 021 | E | 05/10/2015 | SW corner, Hogweed over 7feet | AJLM | L |
| 022 | E | 05/10/2015 | SW corner, Hogweed over 7feet | AJLM | L |
| 023 | N | 05/10/2015 | SW corner vegetation | AJLM | L |
| 024 | V/W | 05/10/2015 | Site 001, Exposed surface | AJLM | L |
| 025 | V/W | 05/10/2015 | Site 001, Exposed surface, Detail | AJLM | L |
| 026 | W | 05/10/2015 | Site 001, Location | AJLM | L |
| 027 | W | 05/10/2015 | Site 001, Location | AJLM | P |
| 028 | N | 05/10/2015 | Site 001, Location | AJLM | L |
| 029 | SW | 05/10/2015 | Site 001, Location, Wall? | AJLM | L |
| 030 | SW | 05/10/2015 | Site 001, Location, Wall? | AJLM | L |
| 031 | N | 05/10/2015 | Site 001, Location, From road | AJLM | L |
| 032 | NE | 05/10/2015 | Site 001, Location, From road | AJLM | L |
| 033 | NE | 05/10/2015 | Site 004, Mineral Rail Line | AJLM | L |
| 034 | E | 05/10/2015 | Site 004, Mineral Rail Line, Bank | AJLM | L |
| 035 | SE | 05/10/2015 | Site 006, Rail junction | AJLM | L |
| 036 | E | 05/10/2015 | Site 006, Rail junction | AJLM | L |
| 037 | NE | 05/10/2015 | Site 006, Rail junction | AJLM | L |
| 038 | NE | 05/10/2015 | Site 006, Rail junction | AJLM | L |
| 039 | W | 05/10/2015 | Site 004, Mineral Rail Line, West branch | AJLM | L |

Appendix C Photographic Thumbnails



2187.01 (001).JPG



2187.01 (002).JPG



2187.01 (003).JPG



2187.01 (004).JPG



2187.01 (005).JPG



2187.01 (006).JPG



2187.01 (007).JPG



2187.01 (008).JPG



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2187.01 (037).JPG



2187.01 (038).JPG



2187.01 (039).JPG

Appendix D Provisional DES Entry

| | |
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| LOCAL AUTHORITY: | North Ayrshire Council |
| PROJECT TITLE/SITE NAME: | Nethermains Solar PV |
| PROJECT CODE: | 2187.01 |
| PARISH: | Kilwinning |
| NAME OF CONTRIBUTOR: | Andrew Morrison |
| NAME OF ORGANISATION: | Addyman Archaeology |
| TYPE(S) OF PROJECT: | Archaeological Survey and Assessment |
| NMRS NO(S): | 185800, 42107 |
| SITE/MONUMENT TYPE(S): | WWII Army Depot, Find site- Shale bead, Flint scraper 1880's |
| SIGNIFICANT FINDS: | Boat House, L.M.S.R. Railway embankment, Mineral railway. |
| NGR (2 letters, 8 or 10 figures) | NS 30838 41461 |
| START DATE (this season) | October 5 th , 2015 |
| END DATE (this season) | October 5 th , 2015 |
| PREVIOUS WORK (incl. DES ref.) | - |
| MAIN (NARRATIVE) DESCRIPTION: (May include information from other fields) | <p>Addyman Archaeology was contracted by JBA Consulting on behalf of the North Ayrshire Council to undertake an archaeological survey and Desk-Based Assessment (DBA) of a former landfill site known as Nethermains near Kilwinning, North Ayrshire.</p> <p>Through the analysis of the available historical records, historic and current aerial images, and a thorough and detailed cartographic regression, the DBA identified a total of five possible cultural heritage sites within the boundaries of the development. Four of these sites were identified during the walkover survey, with one additional site recorded, bringing the overall total identified sites to five. All of the sites identified relate to the site's post-medieval / industrial heritage, and can be considered to be of moderate significance.</p> <p>It was recommended that all sites identified on the ground be avoided during on-site works, with the limits of the sites physically marked-out by a team of qualified archaeologists. Four sites noted during the walk-over survey, including the likely remains of a boat house, the infrastructure associated with mineral extraction, and the former L.M.S.R. rail line from Irvine to Kilwinning require mitigation measures to ensure they remain unaffected by the development. Where construction is anticipated in these areas, it is recommended that these sites be thoroughly recorded through additional survey, and where preservation <i>in situ</i> is not an option, through a programme of archaeological investigation.</p> |
| PROPOSED FUTURE WORK: | Potential Watching Brief |
| CAPTION(S) FOR ILLUSTRS: | - |
| SPONSOR OR FUNDING BODY: | North Ayrshire Council |
| ADDRESS OF MAIN CONTRIBUTOR: | St. Ninian's Manse, Quayside Street, Edinburgh, EH6 6EJ |
| EMAIL ADDRESS: | admin@addyman-archaeology.co.uk |
| ARCHIVE LOCATION (intended/deposited) | Historic Environment Scotland |