

Results of Archaeological Works at Plot off Llys Helig Drive, Great Orme, Llandudno



NGR SH 75982 83045

Project Number CR94-2016



C.R Archaeology

Prepared by C. Rees & M. Jones
on Behalf of Mr. Michael Spencer

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National Grid Reference: SH 75982 83045
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1.0 Introduction

C.R Archaeology were instructed by Mr. Michel Spencer to conduct archaeological works at the above site in compliance with planning conditions placed on the development (Planning Reference: 0/41417).

A specification was written following an email conversation with Development Control Archaeologist Jenny Emmett of Gwynedd Archaeological Planning Services (beginning 8th March 2015) as a methodology for an Archaeological Watching Brief. This document is included as Appendix A.

The development site is situated off Llys Helig Drive, Great Orme, Llandudno (Figure 1). Planning permission has been granted to erect a single dwelling with associated access, parking and services (Figure 2).

The development plot is located within 250m of the Bishop's Palace at Gogarth Grange (SAM Ref No. Cn093) and with a 1000m of the former Royal Artillery Coast Artillery School (SAM Ref No. Cn409). The landscape of the Great Orme itself is considered to be an area of very high archaeological potential. Numerous archaeological sites are recorded on the Great Orme including Bronze Age and later mining activity, Medieval and later Prehistoric/Roman settlement.

The development of the town of Llandudno as a major seaside resort after 1840 had a profound impact on the land-use of the Great Orme. The Orme began to serve as a backdrop to the resort with major associated developments such as the golf course, Marine Drive, the tramway, the gardens at Happy Valley, the summit café and the cable car and more recently the ski slope (*Great Orme Country Park and Local Nature Reserve Management Plan 2011-2016*). There are numerous listed buildings associated with the development of Llandudno and the Orme as a tourist destination.

The Great Orme headland has been designated a Special Area of Conservation, a Site of Special Scientific Interest and a Heritage Coast (www.greatorme.org.uk).

An archaeological watching brief was conducted during works and visits were conducted whenever groundworks were undertaken. No archaeological features were uncovered during the site works although it was noted that amongst the nineteenth century and modern material mixed into the site overburden there was a considerable concentration of oyster shell noted. It is possible that a midden of unknown date was once located on or near the development area which had been destroyed prior to the works being undertaken. This is however only one interpretation as it is also possible that the shell was ploughed into the land as a fertilizer during the Post Medieval period.

2.0 Project Aims

This scheme of works aimed to monitor groundworks at the site in order to assess the survival, character and date of any archaeological remains and to excavate/record any archaeological remains uncovered.

It aimed to fulfil the mitigation criteria for undertaking an Archaeological Watching Brief as specified in the CIFA Standard and Guidance document (2014).

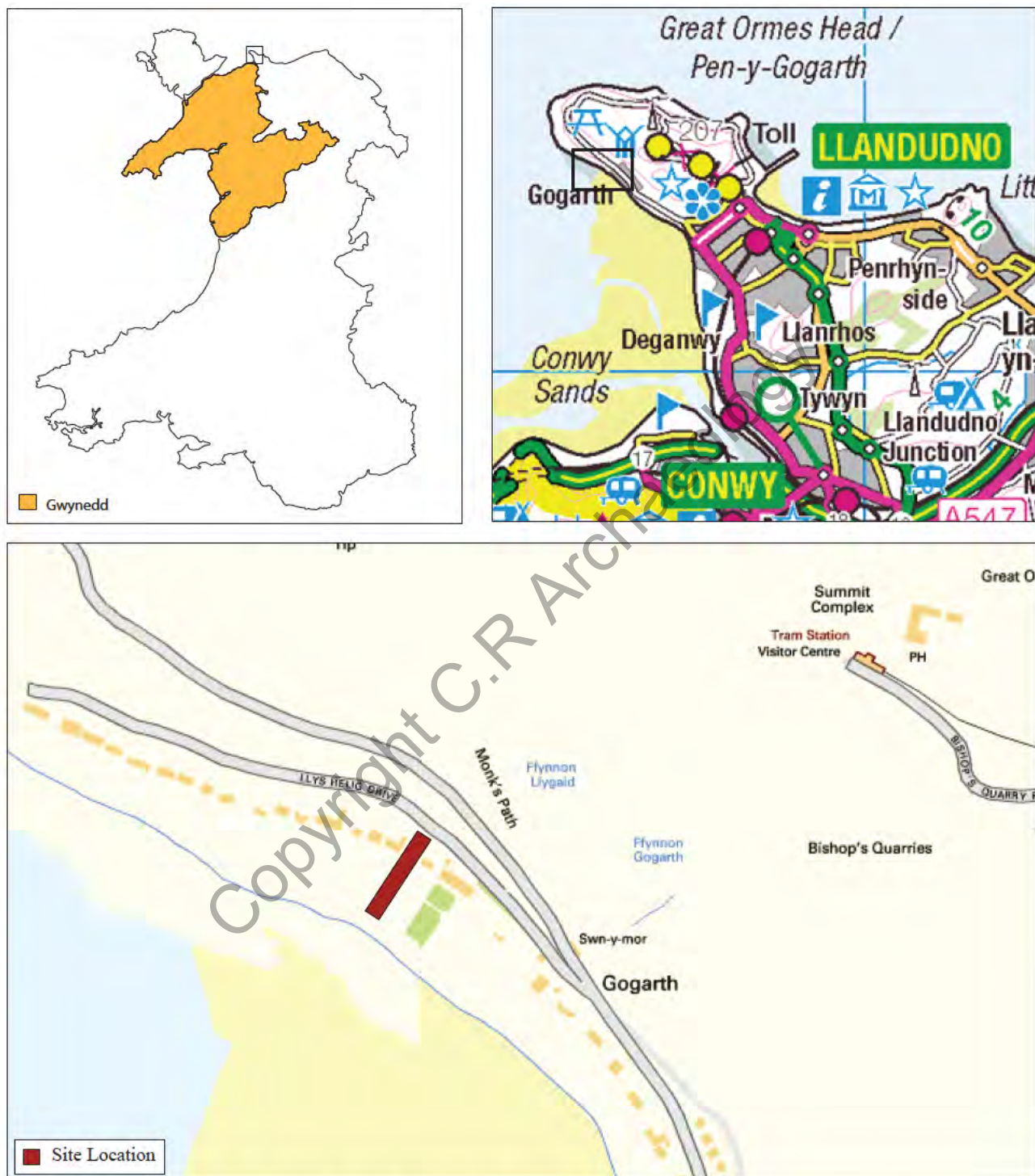


Figure 1. Site Location Map - Source: OS Open Data
(Contains Ordnance Survey data © Crown copyright and database right 2015)

Excavation Area

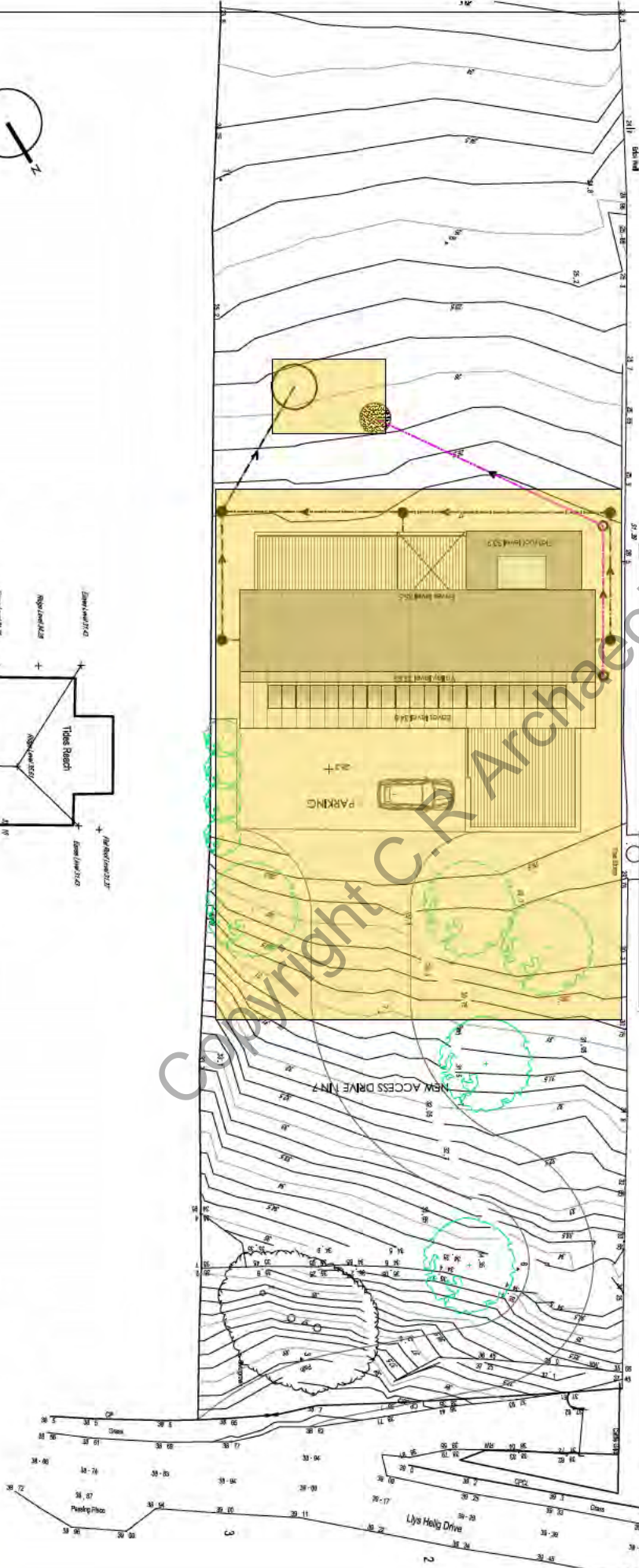


Figure 2. Proposed Development Plans

House on the Orme land adj. Tress Reoch		DATE	
Mr M Spencer		Jan. 2015	
Proposed Site Plan		DRAWING NUMBER	
D-1130-02-14-P109		SCALE	
1:250 @A3		DRAWN	
DC		CONWY 01497 550036	
CONWY 01745 817168		DRAWING 01745 817168	
www.matthewjonesarchitects.com		www.matthewjonesarchitects.com	

matthewjonesarchitects

Mr M Spencer

Proposed Site Plan

House on the Orme land adj. Tress Reoch

DATE

Jan. 2015

DRAWING NUMBER

D-1130-02-14-P109

SCALE

1:250 @A3

DRAWN

DC

CONWY 01497 550036

CONWY 01745 817168

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3.0 Scheme of Works – Methodology

The methodologies employed conformed to The Chartered Institute for Archaeologists: *Standard and Guidance for Archaeological Watching Brief* (2014).

3.1 Desk Based Research

A history of the site was compiled utilising information sourced from Conwy Record Office and the Gwynedd Historic Environment Record Office. A full map progression was undertaken along with a search of tithe records.

The Gwynedd Historic Environment Record was consulted and a search radius of 500m examined.

These works were carried out in accordance with the CIfA Standards and Guidance for Historic Environment Desk Based Assessment (CIfA 2014).

This material forms the historical background for the full archaeological report. This report also includes the results of the Archaeological Watching Brief.

3.2 Archaeological Watching Brief

The watching brief monitored all groundworks undertaken on the site. This included all topsoil and subsoil stripping and the excavation of the access roads, parking, house foundations and all service trenches.

A C.R Archaeology staff member was present during the machine excavation of all groundworks. This work was undertaken using a mechanical excavator fitted with a toothless ditching bucket.

C.R Archaeology notified GAPS as the date of the commencement of works and GAPS were kept updated as to site progress. A site visit to allow for the inspection of works was not deemed necessary due to the negative results of the Watching Brief.

Fieldwork was conducted and managed by Matthew Jones (MA) of C.R Archaeology.

3.2.1 Recording

The record forms at C.R Archaeology are based on the English Heritage system and full written, graphic and photographic records will be made in accordance with the English Heritage *Field Recording Manual*. Sample forms can be provided on request. The written record shall comprise completed *pro-forma* record sheets.

A high-resolution 14.2mp Sony Alpha digital camera was used to create a photographic record of the site. General photographs were taken due to negative result of the site works.

All photographic records have been indexed and cross-referenced to written site records. Details concerning subject and direction of view will be maintained in a photographic register, indexed by frame number. Images from photography will be stored in a loss-less digital format in this case '*.TIF'.

3.2.2 Additional Mitigation/Contingency Measures

No additional mitigation or contingency measures were required.

3.2.3 Recovery, Processing and Curation of Artefactual Material

No artefactual material was recovered.

3.2.4 Archive Compilation

All records created during the fieldwork will be checked for consistency and accuracy and will form part of the *Primary Site Archive (P1)* (EH 2006). The archive will contain all data collected, including records and other specialist materials. It will be ordered, indexed, adequately documented, internally consistent, secure, quantified, conforming to standards required by the archive repository and signposted appropriately to ensure future use in research, as detailed in the English Heritage *Management of Research Projects in the Historic Environment* (MoRPHE) methodology.

The archive will be assembled in accordance with the guidelines published in, *Standards in the museum care of archaeological collections* (Museums & Galleries Commission 1994), *Guidelines for the preparation of excavation archives for long-term storage* (United Kingdom Institute for Conservation, 1990) and *Archaeological Archives: A guide to best practice in creation, compilation, transfer and curation* (AAF 2007).

All materials contained within the *Primary Site Archive (P1)* that are subsequently identified by the *Assessment Report (P2)* as appropriate for analysis will be processed by suitable specialists and the resultant *Research Archive (P3)* will be checked and ordered according to MoRPHE criteria.

It was proposed that archive material created during this archaeological project would be deposited in Llandudno Museum, however due to the negative results of the works the archive will be deposited at the RCAHMW. Archive material will be deposited in accordance with the Commission's terms and conditions for deposition.

3.3 Timetable for Proposed Works

Groundworks commenced on Monday 13th April 2015 and were completed on July 13th 2016 (with two days of site work undertaken). Works were carried out on a day rate basis with staff attending site as necessary. Additional time was allotted as necessary for archive research, report compilation and site archiving. Gwynedd Archaeological Planning Services were informed of the exact site days to allow monitoring of works.

3.4 Staffing

The project was managed by Matthew Jones (BA (Archaeology), MA (Archaeology)). All projects are carried out in accordance with CIFA *Standard and Guidance* documents.

3.5 Monitoring

The project was subject to monitoring by Gwynedd Archaeological Planning Services. The monitor was given prior notice of the commencement of the fieldwork.

3.6 Health and Safety

A risk assessment was conducted prior to the commencement of works and site staff will be familiarised with its contents. A first aid kit will be located in the site vehicle.

All staff were issued with appropriate Personal Protective Equipment (PPE) for the site work. This consisted of:

- Safety Helmets (EN397)
- Hi-visibility vests (EN471)
- Safety footwear – steel toecap and mid-sole boots and Wellingtons (EN345-47)

All staff have passed a CITB health and safety test at operative level and carry a Construction Related Organisation (CRO) White Card for Archaeological Technician (Code 5363).

C.R Archaeology staff also complied with all Health and Safety Policy or specific on-site instructions provided by the client or their appointed Principal contractor or H&S coordinator.

3.7 The Report

This report clearly and accurately incorporates information gained from the programme of archaeological works. It presents the documentary evidence gathered in such a way as to create a clear and coherent record. This report contains a site plan showing the locations of photographs taken.

The report will include:

- A copy of the design brief and agreed specification
- A location plan
- A full bibliography of sources consulted
- An archive compact disc

A copy of the report in Adobe PDF format will be sent to the appropriate monitoring archaeologist for approval before formal submission. A bound paper copy and PDF digital copy of the report will be submitted as part of the formal submission. A digital Adobe PDF version and a bound paper copy of the final report and will be lodged with the Gwynedd Historic Environment Record within six months of completion of fieldwork.

3.7.1 Copyright

C.R Archaeology and sub-contractors shall retain full copyright of any commissioned reports, tender documents or other project documents, under the Copyright, Designs and Patents Act 1988 with all rights reserved; excepting that it hereby provides a licence to the client and the local authority for the use of the report by the client and the local authority in all matters directly relating to the project as described in the Project Specification.

4.0 Geographical and Geological Context

4.1 Topography

The Great Orme is a prominent feature in the landscape, the relatively undeveloped nature of which contrasts with the rest of the mainly developed Creuddyn Peninsula. A number of habitats are represented, such as wooded areas on the lower slopes, grasslands, cliff faces and rock exposures. The Great Orme can be seen for many miles around, from Anglesey and along the North Wales coast, and for many miles inland. Rising 209m (679ft.) from sea level, views from much of the site, but especially the summit, are extensive (www.conwy.gov.uk).

4.2 Geology

The bedrock is recorded as “*Loggerheads Limestone Formation - Limestone. Sedimentary Bedrock formed approximately 331 to 335 million years ago in the Carboniferous Period. Local environment previously dominated by shallow carbonate seas. These rocks were formed in warm shallow seas with carbonate deposited on platform, shelf and slope areas; often rich in corals and shelly faunas. May include evaporites where seawater was trapped and salts concentrated by evaporation*”. The superficial geology is recorded as “*Till, Devensian - Diamicton. Superficial Deposits formed up to 2 million years ago in the Quaternary Period. Local environment previously dominated by ice age conditions. These rocks were formed in cold periods with Ice Age glaciers scouring the landscape and depositing moraines of till with outwash sand and gravel deposits from seasonal and post glacial meltwaters*” (www.mapapps.bgs.ac.uk/geologyofbritain/home.html).

Soil formations are recorded in the “*Great Orme Country Park and Local Nature Reserve Management Plan 2011-2016*”. It states that “recent research into soil/plant interactions on the Great Orme (ITE/NERC 1995) reveals that patches and bands of post-glacial loess (a windblown, fine sand/silt) which are non-calcareous are present on the Great Orme, and in places obscure the underlying limestone. Where the loess is more than approximately 40cm deep over the limestone or boulder clay, heath has developed. Where loess thins out to 20-30cm, calcareous grass heath has developed. Where the loess thins further the influence of the limestone ensures that calcareous grassland occurs. Due to geographical and geological circumstances, the Great Orme's Head is of low agricultural quality in the national classification” (www.conwy.gov.uk).

5.0 Historical Background

The following content has been summarised from the “*Great Orme Country Park and Local Nature Reserve Management Plan 2011-2016*” produced by Conwy County Borough Council (www.conwy.gov.uk). It has been included to provide a general archaeological background for the Great Orme. A history of Marine Drive is included as section 5.1 and an examination of the archaeological remains within the immediate vicinity of the development site is included as section 5.2.

The Great Orme is the location of some of the most important Palaeolithic sites in Wales - Kendrick's Cave and Ogof Tan y Bryn which are approximately 12,000 years old. Numerous stone tools found in or near to caves on the Orme are indicative of a mobile human population utilising the area for thousands of years.

Permanent structures begin to appear in the area during the Neolithic period. Llety'r Filiast is the best preserved of these funerary monuments and is a megalithic burial chamber located close to the copper mines at Pyllau Valley. It is possible that this monument is contemporary with the earliest phases of copper exploitation at the mines.

The Great Orme Copper Mines are the largest prehistoric copper mines in the world and of huge international importance. Following almost 25 years of excavation over 5 miles of accessible tunnels have been recorded. Calculations suggest that over 2,000 tonnes of copper ore were mined over approximately a millennia. A vast number of prehistoric finds relating to this mining activity have been found, including 2,000 hammer stones used to break up the ore, and 30,000 animal bones used as tools. Settlement evidence for the Bronze Age miners is absent.

There is however evidence from the Iron Age date when a number of round houses and the promontory fort of Pen Dinas were constructed. The fort is built on precipitous cliffs with earth and stone ramparts, around a number of houses, sixty-five of which can be identified on the ground today. The influence of Roman colonialism is evident from coin and pottery finds. None are extensive or relate to rectangular structures identified as Roman in style.

Although there are no “dark age” archaeological remains on the Orme it is from this period that the name of the area is thought to derive. The Norse word “orma” means worm or sea-monster and it is believed to have been used due to the shape of the headland when visible from the sea.

The Medieval church of St. Tudno is believed to have an early foundation date, possibly as early as the sixth century. The current church dates from the twelfth century. Fine examples of ridge and furrow field systems survive around the church along with associated remains of the medieval long houses in which the tenants lived.

St. Tudno's lies at the centre of the Medieval township of Cyngreawdr, one of three recorded on the Orme. The other two townships were Gogarth and Yr Wyddfydd. By the fourteenth century Gogarth, belonging to the Bishop of Bangor, had emerged as the most important of the three. A manor house was built there, part of which, known as the Bishop's Palace still remains.

The history of the area in the Post Medieval period is dominated by the Mostyns of Gloddaeth and the Pughs of Penrhyn. The area remained relatively isolated throughout most of the seventeenth and eighteenth centuries, becoming a centre of espionage during William III's campaign against the Irish.

The industrial history of the Great Orme is dominated by the copper mines. Although records of mining activities before the nineteenth century are very sparse the first historical recorded exploitation of the copper ores is dated to 1692 when a lease was given to Sir Thomas Mostyn. However, at the height of the mines production, between 1839-1850, the mines employed up to 300 men and produced over a quarter of a million pounds worth of ore. In 1848 the abolition of import duties on copper combined with the discovery of large copper ore deposits in Australia, north America and Chile ushered in the end of the industry in Wales.

The development of the town of Llandudno as a major seaside resort after 1848 had a profound impact on the land-use of the Great Orme. The Orme began to serve as a backdrop to the resort with major associated developments such as the golf course, Marine Drive, the tramway, the gardens at Happy Valley, the summit café and the cable car and more recently the ski slope.

During the Second World War the Coastal Artillery School was relocated from the South of England to the Great Orme. The remains of this gunnery school can be found on the north-western corner of the headland, now a Scheduled Ancient Monument. Other remains include observation sites, pill boxes and gun emplacements. One of the earliest radar stations was also located on the summit of the Great Orme.

5.1 The Marine Drive

Beginning in 1849 when Edward Mostyn and Owen Williams began to develop plans to turn Llandudno from a mining and fishing village into a holiday resort, tourism in Llandudno was to become the dominant driving force in the development of the town. It is recorded that in 1854 there were approximately 200 dwelling but this had more than doubled to over 430 residences by 1862, spurred on no doubt by the opening of the Llandudno and Llandudno Junction railway branch line in 1858 (www.oldllandudno.co.uk).

The Marine Drive is a four mile scenic drive round the base of the Great Orme headland, from Llandudno's North Shore to Llandudno's West Shore. The initial route constructed around the perimeter of the Great Orme was a footpath which was constructed in 1858 by Reginald Cust, a Trustee of the Mostyn Estate. In 1872 this was upgraded by the Great Ormes Head Marine Drive Co. Ltd. who rebuilt the path as a carriage road. This company went bankrupt and the project was taken over by a Messrs Hughes, Morris & Davies (a consortium led by Richard Hughes of Madoc Street Llandudno) who completed the works in 1878. The road was bought by the Llandudno Urban District Council in 1897. (www.oldllandudno.co.uk).

An account of the Marine Drive was written by John Heywood in 1888 and this is reproduced below.

“Constructed on the very face of the stupendous cliffs, at a cost of over £14,000, this drive extends entirely around the Great Orme's Head, a distance of 5 miles. The worn and rugged limestone rock, the beating sea hundreds of feet below, the long stretch of tumbling waters sparkling in the sunlight or darkening to a soft purple under a passing cloud, the waving outline of the Isle of Man, the Cumberland hills, the coast of Lancashire, and, further round the shores of Anglesey and Puffin Island, the Straits of Menai and the towering bluff of Conwy mountain – the scene ever changing to fresh beauties as the road winds up and down and onwards – all this surely justifies the praise of one who wrote with authority, “There is probably no drive like it or equal to it in the Kingdom for its uniqueness and beauty”.

From opposite the new entrance to the Pier the the road ascends, and we pass the Pavilion on a level with its second floor. Then the Bath Hotel and the old entrance to the Pier are left on the right, as we round the base of the first spur of the Great Orme, called Pen y Ddinas.

A few yards further one of the distinctive and most interesting features of Llandudno comes in view on the left the “Happy Valley” the resort of young and old, the feeble and the strong. A broad green vale, sloping seaward, protected on three sides by the cliffs of Great Orme, which rise like a huge amphitheatre from the grassy slopes below, it is a favourite spot for all in pleasant weather. Here are archery, quoits, and bowls, and twice a day a company of Christy Minstrels give an open-air entertainment, to which all are freely invited. We now pass through the Toll-gate House, a casellated structure of stone.

And here the Marine Drive fairly begins. The broad, well-made road, protected by a strong parapet on the seaward side, winds onwards, following the flexuosities of the cliffs and shore – now ascending far above the sea, and again by gentle gradients finding a lower level, curving round huge jutting angles, and creeping under towering and seemingly threatening masses of overhanging rock – a wild and fascinating ride throughout. These cliffs were once the haunts of innumerable birds, such as pigeons, gulls, razorbills, ravens, guillemots, and cormorants, and the villagers of the earlier Llandudno followed a precarious and perilous trade in searching for eggs on these precipitous bluffs. The birds have nearly disappeared before the tourists, and the villagers find the exchange of prey not without advantages”.

Rounding the first corner, where the road begins to dip again towards the sea-level, the rude face of the cliffs is broken, and a glimpse is had of the grassy slopes of the uplands. There, high above us, is a tiny stone structure, the ancient Church of St. Tudno, of which we shall speak when we take our ramble on the summit of Great Orme. A footpath leads to it from the drive.

At the extreme point of the promontory we reach the New Lighthouse and Telegraph Station. It is a square, castellated building, erected by the Mersey Docks and Harbour board in 1862. It has a dioptric light, which can be seen twenty-four miles away, and is 325 feet above the sea. Every courtesy is shown to visitors. The view from the point is exceedingly fine. Puffin Island, a large part of the Menai Straits and Bridges have suddenly come into sight, totally changing in a few seconds the character of the scene.

Soon after leaving the Lighthouse the whole of the Conway Bay lies before us, and beyond it the entire coast from Puffin Island to Conway river, towering Paenmaenmawr and the pretty village of the same name in the valley at its feet, the heights Moel Wnion, Y Foel Fras, Tal y Fan, Y Foel Llus, Penmaen Bach, and Conway mountain. Presently the rocky precipices of Great Orme are exchanged for grassy slopes, and the road runs but little above the level of the Bay. Here can be

seen the meagre remains of the Abbey of Gogarth, a few bits of wall hanging the sea. Its history is well-nigh lost in the mists of antiquity. It may have been a palace of the Bishops of Bangor; it may have belonged to the Abbey of Conway; but little can be said except that it was a ruin as early as the reign of Henry VIII.

We soon pass the tollhouse, which marks the end of the Great Orme Drive proper; but, to complete the circle to our starting point, our carriage rolls along the Abbey Road, bordered on the left by handsome private residences, then through the streets of the town to the Crescent Drive, and the circuit of the headland has been made” (Heywood 1888: 17 – 22).

5.2 Archaeological Sites within a 500m Search Radius of the Development Area

There are 56 sites recorded within a 500m search radius of the development site. The sites are predominantly Post Medieval in date and are related to mine working, agricultural features and features associated with Parc Farm golf course. There are also a significant number of Medieval features – primarily agricultural in origin but which also include the significant remains of Gogarth Grange Bishop's Palace. There is a single Prehistoric findspot within the search area.

Prehistoric

There was a single Prehistoric findspot located within 500m of the development site. PRN 4590 was a bronze socketed axe described as “squarish socket, twin faceted on the two narrower outside surfaces, loop, and double moulding at mouth, 3-4ins long was found near Gogarth Abbey by Mr. W. Brookes”.

There is also a note in the entry for Gogarth Abbey that half of a perforated stone axe-hammer was found during excavations there in 1955-56. It is unclear but this may be a Prehistoric artefact.

Roman

There were no records relating to the Roman/Romano-British Period within the 500m search radius.

Medieval

There were 20 records of Medieval date located within the search area. Of these records 18 were related to agricultural features – predominantly ridge and furrow and bank features. Two of the records were related to the Gogarth Grange Bishop's Palace and associated gardens which are located within 250m of the development area.

The following information on agricultural features has been summarised rather than being presented in detail.

The following records are for ridge and furrow features believed to be of Medieval date:

PRN: 15378, 15166, 15172, 15339, 15387, 15400, 15401, 15544, 15548, 15549.

The following records are for bank features believed to be of Medieval date:

PRN: 15193, 15514, 15402, 15244, 15245, 15246, 15206, 15207.

There are a number of important Medieval remains within 250m of the development. The remains of Gogarth Grange Bishop's Palace (PRN 813), often called Gogarth Abbey stands on the edge of a cliff overlooking the sea on the south-western side of the Great Orme's Head. It is a palace of the Bishops of Bangor, and the remains are indicative of a date of c.1300. The structure was probably erected by Bishop Anion and there is evidence of extensive conflagration suggesting that the building was burnt by Owain Glyndwr at the beginning of 15th century. There is no evidence of the site having been rebuilt following this event. Coastal erosion has destroyed much of the building since its abandonment.

The site is a Scheduled Ancient Monument (CN093) and the following description is taken from the scheduling summary. *“Ruins of Bishop's Palace. In use for short while. Plain masonry. Large hall 12.19m x 8.53m, small other buildings A small gate in the hedge line to the north west of the site gives access to an orchard adjacent to the northern side of the site. The site is retained under turf and the hedges are overgrown. The western edge of the scheduled area is retained under a formal path within the grounds of "The Old Abbey". A modern slate platform below the western side of the walls, on the south western side of the site, has been fenced across. The interior of the Great Hall is covered by briars and weed. The walls support thorn bushes and ivy. A goat-proof fence line has been raised along the south west side of the Scheduled area. The fence line measures 2 M. in height and stands 0.8 M. distance from existing stonework. The fence line separates the edge of the garden from the cliff. On the western side of the site, a wooden stake gateway gives access to the cliff below. 1 M to the east of this gateway, on the edge of the higher ground, a crack 0.7 M. deep by 3 M. across has opened up in the ground and has undermined a fencepost. This area appears liable to land-slip. South of the new goat-proof fence line, the smaller stack of masonry has been lost from the south east building. The monument is of national importance for its potential to enhance our knowledge of the medieval period. It retains significant archaeological potential, with a strong probability of the presence of associated archaeological features and deposits. The structures themselves may be expected to contain archaeological information concerning chronology and building techniques. The scheduled area comprises the remains described and areas around them within which related evidence may be expected to survive”.*

The following objects have been found on the site although their present whereabouts are unknown:

- A limestone bowl with "shaped brim" and drain-hole, probably a piscina 13ins diameter and 8ins high, found in 1857
- A second and larger limestone bowl 1ft 4ins diameter
- Three silver pennies of Edward I
- A two-handled jug with tall cylindrical neck, squat ovoid body and a slightly flared base
- Half of a perforated stone axe-hammer was found during excavations in 1955-56

The Gogarth Grange Gardens (PRN 4437) were inspected by Liz Whittle for Cadw and definitely considered unworthy of Gardens Register. It is however considered that there may be buried remains which are not visible.

Works were carried out near the site by Gwynedd Archaeological Trust in 2010. PRN 29978 records the discovery of the footings of a stone wall which was found running parallel to the coast edge. “The footings were most clearly defined within the eastern part of the trench. Within the western part of the trench a stone platform was defined. This lacked the clear defined edges of the wall, though the stonework may incorporate remains of a wall within it. The wall and stone platform lie at a depth of 0.5m below the present ground surface. The wall has a similar appearance to the medieval walls excavated on the palace site (PRN 813), and it is possible it forms part of the perimeter wall which defined the precinct of the palace” (Cooke & Evans 2010).

Post Medieval

The Post Medieval records for the site were the most numerous. They can be roughly divided into agricultural remains, industrial remains, domestic remains and recreational remains.

Agricultural Remains

As in the preceding Medieval period earth works form the dominant agricultural feature recorded in the Historic Environment Record. The information on agricultural features has been summarised rather than being presented in detail.

The following records are for ridge and furrow features believed to be of Post Medieval date:
PRN: 15250, 15390, 15547, 16031, 15256, 15540.

The following records are for bank features believed to be of Post Medieval date:
PRN: 29585, 15255.

There are three built structures for agricultural use recorded within 500m of the development site.
PRN's 15249 & 15253 are both records for sheep folds built against field boundary walls.

PRN 36488 is the former site of a barn on Marine Drive. The description records "*the location of the shed and greenhouse, below the main house, reflects the location of a barn on the original farm . Although the majority of this structure has been rebuilt, the wall between the shed and barn is clearly a surviving fragment of the original barn. It is constructed of limestone blocks, some of which are fairly large, and includes a ventilation slit typical of 19th century barns*".

Industrial Remains

The industrial remains on the Great Orme are related to copper mining activities. Each entry within 500m has been summarised below.

PRN 5438: Ffynnon Gogarth, Great Orme. A well standing at the north western corner of the Gogarth mining complex. It is a brick outlet which has been built around a natural spring. The water was used to power the 'Tom & Jerry' engine as part of mid c19th operations to pump dry old & new mines.

PRN 20716: 'Tom and Jerry' Engine, Great Orme. The ruins of the Tom & Jerry engine and cottage which can be found in dense undergrowth below Ffynnon Gogarth. The engine was the power end of the line of brammock rods (PRN 20715) which powered the engine house for the mines which formerly stood (PRN 20708) nr. Vivian's shaft.

PRN 20715: Brammock Rods, Site of, Great Orme Mines. Series of pits reaching west up the slope to several cuttings. Continues past Bishop's Quarry where the course of the pits can be picked up again. Near the bottom of Parc Wall there is a change of direction towards Ffynnon Gogarth and the course runs down to Gogarth where the ruins of the Tom and Jerry engine and cottage can be found in dense undergrowth.

PRN 15451: Ffynnon Llygaid Trial. This feature is marked as 'Trial level' on an OS Map dated 1913.

PRN 798: A Hut Circle, N of Bishop's Quarries, Great Orme. The remains of a round hut on sloping ground. The remains are levelled into the slope, and are about 5m in diameter. They survive as a low grass grown bank of stones with a field clearance dump at the centre. Although this feature is noted as a round house on the SMR, this is very unlikely to be prehistoric as ridge and furrow appear to be interrupted by it. It is better interpreted as a former mine shaft.

PRN 15450: Monk's Path Trial, Gogarth. The remains of a trial with spoil tip below. It is marked on the 1913 OS map as an earthwork.

Domestic Remains

PRN 29977: Abbey Lodge, Former Site of, Llandudno. The Lodge was built shortly after 1894 and was formerly the lodge to the Abbey Railway Convalescent Home. The building was approximately 6.8m square and of two stories built around a central chimney stack. It was built of rubble masonry covered in render. It had a stuccoed exterior with mock quoins around the doorways and window openings, a hipped cross-gable with elaborate fretwork barge boards decorated with trefoils and supported on corbels. A large 1960s single storey extension was added to the west side of the building. The roof was slated with terracotta ridge tiles and most of the original four-pane sash windows had been replaced by uPVC windows. Evidence for cast iron lintels were noted above the front window openings. The building was demolished c. 2010.

PRN 36487: Monk's Barn House, Marine Drive, Great Orme. The core of the house is a simple, pitched roofed farmhouse. The structure is almost certainly that shown on the 1840 tithe map although it has been much altered since that date. Later structures of largely concrete construction surround the earlier building.

PRN 36489: Building, Former Site of, Marine Drive, Great Orme. A smaller building is shown lower down the slope on the tithe map, which was still in existence in 1919, but later disappeared from the maps. The north-western wall of this building still survives, standing to a height of over 1.5m. The main terrace wall of the garden has been built across this wall, but the foundations of the older wall seem to continue on the north-eastern side of the terrace wall. Here large stones can be seen in the bottom a largely rebuilt cross-terrace wall. The existence of part of the earlier structure demonstrates that the lower portion of the garden is still at the same level as in the 19th century, suggesting that archaeological deposits may survive here.

Recreational Remains

The recreational remains within the 500m search radius of the development site all relate to PRN 20730 - a golf course created between 1889 when there is no record of the course on the OS 25" map and 1913 when this edition OS map records "Golf Course Parc".

The golf course was established in the early 20th century on Parc Farm. It went out of use prior to 1939. Little of it is now visible on the ground, though many of the greens etc. are visible on the 1947 aerial photograph. Each of the elements are individually recorded. They are summarised below.

PRN 15269: Earthwork, Great Orme. Part of former golf course visible on 1947 AP though now largely ploughed out.

PRN 20737 & 15254: Earthwork, Parc Wall, Great Orme. A pyramidal, truncated-top square earthwork just inside parc wall is visible on a low level AP. It was mentioned that it had the appearance of probably being connected with earlier WWII artillery installations or was a reservoir of some sort but it was investigated by GAT in 2003 and determined to be part of the golf course.

PRN 15259: Bunker, Great Orme Golf Course.

PRN 15267: Green (10th Hole), Great Orme Golf Course.

PRN 15243: Green (15th Hole), Great Orme Golf Course.

PRN 15242: Green (9th Hole), Great Orme Golf Course.

PRN 15234: Green, Great Orme Golf Course.

PRN 15539: Green, Great Orme Golf Course.

PRN 15541: Green, Possible, Great Orme Golf Course.

PRN 15198: Green, Possible, Parc.

Unknown

There are a further 4 sites of unknown or unclassified date also recorded within the 500m search area. Although it is commented that a number of them are likely of Post Medieval date this has not been confirmed and the remains are not attributed to this period. The sites are listed below.

PRN 5449: Banks/Earthwork Complex, S of Parc, Great Orme. A large complex of banks and earthworks. The main area is enclosed by a low D-shaped bank, terminated at each end by Parc Farm wall.

PRN 15174: A Circular Depression, Parc. Slight depression almost certainly related to mining activity and site PRN 15173.

PRN 15260: Depression, Great Orme. A small depression visible on 1947 AP. Almost certainly post medieval as it appears to overlie straight ploughing ridges.

PRN 650: Ffynnon Llygaid, Great Orme. The well chamber, 2' x 1' is of limestone slabs, now ruined. Condition: almost completely destroyed.

6.0 Results of Archaeological Works (Plates 1-5)

Two areas of the site were stripped down to the underlying natural. The main area was the roughly square house platform which measured 22m by 20m. The soil depth in this area varied between 0.21m and 0.26m.

Two contexts were identified in this area. Context (01) was a turf /top soil layer which had a depth range of 0.21m-0.26m. It was a mid brown silty-clay and was a very mixed deposit. It had been heavily disturbed by roots and contained frequent inclusions of modern rubbish together with a large quantity of crushed oyster shell. The oyster shell was encountered throughout the context and there was no clear concentration of the material in one specific area.

Context (02) was the underlying natural. It was a yellow-orange boulder clay with frequent small rounded stones and gravels and occasional large, rounded stones.

A second area was excavated for a soak away and a water recycling tank. It measured 2m by 1.8m and was excavated to a depth of 2m. The same two contexts detailed above were encountered, with the underlying natural (02) reached at a depth of 0.38m.

The only datable material recovered was modern rubbish dating from the late 20th and 21st centuries. Prior to the commencement of works the site was over grown with trees and large shrubs which had to be removed before the excavation could commence. The site had been clearly disturbed by the rooting associated with the vegetation and the soil depth over the site was very shallow.



Plate 1. Area of Built Ground At North-Eastern
End of Building Plot



Plate 2. Building Plot Following Clearance of
Vegetation Prior to Machining (Facing South-West)



Plate 3. Building Plot Following Machine
Excavation of House Area (Facing South-West)



Plate 4. Soak
Away Pit



Plate 5. Soak Away
Pit Section

The large amount of oyster shells mentioned above could suggest that there was a midden in the area in the past although this is not the only possible explanation for their presence. Oyster shells were also used in the Post Medieval period for manuring and “*The Farmers Encyclopedia*” of 1844 records that although the practice is not popular in England it was seen elsewhere and was common in Ireland. The shells contain carbonate of lime and chalk which was considered a useful addition in clay soils. The best results are gained by crushing the shells although it has been noted that many farmers brake it up with the plough (Johnson 1844: 868).

7.0 Conclusion

Despite the development site being located within an area of high archaeological potential, with known sites of Prehistoric, Medieval and Post Medieval date located in the vicinity of the site, no archaeological remains were encountered during the works.

It was noted that there was a considerable amount of crushed oyster shell within the soil but it was unclear as to whether this represented the remains of a destroyed shell midden of undetermined date or later agricultural practises.

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www.greatorme.org.uk

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Appendix A.
Specification for Archaeological Works

Copyright C.R Archaeology

**Specification for Archaeological Works at
Plot off Llys Helig Drive, Great Orme, Llandudno**

NGR SH 75982 83045

Report Number CR94-2015



C.R Archaeology

Prepared by C. Rees

on Behalf of Mr. Michael Spencer

Copyright C.R Archaeology

Specification for Archaeological Works at Plot off Llys Helig Drive, Great Orme, Llandudno

Planning Reference Number:	0/41417
National Grid Reference:	SH 75982 83045
Client:	Mr. Michael Spencer
Report Authors:	Catherine Rees
Report Number:	CR94-2015
Date:	15/03/2015

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Illustrations

Figure 1. Site Location Map

Figure 2. Proposed Works

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1.0 Introduction

C.R Archaeology have been instructed by Mr. Michel Spencer to conduct archaeological works at the above site in compliance with planning conditions placed on the development (Planning Reference: 0/41417).

This specification has been written following an email conversation with Development Control Archaeologist Jenny Emmett of Gwynedd Archaeological Planning Services (beginning 8th March 2015) as a methodology for an Archaeological Watching Brief.

The proposed development site is situated off Llys Helig Drive, Great Orme, Llandudno (Figure 1). Planning permission has been granted to erect a single dwelling with associated access, parking and services (Figure 2).

The development plot is located within 250m of the Bishop's Palace at Gogarth Grange (SAM Ref No. Cn093) and with a 1000m of the former Royal Artillery Coast Artillery School (SAM Ref No. Cn409). The landscape of the Great Orme itself is considered to be an area of very high archaeological potential. Numerous archaeological sites are recorded on the Great Orme including Bronze Age and later mining activity, Medieval and later Prehistoric/Roman settlement.

The development of the town of Llandudno as a major seaside resort after 1840 had a profound impact on the land-use of the Great Orme. The Orme began to serve as a backdrop to the resort with major associated developments such as the golf course, Marine Drive, the tramway, the gardens at Happy Valley, the summit café and the cable car and more recently the ski slope (*Great Orme Country Park and Local Nature Reserve Management Plan 2011-2016*). There are numerous listed buildings associated with the development of Llandudno and the Orme as a tourist destination.

The Great Orme headland has been designated a Special Area of Conservation, a Site of Special Scientific Interest and a Heritage Coast (www.greatorme.org.uk).

2.0 Project Aims

This scheme of works aims to monitor groundworks at the site in order to assess the survival, character and date of any archaeological remains and to excavate/record any archaeological remains uncovered.

It aims to fulfil the mitigation criteria for undertaking an Archaeological Watching Brief as specified in the CIFA Standard and Guidance document (2014).

3.0 Historical Background

The following section is, through necessity, brief and is intended to merely place the site in context. A more detailed history of the site will form an element in the proposed works and will concentrate more specifically on the site itself. The content for this section has been summarised from the "*Great Orme Country Park and Local Nature Reserve Management Plan 2011-2016*" produced by Conwy County Borough Council (www.conwy.gov.uk).

The Great Orme is the location of some of the most important Palaeolithic sites in Wales - Kendrick's Cave and Ogof Tan y Bryn which are approximately 12,000 years old. Numerous stone tools found in or near to caves on the Orme are indicative of a mobile human population utilising the area for thousands of years.

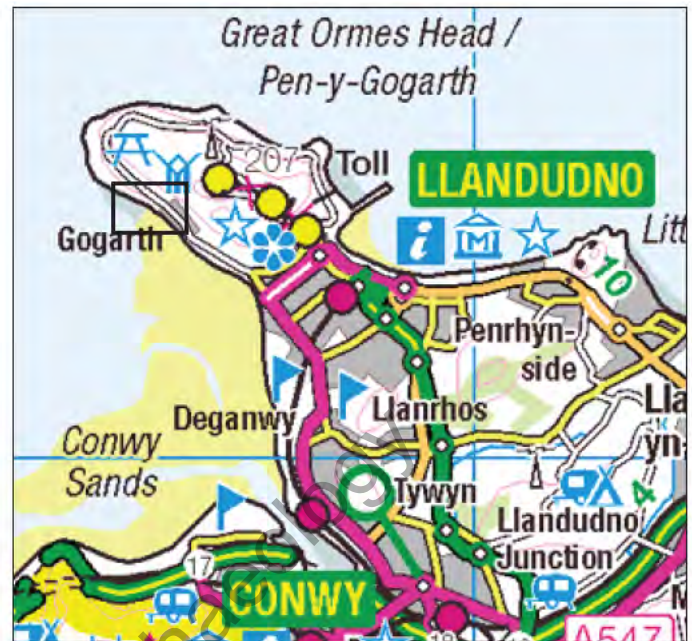
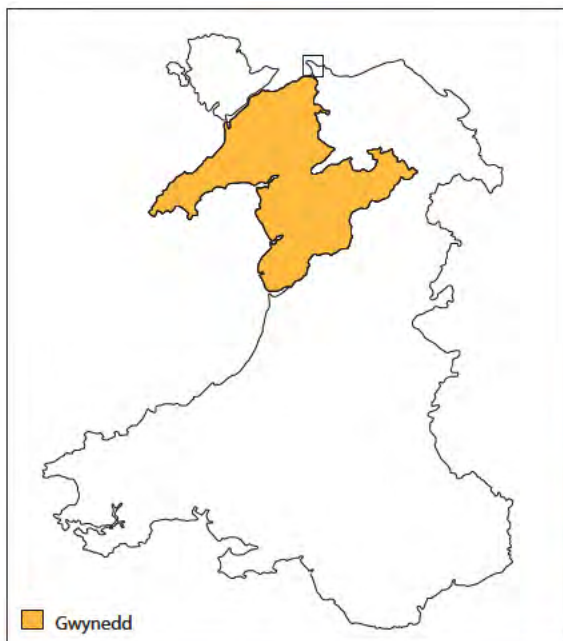


Figure 1. Site Location Map - Source: OS Open Data
(Contains Ordnance Survey data © Crown copyright and database right 2015)

Excavation Area

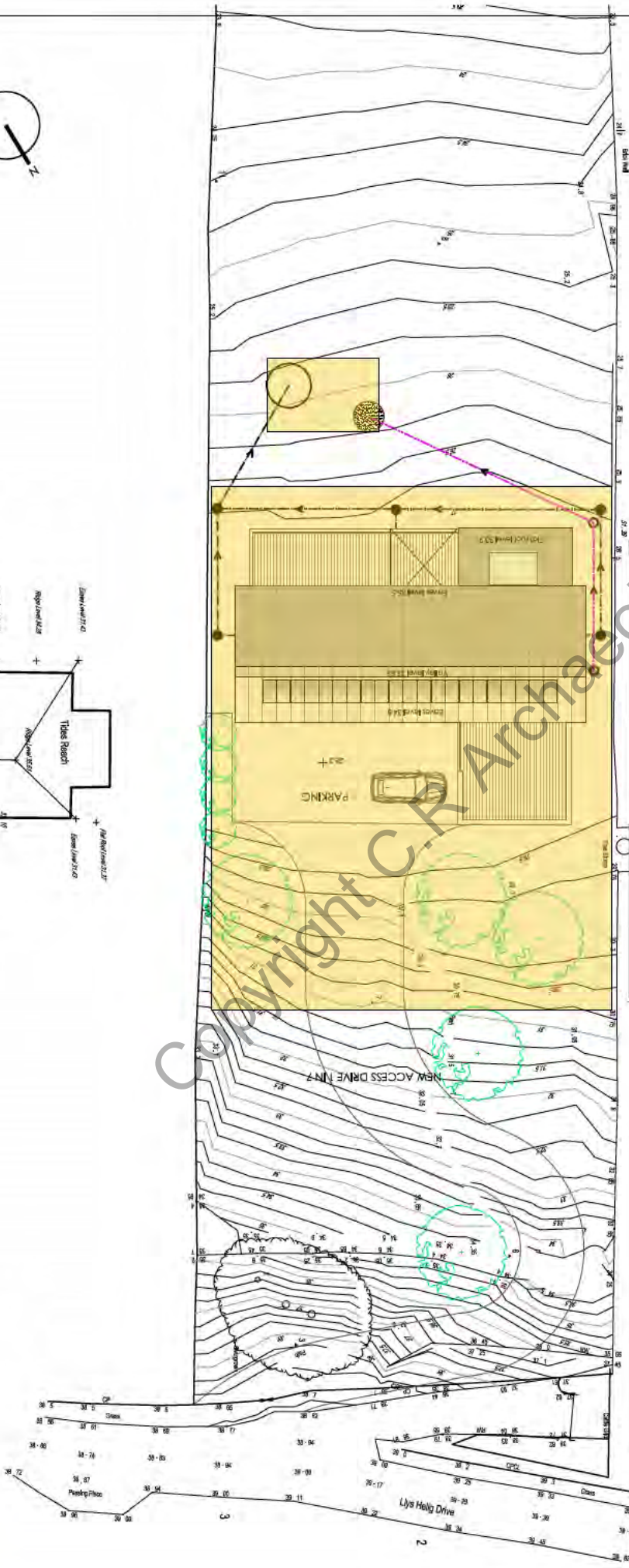


Figure 2. Proposed Development Plans

House on the Orme land adj. Tress Reoch		DATE	
Mr M Spencer		Jan. 2015	
Proposed Site Plan		DRAWING NUMBER	
D-1130-02-14-P109		SCALE	
1:250 @A3		DRAWN	
DC		CONWY 01497 550036	
CONWY 01745 817168		DRAWING 01745 817168	
www.matthewjonesarchitects.com		www.matthewjonesarchitects.com	

matthewjonesarchitects

Mr M Spencer

Proposed Site Plan

House on the Orme land adj. Tress Reoch

DATE

Jan. 2015

DRAWING NUMBER

D-1130-02-14-P109

SCALE

1:250 @A3

DRAWN

DC

CONWY 01497 550036

CONWY 01745 817168

www.matthewjonesarchitects.com

www.matthewjonesarchitects.com

Permanent structures begin to appear in the area during the Neolithic period. Llety'r Filiast is the best preserved of these funerary monuments and is a megalithic burial chamber located close to the copper mines at Pyllau Valley. It is possible that this monument is contemporary with the earliest phases of copper exploitation at the mines.

The Great Orme Copper Mines are the largest prehistoric copper mines in the world and of huge international importance. Following almost 25 years of excavation over 5 miles of accessible tunnels have been recorded. Calculations suggest that over 2,000 tonnes of copper ore were mined over approximately a millennia. A vast number of prehistoric finds relating to this mining activity have been found, including 2,000 hammer stones used to break up the ore, and 30,000 animal bones used as tools. Settlement evidence for the Bronze Age miners is absent.

There is however evidence from the Iron Age date when a number of round houses and the promontory fort of Pen Dinas were constructed. The fort is built on precipitous cliffs with earth and stone ramparts, around a number of houses, sixty-five of which can be identified on the ground today. The influence of Roman colonialism is evident from coin and pottery finds. None are extensive or relate to rectangular structures identified as Roman in style.

Although there are no "dark age" archaeological remains on the Orme it is from this period that the name of the area is thought to derive. The Norse word "orma" means worm or sea-monster and it is believed to have been used due to the shape of the headland when visible from the sea.

The Medieval church of St. Tudno is believed to have an early foundation date, possibly as early as the sixth century. The current church dates from the twelfth century. Fine examples of ridge and furrow field systems survive around the church along with associated remains of the medieval long houses in which the tenants lived.

St. Tudno's lies at the centre of the Medieval township of Cyngreawdr, one of three recorded on the Orme. The other two townships were Gogarth and Yr Wyddfydd. By the fourteenth century Gogarth, belonging to the Bishop of Bangor, had emerged as the most important of the three. A manor house was built there, part of which, known as the Bishop's Palace still remains.

The history of the area in the Post Medieval period is dominated by the Mostyns of Gloddaeth and the Pughs of Penrhyn. The area remained relatively isolated throughout most of the seventeenth and eighteenth centuries, becoming a centre of espionage during William III's campaign against the Irish.

The industrial history of the Great Orme is dominated by the copper mines. Although records of mining activities before the nineteenth century are very sparse the first historical recorded exploitation of the copper ores is dated to 1692 when a lease was given to Sir Thomas Mostyn. However, at the height of the mines production, between 1839-1850, the mines employed up to 300 men and produced over a quarter of a million pounds worth of ore. In 1848 the abolition of import duties on copper combined with the discovery of large copper ore deposits in Australia, north America and Chile ushered in the end of the industry in Wales.

The development of the town of Llandudno as a major seaside resort after 184 had a profound impact on the land-use of the Great Orme. The Orme began to serve as a backdrop to the resort with major associated developments such as the golf course, Marine Drive, the tramway, the gardens at Happy Valley, the summit café and the cable car and more recently the ski slope.

During the Second World War the Coastal Artillery School was relocated from the South of England to the Great Orme. The remains of this gunnery school can be found on the northwestern corner of

the headland, now a Scheduled Ancient Monument. Other remains include observation sites, pill boxes and gun emplacements. One of the earliest radar stations was also located on the summit of the Great Orme.

3.1 Topography

The Great Orme is a prominent feature in the landscape, the relatively undeveloped nature of which contrasts with the rest of the mainly developed Creuddyn Peninsula. A number of habitats are represented, such as wooded areas on the lower slopes, grasslands, cliff faces and rock exposures. The Great Orme can be seen for many miles around, from Anglesey and along the North Wales coast, and for many miles inland. Rising 209m (679ft.) from sea level, views from much of the site, but especially the summit, are extensive (www.conwy.gov.uk).

3.2 Geology

The bedrock is recorded as “*Loggerheads Limestone Formation - Limestone. Sedimentary Bedrock formed approximately 331 to 335 million years ago in the Carboniferous Period. Local environment previously dominated by shallow carbonate seas. These rocks were formed in warm shallow seas with carbonate deposited on platform, shelf and slope areas; often rich in corals and shelly faunas. May include evaporites where seawater was trapped and salts concentrated by evaporation*”. The superficial geology is recorded as “*Till, Devensian - Diamicton. Superficial Deposits formed up to 2 million years ago in the Quaternary Period. Local environment previously dominated by ice age conditions. These rocks were formed in cold periods with Ice Age glaciers scouring the landscape and depositing moraines of till with outwash sand and gravel deposits from seasonal and post glacial meltwaters*” (www.mapapps.bgs.ac.uk/geologyofbritain/home.html).

Soil formations are recorded in the “*Great Orme Country Park and Local Nature Reserve Management Plan 2011-2016*”. It states that “*recent research into soil/plant interactions on the Great Orme (ITE/NERC 1995) reveals that patches and bands of post-glacial loess (a windblown, fine sand/silt) which are non-calcareous are present on the Great Orme, and in places obscure the underlying limestone. Where the loess is more than approximately 40cm deep over the limestone or boulder clay, heath has developed. Where loess thins out to 20-30cm, calcareous grass heath has developed. Where the loess thins further the influence of the limestone ensures that calcareous grassland occurs. Due to geographical and geological circumstances, the Great Orme's Head is of low agricultural quality in the national classification*” (www.conwy.gov.uk).

4.0 Scheme of Works – Methodology

The methodologies employed will conform to The Chartered Institute for Archaeologists: *Standard and Guidance for Archaeological Watching Brief* (2014).

4.1 Desk Based Research

A history of the site will be compiled utilising information sourced from Conwy Record Office and the Gwynedd Historic Environment Record Office. A full map progression will be undertaken along with a search of tithe records.

The Gwynedd Historic Environment Record will be consulted and a search radius of 500m will be examined.

These works will be carried out in accordance with the CIfA Standards and Guidance for Historic Environment Desk Based Assessment (CIfA 2014).

This material will form the historical background for a full archaeological report. The report will include the results of the Archaeological Watching Brief.

4.2 Archaeological Watching Brief

This watching brief will monitor all groundworks undertaken on the site. This will include all topsoil and subsoil stripping and the excavation of access roads, parking, house foundations and all service trenches.

A C.R Archaeology staff member will be present during the machine excavation of all groundworks. This work will be undertaken using a mechanical excavator fitted with a toothless ditching bucket. If archaeological remains are encountered then machine excavation will cease at this level until it is clear in plan that the full extent of any features have been uncovered within the development area. If the features extend beyond the limits of the development and it is felt to be beneficial to extend the width of the strip where possible an additional area of up to 1m on either side of the feature will be exposed. If this does not prove sufficient it may then be necessary to follow the procedures for Additional Mitigation/Contingency Measures.

C.R Archaeology will notify GAPS as the date of the commencement of works and if any significant archaeological features are uncovered. A site visit will be arranged to allow for the inspection of works.

All archaeological remains/ potential archaeological remains identified during the stripping of the site will be marked using spray paint and cordoned off to allow excavation by C.R Archaeology staff. Any archaeological features, structures or remains will be trowel cleaned by hand. Investigation of such features, structures or deposits will be sufficient to determine their character, date, significance and quality. If features yield suitable material for dating/environmental processing then samples will be taken for processing off site. The size of these samples will depend on the size of the feature but for smaller features a sample of up to 95% will be taken. For larger features a sample of up to 40 litres will be taken. In the event of a significant discovery GAPS will be informed of the discovery and a mitigation strategy agreed before works will progress.

Fieldwork is to be conducted and managed by Matthew Jones (MA) of C.R Archaeology. Additional staff can be brought in as required and all staff members will have experience equivalent to AIfA level and cv's can be provided on request.

4.2.1 Recording

The record forms at C.R Archaeology are based on the English Heritage system and full written, graphic and photographic records will be made in accordance with the English Heritage *Field Recording Manual*. Sample forms can be provided on request. The written record shall comprise completed *pro-forma* record sheets.

Plans, sections and elevations will be produced on gridded, archive standard stable polyester film at scales of 1:10, 1:20 or 1:50, as appropriate. Representative measured sections will be prepared as appropriate showing the sequence and depths of deposits. A temporary benchmark (TBM) will be established on the site and plans, elevations and sections will contain grid and level information which where possible will be calculated relative to OS data. All drawings will be numbered and listed in a drawing register, these drawing numbers being cross-referenced to written site records. A 'harris matrix' diagram will be created.

A high-resolution 14.2mp Sony Alpha digital camera will be used to create a photographic record of the site. This will be comprised of photographs of archaeological features and appropriate groups of features and structures. Included in each photograph will be an appropriate scale and north arrow. General photographs will also be taken in the event of a negative result.

All photographic records will be indexed and cross-referenced to written site records. Details concerning subject and direction of view will be maintained in a photographic register, indexed by frame number. Images from photography will be stored in a loss-less digital format in this case '*.TIF'.

4.2.2 Additional Mitigation/Contingency Measures

In the event of a significant archaeological discovery being made during the excavation C.R Archaeology will immediately inform both the client and the development control archaeologist. Consultation will take place between C.R Archaeology, GAPS and the client with regards to the most suitable course of action.

In the unlikely event that human remains are encountered site work will cease with immediate effect. The coroner, client and monitoring body will be informed immediately. The company will abide by the requirements of Section 25 of the Burial Act 1857. Any arrangements regarding the discovery of human remains will be at the discretion of HM Coroner whose instruction/permission will be sought. All human remains are to be preserved *in situ*, covered and protected. They will only be removed in exceptional circumstances and with the appropriate Ministry of Justice licence, environmental health regulations, Coroner's permission and, if appropriate, in compliance with the Disused Burial Grounds (Amendment) Act 1981 or other local Act, with adequate security provided in such cases.

Any artefacts recovered that fall within the scope of the Treasure Act 1996 will be reported to the landowner, GAPS and to HM Coroner.

4.2.3 Recovery, Processing and Curation of Artefactual Material

All recovered artefactual material will be retained, cleaned, labelled and stored according to *Standard and Guidance for the collection, documentation, conservation and research of archaeological materials (IfA 2008)* and *First Aid for Finds (Watkinson & Neal 2001)*. The aim will be to create a stable, ordered, well-documented, accessible material archive forming a resource for current and future research (IfA 2008).

All artefactual material will be bagged and labelled with the site code and context number prior to their removal from site. The archive reference number will be clearly marked on all finds.

Each assemblage will be examined according to typological or chronological criteria and conservation needs identified. An assessment report of all post-medieval material will be produced by Matthew Jones and further specialists will be appointed as required. A list of specialists will be prepared prior to the post-excavation phase of works.

Any specialist conservation necessary will be undertaken by Cardiff Conservation Services, Cardiff University. This will be conducted in accordance with guidelines issued by the Institute for Conservation.

Following analysis all archaeological material recovered will be deposited in Llandudno Museum. However should an item of high value be retrieved from the site then the client has asked to reserve the right to retain ownership of said artefact. Processed assemblages will be boxed according to issued guidelines and a register of contents compiled prior to deposition.

The works will be carried out in accordance with The Institute for Archaeologists: *Standard and Guidance for Archaeological Watching Brief* (Revised 2008).

4.2.4 Archive Compilation

All records created during the fieldwork will be checked for consistency and accuracy and will form part of the *Primary Site Archive (P1)* (EH 2006). The archive will contain all data collected, including records and other specialist materials. It will be ordered, indexed, adequately documented, internally consistent, secure, quantified, conforming to standards required by the archive repository and signposted appropriately to ensure future use in research, as detailed in the English Heritage *Management of Research Projects in the Historic Environment* (MoRPHE) methodology.

The archive will be assembled in accordance with the guidelines published in, *Standards in the museum care of archaeological collections* (Museums & Galleries Commission 1994), *Guidelines for the preparation of excavation archives for long-term storage* (United Kingdom Institute for Conservation, 1990) and *Archaeological Archives: A guide to best practice in creation, compilation, transfer and curation* (AAF 2007).

All materials contained within the *Primary Site Archive (P1)* that are subsequently identified by the *Assessment Report (P2)* as appropriate for analysis will be processed by suitable specialists and the resultant *Research Archive (P3)* will be checked and ordered according to MoRPHE criteria.

Any archive/artefactual material created/discovered during this archaeological project will be deposited in Llandudno Museum. Archive material will be deposited in accordance with the museum's terms and conditions for archive deposition.

4.3 Timetable for Proposed Works

It is envisaged that groundworks will commence on Monday 13th April 2015 and will be carried out on a day rate basis and staff will attend site as necessary. Additional time will be allotted as necessary for archive research, report compilation and site archiving. Gwynedd Archaeological Planning Services will be informed of the exact site days to allow monitoring of works.

4.4 Staffing

The project will be managed by Matthew Jones (BA (Archaeology), MA (Archaeology)). All staff will have a skill set equivalent to the IfA AIfA level. C.Vs for all staff employed on the project can be provided on request. All projects are carried out in accordance with CIfA *Standard and Guidance* documents.

4.5 Monitoring

The project will be subject to monitoring by Gwynedd Archaeological Planning Services. The monitor will be given prior notice of the commencement of the fieldwork. A projected time-scale and copy of the risk assessment can be provided on request to the monitoring body prior to the commencement of works.

They will be notified in writing (via email) of the commencement dates for archaeological site work and will be updated with the results of all works conducted as watching brief elements. This will be initially as an telephone call & email with attached JPEG photographs and if/when required further interim reports will be compiled.

4.6 Health and Safety

A risk assessment will be conducted prior to the commencement of works and site staff will be familiarised with its contents. A first aid kit will be located in the site vehicle.

All staff will be issued with appropriate Personal Protective Equipment (PPE) for the site work. Initially this is anticipated to consist of:

- Safety Helmets (EN397)
- Hi-visibility vests (EN471)
- Safety footwear – steel toecap and mid-sole boots and Wellingtons (EN345-47)

Any further PPE required will be provided by C.R Archaeology

All staff will have passed at least a CITB health and safety test at least operative level and will carry a Construction Related Organisation (CRO) White Card for Archaeological Technician (Code 5363) or a Site Visitor card.

C.R Archaeology staff will also comply with any Health and Safety Policy or specific on-site instructions provided by the client or their appointed Principal contractor or H&S coordinator.

4.7 The Report

The report will clearly and accurately incorporate information gained from the programme of archaeological works. It will present the documentary evidence gathered in such a way as to create a clear and coherent record. The report will contain a site plan showing the locations of photographs taken.

As a minimum the report will include:

- A copy of the design brief and agreed specification
- A location plan
- All identified features and significant finds plotted on an appropriately scaled site plan
- Full dimensional and descriptive detail of all identified finds and features
- A full bibliography of sources consulted
- An archive compact disc

A copy of the report in Adobe PDF format will be sent to the appropriate monitoring archaeologist for approval before formal submission. A bound paper copy and PDF digital copy of the report will be submitted as part of the formal submission. A digital Adobe PDF version and a bound paper copy of the final report and will be lodged with the Gwynedd Historic Environment Record within six months of completion of fieldwork.

In the event of a positive result of site works a short article will be submitted to the Archaeology in Wales Journal and the site archive including copies of all photographs in RAW and Tiff format will be deposited the local museum.

4.7.1 Copyright

C.R Archaeology and sub-contractors shall retain full copyright of any commissioned reports, tender documents or other project documents, under the Copyright, Designs and Patents Act 1988 with all rights reserved; excepting that it hereby provides a licence to the client and the local authority for the use of the report by the client and the local authority in all matters directly relating to the project as described in the Project Specification.

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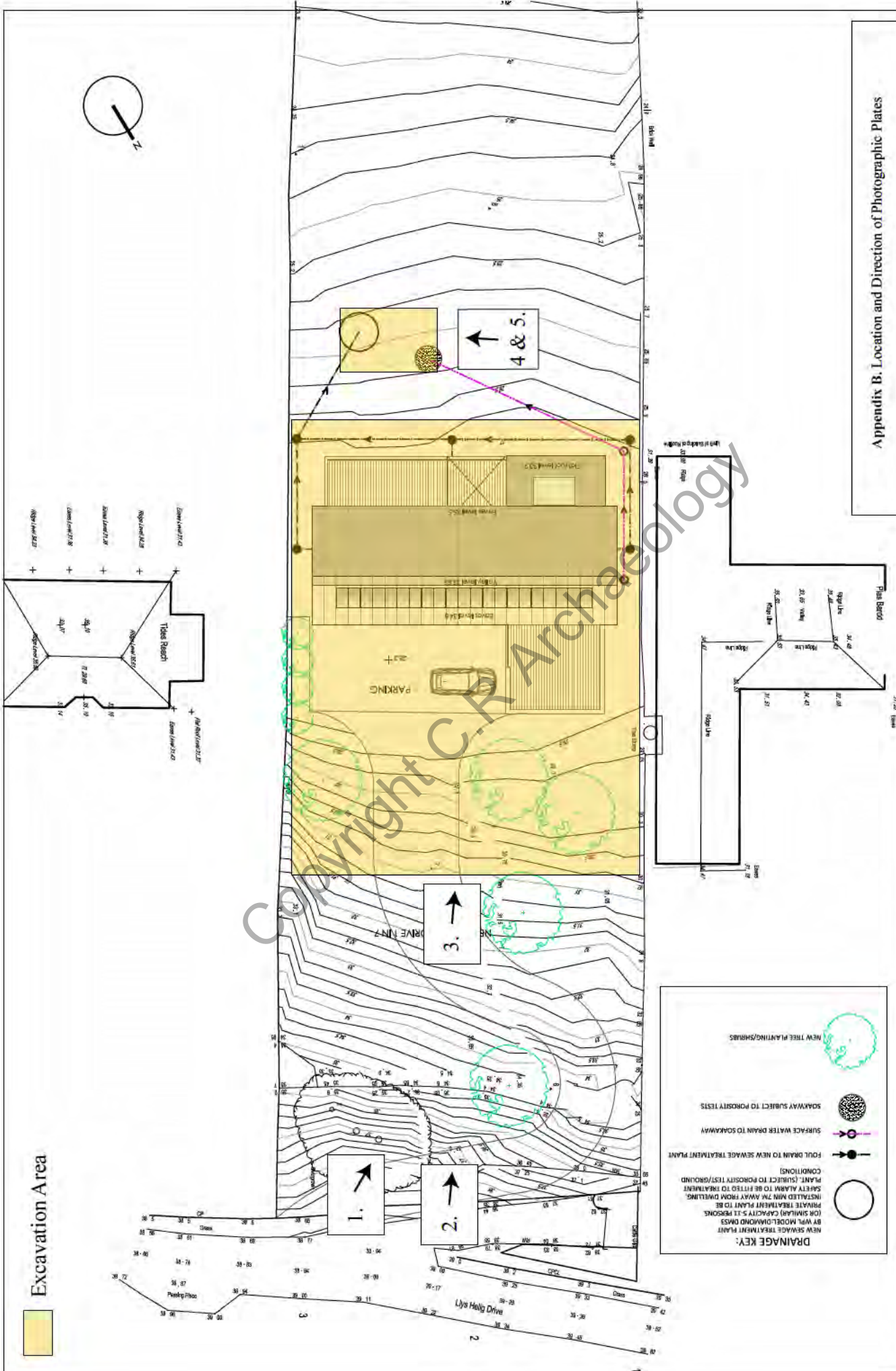
www.greatorme.org.uk

www.mapapps.bgs.ac.uk/geologyofbritain/home.html

Appendix B.
Location and Direction of Photographic Plates

Copyright C.R Archaeology

Excavation Area



DRAINAGE KEY:

- NEW SEWAGE TREATMENT PLANT (FOR SIMILAR CAPACITY 5-11 PERSONS BY WPL MODEL/COMPOUND DMS)
- PRIVATE TREATMENT PLANT TO BE INSTALLED MIN 7M AWAY FROM DWELLING. SAFETY ALARM TO BE FITTED TO TREATMENT PLANT. (SUBJECT TO POROSITY TEST/CONDITIONS)
- FOUL DRAIN TO NEW SEWAGE TREATMENT PLANT
- SURFACE WATER DRAIN TO SOAKAWAY
- SOAKAWAY SUBJECT TO POROSITY TESTS
- NEW TREE PLANTING/SHRUBS

Appendix B. Location and Direction of Photographic Plates

House on the Orme land adj. Tides Reach		Proposed Site Plan	
Mr M Spencer		D-1130-02-14-P109	
DATE		DRAWING NUMBER	
Jan. 2015	DC	1:250 @A3	SCALE
CONWAY 01497 550036		DRAWN	
DUBLIN 01745 817168		DATE	
www.matthewjonesarchitects.com		DRAWING NUMBER	
matthewjonesarchitects		SCALE	
1:250 @A3		DRAWN	
DATE		DRAWING NUMBER	
Jan. 2015		DC	
CONWAY 01497 550036		DRAWN	
DUBLIN 01745 817168		DATE	
www.matthewjonesarchitects.com		DRAWING NUMBER	

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