

WYLFA NEWYDD PROPOSED NEW NUCLEAR POWER STATION

WRITTEN SCHEME OF INVESTIGATION FOR ARCHAEOLOGICAL TRIAL TRENCHING AND ARCHAEOLOGICAL EXCAVATION

Revision: 3

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Written Scheme of Investigation for Archaeological Trial Trenching and Excavation	DCRM Number	Revision: 3.0
	WN03.03.01-S5-PAC-MES-00001	Issue date: 16/10/15

Revision History				
Date	Rev No.	Summary of Changes	Ref Section	Purpose of Issue
05/03/2015	0.1	Revised in line with MG comments. Priority Areas revised and justification for Priority Areas added to Table 4.		
16/03/15	0.2	Revised in line with EB comments		
27/04/15	0.3	Revised in line with comments received from GAPS		
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Executive Summary

The purpose of this Written Scheme of Investigation is to present a specification for archaeological investigations, comprising archaeological trial trenching, and if required archaeological excavation and associated post-excavation assessment, with following analysis, reporting, publication and archiving at the Wylfa Newydd Development for the agreement of Gwynedd Archaeological Planning Services (GAPS).

Other (non-archaeological) requirements of the investigations that the contractor may be required to fulfil are presented for GAPS information.

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1 Introduction

1.1 Background

1.1.1 Horizon Nuclear Power (Horizon) is developing a new power station at Wylfa Newydd, and this development, known as the Wylfa Newydd Project, comprises a number of projects as identified below:

- Power Station: This includes two nuclear reactors, steam turbines, the Cooling Water System (CWS) intake / pumphouse and outfall structures and breakwaters, Marine Off-Loading Facility, as well as other ancillary structures.
- Site Preparation and Clearance: The purpose of these works is to facilitate the Power Station development and are likely to include vegetation clearance, topsoil removal and storage, construction of haul roads and site fences, water course diversions and demolition of some structures.
- Wylfa Gateway Complex: This project will co-locate various existing Magnox/ Nuclear Decommissioning Authority (NDA) assets, for example the district survey lab (DSL) and alternative emergency control centre (AECC).
- Marine Off-Loading Facility: This aspect is still to be confirmed but may be required to facilitate early activities.

1.1.2 There is also a requirement for a number of Off-Site Associated Development projects including:

- Highway Improvements;
- Logistics Centre;
- Worker Accommodation; and
- Park and Ride facilities.

1.1.3 The Site Preparation and Clearance project will be subject to a Town and Country Planning Act application for submission 2015 / 2016 while construction of the Power Station will be subject of a separate Development Consent Order (DCO) application to be submitted in 2017.

1.1.4 Horizon commissioned Jacobs UK Ltd, in conjunction with Gwynedd Archaeological Trust (GAT), to finalise an Archaeological Evaluation Strategy (AES) in accordance with comments received from Gwynedd Archaeological Planning Services (GAPS). It is accepted that the strategy should incorporate a revised footprint for the proposed Wylfa Newydd Development. The AES, which has been agreed in principle with GAPS, presented a strategy for evaluation of the Power Station, Site Preparation and Clearance and Wylfa Gateway Complex projects.

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- 1.1.5 The purpose of this Written Scheme of Investigation is to present a specification for archaeological investigations, comprising archaeological trial trenching, and if required archaeological excavation and associated post-excavation assessment, analysis, reporting, publication and archiving for the Power Station and the Site Preparation and Clearance projects.
- 1.1.6 The archaeological approach to the other projects will be agreed with GAPS and Cadw separately and formalised in separate Written Schemes of Investigation (WSI).

1.2 Purpose and Scope of this Written Scheme of Investigation

- 1.2.1 The AES recommended the following:
- a geophysical survey of those areas not covered by earlier surveys. This survey was completed in 2014 (ASWYAS, 2015); and
 - archaeological trial trenching of identified Archaeological Zones within the scheme footprint.
- 1.2.2 The AES required that WSIs are prepared to provide a detailed specification for the investigations to be undertaken.
- 1.2.3 This WSI has been prepared in response to this requirement and provides a methodology which shall be used for archaeological evaluation of the Wylfa Newydd site in the form of archaeological trial trenching. Trial trenching will be undertaken for up to a 12% sample area of those fields within the Archaeological Zones for which this form of evaluation was recommended in the AES. On all areas of land owned by Horizon this will comprise an initial 6% sample, after which the need for further trenching up to a maximum of a 12 % will be determined in discussion with the Curator. On land not owned by Horizon, but on which they hold an option, this trenching will comprise a maximum of 4% by area. All of these areas are also subject to post-excavation assessment, analysis reporting and publication and for the creation and deposition of an ordered archive.
- 1.2.4 The WSI also provides a specification for archaeological excavation and associated post-excavation assessment, analysis, reporting, publication and archiving if required.

1.3 Key Historic Environment Stakeholders

- **Cadw:** The principal Welsh government body responsible for the historic environment in Wales and supporting local planning authorities. Within the remit of its protection are statutory designated Scheduled Monuments and Listed Buildings, World Heritage Sites, registered landscapes including Registered Historic Parks and Gardens, and Protected Wreck sites.
- **Gwynedd Archaeological Planning Services (GAPS):** The curators responsible for monitoring archaeological investigations undertaken as part of development in the

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region, representing and providing archaeological advice to the local planning authority.

1.4 Terms and Definitions

TERM	DEFINITION
AES	Archaeological Evaluation Strategy
Archaeological Investigation or Investigation	means any archaeological works identified in this WSI or as instructed by the Consultant on behalf of the Employer.
CDM	Construction Design Management Regulations 2015
GAPS	Gwynedd Archaeological Planning Services
WSI	Written Scheme of Investigation

Table 1 Terms and Definitions

1.5 Roles and Responsibilities

1.5.1 The following roles relevant to this WSI are identified within Table 2 below.

ROLE	DEFINITION
Employer	means Horizon Nuclear Power who will appoint the Consultant and the Contractor
Consultant	nominated representative appointed by the Employer to oversee and monitor the investigations on behalf of the Employer
Contractor	means the archaeological organisation appointed to carry out the work defined in this WSI
Curator(s)	means Gwynedd Archaeological Planning Services (GAPS)

Table 2: Roles and Definitions

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- 1.5.2 Any liaison with the Curator, or other external Regulatory body, will be carried out by the Employer or Consultant and in line with the Horizon communications procedure.

1.6 *Provisional Programme*

- 1.6.1 Archaeological investigations are planned to commence Autumn 2015.
- 1.6.2 Periods for completion for the archaeological investigation and reporting for all Archaeological Zones are provided in Table 3 below:

Activity	Period for Completion
Mobilisation (from award of contract)	4 weeks
Archaeological trial trenching and Submission of Final Preliminary Report - Priority Fields (from award of contract)	18 weeks
Archaeological trial trenching of all Archaeological Zones (from award of contract)	49 weeks
Archaeological Excavations – All Zones (from award of contract)	52 weeks
Completion of Post-Excavation Assessment and submission of report Post-Excavation Assessment Reports (from completion of fieldwork)	24 weeks

Table 3: *Provisional Programme*

- 1.6.3 The need for trial trenching programme is led by the need to address planning policy requirements. Paragraph 6.5.1 of Planning Policy Wales states that

“The desirability of preserving an ancient monument and its setting is a material consideration in determining a planning application, whether that monument is scheduled or unscheduled. Where nationally important archaeological remains, whether scheduled or not, and their settings are likely to be affected by proposed development, there should be a presumption in favour of their physical preservation in situ.”

- 1.6.4 In order to identify archaeological remains which are of national importance and to present the results of the evaluation through trial trenching of any present remains in the planning application for the Site Preparation and Clearance project; fields with the highest potential for the presence of such remains were identified based on the following criteria:

- Fields in which disturbance will take place and which contain geophysical anomalies as identified in Table 1 of GAT Report 1019 as being of National

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Importance (Category A) and where subsequent detailed geophysical survey or trial trenching has not provided evidence that these anomalies are of less importance; or

- Fields in which disturbance will take place and which contain geophysical anomalies as identified in Table 1 of GAT Report 1019 as being of Regional Importance (Category B) and where subsequent detailed geophysical survey or trial trenching has not provided evidence that these anomalies are of less importance; or
- Fields in which disturbance will take place and which contain geophysical anomalies as identified in Table 1 of GAT Report 1019 as being Unknown Importance (Category E) but potentially of National or Regional Importance and where subsequent detailed geophysical survey or trial trenching has not provided evidence that these anomalies are of less importance; or
- Anomalies identified by the additional geophysical survey (Archaeological Service WYAS, 2015) which in the professional judgement of the Consultant have the potential to be of National or Regional Importance; or
- Fields, which based on factors such as topography or the presence of known archaeological remains, have a high potential for the presence of unknown archaeological remains of potentially National importance; and
- Where these anomalies are not being evaluated through trial trenching in adjacent fields.

1.6.5 Based on this assessment the following fields were identified as having the highest potential to contain nationally important remains:

1. Zone A, Fields A1, A3, A8, A9 and A13;
2. Zone C Fields C8, C13, C15 and C16;
3. Zone D , Fields D3 to D10 (excluding D8);
4. Zone E, Field E5;
5. Zone K, Fields K3, K4 and K7;
6. Zone L Fields L3, L7, L8 and L12;
7. Zone M, Fields M7 and M8;
8. Zone O, Fields O9, O10, O11, O16, O17, O19, O20, O21;
9. Zone Q, Fields Q1, Q2, Q4, Q7.

1.6.6 The Contractor shall prioritise archaeological trial trenching and reporting of these fields (referred to hereinafter as Priority Fields). The Contractor shall complete archaeological trial trenching for all the Priority Fields and will have submitted the final Preliminary Reports on the result of the archaeological trial trenching for all the Priority Fields to the Consultant by the 11th of December 2015, This is to enable inclusion of the information within the Town and Country Planning application. The preliminary reports are provided in advance and in addition of full reporting requirements which are outlined in Section 4.10.

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2 Background

2.1 Geological Background

- 2.1.1 Centred on National Grid Reference (NGR) SH 34990 93194, the location and extent of the site is shown on Drawing Number 60PO8032/CH/WSI/01. The soils are generally freely draining, slightly acid, loamy soils of low fertility. Land cover for this soil type typically comprises arable fields and grassland.
- 2.1.2 In the south of the area the soils comprise slowly permeable, seasonally wet acid loamy and clayey soils of low fertility. Land cover for this soil-type typically comprises grassland with some arable fields and forestry. There is a significant thickness of peat within the footprint of the Tre'r Gof Site of Special Scientific Interest (SSSI; Zone J) and a thin strip of peaty, gley soils on the south-western side of this feature.
- 2.1.3 Some areas surrounding the Existing Power Station were used historically for temporary works activities. The topsoil in these areas may have been stripped or incorporated into areas of made ground, which occur as isolated pockets of material, rather than as an extensive layer. These pockets of made ground, which may potentially be contaminated, are found beneath and to the south of the existing Visitor Centre and in three areas to the north of the Existing Power Station. A maximum made ground thickness of 3m has been recorded.
- 2.1.4 Other small areas of contaminated soils (non-radioactive) have been identified. This includes an area contaminated by chlorinated solvents. Details of these areas will be provided to the Contractor.
- 2.1.5 The term "boulder clay" is used on the regional geological mapping (British Geological Survey (BGS)) to describe the glacial cover to the bedrock. Previous investigations have identified a broader range of lithologies at the Site, and locally a more detailed interpretation and classification scheme is used which subdivides the superficial deposits into six lithological units, based on grain size, internal structure, provenance and colour.
- 2.1.6 The superficial deposits vary in thickness and although the bedrock surface beneath the site may be stepped as a result of glacial erosion, thickness rarely exceeds 5m. Exceptions to this occur beneath the two glacial drumlins on the southern boundary where superficial deposits reach up to 25m thickness.
- 2.1.7 The superficial deposits also increase in thickness beneath the Tre'r Gof SSSI which occupies a topographic low to the east of the Existing Power Station. Evidence from geotechnical investigations suggests this was formed by the gradual infill of a glacially incised valley, first with glacial and then later with lacustrine sediments. On the northern side of the SSSI, towards Porth-y-Wylfa, one borehole proved 33m of superficial deposits and did not encounter bedrock.

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2.2 Archaeological and Historical Background

2.2.1 Archaeological and historical background information can be found in the following reports:

1. Archaeological desk based assessments and walkover surveys the results of which are reported in:
 - Cooke, R., 2011a. Proposed Nuclear Power Station at Wylfa, Anglesey, North Wales, Archaeological Assessment Area. GAT report 966. Vendor specific desk based assessment undertaken to support development process. Largely based on the 2009 desk based assessment (Davidson, 2009) but with some additional work to cover an extension to the proposed development site;
 - Cooke, R., 2011b. Proposed Nuclear Power Station at Wylfa, Anglesey, North Wales, Archaeological Assessment Area. GAT report 967. Vendor specific desk based assessment undertaken to support development process. Largely based on the 2010 desk based assessment (Davidson, 2009) but with some additional work to cover an extension to the proposed development site;
 - Cooke, R., 2011c. Wylfa Scoping Opinion Response: Archaeology. Unassigned GAT report. Response to preliminary queries from the Infrastructure Planning Committee. Document wholly based on preceding work and involved no additional assessment;
 - Davidson, A., 2009. Wylfa, Anglesey: Archaeological Assessment. GAT report 842. Desk based assessment of original proposed development site and local context; and
 - Cooke, R., Davidson, J. and Hopewell, D., 2012. Proposed Nuclear Power Station Wylfa, Ynys Môn: Archaeological Baseline Assessment Report, GAT report 999.
2. An archaeological watching brief on ground investigation. The results of these are reported in:
 - Davidson, J., 2011. Proposed Nuclear Power Station, Wylfa, Ynys Môn. Archaeological Watching Brief: Ground Investigation Works. GAT report 994. Report on the findings of the archaeological watching brief while monitoring the excavation of ground investigation trenches by Fugro Aperio to target identified geophysical anomalies.
3. Geophysical surveys comprising a Vertical Magnetic Gradiometer (VMD) survey of the majority of the site and detailed magnetometer survey. The results of these surveys were reported in:
 - Archaeological Services WYAS, 2015. Wylfa Newydd Proposed New Nuclear Power Station Anglesey Geophysical Survey, Report no. 2720;
 - Hopewell, D., 2011a. Preliminary outline interpretation of potential archaeological magnetic gradient anomalies in Phase 1 area, Wylfa. GAT report 936. Interpretive report on the magnetic gradient anomalies identified

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during the Vertical Magnetic Gradiometer (VMD) survey carried out by Fugro Aperio Ltd. Updated in GAT report 1019;

- Hopewell, D., 2011b. Proposed Nuclear Power Station, Wylfa, Ynys Mon. Archaeological Evaluation: Targeted Geophysics. GAT report 987. Report on the findings of a phase of archaeological geophysical investigation by the Gwynedd Archaeological Trust targeting anomalies identified in GAT report 936; and
 - Hopewell, D., 2012. Proposed Nuclear Power Station, Wylfa, Ynys Mon. Archaeological Evaluation: Geophysical Survey, Interim report. GAT report 1019. Report combining the second phase of the targeted geophysical survey with reports 936 and 987.
4. Targeted archaeological trial trenching. The results of the archaeological trial trenching were reported in:
- Owen, K., and Roberts, J.A. 2012. Proposed Nuclear Power Station, Wylfa, Ynys Mon. Archaeological Evaluation: Archaeological trial trenching. GAT report 1015. Report on the results of a phase of archaeological trial trenching targeting geophysical anomalies identified in GAT reports 987.
5. The approach to archaeological evaluation was presented in
- Horizon Nuclear Power, 2014. Wylfa Proposed New Nuclear Power Station, Archaeological Evaluation Strategy.
- 2.2.2 Digital copies of these reports will be made available on receipt of a written request to the Consultant.
- 2.2.3 Further detailed information on the Archaeological Zones identified within the AES is provided in Table 4 below.

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3 Aims and Objectives of the Archaeological Trial Trenching and Archaeological Excavations

- 3.1.1 The general aim of the archaeological trial trenching is to gather additional information on the extent, condition, depth, character, quality, and date of archaeological remains within Archaeological Zones for which this form of evaluation was proposed in the AES.
- 3.1.2 The specific aim of the archaeological trial trenching is:
- to identify the presence of any archaeological remains within areas that may be impacted upon by the proposed scheme that will provide data to inform the requirements for further archaeological investigations.
- 3.1.3 Objectives for the archaeological trial trenching are:
- to identify the presence or absence of any buried archaeological remains;
 - to identify, investigate and record any such archaeological remains to the extent possible by the methods put forward in the specification;
 - to establish the preservation of any buried remains and provide a chronology of the archaeological phasing; and
 - to disseminate the results through reporting that will inform the requirement for further work.
- 3.1.4 Where the results of the archaeological trial trenching indicates that it is required, the general aim of archaeological excavation or other mitigation is to ensure that the impact on identified archaeological remains are mitigated through recording and the dissemination of this record.
- 3.1.5 The objectives of archaeological excavation are:
- to identify, investigate and record any archaeological remains to the extent possible by the methods put forward in the specification;
 - to determine (so far as possible) the stratigraphic sequence and dating of the deposits or features identified; and
 - to disseminate the results through deposition of an ordered archive at the suitable repositories for both physical and digital material, the deposition of a detailed report at the Historic Environment Record and publication at a level of detail appropriate to the significance of the results.

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4 Specification

4.1 Introduction

4.1.1 The investigations shall be undertaken based on the evaluation strategy as presented in the AES and in accordance with this specification and best practice guidance, including but not limited to, the following:

- Bayliss, A. and Marshall, P. 2015. Guidelines on the Use of Radiocarbon Dating and Chronological Modelling in Archaeology (DRAFT);
- Brown, D., 2011. Archaeological Archives: A guide to best practice in creation, compilation, transfer and curation, Archaeological Archives Forum (2nd edition);
- Cadw, 2011. Conservation Principles for the sustainable management of the historic environment in Wales;
- Chartered Institute for Archaeologists, 1990 (revised 2014). Code of Approved, Practice for the Regulation of Contractual Arrangements in Field Archaeology;
- Chartered Institute for Archaeologists, 2014. Standards and Guidance for archaeological field evaluation;
- Chartered Institute for Archaeologists, 2014. Standards and Guidance for archaeological excavation;
- Chartered Institute for Archaeologists, 2014. Standards and Guidance for the collection, documentation, conservation and research of archaeological material;
- Chartered Institute for Archaeologists, 2014. Standards and Guidance for the creation, compilation, transfer and deposition of archaeological archives;
- Chartered Institute for Archaeologists, 2014. Code of Conduct;
- English Heritage, 2008. Management of Research Projects in the Historic Environment Project Planning Note 3: Archaeological Excavation (MoRPHE PPN3);
- English Heritage, 2010. Waterlogged Wood: Guidelines on the Recording, Sampling, Conservation and Curation of Waterlogged Wood;
- English Heritage, 2011. Environmental Archaeology: A guide to the theory and practice of methods, from sampling and recovery to post-excavation, 2nd Edition;
- English Heritage, 2014. Animal Bones and Archaeology: Guidelines for Best Practice;
- Faegri, K. et al, 1989. Textbook of Pollen Analysis, 4th edition;
- Garratt-Frost, S., 1992. The Law and Burial Archaeology, IfA Technical Paper No. 11;
- Hall, A., 1995. Environmental archaeology and archaeological evaluations: Recommendations concerning the environmental archaeology component of archaeological evaluations in England, Working Paper 2, Association for Environmental Archaeology;

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- Mays, S., Brickley, M., and Dodwell N., 2004. Human Bones from Archaeological Sites: Guidelines for producing assessment documents and analytical reports;
- McKinley, J.I., and Roberts, C., 1993. Excavation and post-excavation treatment of cremated and inhumed human remains, IfA Technical Paper No. 13;
- Perrin, K., Brown, D., Lange, G., Bibby, D., Carlsson, A., Degraeve, A., Kuna, M., Larsson, Y., Pálsdóttir, S. U., Stoll-Tucker, B., Dunning, C., Rogalla Von Bieberstein, A. 2014. A Standard and Guide to Best Practice for Archaeological Archiving in Europe: EAC Guidelines 1;
- Richards, J.C., Richards, J., and Robinson, D., (Eds), 2000. Digital Archives from Excavation and Fieldwork: Guide to Good Practice (Second Edition), Archaeology Data Service;
- Society of Museum Archaeologists, 1993. Selection, Retention and Dispersal of Archaeological Collections: Guidelines for use in England, Wales and Northern Ireland;
- Society of Museum Archaeologists, 1995. Towards an Accessible Archaeological Archive, The Transfer of Archaeological Archives to Museums: Guidelines for use in England, Northern Ireland, Scotland and Wales;
- Walker, K., 1990. Guidelines for the Preparation of Excavation Archives for Long-term Storage, UKIC; and
- Welsh Office Circular 60/96, 1996. *Planning and Historic Environment: Archaeology*.

4.2 Scope of Work

4.2.1 The following is required:

1. Design of archaeological trial trenching;
2. Archaeological trial trenching;
3. Preparation of Preliminary Archaeological Reports; and,
4. Where no further archaeological investigation is required, post-excavation assessment and reporting of the results of the archaeological trial trenching and the creation of an ordered archive will be required. Where further archaeological investigations are required the post-excavation assessment, analysis, reporting and publication and the creation and deposition of an ordered archive will be undertaken as part of these further investigations.

4.2.2 Archaeological excavation, followed by post-excavation assessment, analysis, reporting and publication and the creation and deposition of an ordered archive, may also be required. This specification provides no guarantee the archaeological excavation shall be required.

4.2.3 Archaeological trial trenching of an up to 12% by area sample of the fields within the Archaeological Zones identified in Table 4 and shown on Drawing Number

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60PO8032/CH/WSI/01 is required. Please note that there is no Archaeological Zone N as this Archaeological Zone now lies outside the Development Area Boundary. It is anticipated that archaeological trial trenching shall be undertaken in a number of Archaeological Zones simultaneously. Please note that archaeological trial trenching is not required in every field in every Archaeological Zone:

ZONE	DESCRIPTION & RATIONALE
A	<p>Prehistoric sites identified through watching brief and possible later prehistoric features identified through archaeological trenching. Also contains potentially more extensive early land division, as identified through historic mapping, geophysical survey and archaeological trenching (GAT report 999 18-21). Largely undisturbed zone with potential for unknown archaeological remains.</p> <p>Zone A comprises 13 fields: designated A1 to A13.</p> <p>Archaeological trial trenching is required in Fields A1 to A13.</p> <p>Fields A1, A3, A8, A9, and A13 have been identified as Priority Fields within Zone A for the reasons detailed below:</p> <ul style="list-style-type: none"> Field A1: presence of a possible medieval field system (90 - 93) identified by geophysical survey (GAT report 1019); Field A3: The field contains a number of anomalies (A-90, A-92) interpreted as possibly being part of a field system shown on 18th century mapping and anomalies that are possibly the remains of medieval terracing or a prehistoric field system (A-94); Field A8: presence of a possible burnt mound and other anomalies are suggestive of earlier field boundaries possibly associated with the medieval township of Cafnan (GAT report 1019); Field A9: presence of linear anomalies (A-97 and A-97) which may form, part of a field system predating the current 18th/19th century field system and a possible enclosure and building of unknown date (A-99) (GAT report 1019); and Field A13: presence of an anomaly (A-137) that may be the remains of a ditched enclosure (GAT report 1019);
B	<p>Largely disturbed by 19th and 20th century housing (GAT report 999, 21-22). Possible World War II remains identified through aerial photographs. Upstanding Historic buildings have been identified. The sites of historic buildings (now demolished) have been identified on historic mapping. Zone B comprises 4 main plots: designated B1 to B4. Archaeological trial trenching is required in Fields B1 to B4.</p>

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ZONE	DESCRIPTION & RATIONALE
C	<p>Geophysical surveys have indicated areas of modern disturbance relating to Existing Power Station. Possible funerary sites have been identified through detailed geophysical survey. Potential medieval settlement identified through historic place-name evidence. Upstanding historic buildings have been identified. Possible historic land division identified through geophysical survey. Possible historic garden area remains identified through historic mapping and World War II structures identified through aerial photographs. Potential for unknown archaeological remains in undisturbed areas.</p> <p>Zone C comprises 16 fields: designated C1 to C16.</p> <p>Archaeological trial trenching is required in Fields C1 to C16.</p> <p>Fields C2, C3 and C4 are wooded areas. The evaluation and mitigation of these areas will be discussed on a field by field basis.</p> <p>Fields C8, C13, C15 and C16 have been identified as Priority Fields within Zone C for the reasons detailed below:</p> <ul style="list-style-type: none"> Field C8: Tre'r Gof SSSI wetland area may have been the focus for prehistoric activity. Trial trenching is proposed to evaluate the potential of this field for the presence of unknown archaeological remains; Field C13: One anomaly (A-19) was interpreted as part of a possible field system predating the current field system (GAT report 1019); Field C15: One anomaly (A-19) was interpreted as a possible part of a field system predating the current field system while another (A-27) was interpreted as a possible enclosure (GAT report 1019); and Field C16: Tre'r Gof SSSI wetland area may have been the focus for prehistoric activity. Trial trenching is proposed to evaluate the potential of this field for the presence of unknown archaeological remains.
D	<p>Significant historic garden remains, standing buildings and landscape setting associated with a registered garden at Cestyll (GAT Report 999, 24-6). Other upstanding historic buildings identified. Varying degree of disturbance identified in the north and east of the zone through geophysical survey. Bedrock outcrops and land improvements identified in the west through aerial photographs. Potential for unknown archaeological remains in undisturbed areas in the south.</p> <p>Zone D comprises 10 fields: designated D1 to D10.</p> <p>Archaeological trial trenching is required in Fields D3 to D10.</p> <p>Fields D3, D4, D5, D6, D7, D9 and D10 have been identified as Priority Fields within Zone D for the reasons detailed below:</p> <ul style="list-style-type: none"> Fields D3, D4, D5, D6, D7, D9 and D10 are associated with a watercourse. Watercourses in this area have been identified as having the potential for the focus of pre-historic activity and the survival of features such as burnt mounds. <p>The results of the geophysical survey indicate that Field D8 has been previously disturbed. This field is therefore not considered to be a Priority Field.</p>

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ZONE	DESCRIPTION & RATIONALE
E	<p>A linear area of disturbance is present associated with an existing power cable. The VMD and archaeological geophysical surveys identified non-archaeological features, confirmed as geological in origin through trenching (GAT Report 999, 26-8). Areas of modern disturbance identified through geophysical survey. Some potential for early land division as identified through geophysics. An undated pit with stone recorded through archaeological trial trenching may be archaeological. Potential for unknown archaeological remains in undisturbed areas.</p> <p>Zone E comprises 5 fields: designated E1 to E5.</p> <p>Archaeological trial trenching is required in Fields E1 to E5.</p> <p>Field E5 has been identified as Priority Field within Zone E as trial trenching to the south of Field E5 identified a stone filled pit not identified by gradiometer survey (GAT report 987).</p>
F	<p>Some potential for archaeological remains away from areas of exposed bedrock and the coastal strip (GAT Report 999, 28-9). Potential archaeological features identified from the VMD geophysical survey. Some historic buildings identified.</p> <p>Zone F comprises 3 fields: designated F1 to F3.</p> <p>Archaeological trial trenching is required in Fields F1 to F3.</p>
G	<p>Location would be typical for a promontory type 'fort', area as demonstrated by a comparable site 3.5km east (GAT Report 999, 29-30). The area may be disturbed by outfall works. Low potential for archaeological remains in areas of exposed bedrock on areas of Wylfa Head. Some modern disturbance has been identified in the southern part of the zone through VMD geophysical survey.</p> <p>Zone G comprises 2 fields: designated G1 and G2.</p> <p>Archaeological trial trenching is required in Field G1</p>
H & I	<p>Previously disturbed land associated with previous power station construction (GAT Report 999, 30-32). Some limited potential for World War II structural remains within Zone I. Some standing historic buildings identified.</p> <p>Zone H comprises 3 fields: designated H1 to H3.</p> <p>Zone I comprises 2 fields: designated I1 and I2.</p> <p>No archaeological trial trenching is required in these Archaeological Zones.</p>
J	<p>Wetland Site of Special Scientific Interest (SSSI). This area has potential for archaeological and palaeo-environmental deposits. Disturbance of this area is not currently proposed.</p> <p>Zone J comprises 6 fields: designated J1 to J6.</p> <p>No archaeological trial trenching is required in this Archaeological Zone.</p>

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ZONE	DESCRIPTION & RATIONALE
K	<p>VMD geophysics has identified possible archaeological anomalies in the west of the zone, and the zone borders of the wetland in Zone J to the north. The east of the zone has been subject to intensive ploughing, as suggested by geophysical survey.</p> <p>Zone K comprises 12 fields: designated K1 to K12.</p> <p>Archaeological trial trenching is required in Fields K4 – K12.</p> <p>Fields K4 and K7 have been identified as Priority Fields within Zone K for the reasons detailed below:</p> <ul style="list-style-type: none"> Field K3: the priority was changed following consultation with GAPS. GAPS expressed concern as the scarring present on the geophysical interpretation is similar to scarring which has shielded features of archaeological significance elsewhere on Anglesey and it lies in close proximity to other areas of potential significance. Field K4: Geophysical survey identified an anomaly (A-25) interpreted as a kiln (GAT report 1019); and <p>Field K7: Tre'r Gof SSSI wetland area may have been the focus for prehistoric activity. Trial trenching is proposed to evaluate the potential of this field for the presence of unknown archaeological remains.</p>
L	<p>VMD geophysics has identified a number of potential archaeological anomalies. The zone partly borders the wetland in Zone J, which may have some archaeological potential. Outcropping bedrock bordering the coastline limits potential for archaeology in these areas.</p> <p>Zone L comprises 19 fields: designated L1 to L19.</p> <p>Archaeological trial trenching is required in Fields L1 – L19.</p> <p>Fields L3, L7, L8 and L12 have been identified as priority fields within Zone L for the reasons identified below:</p> <ul style="list-style-type: none"> Field L3: Geophysical survey identified a weak circular anomaly some 40m in diameter (A-71) associated with a linear anomaly leading from it (A-72) (GAT report 1019). These have been interpreted as a possible pre-historic enclosure or settlement, with accompanying trackway; Field L7: anomalies identified as early boundaries and possible trackway (A-76) were identified in this field by the geophysical survey (GAT report 1019); and Field L8 and L12: a large circular anomaly (A-67) interpreted as a possible prehistoric enclosure or settlement was identified in these fields (GAT report 1019). Other anomalies possible associated with A-67 (A-68, A-69) were also identified in Field L-12 (ibid).

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ZONE	DESCRIPTION & RATIONALE
M	<p>Largely undisturbed zone with potential for unidentified archaeological remains (GAT Report 999, 36-7). Historical evidence suggests potential for early 17th century building remains in the north of the zone. Some potential for early land division and improvement identified through field survey.</p> <p>Zone M comprises 10 fields: designated M1 – M10.</p> <p>Archaeological trial trenching is required in Fields M1 – M10.</p> <p>Fields M7 and M8 have been identified as priority fields within Zone M for the reasons identified below:</p> <ul style="list-style-type: none"> Field M7: linear anomalies (E16) which correspond to enclosures shown on an 18th century estate plan (Archaeological Services WYAS, 2015); and Field M8: linear anomalies (E17, E18, E19, E20, E21) which correspond to enclosures shown on an 18th century estate plan (Archaeological Services WYAS, 2015).
O	<p>Largely undisturbed zone with potential for unidentified archaeological remains in (GAT Report 999, 38-9). Standing historic buildings have been identified.</p> <p>Zone O comprises 25 fields: designated O1 to O25.</p> <p>Archaeological trial trenching is required in Fields O1 – O25.</p> <p>Fields O9, O10, O11, O16, O17, O19, O20 and O21 have been identified as priority fields within Zone O for the reasons identified below:</p> <ul style="list-style-type: none"> Field O11: geophysical survey identified an anomaly (A-127) which was interpreted as the remains of a field system predating the current 18th/19th century system (GAT report 1019). Trial trenching is also proposed in Fields O9 and O10 to test if this field system extends into these fields; Fields O16, O19, O20 and O21: A number of well-defined geophysical survey anomalies (E22 to E26) have been interpreted as field enclosures which may be related to the 18th century or earlier field system (Archaeological Services WYAS, 2015); and <p>Field O17: The geophysical survey identified a curvilinear anomaly to the north of Field O17 (W), has been interpreted as part of a possible circular enclosure (Archaeological Services WYAS, 2015).</p>
P	<p>Largely undisturbed zone with potential for unidentified archaeological remains (GAT Report 999, 37-8). No geophysical survey data.</p> <p>Zone P comprises 1 field: designated P1.</p> <p>No archaeological trial trenching is required in this Archaeological Zone.</p>

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ZONE	DESCRIPTION & RATIONALE
Q	<p>Largely undisturbed zone with potential for unidentified archaeological remains. Not assessed in detail as part of the BAR.</p> <p>Zone Q comprises 12 fields: designated Q1 to Q12.</p> <p>Archaeological trial trenching is required in Fields Q1 – Q12.</p> <p>Fields Q1, Q2, Q4 and Q7 have been identified as priority fields within Zone Q.</p> <ul style="list-style-type: none"> Field Q1, Q2 and Q7: Anomalies E1, E2, E3, E4, E7, E8, E9, E10, E15, E11, E12, E13 identified in these fields have been interpreted as the remains of an early field system (Archaeological Services WYAS, 2015); and Field Q4: The possible remains of a ditched enclosure (K) with a number of smaller anomalies within the enclosure suggestive of pits, post holes and settlement activity was identified in this field (Archaeological Services WYAS, 2015).
R	<p>Small undisturbed area surrounding Pont Cafnan Farm. Not assessed in detail as part of the BAR.</p> <p>Zone R comprises 2 fields: designated R1 and R2.</p> <p>Archaeological trial trenching is required in Fields R1 and R2.</p>

Table 4: Archaeological Zones for Archaeological Trial Trenching (please note the numbers or letters in brackets are the anomaly codes used in the geophysical survey reports).

4.3 Curriculum Vitae

- 4.3.1 Curriculum Vitae of all staff to be employed on the investigations, with a description of their proposed role on site and responsibilities (including specialists), shall be submitted to the Consultant for approval 20 working days prior to the commencement of the investigations. The Employer or Consultant will communicate these to the Curator.

Monitoring

- 4.3.2 The Contractor shall inform the Employer and Consultant in writing of the start date and timetable for the archaeological trial trenching at least 15 working days in advance of work commencing.
- 4.3.3 Reasonable access to the investigations shall be afforded to the Curator or their nominee at all times, for the purposes of monitoring the investigations. This shall be carried out in line with the Employers site access requirements.
- 4.3.4 During the investigations, monitoring will include visits to the site by the Employer, representatives of the Consultant and/or the Curator, who shall be given full access to any site records or other information recorded.

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Insurance

- 4.3.5 The Contractor shall have Professional Indemnity insurance, Public Liability insurance and Employer's Liability insurance to the value required by the Employer. This will be appropriate to the value of the archaeological investigations.

4.4 Design of the Archaeological Trial Trenching

- 4.4.1 The Priority Fields in which archaeological trial trenching is required are shown on Drawing Number. 60PO8032/CH/WSI/01.
- 4.4.2 Based on a 12% by area sample of these Priority Fields, within 10 working days of appointment the Contractor shall supply drawings showing the locations of all archaeological trial trenches in the Priority Fields for approval to the Consultant who will liaise with the Employer and Curator. Based on the same sample size, drawings showing the locations of all archaeological trial trenches in the non-priority fields shall be submitted the Consultant for approval within 25 working days of appointment.
- 4.4.3 Archaeological trial trenches shall be located to evaluate known archaeological sites, potential sites identified by the geophysical surveys, geophysical anomalies, areas considered by the Contractor to have potential for the presence of known archaeological remains (for example south-facing slopes, terraces and knolls, soil catchment areas, interfaces between poorly drained ground and higher dry areas) and blank areas where no potential sites or anomalies have been identified. The size and shape of trial trenches shall be varied to allow comprehensive evaluation and maximise the potential for the identification of ephemeral archaeological remains. All archaeological trial trenches shall be given a unique alphanumeric code to include a reference to the Archaeological Zone in which they are located. The locations of archaeological trial trenches shall take into account all known constraints.
- 4.4.4 These drawings shall be accompanied by schedule providing the following information:
1. Archaeological Trial Trench Number;
 2. Length;
 3. Breadth;
 4. Area m²;
 5. Explanation for location. Where relevant archaeological site numbers or Geophysical Survey Anomaly Numbers shall be included;
 6. Drawing Number Reference.
- 4.4.5 The Contractor shall revise the locations of archaeological trial trenches based on comments received from the Consultant, who shall include comments made by the Employer and Curator. Archaeological trial trenches shall not be excavated until their locations are approved in writing by the Consultant.
- 4.4.6 Archaeological trial trenches may be located in areas requiring particular access arrangements / constraints. The type of access problems / constraints anticipated

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includes, but are not limited to:

1. Residential areas;
2. Footpaths and public rights of way;
3. Removal and replacement of agricultural fencing;
4. Dense vegetation;
5. Soft ground / areas of peat;
6. Rough terrain;
7. Watercourses and drainage ditches;
8. Overhead high voltage power lines;
9. Gas and oil pipelines;
10. Steep sloping ground;
11. Ecological constraints;
12. Dense woodland;
13. Livestock;
14. Working near live carriageways; and
15. Existing boreholes.

- 4.4.7 Information on the results of previous ground investigations and locations of existing borehole will be provided to the Contractor.

4.5 Services

- 4.5.1 Known services on the site include:

1. Overhead 400kV cables and buried 132kV cables (National Grid);
2. Buried 132kV cables, low voltage cables and overhead low voltage cables (Scottish Power);
3. Sewage rising main, sewers, water mains (Welsh Water); and
4. Telecommunications (BT).

- 4.5.2 Drawings showing approximate position of Statutory Undertakers and Public Authority Services will be provided to the Contractor. No warranty is given as to the accuracy or completeness of this information. Supply of this information does not relieve the Contractor of their responsibility to undertake their own search with regard to services

- 4.5.3 Notwithstanding any drawings provided to the Contractor, the Contractor, in line with the Employers external liaison procedure, shall make arrangements with the Statutory Undertakers and others concerned, for the co-ordination of their work in the vicinity of service. This shall include, but not be limited to, obtaining current records, the identification and marking of all concerned items, plant and equipment, notification to enable any required attendance, and protection of such services during the whole of the investigations.

- 4.5.4 Private services to individual properties have not been listed or shown on the drawings. The Contractor shall make arrangements, in line with the Employers external liaison procedure, with the Statutory Undertakers and others concerned to identify, locate, mark and protect such services during the whole of the investigations.

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- 4.5.5 Disconnected apparatus shall be removed by the Contractor only with the prior consent of the Authority concerned and where it constitutes an otherwise unavoidable obstruction to their investigations.
- 4.5.6 The Contractor, in line with the Employers external liaison procedure, shall inform all relevant Statutory Bodies and others concerned of their Programme of Investigations in writing and shall notify the same in writing of any changes to their programmed timing, method or sequence of work. Such correspondence shall be copied to the Consultant for their information.
- 4.5.7 It is the responsibility of the Contractor to ensure that all services have been cleared, are protected and are not damaged as a result of the investigations.
- 4.5.8 The Contractor shall consult and comply with the requirements of all Statutory Undertakers and other owners of Apparatus as necessary to determine the effect of the investigations on Apparatus, and to arrange any alterations of any Apparatus or private Apparatus which, in the opinion of the Undertakers may be necessary for or resulting from the Services being provided by the Contractor.
- 4.5.9 The Contractor shall be responsible for consulting and complying with all Statutory Undertakers and others in connection with the diversion routes, road closures, interruptions to supplies and otherwise while Apparatus works are being carried out.
- 4.5.10 The Contractor shall bear the cost of all Apparatus related works or any other investigations required for the Services being provided.
- 4.5.11 The Contractor shall be responsible for the coordination of Statutory Undertaker works and private Apparatus works or future provision works to meet the requirements of Statutory Undertakers or relevant owners of private Apparatus.

Condition Survey

- 4.5.12 The Contractor shall complete a condition survey before starting archaeological trial trenching and/or archaeological excavations and shall update and complete the relevant records during the course of all investigations. The condition survey shall include as a minimum the following records:
- photographs to illustrate the condition of each area before the start of the investigations taken with a time and date recording camera;
 - similar photographs taken after completion of the investigations;
 - a written record or plan noting the location from which each photograph was taken and the orientation of the exposure;
 - a consistently formatted written record of the condition of each area before the commencement of the investigations, setting out ground conditions, weather and any other relevant factors; and
 - a written record of any incidents resulting in damage including incidents caused by visitors i.e. other scheme staff using the same access route, etc.

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- 4.5.13 If, at the time of making the condition survey, the Contractor identifies any factors that may result in unavoidable damage, they shall contact the Consultant or their representative to inform them of the risk. The Contractor shall also identify any changes to the methodology that might be made to minimize the risk of damage. This should include any increases in cost that would occur as a result of these changes.
- 4.5.14 Failure to maintain appropriate records or comply with the above conditions may result in the Contractor being held liable for any compensation claims arising from the investigations.
- 4.5.15 The Contractor shall supply the Consultant with photographs and copies of all written records pertaining to the condition survey in a digital format, within one week of the completion of the condition survey. The Contractor is strongly advised to retain a copy of all records and photographs for their own purposes.

4.6 Archaeological Trial Trenching

Surveying and Setting Out

- 4.6.1 The location of each archaeological trial trench shall be accurately set out, surveyed as excavated and tied in to the Ordnance Survey National Grid and Ordnance datum.
- 4.6.2 Site and trench locations, all archaeological remains and any other features of relevance to the project will be digitally surveyed using GPS within the OS NGR system, including heights above OS datum (Newlyn). The electronic survey record will be periodically downloaded and retained within the Scheme archive, with co-ordinate and/or datum information transposed onto the appropriate paper archives. If it is not possible to survey sites using GPS equipment, then a TST will be used to tie excavations into local grids and ultimately to the Ordnance Survey Grid.
- 4.6.3 In the event that physical obstacles or other factors prevent the excavation of an archaeological trial trench, the Contractor shall advise the Consultant. The Contractor may propose changes to the archaeological trial trench layout, however, archaeological trial trench locations shall not be altered without the permission of the Consultant. Changes to archaeological trial trench location shall be undertaken only with written permission from the Consultant who will obtain the agreement of the Curator.

Mechanical Excavation

- 4.6.4 Topsoil and any other overburden shall be removed using a tracked 360 degree excavator or back acting wheeled excavator fitted with a toothless ditching bucket. It is not anticipated that hard surfaces shall be encountered at the site, but if present, shall be broken up by use of jack-hammers or peckers. All such mechanical excavation shall be undertaken under the direct and continuous supervision and control of an experienced archaeologist, with a minimum of one experienced archaeologist per mechanical excavator.

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- 4.6.5 Topsoil and subsoil shall be segregated in separate spoil heaps. Spoil from the excavation of archaeological or other features shall be stored on the subsoil heap, not the topsoil heap, prior to backfilling. Excavation either of whole trenches or of individual archaeological features shall proceed to a depth sufficient to address the objectives of the evaluation. Should support be required the Contractor shall ensure adequate measures are taken to prevent ground collapse and maintain the safety of their staff.
- 4.6.6 Mechanical excavation shall cease when the first archaeologically significant horizon is encountered, or when the absence of any such horizon has been adequately demonstrated. Any further use of mechanical excavation, or any change to this methodology, shall not be undertaken without the specific permission of the Consultant in consultation with the Curator.
- 4.6.7 After the completion of mechanical excavation, both the spoil heaps and the stripped surface shall be scanned with a metal detector. Any artefacts of potential archaeological interest identified as a result of this work shall be recovered and their locations accurately recorded. The make and model of the metal detector shall be provided to the Consultant 5 working days prior to the start of the investigations.

Hand Excavation

- 4.6.8 Exposed archaeology must be investigated sufficiently to establish its nature, extent and date. In the event of the identification of an exceptional number and/or complexity of archaeological deposits, sample excavation will be more circumspect and will aim to be minimally intrusive. Excavation will, however, be sufficient to resolve the principal aims of the evaluation and to a level agreed with the Consultant and the Curator
- 4.6.9 The archaeological features and deposits encountered shall be excavated by hand to achieve the aims and objectives defined above. Care shall be taken not to compromise the integrity of archaeological features and deposits whose excavation is not required to achieve these objectives.
- 4.6.10 The depth and complexity of archaeological features and deposits within each archaeological trial trench shall be evaluated. A representative section of each archaeological trial trench will be cleaned and recorded sufficient to demonstrate the overall stratigraphic within a trench. Where possible this will illustrate the relationship between the overburden and any archaeological features.

Recording

- 4.6.11 The stratigraphy of each trench shall be recorded and in archaeological trenches where archaeological features have been identified at least one representative 1m section shall be drawn. More sections shall be drawn if necessary to properly record complex deposit sequences.
- 4.6.12 All excavated archaeological contexts shall be fully recorded by detailed written context records giving details of location, composition, shape, dimensions, relationships, finds,

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samples, cross-references to other elements of the record and other relevant contexts, etc.

- 4.6.13 All features and, where possible, all deposits shall be recorded in plan, at an appropriate, and at least one section drawing, normally at 1:10 scale
- 4.6.14 A full photographic record will be maintained using digital cameras equipped with an image sensor of not less than 10 megapixels and archived as both uncompressed TIFF v.6 and RAW images. This will illustrate both the detail and the general context of the principal features and the site as a whole. Digital images will be subject to managed quality control and curation processes which will embed appropriate metadata within the image and ensure long term accessibility of the image set.

Finds

- 4.6.15 All processing, recording, cleaning, storage and conservation of finds and samples shall be in accordance with the Chartered Institute for Archaeologists' Standard and Guidance for the, Conservation and Research of Archaeological Materials (2014), the Society of Museum Archaeologists', Selection, Retention and Dispersal of Archaeological Collections: Guidelines for use in England, Wales and Northern Ireland (1993) and the requirements of the recipient museum.
- 4.6.16 All finds shall be recorded by context; individually significant finds ("special finds" or "small finds") shall also be recorded three-dimensionally using a sequence of unique numbers.
- 4.6.17 To inform the investigation strategy finds processing shall be carried out during the course of the investigation and provisional spot dating and information provided to the Consultant, who will provide the information to the Curator.
- 4.6.18 Finds, discovered by the Contractor, falling under the statutory definition of Treasure (as defined by the Treasure Act of 1996 and its revision of 2002) shall be reported immediately to the Consultant who will inform the Employer and the Curator. After instruction from the Consultant, and in accordance with the Employers external consultation procedures the Contractor shall inform the relevant Coroner's Office, the Finds Liaison Officer (FLO) the landowner and the Curator. A Treasure Receipt (obtainable from either the FLO or the DCMS website) must be completed and a report submitted to the Coroner's Office and the FLO within 14 days of understanding the find is Treasure. Failure to report within 14 days is a criminal offence. The Treasure Receipt and Report must include the date and circumstances of the discovery, the identity of the finder (put as unit/contractor) and (as exactly as possible) the location of the find.
- 4.6.19 In the event of human remains being discovered they shall be left in situ and covered and protected in the first instance. Where this is not feasible or practicable the removal of human remains shall only take place following consultation with the Consultant and Curator, and in compliance with the Burial Act 1857 with an exhumation licence

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obtained from the Ministry of Justice (MoJ) prior to the removal of the remains. Excavation of human remains shall be carried out in line with the guidance contained in Guidance for best practice for treatment of human remains excavated from Christian burial grounds in England (Church of England and English Heritage, 2005).

- 4.6.20 Provision shall be made to allow on-site conservation of finds if necessary. The Contractor shall make arrangements for a conservator in advance of the investigations.
- 4.6.21 Adequate arrangements shall be made within a suitable time scale for the conservation of artefacts. Where fragile or unstable finds are recovered appropriate steps shall be taken to stabilise them. All conservation, including initial stabilisation shall be undertaken by recognised, named specialists.
- 4.6.22 It is recommended that the project archive resulting from the excavation be deposited with Oriel Ynys Môn. Arrangements for deposition will be agreed with the Curator. Deposition of any finds with the Museum will only be carried out with the full agreement of the landowner.

On-site sampling strategy

- 4.6.23 Environmental sampling will be undertaken in accordance with Wessex Archaeology's *Guidelines for Environmental Sampling* along with policies outlined in the ClfA's Standard and Guidance documents and *Environmental Archaeology; A Guide to the Theory and Practice of Methods, from Sampling and Recovery to Post-excavation* (second edition) (English Heritage 2011).
- 4.6.24 Bulk environmental soil samples for plant macro fossils, small animal bones and other small artefacts will be taken from appropriate well sealed and dated/datable archaeological contexts, in accordance with requirements. The residues and sieved fractions of the bulk environmental soil samples will be sorted, recorded and retained with the project archive.
- 4.6.25 Rapid assessment will define presence and preservation, to enable comments on any further sampling strategy to be passed back to the Consultant, Curator and field team. Bulk samples will generally be between 40–60 litres (or whole-earth should the deposit be of insufficient volume), though from waterlogged deposits this would be reduced to between 10–20 litres. Other environmental sampling techniques (i.e. soil kubiena, waterlogged deposits, mollusc column, dating samples, soil chemistry etc.) will be applied where appropriate, and in consultation with the Consultant and the Curator.

4.7 Archaeological Excavation

- 4.7.1 Archaeological excavation shall be undertaken in accordance with the requirements of this specification and any subsequent Project Design.
- 4.7.2 Archaeological excavation will be undertaken as soon as practicable after the identification/characterisation of archaeological features/sites and where feasible

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concurrently with the archaeological trial trenching. There is no guarantee that this work shall be instructed.

- 4.7.3 Within 5 working days of receipt of a written instruction from the Consultant to do so, the Contractor shall submit to the Consultant for approval a Project Design detailing how these features/sites are to be mitigated in accordance with the requirements of this specification. The Consultant shall seek the Curators approval for the Project Design prior to the works taking place.
- 4.7.4 Archaeological excavations shall only be undertaken after written instruction from the Consultant.
- 4.7.5 All excavations shall be given a unique alphanumeric site code to include a reference to the Archaeological Zone in which the site is located.

Surveying and setting out of excavation areas

- 4.7.6 Site and trench locations, all archaeological remains and any other features of relevance to the project will be digitally surveyed using GPS within the OS NGR system, including heights above OS datum (Newlyn). The electronic survey record will be periodically downloaded and retained within the Scheme archive, with co-ordinate and/or datum information transposed onto the appropriate paper archives. If it is not possible to survey sites using GPS equipment, then a TST will be used to tie excavations into local grids and ultimately to the Ordnance Survey Grid.
- 4.7.7 In the event that physical obstacles or other factors prevent excavation within an excavation area, the Contractor will advise the Consultant. Changes to archaeological excavation areas will be undertaken only with the permission of the Consultant (and the agreement of the Curator).

Mechanical stripping of excavation areas

- 4.7.8 The Contractor shall supply all suitable plant for the excavation and backfilling (if required) of the archaeological excavation areas.
- 4.7.9 Stripping of topsoil and other overburden shall be undertaken using a back-acting or 360o mechanical excavator equipped with a flat-bladed ditching bucket, operating under the continuous supervision and control of a member of the Contractor's archaeological staff. The full depth of the topsoil, including any subsoil or other overburden that may obscure archaeological remains shall be stripped. Mechanical excavation shall cease at the top of the first archaeological horizon, or when the absence of any such horizon has been adequately demonstrated. Any further use of mechanical excavation, or any change to this methodology, shall not be undertaken without the specific permission of the Consultant in consultation with the Curator. No plant, vehicles or machinery shall run on any part of the stripped surface.
- 4.7.10 Spoil from the stripping operations shall be safely stockpiled in bunds adjacent to the

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archaeological excavation area. Topsoil and subsoil shall be stored separately in bunds, the location of which shall be agreed on site with the Consultant and the Employer prior to investigations commencing and shall not be intermixed. The Contractor shall take measures to prevent cross contamination of excavated topsoil and/or subsoil with the existing topsoil surface level, and to ensure that areas outside the limit of investigation are not damaged during excavation, storage or reinstatement operations.

- 4.7.11 Unstratified artefacts or small finds exposed during the site stripping shall be collected. Spoil from the site stripping shall be subject to the use of metal detectors, under archaeological supervision, for the collection of metal objects.
- 4.7.12 If required after the completion of archaeological excavation these materials shall be replaced in reverse order of removal and, unless otherwise instructed by the Consultant, in a series of layers no thicker than 250mm, each layer compacted as appropriate by the mechanical excavator prior to placement of the next layer. All surplus or deleterious material and rubbish arising from excavations shall be removed from site to a suitably authorised facility at the Contractor's cost. The Contractor shall grade the soil to a smooth, even profile, free from local mounds and depressions.
- 4.7.13 Immediately after the removal of the topsoil and any other overburden in any excavation area, the whole area stripped shall be inspected for archaeological features. All areas containing significant concentrations of features, particularly small non-linear features, or where the presence of such groups of features is suspected, shall be manually cleaned. All spoil from the cleaning operation shall be removed outside the excavation area.
- 4.7.14 A pre-excavation plan of all visible features shall be prepared. If the plan is prepared in the first instance by instrument survey it must be printed out and brought to site to be checked and enhanced by hand planning. The plan shall also show any areas of visible damage or destruction of the archaeology caused by recent activity e.g. service trenches, quarry pits etc. The survey data and any hand-drawn plans shall be accurately tied in to the Ordnance Survey National Grid and Ordnance Datum by instrument survey.

Excavation of archaeological features

- 4.7.15 All stripped areas shall be inspected for archaeological features, and hand-cleaning shall be applied to an appropriate level in areas that contain archaeological remains or are thought likely to contain them. Once stripped and cleaned the areas will be planned to provide a base-plan of the distribution of the archaeological remains, which will then be used to determine the excavation strategy for each area.
- 4.7.16 Unstratified artefacts or small finds exposed during the cleaning shall be collected. All hand-cleaned surfaces, features and archaeological layers shall be scanned for metal object signals using a metal detector. The make and model of the metal detector shall be provided to the Consultant 5 working days prior to the start of the investigations,

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and excavation priorities assessed taking these signals into account. Metal objects shall be recovered from the surface of in situ deposits before the end of each day, subject to archaeological supervision such that finds are properly recorded and conserved. All metal detection should be carried out following the Treasure Act 1996 Code of Practice (DCMS 2008). Metal detecting, including the scanning of topsoil and spoil heaps, shall be carried out under archaeological supervision and recording so that metal finds are properly located, identified, and conserved.

4.7.17 The Contractor shall undertake archaeological excavation by hand of any archaeological remains identified in accordance with the following strategy. Subject to any particular requirements, any archaeological features identified during the investigation shall be excavated as detailed below:

1. 100% of all positive features likely to obscure earlier archaeological features (it is anticipated that there shall be few if any such features);
2. discrete negative features (less than 1m diameter): at least 50% by area in addition to all stratigraphic relationships (usually half section);
3. discrete negative features (more than 1m diameter): at least 50% by area in addition to all stratigraphic relationships (consider two diagonally opposite two quarter-sections where appropriate and feasible);
4. discrete negative features containing good artefact assemblages: 100%
5. non-structural linear negative features: at least 10% by area in addition to all stratigraphic relationships and termini;
6. structural negative features: 100%, unless otherwise agreed with the Consultant;
7. hearths: 100%;
8. graves and cremations: 100%;
9. in addition to the above, all intersections between features and all terminals of linear features; and
10. other features: 25%, unless otherwise agreed with the Consultant.

Recording

4.7.18 All excavated contexts shall be fully recorded by detailed written context records giving details of location, composition, shape, dimensions, relationships, finds, samples, cross-references to other elements of the record and other relevant contexts, etc. All soil from the excavation of archaeological features shall be metal detected.

4.7.19 A complete drawn record of excavated and archaeological features and deposits will be compiled. This will include both plans and sections, drawn to appropriate scales (1:20 for plans, 1:10 for sections). The Ordnance Datum (OD) height of all principal features and levels will be calculated and plans/sections will be annotated with OD heights. Initial survey of the archaeological features will be undertaken using either a GPS or a suitable Total Station (TST) with hand drawn plans made of excavated features, which will be then tied in to the overall plan through the use of control points.

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- 4.7.20 A full photographic record will be maintained during the watching brief using digital cameras equipped with an image sensor of not less than 10 megapixels and archived as both uncompressed TIFF v.6 and RAW images. This will illustrate both the detail and the general context of the principal features and the site as a whole. Digital images will be subject to managed quality control and curation processes which will embed appropriate metadata within the image and ensure long term accessibility of the image set.
- 4.7.21 All unexcavated archaeological features and deposits shall be recorded to the extent possible by the above methods.

Finds

- 4.7.22 All processing, recording, cleaning, storage and conservation of finds and samples shall be in accordance with the Chartered Institute for Archaeologists' Standard and Guidance for the, Conservation and Research of Archaeological Materials (2014), the Society of Museum Archaeologists', Selection, Retention and Dispersal of Archaeological Collections: Guidelines for use in England, Wales and Northern Ireland (1993) and the requirements of the recipient museum.
- 4.7.23 All finds shall be recorded by context; individually significant finds ("special finds" or "small finds") shall also be recorded in three-dimensions using a sequence of unique numbers. All artefacts recovered shall be retained and removed from site for conservation (if necessary) and specialist examination/analysis. In general sensitive artefacts shall be lifted in a block of soil and sent for detailed excavation during conservation, but some artefacts may require conservation in the field. All finds shall be stabilised and packaged in accordance with the receiving museum's guidelines. As a guiding principle, only artefacts of 'displayable' quality would warrant full conservation.
- 4.7.24 To inform the investigation strategy finds processing shall be carried out during the course of the investigation and provisional spot dating and information provided to the Consultant, who will provide the information to the Curator.
- 4.7.25 If necessary to meet the aims and objectives of this WSI, assessment of artefacts should include x-radiography of iron objects, (after initial screening to separate obviously modern debris), and a selection of non-ferrous artefacts (including all coins and a sample of any industrial debris relating to metallurgy). An assessment of all excavated material should be undertaken by conservators and finds researchers in collaboration. Where necessary, active stabilisation/consolidation will be carried out, to ensure long term survival of the material, but with due consideration to possible future investigation.
- 4.7.26 Finds, discovered by the Contractor, falling under the statutory definition of Treasure (as defined by the Treasure Act of 1996 and its revision of 2002) shall be reported immediately to the Consultant who will inform the Employer and the Curator. After instruction from the Consultant the Contractor shall inform the relevant Coroner's

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Office, the Finds Liaison Officer (FLO) the landowner and the Curator. A Treasure Receipt (obtainable from either the FLO or the DCMS website) must be completed and a report submitted to the Coroner's Office and the FLO within 14 days of understanding the find is Treasure. Failure to report within 14 days is a criminal offence. The Treasure Receipt and Report must include the date and circumstances of the discovery, the identity of the finder (put as unit/contractor) and (as exactly as possible) the location of the find.

- 4.7.27 All finds and other relevant material shall be retained and removed from the site for cataloguing and analysis.
- 4.7.28 Provision shall be made to allow on-site conservation of finds if necessary. Arrangements for a conservator shall be made in advance of start of the investigation.
- 4.7.29 Adequate arrangements shall be made within a suitable time scale for the conservation of artefacts. Where fragile or unstable finds are recovered appropriate steps shall be taken to stabilise them. All conservation, including initial stabilisation shall be undertaken by recognised, named specialists.
- 4.7.30 It is recommended that the project archive resulting from the excavation be deposited with Oriel Ynys Môn. Arrangements for deposition will be agreed with the Curator. Deposition of any finds with the Museum will only be carried out with the full agreement of the landowner.

On-site sampling strategy

- 4.7.1 Environmental sampling will be undertaken in accordance with The Contractors sampling along with policies outlined in the ClfA's Standard and Guidance documents and *Environmental Archaeology; A Guide to the Theory and Practice of Methods, from Sampling and Recovery to Post-excavation* (second edition) (English Heritage 2011).
- 4.7.2 Bulk environmental soil samples for plant macro fossils, small animal bones and other small artefacts will be taken from appropriate well sealed and dated/datable archaeological contexts, in accordance with requirements. The residues and sieved fractions of the bulk environmental soil samples will be sorted, recorded and retained with the project archive.
- 4.7.3 Rapid assessment will define presence and preservation, to enable comments on any further sampling strategy to be passed back to the Contractor's Archaeologist, Curator and field team. Bulk samples will generally be between 40–60 litres (or whole-earth should the deposit be of insufficient volume), though from waterlogged deposits this would be reduced to between 10–20 litres. Other environmental sampling techniques (i.e. soil kubiena, waterlogged deposits, mollusc column, dating samples, soil chemistry etc.) will be applied where appropriate, and in consultation with the Consultant and the Curator.

Human remains

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- 4.7.4 In order to minimise the risk of delays during the course of the mitigation, the Contractor shall obtain an appropriate licence from the Ministry of Justice to cover the excavation and removal of any human remains that may be identified prior to the start of any investigations, and no such remains shall be excavated or removed in the absence of such a license.
- 4.7.5 Should human remains be encountered, the Contractor shall ensure that the process of exhumation complies with the statutory provisions of the Burial Act 1857 and any other Ministry of Justice (MoJ) and environmental health regulations. Before disturbing the remains, the Contractor shall inform the Consultant. Notification to the Coroner and the police will be managed by the Consultant on behalf of the Employer.
- 4.7.6 A suitably qualified human osteologist shall be engaged to provide advice on the excavation, recording and sampling strategy to be employed during the exhumation of burials, particularly with regards to the collection of special samples for scientific analysis, including stable isotope and any other relevant techniques. The osteologist's role shall include sufficient visits to site to allow for the provision of appropriate advice and guidance as the investigations progress.
- 4.7.7 Processing and assessment of human remains shall be undertaken in line with guidance given in Excavation and post-excavation treatment of cremated and inhumed human remains (McKinley and Roberts, 1993), Human Bones from Archaeological Sites: Guidelines for producing assessment documents and analytical reports (Mays, Brickley and Dodwell, 2004). As a minimum this shall include lifting and bagging of bones by skeletal area, with separate bags for the left and right sides and sieving, over a 2mm mesh, of soil from the abdomen, chest and neck area. Sieving shall also be undertaken of the soil around the hands and feet unless the excavators are satisfied that all of the small bones present have been recovered. Following the lifting of the skeleton, the layer of soil beneath the body shall also be sieved to ensure that no small bones or teeth, or any other calcified material has been missed.

Scientific dating

- 4.7.8 Suitable samples for scientific dating shall also be obtained. Dating techniques shall only be applied on written instruction from the Consultant. These may include:
1. Radiocarbon dating;
 2. Radiocarbon dating (Accelerator Mass Spectrometry);
 3. Archaeomagnetic dating; and
 4. Dendrochronological dating.
- 4.7.9 Obtaining suitable samples for scientific dating shall be undertaken so as to make these samples available for dating to inform the development of the archaeological excavation strategy as required.
- 4.7.10 Bayesian analysis of radiocarbon dating obtained as part of the Archaeological Investigations may also be required.

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Emergency conservation of artefacts and metalwork

- 4.7.11 The Consultant will make provision for the emergency conservation/stabilisation and storage of artefacts and metalwork.

Waterlogged remains

- 4.7.12 Should waterlogged remains be encountered during the investigations the strategies for its recovery and treatment will be in accordance with the appropriate national guidance, including English Heritage's guidelines on Waterlogged Organic Artefacts. Guidance on their Recovery, Analysis and Conservation (2012). The Contractor shall also liaise with the Consultant who will liaise with the Curator about the treatment of waterlogged remains.

4.8 Reinstatement Requirements

- 4.8.1 None of the trenches or excavation areas shall be backfilled without the consent of the Consultant.
- 4.8.2 In addition to the reinstatement requirements identified within this specification, the Contractor's particular attention shall be drawn to the reinstatement requirements of land and field drains provided below.
- 4.8.3 The positions of all land drains intercepted or disturbed shall be prominently marked. The Contractor shall record these positions, depths, pipe diameters and the types of construction, and a copy of these records shall be given to the Consultant. The Contractor shall ensure that markers are not disturbed during the progress of the Archaeological Investigations.
- 4.8.4 Prior to the permanent reinstatement of land drainage the ends of existing drains, where intercepted by excavations, shall be cleared and facilities afforded to the Consultant and the landowner or occupier to inspect them and determine the extent of replacement that shall be necessary.
- 4.8.5 The backfill of intercepting excavations shall be compacted to give a firm bearing immediately before replacement pipes are laid, and shall be brought up to the level of the underside of the land drains or any support to be provided.
- 4.8.6 The affected land drains shall be cut back into firm ground until a section is exposed which is unaffected by the Investigations.
- 4.8.7 Replacement pipes and support beams, where they are required, shall bear on undisturbed ground for at least 500mm at each end. The replacement pipes shall be of the same internal diameter as the sections of drain which they replace and shall be connected in accordance with Series 500, Volume 1 of the specification for Highway Works.

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- 4.8.8 Records shall be kept of all drainage system reinstatement work carried out and a copy shall be given to the Consultant. The record shall include the direction of the flow and alignment of the drain in relation to the excavation.
- 4.8.9 Without limiting the Contractor's liability for restoration of damage, the Contractor shall notify the Consultant of any land drain which is blocked or is otherwise defective when the drain is first exposed.
- 4.8.10 All drainage works shall be undertaken to the specification of Series 500, Volume 1 of the specification for Highway Works.
- 4.8.11 After the completion of archaeological trial trenching materials removed shall be replaced in reverse order of removal and, unless otherwise instructed by the Consultant, in a series of layers no thicker than 250mm, each layer compacted as appropriate by the mechanical excavator prior to placement of the next layer. No other specialist reinstatement techniques or surface treatment will be undertaken.
- 4.8.12 The Contractor shall ensure that all equipment and materials are removed from each land plot immediately following completion of the investigations.

4.9 Archive Consolidation

- 4.9.1 Adequate resources shall be provided during the investigations to ensure that all records are checked and internally consistent. Archive consolidation shall be completed immediately after the conclusion of the investigations, to ensure that the site record has been checked, cross-referenced and indexed as necessary and that all retained finds have been cleaned, conserved, marked and packaged as appropriate. The Consultant shall include the cost of deposition and long-term storage of the archive in their Tender price.
- 4.9.2 Archive consolidation shall be undertaken immediately following the conclusion of the investigations. The site record shall be checked, cross-referenced and indexed as necessary.
- 4.9.3 All retained finds shall be cleaned, conserved, marked and packaged in accordance with the requirements of the recipient museum.
- 4.9.4 All retained finds shall be assessed and recorded using pro-forma recording sheets, by suitably qualified and experienced staff. Initial artefact dating shall be integrated with the site matrix.
- 4.9.5 After instruction by the Consultant retained samples shall be appropriately processed in accordance with the sampling strategy agreed prior to the start of investigations or otherwise agreed during the investigations, and appropriate records shall be kept.
- 4.9.6 The Site Archive shall be prepared in accordance with the standards set out in Appendix 1, P1 of MoRPHE PPN3 (English, Heritage 2008) and the ClfA's Standard

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and Guidance for the creation, compilation, transfer and deposition of archaeological archives (2014) and the recipient repository.

4.9.7 The site archive shall contain all the data and material collected during the archaeological excavation. It shall be quantified, ordered, indexed and internally consistent. In addition the archive shall contain:

1. site matrices where appropriate;
2. a summary report synthesising the context records;
3. a summary of the artefact record, and
4. a summary of any other records or materials recovered.

4.9.8 The integrity of the primary field records shall be preserved and the Consultant shall create security copies in digital, fiche or microfilm format of all primary field records.

4.10 Post-Fieldwork Reporting

4.10.1 In addition to the requirements identified below, all reports shall include:

- a unique report number or reference;
- report author(s) and company/organisation details where appropriate;
- date when the report was completed;
- an accurate 6 figure grid reference centred on the project location;
- Primary Record Numbers (PRN) referenced for existing sites;
- a PRN, site name, 6 figure grid reference, period, site type;
- name of the museum or archive for any artefacts recovered and accession number(s).

4.10.2 PRNs will be obtained from the Gwynedd Historic Environment Record by the Consultant and will be provided to the Contractor.

Preliminary Reports for Priority Fields

4.10.3 The Contractor shall submit draft Preliminary Reports on the result of the archaeological trial trenching for Priority Fields within 5 working days after the completion of archaeological trial trenching in each Priority Field. Preliminary reports shall include as a minimum:

1. Site Code, PRN and Project Number;
2. dates when the investigations took place;

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3. a brief description of the background to and circumstances of the work;
 4. a brief description of the previously known archaeology of each Archaeological Zone;
 5. a short description of the methodology used;
 6. a short description of the results;
 7. an assessment of the archaeological significance of the features identified, in relation to other sites;
 8. recommendations for further the investigations required,
 9. general and detailed plans at appropriate scales, showing the location of each feature accurately positioned on an up-to-date Ordnance Survey base;
 10. where necessary detailed plans and sections of individual features;
 11. references and bibliography of all sources used.
- 4.10.4 All scales used on any drawings shall be standard scales such as would appear on a normal scale ruler.
- 4.10.5 Draft Preliminary Reports shall be submitted to the Consultant in the first instance for review/checking. In revising the report, the Contractor shall take into account any comments and remedy any faults identified by the Consultant. The revised report shall be submitted to the Consultant within five working days of receipt of the Consultant's comments on the draft report. After the approval of the Employer, the Consultant shall issue the revised report to the Curator for comment. In finalising the report the Contractor shall take into account any comments and remedy any faults identified by the Curator.
- Post-Excavation Assessment and Reporting (for all Archaeological Trial Trenching)***
- 4.10.6 Where further archaeological investigations are required, the post-excavation assessment of the results of trial trenching shall be undertaken as part of those further investigations.
- 4.10.7 Where no further archaeological investigations are required a Post-Excavation Assessment (PEA) and an Updated Project Design (UPD) as defined in English Heritage's Management of Research Projects in the Historic Environment (MoRPHE) Project Planning Note 3 (PPN3, 2008) will be produced. Where no additional phases of investigations are required it is possible that the PEA along with a summary note in Archaeology in Wales may be adequate to disseminate the results of the investigations. This shall be agreed with the Consultant in consultation with the Curator.
- 4.10.8 The PEA shall clearly acknowledge the role of the Employer, the Consultant, and the Curator and show the logos of the Employer on the front cover. All reports shall be

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prepared in line with the principles set out in Appendix 1; Product P1 of MoRPHE PPN3, and shall include as a minimum:

1. a non-technical summary;
2. site code, PRN and project number;
3. dates when the investigations took place;
4. a description of the background to and circumstances of the work;
5. a brief description of the previously known archaeology of each site;
6. a description of the methodology used;
7. an objective description of the results ('factual data' in Appendix 1; P2 of MoRPHE PPN3);
8. a specialist assessment of each category of data ('statement of potential' in Appendix 1; P2 of MoRPHE PPN3);
9. details of archive location and destination (with accession number, where known), together with a catalogue of what is contained in that archive;
10. an assessment of the archaeological significance of the deposits identified, in relation to other sites in the region;
11. a conclusion with recommendations for further post-excavation work, if required;
12. a statement of the storage and curation requirements for each category of data;
13. general and detailed plans at appropriate scales, showing the location of each site accurately positioned on an up-to-date Ordnance Survey base;
14. plans of each site at appropriate scales, with keys and north points;
15. detailed plans and sections of individual features where necessary;
16. all scales used on any drawings should be standard scales such as would appear on a normal scale ruler;
17. a copy of the specification and/or project design, and
18. references and bibliography of all sources used.

4.10.9 Each category of data and material recovered by the investigations (site records/stratigraphic data, each category of artefact or other find, each category of palaeoenvironmental/economic evidence, any other data) shall be examined and assessed by a suitably qualified and experienced archaeologist or specialist in line with the principles set out in Section 3.5 of English Heritage's Management of Research Projects in the Historic Environment (MoRPHE) Project Planning Note 3 (PPN3, 2008). During the assessment specialists shall make recommendations regarding the discard and retention of material.

4.10.10 The assessment of all samples shall be undertaken in accordance with the guidance provided by English Heritage 2011. After instruction from the Consultant, the Contractor shall start processing and assessing samples as soon as the investigations

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work starts to both inform the onsite sampling strategy and also to reduce the number of samples to be processed after the investigations. Any samples remaining after the investigations shall be prioritised (such as those from key deposits) for processing and assessment.

- 4.10.11 If necessary and possible to achieve the aims and objectives of the PEA, dating evidence shall be obtained by the application of radiocarbon, dendrochronological or other scientific or other scientific dating techniques.
- 4.10.12 One copy of a complete draft assessment report, or additional appendix, shall be submitted in the first instance for review/checking by the Employer and Consultant who shall also consult the Curator during the review period. In finalising the report, the Contractor shall take into account any comments and remedy any faults identified by the Consultant (responding on behalf of the Employer and Curator). The finalised assessment report shall be submitted to the Consultant within five working days of receipt of the Consultant's comments on the draft report.
- 4.10.13 Immediately upon completion of the finalised assessment report, the report and any data or other documentation produced during the post-excavation process shall be integrated into the site archive. The Contractor shall store the archive in suitable conditions in a secure location until instructions are received from the Consultant for its deposition in an agreed final repository or other transfer.
- 4.10.14 Five bound copies and a digital copy in PDF format of the final PEA shall be issued to the Consultant. After instruction from the Consultant, copies of the report (and digital copies of the archive) will be issued by the Contractor as detailed below:
1. A digital copy of the report and archive in PDF format to GAPS;
 2. A hard copy and a digital copy of the report and archive in PDF format to the HER; and
 3. A hard copy and a digital copy of the report and archive in PDF format to the Royal Commission on Ancient and Historical Monuments in Wales.
- 4.10.15 For the submission to the HER, pdf files should:
1. not exceed 20MB;
 2. if scanned, PDF documents shall not exceed 300dpi;
 3. include the capability to perform OCR text recognition;
 4. incorporate watermarks and disclaimers if required;
 5. include compressed images; and
 6. incorporate meta data.
- 4.10.16 Copies of all reports in Microsoft Word and all drawings Georeferenced digitised archaeological trial trench plans shall be provided to the Consultant as AutoCAD drawings (.dwg) and in an ArcView compatible format.

Post-Excavation Assessment and Reporting (Archaeological Excavation)

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- 4.10.17 The assessment of archaeological remains recovered is known as a Post Excavation Assessment (PEA) and the outline of the subsequent programme as an Updated Project Design (UPD) in English Heritage's Management of Research Projects in the Historic Environment (MoRPHE) Project Planning Note 3 (PPN3, 2008). The PEA and UPD terminology will be used in this section.
- 4.10.18 Each category of data and material recovered by the investigations (site records/stratigraphic data, each category of artefact or other find, each category of palaeoenvironmental/economic evidence, any other data) shall be examined and assessed by a suitably qualified and experienced archaeologist or specialist in line with the principles set out in Section 3.5 of English Heritage's Management of Research Projects in the Historic Environment (MoRPHE) Project Planning Note 3 (PPN3, 2008).
- 4.10.19 If possible and necessary to achieve the aims and objectives of the PEA, dating evidence shall be obtained by the application of radiocarbon, dendrochronological or other scientific or other scientific dating techniques.
- 4.10.20 The PEA report shall clearly acknowledge the role of the Employer, the Consultant, and the Curator and show the logo of the Employer on the front cover. All reports shall be prepared in line with the principles set out in Appendix 1; Product P1 of MoRPHE PPN3, and shall include as a minimum:
1. a non-technical summary;
 2. site code and project number;
 3. Planning Reference number and PRN Nos.;
 4. dates when the investigations took place;
 5. a description of the background to and circumstances of the work;
 6. a brief description of the previously known archaeology of each site;
 7. a description of the methodology used;
 8. an objective description of the results of the SMS ('factual data' in Appendix 1; P2 of MoRPHE PPN3);
 9. a specialist assessment of each category of data ('statement of potential' in Appendix 1; P2 of MoRPHE PPN3);
 10. details of archive location and destination (with accession number, where known), together with a catalogue of what is contained in that archive;
 11. an assessment of the archaeological significance of the deposits identified, in relation to other sites in the region;
 12. a conclusion with recommendations for further post-excavation work, if required;
 13. a statement of the storage and curation requirements for each category of data;
 14. general and detailed plans at appropriate scales, showing the location of each site accurately positioned on an up-to-date Ordnance Survey base;

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15. plans of each site at appropriate scales, with keys and north points;
 16. detailed plans and sections of individual features where necessary;
 17. all scales used on any drawings should be standard scales such as would appear on a normal scale ruler;
 18. a copy of the specification and/or project design, and
 19. references and bibliography of all sources used.
- 4.10.21 The PEA report shall be accompanied by an Updated Project Design (UPD) in accordance with Section 3.5 of MoRPHE PPN3. The UPD shall set out the further analytical and reporting, publishing and archiving works, if any, required to achieve the potential identified in the PEA report. The UPD will include a programme, task list and table of resources required to complete the works. A costed task/resource table shall be attached as an Appendix. This will include costs for publication. Note that, if only minor remains have been identified, there may be no value in further analysis, and in such circumstances the UPD should clearly state that this is the case.
- 4.10.22 One copy of a complete draft PEA report and UPD shall be submitted in the first instance for review/checking by the Consultant (who shall liaise with the Employer and the Curator). In finalising the report, the Contractor shall take into account any comments made by the Consultant (including the Employer and Curator) and remedy any faults identified by the Consultant and the Curator. The finalised report shall be submitted to the Consultant within ten working days of receipt of the Consultants comments on the draft report.
- 4.10.23 Together with the post-fieldwork assessment report/updated project design, the Contractor shall submit a priced schedule of activities and resources required to complete the works recommended in the updated project design.
- 4.10.24 Five bound copies and a digital copy in PDF format of the final PEA shall be issued to the Consultant. After instruction from the Consultant, copies of the report (and digital copies of the archive) will be issued by the Contractor as detailed below:
1. a digital copy of the report and archive in PDF format to GAPS;
 2. a hard copy and a digital copy of the report and archive in PDF format to the HER; and
 3. a hard copy and a digital copy of the report and archive in PDF format to the Royal Commission on Ancient and Historical Monuments in Wales.
- 4.10.25 For the submission to the HER, pdf files should:
1. not exceed 20MB;
 2. if scanned PDF documents shall not exceed 300dpi;
 3. include the capability to perform OCR text recognition;
 4. incorporate watermarks and disclaimers if required;
 5. include compressed images; and

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6. incorporate metadata.

4.10.26 Copies of all reports in Microsoft Word and all drawings Georeferenced digitised archaeological trial trench plans shall be provided to the Consultant as AutoCAD drawings (.dwg) and in an ArcView compatible format.

Post-Excavation Analysis

4.10.27 Where the conclusion of the post fieldwork assessment is that detailed analysis is required, it shall proceed in line with the principles set out in Section 3.7 of the MoRPHE PPN3.

4.10.28 The post-fieldwork analysis shall only begin following approval of the updated project design by the Contractor in consultation with the Curator and the products will be a post-fieldwork analysis report (Section 3.7 of the MoRPHE PPN3), a research archive (Appendix 1; P1 of the MoRPHE PPN3) and a report for publication which is likely to be the post-fieldwork analysis report.

Reporting

4.10.29 The post-fieldwork analysis report will be produced within the timescales specified in the programme provided as part of the approved UPD.

4.10.30 The post-fieldwork analysis will consist of detailed work on the stratigraphy, artefacts and environmental data and will lead to the production of a fully synthetic and integrated report text.

4.10.31 One copy of a complete draft post-fieldwork analysis report shall be submitted in the first instance for review/checking by the Consultant who will consult with the Employer and Curator. In finalising the report, the Consultant shall take into account any comments made by the Consultant and the Employer and Curator and remedy any faults identified by the Consultant, Employer and the Curator. Five bound copies and a digital copy in PDF format of the final PEA shall be issued to the Consultant.

4.10.32 After instruction from the Consultant, copies of the report (and digital copies of the archive) will be issued by the Contractor as detailed below:

1. a digital copy of the report and archive in PDF format to GAPS;
2. a hard copy and a digital copy of the report and archive in PDF format to the HER; and
3. a hard copy and a digital copy of the report and archive in PDF format to the Royal Commission on Ancient and Historical Monuments in Wales.

4.10.33 For the submission to the HER, pdf files should:

1. not exceed 20MB;
2. if scanned PDF documents shall not exceed 300dpi;
3. include the capability to perform OCR text recognition;

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4. incorporate watermarks and disclaimers if required;
5. include compressed images; and
6. incorporate metadata.

Monitoring during Post-Excavation Analysis

4.10.34 The Contractor should allow for monitoring by the Consultant and the Curator during the post-fieldwork analysis stage. At least one meeting should be arranged at the beginning of the post-fieldwork assessment stage to discuss the aims, resources and timetable for the assessment. Subsequent meetings on a monthly basis should be planned to assess progress and any other matters arising from the ongoing analysis.

Publication

4.10.35 Where publication of a report in an academic journal or as a monograph has been recommended in the post-fieldwork analysis report or UPD, and agreed with the Employer, Consultant and the Curator this should be accepted for publication within a timescale specified on the programme within the approved UPD and agreed in advance with the Employer, Consultant and Curator. The Contractor shall propose suitable academic referees for the agreement of Consultant and Curator. The academic referees shall be appointed by the Contractor after instruction by the Consultant.

4.10.36 One copy of a complete draft publication report shall be submitted in the first instance for review/checking by the Consultant who will consult with the Employer and Curator. In finalising the report, the Contractor shall take into account any comments made by the Consultant and the Curator and remedy any faults identified by the Consultant and the Curator within five working days.

4.10.37 The Contractor shall also prepare a summary of the work undertaken for submission to the Council for British Archaeology (Wales) publication Archaeology in Wales. One copy of the complete draft of the summary shall be submitted to Consultant for review and comment who shall also consult the Curator and the Employer during the review period. In finalising the summary, the Contractor shall take into account any comments and remedy any faults identified by the Consultant and the Curator. This summary shall not be submitted without the prior written consent of the Consultant and the Employer.

4.10.38 Any required Public Engagement during or post on site work will be coordinated by the Employer.

4.11 Copyright

4.11.1 The Contractor will assign copyright to the Employer upon written request but retains the right to be identified as the author of all project documentation, reports and publications as defined in the Copyright, Designs and Patents Act 1988 (Chapter IV, s.79).

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4.12 Archive Deposition

- 4.12.1 Post excavation archiving shall be undertaken in accordance with the requirements of 'Standards and Guidance for Archaeological Excavation' (ClfA 2014) and Standard and Guidance for the Collection, Documentation, Conservation and Research of Archaeological Materials (ClfA 2014).
- 4.12.2 Immediately upon completion of the finalised report, the report and any data or other documentation produced during the post-excavation assessment process shall be integrated into the site archive. The Contractor shall store the archive in suitable conditions in a secure location until instructions are received from the Consultant for the implementation for transfer to the final repository/repositories.

4.13 Submission of Digital Data

- 4.13.1 The requirements in this section are based on:
- DRAFT Standard and Guidelines for Spatial Data (Gwynedd Archaeological Trust 2014a);
 - DRAFT Historic Environment Record (HER). Guidelines for Archaeological Contractors (Gwynedd Archaeological Trust 2014b); and
 - Guidelines for Digital Archives Version 1 (Royal Commission on the Ancient and Historical Monuments of Wales 2015).
- 4.13.2 The Contractor shall submit a project database comprising a MS Access database in 97-2003 or 2010 format with the following fields:

FIELD NAME	CONTENT	GUIDANCE NOTES
PRN	PRN of an existing site, or PRN of a newly identified site	
SITE NAME	Common name given to a site	Follow the convention Site Type, Location (separated by commas in title case) e.g. Burnt Mound, Parc Bryn Cegin, Llandygai. <u>DO NOT</u> use ampersands (&).
NGR	Grid reference giving the location of a site	Minimum 8 Figure NGR using the OS National Grid, include the 2 appropriate letters for our area (i.e. SH, SJ, SN) and a grid reference of a minimum of 8 figures. <u>DO NOT</u> leave spaces between letters and numbers.

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NGR QUALIFIER	Supplementary information given to an NGR to indicate its accuracy	Only use terms from the controlled terminology list found in the online NGR ACCURACY DESCRIPTION thesaurus.
NGR PRECISION	Supplementary information given to an NGR to indicate its accuracy. This records how precise the NGR is to within 1-1000 meters	Only use terms from the controlled terminology list found in the online NGR PRECISION thesaurus.
NGR DERIVATION	Supplementary information given to an NGR to indicate its accuracy. This records how the NGR has been derived	Only use terms from the controlled terminology list found in the online NGR SOURCE DESCRIPTOR thesaurus.
EASTING	The X co-ordinates of an NGR	6 figure X co-ordinate.
NORTHING	The Y co-ordinates of an NGR	6 figure Y co-ordinate.
OS GRID SQUARE	The OS 1:10,000 map sheet reference	e.g. SH46NW. <u>DO NOT</u> leave spaces between letters and numbers.
UNITARY AUTHORITY	Unitary authority in which the site is located	Gwynedd, Conwy or Ynys Môn <u>DO NOT</u> use 'Anglesey'.
COMMUNITY	Community council area in which the site is located	Use the most up to date community council areas as specified by Welsh Government.
SITE TYPE	The site type e.g. CORN MILL	Only use terms from the controlled terminology list found in the online MONUMENT THESAURUS. <u>Terms must be entered in UPPERCASE.</u>
BROADCLASS	High-level indexing term for the site type	See terminology list below.
PERIOD	The period to which the site belongs	Only use terms from the controlled terminology list found in the online PERIOD thesaurus.
STATUS	Any legal designation given to a site	i.e. Listed Building or Scheduled Ancient Monument.
STATUS REFERENCE	Reference given to the legal designation	i.e. Listed Building number or SAM reference.
STATUS GRADE	The Listed Building grade	i.e. I, II or II*
DESCRIPTION	Description of a site	Free text
CATEGORY	The relative importance of the site, as identified by professional judgement	Only used terms from the controlled terminology list found in the online MONUMENT IMPORTANCE CATEGORY thesaurus.
MANAGEMENT RECOMMENDATIONS	Any management recommendations as identified by professional judgement	Free text

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CONDITION	The current condition of a site, if known	Only used terms from the controlled terminology list found in the online CONDITION thesaurus.
CONDITION RATING	The current condition of a site, if known	See terminology list below
RECORD COMPILED BY	Name of the person who compiled the database record	
DATE COMPILED ON	The date on which the database record was created	
PROJECT NUMBER	Reference to tie the database to any related project output	
COPYRIGHT	Name of individual/organisation who owns the database copyright	

Table 5: Project Database Structure.

4.13.3 TIFF format should be used for digital images and the following image metadata shall be supplied along with the digital image collection in MS Excel or Access in 97-2003 or 2010 format and shall contain the following information:

FIELD NAME	CONTENT	GUIDANCE NOTES
PRN	PRN of the site/s shown in the image	
PHOTO RECORD NUMBER	Unique number given to each image	e.g. PRN666_001
SITE NAME	Common name given to the site/s shown in the image	Follow the convention Site Type, Location (separated by commas in title case) e.g. Burnt Mound, Parc Bryn Cegin, Llandygai. DO NOT use ampersands (&).
NGR	Grid reference giving the location of the site/s shown in the image	Minimum 8 Figure NGR using the OS National Grid, include the 2 appropriate letters for our area (i.e. SH, SJ, SN) and a grid reference of a minimum of 8 figures. DO NOT leave spaces between letters and numbers
DESCRIPTION	Brief description of what is shown in the image	e.g. detailed close up of wear marks on object.
REASON FOR PHOTO	Brief explanation of why the image was taken	e.g. to fulfil planning condition or PAS finds recording.
CREATOR OF	Name of the person who took the image	

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DIGITAL PHOTO		
DATE OF CREATION OF DIGITAL PHOTO	Date on which the image was taken	
IMAGE CAPTURE DEVICE	Make and model number of the camera used to take the image	e.g. Canon D500
DIGITAL FILE TYPE	Format of the digital image supplied to the HER	TIFF or JPEG
RESOLUTION	DPI of the image	
RECORD COMPILED BY	Name of the person who compiled the image metadata	
RECORD COMPILED ON	Date on which the image metadata was compiled	
PROJECT NUMBER	Reference of the project for which	
COPYRIGHT	Name of individual/organisation who owns copyright of the image	

Table 6: Image Metadata Requirements.

4.13.4 A MapInfo table with the following attribute data shall also be supplied:

UNIT OF INFORMATION	MANDATORY (M)/OPTIONAL (O)	REASON FOR INCLUSION
Unique ID	M	A unique ID will need to be created for each spatial entity in order to allow for multiple entities to be attached to a single PRN. Where no autonumbering system is in place it is recommended that the project number followed by _001, _002 etc is used.
GAT HER PRN	M	In order to relate spatial entity to database record.
PRN Type	M	This is to ensure the spatial feature is understood properly. For monument records this will be a default value of "Core". Event records should be recorded as "Event".
Spatial Feature Type	M	E.g. Polygon, Line, Point (this can usually be generated by the GIS).
Area Type	M	To clarify whether a polygon is Known, Uncertain (<i>i.e.</i> not confirmed) or Discounted.

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Data Capture Method	M	This clarifies how the object was captured (most likely “Heads Up Digitising” – ie looking at the screen while digitising with a mouse/tablet).
Data source	M	The source used to inform digitisation must be recorded, e.g. “OS 1 st Edition Map 1889”. This field can be repeated where necessary, or multiple data sources added if relevant.
External Information System	O	E.g. Mastermap TOID
External Information System Primary Reference Number	O	E.g. Mastermap TOID reference number.
Buffer Zone Width	M	Specify the extent in metres of any buffering (use 0 where no buffering has been undertaken)
Positional Accuracy	M	E.g. approximate – based on OS 1 st Edition
Quality	O	Does the spatial entity require checking against any further sources or review?
X Coordinate	M	Centroid X coordinate.
Y Coordinate	M	Centroid Y coordinate.
Originating Organisation	M	Mandatory when object created by an organisation.
Compiled by	M	It is important to know who created the spatial entity.
Compiled on	M	It is important to know when the spatial entity was created.
Last update by	M	Mandatory when object updated.
Last update on	M	Mandatory when object updated.
Copyright	M	Inclusion at object level facilitates data sharing.
Notes	O	This field can be used to clarify access conditions, transformations from other projection systems or any other information useful to understand the data object.

Table 7: GIS Attribute Data Requirements.

4.13.5 All polygon data created will be digitised according to the following guidelines. The reference numbers refer to Mapinfo styles, but the closest approximation should be used when digitising within alternative software.

4.13.6 Any digitised areas where the extent is known should have:

- Light diagonal crossed lines (pattern A6) in dark blue (O1) with no background.
- A dark blue (O1) solid line (B1), 2 pixels width.

4.13.7 Any digitised areas where the extent is NOT known, or sites that cannot be located

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precisely should have:

- Light diagonal crossed lines (pattern A6) in mauve (M5) with no background.
- A dark blue (O1) dashed line (A2), 2 pixels width.

4.13.8 The following metadata is required.

UNIT OF INFORMATION	MANDATORY (M)/OPTIONAL (O)	DESCRIPTION
Title	M	Free Text name given to the data resource is essential.
Dataset Language	M	Essential to know whether the data has been recorded in English or Cymraeg.
Abstract	M	A free text brief narrative summary of the data providing a clear statement of the content and purpose of the data creation.
Topic Category	M	<p>ISO 19115 class list is provided in UK GEMINI but the most likely indexing terms used for archaeological data are:</p> <ul style="list-style-type: none"> • <i>Boundaries</i> (legal land descriptions e.g. political boundaries) • <i>Environment</i> (environmental resources e.g. landscape) • <i>Society</i> (characteristics of society/cultures e.g. settlements/archaeology) • <i>Structure</i> (man-made construction e.g. buildings/monuments) • <i>Transportation</i> (means for conveying persons/goods e.g. roads/airports/railways) <p>Enter one of these terms in order to allow indexing of the file.</p>
Keyword	M	<p>A class (indexing) term to describe the topic of the content of the data resource. These should be taken from a list of standard subject categories identified in the element 'Originating controlled vocabulary'. IPSV form the esd toolkit (www.esd.org.uk/standards/ipsv/) should be used by public sector bodies or the detailed hierarchical thesaurus GEMET (www.eionet.europa.eu/gemet) should be used for INSPIRE conformance.</p>

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Temporal Extent	M	This field should be used to demonstrate the period during which the data is valid and can either be a single date, or a period recorded as [from date/to date] using the format yyyy-mm-dd.
Dataset Reference Date	M	The notional date on which the dataset should be considered published.
Lineage	M	The source data used to construct the data resource should be recorded here.
West Bounding Longitude	M	Approximate bounds of the data resource.
East Bounding Longitude	M	Approximate bounds of the data resource.
North Bounding Latitude	M	Approximate bounds of the data resource.
South Bounding Latitude	M	Approximate bounds of the data resource.
Spatial Reference System	M	The projection of the data. The way in which this is done, and in which SRS has ramifications for where it appears in digital mapping.
File Type	M	i.e. Point, Polygon, Linear, Mixed.
Responsible Organisation	M	<p>Details of the organisation responsible for the establishment management, maintenance and distribution of the data resource. There should be 8 elements relating to the responsible organisation:</p> <p>1 contact position: role eg HER Officer</p> <p>2 organisation name (mandatory): full name without abbreviation</p> <p>3 full postal address</p> <p>4 telephone number</p> <p>5 facsimile number</p> <p>6 email address (mandatory)</p> <p>7 web address</p> <p>8 responsible party role (mandatory): Choose from <i>Resource Provider</i>, <i>Custodian</i> (assuming responsibility for the data and its maintenance), <i>Owner</i>, <i>User</i>, <i>Distributor</i>, <i>Originator</i>, <i>Point of Contact</i>, <i>Principal investigator</i> (key party responsible for gathering information about or acquisition of the resource), <i>Processor</i> (party who has processed the data in a manner that has modified the resource), <i>Publisher</i>, <i>Author</i>. At least a distributor should be identified.</p>
Copyright	M	Copyright data must be included in order to share data.
Frequency of Update	M	Coded list of terms describing the frequency with which modifications and deletions are made to the data resource. Choose from <i>Continual</i> , <i>Daily</i> , <i>Weekly</i> , <i>Fortnightly</i> , <i>Monthly</i> , <i>Quarterly</i> , <i>Biannually</i> , <i>Annually</i> , <i>As needed</i> , <i>Irregular</i> , <i>Not planned</i> , <i>Unknown</i> .
Limitations on public access	M	It is important to describe any restrictions on the data resource for security and other reasons.

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Use Constraints	M	It is important to describe any restrictions and legal restraints. If no conditions apply “No conditions apply” should be added here.
Metadata date	M	It is important to record when the metadata document was compiled.
Metadata point of contact	M	It is important to describe who to contact in relation to the creation and maintenance of metadata. Use the format noted for responsible organisation.
Unique Resource Identifier	M	A value that uniquely describes the data resource. This is likely to be the archaeological project identifier.
Resource Type	M	The scope to which the metadata applies should be recorded, ie is the data resource a <i>Dataset</i> , a <i>Data Series</i> (a collection of datasets with a common specification), or a <i>Data Service</i>
Assessment of Data Quality	M	It is important to note if the dataset is subject to quality issues.
Method of original data capture	M	The way in which the data was captured must be recorded.
Hardware	M	The computer equipment used to create the data resource should be recorded.
Software	M	The software used to create the data resource should be recorded.
Additional Information	O	Any other information that will facilitate understanding of the data resource. This could include a list of fields in the GIS table, which can be extracted by right-clicking on the .tab file in Explorer and opening in notepad or another text editor.

Table 8: GIS Metadata Requirements

- 4.13.9 Submission of digital information to the Royal Commission on the Ancient and Historical Monuments of Wales shall be undertaken in accordance with the RCAHMW Guidelines for Digital Archives Version 1 (2015). A copy of this is included in Appendix A.

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5 Health and Safety Requirements

5.1 General Health and Safety Requirements

- 5.1.1 The Contractor shall ensure full compliance with all Health and Safety legislation.
- 5.1.2 The Contractor shall supply all suitable plant for the archaeological investigations. All such plant shall operate under the direct and continuous supervision of the Contractor. Mechanical excavators shall only be operated by qualified drivers; all drivers shall be CITB/CTA approved and shall hold a current and valid CPCS card. Photocopies of all cards shall be provided to the Consultant by the Contractor.
- 5.1.3 All Contractor's site staff shall be Construction Skills Certification Scheme (CSCS) cardholders.
- 5.1.4 The Contractor shall put in place arrangements for the consultation with (and engagement of) site personnel at project, workgang and individual levels.
- 5.1.5 The Contractor shall bring to the attention of the Consultant any actions by site staff or third parties that may endanger site operatives or the investigations. If these actions are considered to be of an immediate danger or compromise the safety of the investigation then the Contractor may act accordingly.
- 5.1.6 The Contractor shall be responsible for maintaining the safety of the public.
- 5.1.7 The number of personnel shall be kept to a minimum at all times. The number of personnel required to safely and efficiently conduct the survey determines the limit.
- 5.1.8 The Contractor shall have the right, in the interests of safety, to halt investigations on the approach of any non-essential personnel.
- 5.1.9 The Employer and/or the Consultant shall have the right to halt investigations in the interests of health and safety and/or to exclude the Contractor's personnel from site in the event of a breach of health and safety policy or observance of unsafe practices or other unacceptable behaviour.

5.2 Employer's Health and Safety Requirements and Documentation

- 5.2.1 The Contractor shall adhere to the requirements of the Horizon Nuclear Power documents "Contractor's Minimum Health and Safety Standards HG-S-06-PRC-03-479 Revision 2.0", and this specification. If contradiction exists between these documents the more onerous requirement will be adopted.
- 5.2.2 Requirements include but are not limited to:
 - Competency Matrices;
 - Health, Safety and Welfare Inductions;

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- Attendance at progress / work coordination meetings;
- Provision of Risk Assessment;
- Provision of Method Statements;
- Compliance with Employer's PPE Requirements;
- Attendance at Employer's Health and Safety Audits;
- Performance monitoring reporting; and
- Provision of information for the health and safety file

5.2.3 Pre-construction health and safety information will be provided by the Employer.

5.3 *Health and Safety Requirements*

5.3.1 The works shall comply with requirements under the Health and Safety at Work Act etc 1974 and all application regulations.

5.3.2 The works shall address the information and requirements set out by the Employer.

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6 Other Requirements

6.1.1 The Contractor shall comply with the Employers requirements, including but not limited to:

- Land access;
- Communication;
- Document Control;
- Quality Management;
- Interfaces with the Public and the Media;
- Site Security;
- Provision of and Ecological Clerk of Works; and
- Site Accommodation.

6.1.2 Details of these will be provided to allow the Contractor to have made allowance for them.

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Appendix A - RCAHMW Guidelines for Digital Archives Version 1 (2015).

RCAHMW GUIDELINES FOR DIGITAL ARCHIVES

VERSION 1

GARETH EDWARDS

This document is based on:

*RCAHMS Guidelines for Archiving of Archaeological
Projects version 13, 2013*

And is informed by:

Archaeology Data Service Guides to Good Practice
<http://guides.archaeologydataservice.ac.uk/>

RCAHMW

Guidelines for Digital Archaeological Archives

Maintained by the Royal Commission, the National Monuments Record of Wales (NMRW) is the national collection of information and archives concerning the historic environment of Wales from the earliest times to the present day. It comprises a repository of both hard-copy and digital records, including photographs, drawings, text reports and other material relating to the archaeology, architecture and industrial heritage of Wales. The NMRW collects and preserves this material for the future, with the intention of making it available to the public for study and research. Please see our website for further details about our organisation <http://www.rcahmw.gov.uk/HI/ENG/Home/>¹ and our Collecting Policy <http://www.rcahmw.gov.uk/HI/ENG/About+Us/Policies/Collecting+Policy/>².

These guidelines are designed to be used by those producing digital archaeological archives, or archives with a digital component, intended for preservation in the NMRW. Equally, these guidelines can be used by those preparing previously produced digital archives for donation to the NMRW. An archive comprises the complete documentary record of an archaeological project. The aim should be to produce a comprehensive record of work undertaken, and the archive should be structured to allow the information to be understandable and readily accessible by those unfamiliar with the project. Considering the potential for reuse of information at the planning stages of a project onward will aid in the production of a complete and coherent archive. NMRW staff will be happy to answer any questions about the deposit of archive material.

It is in the nature of digital archives that standards evolve in line with changing technologies and we intend to update these guidelines to keep abreast of this. Please see our website <http://www.rcahmw.gov.uk/HI/ENG/Search+Records/Standards/>³ to ensure that you have the latest version of this guidance document. We do not currently have prescriptive standards for many specialist survey outputs (e.g. LiDAR, 3D Laser scanning, etc.) and processes creating big data. Please contact us to agree requirements for such archives.

NMRW reserves the right to refer archives back to producers for further work where adequate basic standards of organisation, description and format have not been met.

If you wish to discuss depositing digital records with RCAHMW, or require further information on the suitability of your archive for deposit, formats of record, metadata or configuration of the archive, please contact:

Gareth Edwards, Archive and Library Team Leader, RCAHMW gareth.edwards@rcahmw.gov.uk

Content

Content selection criteria will vary from project to project, however it is imperative that:

¹ The Royal Commission on the Ancient and Historical Monuments of Wales Website, RCAHMW, 19/03/2015

² The Royal Commission on the Ancient and Historical Monuments of Wales Website, RCAHMW, 19/03/2015

³ The Royal Commission on the Ancient and Historical Monuments of Wales Website, RCAHMW, 19/03/2015

- All texts and supporting images that may comprise a final report or publication must form the core of the deposit.
- Any supporting graphics that are embedded into a final report but which are also available in higher resolution or uncropped must be included as separate items.
- All raw (unprocessed) data relating to various specialist survey activities should be included where possible.
- If unprocessed data is not available in digital form, and provision cannot be made to scan it electronically, it can be supplied to NMRW as hardcopy. Adobe Portable Document Format (PDF/A-1a or PDF/A-1b) files are accepted. However, any constituents that go to make up the PDF file (*e.g.* TIFF files, Microsoft Word document) should be documented and supplied as well.

Duplication must be avoided wherever possible:

- Do not provide data items in more than one file format if their content is identical, unless the original format is known to be at risk or not currently accepted by NMRW.
- When submitting digital images do not include duplicate, near duplicate or extraneous images. NMRW reserves the right to weed and delete such files.
- Where a document exists in several versions, only supply the final (non-draft) version with the assemblage.
- Written correspondence (electronic or scanned hardcopy) relating to the project should not be included *unless* it represents a primary aspect of the project's brief or adds value to the assemblage.
- No material should be included that may be interpreted as being defamatory or libellous to any living person.

Information required

In addition to the digital materials deposited, it is also necessary to supply documentation for the deposited archive. There are three categories of documentation that should accompany a digital resource:

- Archive information Form
- File information Form; and
- Technical documentation (where appropriate)

These are available electronically from our website in MS Excel format and should be returned to NMR in that format, in a folder named 'metadata'. Examples of completed forms are included as appendices to these guidelines. If producers already have similar metadata, covering the required data elements in an acceptable format, this can be supplied, but only through prior agreement with RCAHMW.

Archive Information

We require general information about the archive and the background to its production, together with information on the site or sites involved, and a summary of the archive's contents. This form is relevant to both hard copy and digital archives, or combinations of both. **Appendix A** gives an

example of a completed form. All fields are mandatory unless otherwise marked. One form should be completed for each archive.

File Information

- **Appendix B** gives an example of a completed form used to record basic file details for each item in the archive. All fields are mandatory unless otherwise marked.
- A form should be completed for each group of file types (e.g. Autocad files, .TIFFS, etc.) and the header to the form gives the general information about these, each individual file should then be listed and described below this. (See **Appendix B** examples below).
- All data files must have a logical, single unique file reference which is recorded exactly consistently in the form (see **File and Directory Naming** below).
- Ensure you complete and submit this electronically.

Technical Documentation

Technical documentation is information about items, or groups of items, within the archive which will enable the data to be understood and reused by others (for instance, it may constitute a text document describing all the data tables in a database, detailing how they relate to each other). Technical documentation also encompasses documentation relating to third party material that may be embedded within the resource being deposited. Technical documentation (if applicable to your data) should be submitted with the archive in electronic form only.

Technical documentation can be highly specialised in nature and its format or elements will vary depending upon the type of data to which it refers. As a basic requirement, technical documentation, where necessary, must be sufficient to allow archive items, or groups of items, to be accessed, understood and reused by future users of the archive.

NMRW does not use or record formal data elements for technical documentation. A copy of depositors' technical documentation is stored with the archive and supplied to users when requested. It is the depositor's responsibility to ensure that the technical documentation is accurate and complete – NMRW will not verify or validate complex technical documentation.

A good source of practical advice for provision of technical documentation is the Archaeology Data Service (ADS) series of *Guides to Good Practice*. General guidelines relating to technical documentation for archaeological excavation and fieldwork are available at: <http://guides.archaeologydataservice.ac.uk/g2gp/Main>⁴. The guide covers technical metadata under the relevant chapters on each data type. Where producers are unsure if technical documentation is required or need further information, they should take specialist advice.

⁴ Archaeological Data Service Website, ADS, 19/03/15

Formats and Conventions

Media Formats

Digital archive files will be stored, uncompressed on an archive server, but in order to transfer them to us, the NMRW currently accepts digital archive in the following common media formats: CD-R; CD-RW; DVD-R; DVD-RW; and external hard disk. Alternatively, archive can be delivered by attachment to email or made available for download via a secure web-based file sharing application such as OneDrive, where it may be convenient to package and compress complex archives using file compression software, (e.g. WinZip, GZip, etc.)

NMRW cannot routinely accept deposition of digital archive using: Iomega Zip discs; DLT, DAT, TK50 or QIC tape cartridges; CD-DA, CD+G, CD-I or CD-Text discs; unusual/outdated (e.g. 8" and 5.25") magnetic discs; or solid state storage devices. In limited circumstances we may be able to accept such formats for legacy data, but please contact us in the first instance.

NMRW would prefer to receive media formatted under (or for) the Microsoft Windows platform.

Avoid adhering gummed or sticky labels to the surface of CD-ROM. Use a water-based, non-permanent soft-pointed marker to write the Unit name, project code, site name and date on the CD-ROM rather than the CD Case or wallet.

File Formats

Wherever possible, depositors must supply digital material in file formats that are listed in **Appendix B**, Recommended Formats. If this is not possible, contact the NMRW Archive for advice. This appendix provides a list of required file formats for a range of data types relating to archaeological and architectural activities.

Where the original format used is bespoke, very newly developed and/or not widely accepted, it is essential that items are also supplied in a more common format to ensure they are useable and retrievable. Depositors therefore, may supply a single item in more than one format. Please indicate the duplication in the File Information Form (use the Description column), together with details of any data loss observed between format versions. Please consult with us for advice on surrogate digital formats.

File and Directory Naming

NMRW has a few special requirements for file and directory naming other than those imposed by popular operating systems. File directory names should be easily understood by those outside of the project, and whilst there are no formal requirements for the internal arrangement of, or maximum levels of nesting within, an archive's directory structures, levels of nesting should be kept to a minimum, should be logical, and should not contain duplicate files.

It is essential that:

- Each project directory should contain a folder named 'metadata' and this should contain the completed electronic copies of the metadata forms supplied by NMRW.
- The period character ('.') is not used in directory names, and is reserved for separating the file extension from the name.
- The space character should not be used in file or directory names (replace with the underscore character).
- Directory and file names may be upper, lower or mixed case.
- Filenames should be logical, unique, be kept as short as reasonably possible, and be entirely consistent with the file name as recorded in the File Information metadata.

- When naming files with consecutive numbers use the same number of characters throughout (i.e. for 1-100, use 001 to 100 otherwise this causes us difficulties).

Archive Ownership and Intellectual Property Rights

- NMRW requires that depositors transfer the physical ownership of archive material to the organisation via a signed Deposit Agreement to aid its successful curation, an electronic copy of this form is included as **Appendix C** of this document
- It is essential that the Intellectual Property Rights (including Copyright) of the archive are established, and any special conditions attached to material made clear at the time of deposition with NMRW.
- Intellectual Property Rights can be transferred to NMRW as part of the Deposit Agreement. If a depositor wishes to retain Intellectual Property Rights for the material they have created then this may be noted on the Deposit Agreement form, but depositors must allow NMRW to disseminate material as per their advertised terms and conditions.
- In the event of an organisation holding copyright ceasing to exist, notification of this should be made to NMRW, as soon as possible, with details of any new arrangements.

Archive Information Form

Project Information		
Organisation Name		
Trowel Archaeology Ltd.		
Project Name		
Pen Caer Evaluation		
Project Code	HER Event PRN	Project Dates
TA0213	303897	June - July 2013
Project Manager		Type of Project (i.e. Watching Brief, Evaluation...)
Dai Rhaw		Evaluation and Excavation
Sponsor/Client		
Cadw		

Site Information		
Site Name (and Address if appropriate)		
Pen Caer Hillfort, Aberffug		
NGR	NPRN (NMRW site number, if known) or HER PRN	Site Classification (i.e. Hut Circle)
NS 598 651	NPRN 94568	Hill Fort

Archive Contents – Digital Material (please provide metadata on appropriate form)	
Method of Transfer and quantity	6 CDs
Size (specify if KB, MB or GB)	1.8 MB

File Information Form

Organisation/individual depositing the material	Name of project, Originator Project Code (if available)	Date form compiled
Trowel Archaeology Ltd.	Pen Caer Evaluation TA0213	29/06/2013
Operating system Vendor	Operating system Name	Operating system Version
Microsoft	Windows 2000	Version 4.0
Software Name (Vendor + application name + version)	File Extension	Total Number of files submitted of this type
AutoCAD2000	DWG	1
Hardware/Capture Devices : Make	Model	Type

Filename	Path (depositors pathway structure)	Description of file's content	Linked file(s) <i>This field is optional</i>	Technical documentation files <i>This field is optional</i>	Notes <i>This field is optional</i>
TA0213-Report-001.dwg	TA0213/report_illustrations	Plan of outer rampart, Fig. 1 in finished report.	TA0213/report_illustrations/TA0213-Report-010.pdf	TA0213/report_illustrations/Technical_Documentation/Outer_Rampart_Plan.doc	Component of full finished plan, see file under 'Technical Documentation'.

Organisation/individual depositing the material	Name of project, Originator Project Code (if available)	Date form compiled
Trowel Archaeology Ltd.	Pen Caer Evaluation TA0213	29/06/2013
Operating system Vendor	Operating system Name	Operating system Version
Microsoft	Windows 2000	Version 4.0
Software Name (Vendor + application name + version)	File Extension	Total Number of files submitted of this type
Adobe Photoshop 12	.TIF	105
Hardware/Capture Devices : Make	Model	Type
Nikon	D80	Digital Camera

Filename	Path (depositors pathway structure)	Description of file's content	Linked file(s) <i>This field is optional</i>	Technical documentation files <i>This field is optional</i>	Notes <i>This field is optional</i>
TA0213-Photos-001.tif	TA0213/photo graphy	Trench 3, from south-west, showing burnt layer.			.
TA0213-Photos-002.tif	TA0213/photo graphy	Trench 3, from north, showing post hole.			.
TA0213-Photos-003.tif	TA0213/photo graphy	Trench 4, from south, showing post hole.			.
Etc.....					

Notes for File Information Form

Please give as much detail as possible for each field for each file being deposited. If you do not have the information to complete all fields please indicate this e.g. 'Microsoft Fox Pro, Version information unknown'. Complete a different header section and begin a new list if the details relevant to the file(s) being listed change (e.g. if a set of files are produced through a different operating system or application)

1. **Filename** - Please provide the file name exactly consistent with that used for the file (do not use 'spaces' in file names if possible, use underscore/dash etc.)
2. **File extension** - Please indicate this clearly (upper or lower case)
3. **Path** - Please indicate pathway within the archive folder supplied to us, as designated by data manager
4. **Description of file content** – What you would expect to see when you open the file e.g. Elevation of West front showing blocked doorway
5. **Linked files** – Names of any files upon which this file depends for content, but which are not embedded in the file itself. Include path info if required.
6. **Technical Documentation Files** - Name of any file that documents the internal structure or content of this file and give technical information on its configuration or use.
7. **Notes** – Allows for input information not shown anywhere else.

REQUIRED FILE FORMATS

Appendix B

The following table lists all file formats that NMRW is currently capable of accepting. Other formats may be acceptable under certain circumstances, but producers must contact the NMRW Archive if you wish to submit data in formats other than those listed below.

	File Format		Additional Documentation (if relevant/available)/Notes
Text	<i>Preferred</i>	Adobe Portable Document Format ISO Standard for Archiving (PDF/A) - .pdf Microsoft Word - .doc	<ul style="list-style-type: none"> Documents must not be locked to editing or password protected. HTML, XHTML – include any relevant CSS files XML – include relevant schema/DTD/XSLT
	<i>Accepted</i>	Adobe Portable Document Format - .pdf Microsoft Word - .docx OpenDocument Text - .odt TXT, HTML, XHTML, XML, SGML	
Images (see below for further details)	<i>Preferred</i>	Tagged Image File Format (Uncompressed) - .tif	<ul style="list-style-type: none"> Uncompressed .tif files are required as mandatory for any new work. We will only accept .jpg files from historic archives where .tiffs are not available. Captions must be included for all image files Images must be at least 1200 pixels along longest edge. Images must have a resolution of at least 72dpi.
	<i>Accepted</i>	Joint Photographic Expert Group - .jpg JPEG2000 - .jp2 Tagged Image File Format (Compressed) - .tif Portable Network Graphics - .png	
CAD (Vector Graphics)	<i>Preferred</i>	Scalable Vector Graphic - .svg Adobe Illustrator - .ai AutoCAD - .dxf	<ul style="list-style-type: none"> Relationships to other files Captions must be included for all graphics files
	<i>Accepted</i>	CorelDraw - .cdr AutoCAD - .dwg	
Spreadsheets	<i>Preferred</i>	Comma Separated Value - .csv Excel - .xls	<ul style="list-style-type: none"> Column/Rows should have clear labels describing their contents A key should be provided for any codes with the data Spreadsheets must not be locked to editing or password protected
	<i>Accepted</i>	Microsoft Office - .xlsx OpenDocument Spreadsheet - .ods	
Databases	<i>Preferred</i>	Microsoft Access - .mdb Delimited Text	<ul style="list-style-type: none"> A data dictionary should be included where available For delimited text the delimiters should be listed Databases must not be locked to editing or password protected
	<i>Accepted</i>	Microsoft Access - .accdb OpenDocument Database - .odb	
GIS	<i>Preferred</i>	ESRI Shapefile - .shp, .shx and .dbf ESRI Geodatabase - .xml	Information should be provided on: <ul style="list-style-type: none"> The purpose of the GIS The function of each layer Coordinate system used Method of capture Data source Scale/resolution Assessment of data quality Date of capture
	<i>Accepted</i>	Flat file data as Microsoft Excel, Comma Separated Values or Microsoft Access formats - .xls, .csv or .mdb MapInfo - .mid and .mif	
Geophysics	<i>Preferred</i>	Raw xyz data: .txt, .csv, .xyz Rendered Images: .tif	For raw xyz data: <ul style="list-style-type: none"> Location of the survey Conditions Instrumentation For rendered images: <ul style="list-style-type: none"> Details of data processing and interpretation
	<i>Accepted</i>	Rendered Images: .jpg, .png (see above)	
Video	<i>Preferred</i>	Mpeg-1, Mpeg-2	<ul style="list-style-type: none"> Shorter clips of submitted video films should also be submitted for dissemination purposes. Shorter clips should be web optimised where possible.
	<i>Accepted</i>	Mpeg-4	

Digital Images Guidance

Ensure that the images you are submitting are of the highest standard for your equipment and *at least* between 300 and 400 dpi (dots per inch)/ppi (pixels per inch).

Photographs must all be in uncompressed TIFF format when producing new photography (we will accept JPEG files only for existing archives, where no TIFF files are available).

Minimum file sizes for all digital images should be 1-2 MB but ideally images should be larger than this.

Image quality is also an important factor when selecting images to deposit. All photographs should be sharp and well exposed, and duplicates should be weeded.

Notes:

There are three main file formats used by digital cameras to create images; JPEG, TIFF and RAW, the most common being the JPEG file format. On some digital cameras it will be the only file format available, although more sophisticated digital cameras will allow you to choose between JPEG, TIFF and RAW. For new survey work, where cameras do not produce TIFFs directly, images should be output as RAW files and converted to uncompressed TIFF format. Images must not be produced as JPEGs and subsequently converted to TIFFs. As previously stated, we will accept JPEG files only for existing archives, where no TIFF files are available.

Uncompressed TIFF file format is the preferred choice for archiving images as it keeps the original quality of an image over time.

Do not submit RAW files, these are hardware dependent files and cannot be supported for future access.

The preferred settings outlined above have been chosen to allow content to be stored at an archive standard and also to allow reproduction at a scale suitable for printing and display purposes.

Most cameras give a quality option within the menu of Small, Medium and Large. In order to produce high quality images, you will need to set your camera on the Large or Medium option in order to give an image of 5-10 Megapixels.



Cofnod Henebion Cenedlaethol Cymru
National Monuments Record of Wales



ARCHIVES DEPOSIT AGREEMENT

Deposit		
Acc. No	Date	Ref
Depositor		
Name		
Address		
Postcode		
Email Address		
Tel. No		
Fax No		
Details of Deposit		
Title		
Description		
Quantity and Condition		
Provenance		
Restrictions and Copyright		
Details of Deposit Agreement		
<p>As the Owner/Depositor acting on behalf of the Owner (delete as appropriate) I certify that the above information is correct and that I have read and understood the terms and conditions of deposit on the reverse of this form. I hereby agree to:</p> <p><input type="checkbox"/> Gift the above item(s), with the copyright, to the Crown under the authority of the Archivist at the National Monuments Record of Wales, Royal Commission on the Ancient and Historical Monuments of Wales. The item(s) are offered as absolute and unfettered gifts to be placed within the public archive and made available to the public as per the terms and conditions overleaf.</p> <p><input type="checkbox"/> Deposit the above item(s) on loan to the National Monuments Record of Wales, Royal Commission on the Ancient and Historical Monuments of Wales under the authority of the Archivist under the terms and conditions overleaf, retaining copyright but allowing the Royal Commission to licence and administer the copyright on my behalf.</p> <p><input type="checkbox"/> Deposit the above item(s) on loan with the National Monuments Record of Wales, Royal Commission on the Ancient and Historical Monuments of Wales under the authority of the Archivist, as per the terms and conditions overleaf. I wish to retain copyright and be contacted each time an enquirer wishes to use the item(s) other than for private research.</p>		
Signature (Depositor)	Name (BLOCK CAPITALS)	Date
Signature (Archivist)	Name (BLOCK CAPITALS)	Date
Royal Commission on the Ancient and Historical Monuments of Wales Plas Crug, Aberystwyth, Ceredigion SY23 1NJ Tel: +44 (0)1970 621200 Fax: +44 (0)1970 627701 Email: nmr.wales@rcahmw.gov.uk Website: http://www.rcahmw.gov.uk		

TERMS AND CONDITIONS OF DEPOSIT

General

1. The deposited items are accepted upon the following terms except as may be expressly varied in writing by the parties hereto which variation should be appended to this agreement.
2. For the purpose of this agreement the Royal Commission on the Ancient and Historical Monuments of Wales (hereafter referred to as the RCAHMW) shall act through its Archivist with respect to any consent, notice, approval, requirement or any other action of the RCAHMW referred to under this agreement or through such other officer of the RCAHMW as may from time to time be determined and all notices and communications from the Depositor to the RCAHMW under this agreement shall be addressed to that Officer.
3. All deposited items may be examined, inspected or exhibited at the discretion of the RCAHMW with or without charge but the RCAHMW shall not by virtue of deposit be obliged to make items available for inspection or for any other purpose.
4. All copyright in any deposited item shall be retained by the Depositor where the Depositor is entitled. The Depositor may assign or gift the item and the copyright, where entitled, to the RCAHMW which agreement between the parties should be noted overleaf.
5. All deposited items may be made available or copied to third parties for the purposes of private research and study and copies of all items may be made available by RCAHMW for non-commercial purposes via the World Wide Web at the absolute discretion of the RCAHMW.
6. The RCAHMW shall store the deposited items in such conditions as it sees fit in its absolute discretion and shall not be liable to the Depositor in any circumstances for any loss or damage to the deposits from whatever cause howsoever arising.
7. The RCAHMW shall be at liberty to mark the records with any mark of reference or index.
8. The RCAHMW shall be at liberty to carry out any repair or conservation work as it shall in its absolute discretion determine and shall not be liable for any damage so caused.
9. The RCAHMW reserves the right to return items to Depositors if such persons can be traced following reasonable enquiry.

Withdrawal

10. All Depositors shall be entitled to remove temporarily deposited items for three months in any period of up to twelve months. All endeavours will be made to meet such requests without delay but Depositors should, whenever possible, give prior warning to the RCAHMW and the RCAHMW shall not by virtue of this condition be responsible to produce any deposited item earlier than 21 days following the receipt of written notice of withdrawal.
11. Deposited items may be withdrawn from the RCAHMW for periods longer than three months in any twelve months or absolutely but upon such withdrawal the Depositor shall be liable to the RCAHMW for the costs and charges accrued at the time of withdrawal in respect of the cost of cataloguing or producing a calendar of the deposited items, the cost of all conservation work carried out in connection with the deposited items and a charge in respect of the costs of storage. RCAHMW may, at its discretion, waive any or all of these costs and charges.

Confidential Items

12. If requested by the Depositor, deposited items which are confidential will only be made available for public inspection, research or other purposes with the agreement of the Depositor during the period of 30 years from the date of creation of the item or such longer period as may be agreed by the RCAHMW.

Cataloguing

13. Catalogues or calendars of deposited items prepared by the RCAHMW (if any) can be supplied to Depositors free of charge (2 copies) but otherwise shall be the property and the copyright of the RCAHMW and shall be made available to the public and others upon such terms as the RCAHMW may determine.

Insurance

14. If the Depositor wishes the items on deposit to be insured against any risks whatsoever the Depositor shall be responsible to take out such insurance and shall be responsible to discharge the costs thereof. In such circumstances while the items are deposited the RCAHMW's interest should be noted on the policy.

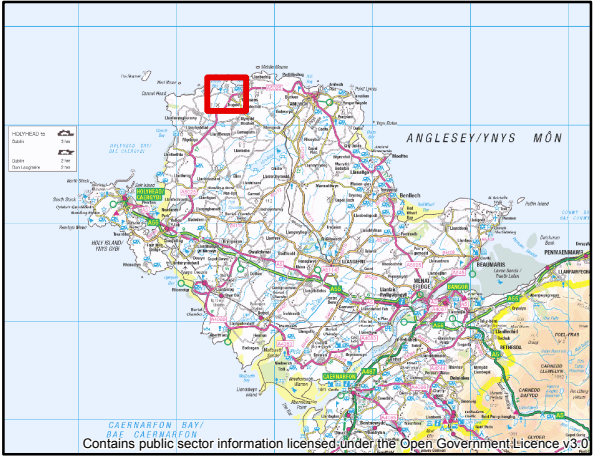
Depositor or Persons Claiming through the Depositor

15. For the purpose of this agreement the Depositor shall mean the person, persons or body upon whose authority records are deposited with the RCAHMW, or other person claiming to be the owner of the deposited items or the authorised agent of the owner as may be recognised under condition 16. The Depositor shall supply to the RCAHMW their full name and address to which all communications may be sent and shall promptly inform the RCAHMW of any change in their address and shall if requested by the RCAHMW produce to the RCAHMW any evidence certificate or other documentation which will establish their ownership of the deposited items.
16. The RCAHMW shall not be obliged to recognise persons claiming to be the Depositor as defined in condition 15 except where satisfactory evidence of such title or the validity of such claim has been shown to the satisfaction of the RCAHMW or such other solicitor or barrister instructed by the RCAHMW. Such persons claiming by virtue of acquisition of ownership from the original Depositor should inform the RCAHMW promptly of their acquisition of such title whereupon the RCAHMW shall when satisfied as aforesaid amend the list of Depositors accordingly.
17. Where for any purpose arising under these terms of acceptance or otherwise the RCAHMW wish to contact the Depositor in connection with any deposited item it shall be sufficient for the RCAHMW to write to the Depositor for the time being recognised by the RCAHMW in accordance with clause 16.
18. In the event of the RCAHMW being unable to contact the Depositor despite reasonable enquiry then in relation to all matters where the consent or agreement of the Depositor is required the Depositor shall be deemed to have given such consent or agreement and in the event of the RCAHMW wishing to terminate its retention of any deposited item the RCAHMW shall be at liberty to dispose of the deposited item as it sees fit including destruction in appropriate cases. It should be noted that destruction will only be considered when all other possibilities have been exhausted, including offering the deposited items to another appropriate repository.



- Legend
- Wylfa Newydd Development Area
 - Areas of Trial Trenching
 - A1 Priority Areas for Archaeological Trial Trenching
 - A5 Areas Proposed for Archaeological Trial Trenching

Note:
C2, C3 and C4 are wooded areas. Trial Trenching of these areas will be agreed on a field by field basis.



1	14-10-15	Trial Trenching Data Update	AD	JD	JD	JD
0	27-04-15	Initial Issue	AD	AM	JD	RB
Rev.	Date	Purpose of revision	Drawn	Check'd	Rev'd	Appr'd

JACOBS

1 City Walk, Leeds, LS11 9DX, UK.
Tel: +44(0)113 242 6771 Fax: +44(0)113 389 1389
www.jacobs.com

Client

HORIZON
NUCLEAR POWER

Project

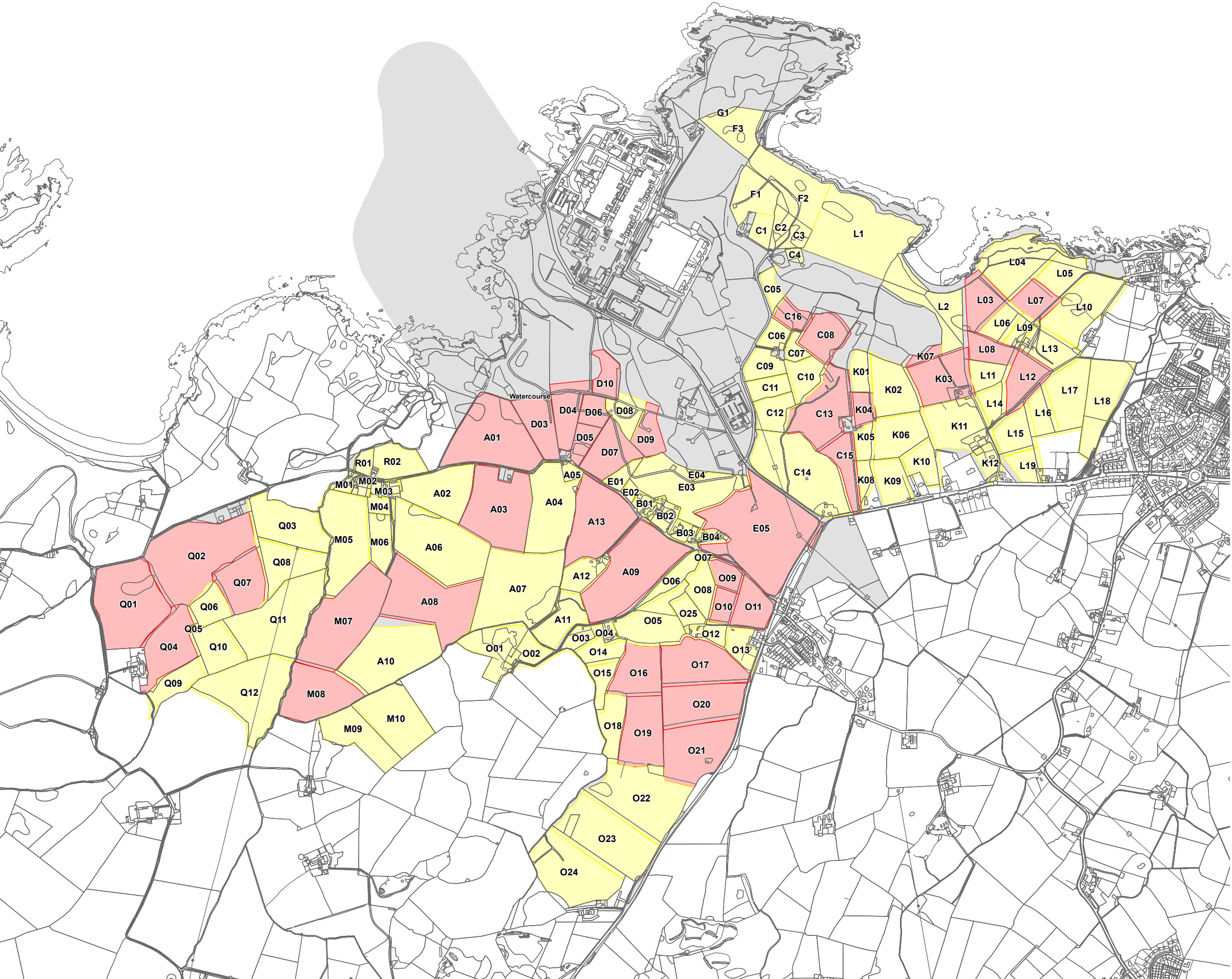
WYLFA NEWYDD PROPOSED NUCLEAR POWER STATION

Drawing Title

AREAS PROPOSED IN THE ARCHAEOLOGICAL EVALUATION
STRATEGY FOR ARCHAEOLOGICAL TRIAL TRENCHING
AND LOCATION OF PRIORITY FIELDS

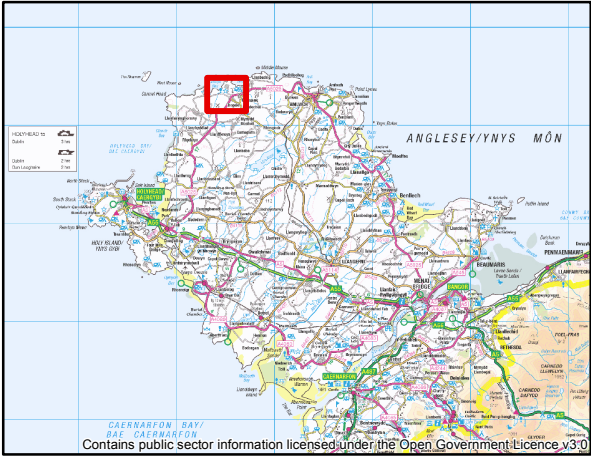
Drawing Status	
Scale @ A3	1:12,500 DO NOT SCALE
Jacobs No.	60PO8032
Client No.	WN03.03.01-S5-PAC-MES-00001
Drawing No.	60PO8032/CH/WSI/01

This drawing is not to be used in whole in or part other than for the intended purpose and project as defined on this drawing. Refer to the contract for full terms and conditions.





- Legend
- Wylfa Newydd Development Area
 - Tre'Gof SSSI Wetland
 - Cestyll Park and Gardens
 - Potential Geophysical Anomaly - Prehistoric
 - Potential Geophysical Anomaly - Med to 18th Century
 - Potential Geophysical Anomaly - Late 19th Century
 - Potential Geophysical Anomaly - Modern
 - Potential Geophysical Anomaly - Unknown Date
 - Potential Geophysical Anomaly - Geological
 - A1 Field Numbers



0	27-04-15	Initial Issue	AD	AM	JD	RB
Rev.	Date	Purpose of revision	Drawn	Check'd	Rev'd	Appr'd

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Client

HORIZON
NUCLEAR POWER

Project

WYLFA NEWYDD PROPOSED NUCLEAR POWER STATION

Drawing Title

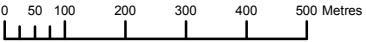
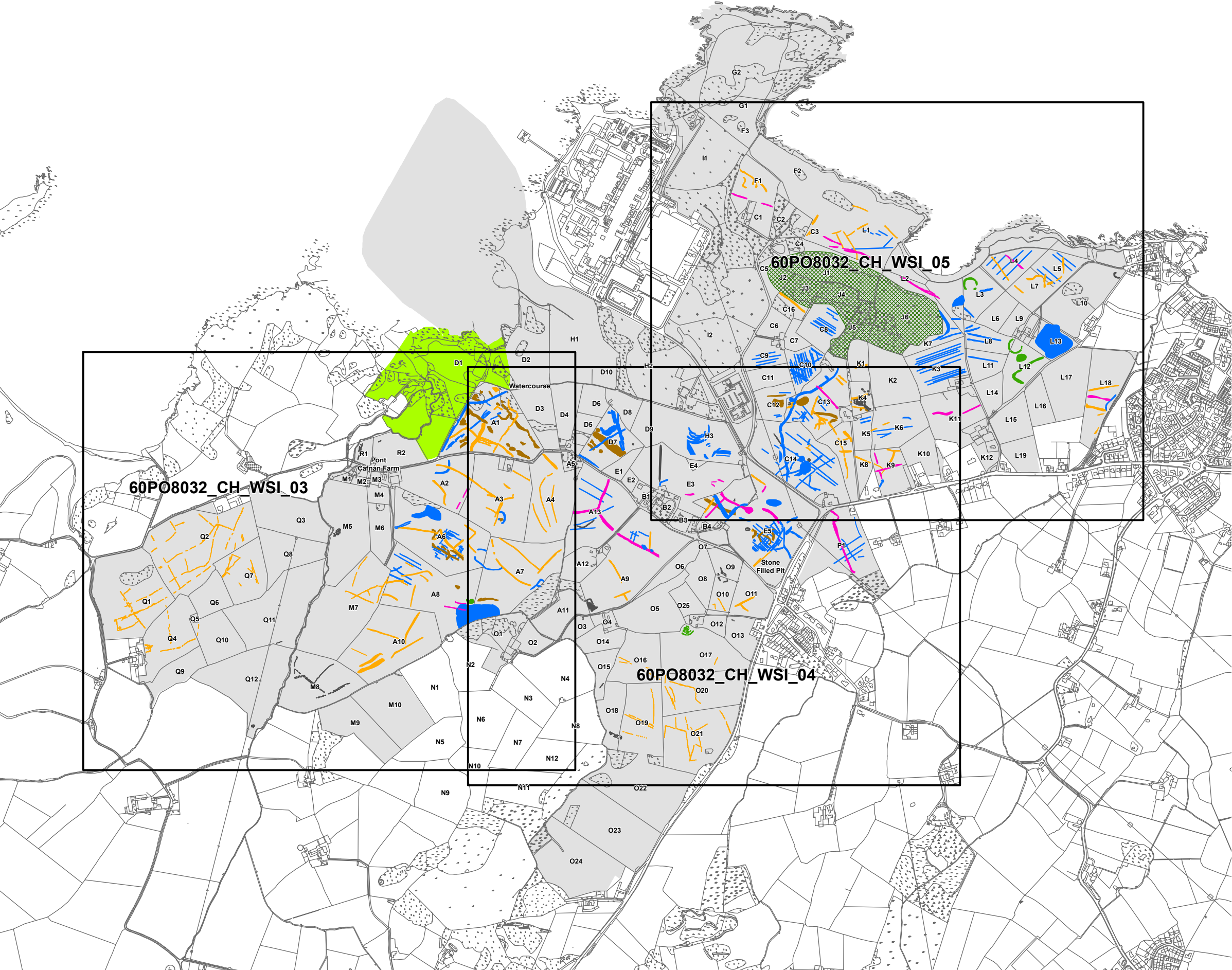
INTERPRETATIVE PLOT PLAN OF
GEOPHYSICAL SURVEY RESULTS:
KEY PLAN

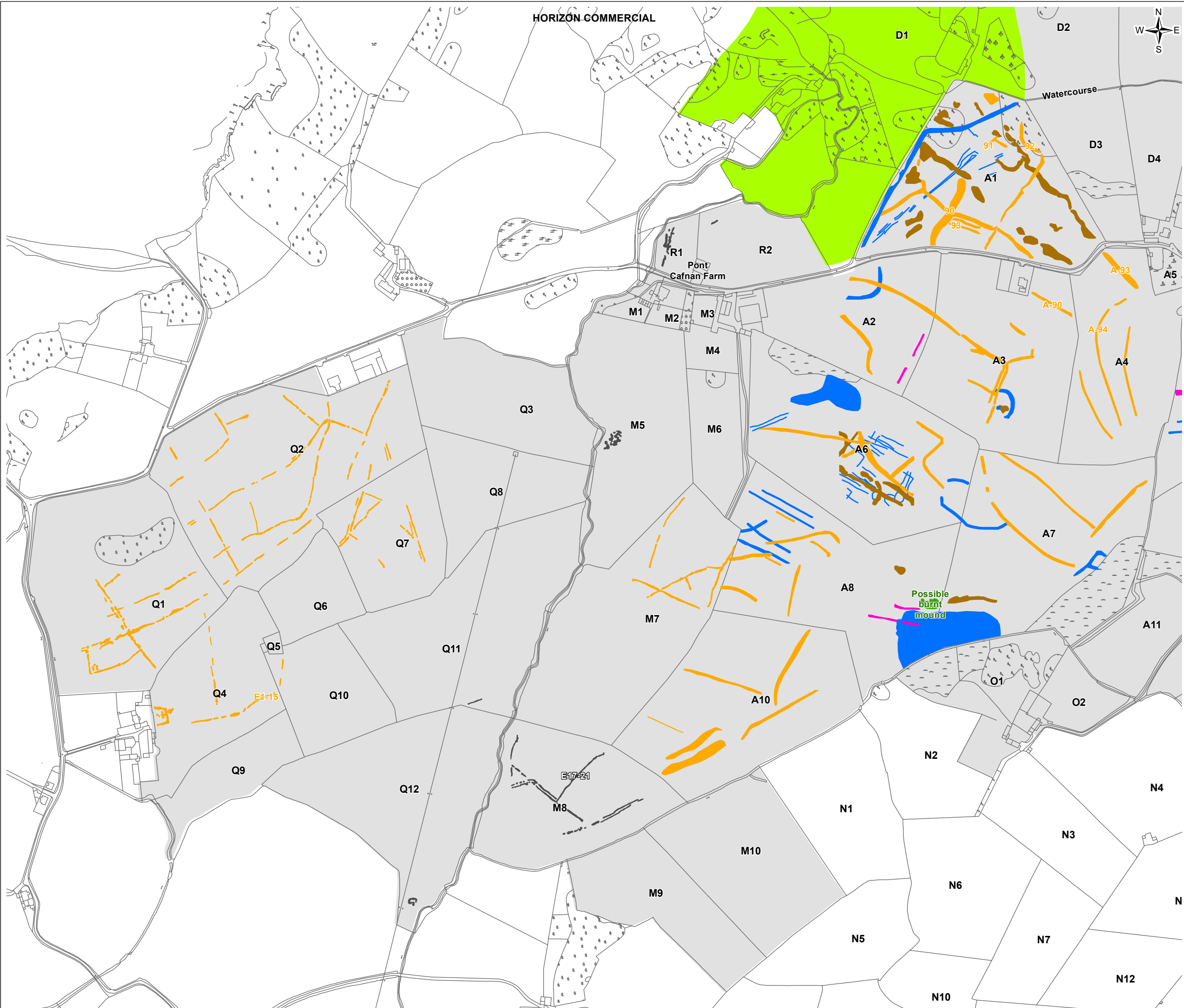
Drawing Status

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Jacobs No.	60PO8032
Client No.	WN03.03.01-S5-PAC-MES-00001

Drawing No.	60PO8032/CH/WSI/02
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60PO8032/CH/WSI/03

- Legend
- Wylfa Newydd Development Area
 - Tre'Gof SSSI Wetland
 - Cestyll Park and Gardens
 - Potential Geophysical Anomaly - Prehistoric
 - Potential Geophysical Anomaly - Med to 18th Century
 - Potential Geophysical Anomaly - Late 19th Century
 - Potential Geophysical Anomaly - Modern
 - Potential Geophysical Anomaly - Unknown Date
 - Potential Geophysical Anomaly - Geological
 - A1 Field Numbers
 - A98 Geophysical Anomaly Number



0	27-04-15	Initial Issue	AD	AM	JD	RB
Rev.	Date	Purpose of revision	Drawn	Check'd	Rev'd	Appr'd

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Client
HORIZON
NUCLEAR POWER

Project
WYLFA NEWYDD PROPOSED NUCLEAR POWER STATION

Drawing Title
INTERPRETATIVE PLOT PLAN OF
GEOPHYSICAL SURVEY RESULTS:
SHEET 1 OF 3

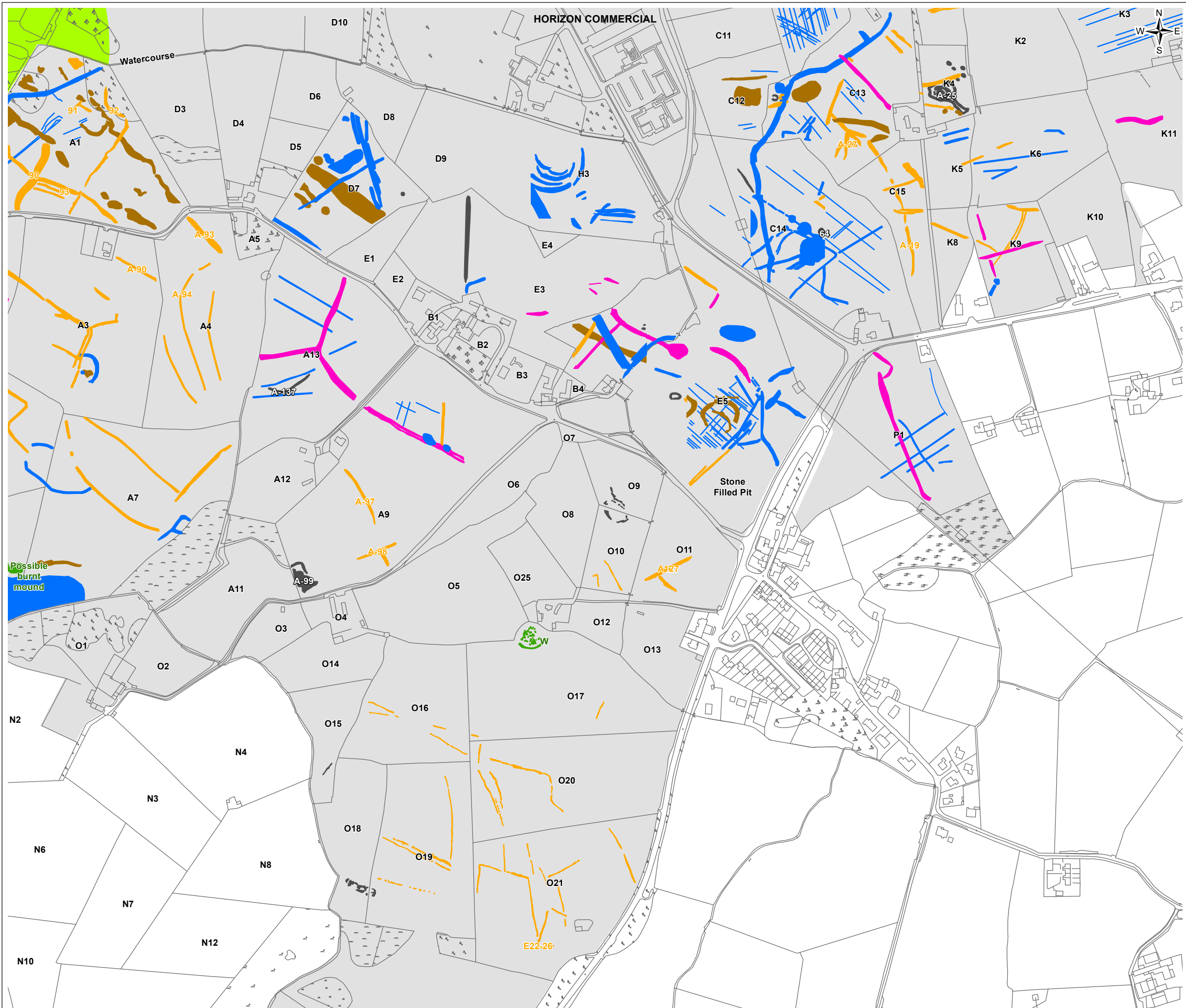
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Jacobs No.	60PO8032
Client No.	WN03.03.01-S5-PAC-MES-00001

Drawing No.
60PO8032/CH/WSI/03

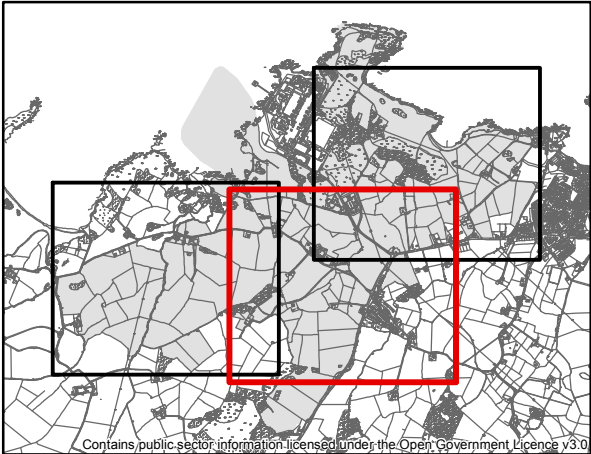
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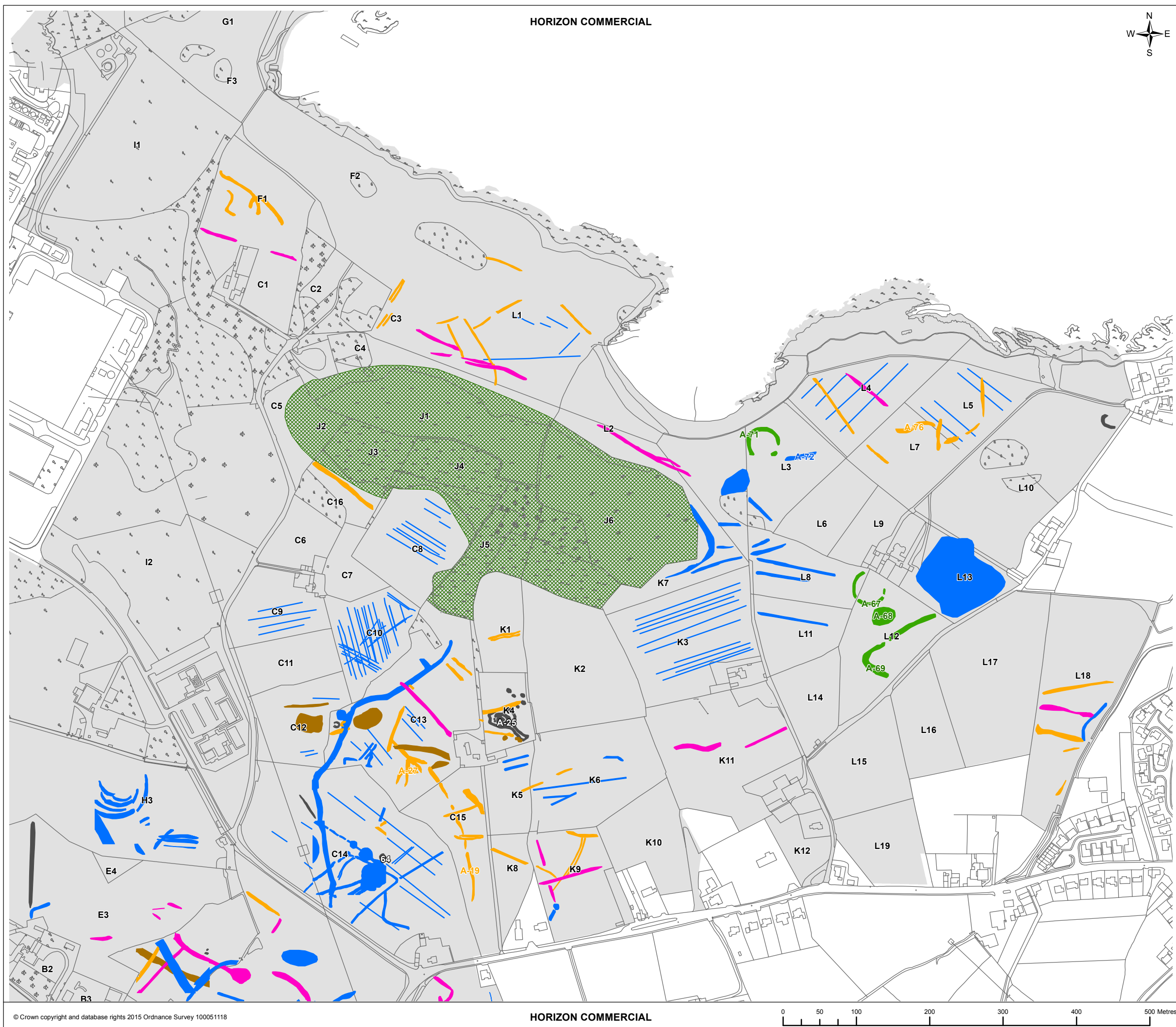


60PO8032/CH/WSI/04

- Legend
- Wylfa Newydd Development Area
 - Tre'Gof SSSI Wetland
 - Cestyll Park and Gardens
 - Potential Geophysical Anomaly - Prehistoric
 - Potential Geophysical Anomaly - Med to 18th Century
 - Potential Geophysical Anomaly - Late 19th Century
 - Potential Geophysical Anomaly - Modern
 - Potential Geophysical Anomaly - Unknown Date
 - Potential Geophysical Anomaly - Geological
 - A1 Field Numbers
 - A-99 Geophysical Anomaly Number














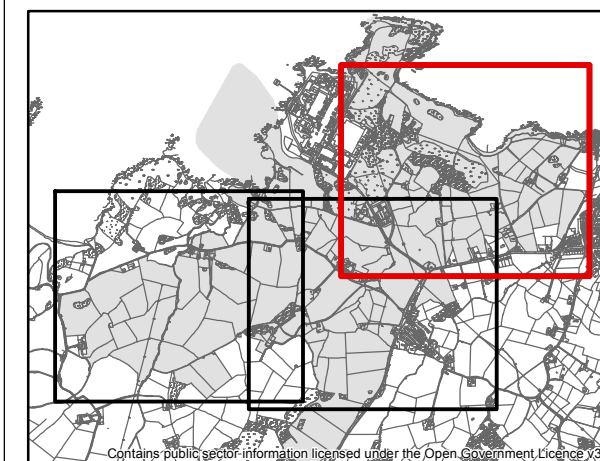
0	27-04-15	Initial Issue	AD	AM	JD	RB
Rev.	Date	Purpose of revision	Drawn	Check'd	Rev'd	Appr'd
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Client <div><div><div>HORIZON</div><div>NUCLEAR POWER</div></div></div>						
Project <div>WYLFA NEWYDD PROPOSED NUCLEAR POWER STATION</div>						
Drawing Title <div>INTERPRETATIVE PLOT PLAN OF GEOPHYSICAL SURVEY RESULTS: SHEET 2 OF 3</div>						
Drawing Status						
Scale @ A3		1:5,000			DO NOT SCALE	
Jacobs No.		60PO8032				
Client No.		WN03.03.01-S5-PAC-MES-00001				
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60PO8032/CH/WSI/05

Legend

- | | |
|---|---|
|  | Wylfa Newydd Development Area |
|  | Tre'Gof SSSI Wetland |
|  | Cestyll Park and Gardens |
|  | Potential Geophysical Anomaly - Prehistoric |
|  | Potential Geophysical Anomaly - Med to 18th |
|  | Potential Geophysical Anomaly - Late 19th Century |
|  | Potential Geophysical Anomaly - Modern |
|  | Potential Geophysical Anomaly - Unknown Date |
|  | Potential Geophysical Anomaly - Geological |
|  | Field Numbers |
|  | Geophysical Anomaly Number |



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HORIZON
NUCLEAR POWER

Project	
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WYLFA NEWYDD PROPOSED NUCLEAR POWER STATION

Drawing Title

INTERPRETATIVE PLOT PLAN OF
GEOPHYSICAL SURVEY RESULTS:
SHEET 3 OF 3

	Drawing Status
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Scale @ A3	1:5,000	DO NOT SCALE
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Scale @ AS	1:5,000	DO NOT SCALE
Jacobs No.	60PO8032	

Client No.	WN03.03.01-S5-PAC-MES-00001
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Drawing No. 60PO8032/CH/WSI/05

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