

# LAND AT LLANDEGAI ROAD, BANGOR, GWYNEDD

## Historic Asset Setting Impact Assessment



Ymddiriedolaeth Archaeolegol Gwynedd  
Gwynedd Archaeological Trust



# LAND AT LLANDEGAI ROAD, BANGOR, GWYNEDD

## Historic Asset Setting Impact Assessment

Yr Amgylchedd Hanesyddol yn Cofnodi Prif Gyfeirnod /  
Historic Environment Record Event Primary Reference Number 45964

Prosiect Rhif / Project No. G2663

Adroddiad Rhif / Report No. 1567

Wedi'i baratoi ar gyfer / Prepared for: Macbryde Group Ltd

Hydref 2020 / October 2020

Ysgrifenydd gan / Written by: Neil McGuinness

Delwedd clawr / Cover image: East facing view towards Incline Cottage from the western side of the A5 (archive ref G2663\_SA\_027)

Cyhoeddwyd gan Ymddiriedolaeth Archaeolegol Gwynedd  
Ymddiriedolaeth Archaeolegol Gwynedd  
Craig Beuno, Ffordd y Garth,  
Bangor, Gwynedd, LL57 2RT




Published by Gwynedd Archaeological Trust  
Gwynedd Archaeological Trust  
Craig Beuno, Garth Road,  
Bangor, Gwynedd, LL57 2RT

Cadeirydd / Chair David Elis-Williams MA(Oxon), MSc, CPFA  
Prif Archaeolegydd/Chief Archaeologist - Andrew Davidson, BA., MCIfA

Mae Ymddiriedolaeth Archaeolegol Gwynedd yn Gwmni Cyfyngedig (Ref Cof. 1180515) ac yn Elusen (Rhif Cof. 508849)  
Gwynedd Archaeological Trust is both a Limited Company (Reg No. 1180515) and a Charity (reg No. 508849)





Approvals Table				
	Role	Printed Name	Signature	Date
Originated by	Document Author	Neil McGuinness		09/10/2020
Reviewed by	Document Reviewer	John Roberts		09/10/2020
Approved by	Principal Archaeologist	John Roberts		09/10/2020

Revision History			
Rev No.	Summary of Changes	Ref Section	Purpose of Issue



**CONTENTS**

CRYNHODEB ANHECHNEGOL.....	11
NON-TECHNICAL SUMMARY.....	11
1 INTRODUCTION.....	13
2 IMPACT ASSESSMENT METHODOLOGY .....	16
2.1 Stage 1: Identify the historic assets that might be affected by a proposed change or development.....	17
2.2 Stage 2: Define and analyse the settings to understand how they contribute to the significance of the historic assets and, in particular, the ways in which the assets are understood, appreciated and experienced. ....	18
2.3 Stage 3: Evaluate the potential impact of a proposed change or development on that significance. ....	21
2.4 Stage 4: If necessary, consider options to mitigate or improve the potential impact of a proposed change or development on that significance.....	23
3 RESULTS .....	24
3.1 Stage 1: Identify the historic assets that might be affected.....	24
3.1.1 The location, size and scale of the proposed development.....	24
3.1.2 The location and nature of potentially impacted historic assets .....	25
3.2 Stage 2: Define and analyse the setting of the potentially impacted historic assets .....	42
3.2.1 The setting of Incline Cottage Grade II Listed Building (LB 4085) .....	42
3.2.2 The setting of The Penrhyn Slate Quarry Railroad (GAT HER PRN 59451) .....	47
3.2.3 The setting of The Penrhyn Slate Quarry Railway (GAT HER PRN 59452) .....	52
3.2.4 The setting of The Penrhyn Castle Grade II* Registered Historic Park and Garden (PGW (Gd) 40 (GWY)) .....	56
3.2.5 The setting of Component Part 1: <i>Penrhyn Slate Quarry and Bethesda, and the Ogwen Valley to Port Penrhyn</i> of the nominated <i>Slate Landscape of Northwest Wales World Heritage Site</i>	62
3.2.6 Viewpoints.....	71
3.3 Stage 3: Evaluate the potential impact of a proposed change or development on that significance .....	73
3.3.1 Field assessment .....	73
3.3.2 Assessment of the impact of the proposed development .....	80
3.3.3 Summary of impacts.....	88

3.4 Stage 4: If necessary, consider options to mitigate or improve the potential impact of a proposed change or development on that significance..... 89

4 SOURCES CONSULTED..... 91

FIGURES

PLATES

## **LIST OF FIGURES**

Figure 01: The location of the proposed development

Figure 02: The proposed development (Macbryde Homes Ltd drg LRBANG-SL.01/Rev D)

Figure 03: The boundaries and Elements of Component Part 1: Penrhyn Slate Quarry and Bethesda, and the Ogwen Valley to Port Penrhyn (Scale 1:50,000) (after Llechi Cymru 2019, Map 2)

Figure 04: Historic Assets identified as potentially affected by the proposed development – local area

Figure 05: Selected Historic Assets mentioned in the text

Figure 06: Digital terrain model zone of theoretical visibility for the proposed development – local area

Figure 07: Digital surface model zone of theoretical visibility for the proposed development – local area

Figure 08: Digital terrain model zone of theoretical visibility for the proposed development – Component Part 1

Figure 09: Digital surface model zone of theoretical visibility for the proposed development – Component Part 1

Figure 10: Penrhyn Estate Map 1768 (Bangor Archives, Penrhyn MSS S2205)

Figure 11: Penrhyn Estate Map 1803 showing the proposed development (Bangor University Archives, Penrhyn MS Maps 40)

Figure 12: Penrhyn Estate Map 1803 showing Penrhyn Castle Park and Garden (Bangor University Archives, Penrhyn MS Maps 40)

Figure 13: Landegai Tithe Award Map 1841

Figure 14: First Edition Ordnance Survey 25" County Series Map 1889

Figure 15: Assessment viewpoints – local area

Figure 16: Assessment viewpoints – Component Part 1

## **LIST OF PLATES**

Plate 01: View towards Incline Cottage (LB 4085) from the western side of the A5, Viewpoint 08 (viewed from the northwest; archive ref G2663\_SA\_026).

Plate 02: View towards Incline Cottage (LB 4085) from Bangor Crematorium (viewed from the southwest; archive ref G2663\_SA\_051).

Plate 03: View towards Incline Cottage (LB 4085) from the northwestern corner of the proposed development site (viewed from the northwest; archive ref G2663\_SA\_024).

Plate 04: View towards Incline Cottage (LB 4085) from the access track gateway (viewed from the northwest; archive ref G2663\_SA\_025).

Plate 05: View along the access trackway at the proposed development (viewed from the east-southeast; scale 1x1m; archive ref G2663\_002).

Plate 06: View towards Incline Cottage (LB 4085) from the midpoint of the access trackway within the proposed development site (viewed from the north-northwest; archive ref G2663\_SA\_035).

Plate 07: View towards Incline Cottage (LB 4085) from the southern part of the proposed development area opposite the entrance to Bangor Crematorium (viewed from the south-southwest; archive ref G2663\_SA\_029).

Plate 08: Penrhyn Park Wall at the southern part of the proposed development showing the route of the Penrhyn Slate Quarry Railroad (GAT HER PRN 59451) (viewed from the north-northwest; archive ref G2663\_SA\_030).

Plate 09: Penrhyn Park Wall at the southern end of the proposed development showing the route of the Penrhyn Slate Quarry Railroad (GAT HER PRN 59451) (viewed from the north-northwest; scale 1x1m; archive ref G2663\_016).

Plate 10: View towards Incline Cottage (LB 4085) from the western side of the A5 (viewed from the west; archive ref G2663\_SA\_027).

Plate 11: Incline Cottage (LB 4085) from southern end of the Marchogion Inclined Plane (GAT HER PRN 65552) (viewed from the north-northeast; archive ref G2663\_SA\_011).

Plate 12: View to the proposed development from northern side of Incline Cottage (LB 4085) garden, Viewpoint 1 (viewed from the north; archive ref G2663\_SA\_014).

Plate 13: View across the proposed development from northern side of Incline Cottage (LB 4085) garden, Viewpoint 1 (viewed from the southeast; archive ref G2663\_SA\_015).

Plate 14: View across the proposed development from northern side of Incline Cottage (LB 4085) garden, Viewpoint 1 (viewed from the south-southeast; archive ref G2663\_SA\_016).

Plate 15: View across the proposed development and along the Penrhyn Slate Quarry Railroad formation from the southern side of Incline Cottage (LB 4085) garden, Viewpoint 02, (viewed from the north-northeast; archive ref G2663\_SA\_017).

Plate 16: View across the proposed development from the southern side of Incline Cottage (LB 4085) garden, Viewpoint 1 (viewed from the northeast; archive ref G2663\_SA\_018).

Plate 17: View towards Incline Cottage (LB 4085) along the route of the Penrhyn Slate Quarry Railroad (GAT HER PRN 59451) in the southern part of the proposed development (viewed from the south-southwest; archive ref G2663\_SA\_028).

Plate 18: View towards Incline Cottage (LB 4085) along the southern part of the Marchogion Inclined Plane (GAT HER PRN 65552) in the southern part of the proposed development, Viewpoint 03 (viewed from the south-southwest; archive ref G2663\_SA\_031).

Plate 19: View along the Marchogion Inclined Plane (GAT HER PRN 65552) from the access trackway junction north of Incline Cottage (LB 4085), Viewpoint 04 (viewed from the south-southwest; archive ref G2663\_SA\_019).

Plate 20: View along the Marchogion Inclined Plane (GAT HER PRN 65552) from the north of Incline Cottage (LB 4085) (viewed from the south-southwest; archive ref G2663\_SA\_012).

Plate 21: View across the proposed development site from the top of the Marchogion Inclined Plane (GAT HER PRN 65552) (viewed from the southeast; archive ref G2663\_SA\_013).

Plate 22: View along the overgrown route of the northern part of the Marchogion Inclined Plane (GAT HER PRN 65551) on the northeastern side of the proposed development site (viewed from the southwest; archive ref G2663\_SA\_034).

Plate 23: View along the Marchogion Inclined Plane (GAT HER PRN 65551) from the northeastern corner of the proposed development site (viewed from the north; archive ref G2663\_SA\_023).

Plate 24: View across the Marchogion Inclined Plane (GAT HER PRN 65551) in the northeastern corner of the proposed development site (viewed from the west; scale 1x1m; archive ref G2663\_004).

Plate 25: View along the Marchogion Inclined Plane (GAT HER PRN 65551) from the northeastern corner of the proposed development site (viewed from the north-northeast; archive ref G2663\_SA\_021).

Plate 26: View across the proposed development site from its northeastern corner and the Marchogion Inclined Plane (GAT HER PRN 65551) (viewed from the northeast; archive ref G2663\_SA\_022).

Plate 27: View along the Marchogion Inclined Plane (GAT HER PRN 65551) from the northeastern corner of the proposed development site (viewed from the south-southwest; archive ref G2663\_005).

Plate 28: View from the northern end of the Marchogion Inclined Plane (GAT HER PRN 65551) towards the proposed development, Viewpoint 05 (viewed from the north-northeast; archive ref G2663\_SA\_063).

Plate 29: View of Pont Marchogion railroad bridge (GAT HER PRN 65555) and the railroad formation (viewed from the south; archive ref G2663\_SA\_064).

Plate 30: View of the Penrhyn Slate Quarry Railroad formation (GAT HER PRN 59451) from northern end of Pont Marchogion railroad bridge (GAT HER PRN 65555) (viewed from the south-southwest; archive ref G2663\_SA\_009).

Plate 31: View of the Penrhyn Slate Quarry Railroad formation (GAT HER PRN 59451) from Pont Marchogion railway bridge (LB 4084) (viewed from the west-northwest; archive ref G2663\_SA\_007).

Plate 32: View of the Cegin Viaduct (CN380) with the Pont Marchogion railway bridge (LB 4084) behind (viewed from the west-northwest; archive ref G2663\_SA\_067).

Plate 33: View of Pont Marchogion railway bridge (LB 4084) and the Cegin Viaduct (CN380) (viewed from the northwest; archive ref G2663\_SA\_066).



Plate 34: View of modern housing at Plas y Coed from the route of the Penrhyn Slate Quarry Railroad (GAT HER PRN 59451) and the Penrhyn Slate Quarry Railway (GAT HER PRN 59452) (viewed from the west-southwest; archive ref G2663\_SA\_068).

Plate 35: View of Penrhyn Bridge (GAT HER PRN 18453) (viewed from the south-southeast; archive ref G2663\_SA\_004).

Plate 35: View of Penrhyn Bridge (GAT HER PRN 18453) (viewed from the north-northwest; archive ref G2663\_SA\_003).

Plate 37: View towards the proposed development from the western quay at Port Penrhyn (GAT HER PRN 15856) (viewed from the north-northwest; archive ref G2663\_SA\_001).

Plate 38: View towards Penrhyn Castle (LB 3659) from the western quay at Port Penrhyn (GAT HER PRN 15856), Viewpoint 14 (viewed from the northwest; archive ref G2663\_SA\_002).

Plate 39: View towards the proposed development from the Penrhyn Slate Quarry Railway (GAT HER PRN 59452), Viewpoint 13 (viewed from the southwest; archive ref G2663\_SA\_058).

Plate 40: View of the route of the Penrhyn Slate Quarry Railway (GAT HER PRN 59452) from just north of Viewpoint 13 (viewed from the south; archive ref G2663\_SA\_059).

Plate 41: View of the route of the Penrhyn Slate Quarry Railway (GAT HER PRN 59452) from just south of Viewpoint 06 (viewed from the southwest; archive ref G2663\_SA\_057).

Plate 42: View towards the proposed development from the route of the Penrhyn Slate Quarry Railway (GAT HER PRN 59452), Viewpoint 06 (viewed from the west; archive ref G2663\_SA\_056).

Plate 43: View along the route of the LNWR Penrhyn Branch Line to the west of the proposed development (viewed from the southwest; archive ref G2663\_SA\_054).

Plate 44: View of the route of the Penrhyn Slate Quarry Railway (GAT HER PRN 59452) as it approaches the A5 bridge (viewed from the southwest; archive ref G2663\_SA\_055).

Plate 45: View towards the proposed development from the Penrhyn Slate Quarry Railway (GAT HER PRN 59452) just to the north of the A5 bridge, Viewpoint 07 (viewed from the northwest; archive ref G2663\_SA\_061).

Plate 46: View of Pont Marchogion railroad bridge (GAT HER PRN 65555) from Penrhyn Slate Quarry Railway bridge (GAT HER PRN 65569) (viewed from the southwest; archive ref G2663\_SA\_010).

Plate 47: View of Pont Marchogion railway bridge (LB 4084) (viewed from the north-northwest; archive ref G2663\_SA\_008).

Plate 48: View of the Cegin Viaduct (CN380) from Pont Marchogion railway bridge (LB 4084) (viewed from the southeast; archive ref G2663\_SA\_006).

Plate 49: View of Pont Marchogion railway bridge (LB 4084) and the Cegin Viaduct (CN380) (viewed from the north-northwest; archive ref G2663\_SA\_005).

Plate 50: View towards the proposed development from the northern side of Penrhyn Home Farm, Viewpoint 09 (viewed from the south-southeast; archive ref G2663\_SA\_038).

Plate 51: View of The Grand Lodge (LB 3661) (viewed from the south-southeast; archive ref G2663\_SA\_039).

Plate 52: Penrhyn Castle (LB 3659) from driveway (viewed from the south-southeast; archive ref G2663\_SA\_041).

Plate 53: View of Penrhyn Castle (LB 3659) (viewed from the northwest; archive ref G2663\_SA\_046).

Plate 54: View towards the proposed development from west side of Keep of Penrhyn Castle (LB 3659), Viewpoint 10 (viewed from the east; archive ref G2663\_SA\_044).

Plate 55: View towards the proposed development from the Penrhyn Castle terraced Flower Garden (LB 3660) (viewed from the east; archive ref G2663\_SA\_049).

Plate 56: View towards the proposed development from the trackway from Penrhyn Home farm on the western side of Penrhyn Castle Registered Historic Park and Garden (PGW (Gd) 40 (GWY)), Viewpoint 12 (viewed from the northeast; archive ref G2663\_SA\_048).

Plate 57: View towards the proposed development from the trackway from Penrhyn Home farm on the western side of Penrhyn Castle Registered Historic Park and Garden (PGW (Gd) 40 (GWY)), Viewpoint 12 (viewed from the northeast; archive ref G2663\_SA\_048).

Plate 58: View towards Penrhyn Castle (LB 3659) from Hendre Hall A55 junction, Viewpoint 15 (viewed from the southeast; archive ref G2663\_SA\_069).

Plate 59: View towards Penrhyn Castle (LB 3659) from road bridge over the A55 at Tal-y-bont (viewed from the south-southeast; archive ref G2663\_SA\_070).

Plate 60: View from higher ground on southern side of Penrhyn Quarry (GAT HER PRN 20061), Viewpoint 16 (viewed from the south-southeast; archive ref G2663\_SA\_071).

## CRYNHODEB ANHECHNEGOL

*Dirprwyodd Ymddiriedolaeth Archeolegol Gwynedd gan Macbryde Group Ltd i ymgymryd Asesiad Effaith Lleoliad Ased Hanesyddol mewn cefnogaeth o gais cynllunio i'r adeilad o 67 tai deulawr a mynediad cysylltiedig â maes parcio ar dir yn Lôn Llandygai, Bangor, Gwynedd. Roedd asesiad pedwar-cam ei gwblhau mewn cydweddiad gyda chyngor gan Cadw yn "Setting of Historic Assets in Wales". Mae'r effaith o'r datblygiad awgrymedig ar y lleoliad o'r pump asedion hanesyddol wedi eu hasesu i fod yn gyfyngedig i olygfeydd i ac oddi wrth o'r Bwthyn Incleîn a rhannau o Reilffyrdd Llechi Chwarel Penrhyn, a golygfeydd o Reilffordd Llechi Chwarel Penrhyn a Bethesda, a Dyffryn Ogwen i Borth Penrhyn cydrannol o'r enwebiad Tirwedd Llechi Gogledd-orllewin Cymru Treftadaeth y Byd. Mae'r effaith o'r datblygiad awgrymedig a'r lleoliad o Fwthyn Incleîn wedi ei asesu yn negyddol a'r maint o'r effaith hon yn bwysig, sydd yn derfynol mewn newidiadau cynhwysol i'r lleoliad yr ased. Mae'r effaith o'r datblygiad awgrymedig ar leoliad Rheilffyrdd Chwarel Llechi Penrhyn ei asesu i fod yn negyddol a'r maint o'r effaith hon yn gymedrol, sydd yn derfynol mewn newidiadau cynhwysol i'r lleoliad yr ased. Mae'r effaith o'r datblygiad awgrymedig ar leoliad Rheilffordd Chwarel Llechi Penrhyn wedi eu hasesu i fod yn negyddol a'r maint o'r effaith hon yn ddibwys, sydd yn derfynol mewn newidiadau bychan iawn i'r lleoliad yr ased. Mae'r effaith o'r datblygiad awgrymedig ar leoliad o Barc Cofrestredig Hanesyddol Castell Penrhyn a Darn Cydrannol 1: Chwarel Llechi Penrhyn a Bethesda, a Dyffryn Ogwen a Borth Penrhyn wedi eu hasesu i fod yn negyddol a'r maint o'r effaith hon yn ddibwys, sydd yn derfynol mewn newidiadau bychain ond amlwg i'r lleoliad o bob ased.*

## NON-TECHNICAL SUMMARY

*Gwynedd Archaeological Trust was commissioned by Macbryde Group Ltd to undertake a Historic Asset Setting Impact Assessment in support of a planning application for the erection of 67 no. two-storey dwellings and associated access and car parking on land at Llandygai Road, Bangor, Gwynedd. A four-stage assessment has been completed in accordance with the guidance in Cadw's "Setting of Historic Assets in Wales". The impacts of the proposed development on the settings of five historic assets have been assessed as being restricted to views to and from Incline Cottage and parts of the Penrhyn Slate Quarry Railroad, and views from parts of the Penrhyn Slate Quarry Railway, The Penrhyn Castle Registered Historic Park and Garden, and the Penrhyn Slate Quarry and Bethesda, and the Ogwen Valley to Port Penrhyn component of the nominated The Slate Landscape of Northwest Wales World Heritage Site. The impact of the proposed development on the setting of Incline Cottage has been assessed to be negative and the magnitude of this impact major as it will result in*

*comprehensive changes to the setting of the asset. The impact of the proposed development on the setting of the Penrhyn Slate Quarry Railroad has been assessed to be negative and the magnitude of this impact moderate as it will result in considerable changes to the setting of the asset. The impact of the proposed development on the setting of the Penrhyn Slate Quarry Railway has been assessed to be negative and the magnitude of this impact negligible as it will result in very minor changes to the setting of the asset. The impact of the proposed development on the setting of both the Penrhyn Castle Registered Historic Park and Garden and Component Part 1: Penrhyn Slate Quarry and Bethesda, and the Ogwen Valley to Port Penrhyn have been assessed to be negative and the magnitude of this impact minor as it will result in slight but noticeable changes to the setting of each asset.*

# 1 INTRODUCTION

Gwynedd Archaeological Trust (GAT) was commissioned by *Macbryde Group Ltd* to carry out a *Historic Asset Setting Impact Assessment* in support of a planning application for the erection of 67 no. two-storey dwellings and associated access and car parking on land at Llandegai Road, Bangor, Gwynedd, LL57 4HP (NGR: SH 5928171847; Figure 01; Figure 02). The proposed development area measures 2.51 ha and is located within a field of improved pasture on the eastern side of the A5 Llandegai Road. The development site has been allocated for housing within the adopted Anglesey and Gwynedd Joint Local Development Plan 2011 – 2026 (reference T5).

The assessment has been requested by Macbryde Homes Ltd following feedback on a pre-planning consultation from Gwynedd Archaeological Planning Services (GAPS). The GAPS Senior Planning Archaeologist has identified the following designated and undesignated historic assets in proximity to the proposed development, which is:

- immediately adjacent to the west of the Incline Cottage Grade II Listed Building (LB 4085);
- immediately adjacent to the west, and partially containing elements of, the route of The Penrhyn Slate Quarry Railroad (GAT HER PRN 59451);
- immediately adjacent and to the south and east of the route of The Penrhyn Slate Quarry Railway (GAT HER PRN 59452);
- within the Essential Setting of the Penrhyn Castle Grade II\* Registered Historic Park and Garden (PGW (Gd) 40 (GWY)); and
- within the Essential Setting of, and partially containing elements of, Component Part 1: *Penrhyn Slate Quarry and Bethesda, and the Ogwen Valley to Port Penrhyn* of the nominated *The Slate Landscape of Northwest Wales* World Heritage Site.

Given the proximity of the proposed development to these designated and currently undesignated historic assets (Figure 03; Figure 04)), the proposed development may have an impact on their significance and the way that the assets are experienced, understood and appreciated. The impact on the designated assets settings will be a material consideration when determining the outcome of the planning application (Welsh Government 2018, sec

6.1.23). Consequently, an assessment of the impact is being undertaken in accordance with the Setting of Historic Assets in Wales (Cadw 2017). The methodology used for the impact assessment incorporates a four-stage assessment process as set out in *Setting of Historic Assets in Wales* (Cadw 2017). A draft report containing the results of Stages 1 and 2 of the assessment (GAT Report 1567) was produced for GAPS to review before the assessment proceeded to Stages 3 and 4.

The Historic Asset Setting Impact Assessment has been conducted during September and October 2020 and was undertaken in accordance with the following guidance:

- *Conservation Principles for the sustainable management of the historic environment in Wales* (Cadw 2011);
- *Design Manual For Roads And Bridges Volume 11, Section 3, Part 2 HA208/07 Cultural Heritage* (Highways Agency 2007);
- *Guidelines for digital archives* (RCAHMW 2015).
- *Guidance for the Submission of Data to the Welsh Historic Environment Records (HERs) (Version 1.1)* (The Welsh Archaeological Trusts 2018);
- *Management of Archaeological Projects* (English Heritage 1991);
- *Management of Research Projects in the Historic Environment: The MoRPHE Project Managers' Guide* (Historic England 2015);
- *Planning Policy Wales, 10<sup>th</sup> edition* (Welsh Government 2018);
- *Setting of Historic Assets in Wales* (Cadw 2017);
- *Standard and Guidance for Archaeological Field Evaluation* (Chartered Institute for Archaeologists 2014); and
- *Standard and Guidance for Desk-Based Assessment* (Chartered Institute for Archaeologists 2014).

The assessment has been completed by Neil McGuinness BA MA MCIfA, a GAT archaeologist with over 15 years of experience working as a historic environment professional and experienced in the production of Historic Asset Setting Impact Assessments.

Gwynedd Archaeological Trust is certified to ISO 9001:2015 and ISO 14001:2015 (Cert. No. 74180/B/0001/UK/En) and is a Registered Organisation with the Chartered Institute for Archaeologists and a member of the Federation of Archaeological Managers and Employers (FAME).

The project has been monitored by GAPS and the content of this report has been approved by Cadw prior to issue.

The Gwynedd Historic Environment Record (HER) Event Primary Reference Number for this project is 45814; the Gwynedd HER Enquiry number is GATHER1244.



## 2 IMPACT ASSESSMENT METHODOLOGY

The Historic Asset Setting Impact Assessment was undertaken in accordance with the best-practice guidance set out in *Setting of Historic Assets in Wales* (Cadw, 2017). As stated in the guidance, the document “outlines the principles used to assess the potential impact of development or land management proposals within the settings of World Heritage Sites, ancient monuments (scheduled and unscheduled), listed buildings, registered historic parks and gardens, and conservation areas” (ibid., ii). Setting is defined in the guidance as the broader landscape context into which the individual historic asset is set; this context includes physical and cultural factors specific to that location.

The assessment of the impact of the proposed development on the setting of the identified historic assets has been carried out following the four stages specified in the Cadw guidance document:

- **Stage 1:** Identify the historic assets that might be affected by a proposed change or development;
- **Stage 2:** Define and analyse the settings to understand how they contribute to the significance of the historic assets and, in particular, the ways in which the assets are understood, appreciated and experienced;
- **Stage 3:** Evaluate the potential impact of a proposed change or development on that significance; and
- **Stage 4:** If necessary, consider options to mitigate or improve the potential impact of a proposed change or development on that significance.

More detailed information regarding the individual assessment stages is included overleaf.

## 2.1 Stage 1: Identify the historic assets that might be affected by a proposed change or development.

This was undertaken as follows:

- i. The location, size and scale of the proposed development was examined; and
- ii. The location and nature of identified historic assets were considered.

The historic assets that might be affected by the proposed development have been identified by the GAPS Senior Planning Archaeologist (Figure 03; Figure 04) as:

- the Incline Cottage Grade II Listed Building (LB 4085);
- The Penrhyn Slate Quarry Railroad (GAT HER PRN 59451);
- The Penrhyn Slate Quarry Railway (GAT HER PRN 59452);
- the Penrhyn Castle Grade II\* Registered Historic Park and Garden (PGW (Gd) 40 (GWY)); and
- Component Part 1: *Penrhyn Slate Quarry and Bethesda, and the Ogwen Valley to Port Penrhyn* of the nominated *The Slate Landscape of Northwest Wales* World Heritage Site.

The regional Historic Environment Register (HER) Gwynedd Archaeological Trust, Craig Beuno, Ffordd y Garth, Bangor, Gwynedd LL57 2RT) was examined for information concerning the affected assets; The National Monuments Record of Wales (Royal Commission on the Ancient and Historical Monuments of Wales, Plas Crug, Aberystwyth SY23 1NJ) was also checked for additional data including aerial photographs.

1m resolution LiDAR data available from National Resources Wales (<http://lle.gov.wales/Catalogue/Item/LidarCompositeDataset/>) has been used to construct 3000m Zone of Theoretical Visibility (ZTV) models for the proposed development in a GIS using both Digital Surface Model (DSM) and Digital Terrain Model (DTM) data. These models enabled an assessment of the degree of visibility of the proposed development from impacted historic assets. If the 'worst-case scenario' DTM ZTV model demonstrates that a historic asset will not be visually impacted by the proposed development it will be scoped out from further assessment at this stage.

## 2.2 Stage 2: Define and analyse the settings to understand how they contribute to the significance of the historic assets and, in particular, the ways in which the assets are understood, appreciated and experienced.

The setting of a historic asset is made up of:

- its current surroundings;
- our present understanding and appreciation of the historic asset; and
- what (if anything) survives of its historic surroundings.

The significance of each historic asset is considered with reference to the guidelines for establishing a heritage asset's 'value' as set out in *Design Manual for Roads and Bridges* (DMRB) (Volume 11, Section 3, Part 2) (Highways Agency 2007, Table 5.1; Table 6.1). The designation based criteria set out in DMRB may not always reflect the true significance of a historic asset but still provide a useful starting point. The final assessment of the overall significance of the asset is made based upon professional judgment and expressed as either **Very High**, **High**, **Medium**, **Low**, **Negligible**, or **Unknown**.

The significance of each historic asset is then considered with respect to the four contributory component values as set out in *Conservation Principles* (Cadw 2011, 10): its **evidential** value; its **historical value**; its **aesthetic** value; and its **communal** value in order to understand how the setting of the asset contributes to its significance.

The *Setting of Historic Assets in Wales* (Cadw 2017) provides a series of questions to help to define and understand the significance of the asset:

- How do the present surroundings contribute to our understanding and appreciation of the historic asset today?
- Thinking about when the historic asset was first built and developed:
  - what were its physical, functional and visual relationships with other structures/historic assets and natural features?

- what topographic or earlier features influenced its location/what was its relationship to the surrounding landscape/was it constructed to take advantage of significant views or to be a part of a significant view?
- Thinking about changes since the historic asset was built:
  - has its function or use changed?
  - what changes have happened to the surrounding landscape/streetscape?
  - have changes happened because of changes to the historic asset or to its historical setting?
  - has the presence of the historic asset influenced changes to the landscape, for example, where a monument has been used as a marker in the layout of a field enclosure/ has the presence of the historic asset influenced the character of the surrounding landscape/streetscape/ have historic and designed views to and from the historic asset changed?
- Thinking about the original layout of the historic asset and its relationship to its associated landscape:
  - were these relationships designed or accidental/how did these relationships change over time?
  - how do these relationships appear in the current landscape; are they visual or buried features?
  - are there other significant factors, such as historical, artistic, literary, placename or scenic associations, intellectual relationships (for example, to a theory, plan or design), or other non-visual factors such as sounds or smells that can be vital to understand the historic asset and its setting?

Stage 2 also identifies the viewpoints from which the impact of the proposed change or development should be assessed, taking into account:

- views to, from and across the historic asset that were designed and developed when the historic asset was first created;
- views to, from and across the historic asset which are linked with a time in its history;

- important modern views to, from and across the historic asset – for example, popular visitor viewing points.

### **2.3 Stage 3: Evaluate the potential impact of a proposed change or development on that significance.**

The *Setting of Historic Assets in Wales* states that at the end of Stage 3, the assessor should be able to identify the impact that the proposed development will have upon the setting of a historic asset.

For Stage 3, the *Setting of Historic Assets in Wales* lists 11 factors to be considered:

1. the visual impact of the proposed change or development relative to the scale of the historic asset and its setting;
2. the visual impact of the proposed change or development relative to the location of the historic asset;
3. whether the proposed change or development would dominate the historic asset or detract from our ability to understand and appreciate it — for example, its functional or physical relationship with the surrounding landscape and associated structures and/or buried remains;
4. the presence, extent, character and scale of the existing built environment within the surroundings of the historic asset and how the proposed change or development compares with this;
5. the lifespan of the proposed change or development and whether or not the impact might be reversible;
6. the extent of tree cover, whether it is deciduous or evergreen, and its likely longevity;
7. the impact of artificial lighting — for example, on night-time view;
8. the capability of a landscape setting to absorb change or new development without the erosion of its key characteristics;
9. the impact of the proposed change or development on non-visual elements of the setting and character of the historic asset, such as sense of remoteness, evocation of the historical past, sense of place, cultural identity or spiritual responses
10. the impact of non-visual elements of the proposed change or development, such as the removal or addition of noises and smell;

11. the cumulative effect of the proposed change or development — sometimes relatively small changes, or a series of small changes, can have a major impact on our ability to understand, appreciate and experience a historic asset.

At the end of Stage 3, the impact of the proposed development on each of the potentially impacted historic assets has been expressed as **positive**, **negative** or **neutral**. Following the guidance set out in Design Manual for Roads and Bridges (Volume 11, Section 3, Part 2) (Highways Agency 2007, Table 6.3), an indication of the magnitude of the impact is given as either **major**, **moderate**, **minor**, **negligible** or **no change** using the criteria shown in Table 2.1.

<b>Magnitude of Impact</b>	<b>Criteria</b>
<b>Major</b>	Comprehensive changes to the setting of a historic asset
<b>Moderate</b>	Considerable changes to the setting of a historic asset that significantly modify the setting and affect the character of the historic asset
<b>Minor</b>	Slight but noticeable changes to the setting of a historic asset
<b>Negligible</b>	Very minor changes to the setting of a historic asset that hardly affect it
<b>No change</b>	No change to the setting of a historic asset

Table 2.1 Criteria used to assess the magnitude of impact of the proposed development on setting

Field visits have been undertaken for the Stage 3 assessment of the impact of the proposed development on the viewpoints identified in Stage 2. On-site observations were recorded on GAT pro-forma sheets and a photographic record made in RAW format using a digital SLR set to maximum resolution (Nikon D5100; resolution: 4,928 × 3264 [16.2 effective megapixels]). Photographic images are archived in TIFF format; the archive numbering system starts from G2663\_SA\_001.

Photographs taken from the viewpoints identified in Stage 2 are used to assess and explain the impact of the proposed development along with the results of desk-based GIS analyses including terrain models and Zones of Theoretical Visibility.

## **2.4 Stage 4: If necessary, consider options to mitigate or improve the potential impact of a proposed change or development on that significance**

This involves any proscribed action taken to avoid or minimise any harm to the significance of the historic asset and its setting, should this have been identified at the conclusion of Stage 3. The measures would need to be within the planning application boundary being considered and could include the relocation of the development or elements therein or the introduction of screening. The potential impact of the proposed development on the setting of the historic asset will then be reassessed in the light of mitigation recommendations.



### 3 RESULTS

#### 3.1 Stage 1: Identify the historic assets that might be affected

##### 3.1.1 The location, size and scale of the proposed development

The proposed development site is located on the eastern side of the A5 Llandegai Road on the eastern side of the town of Bangor, Gwynedd ( LL57 4HP; NGR: SH 5928171847; Figure 01; Figure 04). The Bangor Crematorium lies on the opposite, western side of the road with the 1930s and later housing estate of Maesgeirchen at the foot of Bangor Mountain beyond. Maesgeirchen is separated from the crematorium by woodland and the Afon Cegin which flows north in a wooded gorge, turning northeast as it passes the northern end of the proposed development site. A small modern residential development, Glantraeth, sits on the northern and western side of the Afon Cegin just to the north of the proposed development on the site of what was formerly the Penrhyn Nursery Garden (RCAHMW NPRN 86441). A further modern housing estate at Plas-y-coed is located 330m to the north. The Afon Cegin discharges into the Menai Strait at Porth Penrhyn (GAT HER PRN 15856) 520m to the north of the development site. The fields and woodland of the Penrhyn Castle Registered Historic Park and Garden (PGW (Gd) 40 (GWY)) border the site on its eastern edge, the Castle itself lies at the centre of the park 930m to the east and the development forms part of the Essential Setting of the park. The Penrhyn Home Farm is situated on the east side of the A5, 250m to the south of the southern end of the proposed development site, on the opposite side of the road to the Llandegai Industrial Estate.

The proposed development site is a field of improved grassland 2.51ha in area (Plates 01-10). Deciduous woodland borders the site to its north. Hedgerows separate the site from the A5 road to the west and the eastern boundary is formed of hedgerow with dense mature deciduous trees along its length. The Penrhyn Park wall defines the southeastern boundary of the site. A tarmacked trackway runs east-west across the field providing access to the A5 for the inhabitants of Incline Cottage (LB 4085), just outside of the eastern boundary of the proposed development site, and another property, Nursery Cottage, to the northwest.

The proposed development comprises 67 No. 2,3 and 4 bedroomed two-story properties with associated with private gardens, car parking, access roads and infrastructure facilities which will be built on 1.81ha of the site (Figure 02). A local area of play and an area of public open space are to be created on the undeveloped southern part of the site and an attenuation basin is proposed to the north of the residential development to control the flow of rainwater and runoff.

### 3.1.2 The location and nature of potentially impacted historic assets

The historic assets impacted by the proposed development have been identified by the GAPS Senior Planning Archaeologist (Figure 03; Figure 04). They are:

- the Incline Cottage Grade II Listed Building (LB 4085);
- the route of The Penrhyn Slate Quarry Railroad (GAT HER PRN 59451);
- the route of The Penrhyn Slate Quarry Railway (GAT HER PRN 59452);
- the Penrhyn Castle Grade II\* Registered Historic Park and Garden (PGW (Gd) 40 (GWY)); and
- Component Part 1: *Penrhyn Slate Quarry and Bethesda, and the Ogwen Valley to Port Penrhyn* of the nominated *The Slate Landscape of Northwest Wales* World Heritage Site.

#### 3.1.2.1 The location and nature of the Incline Cottage Grade II Listed Building (LB 4085; NGR SH5930971919)

Incline Cottage (LB 4085; GAT HER PRN 24862; RCAHMW NPRN 409693; Figure 04; Figure 05; Plates 10-11) is located just to the east of the proposed development site boundary, and like the proposed development, also lies within part of the essential setting of the Penrhyn Castle Registered Historic Park and Garden. It forms part of *The Penrhyn Slate Quarry Railroad and Penrhyn Slate Quarry Railway* (1.3) Element of Component Part 1 of the nominated *Slate Landscape of Northwest Wales* World Heritage Site (Figure 03).

Constructed by Benjamin Wyatt, circa 1790, it sits in a relatively isolated position at the top of the Marchogion Inclined Plane (GAT HER PRNs 65551 & 65552) and was originally built as a winding house for the incline, part of the Llandegai Tramway and the later Penrhyn Slate Quarry Railroad (GAT HER PRN 59451).

It is now converted into a private residence and is a 2-storey rectangular structure with roughly hewn rubble elevations, slate stone voussoir lintels and slate roofs. The entrance is on the 2-window west side with blocked openings below with deeply recessed modern doors. The 3-bay main approach elevation faces north with the outer bays open pedimented. It has small-pane sash windows on the 1st floor, which are set in broad recesses with semicircular

arched heads springing from the pediment bases. The central bay is rendered to the first floor and pebble-dashed on the infilled ground floor. Two windows are inserted on the west side of the building with twelve-pane Gothic headed sash windows to the ground floor and a modern narrow window to the centre. The design of the rear elevation is as on the north side with modern alterations including the rendering of the window recess and the addition of a kitchen extension and two-storey bay to centre.

(Sources: Cadw LB 4085 Full Report; GAT HER Record PRN 24862; RCAHMW Record NPRN 409693)

### **3.1.2.2 The location and nature of The Penrhyn Slate Quarry Railroad (GAT HER PRN 59451; NGR SH6150066370 - NGR SH5928572794)**

The route of part of The Penrhyn Slate Quarry Railroad (GAT HER PRN 59451) runs within part of the northeastern edge of the proposed development area, and also lies within the proposed development area along its southeastern side (Figure 04; Figure 05). Though the Railroad is currently undesignated, its relict sections have been deemed to meet the criteria for statutory protection and have been proposed for designation as a Scheduled Monument (Llechi Cymru 2020). It also forms part of *The Penrhyn Slate Quarry Railroad and Penrhyn Slate Quarry Railway* (1.3) Element of Component Part 1 (Figure 03) of the nominated *Slate Landscape of Northwest Wales* World Heritage Site.

The railroad was constructed in 1801 as a single track 0.6 metre (2') gauge iron railroad built for horse and inclined plane operation. It originally ran for a distance of approximately 9 km from the Penrhyn Slate Quarry (GAT HER PRN 20061), once the largest slate quarry in the world, to Port Penrhyn, Bangor (GAT HER PRN 15856; Figure 05) and then later from the Felin Fawr slab mill complex in Bethesda (GAT HER PRN 21947) after the original terminus at the quarry was itself quarried away. Its northern end utilised parts of the earlier Llandygai Tramway built in the late 18th century to carry flint to the Penlan flint mill at Llandygai from Port Penrhyn. All but 50m (removed in 1983 during the construction of the Bangor Bypass) of its formation survives as an earthwork along its former route, often as a low embankment or narrow terrace and some below-ground archaeology also survives. Impressive retaining walls are also evident on the part of the route between the A5 road bridge and the Cegin Viaduct (Scheduled Monument CN380; Grade II Listed Building LB 4084; GAT HER PRN 12143; RCAHMW NPRN 401047; Plates 29-31). Community-led initiatives which seek to remove vegetation and improve public access to currently inaccessible parts of the formation are underway.

It originally had at least 4 inclined planes along its length: one is known at Marchogion (GAT HER PRNs 65551 & 65552; Figure 05; Plate 19; Plate 20); one to the north of Tregarth (GAT HER PRN 5739); one at Dinas near Tregarth (RCAHMW NPRN 409718); and one at Ty'n y Clwt, Bethesda (GAT HER PRN 65536). The formation of the railroad is sporadically identifiable within the proposed development site as a grassed over shallow cutting or narrow terrace that runs alongside the Penrhyn Park wall along the southeastern boundary. Important surviving features of the railroad include the well-preserved Marchogion Inclined Plane (GAT HER PRNs 65551 & 65552) with its associated Incline Cottage (LB 4085) winding house that lie just outside of the northeastern boundary of the proposed development site; the recently renovated three-arched Cegin Viaduct (CN380; Figure 05; Plate 32); a former smithy at Llandygai (GAT HER PRN 65544; Figure 05) which may have housed a blacksmith/farrier responsible for the operation of the railroad between the Dinas and Marchogion inclines; and a part of the formation adjacent to a section of Telford's post-road and the Lon Isaf Tollhouse (GAT HER PRN 77112).

(Sources: GAT HER Record PRN 5941; Davidson and Gwyn 2014; Barker and Gwyn 2018; Llechi Cymru 2020)

### **3.1.2.3 The location and nature of The Penrhyn Slate Quarry Railway (GAT HER PRN 59452; NGR SH6150066370 - NGR SH5928572794)**

The route of Penrhyn Slate Quarry Railway (GAT HER PRN 59452) runs alongside the Afon Cegin to the west of the proposed development site before it turns and runs underneath the A5 bridge Pont y Marchogion to skirt the sites northwestern edge (Figure 04; Figure 05). Though the Railway is currently undesignated, its relict sections have been deemed to meet the criteria for statutory protection and they have been proposed for designation as a Scheduled Monument (Llechi Cymru 2020). It also forms part of *The Penrhyn Slate Quarry Railroad and Penrhyn Slate Quarry Railway* (1.3) Element of Component Part 1 of the nominated *Slate Landscape of Northwest Wales* World Heritage Site (Figure 03).

The railway was a 0.6 metre (2') gauge steam locomotive-operated railway built in stages in the 1870s to replace the horse-drawn 1801 Penrhyn Slate Quarry Railroad (GAT HER PRN 59451). It ran for a distance of approximately 10km from the Felin Fawr Slate-Slab Mill complex (GAT HER PRN 21947) to Port Penrhyn (GAT HER PRN 15856; Figure 05). It was constructed on a different formation to the earlier railroad and though the route does not involve any major civil engineering features, it's sinuous course traverses steep gradients. It

was in use until 1962 when the Penrhyn Quarries switched exclusively to the road network to transport slate.

Following the closure of the line, the majority of the track was lifted in 1965 and sold to the Ffestiniog Railway. All but 50m of its formation survive (again removed in 1983 during the construction of the Bangor Bypass). Many of its bridges survive well, including Pont Marchogion (GAT HER PRN 5679; Figure 05), a four-span bridge comprising rolled steel joists supported on masonry piers 300m to the north of the proposed development, the replacement for the Cegin Viaduct crossing of the earlier railroad. Traces of track components also survive along with pathways leading to halts where quarrymen caught the train, and there is also a crossing keeper's cabin at Hen Durnpike (GAT HER PRN 65559). The railway's facilities for day-to-day operation were situated at Port Penrhyn and still survive in good condition (GAT HER PRNs 18456-18458).

A 300m length of the railway close to the Felin Fawr Slab Mill was restored as a demonstration railway called The Penrhyn Quarry Railway in 2012. It opened to the public on an annual basis and offered a regular train service along its length; the steam locomotives used included one of the original Penrhyn Slate Quarry Railway engines. The restored section has however been closed since 2017.

Two of the three surviving Penrhyn Slate Quarry Railway steam locomotives are currently housed in the Penrhyn Castle Railway Museum (RCAHMW NPRN 415225) along with Lord Penrhyn's saloon coach, an incline carriage designed to transport visitors and guests, and a surviving example of a workman's carriage, which, in contrast to the more luxurious carriages, is unsprung and open to the elements. The portion of the former Penrhyn Slate Quarry Railway in proximity to the proposed development site is now a public footpath, part of the Port Penrhyn to Bethesda section of the Snowdonia Slate Trail.

*(Sources: GAT HER Records PRNs 59452, 5679, 18456, 18457 and 18458; Davidson and Gwyn 2014; Barker and Gwyn 2018; Llechi Cymru 2020)*

#### **3.1.2.4 The location and nature of the Penrhyn Castle Grade II\* Registered Historic Park and Garden (PGW (Gd) 40 (GWY); NGR SH6020371630)**

The Penrhyn Castle Grade II\* Registered Historic Park and Garden (PGW (Gd) 40 (GWY); GAT HER PRN 4421) is located on the eastern side of the A5, 1.8km to the east of Bangor (Figure 04; Figure 05). It lies to the east of the Afon Cegin and straddles the mouth of the Afon Ogwen. It covers a circular area approximately 300 ha in size, with the 19<sup>th</sup> century neo-

Norman Grade I Listed Building Penrhyn Castle (LB 3659; Figure 04; Figure 05; Plates 52-53) on the higher ground at its centre and the sea as its northern boundary. The older parts of the park and garden to the west of the Afon Ogwen form the *Penrhyn Castle and Park* (1.7) Element of Component Part 1 (Figure 03) of the nominated *The Slate Landscape of Northwest Wales* World Heritage Site.

Penrhyn Castle is an extravagant 19<sup>th</sup> century country house built in the style of a Norman castle with other later medieval influences. It was built for George Hay Dawkins Pennant in 1822-38 and paid for by the profits from the Penrhyn slate quarries. The scale of the building is vast, its 70 roofs cover an area of 0.4ha. The main components of the house, which is built on a north-south axis with the main elevations to the east and west, are the 37.8m high keep containing the family quarters on the south, the central range protected by a 'barbican' terrace on the east housing the state apartments, and the rectangular-shaped staff/service buildings and stables to the north. A remarkable feature of its lavish interior is the use of slate in some furniture - a state bed, a desk, as cisterns and a meatcupboard in the kitchen, as inkwell-holders and a billiard table.

The garden as it survives today has its origins in the later eighteenth century but was enlarged and altered in the 19th century after Penrhyn Castle was built. The garden includes parkland, woodland, a walled kitchen garden, a terraced flower garden (Grade II Listed Building LB 3660; Figure 04; Figure 05; Plate 55) and formal lawns. There is also an extensive network of paths, in most cases gravelled, throughout the garden. An early 19<sup>th</sup> century high stone wall topped with broken Penrhyn slate surrounds the whole park and there are several entrances and three imposing lodges contemporary with the castle built in the same neo-Norman style. The Grade II\* Listed Building The Grand Lodge (LB 3661; Figure 04; Figure 05; Plate 51), a two-storey building with corbelled and battlemented circular corner turrets and a central arched carriage entrance, sits at the main entrance to the park to the south of the castle. From here, a winding tarmacked drive weaves its way through the garden towards the castle for a distance of 1km.

The garden contains 24 Listed Buildings (Figure 04), one of which, Penrhyn Castle (LB 3659), is listed at Grade I. Two of the buildings are listed at Grade II\*: the Grand Lodge (LB3661) discussed above and the Bridge at the mouth of the Afon Ogwen (LB 23456; LB 22931). A cluster of 9 Grade II Listed Buildings is located at The Penrhyn Home Farm on the southwestern edge of the park. The castle and most of the garden have been managed by the National Trust since 1951 after it was given to the Trust in lieu of death duties.

The essential setting of the Penrhyn Castle Historic Park and Garden covers approximately 31ha of land and is divided into three discrete parts: a 3.4 ha area of woodland, The Spinnies, on the eastern bank of the mouth of the Afon Ogwen at the northeast corner of the park; an area of 4.0ha in Llandegai to the south of the main entrance; and an area of 23.7ha to the northwest which includes the proposed development site, the parts of the Cegin Valley to the west of the A5 (including the housing developments at Glantraeth and Plas-y-coed), and Port Penrhyn.

(Sources: Cadw and ICOMOS UK, 1998; *Llechi Cymru* 2020; GAT HER Record PRN 4421; Cadw Listed Building Records LB3659 & LB3661)

### **3.1.2.5 The location and nature of Component Part 1: *Penrhyn Slate Quarry and Bethesda, and the Ogwen Valley to Port Penrhyn* of the nominated *Slate Landscape of Northwest Wales* World Heritage Site**

*The Penrhyn Slate Quarry and Bethesda, and the Ogwen Valley to Port Penrhyn* Component Part 1 of the nominated *Slate Landscape of Northwest Wales* World Heritage Site (*Llechi Cymru* 2020) is one of six Component Parts that make up the nomination:

- Component Part 1: *Penrhyn Slate Quarry and Bethesda and the Ogwen Valley to Port Penrhyn*;
- Component Part 2: *Dinorwig Slate Quarry Mountain Landscape*;
- Component Part 3: *Nantlle Valley Slate Quarry Landscape*;
- Component Part 4: *Gorseddau and Prince of Wales Slate Quarries, Railways and Mill*
- Component Part 5: *Ffestiniog: its Slate Mines and Quarries, 'city of slates', and Railway to Porthmadog*; and
- Component Part 6: *Bryneglwys Slate Quarry, Abergynolwyn Village and the Talyllyn Railway*.

Component Part 1 is the most northerly of all of the Component Parts; its seven Elements are all intimately related as part of an industrial landscape developed by the Penrhyn Family from the late 18th century onwards (Figure 03; *Llechi Cymru* 2020). The seven Elements of Component Part 1 are as follows:

- Element 1.1: Penrhyn Slate Quarry;



- Element 1.2: Felin Fawr Slate-Slab Mill;
- Element 1.3: The Penrhyn Slate Quarry Railroad and Penrhyn Slate Quarry Railway;
- Element 1.4: Port Penrhyn;
- Element 1.5: Mynydd Llandygai Settlement;
- Element 1.6: Bethesda Village; and
- Element 1.7: Penrhyn Castle and Park.

### **3.1.2.5.1 The location and nature of Element 1.1: Penrhyn Slate Quarry**

Penrhyn Slate Quarry Element 1.1 (GAT HER PRN 20061; Figure 03) is located approximately 7km to the south-southeast of the proposed development site, at the point where the steep-sided glacial valley Nant Ffrancon that separates the Carneddau mountains to the east and the Glyderau to the west, opens out onto the coastal plain to the north. The relict and active parts of the quarry and tips cover an area of approximately 275 ha and its main quarry pit is 1.6 km long and almost 400m deep. The site had been quarried from the medieval period onwards but its relict landform is the result of intensive extraction under the ownership of the Penrhyn Estate from the end of the 18<sup>th</sup> century onwards. Its stepped galleries with extensive areas of slate tipping to either side illustrate industrial slate extraction on an enormous scale and in the early 19th century the quarry was the largest slate quarry in the world. Its main products were roofing slates but it also produced a range of other items including writing slates and sawn slabs for gravestones, fireplaces, billiard tables, brewers vats, electrical switchgear and bath surrounds. Its tunnels and drainage levels also preserve a wealth of historic machinery, including two DeWinton water-balance shafts. The only Listed Building at the quarry is the Grade II Victorian Quarry Office (LB23392), but the original office collapsed into a subsiding tunnel and was rebuilt so nothing remains of the building that was listed. In 1965 Lady Douglas Pennant sold 51% of the shareholding of the quarry to Marchwiel Holdings Ltd, later Alfred McAlpine Plc, which obtained the remainder of the shares in 1973. In 2007 Welsh Slate bought the quarry and continue to work parts of the quarry to the southwest of the relict workings. It is also the location of a popular adventure tourism facility, Zipworld, which operates a zip line, go-karts and quarry tours at the site.

*(Sources: Kenney and Lowden 2017; Llechi Cymru 2020; GAT HER Record PRN 20061; Barker and Gwyn 2018)*



### **3.1.2.5.2 The location and nature of Element 1.2: Felin Fawr Slate-Slab Mill**

Felin Fawr Slate-Slab Mill Element 1.2 (GAT HER PRN 21947; Figure 03) is a self-contained 19<sup>th</sup> century industrial complex. It lies approximately 6km the south-southeast of the proposed development site on the northern side of the Penrhyn Quarry, straddling the Galedffrwd river, a tributary of the Afon Ogwen. This was where slate slabs from the quarry were sawn and shaped, and where the quarry's engineering needs were met. The complex is situated at the first location where the Penrhyn Quarry Railroad (1.3) crossed a stream strong enough to turn water-wheels. Surviving slate-built structures at the site include two former slate processing mills built between 1865-6, the Grade II\* Listed Buildings the Western Slab Mill (LB 4153) and the Eastern Slab Mill (LB 4155); the Grade II Listed Building the Foundry (LB4157) built in 1866; locomotive sheds associated with the Penrhyn Slate Quarry Railway and the Grade II Listed Building the Fitting and Repair Shop (LB 4156). Two waterwheels survive on site: one is a Grade II\* Listed Building (LB4154) situated between the two slate-slab mills, which it formerly powered; the other is a Grade II\* Listed Building (LB4158) on the eastern perimeter which formerly provided the blast for the foundry. Other buildings and structures on the site include slate-makers' shelters (gwaliau) (Scheduled Monument CN297) where broken slates were trimmed for commercial sale, Tai'r Stablau (GAT HER PRN 62291), a row of foundry cottages converted from former stable blocks associated with the Penrhyn Slate Quarry Railroad in 1875, and Pont Coed-y-parc, a Grade II Listed Bridge over the railway built in 1900. The mills were in operation until 1965. It's solidly constructed buildings were consolidated in 1999-2000 by Gwynedd County Council and are now utilised as light industrial and retail units but retain their essential structure, built materials and character.

*(Sources: Llechi Cymru 2020; GAT HER Record PRN 21947; Barker and Gwyn 2018)*

### **3.1.2.5.3 The location and nature of Element 1.3: The Penrhyn Slate Quarry Railroad and Penrhyn Slate Quarry Railway**

The location and nature of Element 1.3: The Penrhyn Slate Quarry Railroad and Penrhyn Slate Quarry Railway, are discussed more fully in secs 3.1.2.2 and 3.1.2.3. Their formations form strong linear landscape features that run from the Felin Fawr Slate Mill (GAT HER PRN 21947) to Porth Penrhyn (GAT HER PRN 15856) and both run adjacent to the proposed development site as they approach their destination at the port (Figure 03). They were both constructed to transport finished slate from the quarry to the port for export.

The earlier Penrhyn Slate Quarry Railroad (GAT HER PRN 59451), constructed in 1801, originally ran for a distance of approximately 9 km from the Penrhyn Slate Quarry (GAT HER PRN 20061) northwards along the Ogwen Valley and utilised horse-drawn traction with a system of counterbalanced inclines to traverse steep gradients along its route. The earlier railroad was replaced by the slightly longer steam-powered Penrhyn Slate Quarry Railway (GAT HER PRN 59452) in the 1870s. The later railway remained fully operational until 1962. It shares the same route as the earlier railroad as it left the quarry, however, it diverts westwards after about 3km at Tregarth to follow a steeper and more sinuous route to join and then follow the Cegin Valley all the way to Port Penrhyn. Their routes are almost entirely intact and survive in a landscape that has suffered remarkably low levels of subsequent development.

*(Sources: Llechi Cymru 2020; GAT HER Records PRNs 59451 and 59452; Barker and Gwyn 2018)*

#### **3.1.2.5.4 The location and nature of Element 1.4: Port Penrhyn**

Element 1.4: Port Penrhyn (GAT HER PRN 15856) is located 500m to the north of the proposed development site on the northern side of the Penrhyn Castle and Park Registered Historic Park and Garden PGW (Gd) 40 (GWY) (Figure 03). It lies at the eastern end of the Menai Strait that separates Anglesey from mainland Wales, adjacent to the town of Bangor. The port was purpose-built and the main shipping point for Penrhyn slate from the late 18th to the 20th century. It has its origins in 1790 when Benjamin Wyatt designed stone quays with a small stone pier and a warehouse (GAT HER PRN 18462; Figure 05) on the western bank of the Afon Cegin. A further small quay was constructed on the eastern bank by 1803 and lengthened onto the Bangor flats in 1828-1830. In 1855 further construction on the eastern side of the port resulted in the present extent of the harbour. The New Dock (quay) is a Grade II\* listed building (LB 23439).

The port contains a large number of high quality industrial and estate buildings constructed during the course of the 18<sup>th</sup> and 19th centuries, many of which are Grade II Listed Buildings. These include the late 18th or early 19th century cottage (LB 3667); the early nineteenth century Port Lodge entrance lodge (LB 3662); the 1820 Pont Penrhyn bridge (LB 23362); the Port House office (LB 3666; GAT HER PRN 6490) and the Old Port Office (LB 23363) of the 1840s; the circa 1860 Dockmaster's Office (LB 23364) and the Penrhyn estate office (LB 23365); the mid-late 19th century Communal Lavatory (LB 4135; GAT HER PRN 12689), the Former Locomotive Shed (LB 23361; GAT HER 18456) associated with the Penrhyn Quarry

Railway, and the shed for the quarrymen's train, the Former Carriage Shed (GAT HER PRN 18457). Port Penrhyn remains in use as a commercial and pleasure craft harbour and still occasionally exports some slate.

(Sources: *Llechi Cymru 2020*; *GAT HER Record PRN 15856*; *Barker and Gwyn 2018*)

### **3.1.2.5.5 The location and nature of Element 1.5: Mynydd Llandygai Settlement**

Element 1.5: Mynydd Llandygai Settlement (GAT HER PRN 15858) is located on the exposed southern slopes of Mynydd Llandygai on the western side of the Afon Ogwen, just to the northwest of Penrhyn Quarry and 5.5km to the south-southeast of the proposed development site (Figure 03). The settlement is a planned housing development created by the Penrhyn Estate for its workers at the quarry in the 19<sup>th</sup> century. The earliest buildings at the settlement were built in 1798 around the main slate road from the quarry, most of these have however been demolished and replaced with late 19<sup>th</sup> century dwellings for quarry officials. The existing quarry workers' dwellings on the lower road, Llwybr Main, were laid out in 1843 and on the higher road, Tan y Bwlch, in 1862. The workers' cottages are crog-lofftydd (half-lofted) and set out in regularly ordered rows. The dwellings are of a traditional design, but a 'polite' influence is apparent in their architecture, and each is set in its own rectangular slate fenced plot with a long allotment to the rear.

Former places of worship, now repurposed, include the (Calvinistic) Methodist Hermon Chapel (RCAHMW NPRN 6926), built in 1845, rebuilt in 1856 and again in 1879 to a sub-Classical design by the architect Owen Morris Roberts of Porthmadog; the (Wesleyan) Peniel Methodist Chapel (RCAHMW NPRN 6929) built in 1846 and rebuilt in 1871; and the (Independent) Congregational Amana Chapel (RCAHMW NPRN 6923), built in 1868 in the simple round-headed gable entry type. St Anne's (Anglican) church (RCAHMW NPRN 43698) was built in the early English style in 1865 to a design by Goronwy Owen, replacing a church of 1813, probably by designed by Benjamin Wyatt.

The settlement includes a number of Grade II Listed Buildings including: boundary walls/slate fencing to 3 & 4, Tan y Bwlch (LB 23446); 3 Tan y Bwlch, (LB 23405); 4 Tan y Bwlch (LB 23406); the Boundary Walls/Slate Fencing to 25 and 26 Tan y Bwlch (LB 23443); 24 Tan y Bwlch (LB 23403); the Outbuildings to 25 Tan y Bwlch (LB 23445); 25 Tan y Bwlch (LB 82990); Fairview, Lôn y Grug (LB 23413); the Privy to 7 Llwybr Main (LB 23442); 7 Llwybr Main (LB 23409); 8 Llwybr Main (LB 23410); the Boundary Walls/Slate Fencing to 23 and 24 Llwybr Main (LB 23441); 23 Llwybr Main (LB 23407); 24 Llwybr Main (LB 23408); the Privies

to 23 and 24 Llwybr Main (LB 23440); 1 Bryn Eglwys (LB 23418); 2 Bryn Eglwys (LB 23467); 3 Bryn Eglwys (LB 23419); 4 Bryn Eglwys (LB 23468); 5 Bryn Eglwys (LB 23420); 6 Bryn Eglwys (LB 23469); and 7 Bryn Eglwys (LB 23470). The settlement at Mynydd Llandegai is remarkably well preserved and remains intact and inhabited.

(Sources: *Llechi Cymru* 2020; GAT HER Record PRN 15858; Barker and Gwyn 2018)

### **3.1.2.5.6 The location and nature of Element 1.6: Bethesda Village**

Element 1.6: Bethesda Village (GAT HER PRN 15838) lies on the valley floor and hillside on the eastern side of the Afon Ogwen, just to the north of Penrhyn Quarry and 5.5km to the southeast of the proposed development site. Bethesda is now the urban centre of the Ogwen valley and has its origins as a self-created 19<sup>th</sup> century settlement founded by Penrhyn quarry workers and their families on the Cefnfaes freehold. The land did not form part of the otherwise all-dominant Penrhyn Estate and could also therefore not be limited in its provision of chapels to serve the quarrying community, or indeed public houses; Thomas Pennant recorded in 1796 that Lord Penrhyn had built a market hall on his lands here but also that 'no corrupting ale-house is permitted'. Previously known as Glanogwen, the quarry workers' settlement took its name from the first chapel built in the village, the now Grade II Listed Building the Congregational (Independent) Bethesda Chapel (LB 4145) of circa 1820-3. The chapel was erected at the point where Telford's newly-completed post road (the present A5) enters the freehold and is still a key feature in the townscape of the centre of Bethesda today.

The earliest buildings were constructed as a ribbon development of plain dwellings along the sides of the A5, however, the population grew significantly in the 1850s, leading both to uncontrolled developments such as John Street, built with 'great contempt for regularity' on a winding hillside path, as well as to planned settlements such as Gerlan, and the more substantial houses, community infrastructure and places of worship built on Penrhyn Estate land once it recognised the independent community as an established fact. These include the substantial Grade I Listed Building Calvinistic Methodist Jerusalem Chapel (LB 18387) built in 1842-3 and remodelled between 1872-5 to resemble an amphitheatre, the showcase ritualistic Grade II Listed Buildings Glanogwen Church (LB 18388) built by the Penrhyn Estate in 1855-6, and the Douglas Arms (LB 18395), a substantial public house of the 1850s. Other notable Grade II Listed buildings in the town include the 1885 Bethania Chapel (LB 18384); the early-mid 19<sup>th</sup> century Victoria Hotel (LB 18385); the mid 19th century King's Head Inn (LB 18417); 10 John Street (LB 18414); 11 John Street (LB 18415); 1 Ogwen

Terrace (LB 18389); 2 Ogwen Terrace (LB 18390); 8 Ogwen Terrace (LB 18391); 10 Ogwen Terrace (LB 18392); 17 Ogwen Terrace (LB 18393); 22 Ogwen Terrace (LB 18394); 18 Penybryn Road (LB 18416); and the terraced cottages on the outskirts at Cae'r Berllan (LBs 18401-18413). Bethesda has seen little development since the prolonged Penrhyn Quarry strike (1900-1903). The strike marked the beginning of the slate industry's long twentieth-century decline, the town itself however remains an excellent example of a Victorian industrial community.

*(Sources: Kenney and Lowden 2017; Llechi Cymru 2020; GAT HER Record PRN 15838; Barker and Gwyn 2018)*

### **3.1.2.5.7 The location and nature of Element 1.7: Penrhyn Castle and Park**

The location and nature of Element 1.7: Penrhyn Castle and Park (PGW (Gd) 40 (GWY); GAT HER PRN 4421) is discussed more fully in Sec 3.1.2.4. It is located on the eastern side of the A5, 1.8km to the east of Bangor and part of its northwestern edge borders the eastern side of the proposed development site. The element is formed of the older parts of the park and garden that lie between the Afon Cegin and the Afon Ogwen. The Grade I Listed Building Penrhyn Castle (LB 3659), an extravagant 19th century country house built on the site of an earlier house in the style of a Norman castle, sits at the centre of the Park. It was commissioned by the then owner of the Penrhyn Estate George Hay Dawkins Pennant in 1822-38 and paid for by the profits from the Penrhyn slate quarries. The Castle is a vast Neo-Norman fantasy, it's 70 roofs cover 0.4 ha, and it is one of the most important large country houses in Wales. The Park and Garden has its origins in the later eighteenth century but was enlarged and altered in the 19th century after Penrhyn Castle was built. The extensive grounds of the Castle cover 300 ha and contains 24 Listed Buildings, areas of parkland, woodland, a walled kitchen garden, a terraced flower garden (Grade II Listed Building LB 3660) and formal lawns. It is surrounded by a high mortared stone wall capped with slate and has a series of imposing gatehouses built in the same style as the Castle. The Castle and most of the garden have been managed by the National Trust since 1951 after it was given to the Trust in lieu of death duties. Within the castle stable block is an industrial railway museum which displays locomotives, rolling stock and artefacts from the Penrhyn Quarry Railway (Element 1.3) and the Dinorwic Quarry Railway (Element 2.7).

*(Sources: Cadw and ICOMOS UK, 1998; Llechi Cymru 2020; GAT HER Record PRN 4421; Cadw Listed Building Records LB3659;; Barker and Gwyn 2018)*

**3.1.2.5.8 The Essential Setting of Component Part 1: *Penrhyn Slate Quarry and Bethesda, and the Ogwen Valley to Port Penrhyn* of the nominated *Slate Landscape of Northwest Wales* World Heritage Site**

The Essential Setting of Component Part 1 is made up of the Ogwen and Cegin valleys, incorporating the entire landscape of slate production and distribution from the quarry northwards to the port for onward shipment. It extends from the quarrymen's town of Bethesda to the parkland and neo-Norman castle of the owning family; from the steep-sided slopes of the Carneddau mountains which define the southern limit, to the Arfon coastal plain and to the Menai Strait adjacent to the castle.

*(Source: Llechi Cymru 2019)*

### 3.1.2.6 The visibility of the proposed development

The proposed development area is located within a field of improved pasture on the eastern side of the A5 Llandegai Road. It lies:

- immediately adjacent and to the west of the Incline Cottage Grade II Listed Building (LB 4085);
- immediately adjacent and to the west of the route of The Penrhyn Slate Quarry Railroad (GAT HER PRN 59451) which it partially contains;
- immediately adjacent and to the south and east of the route of The Penrhyn Slate Quarry Railway (GAT HER PRN 59452); and
- within the Essential Setting of the Penrhyn Castle Grade II\* Registered Historic Park and Garden (PGW (Gd) 40 (GWY)); and
- within the Essential Setting of Component Part 1: Penrhyn Slate Quarry and Bethesda, and the Ogwen Valley to Port Penrhyn of the nominated The Slate Landscape of Northwest Wales World Heritage Site.

1m resolution LiDAR data available from National Resources Wales (<http://lle.gov.wales/Catalogue/Item/LidarCompositeDataset/>) has been used to construct multipoint Zone of Theoretical Visibility (ZTV) models for the proposed development in a GIS (29 points distributed across the parts of the proposed development site where houses are to be constructed; development height 8m; observer height 1.8m; radius 10,000m). These models enable an assessment of the degree of visibility of the proposed development from the potentially impacted historic assets. ZTV models for both a Digital Surface Model (DSM) (includes details of buildings and trees captured during the survey) and a Digital Terrain Model (DTM) (filtered to represent the underlying ground surface only) have been examined.

DTM ZTV models present a 'worst-case scenario' for the visibility of the proposed development. The DTM ZTV for the area local to the proposed development (Figure 06) suggests that the entire development will be potentially visible from the Incline Cottage Grade II Listed Building (LB 4085; GAT HER PRN 24862). The entire development will be potentially visible from the parts of the route of the Penrhyn Slate Quarry Railroad (GAT HER PRN 59451) on the eastern side of the proposed development site, however, a part of it to the north including the Cegin Viaduct (Scheduled Monument CN380) will have no views due



to intervening topography. The parts of the Penrhyn Slate Quarry Railroad route to the south of the proposed development will generally have reduced visibility as far as south as the village of Llandegai. Walkers following the route of The Penrhyn Slate Quarry Railway (GAT HER PRN 59452) along the Cegin valley will have no views of the proposed development from an approximately 430m long stretch of the route to the southwest, but it may be visible to varying degrees to the north and southwest. There could, in theory, be views of the proposed development from large parts of the western side of the Penrhyn Castle Registered Historic Park and Garden (PGW (Gd) 40 (GWY)) including 18 of its 24 listed buildings and notably from the southern parts and keep of Penrhyn Castle (LB 3659) itself. None of the potentially impacted historic assets in the immediate local area can therefore be ruled out as having no views to the proposed development at this stage and therefore the impact of the development on their settings will need to be assessed in Stages 2 and 3 (Table 3.1).

The DTM ZTV for the wider area covering the entire extent of Component Part 1: *Penrhyn Slate Quarry and Bethesda, and the Ogwen Valley to Port Penrhyn* of the nominated *Slate Landscape of Northwest Wales* World Heritage Site (Figure 08) suggests that the proposed development will not visually impact all of the Component's Elements. Intervening topography means that the proposed development will not be visible from Element 1.2 Felin Fawr Slate-Slab Mill, or, with the exception of a very small area on its northern edge with partial views, from Element 1.6 Bethesda Village. Apart from very small areas on its northern and southern fringes, the vast majority of the area of Element 1.5 Mynydd Llandygai Settlement will have no views of the proposed development. Element 1.1 Penrhyn Slate Quarry may have views of the entire development from its more elevated southern parts, there may also be sporadic partial views along parts of the routes of Element 1.3 The Penrhyn Slate Quarry Railroad and Penrhyn Slate Quarry Railway in addition to those noted above in proximity to the proposed development site. There may be good views of the proposed development from almost the entire area of Element 1.4 Port Penrhyn. The potential visual impacts on Element 1.7 Penrhyn Castle and Park have been noted above. As the entire area of Component Part 1 cannot be ruled out as having no views to the proposed development at this stage, the impact of the development on its setting will need to be assessed in Stages 2 and 3 (Table 3.1).



<b>Historic Asset</b>	<b>Potentially visually impacted according to the DTM ZTV</b>
Incline Cottage Grade II Listed Building (LB 4085)	Yes
The Penrhyn Slate Quarry Railroad (GAT HER PRN 59451)	Yes
The Penrhyn Slate Quarry Railway (GAT HER PRN 59452)	Yes
Penrhyn Castle Grade II* Registered Historic Park and Garden (PGW (Gd) 40 (GWY))	Yes
Component Part 1: Penrhyn Slate Quarry and Bethesda, and the Ogwen Valley to Port Penrhyn	Yes

Table 3.1 Historic Assets that the proposed development may potentially visually impact

The DSM ZTV models attempt to account for the obstruction of views by vegetation or buildings. The model for the area in close proximity to the proposed development site (Figure 07) suggests that views of the proposed development may be more restricted. As might be expected, it will still be visible from Incline Cottage (LB 4085; GAT HER PRN 24862) and the route of The Penrhyn Slate Quarry Railroad (GAT HER PRN 59451) to the east of the site. The trees that line the Cegin Valley may restrict views eastwards towards the proposed development along much of the route of The Penrhyn Slate Quarry Railway (GAT HER PRN 59452). The trees and the Penrhyn Park wall to the east of the proposed development site and intervening deciduous tree cover may also obstruct views from within the Penrhyn Castle Registered Historic Park and Garden (PGW (Gd) 40 (GWY)), though it may still be at least partially visible from parts of the western side of the park, the southern parts and Keep of the Penrhyn Castle (LB 3659) building and areas at ground level on its southwestern side.

Similarly, the DSM ZTV for the wider area (Figure 09) suggests that longer distance views will be more restricted than indicated in the DTM ZTV. The potential partial views from the very small part of Element 1.6 Bethesda Village that may be affected are likely to be blocked by intervening vegetation and structures. The very small areas on the northern and southern fringes of Element 1.5 Mynydd Llandygai Settlement are also likely to be at least partially blocked. Views of the proposed development from the elevated parts of Element 1.1 Penrhyn Slate Quarry may be partially screened by the woodland and buildings at the Llandegai

Industrial Estate and the trees along the eastern side of the proposed development site. Sporadic views along parts of the routes of Element 1.3 The Penrhyn Slate Quarry Railroad and Penrhyn Slate Quarry Railway may be further restricted along most of their routes. Woodland to the north of the proposed development site, the modern houses at Glantraeth and the wooded Cegin Valley may restrict available ground-level views of the proposed development from Element 1.4 Port Penrhyn to those partial views available from small areas at the northern end of the quayside and harbour. Again, the potential screening effect of deciduous tree cover and its impact on available views from Element 1.7 Penrhyn Castle and Park have been noted above.

## **3.2 Stage 2: Define and analyse the setting of the potentially impacted historic assets**

The setting of a historic asset is made up of:

- its current surroundings;
- our present understanding and appreciation of the historic asset; and
- what (if anything) survives of its historic surroundings.

### **3.2.1 The setting of Incline Cottage Grade II Listed Building (LB 4085)**

#### **3.2.1.1 The current surroundings of Incline Cottage Grade II Listed Building (LB 4085)**

Incline Cottage Grade II Listed Building (LB 4085; Figure 04; Figure 05) sits just outside of the higher eastern limit of the field of improved pasture that forms the proposed development site and its surroundings are essentially the same as that of the proposed development (see Sec 3.1.1) (Plates 01-04; 06-07; 10; 12-21). The building is located at the southern end of its access trackway surrounded by mature trees which grow along the field boundary. The Marchogion Inclined Plane (GAT HER PRNs 65551 & 65552) which it served lies to the north, also outside of the eastern boundary of the proposed development site. The incline runs into the wooded valley of the Afon Cegin to the north of the proposed development site and runs parallel with the northern spur of the access trackway which leads to a 19<sup>th</sup> century building, Nursery Cottage, currently in use as a domestic residence. Nursery Cottage, the closest building to Incline Cottage, sits on the edge of an area of woodland 170 m to the north-northeast. The A5 road runs north-south approximately 70m to the west of the cottage, and beyond it lies the Bangor crematorium, the wooded valley of the Afon Cegin and the Maesgeirchen housing estate at the base of Bangor Mountain. Large enclosed agricultural fields within the Penrhyn Castle Registered Historic Park and Garden (PGW (Gd) 40 (GWY)) lie immediately to the east with woodland and parkland beyond.

#### **3.2.1.2 Our present understanding and appreciation of Incline Cottage Grade II Listed Building (LB 4085)**

Incline Cottage Grade II Listed Building (LB 4085) was designed by Benjamin Wyatt circa 1790 and its name is derived from its position at the head of the Marchogion Incline (GAT HER PRNs 65551 & 65552) which it served as a winding house. It was initially part of the short-lived Llandegai Tramway and from 1801 it was incorporated into The Penrhyn Slate

Quarry Railroad (GAT HER PRN 59451). It is built on an 'H' plan, suggesting that the winding drum was housed in the centre, and the building served as a 'gateway' through which the tracks pass. A horse was stabled on the east wing to operate the winding drum, probably powered by the use of a horse gin. The west wing of the building appears to have been used for accommodation. Closed in 1879 and subsequently converted into a private house, it is one of the few architecturally ambitious structures associated with an early railway. The two side wings are similar to the common arrangement of lock-keepers houses on a canal, but the design also echoes the ceremonial gateway to a country house. Together with the Marchogion Inclined Plane, Incline Cottage represents the most nearly complete early incline system in Wales.

*(Sources: Cadw LB 4085 Full Report; GAT HER Records PRNs 24862, 59451; RCAHMS Record NPRN 409693; Barker and Gwyn, 2017)*

### **3.2.1.3 What (if anything) survives of the historic surroundings of the Incline Cottage Grade II Listed Building (LB 4085)**

Incline cottage (LB 4085) was in use as an incline winding house between circa 1790 and 1879. A 1768 Penrhyn Estate Map that predates the construction of the Llandegai Tramway shows the area currently occupied by the cottage and tramway was generally composed of small irregular fields and enclosed patches of woodland (Figure 10). The landscape appears to have changed over the following thirty years as shown by an 1803 Penrhyn Estate Map (Figure 11) which depicts the relatively recently constructed winding house and the Marchogion Inclined Plane (GAT HER PRNs 65551 & 65552), which had both been incorporated into The Penrhyn Slate Quarry Railroad (GAT HER PRN 59451) since 1801, within the recently subdivided field called Maes y Bont Isaf (Lower Bridge Field) on the 1768 map. The cottage by virtue of its function and location would have had good views along the incline to the north and south. The remains of two shelters, probably used by people attaching wagons to the incline rope, survive at the foot of the incline 200m to the north of the cottage (GAT HER PRNs 65553 & 65554). The southern part of the incline and the railroad formation survive to the south of Incline Cottage and run inside the proposed development site along the western side of the boundary wall of the Penrhyn Castle Registered Historic Park and Garden (PGW (Gd) 40 (GWY)).

The 1803 Penrhyn Estate Map (Figure 10) also shows the old post road into Bangor, also depicted on the 1768 map (Figure 11), running north-south approximately 30m to the east of the winding house. The road is still identifiable as a low earthwork within the field to the east.

The 1803 map shows that both the road and the tramway cross the Afon Cegin by means of Pont Marchogion (GAT HER PRN 65555), which still survives as single arch stone bridge 250m to the north of Incline Cottage. The house at Tan-y-Bryn (RCAHMW NPRN 411358) 400m to the northwest of Incline Cottage, now converted into a Youth Hostel, was constructed in 1810, shortly after the winding house was built. The 1803 map also shows that the land to the east of the old post road had been imparked and forms part what is now the Penrhyn Castle Registered Historic Park and Garden (PGW (Gd) 40 (GWY)), whilst the land to the west of the post road up to the Afon Cegin, including the ground upon which Incline Cottage and the railroad are constructed, is depicted as part of the Park's demesne.

The old post road was superseded by Telford's A5 road, the route of which currently runs 75m to the west of Incline Cottage on the western side of the proposed development site. The Bangor to Llandegai section of the A5 had been constructed by 1819, as had a bridge to carry the road across the Afon Cegin. The original A5 bridge was replaced in the late 19<sup>th</sup> century when the Penrhyn Slate Quarry Railway (GAT HER PRN 59452) was built; the current bridge is a 20th century structure. Another bridge, whose tunnel is now filled in, was constructed 500m to the south of Incline Cottage to carry the new road across the railroad (GAT HER PRN 65550; Figure 05).

The 1841 Llandegai Tithe Award Map (Figure 13) shows the railroad and Incline Cottage lying to the east of Telford's A5. Penrhyn Castle (LB 3659) in its current form is also shown on the map, and though Incline Cottage predates the current Penrhyn Castle, it would have still have been in use after the Castle was built in 1822-38. The enclosed fields that formerly lay between Incline Cottage and the now removed old post road within the park had by 1841 been incorporated into Penrhyn Park with the Quarry Railroad now forming its western boundary. By the time of the publication of the 1889 First Edition Ordnance Survey map, Incline Cottage was still occupied but the railroad had gone out of use, replaced by The Penrhyn Slate Quarry Railway (GAT HER PRN 59452) which is depicted on the map running along the valley of the Afon Cegin to the west of Incline Cottage and the A5 road (Figure 14). The 1889 map also shows the London and North Western Railway's (LNWR) Penrhyn Branch Line diverting from the route of the Penrhyn Slate Quarry Railway just to the south of the A5 bridge over the railway and the Afon Cegin. The branch line was opened in 1852 to link Port Penrhyn with the standard gauge Chester and Holyhead Railway and it is depicted running broadly north-south between the A5 and the Quarry Railway heading to its junction with the mainline 600m or so to the west of Llandegai. The First Edition map also contains the earliest depiction of the building to the northwest of Incline Cottage, Nursery Cottage,

which appears to have been constructed within what was the edge of the Penrhyn Parkland in the mid-late 19<sup>th</sup> century. The landscape around Incline Cottage appears to have retained its predominately rural character until the building of the Maesgeirchen Estate to the west of the Afon Cegin which began in the 1930s.

(Sources: GAT HER Records PRNs 24862, 65553, 65554, 65555 and, 65550; RCAHMS Records NPRNs 409693 and 411358; Barker and Gwyn 2017).

#### **3.2.1.4 The contribution of setting to the significance of Incline Cottage Grade II Listed Building (LB 4085)**

As a Grade II Listed Building, Incline Cottage (LB 4085) is considered to be of special architectural and historic interest. It is also part of the nominated *Slate Landscape of Northwest Wales* World Heritage Site, and if the nomination is accepted, will therefore be defined by UNESCO as a site of Outstanding Universal Value whose cultural and/or natural significance is so exceptional as to transcend national boundaries and to be of common importance for present and future generations of all humanity (Llechi Cymru 2019). There is no higher recognition of heritage value and its overall significance is assessed as **Very High**.

Incline Cottage has important **evidential** values as a rare and remarkably well preserved late 18<sup>th</sup> century incline winding house. Its fabric has significant potential to further enhance our knowledge of horse-drawn railroad engineering in the late 18<sup>th</sup> century. It is of high **historical value** as, together with the Marchogion Inclined Plane in its immediate setting, it illustrates the most nearly complete example of an early incline system in Wales. Its historical value is also enhanced as it is one of the surviving elements of the historic Penrhyn Slate Quarry Railroad, the design ancestor of the 0.6 metre gauge railway worldwide, and whose canal engineering inspired design influences are echoed in the appearance of the cottage as a lock keepers house. It is also of high associative historical value because it was commissioned by the powerful and wealthy Pennant family, and was built by Benjamin Wyatt, the builder of many of the early buildings associated with the Penrhyn slate industry. Its **aesthetic** value derives from its form and appearance and its relatively isolated position in a relict rural setting just outside of the Penrhyn Castle Registered Historic Park and Garden in one of the few remaining undeveloped parts of the former demesne to the northwest side of the park, and now part of its essential setting. Its **communal** value is largely derived from its survival as a visible element of the late 18<sup>th</sup> and 19<sup>th</sup> century slate industry, an industrial heritage that is important on a worldwide scale, an immense source of local pride and for many, a significant contributor to a sense of a unique local identity.

The primary contribution of setting to the significance of Incline Cottage Grade II Listed Building (LB 4085) is primarily to its historical and aesthetic values

### **3.2.2 The setting of The Penrhyn Slate Quarry Railroad (GAT HER PRN 59451)**

#### **3.2.2.1 The current surroundings of The Penrhyn Slate Quarry Railroad (GAT HER PRN 59451)**

The route of the Penrhyn Slate Quarry Railroad runs from the Felin Fawr Slate-Slab Mills (GAT HER PRN 21947) to Port Penrhyn, Bangor (GAT HER PRN 15856). The mill is situated on the northern edge of the Penrhyn Slate Quarries. The Penrhyn Quarry (GAT HER PRN 20061) was at one time the largest slate quarry in the world and the vast scale of its relict workings form a spectacular and monumental landscape feature. The railroad leaves the quarry and follows the course of the Ogwen Valley in a north-westerly direction for around 8km across the relatively open agricultural plateau with long-distance views to the Menai Strait and out across Traeth Lavan and Liverpool Bay. When it reaches Penrhyn Castle it diverts from the course of the river which turns west to flow into the Menai Strait, to run to the west of the modern A5. The route then runs along the northwestern edge of the modern Llandegai Industrial Estate before it turns to cross under the A5 road to the north of the Penrhyn Home Farm. It then skirts the western side of the Penrhyn Estate boundary wall (Plates 08-09) before it reaches the proposed development site where it turns north, exiting the proposed development site at Incline Cottage (LB 4085) (Plates 17-18). From here it heads northwards down the better preserved parts of the Marchogion Inclined Plane (GAT HER PRNs 65551 & 65552) (Figure 05; Plates 19-20) before it enters the proposed development site again (Plates 22-23) and runs off into the wooded Cegin Valley (Plates 24-25; 27-28). It crosses the river at Pont Marchogion (GAT HER PRN 65555) (Plate 29), and then, after passing the eastern side of the modern housing estate at Glantraeth (Plate 30-31), crosses again at the Cegin Viaduct (CN380) (Plates 32-33). It then runs to northwards on the eastern side of Cegin Pool and to the west of the new housing estate at Plas y Coed (Plate 34) before it passes under the Penrhyn Bridge (GAT HER PRN 18453) (Plates 35-36) and reaches the coast at Port Penrhyn (Plates 37-38).

*(Source: Llechi Cymru 2020)*

#### **3.2.2.2 Our present understanding and appreciation of The Penrhyn Slate Quarry Railroad (GAT HER PRN 59451)**

The Penrhyn Slate Quarry Railroad (GAT HER PRN 59451) was built by Benjamin Wyatt and in 1801 to transport slate from the Penrhyn Quarries to Port Penrhyn (GAT HER PRN 15856) and was the primary means by which Penrhyn slate was exported until the 1870s. Its northern section, the part closest to the proposed development, utilised parts of the earlier



Llandygai Tramway built in the late 18th century to carry flint to the Penlan flint mill at Llandygai from Port Penrhyn. The railroad was built as a 0.6m narrow gauge railroad using cast-iron edge rails inspired by recent technological innovations in Blaenavon and other South Wales ironworks. Designed by the canal engineer Thomas Dadford, its innovative design utilised horse-haulage along lightly graded sections, and counter-balanced inclined planes on steeper parts of the route in a similar manner as a canal with flights of locks. It was the longest overland iron railroad in the world when it was built and is an early example of the use of a railway system within a quarrying industry. The railroad is the design ancestor of the 0.6m gauge railway and established the system's use as standard practice both within the wider North Wales slate quarrying industry and on the worldwide stage. The multi-arch Cegin Viaduct (Scheduled Monument CN380) is one of the oldest such structures built for a rail system surviving anywhere in the world and, as was mentioned earlier, the Marchogion Inclined Plane (GAT HER PRNs 65551 & 65552) and Incline Cottage (LB4085) together represent a rare Welsh survival of an almost complete early incline system.

*(Source: GAT HER Record PRN 59451; Llechi Cymru 2020; Barker and Gwyn 2018)*

### **3.2.2.3 What (if anything) survives of the historic surroundings of The Penrhyn Slate Quarry Railroad (GAT HER PRN 59451)**

Much of the Penrhyn Slate Quarry Railroad runs through a remarkably well preserved 19<sup>th</sup> century landscape. The vast relict Penrhyn Slate Quarry workings, set on the edge of a dramatic mountainscape with its stepped galleries with extensive areas of slate tipping, is well preserved, and though the original terminus of the railway at Penrhyn Quarry (GAT HER PRN 20061) was itself quarried away, its later terminus at the Felin Fawr Slab Mill (GAT HER PRN 21947) survives. The Felin Fawr Slab Mill is famously known as the location of the first water-powered slate sawmill in the world, and of the first known use of circular saws to cut stone in 1802. The original workshop buildings at Felin Fawr that would have been contemporary with the early railroad were replaced during the lifespan of the railroad. A terrace of five double-fronted cottages, Tai'r Stablau / Slate Mill Cottages (GAT HER PRN 62291), located on the west side of the complex, is thought to have been converted from the stables that housed the horses which worked the railroad. The current workshop structures date to 1865-6 and have recently been converted into light industrial units but still retain their original character and architectural integrity.

After leaving Felin Fawr, the railway passes through the agricultural coastal plain landscape of the Arfon Plateau. The parts that it passes through have seen little large scale change

since the early 19<sup>th</sup> century, the most notable difference being the construction of the Chester to Holyhead main line in 1850 and the modern A55 in the late 20<sup>th</sup> century. As the wagons approached Bangor, Penrhyn Castle (LB 3659) would have been visible set within its walled parkland (PGW (Gd) 40 (GWY)), dominating the local landscape much as it does today

As was mentioned in sec 3.1.2.2 a former smithy at Llandegai (GAT HER PRN 65544; Figure 05) is associated with the railroad and a section of Telford's post-road and the Lon Isaf Tollhouse (GAT HER PRN 77112) also survives. The railway would also have been in use when the Llandegai model estate village at the southern entrance to Penrhyn Park was constructed in the 1840s (GAT HER PRN 15839; Figure 05; see Sec 3.2.4.1).

The part of the route parallel with the A5 from Penrhyn Castle towards Port Penrhyn has seen the most changes since the railway was in operation, and the former agricultural fields to the west of the Penrhyn Castle Park and the railroad have given way to 20th century development including the Llandegai Industrial Estate, the Bangor Crematorium and the housing estate at Maesgeirchen. Once the railway leaves the proposed development site and drops down the Marchogion Inclined Plane (GAT HER PRNs 65551 & 65552) into the wooded Cegin Valley, it passes the Glantraeth modern housing on the western side of the riverbank, built on the location of the former the Penrhyn Nursery Garden (RCAHMW NPRN 86441).

After the railroad passed over the Cegin Viaduct (Scheduled Monument CN380) its route would have skirted the western boundary wall of Lime Grove on its way to Port Penrhyn. The house at Lime Grove is shown on both the 1803 Penrhyn Estate Map (Figure 09) and the 1841 Tithe Award Map (Figure 11) and was occupied by the Wyatt family, successive generations of whom were agents to the Penrhyn family. Benjamin Wyatt, the builder of both the railroad and Incline Cottage, lived at Lime Grove at the time of the railroad's construction. The original Lime Grove building was replaced by the current house, Plas y Coed (GAT HER PRN 64249) in 1878.

Port Penrhyn (GAT HER PRN 15856), the destination of the railroad, lies 200m or so to the north of the Cegin Viaduct (Figure 05). As the railroad enters the port it passes under the Penrhyn Bridge (GAT HER PRN 18453) a bridge over the Afon Cegin built in 1820 to provide access from the Bangor side of the river to the western entrance to Penrhyn Park. The entrance lodge here, the Grade II Listed Building Port Lodge (LB 3662; GAT HER PRN 11434; RCAHMW NPRN 34381; Figure 05) was built slightly later, circa 1840. The earliest

parts of Port Penrhyn are the stone quays, a small stone pier and a warehouse (GAT HER PRN 18462; Figure 05) on the western bank of the Cegin, all constructed by Benjamin Wyatt circa 1790. A further stone quay was constructed in 1803 and extended between 1828-1830. The current harbour at the port dates from work carried out in 1855 and the port contains a large number of high quality industrial and estate buildings constructed during the course of the 19<sup>th</sup> century. These include the 1840s Grade II Listed Building Port House (LB 3666; GAT HER PRN 6490) and the mid-late 19th century Grade II Listed Building, the Communal Lavatory (LB 4135; GAT HER PRN 12689) (Figure 05).

(Sources: GAT HER Records PRNs 59451, 15856, 21947, 64249, 18543, 18462, 6490 and 12689; *Llechi Cymru* 2020; *Barker and Gwyn* 2018)

#### **3.2.2.4 The contribution of setting to the significance of The Penrhyn Slate Quarry Railroad (GAT HER PRN 59451)**

As a proposed Scheduled Monument, The Penrhyn Slate Quarry Railroad (GAT HER PRN 59451) is considered to be of national importance. It is also part of the nominated *Slate Landscape of Northwest Wales* World Heritage Site, and if the nomination is accepted, will therefore be defined by UNESCO as a site of Outstanding Universal Value whose cultural and/or natural significance is so exceptional as to transcend national boundaries and to be of common importance for present and future generations of all humanity (*Llechi Cymru* 2019). There is no higher recognition of heritage value and its overall significance is assessed as **Very High**.

The Penrhyn Quarry Railroad is significant for its **evidential** value as a relatively well preserved early example of a quarrying industry railway system. The upstanding and buried parts of its formation and elements such as the Cegin Viaduct, the Marchogion Inclined Plane and the winding house at Incline Cottage have significant potential to further enhance our knowledge of railroad engineering and construction during the late 18<sup>th</sup> and 19<sup>th</sup> centuries. It is of very high **historical** value as the longest overland iron railroad in the world when built, it illustrates an early example of the use of a railway system within a quarrying industry, its innovative use of canal engineering in its construction by using inclined planes in a similar way to flights of locks, and as the design ancestor of the 0.6m gauge railway world-wide. Its historical value is further increased by the survival of other elements of the Penrhyn Quarry slate industry in its setting which together illustrate the full process of 19th century industrial slate extraction, manufacture, transport and export, and in particular the later railroad which illustrates how slate transport technology changed over the course of the 19<sup>th</sup>

century. It is also of high associative historical value because it was built by the powerful and wealthy Pennant family that owned and developed most of the component parts of the slate industry in this part of Northwest Wales, and was designed by Benjamin Wyatt, the architect of many of the early buildings associated with the Penrhyn slate industry. The **aesthetic** value of the railroad is derived from its setting in a route that descends from the edge of the Carneddau and Glyderau mountains and follows the contours of the Ogwen Valley across the relatively unchanged Arfon Plateau before skirting the western edge of Penrhyn park to drop down into the Cegin valley and onwards to Port Penrhyn. It's **communal** value and role in the sense of local identity is demonstrated by the community initiatives that are underway to tackle vegetation, activities that will not only open up further stretches of the formation for public access, but also serve as a source of social interaction and as an engagement with the internationally important local historical past.

The contribution of setting to the significance of The Penrhyn Slate Quarry Railroad (GAT HER PRN 59452) is primarily to its historical and aesthetic values.

### **3.2.3 The setting of The Penrhyn Slate Quarry Railway (GAT HER PRN 59452)**

#### **3.2.3.1 The current surroundings of The Penrhyn Slate Quarry Railway (GAT HER PRN 59452)**

Like that of its predecessor, the route of the Penrhyn Slate Quarry Railway also runs from the Felin Fawr Slate-Slab Mills (GAT HER PRN 21947) to Port Penrhyn, Bangor (GAT HER PRN 15856). Though constructed on a different formation, it follows the broadly same route across the agricultural coastal plain along the Ogwen Valley as the earlier railroad after it leaves Felin Fawr, before diverting by sweeping westwards after about 3km at Tregarth to join the Cegin Valley at Glasinfryn. The route of the railway then follows the Afon Cegin northwards, the formation surviving as a terrace on the eastern side of the river as it approaches the modern Llandegai Industrial Estate and the Bangor Crematorium to the east, and the housing estate at Maesgeirchen to the west (Plates 39-41). It then joins the route of the 1852 standard gauge LNWR Penrhyn Branch Line (Plate 43) after it turns to the northeast and then passes under the A5 road adjacent to the northwestern corner of the proposed development site (Plate 44). It then crosses the Afon Cegin on the short single-span bridge (GAT HER PRN 65569; Figure 05), just to the west of the earlier Pont Marchogion (GAT HER PRN 65555) railroad crossing (Plate 46), before passing by the eastern side of the modern housing estate at Glantraeth. Then, along with the former route of the parallel LNWR line, it crosses back to the eastern side of the Afon Cegin via the Grade II Listed Building the Pont Marchogion bridge (LB 4084; GAT HER PRN 5679; Figure 05) (Plate 47). The railway's Pont Marchogion bridge lies just to the east of the Cegin Viaduct (Scheduled Monument CN380) (Plate 48), and after passing it (Plate 49), the railway continues northwards on the eastern side of Cegin Pool along the same course as the earlier railroad, past the new housing development at Plas y Coed to the east (Plate 34), before it reaches Port Penrhyn (Plates 35-36).

#### **3.2.3.2 Our present understanding and appreciation of The Penrhyn Slate Quarry Railway (GAT HER PRN 59452)**

The Penrhyn Slate Quarry Railway (GAT HER PRN 59451) was constructed in stages during the 1870s as a more technologically advanced replacement for the earlier 1801 railroad. Like its predecessor, it utilised the same 0.6m narrow gauge system but was operated using steam-powered locomotives that ran on a sinuous course with steeper gradients. The railroad was designed by Charles Easton Spooner who applied the evolving technology of the Festiniog Railway to the Penrhyn route to create the ultimate stage in the evolution of the

slate-carrying industrial railway. The route was longer than that of the earlier railroad but the use of locomotives dramatically reduced journey time from the quarry to the port and the locomotives ability to haul heavy loads up steep gradients removed the need to use the slower incline system. It remained in use as the primary means of export of Penrhyn slate until 1962 when the Penrhyn Quarry switched over exclusively to road transport.

(Source: GAT HER Record PRN 59452; *Llechi Cymru* 2020; *Barker and Gwyn* 2018)

### **3.2.3.3 What (if anything) survives of the historic surroundings of The Penrhyn Slate Quarry Railway (GAT HER PRN 59452)**

The Penrhyn Slate Quarry Railway (GAT HER PRN 59452) runs across the same, remarkably well preserved 19th century landscape as the earlier Penrhyn Slate Quarry Railroad (GAT HER PRN 59451), albeit on a different route for the central part of its alignment. The formation of the redundant Penrhyn Slate Quarry Railroad would have been a noticeable contemporary landscape feature at the beginning and end of the later railway's route between Felin-Fawr Slab Mill (GAT HER PRN 21947) and Port Penrhyn (GAT HER PRN 15856; Figure 05). The earliest workshop buildings that survive at Felin Fawr Slab Mill were built in 1865-6 and therefore would have been a familiar sight to the railway operatives. Additional buildings built to service the railway were also constructed at the slab mill including the extant Engine Shed (GAT HER PRN 60813).

Moving closer to the proposed development site, it is unlikely that Incline Cottage (LB 4085) and most of the Marchogion Inclined Plane (GAT HER PRNs 65551 & 65552; Figure 05) would have been visible to the trains' drivers as they passed by in the wooded Cegin Valley to the west and north of the proposed development site, but Pont Marchogion (GAT HER PRN 65555) and the Cegin Viaduct (Scheduled Monument CN380; Figure 05) would certainly have been noticeable landmarks on the final approach to Port Penrhyn. The standard gauge LNWR Penrhyn Branch Line that ran parallel with The Penrhyn Slate Quarry Railway for the final part of the journey into Port Penrhyn closed in 1962, at the same time as the quarry railway. It survives as a wooded corridor through the modern Llandegai Industrial Estate and as a stone revetted terrace to the immediate east of The Penrhyn Slate Quarry Railway in the wooded Cegin Valley to the west of the Bangor Crematorium.

Much of the rest of the surviving 19th century surroundings of the railway are the same as those of the earlier railroad mentioned in Sec 3.2.2.3: the relict workings at Penrhyn Quarry (GAT HER PRN 20061); Penrhyn Castle (LB 3659) and its Registered Historic Park and Garden (PGW (Gd) 40 (GWY)); and the historic industrial and estate buildings at Port

Penrhyn were all in contemporary use. A number of other surviving buildings at Port Penrhyn were built specifically to service the later railway including the Grade II Listed Building the Former Locomotive Shed (LB 23361; GAT HER 18456) and the Former Carriage Shed (GAT HER PRN 18457) (Figure 05).

(Source: GAT HER Records PRNs 21947, 60813, 18456 and 18457; *Llechi Cymru* 2020; Barker and Gwyn 2018)

#### **3.2.3.4 The contribution of setting to the significance of The Penrhyn Slate Quarry Railway (GAT HER PRN 59452)**

As a proposed Scheduled Monument, The Penrhyn Slate Quarry Railway (GAT HER PRN 59452) is considered to be of national importance. It is also part of the nominated *Slate Landscape of Northwest Wales* World Heritage Site, and if the nomination is accepted, will therefore be defined by UNESCO as a site of Outstanding Universal Value whose cultural and/or natural significance is so exceptional as to transcend national boundaries and to be of common importance for present and future generations of all humanity (Llechi Cymru 2019). There is no higher recognition of heritage value and its overall significance is assessed as **Very High**.

The Penrhyn Slate Quarry Railway is important for its **evidential** value as a relatively well preserved 19<sup>th</sup> century slate carrying railway, its surviving formation and bridges have significant potential to further enhance our knowledge of 19<sup>th</sup> century industrial railway engineering and construction. Its evidential value is further enhanced by the survival of a significant amount of its engines and carriages at the Penrhyn Castle Railway Museum. It is of high **historical** value as the means by which Penrhyn quarry slate was exported from the 1870s until 1962. It illustrates how the evolving technology of the Ffestiniog Railway was applied to a mineral-carrying industrial system and embodies the ultimate stage in the evolution of the slate-carrying industrial railway. This is further enhanced by its group value with its predecessor railroad; its contrasting use of steep gradients and locomotives demonstrates how the technology changed over time. Its historical value is also enhanced by the survival of other elements of the Penrhyn Quarry slate industry in its setting which together illustrate the full process of 19<sup>th</sup> century industrial slate extraction, manufacture, transport and export. It is also of high associative historical value because it was built by the powerful and wealthy Pennant family that owned and developed most of the component parts of the slate industry in this part of Northwest Wales. The railway is a prominent linear landscape feature and its **aesthetic** value is further enhanced by its distinctive setting in a

route that runs from the edge of the mountains, across the relatively undeveloped coastal plain and along the wooded valley of the Afon Cegin to Porth Penrhyn. It is of high **communal** value and its location, form and setting makes it a popular part of the Snowdonia Slate Trail and, for steam and railway enthusiasts, it a visible and accessible relic of the industrial past. As it ceased operating in 1962, it also part of the collective memory of many of the older generation of local people.

The contribution of setting to the significance of The Penrhyn Slate Quarry Railway (GAT HER PRN 59452) is primarily to its historical, aesthetic and communal values



### **3.2.4 The setting of The Penrhyn Castle Grade II\* Registered Historic Park and Garden (PGW (Gd) 40 (GWY))**

#### **3.2.4.1 The current surroundings of The Penrhyn Castle Grade II\* Registered Historic Park and Garden (PGW (Gd) 40 (GWY))**

The Penrhyn Castle Grade II\* Registered Historic Park and Garden (PGW (Gd) 40 (GWY)) predominately sits on a natural promontory between the mouths of Afon Ogwen and Afon Cegin at the eastern end of the Menai Straits (Figure 04; Figure 05). The Grade I Listed Building Penrhyn Castle (LB 3659) sits at the centre of the Park and dominates the surrounding landscape to an extraordinary degree (Plates 52-53; 58-59).

The wooded Cegin valley and the modern housing estate at Plas-y-coed to the north separate the Park from Port Penrhyn and the Menai Strait. Traeth Lavan and Liverpool Bay lie to the northeast. A regular pattern of 19<sup>th</sup> century estate farms and improved fields along the coastal plain, largely reflecting the influence of the Penrhyn Estate, form the vista to the east of the park, with more distant views to the headland at Penmaenmawr and Great Orme's Head.

To the south, the small village of Llandegai (GAT HER PRN 15839) sits beyond the park's southern boundary wall close to The Grand Lodge (LB 3661) entrance lodge (Figure 05). The church at Llandegai (GAT HER PRN 6958) was founded in the 14<sup>th</sup> century, but it is essentially a 16th century building with 19th century additions (Figure 05). Benjamin Wyatt, the Penrhyn Estate agent and builder of the Penrhyn Quarry Railroad (GAT HER PRN 59451), Incline Cottage (LB 4085) and many of the earlier buildings at Port Penrhyn, was buried in the churchyard in 1818. Most of Llandegai village was built close to the main entrance to the park in the 1840s by the Penrhyn estate as a picturesque 'vernacular revival' model estate village to house its workers. Public Houses are conspicuously absent. The small village of Tal-y-bont lies on the other side of the old Bangor to Conwy road from Llandegai, and the Penrhyn Estate's influence is also apparent in some of its older buildings. The Chester – Holyhead mainline bounds the southern side of the village, with the modern A55, the Arfon Plateau with its Penrhyn Estate farms, and the Penrhyn Slate Quarry, located at the entrance to Nant Ffrancon on the edge of the Carneddau and Glyderau mountains, beyond.

The western side of the Park is bounded by the A5 road. To the immediate west of the road, in the former demesne of the park between the road and the Afon Cegin, lies modern ribbon development which includes the Llandegai Industrial Estate and Bangor Crematorium. The

Maesgeirchen Housing Estate sits on the other, western side, of the Afon Cegin at the foot of Bangor Mountain. The Penrhyn Park boundary wall diverts from the course of the A5 road just to the south of the proposed development site, one of the last remaining undeveloped parts of the park's original demesne to the west, and runs along the eastern side of the former route of the Penrhyn Quarry Railroad (GAT HER PRN 59451).

*(Sources: GAT HER Records PRNs 6958, 60813, 18456 and 18457; Llechi Cymru 2020; Barker and Gwyn 2018)*

#### **3.2.4.2 Our present understanding and appreciation of The Penrhyn Castle Grade II\* Registered Historic Park and Garden (PGW (Gd) 40 (GWY))**

The Grade I Listed Building Penrhyn Castle (LB 3659) and its Grade II\* Park and Garden (PGW (Gd) 40 (GWY)) were the home of the powerful Pennant family from the 18<sup>th</sup> century onwards. The estate, including the Penrhyn Quarry and most of the Ogwen Valley, was acquired by the 1<sup>st</sup> Baron Penrhyn, Richard Pennant (1737-1808), between 1765 and 1785, half by virtue of his wife's inheritance, and half purchased with the proceeds of his slave operated Jamaican sugar plantations. He began to develop the estate, its farms and the quarry workings from the 1770s onwards and by 1780, Pennant had constructed a Gothic 'castle' at Penrhyn Park incorporating elements of an earlier, medieval house there. The building was designed by Samuel Wyatt, the architect of Lime Grove and the brother of the Penrhyn Estate agent Benjamin Wyatt who built the Penrhyn Quarry Railroad and Incline Cottage for Richard Pennant at the end of the 18<sup>th</sup> century.

George Hay Dawkins Pennant (1764–1840) inherited the estate from his father in law Richard Pennant on the latter's death in 1808. The huge 250 room neo-Norman fantasy castle at the park, Penrhyn Castle (LB 3659), was built by the architect Thomas Hopper for George Hay Dawkins Pennant on the site of the Wyatt house in 1822-38, paid for by the profits from the Penrhyn slate quarries.

A 1768 Penrhyn Estate map (Figure 10) shows a small garden on the northwestern side of the earliest medieval house on the site. By the time of the 1803 map (Figure 12), the earlier medieval house has been replaced, and though the arrangements of trackways and buildings within the park are different, the patchwork of small irregular wooded and open enclosures that surrounded the medieval house have obviously been re-arranged to create a designed ornamental landscape, the origins of the current park. The area of the park depicted on the 1803 map is smaller than it is currently, it was later enlarged by George Hay Dawkins Pennant to incorporate a strip of land on the eastern side of the Afon Cegin. By the time of

the 1841 Tithe Award Map (Figure 13) the current Penrhyn Castle has been completed, Telford's A5 has been built, the grounds are more developed, the wall surrounding the park has been constructed and the park appears to have more or less obtained the form that survives into the present (see also Figure 14).

The main driveway to the castle from the main entrance with its imposing Grand Lodge (LB 3661) had also been completed by the time of the 1841 map. The long winding drive, with formalised planting of woodland surrounding it, redefined and controlled the sense of approach and arrival to the Castle, the experience of which was described by Thomas Roscoe in 1838 as '... at once picturesque and imposing.' The experience of arriving at Penrhyn Castle through the park has been identified as a key 'Sense of Arrival' for the *Part 1: Penrhyn Slate Quarry and Bethesda and the Ogwen Valley to Port Penrhyn* Component of the nominated *Slate Landscape of Northwest Wales* World Heritage Site.

The surviving internal features of the Penrhyn Castle Registered Historic Park and Garden, including the formal terraced and walled gardens and lawns and the Penrhyn Home Farm, retain their 19<sup>th</sup> century character and setting and have a strong visual relationship with the Castle, other park and garden elements, and the surrounding landscape beyond the walls. The southeast facing view from the ruined and relocated 15<sup>th</sup> century Grade II Listed Building the Chapel (LB 3658; GAT HER PRN 2316) towards the Castle with the Carneddau and Glyderau in the background has been identified as one of the park's Significant Views (Figure 04). On its boundary, the park's high stone wall and imposing gatehouses still physically and symbolically separate and seal its occupants from the outside world, creating a sense of otherness and separation which contributes strongly to what Barker and Gwyn (2018) describe as '... the sense of a wealthy, aristocratic enclave.'

Penrhyn Castle is located on the higher ground at the centre of the park and is sited to have views over the park, the sea and the Carneddau (all parts of the Penrhyn Estate). Significant views from the Castle and garden include the spectacular east-facing views from the Barbican terrace to the east of the Castle incorporating the coast, the coastal plain, the Carneddau and Great Orme's Head; and southeast facing views from the Castle Keep towards Snowdonia (Figure 04).

The Castle is also designed to be seen from a wide surrounding area, including Penrhyn Quarry. The extravagance, style and scale of Penrhyn Castle reflect the conscious desire to project the immense wealth, power and dominance of the Penrhyn Estate across the surrounding landscape. Views of the castle for modern travellers on the Chester-Holyhead

railway and the A55 have been identified as Significant Views for the *Part 1: Penrhyn Slate Quarry and Bethesda and the Ogwen Valley to Port Penrhyn* Component of the nominated *Slate Landscape of Northwest Wales* World Heritage Site (Figure 03).

Penrhyn Castle and its Gardens have been in the hands of the National Trust since 1951, and they are a popular recreational and educational visitor destination. Parts of the Castle and its Park and Garden are open to the public and facilities at the Castle include a shop, café and exhibition space and the Penrhyn Railway Museum is housed in the former stable block at the northern end of the Castle.

(Additional Sources: GAT HER Records PRNs 4421 and 2316; Barker and Gwyn 2018; Cadw and ICOMOS UK 1998; Llechi Cymru 2019; Llechi Cymru 2020)

### **3.2.4.3 What (if anything) survives of the historic surroundings of The Penrhyn Castle Grade II\* Registered Historic Park and Garden (PGW (Gd) 40 (GWY))**

The surrounding landscape contains many important elements of the contemporary 19<sup>th</sup> century surroundings of the Penrhyn Castle Grade II\* Registered Historic Park and Garden (PGW (Gd) 40 (GWY)). In addition to the network of Penrhyn Estate farms scattered across the coastal plateau, its present day surroundings include all of the other individual Elements of the *Part 1: Penrhyn Slate Quarry and Bethesda and the Ogwen Valley to Port Penrhyn* Component of the nominated *Slate Landscape of Northwest Wales* World Heritage Site (Figure 03): the relict workings and buildings at the Penrhyn Slate Quarry (Element 1.1; GAT HER PRN 20061) that were the source of the raw materials and industry that built the Castle and its Park and Garden in its present form; the water powered Felin Fawr Slate-Slab Mill (Element 1.2; GAT HER PRN 21947); the innovative transport systems The Penrhyn Slate Quarry Railroad (GAT HER PRN 59451) and the Penrhyn Slate Quarry Railway (GAT HER PRN 59452) (Element 1.3) that were used to ship the slate from its source for export; the designed export harbour at Port Penrhyn (Element 1.4; GAT HER PRN 15856); the Penrhyn Estate designed ornamental model smallholding settlement for quarry workers at Mynydd Llandegai (Element 1.5; GAT HER PRN 15858); the contrasting autonomously initiated quarry workers settlement at Bethesda and its sombre dwellings built by independent minded quarry workers and their families who preferred not to live on Penrhyn Estate lands (Element 1.6; GAT HER PRN 15838); and the picturesque ‘vernacular revival’ model estate village built by the Penrhyn Estate at the main entrance to Penrhyn Castle and its Park and Garden at Llandegai (part of Element 1.7; GAT HER PRN 15839). The surviving historic surroundings of the Park and Garden not only demonstrate the entire component flow of 19<sup>th</sup>

century slate production and export in this part of Northwest Wales, they also enable Penrhyn Castle and its Park and Garden to be understood and appreciated as the opulent home of strongly managerial aristocrats, as a symbol of the immense wealth that was generated by, and reinvested in, the slate industry and estate improvement. A symbol which stands in contrast with the lifestyles and the more humble settlements of the quarry and estate workers whose labour generated the wealth that built it.

(Sources: GAT HER Records PRNs 20061, 21947, 59451, 59452, 15856, 15858, 15838 and 15839; Barker and Gwyn 2018; Llechi Cymru 2020)

#### **3.2.4.4 The contribution of setting to the significance of The Penrhyn Castle Grade II\* Registered Historic Park and Garden (PGW (Gd) 40 (GWY))**

As a Grade II\* Registered Historic Park and Garden (PGW (Gd) 40 (GWY)), Penrhyn Castle is a site of exceptionally special historic interest. It is also part of the nominated *Slate Landscape of Northwest Wales* World Heritage Site, and if the nomination is accepted, will therefore be defined by UNESCO as a site of Outstanding Universal Value whose cultural and/or natural significance is so exceptional as to transcend national boundaries and to be of common importance for present and future generations of all humanity (Llechi Cymru 2019). There is no higher recognition of heritage value and its overall significance is assessed as **Very High**.

The Castle and its Park and Garden are important for their **evidential** value as a well preserved 19th century Park and Garden, set around one of the most important large country houses in Wales and Britain; a superb example of the relatively short-lived Norman Revival of the early nineteenth century and generally regarded as the masterpiece of its architect, Thomas Hopper. It contains 24 Listed Buildings, one of which, Penrhyn Castle itself, is listed at Grade I and two others at Grade II\*. A wealth of documentary sources relating to the Park and Garden are available and they also further add to its evidential value and our understanding of its origins and development over time. The group value of the Castle and its Park and Garden and other surviving elements of the 19th century slate industry, including the Penrhyn Quarry, the railway systems and Port Penrhyn, further adds to its evidential value. Similarly, the Penrhyn Railway Museum housed at the Castle which preserves physical evidence of 19th century railway technology used in the industry contributes further evidential value. It is of historical value because it connects the past with the present by illustrating an example of a spectacular 19th century aristocratic home set within contemporary gardens and because of its association with the powerful and wealthy Pennant

family that owned and developed most of the component parts of the slate industry in this part of Northwest Wales. It also illustrates the role of slavery as a source of funding for industrial development in the 18th century. The **aesthetic** value of the Registered Historic Park and Garden derives from the form and layout of the buildings and garden elements within it, the designed views outwards from it into its wider setting, the visual relationships between the Castle and the Registered Historic Park and Garden and the sources of the wealth that built them, and the intentional dominance of the Castle in the surrounding landscape. The Registered Historic Park and Garden is of high **communal** value as it contributes to the essential character of the wider area and adds to its strong sense of place. The garden and its grand house also have a high symbolic communal value and are a highly visible emotional link to the past, illustrating not just the wealth that the slate industry generated, but also the tensions and inequalities that existed between the aristocratic owners of the quarry and the workers who laboured in them. The Registered Historic Park and Garden is also of high communal value as a popular and accessible educational and recreational resource.

The setting of The Penrhyn Castle Grade II\* Registered Historic Park and Garden (PGW (Gd) 40 (GWY)) to its significance is to its evidential, historic, aesthetic and communal values.

### **3.2.5 The setting of Component Part 1: *Penrhyn Slate Quarry and Bethesda, and the Ogwen Valley to Port Penrhyn* of the nominated *Slate Landscape of Northwest Wales World Heritage Site***

#### **3.2.5.1 The current surroundings of Component Part 1: *Penrhyn Slate Quarry and Bethesda, and the Ogwen Valley to Port Penrhyn* of the nominated *Slate Landscape of Northwest Wales World Heritage Site***

The course of the Component Part captures the entire process flow of the Slate Industry and is characterised by strong visual and functional links between its elements which stretch from the mountains to the sea. The most southerly element is the Penrhyn Slate Quarry (Element 1.1), located where the slate vein crosses the Component Part at the point where a steep-sided glacial formation to the south opens out onto the lower Arfon Slopes. Geologically, this is part of the Arfon Slate District (Cambrian age) that also includes Component Parts 2 and 3 of the nominated World Heritage Site. Penrhyn Slate Quarry is separated from Component Part 2: *Dinorwig Slate Quarry Mountain Landscape*, roughly 5km to the southwest, by the Elidir Fawr mountain (924m above sea level, the northernmost peak of the Glyderau range).

The village of Bethesda (Element 1.6) is located 1km north of the quarry across the Ogwen valley which runs between the low ridge of the Glyderau mountains in the west and the Carneddau mountains in the east before flowing north-northwest for around 8km to within 200m of Penrhyn Castle (Element 1.7) before discharging into the sea. The Penrhyn Slate Quarry Railroad (Element 1.3), the earlier of two successive slate railways from the Felin Fawr Slate-Slab Mill (Element 1.2). It runs from the mill, visually dominated by the quarry and its tips to the south, and creates a linear landscape feature that follows the contour of the Ogwen valley as it cuts through the 19<sup>th</sup> century farmscape of the relatively open agricultural plateau until it reaches the elevated estate landscape of Penrhyn Castle and Park (Element 1.7). Here the river flows to the east of the Castle whilst the railroad skirted the park to the west before reaching Port Penrhyn (Element 1.4) that was developed as a slate port in the northwest of the Park on the eastern fringe of the city of Bangor. The later Penrhyn Slate Quarry Railway (Element 1.3), again a prominent linear landscape feature, crosscuts westwards away from the Ogwen Valley around a third of its way to the Port and picks up the Cegin valley instead. The Port extends its reach into the estuary-like character of the muddy Bangor Flats, midway between mean high and low water on the shores of the eastern end of the Menai Strait, which separates mainland Wales from the island of Anglesey.



Penrhyn Castle (Element 1.7) dominates its surroundings. Views from here extend northeast into where the Menai Straits opens into Liverpool Bay, northwest across to Anglesey, and south to the mountains of Snowdonia and the Penrhyn Slate Quarry, one of the sources of the wealth that enabled this picturesque yet vast Neo-Norman fantasy castle to be built. The Penrhyn Estate's ornamental dwellings at Mynydd Llandygai Settlement (Element 1.5), dairies, farms and imposing churches contrast with the sombre terraced houses and Nonconformist chapels in the quarry workers freehold settlement at Bethesda (Element 1.6).

(Sources: *Llechi Cymru 2019; Llechi Cymru 2020; Barker and Gwyn 2018*)

### **3.2.5.2 Our present understanding and appreciation of Component Part 1: *Penrhyn Slate Quarry and Bethesda, and the Ogwen Valley to Port Penrhyn* of the nominated *Slate Landscape of Northwest Wales* World Heritage Site**

The Component Part is an outstanding example of a landscape which illustrates, in a dramatic way, a significant stage of human history, the Industrial Revolution, by the exploitation of natural resources on a huge scale. It demonstrates the industrial transformation of a landscape through capital investment and how quarrying was re-organised by a single immensely wealthy family, as a major part of a broader investment in their great landed estates. This transformative process reflects the reinvestment of profits from their sugar plantations in Jamaica, financial links to the maritime and mercantile city of Liverpool, and the family's strong political connections in London. It illustrates the mixture of landed and banking capital in the British Industrial Revolution, as well as the role of British slavery as a source of funding for industrial development.

Penrhyn Slate Quarry (Element 1.1) (Plate 60) was once the largest and most productive slate quarry in the world and the first slate quarry to be capitalised for global markets. It reflects the immense wealth of its owners, the Pennant and Douglas Pennant families, owners of the Penrhyn Estate. In the last decades of the 18th century and in the early years of the 19th, Richard Pennant (Lord Penrhyn) cancelled the leases held by local partnerships which had previously conferred the right to work scattered and small-scale diggings at the site of the quarry, and instead initiated intense and systematised operations concentrated on the major slate vein in the Ogwen Valley. The system of benched galleries introduced here by his engineers was adopted in other parts of the *Slate Landscape of Northwest Wales* including Dinorwic Slate Quarry (Element 2.1), Gorsedda Slate Quarry (Element 4.1) and the Prince of Wales Slate Quarry (Element 4.2) and are now common in quarrying throughout the world. The high-quality roofing slates exported from the quarries led to major



transcontinental developments in building and architecture, and provided the materials for rapid urbanisation in Europe and North America. By the end of the 19th century, the slate quarries in North Wales produced about a third of world output, exporting to Africa, Australia, Eurasia, North America, and South America.

The Penrhyn Slate Quarry relict pit landform, and the immense tips of waste rock, dominate both the improved agricultural landscape of the Ogwen valley to its north and south as well as the planned Penrhyn Estate settlement at Mynydd Llandygai (Element 1.5) and the quarry workers dormitory town of Bethesda (Element 1.6) on the opposite side of the Afon Ogwen. The vista of a vast industrial landscape revealed as a visitor turns off the B4409 road into the main quarry landform has been identified as a key ‘Sense of Arrival’ for the nominated World Heritage Site. Significant Views within the quarry convey the immense size of the relict workings, and from the southern part of the relict quarry, take in the settlements associated with it, including Penrhyn Castle, as well as the Menai Straits and Liverpool Bay. The ‘moving view’ for travellers making their way north on the historic Telford A5 Holyhead Road shows how the giant tips of slate rubble have encroached on the pre-existing farmland of Nant Ffrancon.

The wealth available to Lord Penrhyn and his successors is also evident in the innovations they employed to improve capacity and productivity. By 1802, slate was being processed at The Felin Fawr Slate-Slab Mill (Element 1.2) by circular saws and it is the first location in the world where stone is known to have been processed using this technology. The Slate-Slab Mill also demonstrates the evolution of slate processing within the slate industry of northwest Wales. No trace is evident of the first mill, nor of its successors erected circa 1846 and in 1855, since the two present mills date from 1865-6. Its location on a culverted stream and its two surviving waterwheels indicate the importance of water-power in the industry. The engineering facilities, a foundry and locomotive repair sheds, indicate the level of technology and skill necessary to keep the quarry and its transport systems fully functional. The technology employed here was subsequently adopted by other parts of the slate industry in North West Wales including Pen y Bryn/Cloddfa'r Lôn Slate Quarry (Element 3.5), the Ynysypandy Slate-Slab Mill (Element 4.3), the Diffwys Slate Quarry Floor 6 Mill (Element 5.4), the Maenofferen Main Levels Complex (Element 5.5), the Llechwedd Slate Quarry Floor 7 Mill (Element 5.6) and the Aberllefenni Slate Quarry Mill and Water System (Element 7.3).

A row of slate-makers' shelters at The Felin Fawr Slate-Slab Mill demonstrate the persistence and survival of craft-based skills here in an overwhelmingly industrial context, demonstrating the continuity of low-tech skills within a changing industrial landscape.

The Penrhyn Quarry Railroad was constructed in 1801 to connect the quarry to the sea. It was the longest overland iron railroad in the world when it was built and an early example of the use of a railway system within a quarrying industry. It used innovative cast-iron edge rails to 0.6m gauge inspired by recent practice in Blaenavon and other south Wales ironworks, demonstrating technology originating elsewhere, adopted and developed within the Slate Landscape of Northwest Wales. It was designed by the canal engineer Thomas Dadford for horse-haulage along lightly graded sections, elsewhere using counter-balanced inclined planes and the influence of canal engineering in its construction using inclines in a similar way to flights of locks is significant. The Railroad was the means by which Penrhyn slate was exported from 1801 to the 1870s. The efficacy of the railroad meant its technology was adopted elsewhere within the *Slate Landscape of Northwest Wales* for the Dinorwic Quarry Railroad constructed in 1825 (Element 2.7), the 1857 Gorsedda Railway (Element 4.4) and the Festiniog Railway in 1832 (Element 5.10), and it became the design ancestor of the 0.6m gauge railway worldwide (see also Sec 3.2.2.2).

The steam locomotive powered 0.6m gauge Penrhyn Quarry Railway (Element 1.3) replaced the earlier Railroad and is significant as the means by which Penrhyn quarry slate was exported from the 1870s to 1962. It was designed by Charles Easton Spooner of the Festiniog Railway which had been adapted for steam traction and passenger carriage in the 1860s-1870s. It shows how the evolving technology of the Festiniog Railway (Element 5.10) was applied to a mineral-carrying industrial system, and contrasts with its predecessor system, the Penrhyn Quarry Railroad, in its use of steep gradients and locomotives (see also Sec 3.2.3.2).

Element 1.4 Port Penrhyn is a purpose-built slate-port on the Menai Straits built between 1790 and 1855. The site is known to have been used for shipping since at least the 16th century. The earliest known shipping point for slate was the pool upstream of the confluence where the 1768 Penrhyn Estate map (Figure 10) shows a road approaching from the east with a possible quay alongside. The port was developed by the Penrhyn Estate from 1790 onwards and reflects the scale of output from Penrhyn Slate Quarry and the resources which the Penrhyn Estate could invest in the transport and export of slate by sea. Its character as both an industrial harbour and as an estate port is evident in the quality and presence of its structures and buildings. Its proximity to Penrhyn Castle and Park (Element 1.7) and its evident functional linkage to the railway systems (Element 1.3) illustrate its role within a complete industrial and cultural landscape from the source of the slate to its onward sea-journey.

The growth of the Penrhyn Quarry created an urgent need to house its expanding workforce. The area now occupied by Element 1.5 Mynydd Llandygai was part of an upland ffridd (common land) in the late 18th century, and was subsequently enclosed by the Penrhyn Estate who encouraged quarry workers and their families to grow potatoes there to feed themselves. The settlement was developed during the course of the 19<sup>th</sup> century by the Penrhyn Estate to create a settlement for quarry workers and their families that roots them in the soil and also to create an industrious but dependent workforce. Its cottages, small-holding plots, and narrow roads leading straight to the quarry immediately to its south, indicate the tradition of part agricultural, part industrial work which is a feature of the slate industry of northwest Wales and shows the persistence of rural forms of settlement in an industrial landscape.

The quarrymen were almost completely monoglot Welsh speakers, religious nonconformists and passionate Liberals. The Lords Penrhyn, on the other hand were staunch Englishmen, Anglicans and enthusiastic Conservatives. Mynydd Llandygai's non-conformist chapels show the religious allegiances of its population and the strength of the Welsh language in the community. The spire of St Anne's Anglican church, built by the Penrhyn Estate in 1865 in the early English style, is a prominent feature in the Mynydd Llandygai landscape, and was doubtless meant to be a reminder from the Penrhyn Estate of the importance and enduring role of the established state church, English language worship, and the landed gentry. Mynydd Llandygai contrasts with the dissimilar social organisation of Bethesda (Element 1.6) on the opposite side of the valley. However, both settlements exemplify the social tensions caused by the controlling hand of the Penrhyn Estate, itself a reflection of its use of coerced labour in the West Indies.

Element 1.6 Bethesda Village is one of the small number of North Wales slate-quarry settlements that grew into a town. It owed its existence to the Penrhyn Slate Quarry, on the opposite side of the river, and grew up beside the A5 Holyhead Road where opportunist landowners let or sold land for building following the construction of the road. The pre-industrial landscape of Bethesda has survived in the road network, which includes historic bridges at Pont Twr and Pont Abercaseg, and the farms, including Abercaseg, Pant Ffrydlas and Gerllan, demonstrates an element of continuity within a changing landscape. As an industrial town, Bethesda is an amalgam of piecemeal and opportunist developments that mirrored the fortunes of local industry. One consequence of that is that Bethesda demonstrates the chronological development of industrial housing in the nineteenth century. In a town made up largely of housing for quarrymen, there are subtle social distinctions, based on scale and relationship to street and to other houses. Bethesda became the

commercial and cultural centre of the Ogwen Valley, which is demonstrated in its long High Street with 19<sup>th</sup> century inns and shop fronts, ambitious non-conformist chapels and the Glanogwen Church.

Bethesda has seen little development since the prolonged Penrhyn Quarry strike (1900-1903), a dispute centred on the then Lord Penrhyn's resistance to the unionisation of the 2,800 strong quarry workforce and improvements to their pay and working conditions. The strike was the longest-running labour dispute in British history, and was an event which bitterly divided the Bethesda community as a minority of men returned to work during the course of the strike creating serious social tensions. The ensuing financial hardship caused 2000 striking workers to leave the town to take up work elsewhere, many of whom went to the South Wales coalfields.

Bethesda is an integral part of the larger slate-quarrying landscape, its setting complemented by Penrhyn Slate Quarry (Element 1.1) on the opposite side of the valley. The experience of travelling through Bethesda along the A5 road from the south, and approaching the town from the north with the spire of Glanogwen Church aligned with the A5 road, have been identified as key 'senses of arrival' for Component Part 1 of the nominated World Heritage Site.

Element 1.7: Penrhyn Castle and Park was the seat of the aristocratic dynasty that owned and developed most of the Component Part from the late eighteenth century onwards. The castle is a huge and lavish early 19<sup>th</sup> century country house built in the style of a Norman castle on the site of much earlier high-status dwellings. It is set within extensive grounds emparked and landscaped in the early 19<sup>th</sup> century on a natural promontory between the Ogwen and Cegin rivers at the eastern end of the Menai Straits. Its grounds include walled and terraced gardens, woodland, stabling and a home farm. Penrhyn Castle dominates the surrounding landscape to an extraordinary degree. The setting and relationship of the house to the park and landscape is outstanding. The Grand Lodge which forms the main entrance to the park, and the high stone walls which surround it, symbolically seal off the Park from the surrounding landscape and contribute strongly to the sense of 'a wealthy, aristocratic enclave', yet its proximity to, and visual relationship with, the Quarry (Element 1.1), the railway systems (Element 1.3) and Port Penrhyn (Element 1.4) indicate the source of much of the vast wealth of the Penrhyn Estate. It exemplifies the money that was made from, and invested in, the slate industry of North Wales. The opulence of Element 1.7 is in stark contrast with the dwellings of quarry workers and their families at both Mynydd Llandygai (Element 1.5 ) and Bethesda (Element 1.6) (see also Sec 3.2.4.2).

(Sources: *Llechi Cymru* 2019; *Llechi Cymru* 2020; *Barker and Gwyn* 2018; *SNPA* 2016)

**3.2.5.3 What (if anything) survives of the historic surroundings of Component Part 1: *Penrhyn Slate Quarry and Bethesda, and the Ogwen Valley to Port Penrhyn* of the nominated *Slate Landscape of Northwest Wales* World Heritage Site**

Component Part 1: *Penrhyn Slate Quarry and Bethesda, and the Ogwen Valley to Port Penrhyn* is an example of an integrated extraction landscape developed directly by its aristocratic owners in parallel with their improvements to the agricultural landscape on other parts of the Penrhyn Estate. In combination with the mountains to the south, the Menai Strait and the sea to the north, and the improved Penrhyn Estate farms on the Arfon Plateau, each individual Element of Component Part 1 represents part of the remarkably well preserved historic surroundings of the other Elements within it, and together they constitute an exceptionally complete and coherent historic landscape. The connection between each element is also strongly evidenced by the visual relationship between them.

The other Component Parts in the nomination, the *Dinorwig Slate Quarry Mountain Landscape* (Component Part 2), the *Nantlle Valley Slate Quarry Landscape* (Component Part 3), the *Gorseddau and Prince of Wales Slate Quarries, Railways and Mill* (Component Part 4), *Ffestiniog: its Slate Mines and Quarries, 'city of slates', and Railway to Porthmadog* (Component Part 5), and the *Bryneglwys Slate Quarry, Abergynolwyn Village and the Talyllyn Railway* (Component Part 6) all represent important historic landscape survivals contemporary with Component Part 1. Each component part has a unique character distinguished by specific combinations of shared attributes and distinctive elements that demonstrate a high level of functional integrity.

(Sources: *Llechi Cymru* 2019; *Llechi Cymru* 2020; *Barker and Gwyn* 2018)

**3.2.5.4 The contribution of setting to the significance of Component Part 1: *Penrhyn Slate Quarry and Bethesda, and the Ogwen Valley to Port Penrhyn* of the nominated *Slate Landscape of Northwest Wales* World Heritage Site**

Component Part 1: *Penrhyn Slate Quarry and Bethesda, and the Ogwen Valley to Port Penrhyn* is one of the 6 Component Parts of the nominated *Slate Landscape of Northwest Wales* World Heritage Site. If the nomination is accepted, it will therefore be defined by UNESCO as a site of Outstanding Universal Value whose cultural and/or natural significance is so exceptional as to transcend national boundaries and to be of common importance for

present and future generations of all humanity (Llechi Cymru 2019). There is no higher recognition of heritage value and its overall significance is assessed as **Very High**.

A Statement of Integrity for the nominated World Heritage Site has been produced which states:

*“The proposed World Heritage Site contains all the essential interrelated and interdependent elements that convey attributes of proposed Outstanding Universal Value. Their visual integrity within intact entire landscapes which include settlements and extensive transport systems demonstrates the operation of a complete industry from original extraction to export of product, and from worker’s welfare and housing to the cultural, educational and spiritual life they created. Economic slow-down in the twentieth century has substantially preserved the integrity of many of the key Elements, as have active preservation and conservation initiatives. Conditions of integrity also include social and cultural practices and values, economic processes and the intangible dimensions of heritage. Linkages between quarries and the sea are also particularly evident, and set The Slate Landscape of Northwest Wales apart from historically significant slate landscapes on the European continent and in North America. The boundaries of the proposed World Heritage Site capture the principal slate producing areas in Northwest Wales. Each Component Part has been selected for its particular contribution to the proposed Outstanding Universal Value of the overall Site. The survival and completeness of the range of attributes, elements and features that make the proposed World Heritage Site culturally significant is exceptional. “*

(Llechi Cymru 2019).

Component Part 1: *Penrhyn Slate Quarry and Bethesda, and the Ogwen Valley to Port Penrhyn* has very high **evidential** value as the exceptionally well-preserved remains of the complete process flow, from extraction to export, of the internationally important Northwest Wales slate industry. It is an almost complete physical record which shows how the industry functioned, and how it changed over time. In addition to the physical remains of quarrying and associated technologies, it also includes the standing remains of the homes of the individuals and communities involved in the industry. A wealth of documentary sources relating to the Penrhyn Quarry and the wider Penrhyn Estate are available and they also further add to its evidential value and our understanding of the industry’s origins and development. It has important associative **historical** values with the powerful and wealthy Pennant family. It is also of exceptional historical value as it illustrates how a single, immensely wealthy family reorganised the slate industry and an entire landscape in the late

18th and 19th centuries, initially using the profits from their Jamaican sugar plantations. The wealth available to the Penrhyn family enabled them to improve capacity using innovative technologies, many of which were exported both to other North Wales slate quarries and worldwide. The combination of surviving elements illustrates not just the historical technological context, but also the historical social context of the industry. It exemplifies how a remarkably homogeneous culture adapted to modernity in the industrial era yet retained many of its traditional attributes. It also illustrates the tensions between the people that worked in the industry and the family that owned it and it has further important associative historical value as the site of the longest labour strike in British history. The **aesthetic** value of the Component Part derives from the form and layout of its contrasting buildings, the scale of the landscapes within it, the transport routes which link its elements, and its dramatic and powerful setting which runs from the edge of the mountains of Snowdonia, across the coastal plain to the sea. It is of very high **communal** value as a culturally distinctive slate quarrying area and an immense source of civic pride to the communities which inhabit it. The Penrhyn Quarry strike is still part of the collective memory of many of the inhabitants of Bethesda today. It also contains popular visitor attractions, most notably Penrhyn Castle and its registered Historic Park and Garden and the ZipWorld complex at Penrhyn Quarry and Port Penrhyn, both of which provide employment for local people as does the commercial harbour at Port Penrhyn.

The contribution of setting to the significance of Component Part 1: *Penrhyn Slate Quarry and Bethesda, and the Ogwen Valley to Port Penrhyn* is primarily to its historical, aesthetic and communal values.



### 3.2.6 Viewpoints

The 16 viewpoints listed in Table 3.2 have been identified as those from which the impact of the proposed development on the settings of potentially impacted historic assets should be assessed (Figure 15; Figure 16).

Viewpoint		Reason
01	Views across the proposed development site from Incline Cottage (Figure 15)	Historic viewpoint
02	Views south-southwest along the route of the Penrhyn Slate Quarry Railroad from Incline Cottage (Figure 15)	Historic viewpoint
03	Views north-northeast along the route of the Penrhyn Slate Quarry Railroad within the proposed development site towards Incline Cottage (Figure 15)	Historic viewpoint
04	View south-southwest from southern end of the Marchogion Inclined Plane towards Incline Cottage (Figure 15)	Historic viewpoint
05	View south-southwest from northern end of the Marchogion Inclined Plane towards Incline Cottage (Figure 15)	Historic viewpoint
06	Views east toward Incline Cottage and the Penrhyn Quarry Railroad from the route of the Penrhyn Quarry Railway (Figure 15)	Historic viewpoint / Modern visitor viewpoint
07	Views southeast toward Incline Cottage and the Penrhyn Quarry Railroad from the route of the Penrhyn Quarry Railway (Figure 15)	Historic viewpoint / Modern visitor viewpoint
08	Views east toward Incline Cottage and the Penrhyn Quarry Railroad from the A5 (Figure 15)	Historic viewpoint / Modern visitor viewpoint
09	Views north-northwest toward Incline Cottage and the route of the Penrhyn Quarry Railroad from the Penrhyn Home Farm (Figure 15)	Historic viewpoint



Viewpoint		Reason
10	Views west towards the proposed development from Penrhyn Castle (Figure 15)	Historic viewpoint / Modern visitor viewpoint
11	Views west towards the proposed development from the trackway from Penrhyn Home Farm on the western side of Penrhyn Castle Registered Historic Park and Garden (Figure 15)	Historic viewpoint / Modern visitor viewpoint
12	Views southwest towards the proposed development from the trackway from Penrhyn Home farm on the western side of Penrhyn Castle Registered Historic Park and Garden (Figure 15)	Historic viewpoint / Modern visitor viewpoint
13	Views northeast toward Incline Cottage and the Penrhyn Quarry Railroad from the route of the Penrhyn Quarry Railway (Figure 15)	Historic viewpoint / Modern visitor viewpoint
14	Views southeast towards Penrhyn Castle from Port Penrhyn (Figure 16)	Historic viewpoint
15	Views northwest towards Penrhyn Castle from the A55 (Figure 16)	Significant View
16	Views north-northwest towards Penrhyn Castle from the higher ground on the southern side of Penrhyn Quarry (Figure 16)	Significant View

Table 3.2 Assessment viewpoints

### **3.3 Stage 3: Evaluate the potential impact of a proposed change or development on that significance**

#### **3.3.1 Field assessment**

Field visits were undertaken in October 2020 in order to assess the impact of the proposed development on the settings of the potentially impacted historic assets, in particular the impact on the 16 key viewpoints identified in Stage 2 (sec 3.2.6). Unfortunately it was not possible to assess views from within Penrhyn Castle (LB 3659) due to Covid-19 related entry restrictions, nor could one of the original proposed viewpoints, the view west toward Incline Cottage (LB 4085) from the route of the old post road to its east, be assessed because access permissions could not be gained. The results of the assessment of the key viewpoints identified in Stage 2 are detailed below.

##### **3.3.1.1 Viewpoint 01: Views across the proposed development site from Incline Cottage (LB 4085) (Plate 12; Plate 13; Plate 14; Plate 16; Figure 15)**

The largely rural views across the proposed development site from Incline Cottage (LB 4085) will be heavily negatively impacted by the proposed development. Foreground and mid-ground views of the pasture field will no longer be available. The cottage will have close-range views of the proposed development, and to its north, south and west of the cottage, views over the field that would have been familiar to the 19<sup>th</sup> century operators of the winding house and its later and current inhabitants will be lost. Middle range views to the woodland that fringes the Cegin Valley to the west and north and the views of Bangor Mountain beyond will also be lost.

##### **3.3.1.2 Viewpoint 02: View south-southwest along the route of the Penrhyn Slate Quarry Railroad (GAT HER PRN 59451) from Incline Cottage (LB 4085) (Figure 15) (Plate 15; Figure 15)**

The view from Incline Cottage (LB 4085) along the route of the Penrhyn Quarry Railroad (GAT HER PRN 59451) to its south, and the southern part of the Marchogion Inclined Plane (GAT HER PRN 65552) which it served, will also be completely blocked. The Railroad formation will lie within the back gardens of the planned row of houses to the south of Incline Cottage, the closest of which will bound the Cottage's garden to the south (Figure 02). It is possible that the Penrhyn Park estate wall, which marks the route of the Railroad, may remain partially visible but this is dependant on the nature and height of boundary features between the proposed properties.

**3.3.1.3 Viewpoint 03: View north-northeast along the route of the Penrhyn Slate Quarry Railroad (GAT HER PRN 59451) within the proposed development site towards Incline Cottage (LB 4085) (Plate 18; Figure 15)**

The route of the Penrhyn Quarry Railroad (GAT HER PRN 59451) in this location will lie within the back gardens of the row of proposed houses to the south of Incline Cottage (LB 4085) (Figure 02). It is likely that historic views from here towards Incline Cottage will be at best heavily disrupted, or at worst lost completely, depending on the nature and height of boundary features between the proposed properties.

**3.3.1.4 Viewpoint 04: View south-southwest from the southern end of the northern part of the Marchogion Inclined Plane (GAT HER PRN 65552) towards Incline Cottage (LB 4085) (Plate 19; Figure 15).**

The proposed development will not block or restrict historic views from the southern end of the Marchogion Inclined Plane (GAT HER PRN 65552) towards Incline Cottage (LB 4085) at Viewpoint 04. Elements of the proposed development (Plots 18 and 19) will, however, appear at close range within the field of vision on the left side (Figure 02) and the current largely rural character of the view will be negatively impacted.

**3.3.1.5 Viewpoint 05: View south-southwest from the northern end of the Marchogion Inclined Plane (GAT HER PRN 65551) towards Incline Cottage (LB 4085) (Plate 28; Figure 15)**

Viewpoint 5 is located in the woodland to the north of the proposed development site. The tree-fringed route and walls of the northern end of the Marchogion Inclined Plane (GAT HER PRN 65551) are clearly visible, despite the trees and undergrowth growing within it. The slate fence which divides this part of the incline from the proposed development site is just visible in the view, with the overgrown route of the Incline along the northeastern side of the proposed development behind blocking views to Incline Cottage (LB 4085). The existing character of this view will remain largely intact as the plans for the proposed development include the retention of existing vegetation in the northeastern corner of the site (Figure 02). If this was removed however views from here to Incline Cottage would be restricted by the proposed house at Plot 11 in the middle ground.

**3.3.1.6 Viewpoint 06: Views east toward Incline Cottage (LB 4085) and the Penrhyn Slate Quarry Railroad (GAT HER PRN 59451) from the route of the Penrhyn Slate Quarry Railway (GAT HER PRN 59452) (Plate 42; Figure 15).**

The Penrhyn Quarry Railway (GAT HER PRN 59452) runs on a terrace on the eastern side of the wooded Ogwen Valley to the west of the proposed development site. The terrace for the LNWR Penrhyn Branch Line runs almost parallel on its eastern side terrace at a higher level on the valley side (see also plates 41 and 43). Even without the intervening dense woodland, no views of the proposed development will be available from Viewpoint 6 due to intervening topography between it and the proposed development and it will not be impacted.

**3.3.1.7 Viewpoint 07: Views southeast toward Incline Cottage (LB 4085) and the Penrhyn Quarry Railroad (GAT HER PRN 59451) from the route of the Penrhyn Quarry Railway (GAT HER PRN 59452) (Plate 45; Figure 15)**

This viewpoint is located just to the east of the A5 bridge. Incline Cottage and (LB 4085) and the part of the Penrhyn Quarry Railroad (GAT HER PRN 59451) along the northeastern side of the proposed development could not be seen through the trees and vegetation on the southern side of the lower-lying Railway footpath. The slate fencing that bounds the northwestern side of the proposed development site can be clearly seen however. It seems likely that the substation and perhaps the upper story and roofs of houses planned for the northwestern corner of the proposed development will be visible to walkers on the footpath in the middle ground beyond the fencing from this and nearby locations, though they will be heavily screened by trees and their foliage in the summer months.

**3.3.1.8 Viewpoint 08: Views east toward Incline Cottage (LB 4085) and the Penrhyn Quarry Railroad (GAT HER PRN 59451) from the A5 (Plate 01; Figure 15)**

Views towards Incline Cottage (LB 4085) and the Penrhyn Quarry Railroad (GAT HER PRN 59451) from the A5 represent historical views and accessible modern viewpoints for people in vehicles and pedestrians as they travel along the road. The majority of currently available views towards the assets from the road will be completely blocked, apart from a glimpsed view of Incline Cottage from the part of the road to its immediate west (see Plate 10 for this view as it currently appears) where it will be visible at the end of one of the proposed developments internal roads, framed by housing to its north and south. Even here though the essentially rural character of the current view will be completely changed.

### **3.3.1.9 Viewpoint 09: Views north-northwest towards Incline Cottage and the route of the Penrhyn Quarry Railroad from the Penrhyn Home Farm (Plate 50; Figure 15)**

Before the construction of the Penrhyn Park estate wall in the early 19<sup>th</sup> century, Incline Cottage (LB 4085) and the route of the Penrhyn Quarry Railroad (GAT HER PRN 59451) would have been clearly visible from the northern side of Penrhyn Home Farm. The assessment of Viewpoint 09 confirmed the finding of the DSM ZTV model (Figure 07). The assets now lie on the western side of the wall, the Cottage is also obscured by a dense stand of mature deciduous trees in the middle ground on the eastern side of the wall, completely blocking views to it from Viewpoint 09. It is possible that the upper stories and roofs of the four houses (Plots 35-38) at the extreme southern end of the proposed development, 400m to the north-northwest, may be just visible in the view from this viewpoint, however, they will be heavily if not completely screened by the estate wall and existing tree-cover on its eastern side and the essential character of the view will largely remain intact.

### **3.3.1.10 Viewpoint 10: Views west towards the proposed development from Penrhyn Castle (Plate 54; Figure 15)**

The DSM ZTV model (Figure 07) suggested that partial ground-level views of the proposed development may be available from viewpoints on the southwestern side of Penrhyn Castle (LB 3659). In practice, dense mature woodland in the middle ground completely block views to the proposed development and it will have no impact on Viewpoint 10, even in the winter months when the leaves fall from the trees. The DSM ZTV model also suggested that up to approximately 50% of the proposed development would be visible from the upper stories of the keep at Penrhyn Castle, however, this could not be tested as the building is closed to the public due to Covid-19. It is however likely that the dense stand of trees to the east of the proposed development will at least partially screen views of it from the Castle should they exist and the character of the view out over the parkland with the modern housing at Maesgeirchen and Bangor Mountain beyond will not change significantly.

**3.3.1.11 Viewpoint 11: Views west towards the proposed development from the trackway from Penrhyn Home Farm on the western side of Penrhyn Castle Registered Historic Park and Garden (PGW (Gd) 40 (GWY)) (Plate 56; Figure 15)**

The views towards the proposed development from Viewpoint 11 are obscured by rising ground in the agricultural field to the west. The proposed development will have no impact on views from this viewpoint.

**3.3.1.12 Viewpoint 12: Views southwest towards the proposed development from the trackway from Penrhyn Home Farm on the western side of Penrhyn Castle Registered Historic Park and Garden (PGW (Gd) 40 (GWY)) (Plate 57; Figure 15)**

The views towards the proposed development from Viewpoint 12 are obscured by the nature of the local topography; the rising ground in the agricultural field to the southwest forms the horizon. The proposed development will have no impact on views from Viewpoint 12.

**3.3.1.13 Viewpoint 13: Views northeast toward Incline Cottage (LB 4085) and the Penrhyn Quarry Railroad (GAT HER PRN 59451) from the route of the Penrhyn Quarry Railway (GAT HER PRN 59452) (Plate 39; Figure 15)**

Viewpoint 13 was selected as the DSM ZTV model (Figure 07) suggested that glimpsed partial views of the proposed development may be available at this location on the route of the Penrhyn Quarry Railway (GAT HER PRN 59452). In practice, dense woodland to the east of the Cegin Valley completely blocks the view and the proposed development will not be perceptible to people using the pathway on this stretch of the former Railway.

**3.3.1.14 Viewpoint 14: Views southeast towards Penrhyn Castle (LB 3659) from Port Penrhyn (GAT HER PRN 15856) (Plate 38; Figure 16)**

The DSM ZTV model (Figure 07) suggested that the proposed development 950m to the south-southeast may be visible from parts of the northern ends of the quays at Port Penrhyn (GAT HER PRN 15856) and that its presence may interfere with historic views from here towards Penrhyn Castle (LB 3659). Field visits confirmed that the development is not visible from this location (see also Plate 37), it is fully screened by intervening structures and woodland, and the proposed development will not have any impact on views from this viewpoint.

### **3.3.1.15 Viewpoint 15: Views northwest towards Penrhyn Castle (LB 3659) from the A55 (Plate 58; Figure 16)**

Views of Penrhyn Castle and the surrounding landscape available to travellers on the A55 have been identified as Significant Views for the nominated *Slate Landscape of Northwest Wales* World Heritage Site (Llechi Cymru 2019). The Castle is a highly visible feature and dominates the local landscape. The DSM ZTV model (Figure 09) suggested that a limited number of glimpsed partial views of the proposed development may be available sporadically along the route of the A55 to the southeast of the Castle. Viewpoint 15 was selected as one of the potential locations with views. However, in practice, views of the proposed development 3km to the west-northwest are blocked by the extensive woodlands within the Castle's Park and Garden and the Significant View from Viewpoint 15 will not be impacted.

### **3.3.1.16 Viewpoint 16: Views north-northwest towards Penrhyn Castle (LB 3659) from the higher ground on the southern side of Penrhyn Quarry (GAT HER PRN 20061) (Plate 60; Figure 16)**

Extensive panoramic views from the southern part of the relict Penrhyn Quarry (GAT HER PRN 20061) take in the settlements associated with it, including Penrhyn Castle, as well as Anglesey, the Menai Straits and Liverpool Bay. The views from here have also been identified as Significant Views for the nominated *Slate Landscape of Northwest Wales* World Heritage Site (Llechi Cymru 2019). Though the proposed development site does not make any contribution to the composition of these views as is not visible in due to the screening effect of the trees along the A5 to the south and those on the western edge of the Penrhyn Castle Registered Historic Park and Garden (PGW (Gd) 40 (GWY)) to its east, given the elevation of the viewpoint, once built, the developments rooftops may be visible. DSM viewsheds constructed for Viewpoint 16 suggests that only the roofs of the southern part of the proposed development may be visible. The viewsheds also suggest that the existing modern housing estate at Glantraeth just to the north of the proposed development should also be visible in this view, it is not however perceptible. The proposed development lies 7km from the viewpoint, at this distance binoculars or some other aid to visibility would probably be necessary in order to perceive any detail of the proposed development. It will form a tiny component of the overall available view and will not block or obscure any important landscape features. If the development is visible, it's rooftops will be a barely noticeable addition to the landscape from this viewpoint, it will be at least partially screened by trees and seen in the context of the Llandegai Industrial Estate to the front of it, and with the eastern end of the Maesgeirchen Housing Estate as a backdrop. The proposed development will

easily be absorbed into the existing Significant View from Viewpoint 16 and will have a negligible effect on its character.



### **3.3.2 Assessment of the impact of the proposed development**

#### **3.3.2.1 Assessment of the impact of the proposed development on the Incline Cottage Grade II Listed Building (LB 4085)**

In the short term, the construction phase of the development will create foreground views from Incline Cottage of construction activity associated with the proposed development. These works and the presence of construction equipment and movement of construction vehicles will introduce prominent and incongruous features into the views from the Cottage and increase the ambient noise levels experienced there. The visual impacts will appear incongruous with the predominately rural setting of the cottage and will reduce scenic quality. The scale and proximity of the works in this location will completely alter the existing outlook from the Cottage and disrupt longer distance views towards Bangor Mountain.

In the longer term, the proposed development will block or obscure currently available views to and from the cottage across the field that forms its immediate setting to its west, apart from a narrow view to and from the A5 along one of the developments internal roads. Though the rural agricultural landscape will survive intact to the east of the cottage, views in this direction are already blocked by the Penrhyn Park estate wall, and the sense and understanding of the historical landscape context of the cottage is largely provided by the open field to the west, and this will be lost. Though the better-preserved part of the Marchogion Inclined Plane immediately to the north of the Cottage lies outside of the proposed development, the visual relationship that Incline Cottage has with the elements of the Penrhyn Quarry Slate Railroad which lie within the proposed development site to the south and north, and with which it shares a historical physical and functional relationship, will be either heavily impacted or completely removed, impacting the way the Cottage is understood. The scale and location of the proposed development in such close proximity will also visually and physically dominate the asset, removing it from its relatively isolated setting and making the Cottage feel enclosed, impacting its sense of place and changing the way that it is experienced and appreciated.

Despite the current proximity of the A5 road, the scale and proximity of the proposed development will also significantly increase the amount of ambient noise experienced at the Cottage, both from residents and motor vehicles, and the introduction of street lighting in close proximity will impact how the Cottage is appreciated and experienced during the hours of darkness.

Overall, the impact of the proposed development on the setting of Incline Cottage has been assessed to be **negative**, and the magnitude of this impact **major**, as the proposed development will overall result in comprehensive changes to the setting of Incline Cottage and will significantly reduce its historical and aesthetic heritage values.

### **3.3.2.2 Assessment of the impact of the proposed development on The Penrhyn Slate Quarry Railroad (GAT HER PRN 59451)**

Parts of the Penrhyn Slate Quarry Railroad (GAT HER PRN 59451) lie within the proposed development along its southeastern and northeastern sides. It is outside the scope of this study to assess the direct physical impacts of the proposed development on the historic asset, and therefore only the impact on its setting is being considered.

The Penrhyn Slate Quarry Railroad runs for a distance of approximately 9km. The DSM ZTV model (Figure 09) suggests that though occasional glimpsed partial views may be available from the parts of the route near to Tregarth, 3 - 3.5km to the southeast of the proposed development, the visual impact of the proposed development on the setting of the railroad is predominately limited to views to and from it along an approximately 500m long stretch within and immediately adjacent to the proposed development area. Field visits confirmed these findings.

As with Incline Cottage, in the short term, the construction phase of the development will introduce foreground views of the construction activity associated with the proposed development and for the parts of it away from the A5 road, increase the amount of ambient noise experienced there, negatively impacting the current, largely rural and relatively tranquil, immediate setting of the asset.

In the longer term, the currently available views along the route of the railroad will be significantly impacted, and, with the exception of the better-preserved part of the Marchogion Inclined Plane outside of the proposed development area to the immediate north of Incline cottage, the visual relationship between the railroad and the historically functionally and physically related Incline Cottage will be significantly disrupted or completely removed. Its historical former landscape context will also be comprehensively changed. The scale and location of the proposed development in such close proximity will create high magnitude visual changes and will visually and physically dominate the asset, removing it from its relatively isolated and tranquil former setting, impacting its sense of place and changing the way that it is experienced, appreciated and understood.

Overall, the impact of the proposed development on the setting of The Penrhyn Slate Quarry Railroad has been assessed to be **negative**. The impacts are confined to approximately 5.5% of the overall length of the Railroad, which significantly reduces the degree of impact of the proposed development on the Railroad's overall setting. The affected parts, however, include the historically important Marchogion Inclined Plane and Incline Cottage. The overall magnitude of the impact has therefore been assessed as **moderate** as the proposed development will overall result in considerable changes to the setting of important parts of The Penrhyn Slate Quarry Railroad that significantly modify their setting and affect their character, reducing its historical and aesthetic heritage values.

### **3.3.2.3 Assessment of the impact of the proposed development on The Penrhyn Slate Quarry Railway (GAT HER PRN 59452)**

The Penrhyn Slate Quarry Railway (GAT HER PRN 59452) runs for a distance of approximately 10km. The DSM ZTV model (Figure 09) suggests that occasional glimpsed partial views may be available from the parts of the route near to Tregarth, 3.5km to the southeast of the proposed development, parts of the formation in the Cegin Valley between the northern end of the Llandegai industrial and the A55 road, and parts immediately to the north of the proposed development on the eastern side of the A5 road bridge. In practice, the distance of the potential views or the steep sides of the wooded Cegin valley obscure views to the proposed development apart from at locations on The Penrhyn Slate Quarry Railway formation immediately to its north.

In the short term, the additional noise and visibility of construction-related activities at the proposed development site will impact the relatively tranquil riverside setting of this approximately 100m long stretch of the Railway to the immediate north of the proposed development.

In the long term, transient views of the northwestern corner of the proposed development will most likely be available to walkers on the lower-lying Railway footpath immediately to the north of the proposed development. The closest houses will be approximately 30m away from the footpath. It's lower elevation may mean that only their upper storeys and roofs are visible, most noticeably in the winter months when the leaves fall from the trees that lie on the southern side of the Railway and filter the views in the summer. The proposed development will not block or intrude on any important views from the Railway or dominate the setting of this part of the route however. The key characteristics of the setting of this part of the Penrhyn Slate Quarry Railway as an 19<sup>th</sup> century transport route set within a wooded

river valley landscape, with the remains of the former railroad which it replaced visible along its route, and the sense of approach experienced as the Railway passes the Cegin Viaduct and runs under the Penrhyn Bridge into its destination at Port Penrhyn, will remain the same and the proposed development can be absorbed into the existing landscape setting of the Railway here with little impact on its key characteristics.

This part of the Railway route between the A5 road bridge and the Penrhyn Bridge already includes views to the modern housing developments at Glantraeth and Plas-y-coed. The cumulative effect of the expansion of modern residential housing in proximity to the Penrhyn Slate Quarry Railway here is noted and the development does represent a further erosion of the once exclusively rural setting of this part of the Railway. However, as it leaves Bangor, the majority of the railway formation runs through a well preserved 19<sup>th</sup> century agricultural landscape and the proposed development does not have a major impact on either the existing overall character of the Penrhyn Slate Quarry Railway or on our ability to understand, appreciate and experience it.

The proximity of the A5 road bridge means that the proposed development is unlikely to generate noticeable long term increases in ambient noise levels experienced on the parts of the Railway closest to the proposed development. The proposed development will not negatively affect other non-visual elements of the setting and character of this part of the Penrhyn Slate Quarry Railway such as evocation of the historical past, sense of place or cultural identity.

Overall, the impact of the proposed development on the setting of The Penrhyn Slate Quarry Railway has been assessed to be **negative**. The impacts are of minor magnitude and confined to approximately 1% of the overall length of the Railway, which significantly reduces the degree of impact of the proposed development on the Railway's overall setting. The overall magnitude of the impact has therefore been assessed as **negligible** as the proposed development will result in very minor changes to the setting of The Penrhyn Slate Quarry Railway that hardly affect it or its historical and aesthetic heritage values.

#### **3.3.2.4 Assessment of the impact of the proposed development on The Penrhyn Castle Grade II\* Registered Historic Park and Garden (PGW (Gd) 40 (GWY))**

The proposed development lies beyond the Penrhyn Park wall on the western edge of The Penrhyn Castle Registered Historic Park and Garden (PGW (Gd) 40 (GWY)), within its Essential Setting. The DSM ZTV model (Figure 07) suggested that a combination of topography, dense plantations of deciduous and coniferous trees within the garden, and the

screening effect of the Penrhyn Estate Wall would block views of the proposed development from the vast majority of points in the garden. Field visits confirmed this, and this will likely be the case even in the winter months. The parts of the garden that are potentially visually impacted are predominately those which lie outside of the publicly accessible parts of the park within the farmland on its western side. The DSM ZTV model (Figure 07) suggests that these will be partial views, filtered by the Park wall and intervening woodland. A site visit to one of these locations (Viewpoint 09) confirmed this.

The DSM ZTV model (Figure 07) also suggested that up to approximately 50% of the proposed development could be visible from the upper stories of the Keep at Penrhyn Castle (LB 3659), however this could not be tested as the building is closed to the public due to Covid-19. It is however likely that the dense stand of trees to the east of Incline Cottage and the proposed development will at least partially screen views of it from elevated parts of the Castle should they exist. The proposed development also lies 950m to the west of the Castle Keep, and if it is visible will form a small component of the overall panoramic view. In contrast to the landscape to the east, the area to the west of the Park and Garden has already been extensively developed and the contribution that the current proposed development site makes to the composition of views in this direction is limited. Though it will bring residential development closer to the Park boundary it will not significantly increase the proportion of built form in views in this direction. The essential character of these views from the Castle, views out over its extensive parkland with the wooded Cegin Valley and the modern housing at Glantraeth and Maesgeirchen in the middleground, and Bangor Mountain beyond, will not change significantly and it is likely that the proposed development can be absorbed into any existing views with little impact on their key characteristics. No Significant Views from the Castle or the Park and Garden will be impacted, nor will any of currently available views of the Castle from the surrounding landscape.

The proposed development will remove one of the last remaining parts of agricultural land that historically formed part of the demesne on the northwestern side of Penrhyn Park, and replace it with a modern housing development. There is a sense, however, that given the degree of development on the western and northwestern edge of the Park in recent years, the critical point at which the gradual process of the transition of the formerly rural landscape into a developed one could be halted in order to better preserve this element of the historical setting of the Park and Garden has already passed. The loss of this element of the historical setting of the Park and Garden on its northwestern side will not detract from our ability to appreciate or understand the Park and Garden or its setting. The proposed development's location against the physical and symbolic boundary that is the Penrhyn Park boundary wall

will serve as a modern reminder of its intentionally enclosed setting and the historical sense of separation and difference between Penrhyn Park and the land outside of its walls.

The development's location outside of the Park's walls, 950m west of the Castle, means it will not dominate the historic asset or detract from our ability to understand and appreciate the house or the garden, indeed it is unlikely that a visitor to The Penrhyn Castle Registered Historic Park and Garden would even be aware of the existence of the proposed development. The proposed development will not negatively affect non-visual elements of the setting and character of the Park and Garden such as evocation of the historical past, or sense of place. Further non-visual impacts of the proposed development, such as the introduction of additional noises or smells will not be noticeable to the Park's visitors given the distance of the proposed development from the publicly accessible part of the Park and Garden and the screening effect of the extensive woodland in the Park. Nor will it generate increased vehicle traffic in the vicinity of the asset given that both the proposed development and the main entrance to the Park both sit on the west side of the already busy A5 trunk road which also serves as the link from the eastern side of Bangor to the A55.

Overall, the impact of the proposed development on the setting of The Penrhyn Castle Registered Historic Park and Garden has been assessed to be **negative**, and the magnitude of this impact **minor**, as the proposed development will overall result in slight but noticeable negative changes to the setting of The Penrhyn Castle Registered Historic Park and Garden and its historic and aesthetic and heritage values.

### **3.3.2.5 Assessment of the impact of the proposed development on Component Part 1: *Penrhyn Slate Quarry and Bethesda, and the Ogwen Valley to Port Penrhyn* of the nominated *Slate Landscape of Northwest Wales* World Heritage Site**

The DTM ZTV model (Figure 08) suggested that the significant visual impacts of the proposed development on Component Part 1: *Penrhyn Slate Quarry and Bethesda, and the Ogwen Valley to Port Penrhyn* would be limited to potentially available views from elevated points in Element 1.1 Penrhyn Slate Quarry, the parts of Element 1.3 The Penrhyn Slate Quarry Railroad and Penrhyn Slate Quarry Railway in proximity to the proposed development, Element 1.4 Port Penrhyn, and Element 1.7 Penrhyn Castle and Park.

Intervening topography means that there would be no views of the proposed development from Element 1.2 Felin Fawr Slate-Slab Mill, or the vast majority of the 5.5km distant Element 1.5 Mynydd Llandygai Settlement and Element 1.6 Bethesda Village. The impact of the

proposed development on the setting of these Elements has been assessed to be neutral as there will be no discernible change to settings of these Elements.

The results of the assessment of the impact on Element 1.3 The Penrhyn Slate Quarry Railroad (negative, moderate) and Penrhyn Slate Quarry Railway (negative, negligible) which also incorporates Incline Cottage (negative, major) have been discussed in Secs 3.3.2.2, 3.3.2.3, and 3.3.2.1 respectively. The result of the impact of the proposed development on the setting of Element 1.7 Penrhyn Castle and Park (negative, minor) is discussed in Sec 3.3.2.5.

Site visits established that though the proposed development may be visible in the view, the visual impact on the selected Viewpoint (16) for Element 1.1 Penrhyn Slate Quarry, one of the nominated World Heritage Site's Significant Views, would be significantly reduced due to the combination of the scale of the view, the 7km distance from the proposed development, the screening effect of local vegetation and the existing character of the local landscape around the proposed development site (see Sec 3.3.1.16). Non-visual elements of the setting and character of the Element 1.1 such as remoteness, evocation of the historical past or its sense of place will not be impacted. The impact of the proposed development on the setting of Element 1.1 Penrhyn Slate Quarry has therefore been assessed to be neutral and it will cause no discernible change to the setting of the Element.

Though the ZTV DSM model (Figure 09) suggested that the proposed development may be visible from small areas at the northern end of the quayside and harbour at Element 1.4 Port Penrhyn, in reality, views to the proposed development are blocked by intervening structures and woodland. Non-visual elements of the setting and character of Element 1.4 Port Penrhyn, such as evocation of the historical past or sense of place will not be affected. The proposed development will not result in a noticeable increase in ambient noise experienced at the Port, nor will generate a significant increase in vehicle traffic there. The impact of the proposed development on the setting of Element 1.4 Port Penrhyn is assessed to be neutral as it will create no discernible change to the setting of the Element.

None of Component Part 1: *Penrhyn Slate Quarry and Bethesda, and the Ogwen Valley to Port Penrhyn's* Significant Views will be impacted by the proposed development: the internal views of the Quarry landform from within Penrhyn Quarry; the panoramic views from Penrhyn Quarry out over the coastal plain towards Penrhyn Castle; the 'moving views' for travellers making their way north towards Penrhyn Quarry on the A5; the 'moving views' of Penrhyn Castle for those on the Chester-Holyhead railway or the A55; or the view from the 'slate-



bedroom' at Penrhyn Castle towards Penrhyn Quarry. Similarly, none of the Component Part's key Senses of Arrival will be affected by the proposed development: the arrival into Penrhyn Quarry from the B4409 road; the arrival at Penrhyn Castle through the park; or travelling through Bethesda along the A5 road.

The impact of the proposed development on the setting of Component Part 1 is therefore limited to the impact on two of its seven Elements: Element 1.3 The Penrhyn Slate Quarry Railroad and Penrhyn Slate Quarry Railway and Element 1.7 Penrhyn Castle and Park. The proposed development will have a major negative impact on the setting of an important part of Element 1.4, Incline Cottage (Sec 3.3.2.1), a moderate negative impact on the setting of the Penrhyn Slate Quarry Railroad (Sec 3.3.2.2), and a negligible negative impact on the setting of the Penrhyn Slate Quarry Railway (sec 3.3.2.3). It will have a minor negative impact on the setting of Element 1.7 Penrhyn Castle and Park.

The impact of the proposed development on the setting on the entire Component Part 1: *Penrhyn Slate Quarry and Bethesda, and the Ogwen Valley to Port Penrhyn* are localised, and only affect the Elements in close proximity to the proposed development site. In light of this the impact of the proposed development on the setting of Component Part 1, and on our ability to understand, appreciate and experience it, has been assessed as **negative**, and the magnitude of this impact **minor**, as the proposed development will overall result in slight but noticeable negative changes to the setting of the Component Part.



### 3.3.3 Summary of impacts

The assessed impacts of the proposed development on the settings of potentially affected historic assets are summarised in Table 3.3 below.

Historic Asset	Impact	Magnitude
Incline Cottage Grade II Listed Building (LB 4085)	Negative	Major
The Penrhyn Slate Quarry Railroad (GAT HER PRN 59451)	Negative	Moderate
The Penrhyn Slate Quarry Railway (GAT HER PRN 59452)	Negative	Negligible
Penrhyn Castle Grade II* Registered Historic Park and Garden (PGW (Gd) 40 (GWY))	Negative	Minor
Component Part 1: Penrhyn Slate Quarry and Bethesda, and the Ogwen Valley to Port Penrhyn	Negative	Minor

Table 3.3 Summary of the impacts of the proposed development on potentially affected historic assets

### **3.4 Stage 4: If necessary, consider options to mitigate or improve the potential impact of a proposed change or development on that significance**

The guidance *Setting of Historic Assets in Wales* (Cadw 2017) states that ‘depending on the level of impact, mitigation measures to reduce the negative impact of the proposals should be considered’ (Cadw 2017, sec 4.4). The proposed development has been assessed to have a potential negative impact of major magnitude on one historic asset, a potential negative impact of moderate magnitude on one historic asset, a potential negative impact of negligible magnitude on one historic asset, and a negative impact with of minor magnitude on two historic assets. Mitigation measures have been included in the design of the development including the provision of two large areas of Public Open Space which will occupy 23% of the site and include an approximately 14x14m buffer on the southwest side of the garden of Incline Cottage, thus reducing the density of housing at the development site. Existing trees will be retained where possible and approximately 60 new trees will be planted to help to screen and soften the visual impact of the development (Sharrock 2020).

Though the sense of enclosure around Incline Cottage (LB 4085) is undoubtedly reduced by the inclusion of the green buffer, the mitigation measures will have little impact on the assessed magnitude of the impact of the proposed development on the setting of Incline Cottage or the Penrhyn Slate Quarry Railroad (GAT HER PRN 59451) due to the density, scale, and close proximity of the development and the removal of their historically rural and relatively isolated setting. The magnitude of impacts on their settings will remain as major (comprehensive changes to the setting) and moderate (considerable changes to setting) respectively. The impact of the proposed development will remain negligible (very minor changes to setting) for the Penrhyn Slate Quarry Railway (GAT HER PRN 59452). Though it’s appearance may be softened in available views, the impact of the development on Penrhyn Castle Grade II\* Registered Historic Park and Garden (PGW (Gd) 40 (GWY)) will still be minor (Slight but noticeable changes to setting) as will the impact on Component Part 1: *Penrhyn Slate Quarry and Bethesda, and the Ogwen Valley to Port Penrhyn* of the nominated *Slate Landscape of Northwest Wales* World Heritage Site.

The assessed impacts of the proposed development on the settings of potentially affected historic assets taking into account proposed mitigation measures are summarised in Table 3.4.

Historic Asset	Impact	Magnitude
Incline Cottage Grade II Listed Building (LB 4085)	Negative	Major
The Penrhyn Slate Quarry Railroad (GAT HER PRN 59451)	Negative	Moderate
The Penrhyn Slate Quarry Railway (GAT HER PRN 59452)	Negative	Negligible
Penrhyn Castle Grade II* Registered Historic Park and Garden (PGW (Gd) 40 (GWY))	Negative	Minor
Component Part 1: Penrhyn Slate Quarry and Bethesda, and the Ogwen Valley to Port Penrhyn	Negative	Minor

Table 3.4 Summary of the impacts of the proposed development on potentially affected historic assets in light of proposed mitigation

## 4 SOURCES CONSULTED

Barker, L, and Gwyn, D, 2017, *Gwynedd Slate Industry Transport Routes*

Barker, L, and Gwyn, D, 2018, *Slate Landscape of North-West Wales World Heritage Bid Statements of Significance*, Govannon Report GC401b

Cadw, 2011, *Conservation Principles for the sustainable management of the historic environment in Wales*

Cadw, 2017, *Setting of Historic Assets in Wales*

Cadw and ICOMOS UK, 1998, 'Penrhyn Castle' in *Register of Landscapes, Parks and Gardens of Special Historic Interest in Wales: Conwy, Gwynedd & The Isle of Anglesey*, pp. 250-7

Chartered Institute for Archaeologists, 2014, *Standard and Guidance for Desk-based Assessment*

Chartered Institute for Archaeologists, 2014, *Standard and Guidance for Archaeological Field Evaluation*

Davidson, A, and Gwyn, D, 2014, *Gwynedd Slate Industry Transport Routes*, GAT Report 1207

English Heritage, 1991, *Management of Archaeological Projects (MAP2)*

Highways Agency, 2007, *Design Manual For Roads And Bridges Volume 11, Section 3, Part 2 HA208/07 Cultural Heritage*

Historic England, 2015, *Management of Research Projects in the Historic Environment The MoRPHE Project Managers' Guide*

Kenney, J, and Lowden, C, 2017, *Archaeology Chapter for Environmental Statement for Penrhyn Quarry, Bethesda*, GAT Report 1397

Llechi Cymru, 2019, *The Slate Landscape of Northwest Wales: Nomination as a World Heritage Site Property Management Plan 2020–2030*

Llechi Cymru, 2020, *The Slate Landscape of Northwest Wales: Nomination as a World Heritage Site Nomination Document 2020*

RCAHMW, 2015, *Guidelines for digital archives*

Sharrock, A, 2020, *Landscape and Visual Impact Assessment: Proposed residential development Land at Llandegai Road, Bangor, LL57 4HP*

Snowdonia National Park Authority (SNPA), 2016, *Penrhyn Quarry*, HTML page : <https://www.snowdonia.gov.wales/addysg-education/history-of-snowdonia/the-north-wales-slate-industry/the-penrhyn-quarry> (accessed 30/09/2020)

The Welsh Archaeological Trusts, 2018, *Guidance for the Submission of Data to the Welsh Historic Environment Records (HERs)* (Version 1.1)

Welsh Government, 2018, *Planning Policy Wales*, 10<sup>th</sup> Edition

## FIGURES





Figure 01: The location of the proposed development



Drawn: 20/08/2020	Development Area Footprint
Author: MAC	
Checked: 12/08/2021	
Drawn: 12/08/2021	
Scale: 1:10,000	

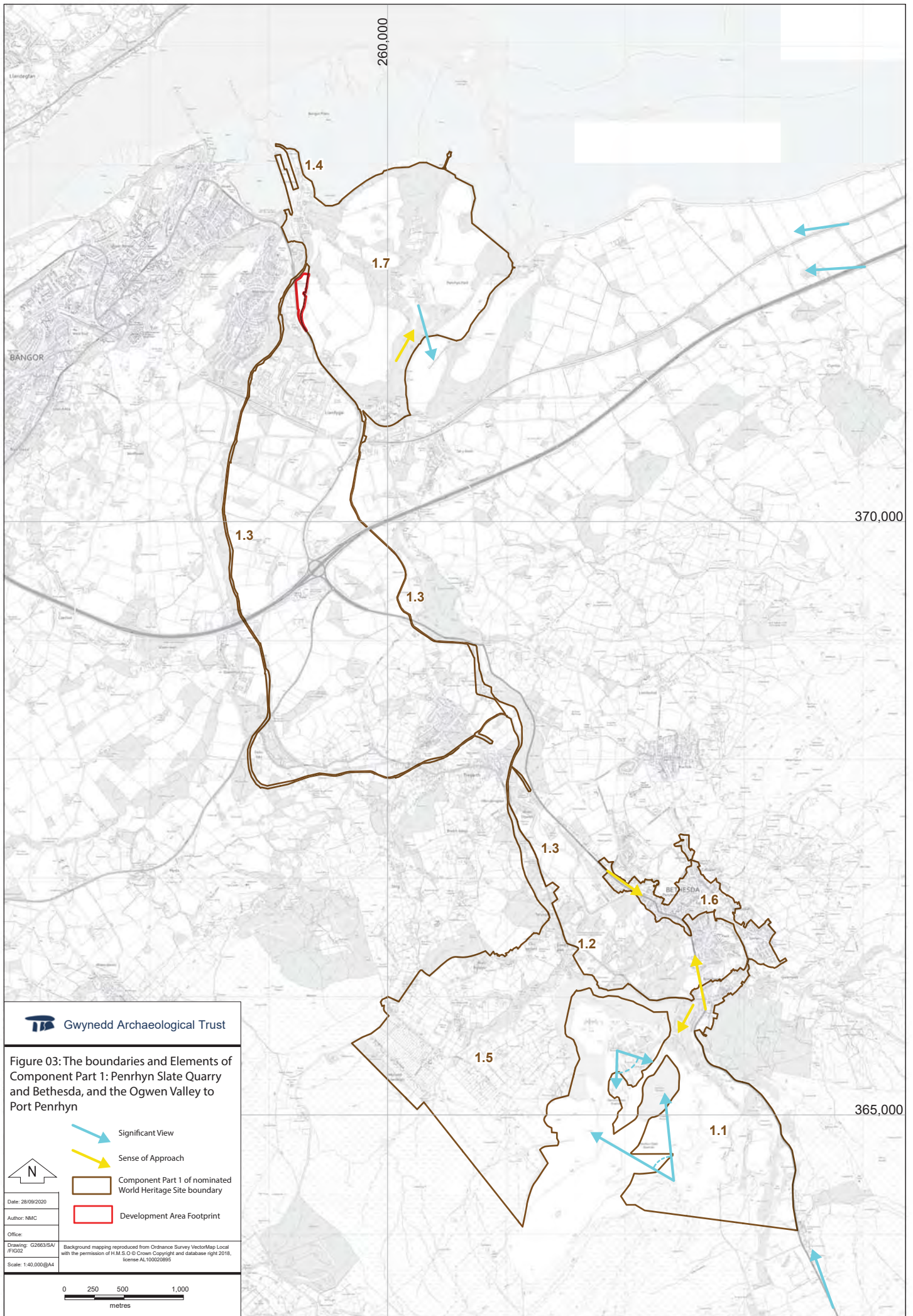




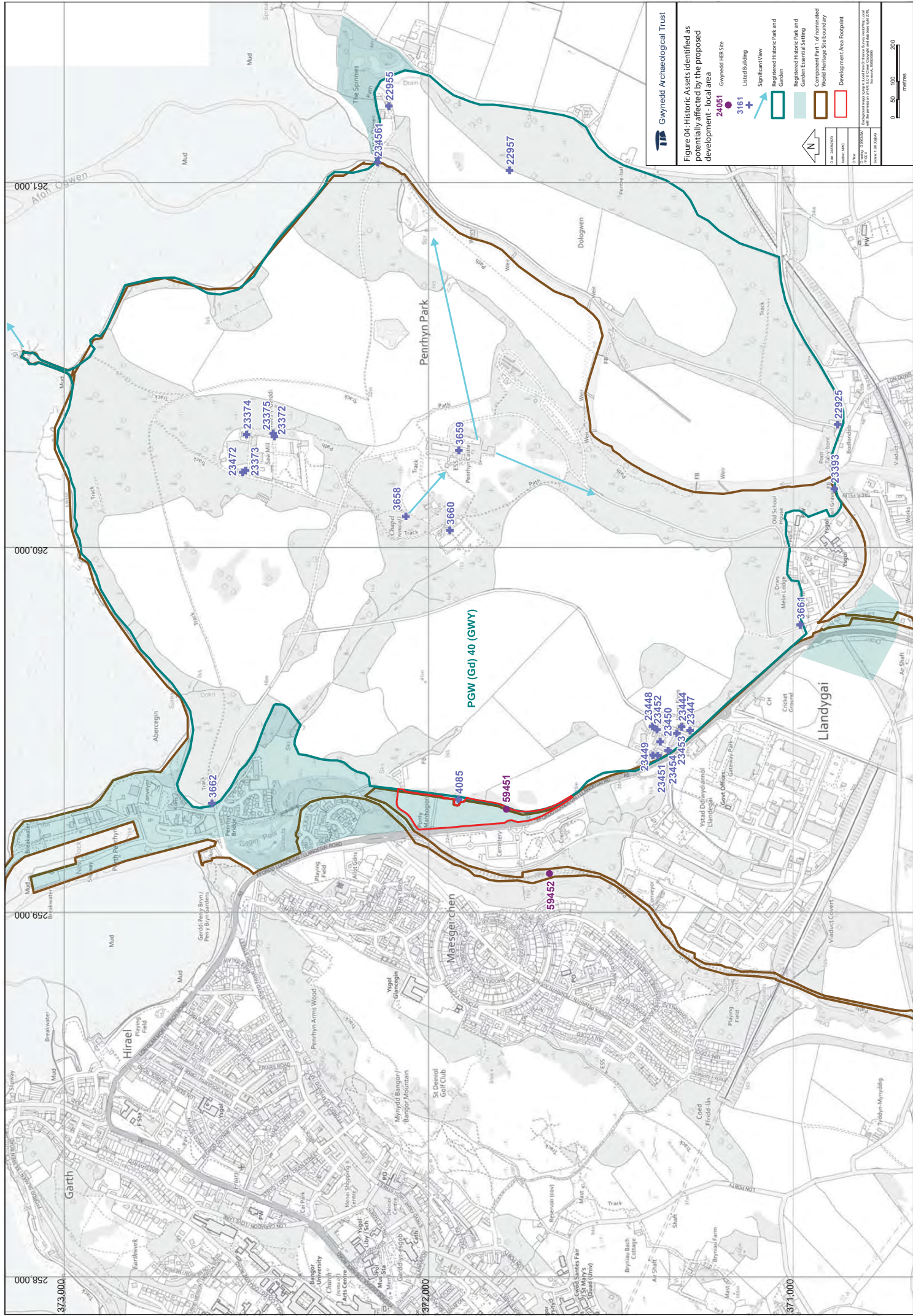


---

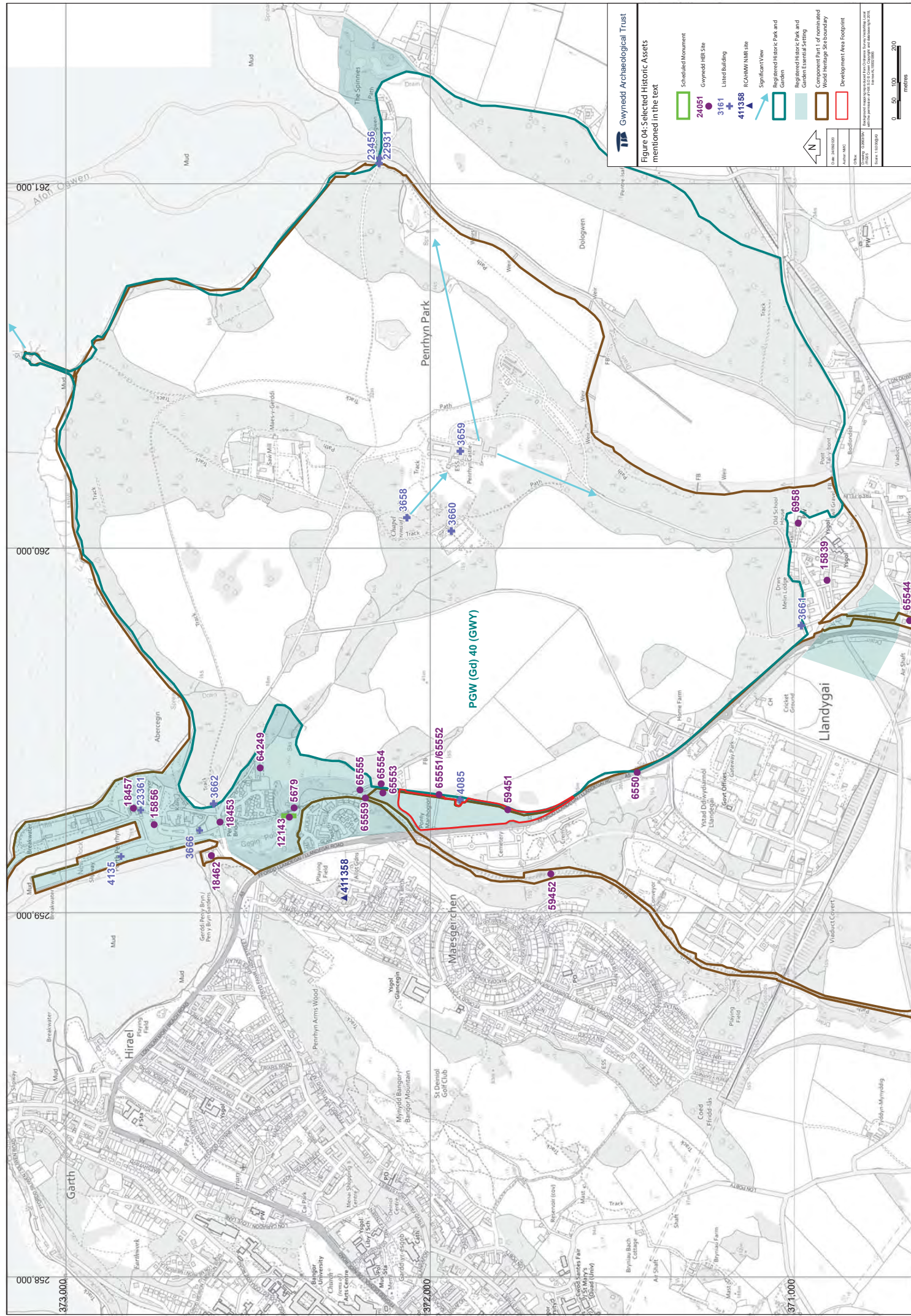




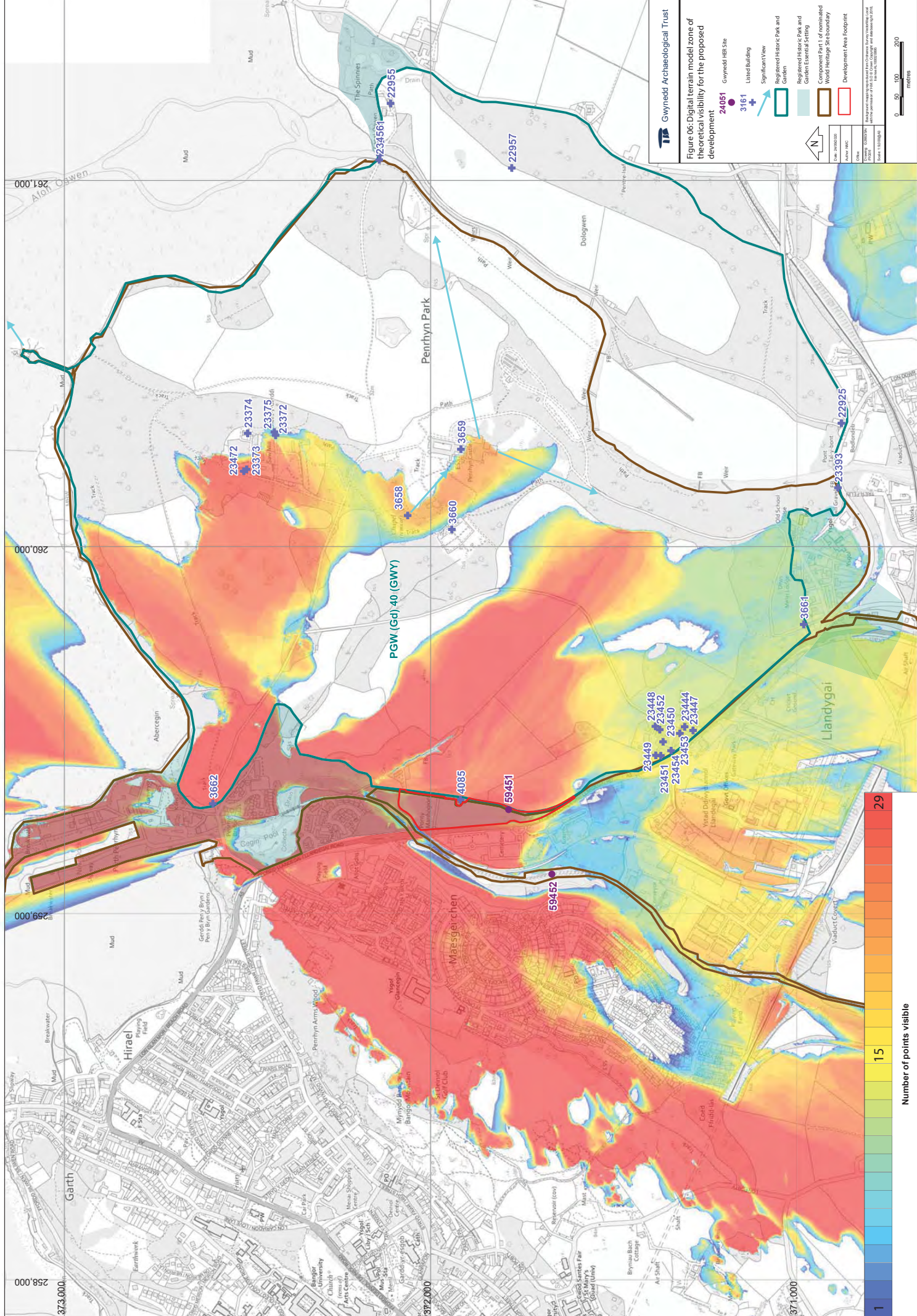












**Gwynedd Archaeological Trust**

Figure 06: Digital terrain model zone of theoretical visibility for the proposed development

- 24051 Gwynedd HBS Site
- 3161 Listed Building
- Significant View
- Registered Historic Park and Garden
- Registered Historic Park and Garden Essential Setting
- Component Part of nominated World Heritage Site boundary
- Development Area footprint

Map data: Ordnance Survey, 2020  
Map scale: 1:10,000  
Map date: 1/2020

Number of points visible



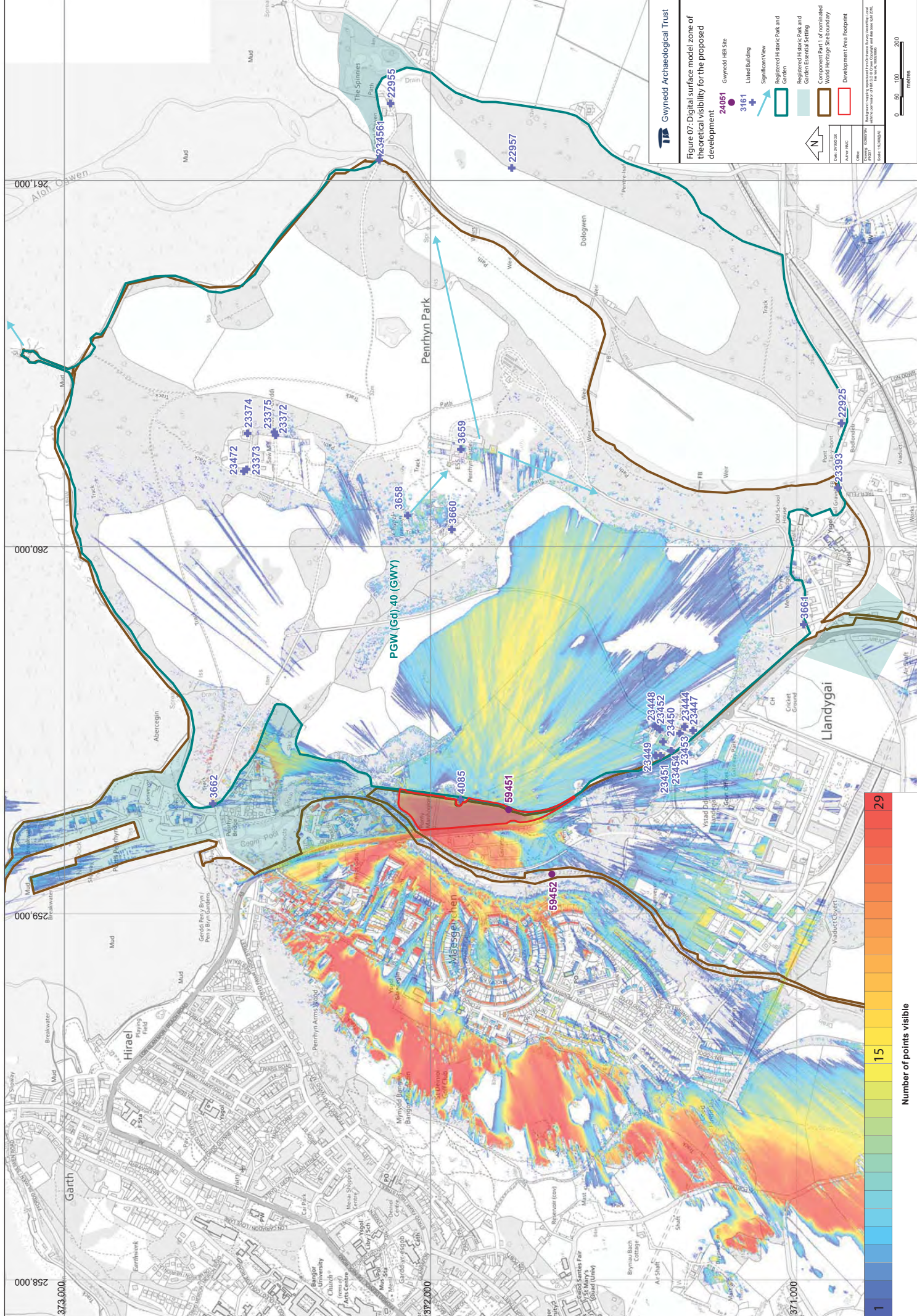


Figure 07: Digital surface model zone of theoretical visibility for the proposed development

**Gwynedd Archaeological Trust**

**Legend:**

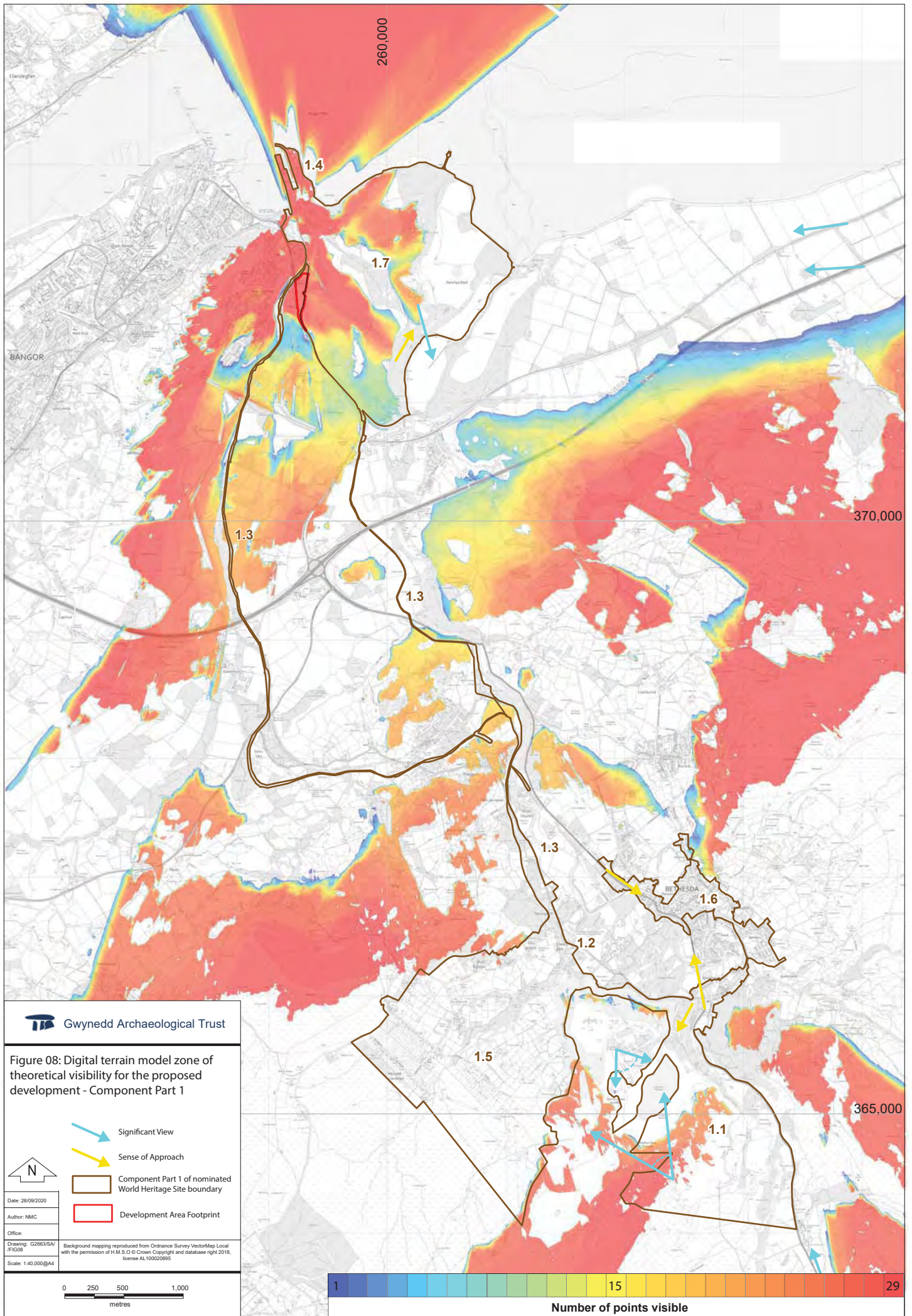
- 24051 Gwynedd HBS Size
- 3161 Listed Building
- Significant View
- Registered Historic Park and Garden
- Registered Historic Park and Garden Essential Setting
- Component Part of Nominated World Heritage Site boundary
- Development Area Footprint

**Scale:** 0 50 100 200 metres

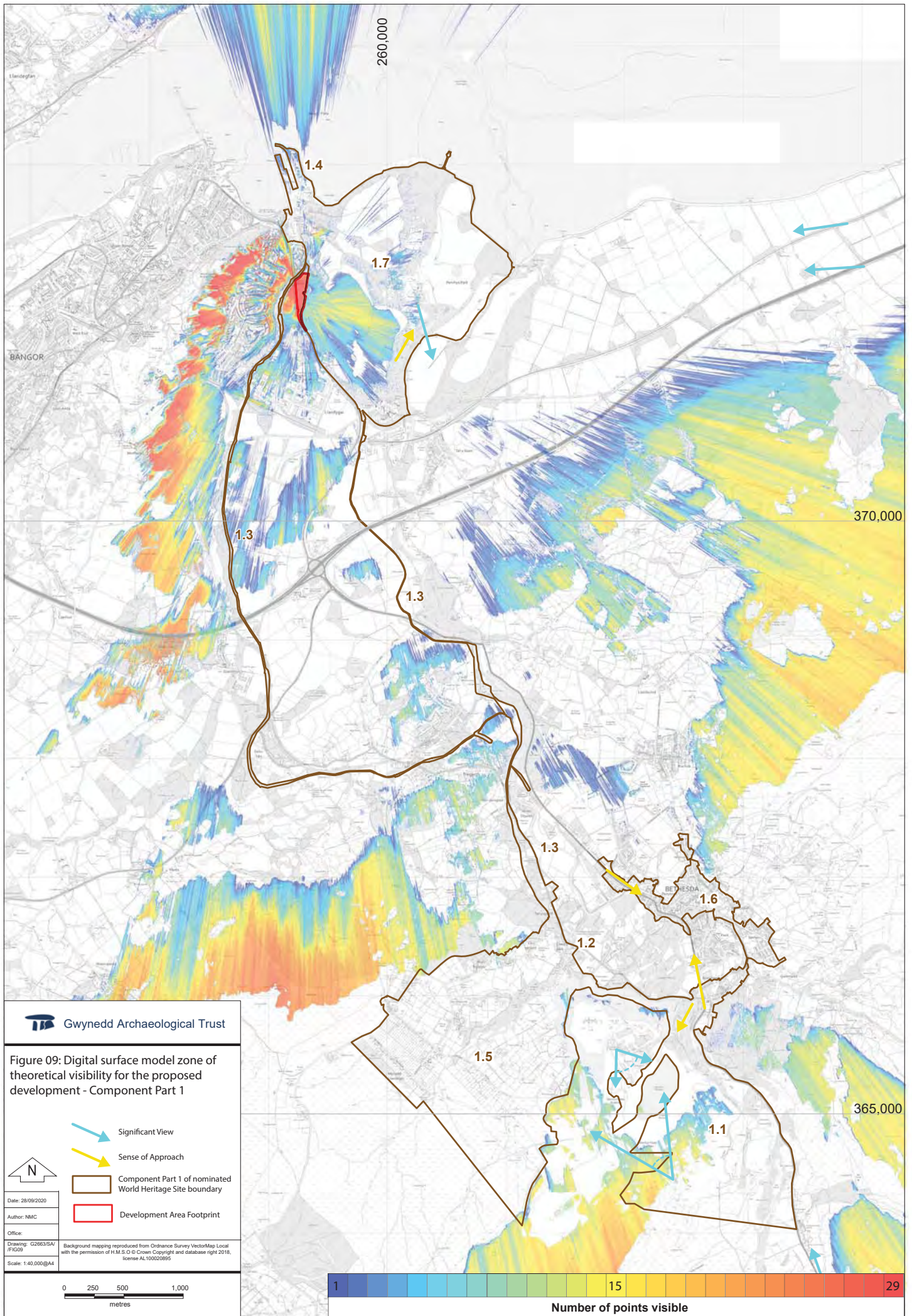
**Map Information:**

File Name	File Size	File Date	File Version
Map_07_07_2023	1.0 MB	07/07/2023	1.0













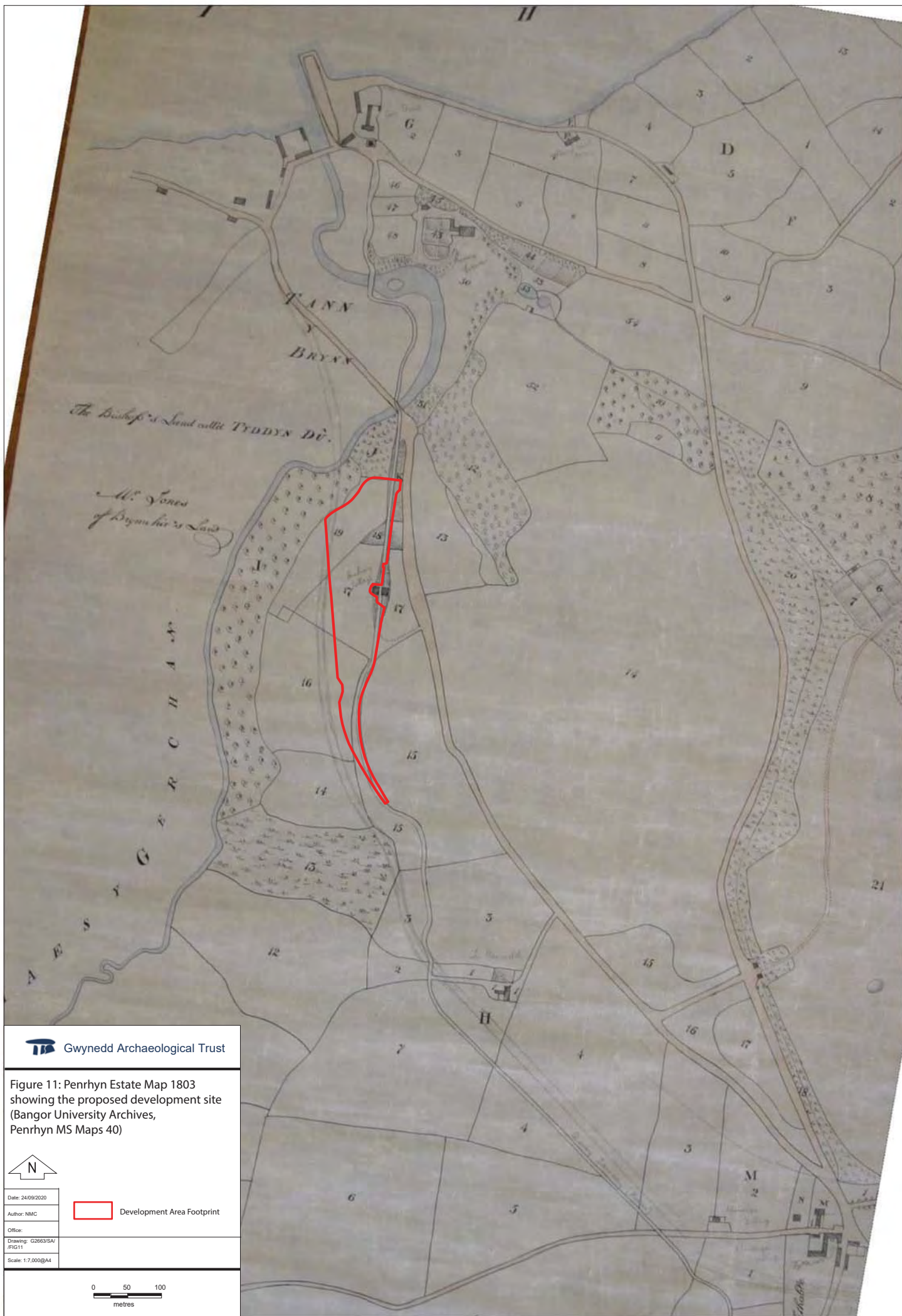
Gwynedd Archaeological Trust

Figure 10: Penrhyn Estate Map 1768  
(Bangor University Archives,  
Penrhyn MSS 52205)



Scale 1:100000	Development Area Footprint
Scale 1:50000	
Scale 1:25000	
Scale 1:10000	
Scale 1:5000	
Scale 1:2500	
Scale 1:1000	
Scale 1:500	
Scale 1:250	
Scale 1:100	
Scale 1:50	
Scale 1:25	
Scale 1:10	
Scale 1:5	
Scale 1:2	
Scale 1:1	





Gwynedd Archaeological Trust

Figure 11: Penrhyn Estate Map 1803 showing the proposed development site (Bangor University Archives, Penrhyn MS Maps 40)



Date: 24/09/2020

Author: NMC

Office:

Drawing: G2663/SA/

/FIG11

Scale: 1:7,000@A4



Development Area Footprint

0 50 100  
metres







**Gwynedd Archaeological Trust**

**Figure 13: Llandegai Tithes Award Map 1841**

Scale: 1:100,000

0 50 100 200 metres

Development Area Footprint

Date: 2000/03/01	Author: GAT
Editor: GAT	Reviewer: GAT
Version: 1.0	Project: Llandegai Tithes





Gwynedd Archaeological Trust

Figure 14: First Edition Ordnance Survey 25" County Series Map 1889



Scale: 1:100,000	Development Area Footprint
Scale: 1:50,000	
Scale: 1:25,000	
Scale: 1:10,000	
Scale: 1:5,000	
Scale: 1:2,500	
Scale: 1:1,250	
Scale: 1:625	
Scale: 1:312	
Scale: 1:156	
Scale: 1:78	
Scale: 1:39	
Scale: 1:19	
Scale: 1:9	
Scale: 1:4	
Scale: 1:2	
Scale: 1:1	

0 50 100 200  
meters





Figure 15: Assessment viewpoints - local area

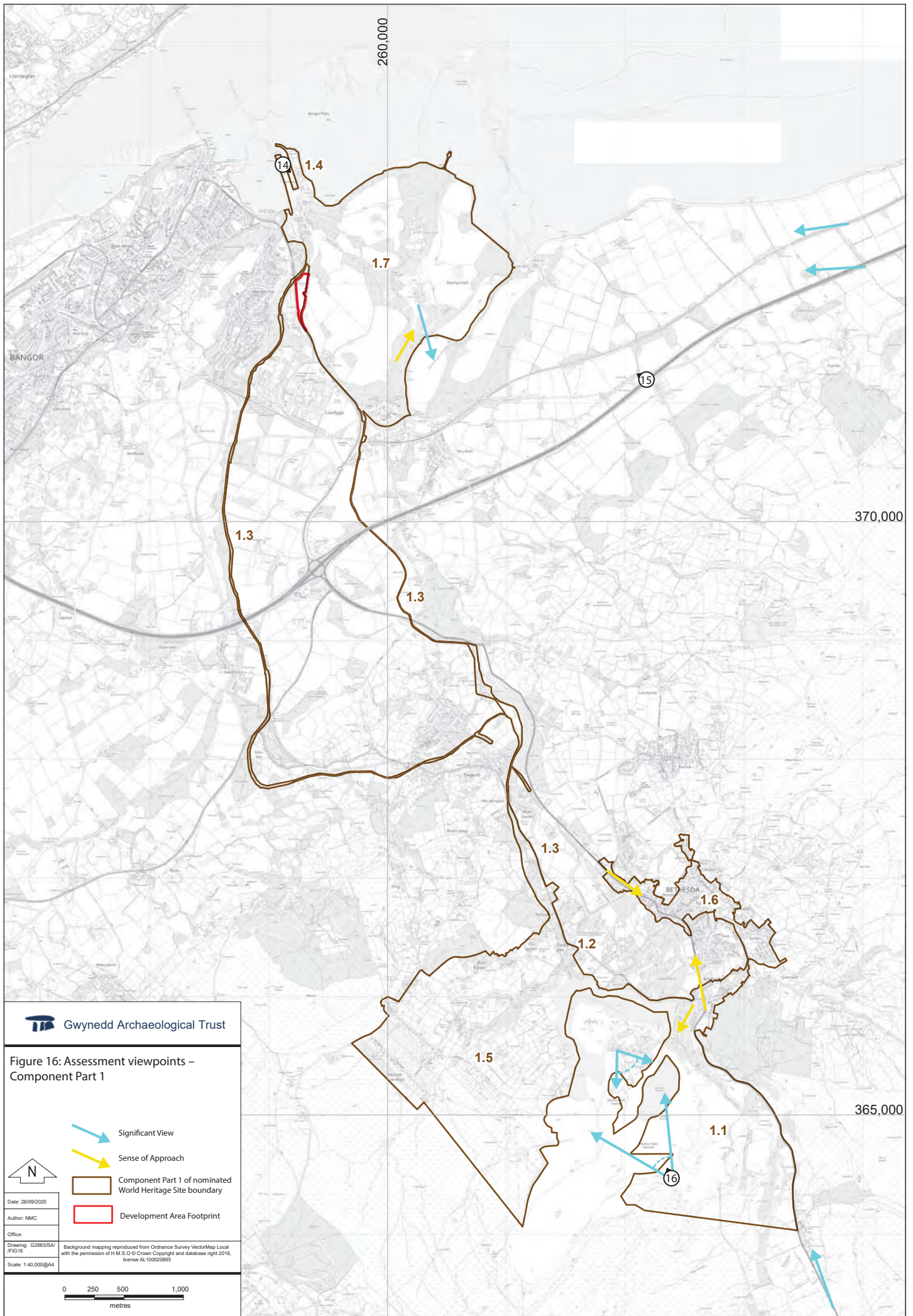
Date: 20/08/2020  
 Author: MAC  
 Title:  
 Project: 10000294  
 Scale: 1:100000

Development Area Footprint  
 Significant View

Bangor map made by Gwynedd Archaeological Trust  
 Map data provided by Ordnance Survey  
 Date: 15/08/2020

0 50 100 200  
 metres





## PLATES





**Plate 01: View towards Incline Cottage (LB 4085) from the western side of the A5, Viewpoint 08 (viewed from the northwest; archive ref G2663\_SA\_026).**



**Plate 02: View towards Incline Cottage (LB 4085) from Bangor Crematorium (viewed from the southwest; archive ref G2663\_SA\_051).**





**Plate 03: View towards Incline Cottage (LB 4085) from the northwestern corner of the proposed development site (viewed from the northwest; archive ref G2663\_SA\_024).**



**Plate 04: View towards Incline Cottage (LB 4085) from the access track gateway (viewed from the northwest; archive ref G2663\_SA\_025).**





**Plate 05: View along the access trackway at the proposed development (viewed from the east-southeast; scale 1x1m; archive ref G2663\_002).**



**Plate 06: View towards Incline Cottage (LB 4085) from the midpoint of the access trackway within the proposed development site (viewed from the north-northwest; archive ref G2663\_SA\_035).**





**Plate 07: View towards Incline Cottage (LB 4085) from the southern part of the proposed development area opposite the entrance to Bangor Crematorium (viewed from the south-southwest; archive ref G2663\_SA\_029).**



**Plate 08: Penrhyn Park Wall at the southern part of the proposed development showing the route of the Penrhyn Slate Quarry Railroad (GAT HER PRN 59451) (viewed from the north-northwest; archive ref G2663\_SA\_030).**





**Plate 09: Penrhyn Park Wall at the southern end of the proposed development showing the route of the Penrhyn Slate Quarry Railroad (GAT HER PRN 59451) (viewed from the north-northwest; scale 1x1m; archive ref G2663\_016).**



**Plate 10: View towards Incline Cottage (LB 4085) from the western side of the A5 (viewed from the west; archive ref G2663\_SA\_027).**





Plate 11: Incline Cottage (LB 4085) from southern end of the Marchogion Inclined Plane (GAT HER PRN 65552) (viewed from the north-northeast; archive ref G2663\_SA\_011).



Plate 12: View to the proposed development from northern side of Incline Cottage (LB 4085) garden, Viewpoint 1 (viewed from the north; archive ref G2663\_SA\_014).





Plate 13: View across the proposed development from northern side of Incline Cottage (LB 4085) garden, Viewpoint 1 (viewed from the southeast; archive ref G2663\_SA\_015).



Plate 14: View across the proposed development from northern side of Incline Cottage (LB 4085) garden, Viewpoint 1 (viewed from the south-southeast; archive ref G2663\_SA\_016).





**Plate 15: View across the proposed development and along the Penrhyn Slate Quarry Railroad formation from the southern side of Incline Cottage (LB 4085) garden, Viewpoint 02 (viewed from the north-northeast; archive ref G2663\_SA\_017).**



**Plate 16: View across the proposed development from the southern side of Incline Cottage (LB 4085) garden, Viewpoint 1 (viewed from the northeast; archive ref G2663\_SA\_018).**





**Plate 17: View towards Incline Cottage (LB 4085) along the route of the Penrhyn Slate Quarry Railroad (GAT HER PRN 59451) in the southern part of the proposed development (viewed from the south-southwest; archive ref G2663\_SA\_028).**



**Plate 18: View towards Incline Cottage (LB 4085) along the southern part of the Marchogion Inclined Plane (GAT HER PRN 65552) in the southern part of the proposed development, Viewpoint 03 (viewed from the south-southwest; archive ref G2663\_SA\_031).**





**Plate 19:** View along the Marchogion Inclined Plane (GAT HER PRN 65552) from the access trackway junction north of Incline Cottage (LB 4085), Viewpoint 04 (viewed from the south-southwest; archive ref G2663\_SA\_019).



**Plate 20:** View along the Marchogion Inclined Plane (GAT HER PRN 65552) from the north of Incline Cottage (LB 4085) (viewed from the south-southwest; archive ref G2663\_SA\_012).





**Plate 21: View across the proposed development site from the top of the Marchogion Inclined Plane (GAT HER PRN 65552) (viewed from the southeast; archive ref G2663\_SA\_013).**



**Plate 22: View along the overgrown route of the northern part of the Marchogion Inclined Plane (GAT HER PRN 65551) on the northeastern side of the proposed development site (viewed from the southwest; archive ref G2663\_SA\_034).**





**Plate 23: View along the Marchogion Inclined Plane (GAT HER PRN 65551) from the northeastern corner of the proposed development site (viewed from the north; archive ref G2663\_SA\_023).**



**Plate 24: View across the Marchogion Inclined Plane (GAT HER PRN 65551) in the northeastern corner of the proposed development site (viewed from the west; scale 1x1m; archive ref G2663\_004).**





**Plate 25: View along the Marchogion Inclined Plane (GAT HER PRN 65551) from the northeastern corner of the proposed development site (viewed from the north-northeast; archive ref G2663\_SA\_021).**



**Plate 26: View across the proposed development site from its northeastern corner and the Marchogion Inclined Plane (GAT HER PRN 65551 (viewed from the northeast; archive ref G2663\_SA\_022).**





**Plate 27: View along the Marchogion Inclined Plane (GAT HER PRN 65551) from the northeastern corner of the proposed development site (viewed from the south-southwest; archive ref G2663\_005).**



**Plate 28: View from the northern end of the Marchogion Inclined Plane (GAT HER PRN 65551) towards the proposed development, Viewpoint 05 (viewed from the north-northeast; archive ref G2663\_SA\_063).**





**Plate 29: View of Pont Marchogion railroad bridge (GAT HER PRN 65555) and the railroad formation (viewed from the south; archive ref G2663\_SA\_064).**



**Plate 30: View of the Penrhyn Slate Quarry Railroad formation (GAT HER PRN 59451) from northern end of Pont Marchogion railroad bridge (GAT HER PRN 65555) (viewed from the south-southwest; archive ref G2663\_SA\_009).**





**Plate 31: View of the Penrhyn Slate Quarry Railroad formation (GAT HER PRN 59451) from Pont Marchogion railway bridge (LB 4084) (viewed from the west-northwest; archive ref G2663\_SA\_007).**



**Plate 32: View of the Cegin Viaduct (CN380) with the Pont Marchogion railway bridge (LB 4084) behind (viewed from the west-northwest; archive ref G2663\_SA\_067).**





**Plate 33: View of Pont Marchogion railway bridge (LB 4084) and the Cegin Viaduct (CN380) (viewed from the northwest; archive ref G2663\_SA\_066).**



**Plate 34: View of modern housing at Plas y Coed from the route of the Penrhyn Slate Quarry Railroad (GAT HER PRN 59451) and the Penrhyn Slate Quarry Railway (GAT HER PRN 59452) (viewed from the west-southwest; archive ref G2663\_SA\_068).**





Plate 35: View of Penrhyn Bridge (GAT HER PRN 18453) (viewed from the south-southeast; archive ref G2663\_SA\_004).



Plate 36: View of Penrhyn Bridge (GAT HER PRN 18453) (viewed from the north-northwest; archive ref G2663\_SA\_003).





**Plate 37: View towards the proposed development from the western quay at Port Penrhyn (GAT HER PRN 15856) (viewed from the north-northwest; archive ref G2663\_SA\_001).**



**Plate 38: View towards Penrhyn Castle (LB 3659) from the western quay at Port Penrhyn (GAT HER PRN 15856), Viewpoint 14 (viewed from the northwest; archive ref G2663\_SA\_002).**





**Plate 39: View towards the proposed development from the Penrhyn Slate Quarry Railway (GAT HER PRN 59452), Viewpoint 13 (viewed from the southwest; archive ref G2663\_SA\_058).**



**Plate 40: View of the route of the Penrhyn Slate Quarry Railway (GAT HER PRN 59452) from just north of Viewpoint 13 (viewed from the south; archive ref G2663\_SA\_059).**





**Plate 41: View of the route of the Penrhyn Slate Quarry Railway (GAT HER PRN 59452) from just south of Viewpoint 06 (viewed from the southwest; archive ref G2663\_SA\_057).**



**Plate 42: View towards the proposed development from the route of the Penrhyn Slate Quarry Railway (GAT HER PRN 59452), Viewpoint 06 (viewed from the west; archive ref G2663\_SA\_056).**





**Plate 43: View along the route of the LNWR Penrhyn Branch Line to the west of the proposed development (viewed from the southwest; archive ref G2663\_SA\_054).**



**Plate 44: View of the route of the Penrhyn Slate Quarry Railway (GAT HER PRN 59452) as it approaches the A5 bridge (viewed from the southwest; archive ref G2663\_SA\_055).**





**Plate 45: View towards the proposed development from the Penrhyn Slate Quarry Railway (GAT HER PRN 59452) just to the north of the A5 bridge, Viewpoint 07 (viewed from the northwest; archive ref G2663\_SA\_061).**



**Plate 46: View of Pont Marchogion railroad bridge (GAT HER PRN 65555) from Penrhyn Slate Quarry Railway bridge (GAT HER PRN 65569) (viewed from the southwest; archive ref G2663\_SA\_010).**





Plate 47: View of Pont Marchogion railway bridge (LB 4084) (viewed from the north-northwest; archive ref G2663\_SA\_008).



Plate 48: View of the Cegin Viaduct (CN380) from Pont Marchogion railway bridge (LB 4084) (viewed from the southeast; archive ref G2663\_SA\_006).





**Plate 49: View of Pont Marchogion railway bridge (LB 4084) and the Cegin Viaduct (CN380) (viewed from the north-northwest; archive ref G2663\_SA\_005).**



**Plate 50: View towards the proposed development from the northern side of Penrhyn Home Farm, Viewpoint 09 (viewed from the south-southeast; archive ref G2663\_SA\_038).**





Plate 51: View of The Grand Lodge (LB 3661) (viewed from the south-southeast; archive ref G2663\_SA\_039).



Plate 52: Penrhyn Castle (LB 3659) from driveway (viewed from the south-southeast; archive ref G2663\_SA\_041).





**Plate 53: View of Penrhyn Castle (LB 3659) (viewed from the northwest; archive ref G2663\_SA\_046).**



**Plate 54: View towards the proposed development from west side of Keep of Penrhyn Castle (LB 3659), Viewpoint 10 (viewed from the east; archive ref G2663\_SA\_044).**





**Plate 55: View towards the proposed development from the Penrhyn Castle terraced Flower Garden (LB 3660) (viewed from the east; archive ref G2663\_SA\_049).**



**Plate 56: View towards the proposed development from the trackway from Penrhyn Home farm on the western side of Penrhyn Castle Registered Historic Park and Garden (PGW (Gd) 40 (GWY)), Viewpoint 12 (viewed from the northeast; archive ref G2663\_SA\_048).**





**Plate 57:** View towards the proposed development from the trackway from Penrhyn Home farm on the western side of Penrhyn Castle Registered Historic Park and Garden (PGW (Gd) 40 (GWY)), Viewpoint 12 (viewed from the northeast; archive ref G2663\_SA\_048).



**Plate 58:** View towards Penrhyn Castle (LB 3659) from Hendre Hall A55 junction, Viewpoint 15 (viewed from the southeast; archive ref G2663\_SA\_069).





**Plate 59: View towards Penrhyn Castle (LB 3659) from road bridge over the A55 at Tal-y-bont (viewed from the south-southeast; archive ref G2663\_SA\_070).**



**Plate 60: View from higher ground on southern side of Penrhyn Quarry (GAT HER PRN 20061), Viewpoint 16 (viewed from the south-southeast; archive ref G2663\_SA\_071).**





Gwynedd Archaeological Trust  
Ymddiriedolaeth Archaeolegol Gwynedd

Craig Beuno, Ffordd y Garth, Bangor, Gwynedd. LL57 2RT  
Ffon: 01248 352535. Ffacs: 01248 370925. email: [gat@heneb.co.uk](mailto:gat@heneb.co.uk)

