

Groyne Removal at Penmaenbach, Conwy

Baseline and Preliminary Water Framework Directive Compliance Assessment

August 2024

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Revision	Date	Comment
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This report will remain valid for a period of twelve months (from the date of last issue) after which the source data should be reviewed in order to reassess the findings and conclusions on the basis of latest available information.

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Introduction

This Preliminary Water Framework Directive (WFD) Assessment has been prepared by Waterco Ltd on behalf MPH Construction in respect of a groyne removal works at the beach in Penmaenbach, Conwy, LL34 6UF.

Network Rail have been made aware of a number of costal groynes with in the Penmaenbach area which fall under their ownership. Due to the deteriorating condition of the Groynes, they require removal, to ensure liability is mitigated.

The aim of this Preliminary WFD Assessment is to assist the regulator in understanding the impact the outlined activities may have on the immediate water body and any linked water bodies, within a 500m Zone of Influence. A Zone of Influence Plan is included in Appendix A.

This report is intended to support a Band 2 Marine License application.

Assumptions and Limitations

All third-party published information and data is assumed to be correct, up to date and based on verified and accurate records, for example, Natural Resources Wales (NRW) flood mapping and British Geological Survey (BGS) geological mapping.

It is assumed that all required permits and formal agreements will be sought with relevant consultees.

A site walkover specifically pertaining to the WFD assessment has not been undertaken by Waterco Ltd as part of this report.

It is assumed that the site is not contaminated. No monitoring or investigation has been undertaken by Waterco Ltd.

Policy Context

Legislation

Water Framework Directive 2000/60/EC

Published in December 2000, the Directive aims to preserve, restore and improve the water environment. It is a legal requirement within England and Wales, originally transposed into law through the Water Environment (Water Framework Directive) (England and Wales) (2003) to record data within River Basin Management Plans. River Basin Planning is managed in six-year cycles.

The environmental objectives of the WFD for surface waters include:

1. Prevent deterioration in the status of aquatic ecosystems, protect and improve the ecological condition of waters;
2. Aim to achieve 'good' status for all waterbodies by 2015. Where this is not possible and subject to the criteria set out in the Directive, aim to achieve good status by 2021 or 2027;
3. Meet the requirement of the WFD Protected Areas;
4. Promote sustainable use of water as a natural resource;
5. Conserve habitats and species that depend directly on water;
6. Reduce or phase out the release of individual pollutants or groups of pollutants that present a significant threat to the aquatic environment;
7. Progressively reduce the pollution of groundwater and prevent or limit the entry of pollutants; and
8. Contribute to the mitigating effects on floods and droughts.

Directive on Environmental Quality Standards (EQSD) 2008/105/EC

This Directive establishes the environmental quality standards (EQS) for priority substances and certain other pollutants in surface waters.

With reference to the WFD, good chemical status is achieved when a water body complies with the EQS for all the priority substances and certain other pollutants listed in the EQSD.

Water Act 2014 and Water Resources Act 1991

This Act governs the control of water abstraction, discharge to water bodies, water impoundment, conservation and drought provision.

Flood and Water Management Act 2010

This Act provides details on the management of risks associated with flooding and coastal erosion.

Environmental Protection Act 1990

This Act provides details for identifying and dealing with waste, emissions, contaminated land and water resources.

The Land Drainage Act 1991

This Act establishes the regulation of ordinary watercourses by Local Authorities and Internal Drainage Boards. It outlines that a watercourse should be maintained by its riparian owner so that the flow of water is not impeded. The riparian owner must accept the natural flow from upstream but does not need to carry out works to cater for increased flows which may result from works carried out upstream.

The Groundwater (Water Framework Directive) (Wales) Direction 2016

This Directive is on the protection of groundwater against pollution and deterioration from hazardous substances and non-hazardous pollutants.

The Groundwater (England and Wales) Regulations 2009

This Regulation transposes 2006/118/EC into law in England and Wales.

Environmental Permitting (England and Wales) Regulations 2016

This Regulation provides a consolidated system of environmental permitting including the discharge of water and groundwater activities.

The Environmental Damage (Prevention and Remediation) (Wales) Regulations 2009

This Regulation aims to prevent and remedy damage to a protected species, natural habitat, a site of special scientific interest, water or land.

The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017

This Regulation transposes 2000/60/EC into law in England and Wales and revokes the WFD (England and Wales) Regulations 2003.

The Environment (Wales) Act 2016

The Environment (Wales) Act puts in place a delivery framework for the sustainable management of natural resources and introduces some simple principles to underpin the way we all work.

Well-being of Future Generations (Wales) Act 2015

This act asks 44 Public Bodies in Wales to work in a sustainable way and think about the impact our work can have for people living in Wales, now and in the future.

Western Wales River Basin Management Plan 2021 – 2027

This report outlines the current baseline classification of waterbodies in the Western Wales River basin district, the objectives and targets for water quality within waterbodies of the area, challenges / issues within the catchment which have impacts on water quality and how the objectives / targets will be achieved in future.

Site Setting

Hydrological Setting

The proposed works are situated within Conwy Bay; a dynamic coastal environment, characterised by tidal influences from the Irish Sea as well as freshwater inflows from Afon Conwy to the north-east.

There is an unnamed watercourse located approximately 100m south of the site. This watercourse is flowing in a northerly direction towards the site, where it becomes culverted beneath the A55. The Afon Conwy flows into the Irish Sea approximately 3.5km north-east of the site.

A Location Plan and Aerial Image are included in Appendix B.

Topography

Topographic levels to metres Above Ordnance Datum (m AOD) have been derived from a 1m resolution Natural Resources Wales (NRW) composite 'Light Detecting and Ranging' (LiDAR) Digital Terrain Model (DTM). Given the sites location on a beach and its proximity to the sea, there is minimal variation in elevation. Ground levels in the location of the proposed works are between 0m AOD and 1m AOD. A LiDAR extract is included in Appendix C.

Geological & Hydrogeological Setting

The British Geological Survey (BGS) online mapping (1:50,000 scale) indicates that the site is underlain by superficial coastal zone deposits (Undifferentiated) generally comprising sand, silt and clay. The superficial deposits are identified as being underlain by Lower Palaeozoic Rocks (Undifferentiated) consisting of Mudstone.

The geological mapping is available at a scale of 1:50,000 and as such may not be accurate on a site-specific basis.

According to the NRW's Aquifer Designation data, obtained from the BGS GeoIndex online mapping [accessed August 2024], the superficial coastal zone deposits are classified as a Secondary Undifferentiated Aquifer. Secondary Undifferentiated Aquifers are assigned in 'cases where it has not been possible to attribute either category A or B to a rock type. In most cases, this means that the layer in question has previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type'.

The underlying Lower Palaeozoic Rocks are described as a Secondary B Aquifer. Secondary B Aquifers are 'predominantly lower permeability layers which may store and yield limited amounts of groundwater due to localised features such as fissures, thin permeable horizons and weathering. These are generally the water-bearing parts of the former non-aquifers'.

The NRW's 'Source Protection Zones' data, obtained from the Welsh Government 'Data Map Wales' website [accessed August 2024], indicates that the site is not located within a groundwater Source Protection Zone.

Local Drainage Setting

Public sewer and water records have been obtained from Dwr Cymru Welsh Water (DCWW) in August 2024 and are included in Appendix D. The DCWW sewer records show that there are no public sewers within close proximity of the area of proposed works.

Flood Risk

The Welsh Government Development Advice Map, included in Appendix E, shows that the site is located within Flood Zone C2 – an area considered at flood risk, without significant defence infrastructure, with a 0.1% (1 in 1000) or greater annual probability of flooding from the sea.

The NRW 'Flood Map for Planning' (Appendix E), shows that the site is located within Flood Zone 3 – an area considered to be at flood risk with a 0.5% (1 in 200) or greater annual probability of tidal flooding.

The NRW 'Flood risk from the Sea' map shows that the site is at high risk of tidal flooding meaning it has a greater than 3.3% annual probability of flooding from the sea.

The site is located on a beach and as such may become frequently inundated during high tides.

Other Designations and Considerations

According to MAGIC's online mapping (accessed August 2024) there are 4no. designated sites within 500m of the site. The designated sites are as follows:

- Sychnant Pass Site of Special Scientific Interest (SSSI)
- Aber Afon Conwy SSSI
- Y Fenai a Bae Conwy / Menai Strait and Conwy Bay Special Areas of Conservation
- Liverpool Bay / Bae Lerpwl Special Protection Areas

A Designations Plan is included in Appendix F.

Scheme Proposals

The scheme proposals are for the removal of coastal groynes on Penmaenbach beach due to their deteriorating condition. The groynes are constructed from redundant old rail, surrounded by wooden sleepers. Photographs of the existing groynes are included in Appendix G.

No proposed scheme plans are available at this stage.

Due to the small-scale nature of the works, access will be by foot, and hand tools only will be required. As such all materials and tools etc. will be stored in works vehicles. Parking for works vehicles will be alongside the A55, adjacent to the area of proposed works.

WFD Screening (Stage 1)

The purpose of the screening stage is to identify the extent to which the proposals are likely to affect WFD water bodies within the Zone of Influence. A Zone of Influence Plan is included in Appendix A. This Zone of Influence includes the relevant WFD waterbodies for this site.

The closest Cycle 3 WFD waterbody is the Conwy Bay coastal waterbody (Waterbody ID: GB671010400000). This WFD water body lies within the Zone of Influence for the site and has the potential to be impacted by the proposed works. It has a catchment area of 139km² and a length of 50km.

The WFD Conwy transitional waterbody (Waterbody ID: GB541006614800) is located approximately 600m north-east of the site. It has a catchment area of 43.5km². This waterbody lies outside the 500m zone of influence but has the potential to be affected by works undertaken due to its hydrological connectivity with Conwy Bay. This waterbody is identified as part of the WFD Transitional Cycle 3.

The site is located within a WFD designated groundwater body, namely the Llyn and Eryri groundwater catchment (Water body reference: GB41002G204600) and therefore this catchment has the potential to be impacted by the proposed works. This catchment has an area of 3,632km². This catchment is identified as part of the WFD Groundwater Cycle 3.

Classifications for these waterbodies have been obtained from the NRW Water Watch Wales Portal and are included in Tables 1 and 2.

Table 1 – Conwy Bay Coastal Waterbody Classifications

Water Body		Conwy Bay Coastal Waterbody Catchment
Water body ID		GB671010400000
Catchment Area		139km ²
Length		50km
Overall Ecological Classification		Moderate
Overall Chemical Classification		Moderate
Hydromorphological Designation		Heavily Modified
Parameter		2021
Ecological	Biological quality elements	
	Fish	-
	Invertebrates	Moderate
	Phytoplankton bloom	Good
	Infaunal quality index (IQI)	Moderate
	Imposex	-
	Angiosperm (combination of salt marsh and sea grass sub elements)	-
	Salt marsh	-
	Sea grass	-
	Macroalgae	-
	Opportunistic macroalgae	-
	Rocky shore macroalgae	-
	Physio-chemical quality elements	
	Dissolved Oxygen	High
	Dissolved Inorganic Nitrogen (DIN)	High
	Morphology	-
	Supporting elements (Surface Water)	
	Mitigation Measures Assessment	Good
	Specific pollutants	
	Arsenic	High
	Copper	High
	Chromium (VI)	-
	Dimethoate	-
	Iron	High
	Linuron	-
	Manganese	-
	Permethrin	-
	Phenol	-
	Phenol 2,4	-
	Toluene	High
	Un-ionised ammonia	-
	Zinc	High
	Priority Hazardous Substances	
	Anthracene	-
	Brominated diphenylether (BDPE)	-
	Cadmium and Its Compounds	High
	Dioxins and dioxin-like compounds	-
	Endosulfan	-
	Hexabromocyclododecane (HBCDD)	-
	Heptachlor and heptachlor epoxide	-

		Hexachlorobenzene	-
		Hexachlorobutadiene	-
		Mercury and its Compounds	Moderate
		Nonylphenol	High
		Pentachlorobenzene	-
		Perfluorooctane sulphonate (PFOS)	-
		Polyaromatic hydrocarbons (PAH)	-
		Tributyltin Compounds	-
		Trifluralin	-
	Priority substances		
		Aclonifen	-
		Alachlor	-
		Atrazine	-
		Benzene	High
		Cypermethrin (Priority hazardous)	-
		1,2-dichloroethane	High
		Dichloromethane	High
		Dichlorvos	-
		Diuron	-
		Fluoranthene	-
		Isoproton	-
		Lead and Its Compounds	High
		Napthalene	High
		Nickel and Its Compounds	High
		Octylphenol	-
		Pentachlorophenol	-
		Simazine	-
		Trichlorobenzenes	High
		Trichloromethane	High
	Other pollutants		
		Carbon Tetrachloride	High
		DDT	-
		Aldrin, Dieldrin, Endrin & Isodrin	-
		Para – para DDT	-
		Tetrachloroethylene	High
		Trichloroethylene	High

Table 2 – Afon Conwy Transitional Waterbody Classifications

Water Body		Conwy Transitional Waterbody Catchment
Water body ID		GB541006614800
Water body Area		43.5km ²
Length		
Overall Ecological Classification		Moderate
Overall Chemical Classification		Moderate
Hydromorphological Designation		Heavily Modified
Parameter		2021
Ecological	Biological quality elements	
	Fish	Good
	Invertebrates	Good
	Phytoplankton blooms	Good
	Infaunal quality index (IQI)	High
	Imposex	Good
	Angiosperm (combination of salt marsh and sea grass sub elements)	Moderate
	Salt marsh	Good
	Sea grass	Moderate
	Macroalgae	High
	Opportunistic macroalgae	High
	Rocky shore macroalgae	-
	Physio-chemical quality elements	
	Dissolved Oxygen	High
	Dissolved inorganic nitrogen (DIN)	High
	Morphology	-
	Supporting elements (Surface Water)	
	Mitigation Measures Assessment	Moderate
	Specific pollutants	
	Arsenic	High
	Chromium	-
	Copper	High
	Iron	High
	Manganese	High
	Permethrin	-
	Phenol	-
	Toluene	High
	Un-ionised ammonia	High
	Zinc	Moderate
Chemical	Priority Hazardous Substances	
	Anthracene	-
	BDPE Calc	Moderate
	Cadmium and Its Compounds	High
	Dioxins and dioxin-like compounds	High
	Endosulfan	-
	Hexabromocyclododecane (HBCDD)	High
	Hexachlorobenzene	High
	Hexachlorobutadiene	High
	Hexachlorocyclohexane	-
	Mercury and Its Compounds	High

Table 2 – Afon Conwy Transitional Waterbody Classifications

Water Body		Conwy Transitional Waterbody Catchment	
Water body ID		GB541006614800	
Water body Area		43.5km ²	
Length			
Overall Ecological Classification		Moderate	
Overall Chemical Classification		Moderate	
Hydromorphological Designation		Heavily Modified	
Parameter			2021
		Nonylphenol	High
		Polycyclic aromatic hydrocarbons	High
		Pentachlorobenzene	-
		Perfluorooctane sulphonate (PFOS)	High
		Tributyltin Compounds	-
	Priority substances		
		Benzene	High
		Cypermethrin	-
		1,2-dichloroethane	High
		Dichloromethane	High
		Dichlorvos	-
		Fluoranthene	High
		Lead and Its Compounds	High
		Napthalene	High
		Nickel and Its Compounds	High
		Octylphenol	-
		Trichlorobenzenes	High
		Trichloromethane	High
	Other Pollutants		
		Carbon Tetrachloride	High
		DDT	-
		Aldrin, Dieldrin, Endrin & Isodrin	-
		Para – para DDT	-
		Tetrachloride	High
		Trichloroethylene	High

Table 3 – Llyn and Eryri Groundwater Catchment Classifications

Water Body		Llyn and Eryri groundwater catchment
Water Body ID		GB41002G204600
Surface Area		3632km ²
Overall Status		Poor
Overall Quantitative Classification		Good
Overall Chemical Classification		Poor
Parameter		2021
Quantitative	Quantitative Status element	
	Quantitative Dependent Surface Water Body Status	Good
	Quantitative GWDTEs test	Good
	Quantitative Saline Intrusion	Good
	Quantitative Water Balance	Good
Chemical	Chemical Status element	
	Chemical Dependent Surface Water Body Status	Poor
	Chemical Drinking Water Protected Area	Good
	Chemical GWDTEs test	
	Chemical Saline Intrusion	Good
	General Chemical Test	Good
	Supporting elements (Groundwater)	
	Trend Assessment	High

WFD Scoping (Stage 2)

The purpose of the scoping stage is to identify the risks from the Proposed Scheme's activities to receptors based on the identified WFD waterbodies. The WFD Scoping (Stage 2) considers the potential risks during both the construction phase of the Proposed Scheme and once the scheme is complete (operational phase). Where risks have been considered, but the potential effect is considered to be negligible, this has been stated.

Risks to Hydromorphology

The hydromorphology of a watercourse / water body / groundwater can be impacted by the proposed Scheme. Table 4 outlines the potential hydromorphological effects of the Proposed Scheme on the Conwy Bay coastal waterbody, the Conwy transitional waterbody and the underlying Llyn and Eryri groundwater catchment.

Table 4 - Potential Effects on Hydromorphology

Construction or Operational Phase	Source of Effect	Potential Effects
Construction	Suspended Solids Increased fine sediment supply to the coastal waterbody could occur during construction works. This may result from the disturbance caused by hand tools to remove the groynes.	A possible short-term increase in turbidity and siltation may occur.
Operational	Suspended Solids Increased sediment mobility and thus supply to the coastal waterbody could occur from the removal of the groynes.	The removal of groynes can lead to a possible increase in sediment supply to the waterbody, however this would be no different to the beach condition prior to the groynes being installed. By removing the deteriorating groynes from the beach, we are restoring the natural geomorphological state of the shoreline

Risks to Biology

The biological habitats and fish and other species within the zone of influence can be impacted by the Proposed Scheme. Table 5 outlines the potential biological effects of the Proposed Scheme on the Conwy Bay coastal waterbody, the Conwy transitional waterbody and the underlying Llyn and Eryri groundwater catchment.

Table 5 – Potential Effects on Biology

Construction or Operational Phase	Source of Effect	Potential Effects
Construction	Suspended Solids Increased fine sediment supply to the coastal waterbody is likely to occur during construction works. This may result from the disturbance caused by hand tools to remove the groynes	Increased fine sediment has the potential to smother benthic organisms such as bivalves, crustaceans and worms (removing prey from the food chain), increase turbidity and clog fish gills and spawning habitats.

Risk to Water Quality

There is potential for the Proposed Scheme to impact on the water quality of a watercourse / water body. Table 6 outlines the potential effects of the Proposed Scheme on the water quality of the Conwy Bay coastal waterbody, the Conwy transitional waterbody and the underlying Llyn and Eryri groundwater catchment.

Table 6 – Potential Effects on Water Quality

Construction or Operational Phase	Source of Effect	Potential Effects
Construction	Pollutants from machinery (hand tools) The use of machinery (hand tools) on or within the vicinity of the site during the construction phase has the potential to allow uncontrolled releases of pollutants such as fuel (depending on tools used), solvents and oils.	Accidental leakages and spillages during the construction phase can have short to medium term effect on the receiving waterbody and underlying groundwater.

Construction and Operational Phase Mitigation

Impacts of the Proposed Scheme on WFD Compliance

Providing the mitigation measures identified below are implemented the Proposed Scheme will have a negligible effect on the identified waterbodies.

Construction Phase Mitigation

In order to minimise the risk of deleterious effects of the Proposed Scheme on the Conwy Bay coastal waterbody and Llyn and Eryri groundwater catchment, and to ensure that the Proposed Scheme is WFD compliant, the following mitigation measures are recommended during the construction phase.

Sediment

Timing of works must be carefully considered. The construction should be carried out during low tide to reduce the risk of fine sediment entering the coastal waterbody.

Contamination

Potential contamination risks can be mitigated by ensuring that a suitably experienced and competent contractor is employed to undertake the works. The contractor should ensure that all method statements are prepared with due consideration to minimising the release of potentially contaminative materials / compounds such as fuel, oils and chemicals (dependant on the hand tools used), which could have a significant impact in the vicinity of the construction site. Contractors should also provide / implement the necessary measures needed to be in place to prevent the accidental release of pollutants into the sea and onto surrounding land. This could include keeping a small scale oil spill kit on site to contain any spills and allow for swift removal of any contaminants.

Appendix H details some of the pollution prevention measures which should be put in place.

Further guidance on good practice is provided in the documents below:

- CIRIA Report C741 (January 2015) Environmental Good Practice on site guide (fourth edition);
- Environment Agency (EA) (2004) Getting Your Site Right: Industrial and Commercial Pollution Prevention; and
- Guidance for Pollution Prevention (GPP), the most relevant being:
 - GPP 1 – Understanding your environmental responsibilities – good environmental practices (June 2021);
 - GPP 3 – Use and design of oil separators in surface water drainage systems (March 2022);
 - GPP 5 – Works and Maintenance in or near Water (February 2018);
 - GPP 13 – Vehicle Washing and Cleaning (April 2017);

- GPP 21 - Pollution incident response planning (June 2021);
- GPP 22 – Dealing with spills (October 2018)

Construction Phase Residual Risks

Implementing the measures detailed above will ensure the residual effects of the construction of the Proposed Scheme in the context of the WFD are negligible.

Where contamination is suspected, a suitably experienced operative should be appointed to undertake appropriate mitigation works.

Given that the work only requires hand tools, the potential for contamination associated with the activities is negligible.

Conclusions and Recommendations

Impact of the Proposed Scheme on WFD Compliance

The Proposed Scheme could have some local effects on the hydromorphological, biological and chemical status of the WFD Conwy Bay coastal waterbody and Conwy transitional waterbody, primarily during the construction phase. The works also have the potential to impact the WFD Llyn and Eryri groundwater catchment. The effects will be negligible if a competent and experienced contractor is employed and work is undertaken in accordance with relevant pollution prevention guidance and construction best practice.

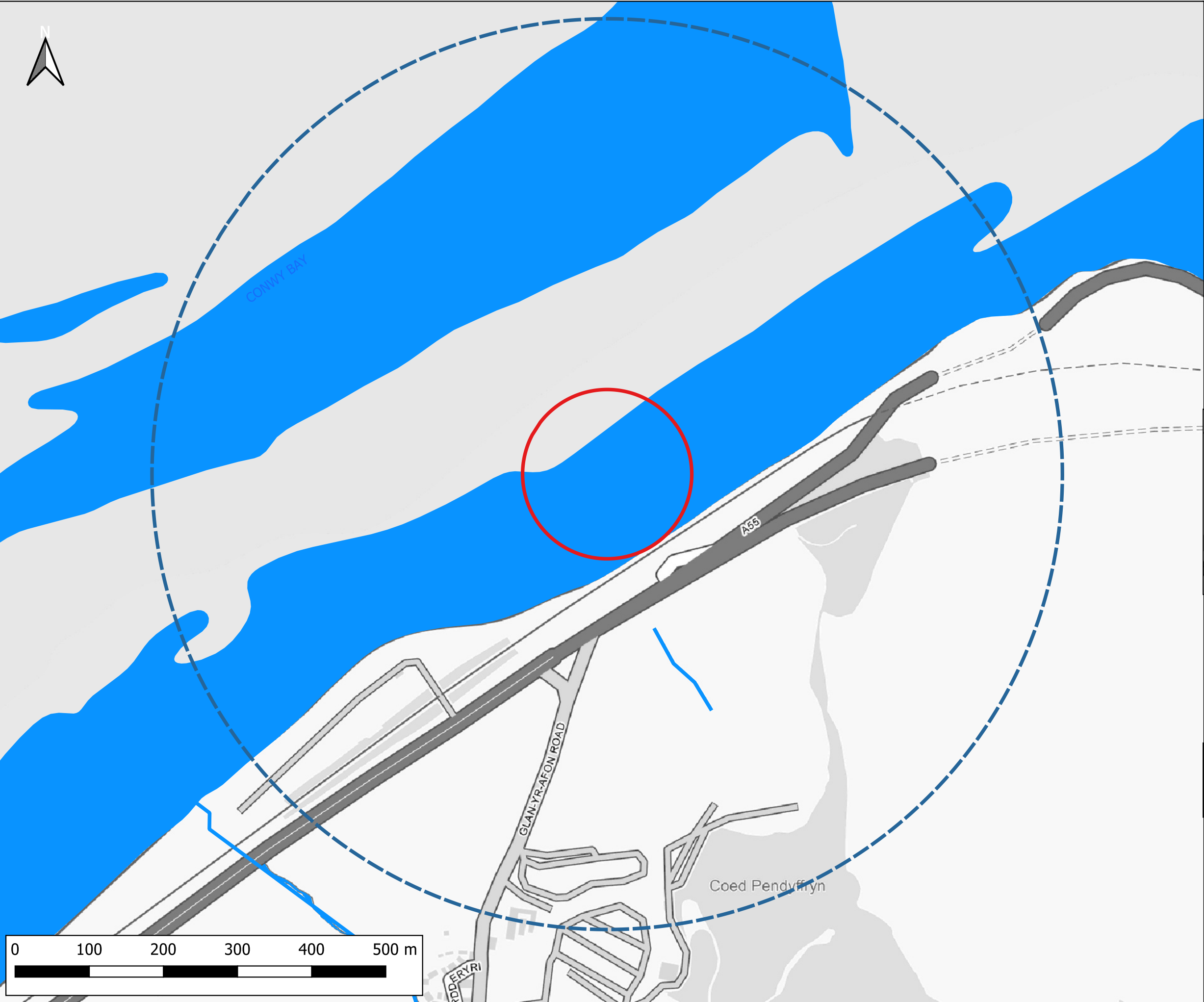
Overall, the works as proposed are expected to have negligible impact on the overall status of the receiving WFD waterbodies.

Recommendations

It is recommended that all contractors prepare method statements which include the necessary pollution prevention and construction good practice requirements for the Proposed Scheme. These can be collated in a Construction Environmental Management Plan (CEMP) or similar style document that would ensure that all stakeholders during the construction stage are working towards the same standard.

It is recommended that all mitigation measures outlined within this report are implemented to ensure the risks to controlled waters is negligible.

Appendix A Zone of Influence Plan



Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

LEGEND

- Site Boundary
- 500m Zone of Influence
- Watercourses
- Waterbodies

CLIENT:

MPH Construction


www.waterco.co.uk

SCHEME:

Penmaenbach, Conwy

PLOT TITLE:

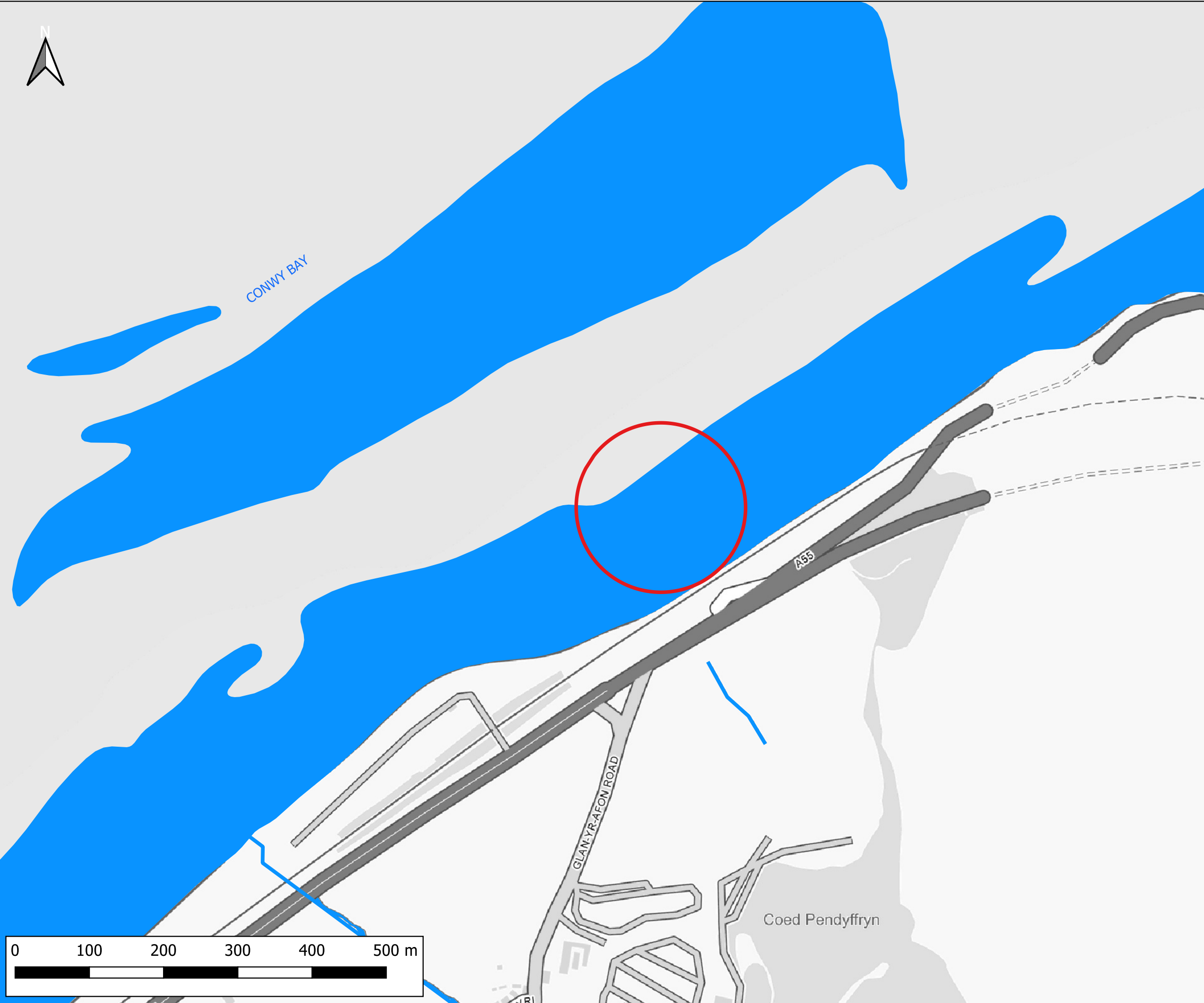
Zone of Influence Plan

PLOT STATUS:		DATE:	
FINAL		05-08-2024	

DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
MJW	AW	MW	1:5000

PLOT NAME:	REVISION:
16065_ZoI_Plan	-

Appendix B Location Plan and Aerial Image



Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

LEGEND

- Site Boundary
- Watercourses
- Waterbodies

CLIENT:
MPH Construction

waterco
www.waterco.co.uk

SCHEME:
Penmaenbach, Conwy

PLOT TITLE:
Location Plan

PLOT STATUS: FINAL		DATE: 30-07-2024	
DRAWN: JP	CHECKED: MJW	APPROVED: AW	PLOT SCALE AT A3: 1:5000
PLOT NAME: 16065_Location_Plan			REVISION: -



Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

LEGEND

Site Boundary

CONWY
Dwygyfylchi
Capelulo
CON
Cas
15a
16
16a
17
Deganwy
Conwy Sands

CLIENT:

MPH Construction

www.waterco.co.uk

SCHEME:

Penmaenbach, Conwy

PLOT TITLE:

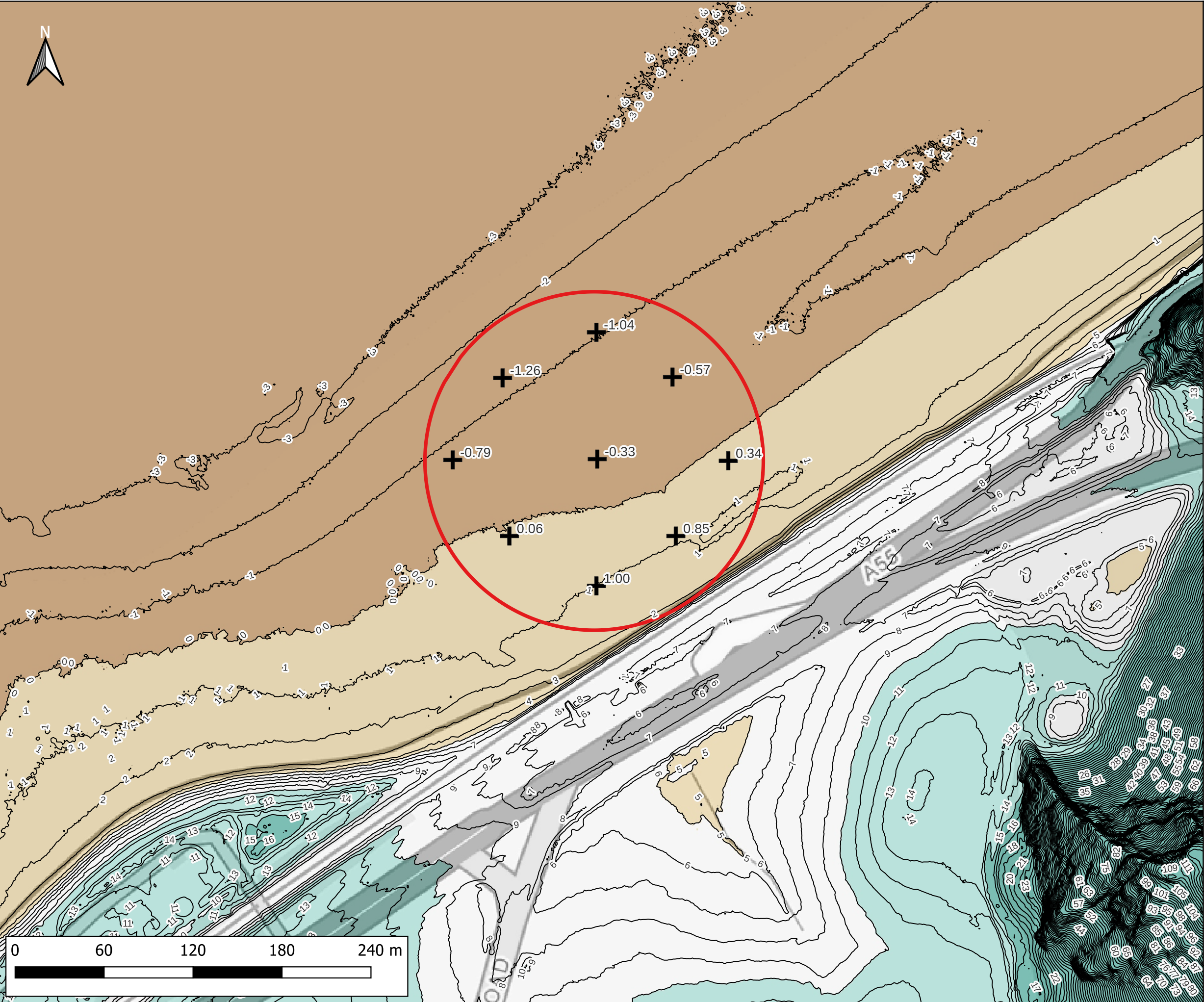
Aerial Plan

PLOT STATUS:		DATE:	
FINAL		30-07-2024	

DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
JP	MJW	AW	1:5000

PLOT NAME:	REVISION:
16065_Aerial_Plan	-

Appendix C LiDAR Plan



Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

LEGEND

- Site Boundary
- 1m contour
- Site Levels (m AOD)

Ground Elevations (m AOD)

- <= 0
- 0 - 5
- 5 - 10
- 10 - 15
- > 15

CONWY

Conwy Sands

Dwygyfylchi

Capelulo

MPH Construction

waterco
www.waterco.co.uk

SCHEME:

Penmaenbach, Conwy

PLOT TITLE:

LiDAR Plan
1m Resolution
Data from Natural Resources Wales

PLOT STATUS:

FINAL

DATE:

30-07-2024

DRAWN: JP

CHECKED: MJW

APPROVED: AW

PLOT SCALE AT A3:

1:2500

PLOT NAME:

16065_LiDAR_Plan

REVISION:

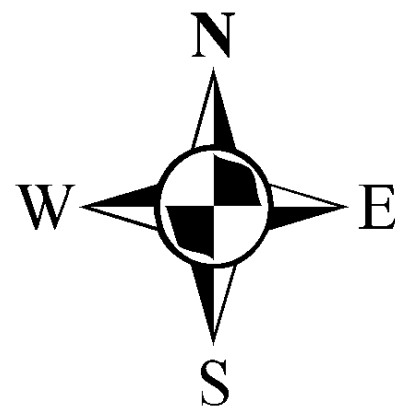
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Appendix D DCWW Sewer Records



Dŵr Cymru
Welsh Water

16064 - Penmaenbach, Conwy, LL34 6UF



LEGEND(Representative of most common features)

Waste network:			
●	Foul chamber	○	Outfall
○	Surface water chamber	□	Lamp hole
○	Combined chamber	---	Storm Overflow
○	Combined sewer overflow	---	Rising main
○	Special purpose chamber	---	Gravity sewer
□	Treatment works	---	Private sewer
△	Pumping station	---	Private sewer subject to Sect. 124 adaptation agreement
		---	Private Sewer Transfer
		---	Lateral Drain
		---	Inspection Chamber

NB: Sewer symbol colour indicates the type.
RED - Combined
GREEN - Surface Water
BROWN - Foul
Purple - Former S24 sewers (for indicative purposes only)

Notes:

Whilst every reasonable effort has been taken to correctly record the pipe material of DCWW assets, there is a possibility that in some cases, pipe material (other than Asbestos Cement or Pitch Fibre (PF)) may be found to be asbestos cement (AC) or Pitch Fibre (PF). It is therefore advisable that the possible presence of AC or PF pipes be anticipated and considered as part of any risk assessment prior to excavation

Dŵr Cymru Cyllynedy (the Company) gives this information as to the position of its underground apparatus by way of general guidance only and on the basis of the best information available and to the best of its knowledge and belief. The accuracy of the information is not guaranteed and the Company is not responsible for any loss or damage caused by reliance on the information. The information is provided for your information only and is not to be used for any other purpose. The information is provided for your information only and is not to be used for any other purpose. The information is provided for your information only and is not to be used for any other purpose.

Service pipes are not generally shown but their presence should be anticipated.

EXACT LOCATIONS OF ALL APPARATUS TO BE DETERMINED ON SITE.

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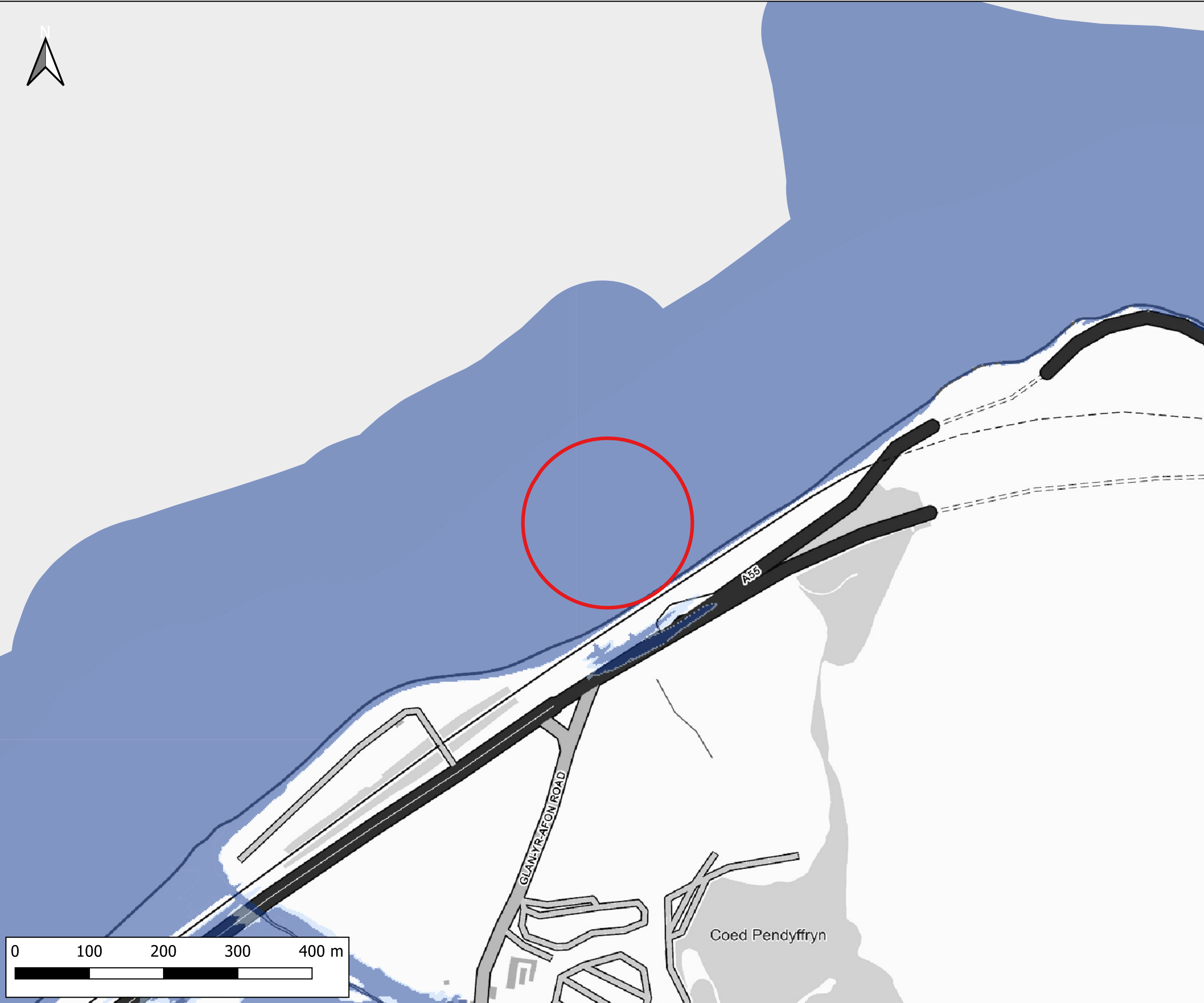
Map Ref: 274154,378254

Map scale: 1:1500

Printed by: Tyrique Golding

Printed on: 01 Aug 2024

Appendix E NRW Flood Maps



Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

LEGEND

Site Boundary

NRW Flood Map for Planning

Flood Zone 2

Flood Zone 3

CLIENT:

MPH Construction

www.waterco.co.uk

SCHEME:

Penmaenbach, Conwy

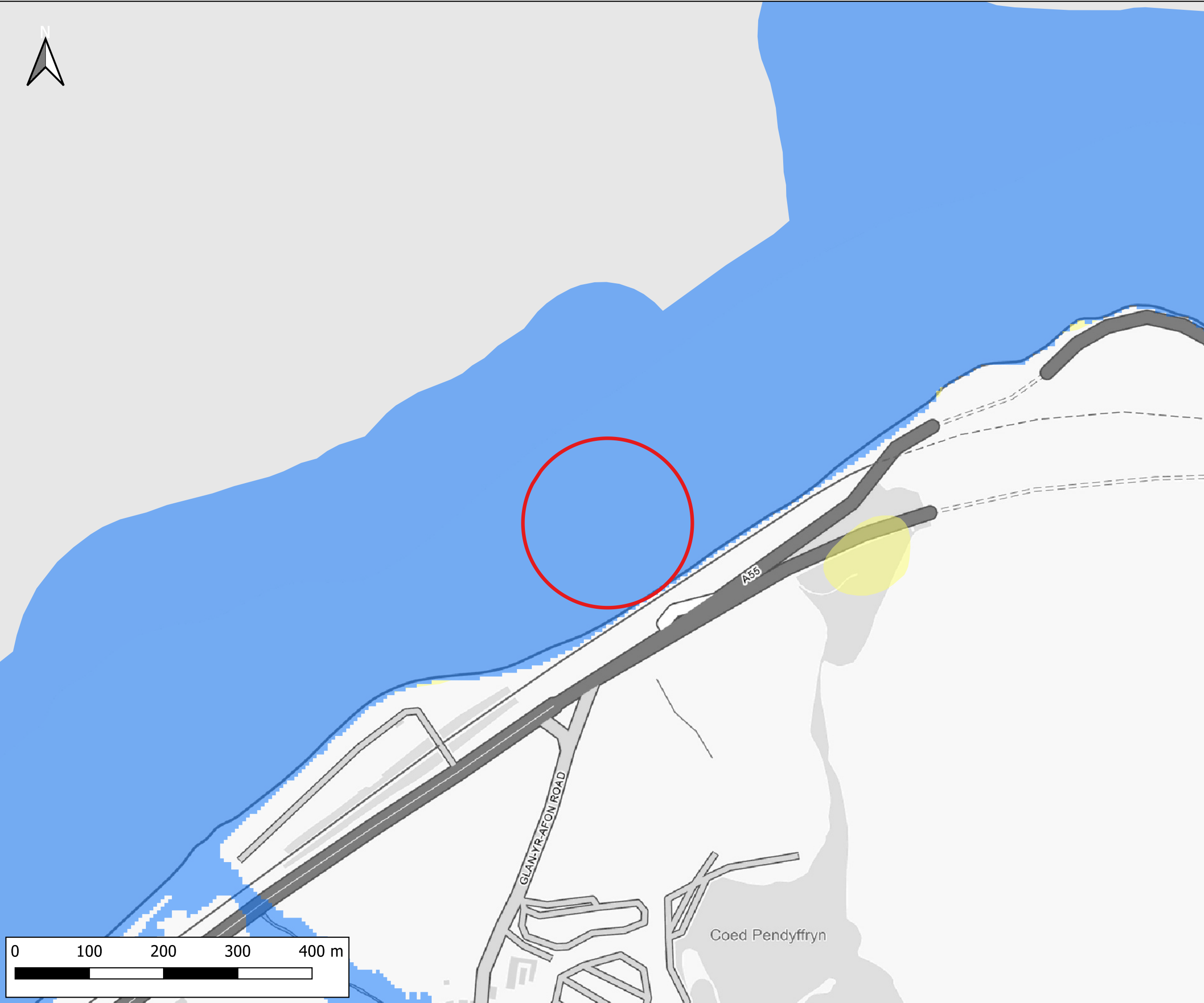
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Data accessed August 2024

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FINAL		14-08-2024	

DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
MJW	AW	MW	1:5000

PLOT NAME:	REVISION:
16065_NRW_FMfP_Map	-



Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

LEGEND

Site Boundary

Development Advice Map (TAN15)

Zone A

Zone B

Zone C1

Zone C2

CONWY

Conwy Sands

Deganwy

Dwygyfylchi

Capelulo

16a

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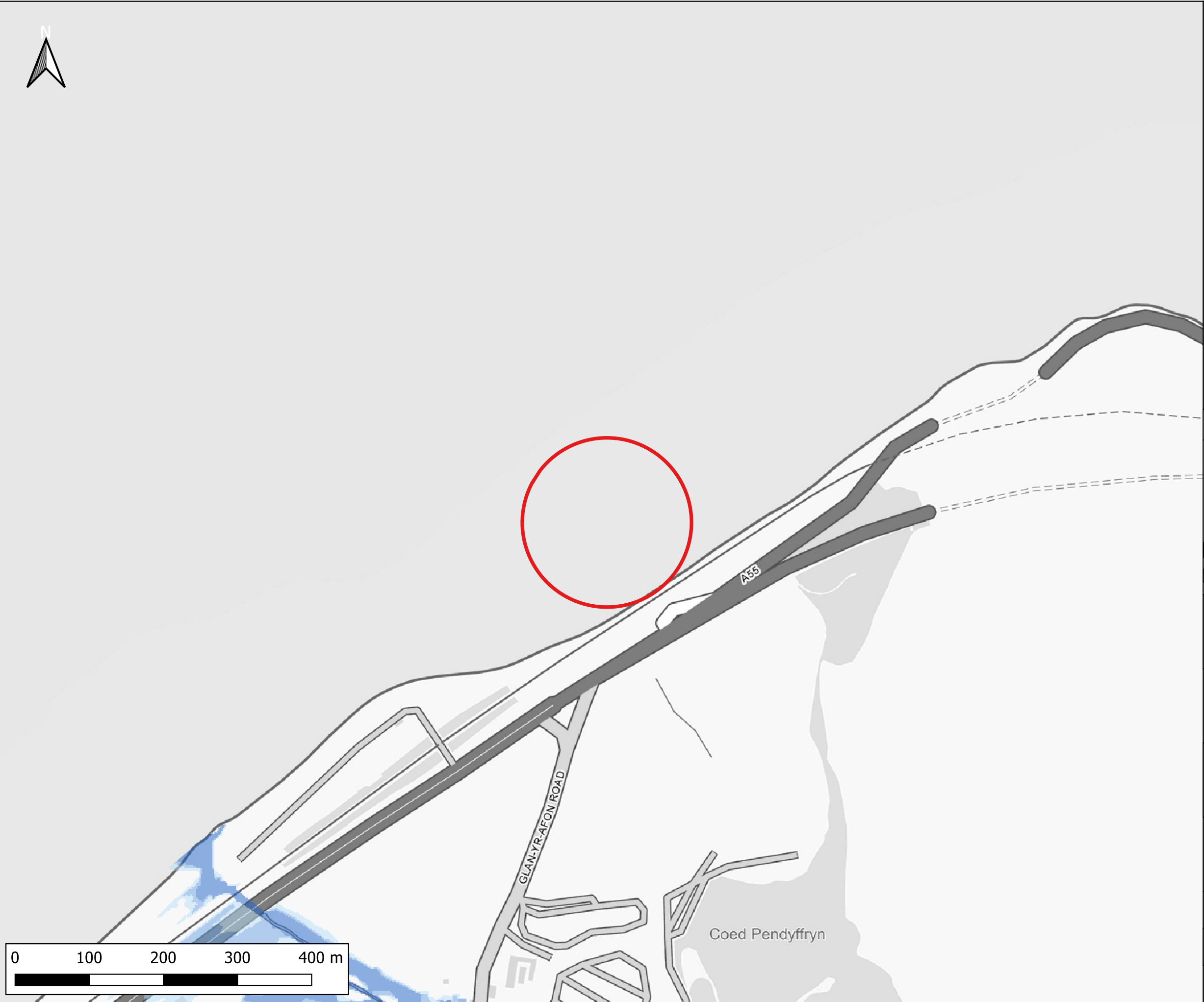
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Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

LEGEND

Site Boundary

NRW Flood Risk from Rivers

High

Medium

Low

CLIENT:

MPH Construction

www.waterco.co.uk

SCHEME:

Penmaenbach, Conwy

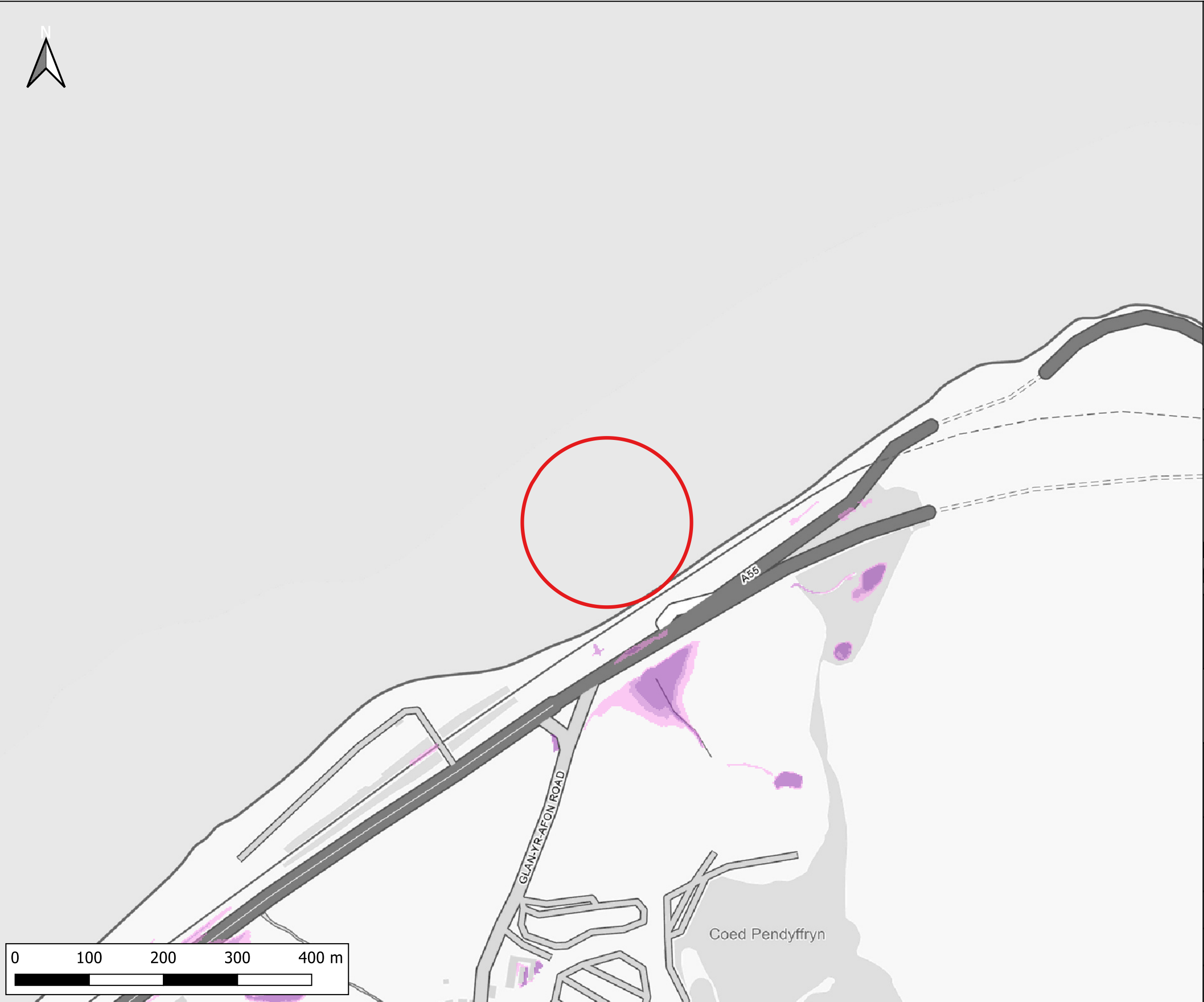
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Data accessed July 2024

PLOT STATUS:		FINAL		DATE:	30-07-2024
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DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
JP	MJW	AW	1:5000

PLOT NAME:	REVISION:
16065_NRW_Flood_Risk_from_Rivers	-



Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

LEGEND

Site Boundary

NRW Flood Risk from Surface Water and Small Watercourses

High

Medium

Low

CLIENT:
MPH Construction

www.waterco.co.uk

SCHEME:
Penmaenbach, Conwy

PLOT TITLE:
NRW Flood Risk from Surface Water & Small Watercourses
Data accessed July 2024

PLOT STATUS:
FINAL

DATE:
30-07-2024

DRAWN:
JP

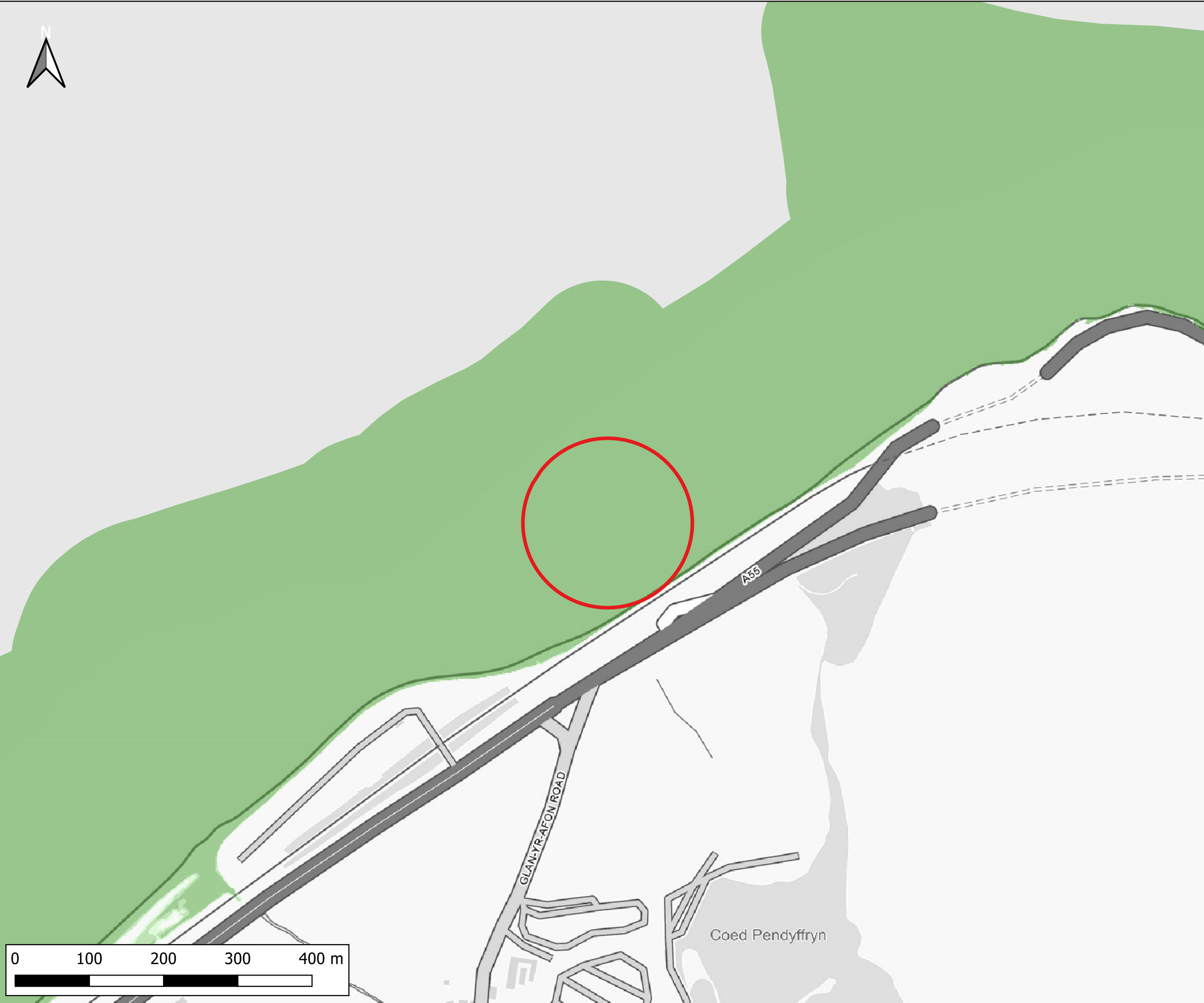
CHECKED:
MJW

APPROVED:
AW

PLOT SCALE AT A3:
1:5000

PLOT NAME:
16065_NRW_Flood_Risk_from_Surface_Water

REVISION:
-



Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

LEGEND

Site Boundary

NRW Flood Risk from the Sea

High

Medium

Low

CLIENT:

MPH Construction

www.waterco.co.uk

SCHEME:

Penmaenbach, Conwy

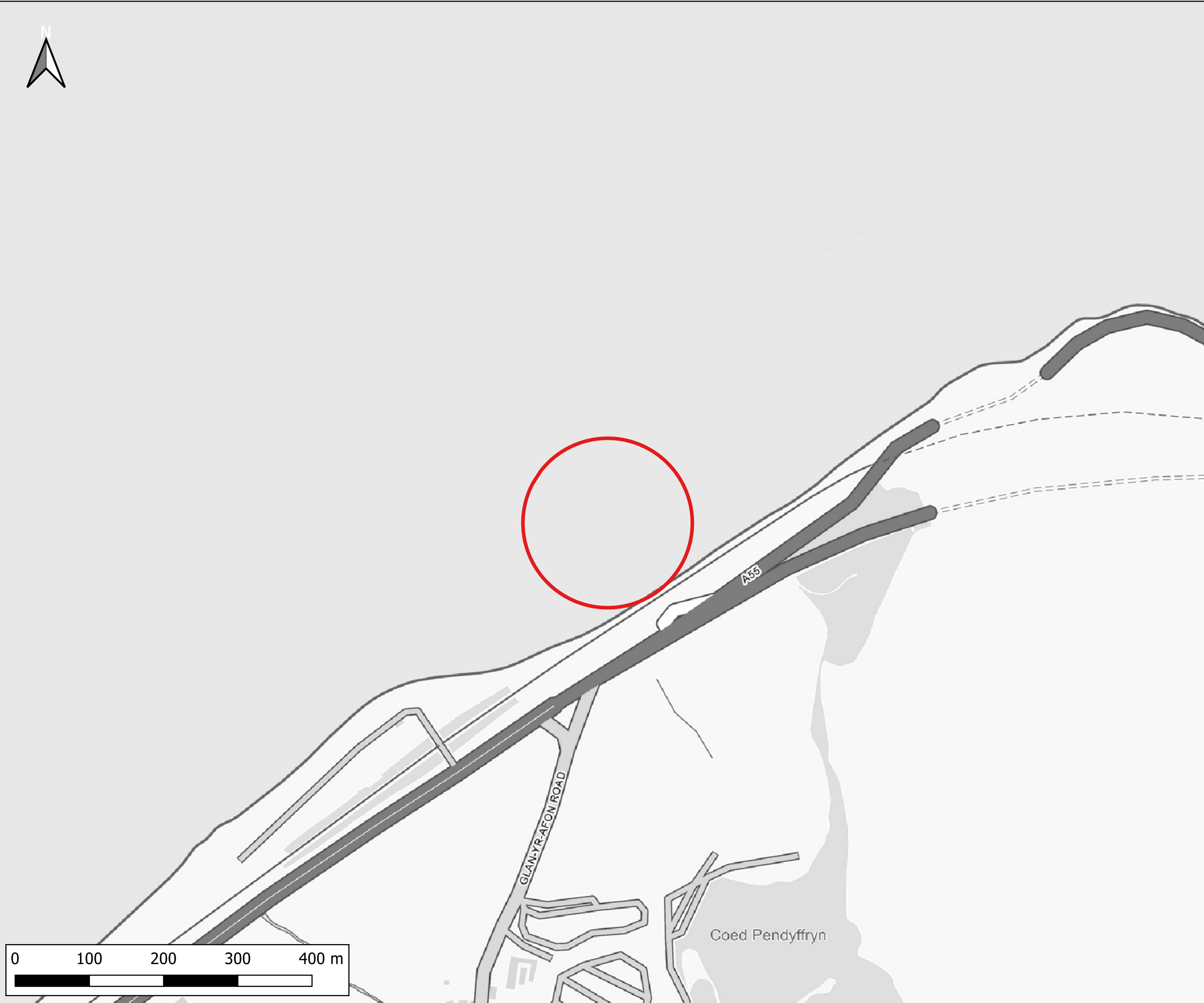
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NRW Flood Risk from the Sea
Data accessed July 2024

PLOT STATUS:		DATE:	
FINAL		30-07-2024	

DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
JP	MJW	AW	1:5000

PLOT NAME:	REVISION:
16065_NRW_Flood_Risk_from_the_Sea	-



Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

LEGEND

Site Boundary

Flood Risk from Reservoirs Symbology

CLIENT:

MPH Construction

www.waterco.co.uk

SCHEME:

Penmaenbach, Conwy

PLOT TITLE:

NRW Flood Risk from Reservoirs
Data accessed July 2024

PLOT STATUS:		DATE:	
FINAL		30-07-2024	

DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
JP	MJW	AW	1:5000

PLOT NAME:	REVISION:
16065_NRW_Flood_Risk_from_Reservoirs	-



Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

LEGEND

Site Boundary

NRW Historic Flood Map

CONWY

Deganwy

Conwy Sands

Dwgyfylchi

16a

16

Capelulo

CON

CA

CLIENT:

MPH Construction

www.waterco.co.uk

SCHEME:

Penmaenbach, Conwy

PLOT TITLE:

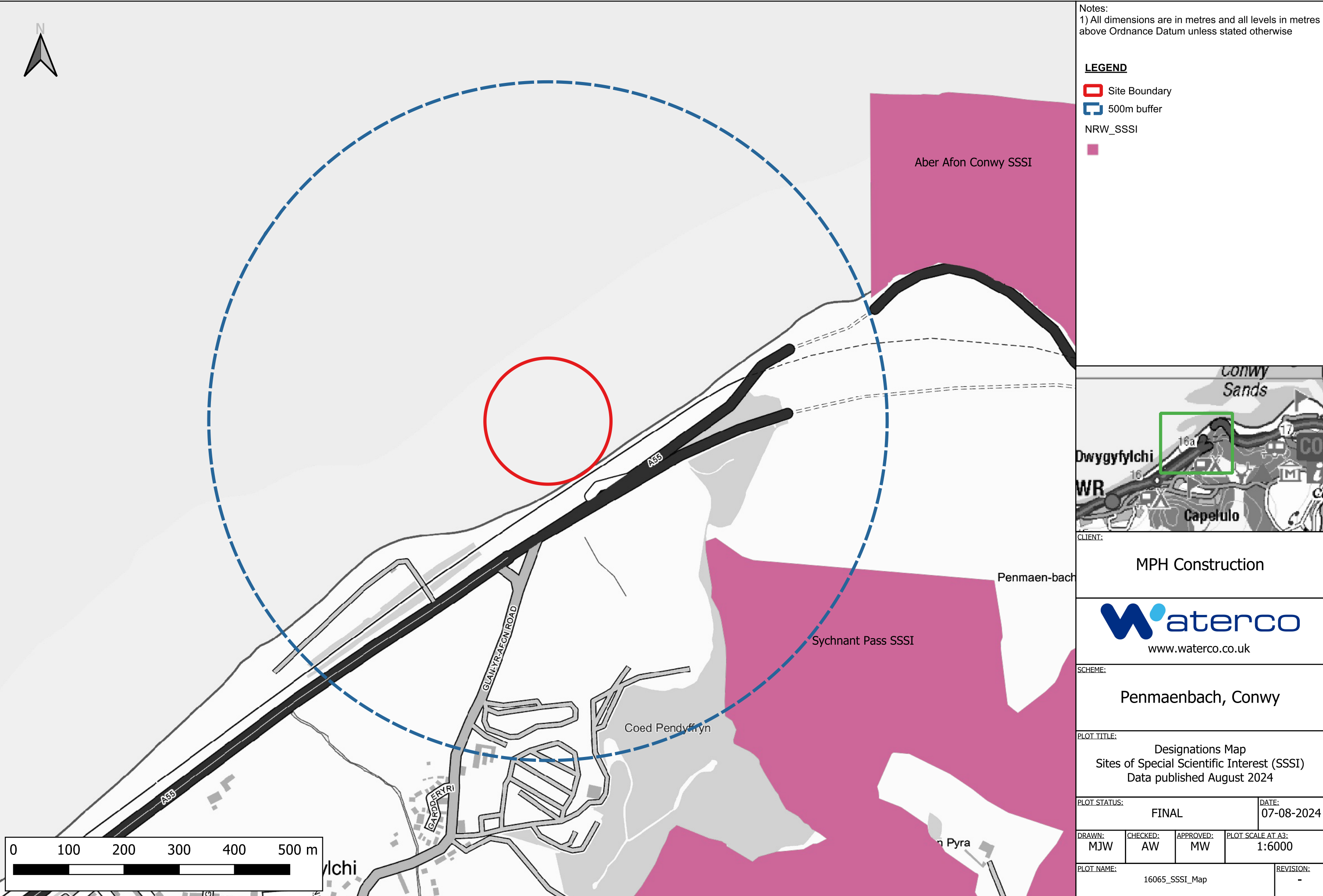
NRW Historic Flood Risk
Data accessed July 2024

PLOT STATUS:		DATE:	
FINAL		30-07-2024	

DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
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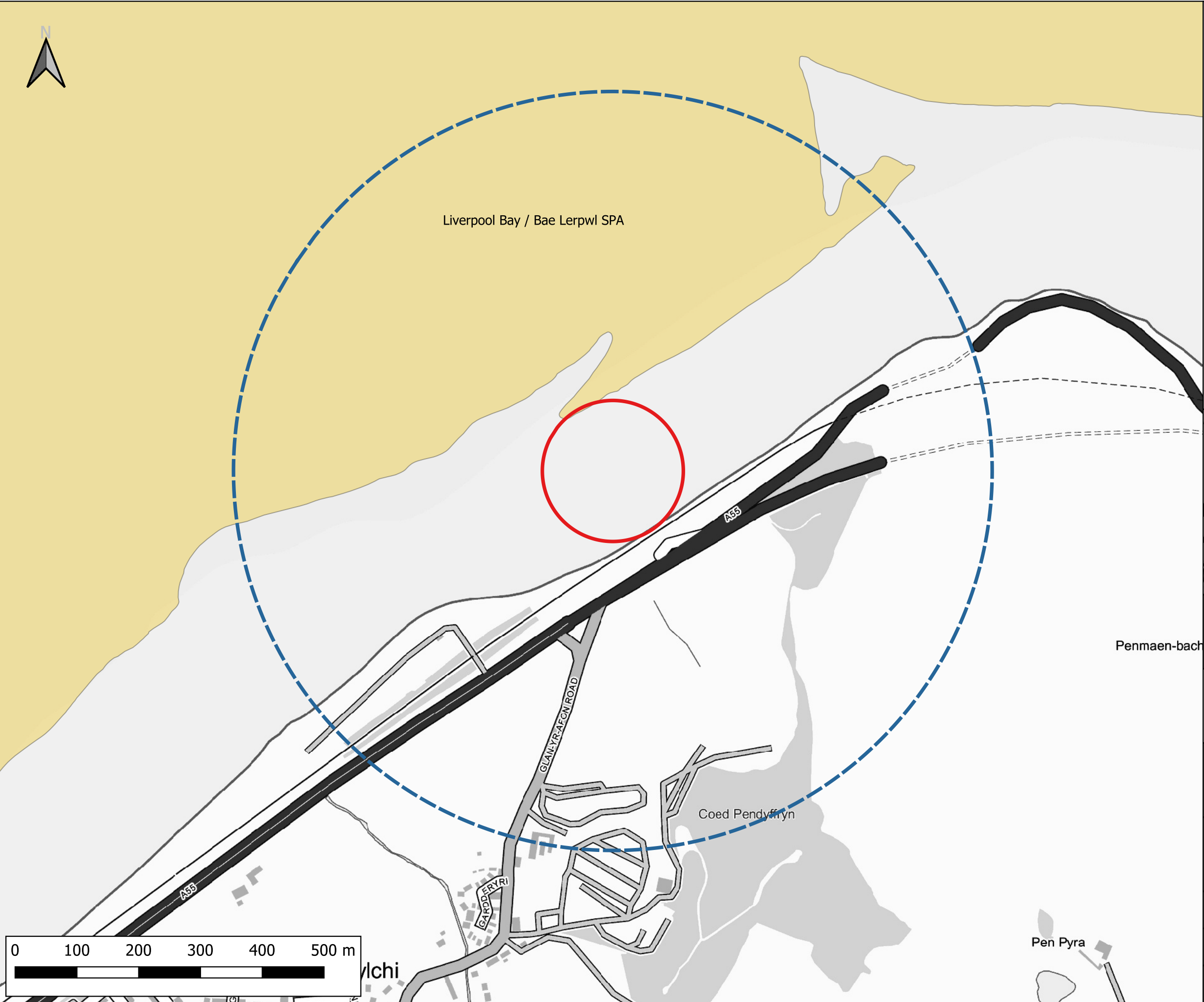
PLOT NAME:	REVISION:
16065_NRW_Historic_Flood_Risk	-

Appendix F Designations Map



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CONTAINS PUBLIC SECTOR INFORMATION LICENSED UNDER THE OPEN GOVERNMENT LICENCE V3.0.



Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

LEGEND

- Site Boundary
- 500m buffer
- NRW_SPA

CLIENT:

MPH Construction

www.waterco.co.uk

SCHEME:

Penmaenbach, Conwy

PLOT TITLE:

Designations Map
Special Protection Area (SPA)
Data published August 2024

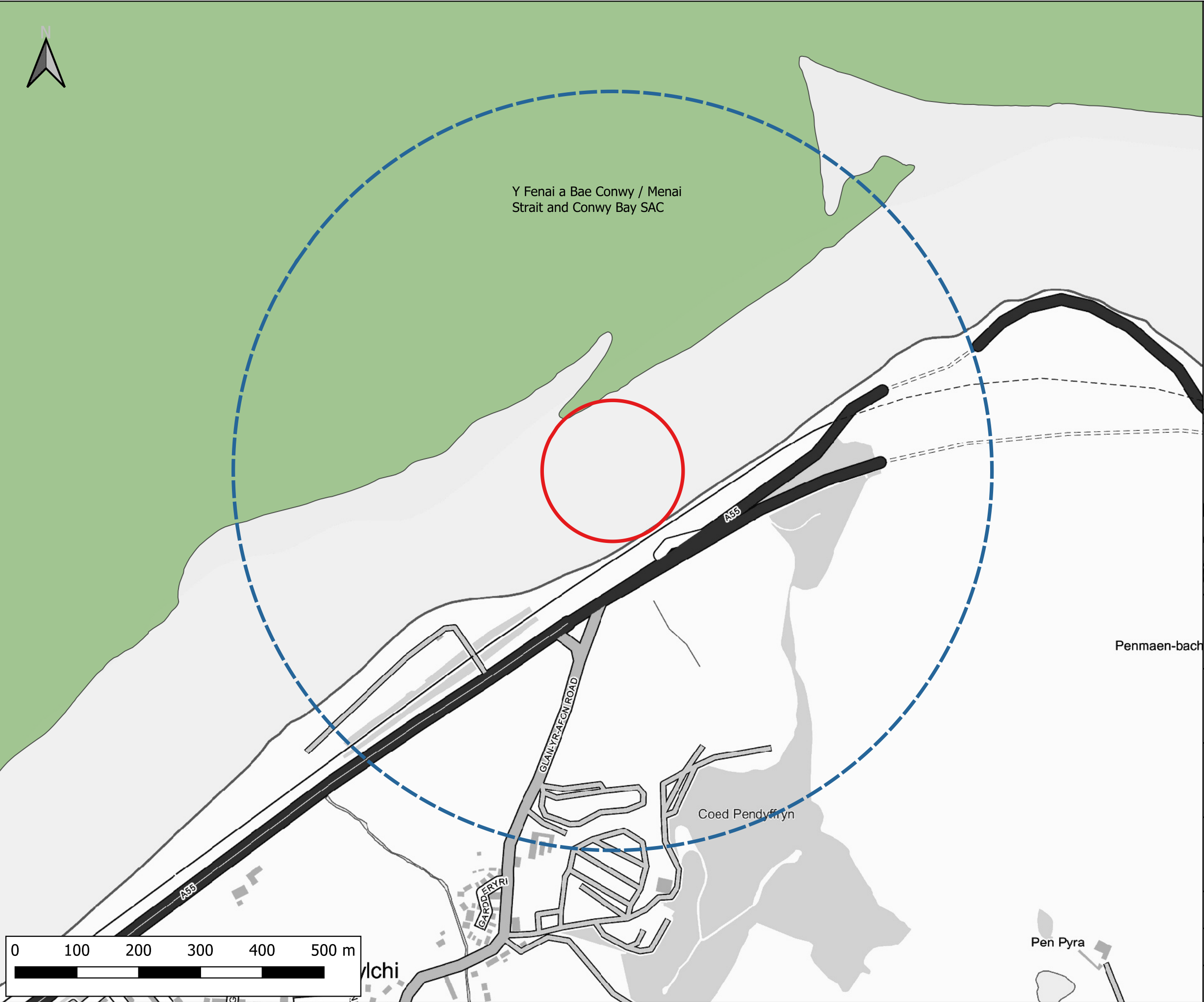
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DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
MJW	AW	MW	1:6000

PLOT NAME:	16065_SPA_Map	REVISION:	-
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CONTAINS PUBIC SECTOR INFORMATION LICENSED UNDER THE OPEN GOVERNMENT LICENCE v3.0



Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

LEGEND

- Site Boundary
- NRW_SAC
- 500m buffer

CLIENT:

MPH Construction

www.waterco.co.uk

SCHEME:

Penmaenbach, Conwy

PLOT TITLE:

Designations Map
Special Areas of Conservation (SAC)
Data published August 2024

PLOT STATUS:		DATE:	
FINAL		07-08-2024	

DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
MJW	AW	MW	1:6000

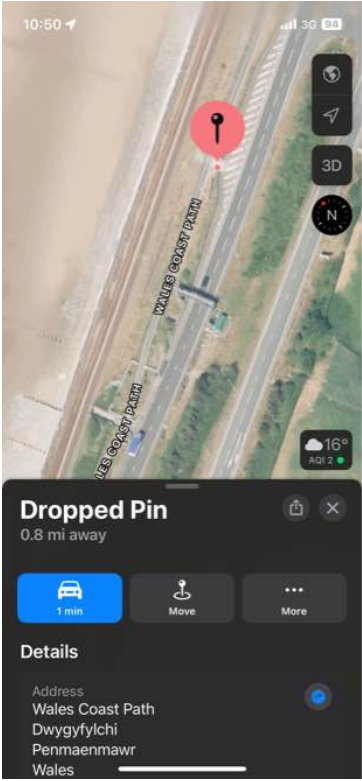
PLOT NAME:	REVISION:
16065_SAC_Map	-

Appendix G Photographs of existing groynes

Photos/Additional Information

What Three Words Location Before	Warned.collected.smoothly 

FF08 Structure Minor Works PPM Scoping Document



Appendix H Pollution Control Measures

Typical pollution control measures to be considered during the construction phase; the list below is best practice, is not exhaustive and reference to the appropriate and relevant guidance should also be undertaken on more complex schemes:

- Potentially contaminating materials should be stored correctly. Minimise the potential for accidental release but protecting from the elements (wind & rain) and from vandalism and theft.
- Potentially contaminating liquids, such as oils and fuel (in small volumes), should be stored on a drip tray or in a closed storage unit when not in use.
- Spill kits should be available on site at all times and operatives should be trained in how to use them.
- Any ground contaminated during the course of the works should be excavated and disposed of correctly in accordance with current waste disposal legislation. Where gross contamination occurs, professional advice should be sought immediately.
- Cleaning of tools /equipment will be carried out an appropriate distance away from the area of works.
- In any event of expected heavy rain any activities which increase the risk of contaminating runoff and should not be undertaken.