River Artro: Marine Licence Application

Water Framework Directive Initial Assessment

CPF6804

Document Control Sheet

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Project Ref / Title:	CPF6804- River Artro: Marine Licence
Project Manager:	Petra Urquhart Barlow

Revision History

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13/05/2019	0.01	Initial draft version for internal review
15/05/2019	0.02	Updated report sent to client for external review
17/05/2019	0.03	Final version sent to client following internal and external reviews

Reviews

Name	Title	Date	Version
Owain Griffith	Senior Engineer	15/09/2019	0.01
Emyr Gareth	Principle Engineer	15/05/2019	0.02
Phil Steen	Design and Construction Engineer	16/05/2019	0.02

Approvals

Name	Title	Date	Version
Owain Griffith	Senior Engineer	15/05/2019	0.03
Emyr Gareth	Principle Engineer	17/05/2019	0.03

Distribution

Name	Title	Date	Version
Phil Steen	Design and Construction Engineer	17/05/2019	0.03

Contents

1. The Project

YGC have been commissioned By Alun Griffiths Contractors Ltd. to undertake a Water Framework Directive (WFD) Compliance Assessment in relation to works due to be undertaken on the Network Rail Viaduct located at SH 579877 (see Appendix A for location plan) which crosses the River Artro (north of the village of Llanbedr). This WFD Assessment is to be submitted as part of the Marine Licence to Natural Resources Wales (NRW) in line with the Water Framework Directive 2000 requirements.

1.1 Context

This WFD Assessment is required as per the EU Water Framework Directive 2000. The purpose of the Directive is to establish a framework for the protection of inland surface waters (rivers and lakes), transitional waters (estuaries), coastal waters and groundwater. It aims to ensure that all aquatic ecosystems and, with regard to their water needs, terrestrial ecosystems and wetlands meet 'good status' by 2015.

The works to be undertaken are to an existing railway bridge that crosses the River Artro. The timber trestle bridge, consisting of multiple short spans with a number of piers within the channel, crosses the River Artro at SH 579877 and has a total span of ~72m. The works are required to replace elements of the bridge for safety reasons. During the works the bridge is to be closed to rail traffic.

The study area lies within the estuary of the River Artro (see Appendix A for location plan). The River Artro is designated a Main River and is therefore in NRW's jurisdiction. The bridge runs parallel to the Sarn Hir A496 road (once it has crossed the river).

This report will outline the works to be undertaken including background context of the area where the works are located, asses the WFD requirements based on the proposed works and will summarise the final findings and conclusions.

Watercourses

The River Artro watercourse is to be considered in terms of water quality and hydrogeomorphology as part of this WFD assessment.

Following the WFD assessment, in 2015 the River Artro water quality status has been classed as overall 'Good'. Table 1-0 provides an overall summary of the River Artro WFD Status.

Table 1-0 Summary of WFD River Artro Overall Classification (2015)

WFD River Catchments C1 2015	
FIB	678
WBID	GB110064048220
Name	Artro
Country	Wales
RBD_ID	10.0
RBDDesc	Western Wales
HMWB	No

OverallSta	Good
ChemStatus	DNRA
EcoPotent	Status
EcoStatus	Good
EcoCert	Not Applicable
DrivEcoQE	Morphology, Hydrological Regime
Length of Waterbody	~9.5km

Designated Areas

Within 2.5km of the works the following designated sites have been identified (See Appendix B):

- SAC:
  - Coedydd Derw a Safleoedd Ystlumod Meirion/ Meirionnydd Oakwoods and Bat Sites
  - Pen Llyn a'r Sarnau/ Lleyn Peninsula and the Sarnau
  - Morfa Harlech a Morfa Dyffryn
- SSSI:
  - Morfa Dyffryn
  - Coed Lletywalter
  - Caeau Bwlch
  - Muria Gwyddelod
  - Coed Aber Artro
- NNR:
  - Morfa Dyffryn

Estuarine and Coastal Environments

Downstream of the bridge is the sensitive receptor the Pen Llyn a'r Sarnau SAC. It will be essential to ensure that there is no adverse effect to the quality of these coastal waters as a result of the works.

Due to the sensitivity of these downstream receptors it is essential that the coastal waters are given the same consideration as the fluvial waters. As the River Artro at the point of the bridge crossing flows into the estuary, there will be clear commitment to ensure that there are no elevated levels of pollutants or sediments that could have an adverse effect on any of the surface water quality or water ecosystems within the area.

The only designated site which could potentially be affected by the works is the SAC 'Pen Llyn a'r Sarnau/ Lleyn Peninsula and the Sarnau'. The other designated sites are not designated in relation to the water environment and are a significant distance from the works; it is therefore considered that they could not be detrimentally impacted as a result of the works.

The works are located within both the tidal floodplain and the fluvial floodplain of the Artro.

Appendix C and D illustrate the underlying aquifers for the area (reference only).

Appendix E illustrates the extent of the fluvial and tidal floodplain within the area of the works.

1.2 The Works to be undertaken

The works are due to be undertaken during a 16-day possession of the railway bridge by Alun Griffiths Contractors Ltd. Works have been programmed from 23.20 on Friday 25th October to 05:00 on Monday 11th November 2019.

The works to be undertaken comprise of the following activities:

Works to be carried out prior to 16-day railway possession during daytime working only:

1) Site compound set up in field adjacent to A496
2) Material delivery
3) High level scaffolding above high water level - suspended from viaduct deck
4) Changing bolts to viaduct trestles from floating platform

Works to be carried out during 16-day railway possession (24/7 working):

1. Changing timber elements on the viaduct – piles diagonals, walers, crosshead & corbels
2. Replacement of Back of wall timbers to south abutment
3. Change straps identified for replacement

Works to be carried out following 16-day railway possession:

1. Inspection works & outstanding works
2. Removal of site compound

Footprint of the works:

The four corners of the bridge footprint are located seaward of the normal tidal limit and are located at:

1) SH 57956 27669
2) SH 57961 27666
3) SH 57946 27765
4) SH 57941 27765

The total length of bridge is ~72m at a width of ~5m.

1.2.1 Works to be carried out prior to the 16-day railway possession

This section outlines the works that will be undertaken prior to the main works on the bridge. The following works will be undertaken during daytime working only.

The site compound is to be located away from the riverbanks at SH 578279.

Figure 1-0 illustrates the extent of the site compound (plan provided by Alun Griffiths Contractors Ltd. and extracted from the Method Statement).

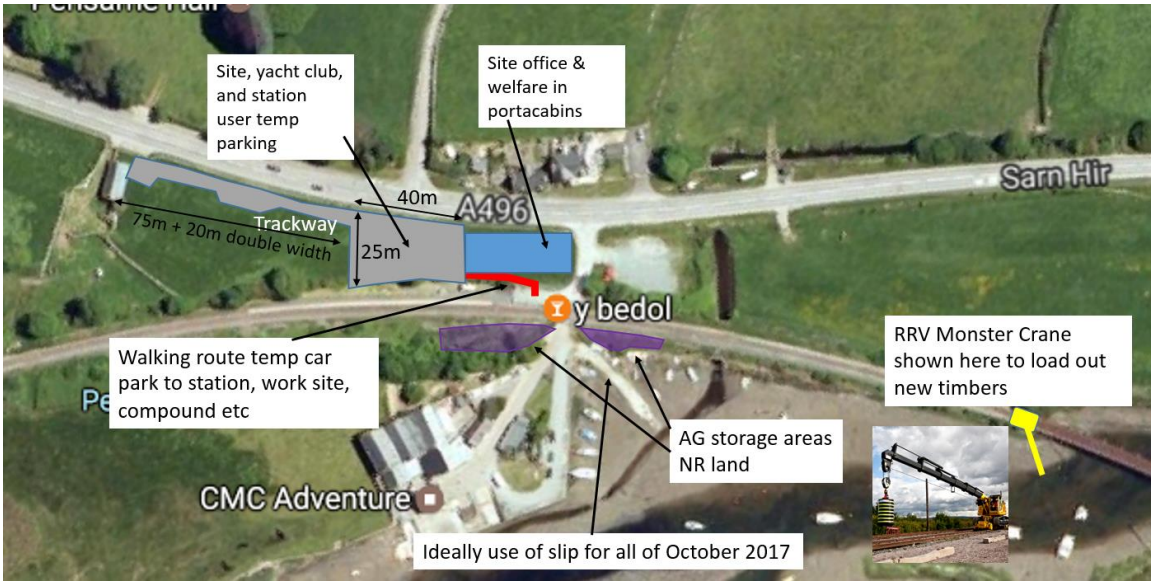


Figure 1-0- Extent of site compound

1) Site compound set up in field adjacent to A496:

- Trackway will be used to establish a quick and reusable surface for the site compound & site/welfare set up – this will be set up in the field between the railway platform and the A496 as shown in Figure 1-0
- Porta cabins will be used for site welfare & offices
- External lighting will be erected on the site cabins but will be erected so that they do not sign into house, onto the road or onto the river
- A self-contained super silent & bunded generator will be used to power the site accommodation

2) Material delivery:

- A material lay down area will be established opposite the station platform on the Network Rail land shown in purple in Figure 1-0 – this will require some minor de vegetation works in the form of strimming & minor tree pruning
- When materials are delivered to site they will be unloaded by either the hiab wagon, or site excavator/telehandler and positioned as required in the storage area.

3) High level scaffolding above high water level - suspended from viaduct deck:

- To allow the high-level timber elements which are above high-water level to be changed, scaffolding will be erected & suspended from the viaduct deck as shown in red on Figure 2-0 below. Erection of the scaffolding will be from the railway bridge deck and from the temporary floating platform. No scaffolding will be propped off the riverbed (see Figure 2-0 for typical cross section of scaffolding layout).

4) Changing bolts to viaduct trestles from floating platform:

- The existing bolts will be changed from a floating temporary (see Figure 3-0) working platform. This will be moved as required by a small outboard motor. The floating platform will only be within the channel main channel and near the structure when in use. The temporary floating platform will be moored when not in use (no accessible slipway to remove the pontoon when not in use).

  - The bolts will be replaced on a one in one out basis which will be designed & agreed with Network Rail before-hand. The existing bolts will be knocked through and then replaced with new stainless-steel bolts & the nuts secured.

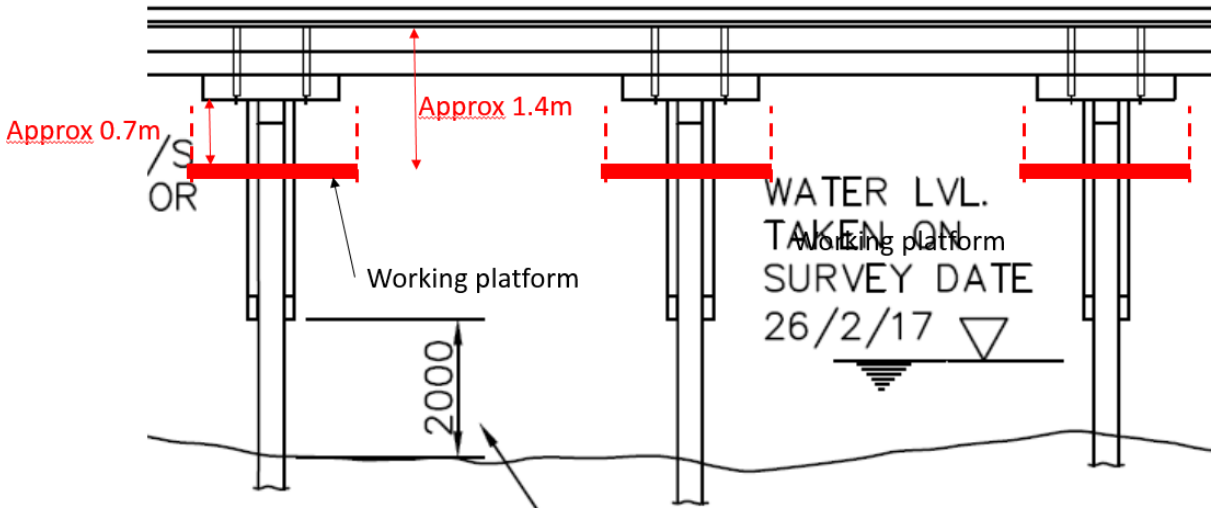


Figure 2-0- typical cross section of scaffolding layout

Figure 3-0- typical temporary floating platform

1.2.2 Works to be carried out during 16-day railway possession

The following works will be carried out during a 16-day railway possession during which no trains will be running – this is between 23:20 on Friday 25th October to 05:00 on Monday 11th November 2019.

1. Changing timber elements on the viaduct – diagonals, walers, crosshead & corbels:

These works will be carried out from either a floating working platform as used in the works prior to the 16-day possession or accessed track viaduct deck level using the scaffolding installed previously. A rail crane will be located on the viaduct deck which will be used for lifting and carrying of timber elements as required.

An indicative layout of each trestle is shown in Figure 4-0.

2. Replacement timber piles

The existing timber piles will be excavated by hand to a depth of approx. 1m as shown in the Figure 5-0:

- Works will be carried out by a 5-man diving team
- The excavation will be carried out by hand and a lightweight ground support box installed as the excavation progresses. The box will be allowed to flood
- The existing timber will be cut and spliced underwater using stainless steel splice clamps as shown in Figure 6-0

3. Change straps identified for replacement:

Some straps which connect timber elements of the viaduct together are in need of replacement so those identified will be replaced as part of these works – all of these works will either be carried out from the floating working platform or from the suspended scaffolding.

GLOSSARY OF TERMS

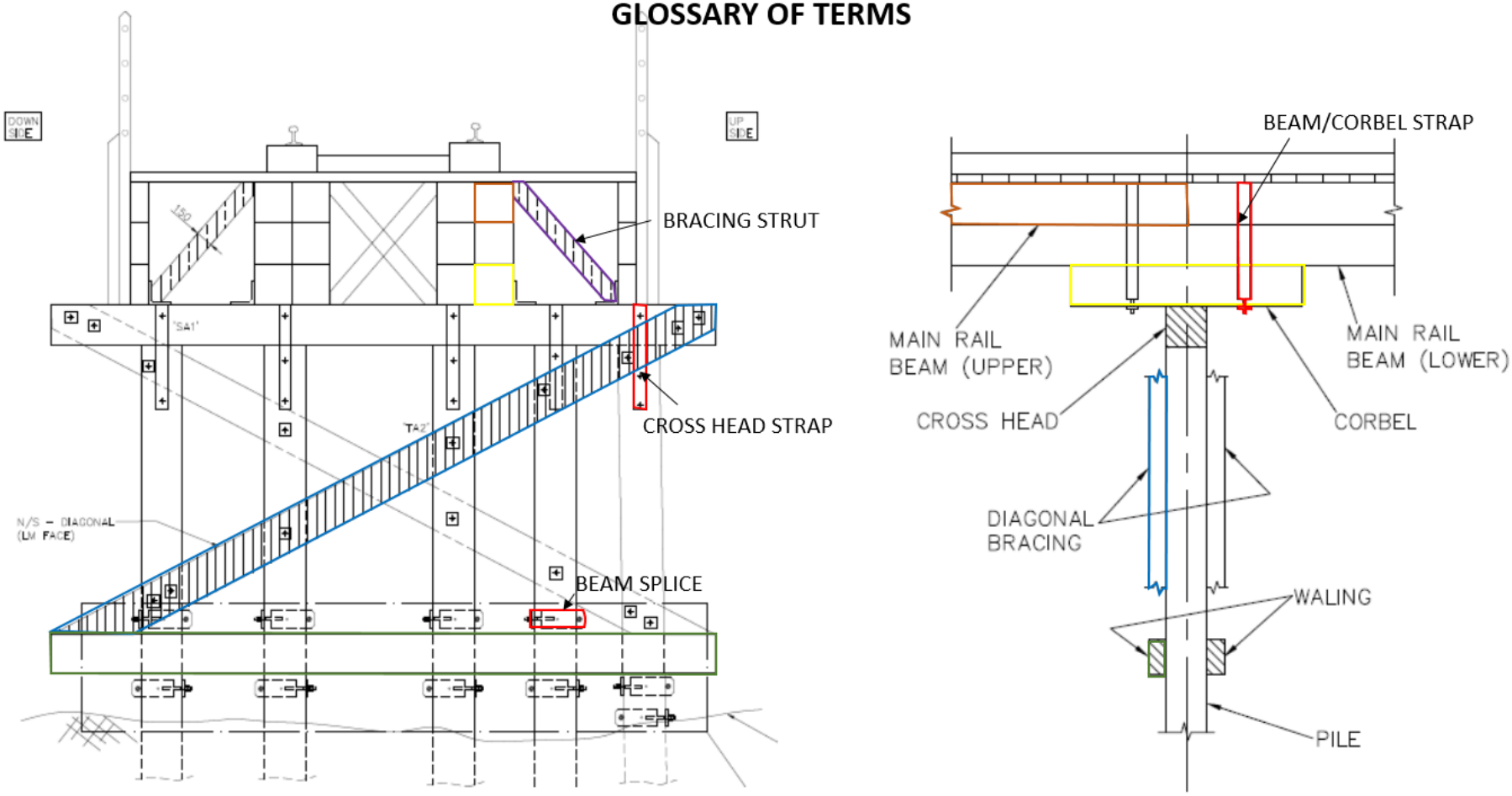


Figure 4-0- Indicative layout of each trestle

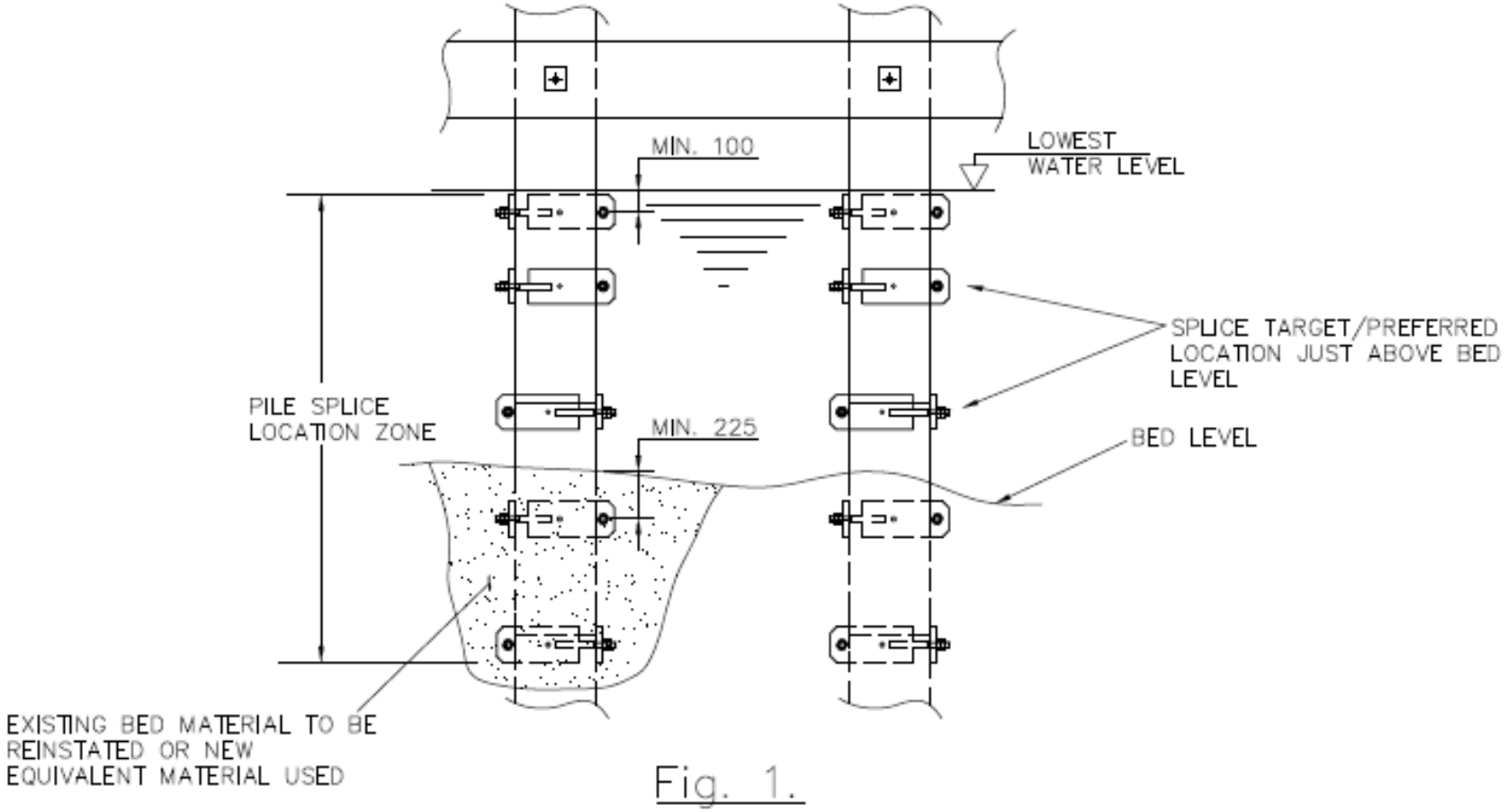


***Figure 5-0**- typical cross section for excavating timber piles by hand*

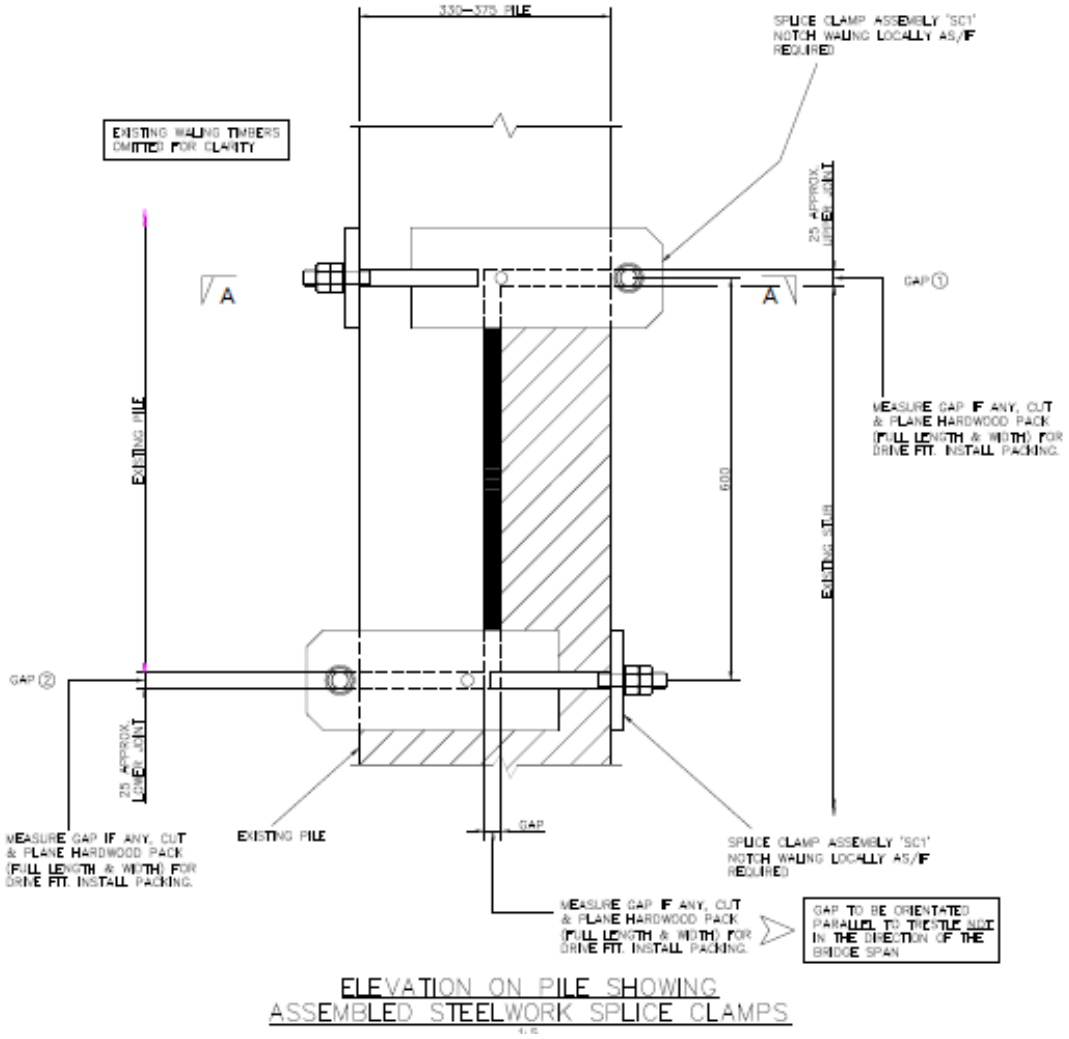


Figure 6-0- typical cross section for excavating timber piles by hand

1.2.3 Works to be carried out following 16-day railway possession

1. Inspection works & outstanding works:

On completion of the 16-day railway possession there will be some inspection works to be carried out and there is the potential of some additional works to be carried out which may only be realised once works are carried out to the viaduct.

2. Removal of site compound:

Once works are complete the site compound & cabins will be removed from site.

2. Legislative background

2.1 Introduction to the Water Framework Directive

The Water Framework Directive (WFD) 2001 requires all-natural waterbodies to achieve both Good Chemical Status (GCS) and Good Ecological Status (GES). The River Basin Management Plans (RBMPs) outline the actions required to enable natural waterbodies to achieve GES. Artificial and Heavily Modified Water Bodies (A/HMWBs) may be prevented from reaching GES due to the modifications necessary to maintain their function. They are, however, required to achieve Good Ecological Potential (GEP), through the implementation of a series of mitigation measures outlined in the applicable RBMP.

New activities and schemes that affect the water environment may adversely impact biological, hydromorphological and physico-chemical and/ or chemical quality elements (WFD quality elements), leading to a deterioration in water body status. They may also render proposed improvement measures ineffective, leading to the water body failing to meet its water body status or prevent a water body from meeting GES/ GEP by invalidating improvement measures.

Hydromorphology is a term used in the WFD to describe the physical form of a water body and the physical processes operating there. Hydromorphology encompasses both hydrological and geomorphological characteristics that, in combination, help support a healthy ecology within these freshwater and marine environments.

The overall ecological status of a water body is primarily based on consideration of its biological quality elements and determined by the lowest scoring of these elements. These biological elements are, however, in turn supported by the physico- chemical and hydromorphological quality elements. Assessment of hydromorphological quality is not explicitly required for a water body to achieve Moderate Ecological Status or lower. However, to achieve the overall WFD aim of GES or higher, hydromorphological quality must be considered within the classification assessment.

In addition, to achieve the overall WFD aim of GES, a water body must pass a separate chemical status assessment, relating to pass/fail checks on the concentrations of various identified priority/ dangerous substances.

2.2 Temporary Impacts

WFD does make allowances for temporary deterioration caused by natural causes that are exceptional or could not reasonably have been foreseen, for example, extreme floods or prolonged droughts.

The main objectives of the WFD are to:

- Prevent deterioration in the status of aquatic ecosystems, protect them and improve the ecological condition of waters;
- Aim to achieve at least 'Good Status' for all waters by 2015 (2021 or 2027 where fully justified within an extended deadline under Article 4.4);
- Promote sustainable use of water;
- Conserve habitats and species that depend directly on water;
- Progressively reduce or phase out the release of individual pollutants or groups of pollutants that present a significant threat to the aquatic environment;
- Progressively reduce the pollution of groundwater and prevent or limit the entry of pollutants; and
- Help reduce the effects of floods and droughts.

2.3 Purpose of the report and WFD compliance assessment approach

This document sets out the initial WFD screening assessment and comprises a summary overview, quality element assessment, results and recommendations. The assessment considers hydromorphology, aquatic ecology, water quality and groundwater (aquifers). This assessment has been based on general arrangement drawings for the proposed scheme and detailed discussions with the project engineers.

NRW do not currently have guidance for the WFD compliance assessment, therefore this assessment is based on Environment Agency (EA) guidance. The EA WFD guidance suggests that temporary impacts, such as those resulting from construction works can normally be screened out during the WFD compliance assessment – provided that any impacts will be short in nature and the site will recover quickly.

Figure 7-0 illustrates the three sequential stages of WFD assessments. This will be utilised through this assessment to establish the appropriate stage of assessment for the proposed works.

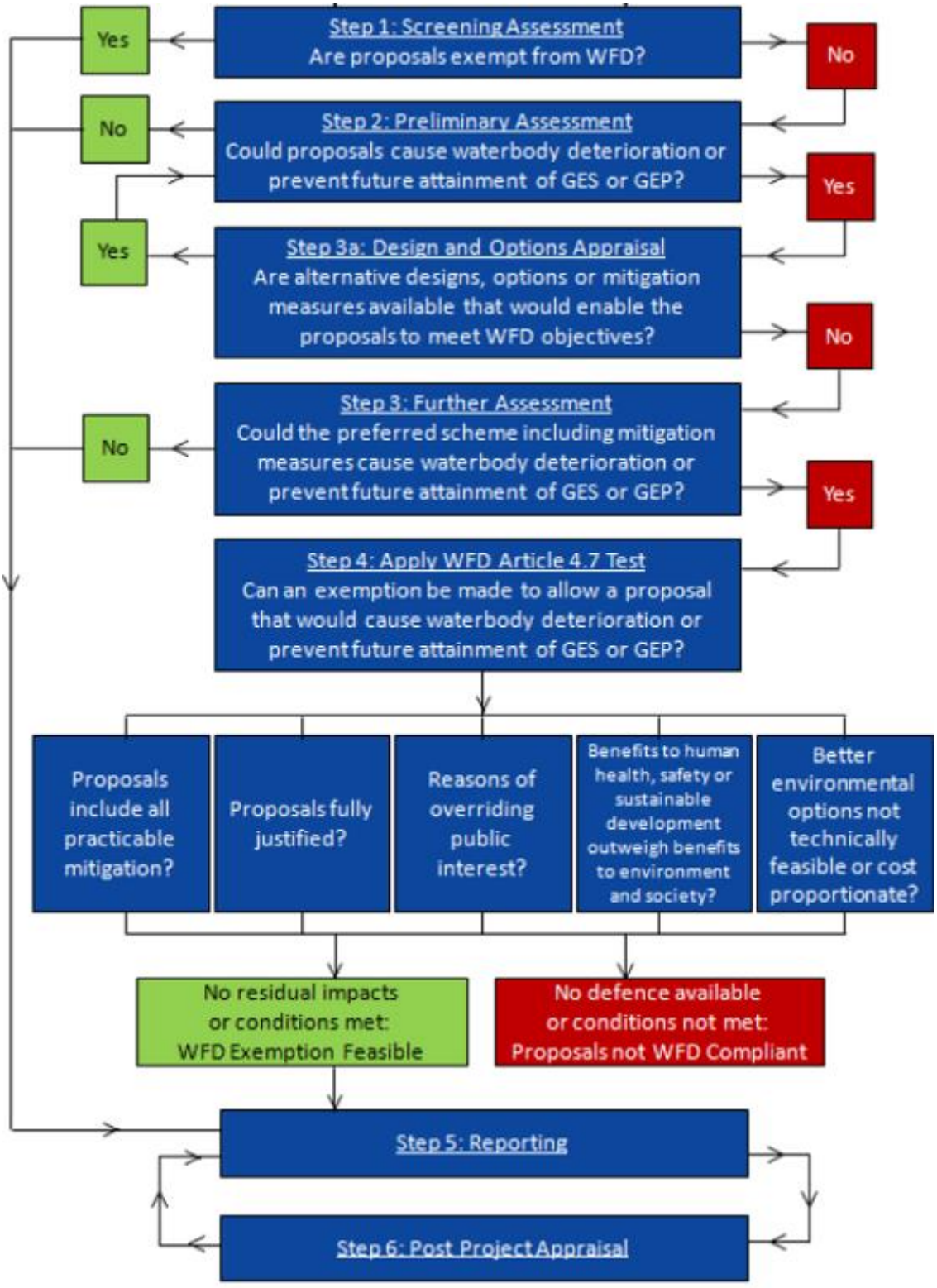


Figure 7-0- WFD Assessment Process

2.4 Environmental objectives

The following environmental objectives (based on Articles 4.1, 4.8 and 4.9 of the WFD) were used to make recommendations on WFD compliance in relation to the works.

The Objectives have been devised specifically for the works:

- Objective 1: The works will not cause deterioration in any element of water body classification.
- Objective 2: The works will not prevent the WFD status objectives from being reached within the water body or other downstream water bodies.
- Objective 3: The works will not negatively impact critical or sensitive habitats within the scheme area.
- Objective 4: The works will ensure that an increased level of hydrocarbons into watercourse does not occur.
- Objective 5: The works will not impact upon any European designated sites within the area of the works.

2.5 WFD Classification

The WFD classification for a defined water body is produced by assessment of a wide variety of different 'elements' which includes:

- 'biological elements' such as fish, invertebrates, phytobenthos (which includes plants, macro-algae and phytoplankton);
- 'supporting elements' that include chemical measurements such as ammonia, dissolved oxygen, pH, phosphate, copper, zinc and temperature; and
- 'supporting conditions' (sometimes referred to as hydromorphology), that assess the physical attributes of the water body such as 'quality and dynamics of flow' and 'morphology'.

The assessment given for each element is also accompanied by a measure of certainty in the result. The stats classification is published in the River Basin Management Plan (RBMP) and provides a baseline condition against which compliance and future improvements can be measured.

2.6 WFD Compliance

The first two WFD Objectives listed in section 2.2 above, must be met to avoid infraction of the overarching aims of the WFD. The delivery of the third objective is central to the overall WFD purpose, where practical and feasible the proposed works will work towards improving water quality status in line with the WFD. At the very minimum, it will ensure that no adverse changes to water quality will occur during the works.

If it is considered that the works are likely to cause deterioration in water body status or prevent a water body from meeting its ecological objectives then an assessment would be made against the conditions listed in Article 4.7 of the WFD. Article 4.7 can be invoked if; 'new modifications' are of overriding public interest and/ or the environmental and social benefits of achieving the WFD are outweighed by the benefits of the new modifications to human health, safety and sustainable

development; there are no significantly better environmental options that are technically feasible or not disproportionately costly; and all practicable steps for mitigation have been taken.

3. WFD screening assessment

3.1 Screening of temporary works

The works have been identified and discussed in detail in section 1.3 above. In summary the works will NOT:

- Permanently alter the riverbed
- Permanently alter the river channel
- Alter the conveyance of flow
- Have a detrimental impact on downstream receptors
- Increase flood risk
- Reduce the water quality of the waterbody
- Change the hydrogeomorphology of the waterbody
- Permanently increase sedimentation or pollution within the waterbody

The works are temporary in nature and there are no permeant alternations to the existing footprint of the bridge.

3.2 Initial Conclusion of the WFD screening assessment

The works to be undertaken on the bride involve the replacement of elements to improve safety of the railway bridge. The works are temporary and would not result in any permanent changes to the channel banks and bed, nor would they restrict the flow of the river.

The use of scaffolding will not require in-river works as they will be erected from the bridge deck or via the floating platform to be suspended from the bridge deck, above the high-water level.

The digging of the timber piles will be undertaken by divers and will be dug by hand to a depth of 1m. The digging has the potential to temporarily increase the loose sediment within the channel.

There will be no requirement for machinery or scaffolding to be located on the riverbed and banks; works will be carried out using a temporary floating platform.

The WFD Screening assessment process has been utilised to assess the required stages of WFD assessment based on the works to be undertaken (see Figure 8-0) and has concluded that no further detailed assessment is required.

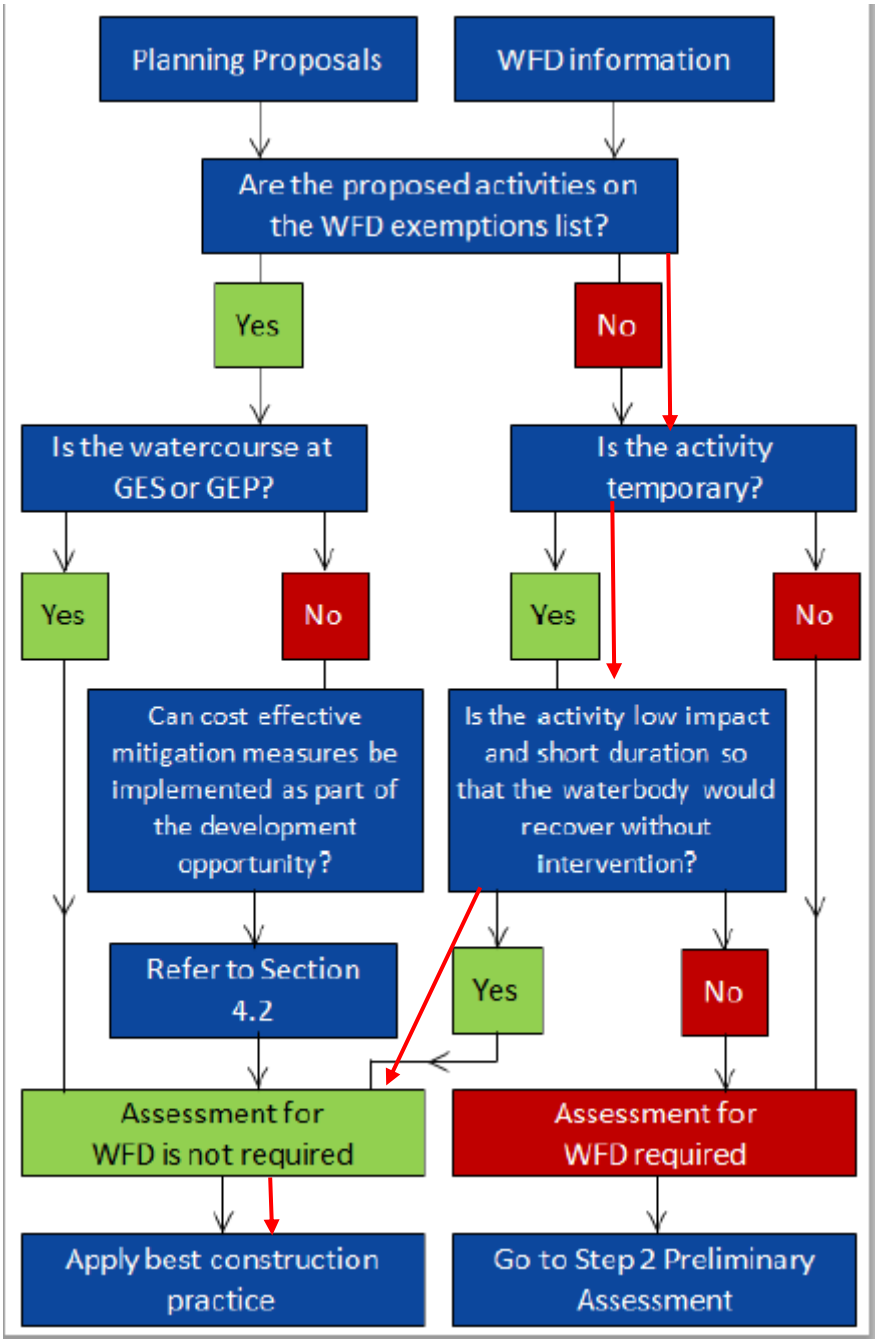


Figure 8-0 Determine if detailed WFD is required

The EA's WFD guidance includes a list of exempt activities (the full table can be found in Figure 9-0). The summary of the works to be undertaken fall within the exemption list:

Temporary works- temporary scaffolding to enable works to the bridge/ repair works to the bridge which does not extend the structure, reduce cross-section of the river or affect the banks or bed of the river of reduce conveyance (boxed in red in Figure 9-0).

Activity	Type of modification
Low impact maintenance activities (encourage removal of obstructions to fish/eel passage)	• Re-pointing (block work structures).
	• Void filling ('solid' structures).
	• Re-positioning (rock or rubble or block work structures).
	• Replacing elements (not whole structure).
	• Re-facing.
	• Skimming/covering/grit blasting.
	• Cleaning and/or painting of a structure.
Temporary works	• Temporary scaffolding to enable bridge re-pointing.
	• Temporary clear span bridge with abutments set-back from bank top.
	• Temporary coffer dam (if eel/fish passage not impeded).
	• Temporary flow diversion (if fish/eel passage not impeded) such as flumes and porta-dams.
	• Repair works to bridge or culvert which do not extend the structure, reduce the cross-section of the river or affect the banks or bed of the river, or reduce conveyance.
	• Excavation of trial pits of boreholes in byelaw margin.
	• Structural investigation works of a bridge/culvert/flood defence such as intrusive tests, non-intrusive surveys.
Bridges	• Permanent clear span bridge, with abutments set-back from bank top.
	• Bridge deck/parapet replacement/repair works.
	• Replacing road surface on a bridge.
Service crossing	• Service crossing below the river bed, installed by directional drilling or micro tunnelling if more than 1.5m below the natural bed line of the river.
	• Service crossing over a river. This includes those attached to the parapets of a bridge or encapsulated within the bridge's footpath or road.
	• Replacement, installation or dismantling of service crossing/high voltage cable over a river.
Other structures	• Fishing platforms / Fish/eel pass on existing structure (where <2% water body length is impacted).
	• Cattle drinks.
	• Mink rafts.
	• Fencing (if open panel/chicken wire) in byelaw margin.
	• Outfall to a river ≤ 300mm diameter.

Figure 9-0- WFD Exemption List

3.3 Further mitigation measures & Construction Best Practice

The overall risk to the watercourses is seen to be LOW.

No further detailed WFD Compliance assessment is required for the works or the River Artro. However, the following best practice and guidance should be consulted prior to the works and adhered to at all times during the works.

- GPP 5: Works and maintenance in or near water
- PPG 7: Safe storage - The safe operation of refuelling facilities
- GPP 13 Vehicle washing and cleaning
- GPP 22: Dealing with spills

During the hand digging there is potential for temporary increased sedimentation of the waterbody which will result in a temporary reduction in clarity of the water. As the contractor has specified hand digging with divers opposed to machinery, this is seen as a first step mitigation measure to reduce the magnitude of sedimentation. The duration of the hand digging is likely <14 days and therefore would not be longer than a spring neap tide.

Any temporary increase in sedimentation is likely to be significantly diluted within the waterbody. Therefore, the hand digging is deemed to have no long-term detrimental impact to the waterbody quality.

Where works to the bridge are over water, methods to ensure that debris is not dropped into the river should be in place.

If machinery or materials are required on the channel banks, matting or tracking material should be in place to reduce the risk of erosion or alteration to the channel banks (noted that the railway deck will be utilised to lower materials and equipment to the floating deck.

If during the works should a storm event or water levels rise all materials or machinery within the area should be swiftly removed from the area to reduce the risk of pollution. As the site will be 24 hours a day this can be achieved as the site will be continuously manned.

4. Conclusions

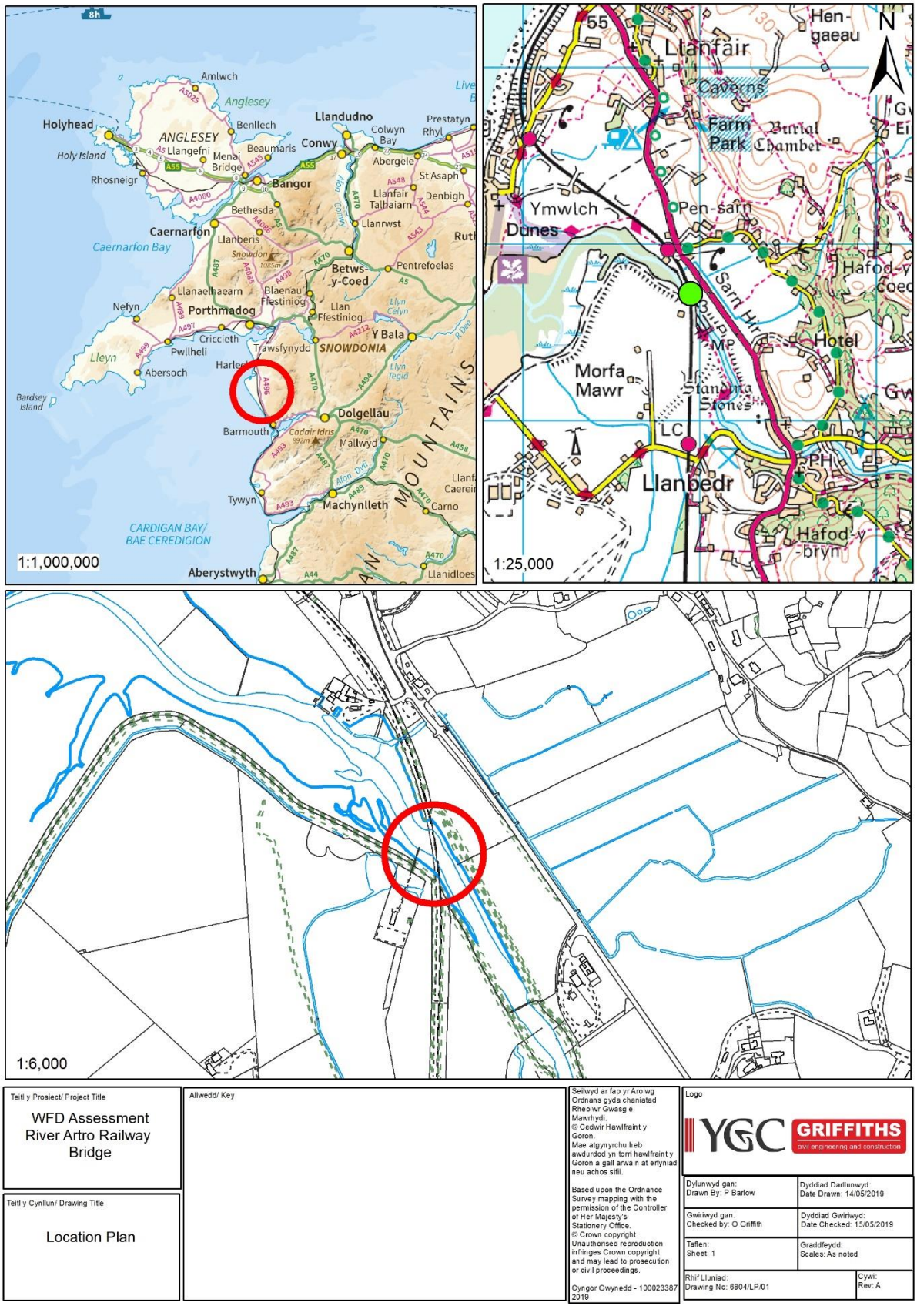
The proposed works are temporary in nature and do not involve the use of heavy machinery or scaffolding within the watercourse itself. The use of hand digging within the riverbed will cause some localised discolouration however, provided good construction practice is followed, the impacts have been assessed as being low and short-lived. In view of the temporary nature of the work, the proposed work has been screened as not having a detrimental impact on the status of the waterbody. There is therefore no requirement for further detailed WFD assessment.

To minimise short-term impacts, best practice and good working practices should be implemented on site and any changes to the working method statement should be agreed with the approving body (NRW) before the works are undertaking to ensure that changes do not have a negative impact.

Appendices

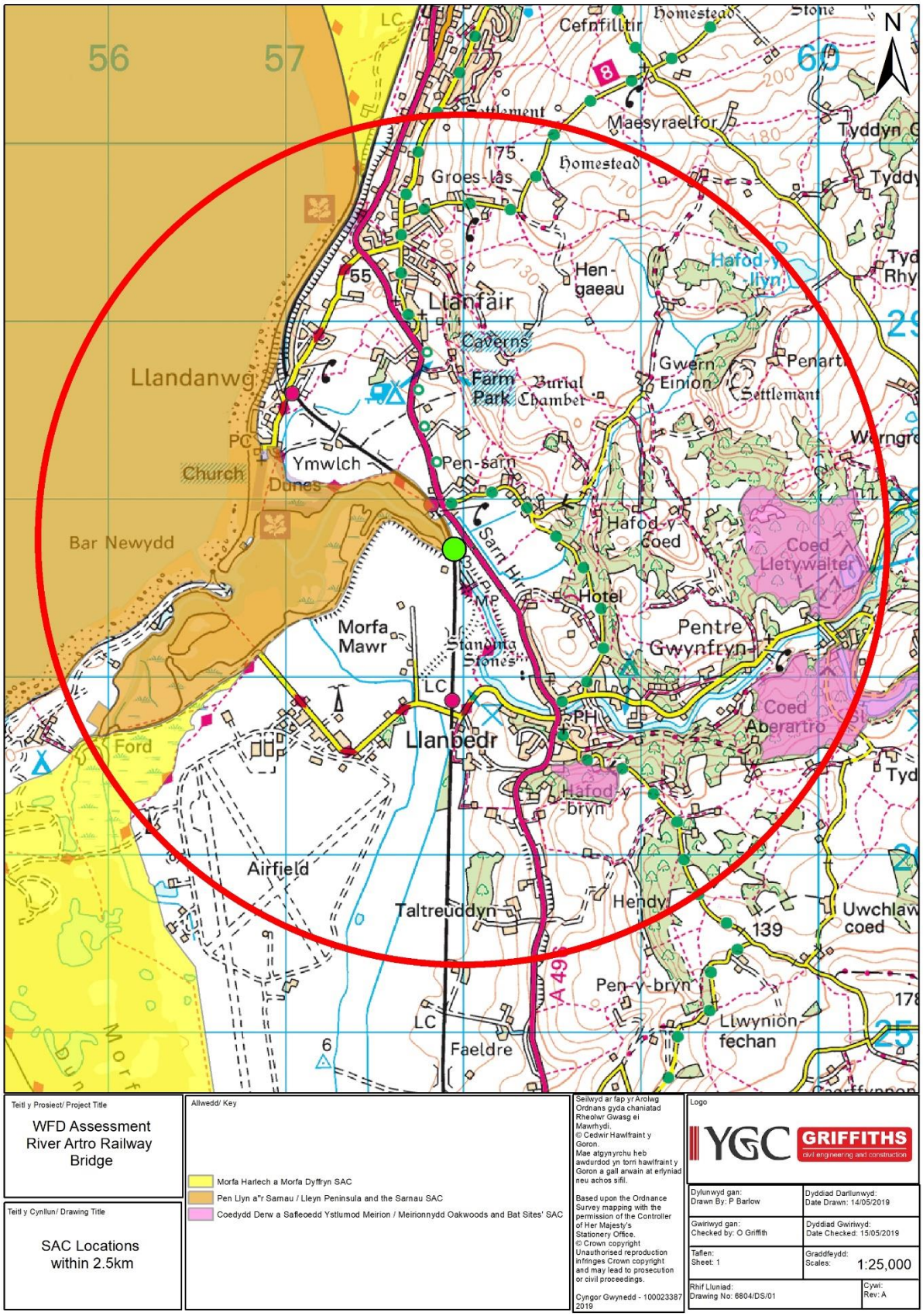
Appendix A- Location Plan
Appendix B- Designated sites location
Appendix C- Aquifer Designation (Bedrock)
Appendix D- Aquifer Designation (Superficial)
Appendix E- Location of fluvial and tidal floodplain in relation to the proposed works
Appendix F- WFD Scoping Template for activities in estuarine and coastal waters

Appendix A- Location Plan



Teitl y Prosiect/ Project Title WFD Assessment River Artro Railway Bridge	Allwedd/ Key	Seilwyd ar fap yr Arolwg Ordnans gyda chaniatad Rheolwr Gwasg ei Mawrhydi. © Cedwir Hawlfraint y Goron. Mae atgynyrchu heb awdurdod yn torri hawlfraint y Goron a gall arwain at erlyniad neu achos sifil. Based upon the Ordnance Survey mapping with the permission of the Controller of Her Majesty's Stationery Office. © Crown copyright Unauthorised reproduction infringes Crown copyright and may lead to prosecution or civil proceedings. Cyngor Gwynedd - 100023387 2019	Logo YGC GRIFFITHS civil engineering and construction
Teitl y Cynllun/ Drawing Title Location Plan			Dylunwyd gan: Drawn By: P Barlow Dyddiad Darlunwyd: Date Drawn: 14/05/2019 Gwiriwyd gan: Checked by: O Griffith Dyddiad Gwiriwyd: Date Checked: 15/05/2019 Taflen: Sheet: 1 Graddfeydd: Scales: As noted Rhif Lluniad: Drawing No: 6804/LP/01 Cywi: Rev: A

Appendix B- Designated sites location



Teitl y Prosiect/ Project Title	WFD Assessment River Artro Railway Bridge
Teitl y Cynllun/ Drawing Title	SAC Locations within 2.5km

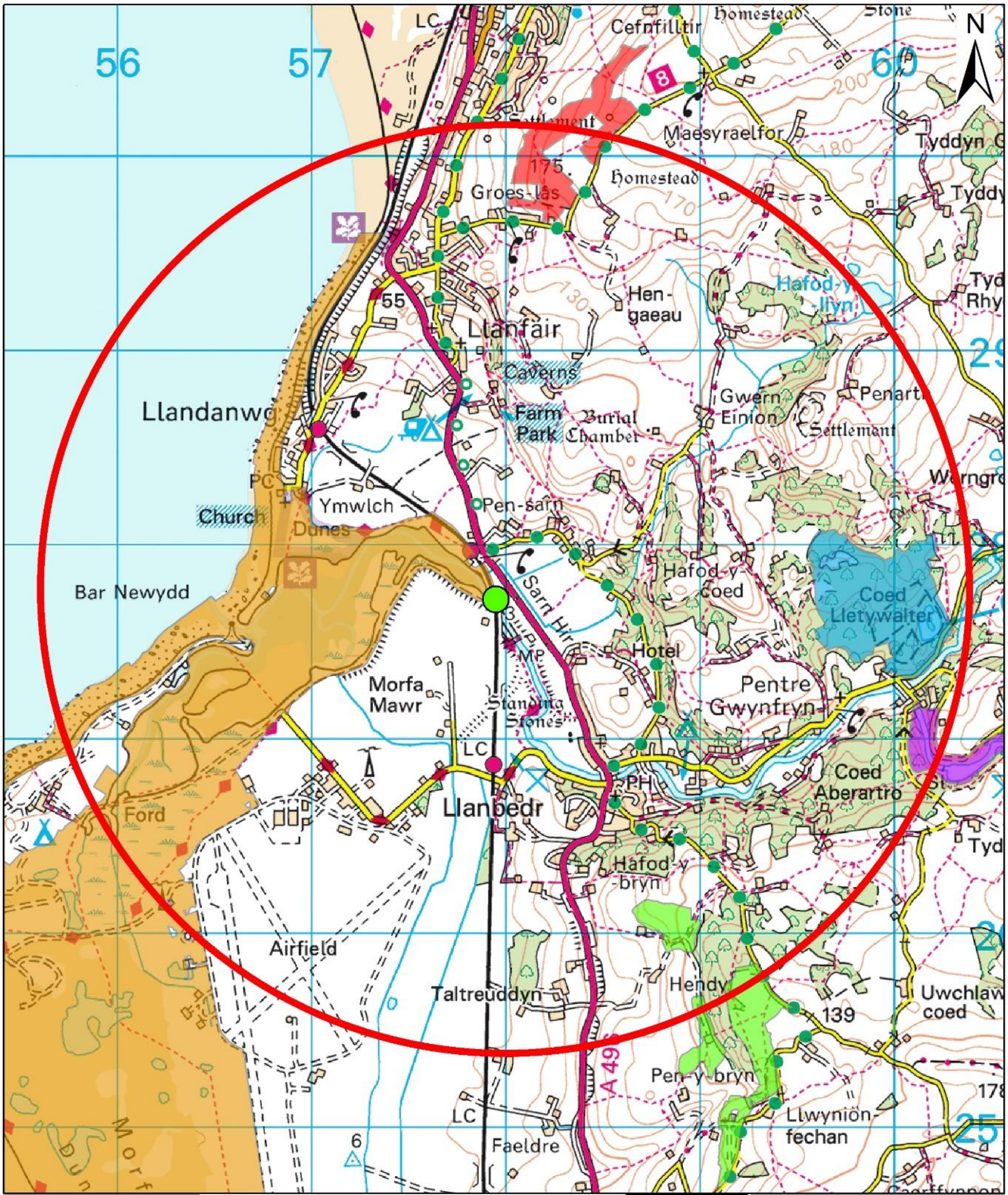
Allwedd/ Key

- Morfa Harlech a Morfa Dyffryn SAC
- Pen Llyn a"r Sarnau / Lleyn Peninsula and the Sarnau SAC
- Coedydd Derw a Safleoedd Ystlumod Meirion / Meirionnydd Oakwoods and Bat Sites' SAC

Logo

YGC GRIFFITHS civil engineering and construction

Dylunwyd gan: Drawn By: P Barlow	Dyddiad Darlunwyd: Date Drawn: 14/05/2019
Gwiriwyd gan: Checked by: O Griffith	Dyddiad Gwiriwyd: Date Checked: 15/05/2019
Taflen: Sheet: 1	Graddfeydd: Scales: 1:25,000
Rhif Lluniad: Drawing No: 6804/DS/01	Cywi: Rev: A



Teitl y Prosiect/ Project Title	Allwedd/ Key		
WFD Assessment River Artro Railway Bridge	MORFA DYFFRYN SSSI		
	COED LLETYWALTER SSSI		
	CAEAU BWLCH SSSI		
	MURIAU GWYDDELOD SSSI		
	COED ABER ARTRO SSSI		
Teitl y Cynllun/ Drawing Title: SSSI Locations within 2.5km			

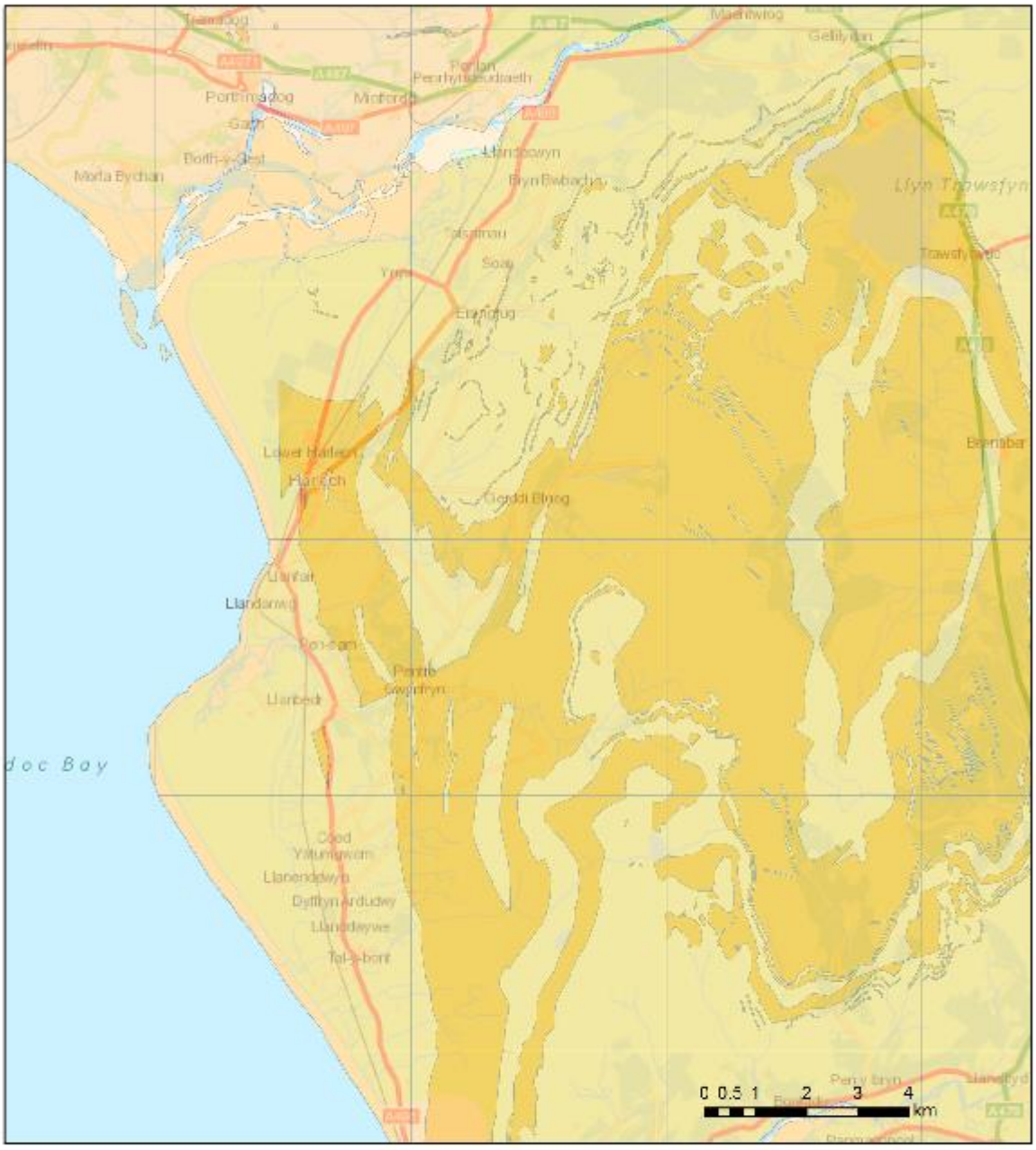
Logo: YGC GRIFFITHS civil engineering and construction

Dylunwyd gan: Drawn By: P Barlow	Dyddiad Darllunwyd: Date Drawn: 14/05/2019
Gwiriwyd gan: Checked by: O Griffith	Dyddiad Gwiriwyd: Date Checked: 15/05/2019
Taflen: Sheet: 1	Graddfeydd: Scales: 1:25,000
Rhif Lluniad: Drawing No: 6804/DS/02	Cywi: Rev: A

Appendix C- Aquifer Designation (Bedrock)

Bedrock Geology

GEOINDEX ONSHORE

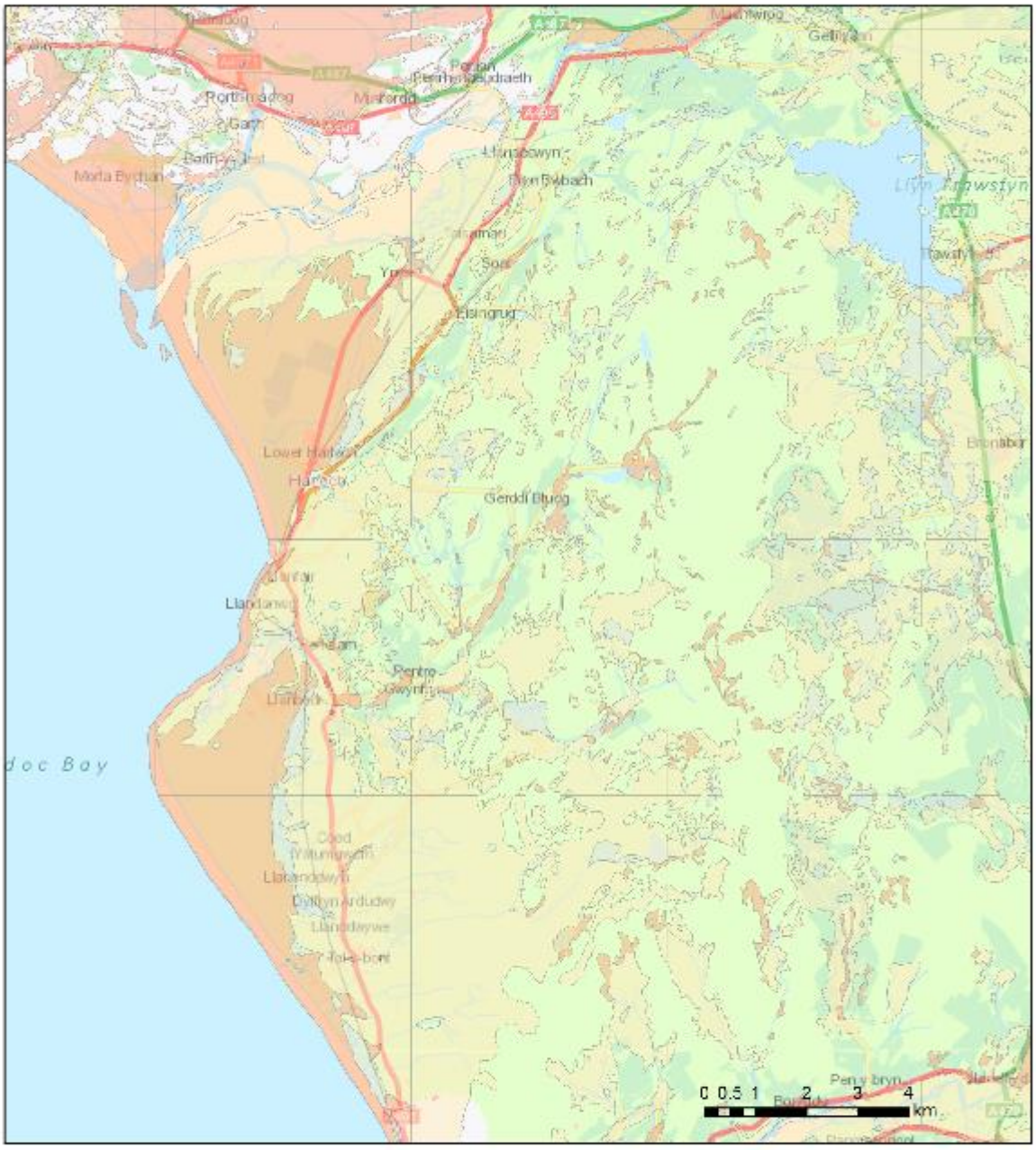


Geology Onshore Data Sources: NERC, Natural England, English Heritage and Ordnance Survey

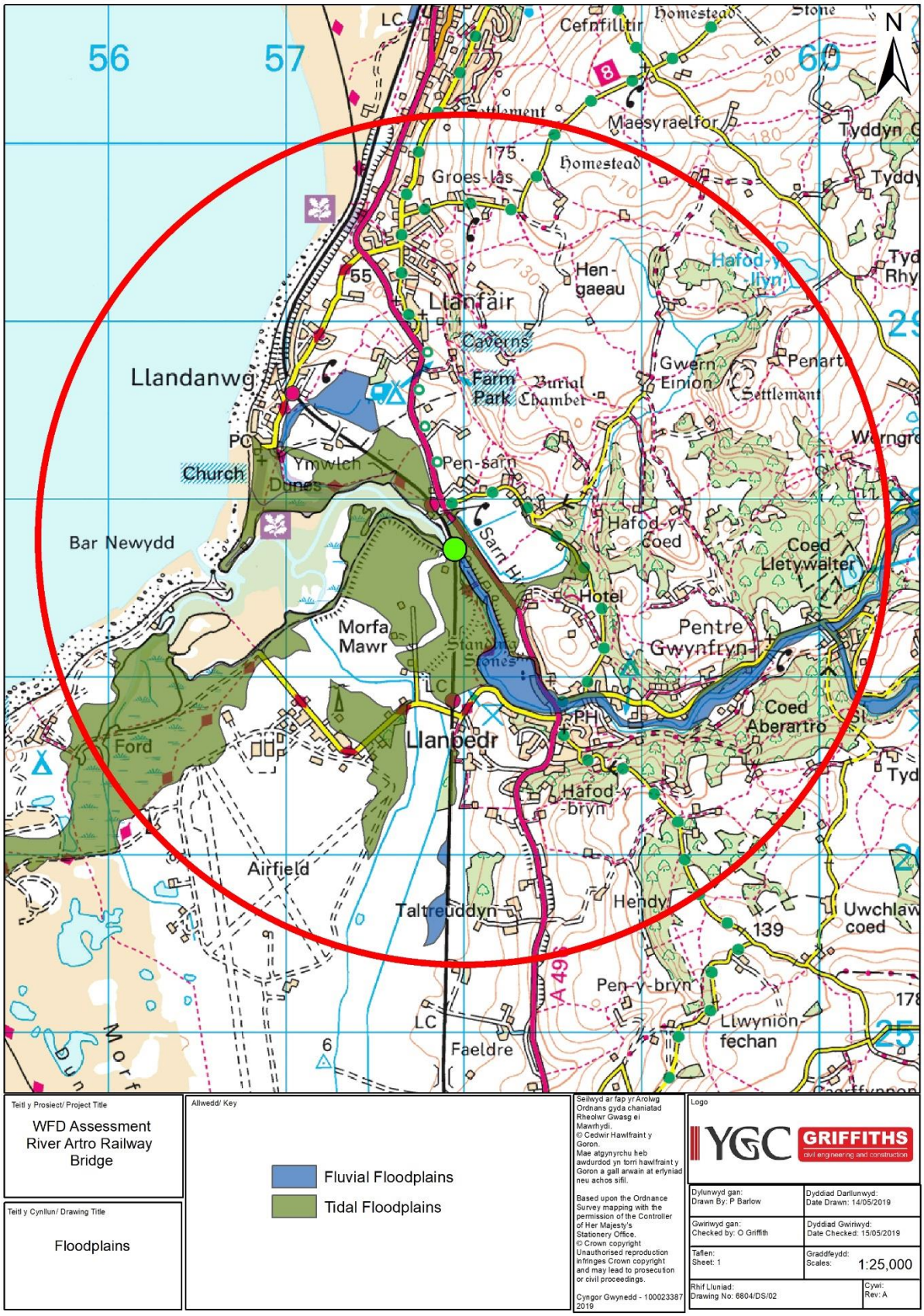
Appendix D- Aquifer Designation (Superficial)

Superficial Deposits

GEOINDEX ONSHORE



Appendix E- Location of fluvial and tidal floodplain in relation to the proposed works



Teitl y Prosiect/ Project Title: WFD Assessment River Artro Railway Bridge	Allwedd/ Key: Fluvial Floodplains; Tidal Floodplains
Teitl y Cynllun/ Drawing Title: Floodplains	Seilwyd ar fap yr Arolwg Ordnans gyda chaniatad Rheolwr Gwasg ei Mawrhydi. © Cedwir Hawlfraint y Goron. Mae atgynyrchu heb awdurdod yn torri hawlfraint y Goron a gall arwain at erlyniad neu achos sifil. Based upon the Ordnance Survey mapping with the permission of the Controller of Her Majesty's Stationery Office. © Crown copyright Unauthorised reproduction infringes Crown copyright and may lead to prosecution or civil proceedings. Cyngor Gwynedd - 100023387 2019
Logo: YGC GRIFFITHS civil engineering and construction	
Dylunwyd gan: Drawn By: P Barlow	Dyddiad Darlunwyd: Date Drawn: 14/05/2019
Gwiriwyd gan: Checked by: O Griffith	Dyddiad Gwiriwyd: Date Checked: 15/05/2019
Taflen: Sheet: 1	Graddfeydd: Scales: 1:25,000
Rhif Lluniad: Drawing No: 6804/DS/02	Cywir: Rev: A

Appendix F- WFD Scoping Template for activities in estuarine and coastal waters

Water Framework Directive assessment: scoping template for activities in estuarine and coastal waters

Use this template to record the findings of the scoping stage of your Water Framework Directive (WFD) assessment for an activity in an estuary or coastal water.

If your activity will:

- take place in or affect more than one water body, complete a template for each water body
- include several different activities or stages as part of a larger project, complete a template for each activity as part of your overall WFD assessment

The WFD assessment guidance for estuarine and coastal waters will help you complete the table.

Your activity	Description, notes or more information
Applicant name	Alun Griffiths Contractors Ltd. (Prepared by YGC on behalf of Alun Griffiths)
Application reference number (where applicable)	
Name of activity	River Artro Railway Works
Brief description of activity	• Site set up in an adjacent field • Delivery of materials • Scaffolding- suspended from the bridge with no support needed from the riverbed or riverbank • Replacement of timber elements & metal straps / bolts to the underside of the bridge from a floating platform. Preparation work for this needs to be carried out in the 6 weeks prior to the 10-day railway possession A railway possession is the period when works can be carried out on the rail track itself without trains running. This is currently programmed from 23:20 on Friday 25th October to 05:00 on Monday 11th November 2019. • Replacement of timber elements during the 16-day possession • Removal of site set up & full reinstatement on completion of the works

Location of activity (central point XY coordinates or national grid reference)	SH 578279
Footprint of activity (ha)	0.015
Timings of activity (including start and finish dates)	23:20 on Friday 25th October to 05:00 on Monday 11th November 2019
Extent of activity (for example size, scale frequency, expected volumes of output or discharge)	
Use or release of chemicals (state which ones)	

Water body[1]	**Description, notes or more information**
WFD water body name	*Afon Artro*
Water body ID	GB110064048220
River basin district name	*Western Wales*
Water body type (estuarine or coastal)	*Estuarine*
Water body total area (ha)	
Overall water body status (2015)	*Good*
Ecological status	*Good*
Chemical status	*DNRA*
Target water body status and deadline	
Hydromorphology status of water body	

Heavily modified water body and for what use	*NA*
Higher sensitivity habitats present	*SSSI downstream*
Lower sensitivity habitats present	*NA*
Phytoplankton status	*NA*
History of harmful algae	*NA*
WFD protected areas within 2km	*No*

[1] *Water body information can be found in the Environment Agency's catchment data explorer and the water body summary table. Magic maps provide additional information on habitats and protected areas. Links to these information sources can be found in the WFD assessment guidance for estuarine and coastal waters.*

Specific risk information

Consider the potential risks of your activity to each of these receptors: hydromorphology, biology (habitats and fish), water quality and protected areas. Also consider invasive non-native species (INNS).

Section 1: Hydromorphology

Consider if hydromorphology is at risk from your activity.

Use the water body summary table to find out the hydromorphology status of the water body, if it is classed as heavily modified and for what use.

Consider if your activity:	Yes	No	Hydromorphology risk issue(s)
Could impact on the hydromorphology (for example morphology or tidal patterns) of a water body at high status	Requires impact assessment	Impact assessment not required	
Could significantly impact the hydromorphology of any water body	Requires impact assessment	Impact assessment not required	
Is in a water body that is heavily modified for the same use as your activity	Requires impact assessment	Impact assessment not required	

Record the findings for hydromorphology and go to section 2: biology.

Section 2: Biology

Habitats

Consider if habitats are at risk from your activity.

Use the water body summary table and Magic maps, or other sources of information if available, to find the location and size of these habitats.

Higher sensitivity habitats [2]	**Lower sensitivity habitats [3]**
chalk reef	cobbles, gravel and shingle
clam, cockle and oyster beds	intertidal soft sediments like sand and mud
intertidal seagrass	rocky shore
maerl	subtidal boulder fields
mussel beds, including blue and horse mussel	subtidal rocky reef
polychaete reef	subtidal soft sediments like sand and mud
saltmarsh	
subtidal kelp beds	
subtidal seagrass	

[2] Higher sensitivity habitats have a low resistance to, and recovery rate, from human pressures.

[3] Lower sensitivity habitats have a medium to high resistance to, and recovery rate from, human pressures.

Consider if the footprint[4] of your activity is:	**Yes**	**No**	**Biology habitats risk issue(s)**
0.5km^2 or larger	Yes, to one or more – requires impact assessment	No to all – impact assessment not required	
1% or more of the water body's area			
Within 500m of any higher sensitivity habitat			Saltmarsh (Magic Map)
1% or more of any lower sensitivity habitat			

[4] Note that a footprint may also be a temperature or sediment plume. For dredging activity, a footprint is 1.5 times the dredge area.

Fish

Consider if fish are at risk from your activity, but only if your activity is in an estuary or could affect fish in or entering an estuary.

Consider if your activity:	Yes	No	Biology fish risk issue(s)
Is in an estuary and could affect fish in the estuary, outside the estuary but could delay or prevent fish entering it or could affect fish migrating through the estuary	Continue with questions	**Go to next section**	
Could impact on normal fish behaviour like movement, migration or spawning (for example creating a physical barrier, noise, chemical change or a change in depth or flow)	Requires impact assessment	Impact assessment not required	
Could cause entrainment or impingement of fish	Requires impact assessment	Impact assessment not required	

Record the findings for biology habitats and fish and go to section 3: water quality.

Section 3: Water quality

Consider if water quality is at risk from your activity.

Use the water body summary table to find information on phytoplankton status and harmful algae.

Consider if your activity:	Yes	No	Water quality risk issue(s)
Could affect water clarity, temperature, salinity, oxygen levels, nutrients or microbial patterns continuously for longer than a spring neap tidal cycle (about 14 days)	Requires impact assessment	Impact assessment not required	
Is in a water body with a phytoplankton status of moderate, poor or bad	Requires impact assessment	Impact assessment not required	
Is in a water body with a history of harmful algae	Requires impact assessment	Impact assessment not required	

Consider if water quality is at risk from your activity through the use, release or disturbance of chemicals.

If your activity uses or releases chemicals (for example through sediment disturbance or building works) consider if:	Yes	No	Water quality risk issue(s)
The chemicals are on the Environmental Quality Standards Directive (EQSD) list	Requires impact assessment	**Impact assessment not required**	
It disturbs sediment with contaminants above Cefas Action Level 1	Requires impact assessment	**Impact assessment not required**	

If your activity has a mixing zone (like a discharge pipeline or outfall) consider if:	Yes	No	Water quality risk issue(s)
The chemicals released are on the Environmental Quality Standards Directive (EQSD) list	Requires impact assessment[5]	**Impact assessment not required**	

[5] *Carry out your impact assessment using the Environment Agency's surface water pollution risk assessment guidance, part of Environmental Permitting Regulations guidance.*

Record the findings for water quality go on to section 4: WFD protected areas.

Section 4: WFD protected areas

Consider if WFD protected areas are at risk from your activity. These include:

- special areas of conservation (SAC)
- special protection areas (SPA)
- shellfish waters
- bathing waters
- nutrient sensitive areas

Use Magic maps to find information on the location of protected areas in your water body (and adjacent water bodies) within 2km of your activity.

Consider if your activity is:	Yes	No	Protected areas risk issue(s)
Within 2km of any WFD protected area[6]	Requires impact assessment	Impact assessment not required	SAC- Pen Llyn a'r Sarnau/ Lleyn Peninsula and the Sarnau

[6] *Note that a regulator can extend the 2km boundary if your activity has an especially high environmental risk.*

Record the findings for WFD protected areas and go to section 5: invasive non-native species.

Section 5: Invasive non-native species (INNS)

Consider if there is a risk your activity could introduce or spread INNS.

Risks of introducing or spreading INNS include:

- materials or equipment that have come from, had use in or travelled through other water bodies
- activities that help spread existing INNS, either within the immediate water body or other water bodies

Consider if your activity could:	Yes	No	INNS risk issue(s)
Introduce or spread INNS	Requires impact assessment	Impact assessment not required	

Record the findings for INNS and go to the summary section.

Summary

Summarise the results of scoping here.

Receptor	Potential risk to receptor?	Note the risk issue(s) for impact assessment
Hydromorphology	NONE	
Biology: habitats	YES	within 500m oh higher sensitivity habitat- Saltmarsh
Biology: fish	NONE	
Water quality	YES	Could temporarily affect water clarity during hand digging
Protected areas	YES	SAC- Pen Llyn a'r Sarnau/ Lleyn Peninsula and the Sarnau
Invasive non-native species	NONE	

If you haven’t identified any receptors at risk during scoping, you don’t need to continue to the impact assessment stage and your WFD assessment is complete.

If you’ve identified one or more receptors at risk during scoping, you should continue to the impact assessment stage.

Include your scoping results in the WFD assessment document you send to your activity’s regulator as part of your application for permission to carry out the activity.

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