Your ref Our ref 241214 File ref

# ARUP

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15 December 2016

Dear Sir/Madam,

#### Replacement of Pensarn Rising Main, Carmarthen Request for an Environmental Impact Assessment Screening Opinion under Part 2 Regulation 5 of the Town and Country Planning (Environmental Impact Assessment) (Wales) Regulations 2016

#### **1** Introduction

On behalf of our client, Dŵr Cymru Welsh Water (DCWW), we are formally requesting a Screening Opinion pursuant to Regulation 5 of the Town and Country Planning (Environmental Impact Assessment) (Wales) Regulations 2016 (the EIA Regulations) in order to seek the view of Carmarthenshire County Council (the Authority) on whether the proposed works constitute EIA development and thus require a formal Environmental Statement.

This screening opinion request provides the relevant information for the Authority to adopt a screening opinion in line with Regulation 5(2) of the EIA Regulations, namely:

- a) *a plan sufficient to identify the land;* to aid your assessment of the proposal, we enclose a draft layout of the proposed works (see Appendix A: Site Plan);
- b) a brief description of the nature and purpose of the development and of its possible *effects on the environment;* we have provided in this letter a background to the site, details of the proposed remedial works and our consideration of the potential environmental effects associated with the proposed works; and
- c) such other information or representations as the person making the request may wish to provide or make; we include: a plan of the proposed works (Appendix B: Indicative Pipeline Replacement Drawings), Environmental Constraints Plans (Appendix C) and a summary of the Extended Phase 1 Habitat Survey (Appendix D: Environmental Baseline).

For information, Natural Resources Wales: Marine Licensing Team have advised that the proposal is unlikely to constitute EIA Development under the Marine Works (Environmental Impact Assessment) Regulations 2007 (as amended).

#### 2 Project Background

#### 2.1 Project Need

The existing Pensarn Rising Main runs west from Pensarn Sewage Pumping Station (SPS) crossing the Afon Tywi before connecting to Brickyard Lane Rising Main on the west bank, south of Bascule Bridge. The combined rising main then heads southwards and terminates at Parc-y-Splott Wastewater Treatment Works (WwTW).

A plan of the proposed works to Pensarn Rising Main (cc 1,300m in length) is included in Appendix B: Indicative Pipeline Replacement Drawings.

The Pensarn Rising Main is 300mm in diameter and DCWW records indicate that the full length of the existing rising main was constructed with asbestos cement pipes. Further more recent records suggest that a section of the pipe crossing the Afon Tywi is of uPVC material. The pipeline is estimated to be approximately 50 years old and, as a result of its condition, has experienced three bursts in recent years which have resulted in pollution incidents. Based on the risk that a deteriorating rising main poses to sensitive receptors, including European sites, DCWW is proposing to replace 1,300m of the rising main.

#### 2.2 Location

The section of rising main to be replaced is located in Pensarn, Carmarthen. The length of the main to be replaced stretches from Pensarn SPS at (Easting, Northing) 241470, 219563 to the connection with Brickyard Lane Rising Main at (Easting, Northing) 240474, 219219.

The rising main passes through the village of Pensarn. It passes under railway lines twice and under the Afon Tywi.

#### 2.3 Existing Site

In summary, the site extent is relatively small at approximately 1,300m length. The working width will be specific to the open area of the fields and is expected to be approximately 10m. The area of the proposed works is approximately 1.3 hectares.

The existing rising main comprises:

- Sewage Pumping Station;
- 300mm diameter cement asbestos pipe for most of the 1,300m length;
- Manholes (estimated between 4 and 8); and
- Connection to Brickyard Lane Rising Main.

#### 2.4 Planning Considerations: Permitted Development

All proposed works are considered to constitute permitted development under the Town and Country Planning (General Permitted Development) Order 1995 (as amended) and are described in Section 2.5 below. Part 16, Class A (a) states that "development not above ground level required in connection with the provision, improvement, maintenance or repair

*of a sewer, outfall pipe, sludge main or associated apparatus*" is permitted development. The proposed scheme is therefore considered to be permitted development.

#### 2.5 **Proposed Works Description**

The project is at outline design and the methods of construction are yet to be confirmed, however an indicative description of the proposed works is provided below. Appendix B provides the proposed pipeline alignment where replacement will be undertaken; HDD crossings are also included.

#### 2.5.1 Open Cut Pipeline Replacement

The worst case methodology has been used to inform the assessment, as the design progresses opportunities for less intrusive methods will be explored; e.g. HDD installation of the pipe, rather than open cut. This will depend upon ongoing feasibility studies and input from a specialist contractor; yet to be procured.

The assessment is therefore based on 1,300m of new 300mm diameter rising main pipe installed by open cut excluding the rail and river crossing which will be constructed by direction drill methodology.

#### 2.5.2 Horizontal Directional Drilling (HDD)

Until such time that a specialist contractor is engaged, the following represent a high-level description of the proposed works. Two sections will employ HDD: (1) the rail crossing, and (2) the river crossing.

- Installation by Horizontal Directional Drilling (HDD).
- Rail HDD: twin DN500 HDPE sleeve pipes (c. 3 to 4 separation) c. 60m distance with DN350 HDPE pipe inserted into the sleeves to carry the sewerage; with two valve chambers at either end of the HDD installation outside of the rail corridor.
- River HDD: twin DN350 HDPE pipes (c. 2-4m separation) c. 80m distance, >4m depth; two 1.8m diameter manhole chambers at HDD inception and termination pits.

#### 2.5.2.1 HDD River Crossing Description

The proposed pipeline route crosses the Afon Tywi on the southern side of the Bascule Bridge (rail bridge). The pipeline is required to replace the existing pipeline (at the same location) due to it being in poor condition with a risk of pipeline bursts occurring.

Not undertaking the works (i.e. a do nothing option) would put the adjacent (River Tywi SAC and SSSI) and downstream (Carmarthen Bay and Estuaries SAC, Carmarthen Bay SPA, Taf Estuary SSSI) sensitive areas at risk from a pipe burst.

The reason for the dual pipes is to provide resilience by allowing one to be out of service for maintenance. The proposed construction methodology is to use directional drill methodology to construct two adjacent pipes under the river with the preliminary outline approach defined below:

- A directional drilling machine will be sited on the western side of the river as this has a higher ground level and is not subject to submergence during Spring Tides.
- A pilot drill will be undertaken from the west to the east.

- Depending upon ground conditions a 'reaming' of the pilot hole may be undertaken whereby a metallic cone is pulled (from east to west; i.e. towards the drilling machine) to create a larger hole of approximately the same size as the pipe (i.e. 225m diameter).
- Bentonite slurry is likely to be used to prevent the formed hole to collapse and to provide lubrication for the insertion of the pipe.
- The pipe would be pulled into the formed hole from east to west (i.e. towards the drilling machine).
- The above methodology would then apply to the second pipe approximately 3-5m parallel to the first pipe.

The envisaged equipment to be used for the river crossing will include:

- On west bank:
  - Drilling machine (tracked machine).
  - Slurry will either be delivered to site prepared or there may be a need for a site batching plant (TBC once specialist contractor is engaged).
  - o Excavator.
- On east bank:
  - o Excavator.
  - o Dumpers.
  - Tractor and trailer (for moving pipe).

#### 2.6 Environmental Baseline

#### 2.6.1 Desk Study

The proposed works are anticipated to take place adjacent to and below the Afon Tywi Special Area of Conservation (SAC), where at this location the Afon Tywi also comprises part of the Afon Tywi Special Site of Scientific Interest (SSSI).

The Afon Tywi SAC is designated for its tidal rivers, estuaries, mudflats, sand flats, lagoons (including saltwork basins), salt marshes, salt pastures and salt steppes, in addition to associated habitats such as marshes, heath, and broad-leaved deciduous woodlands. Annex II species that are a primary reason for the selection of the site include twaite shad (*Alosa fallax*) and otter (*Lutra lutra*). Annex II species present as a qualifying feature include sea lamprey (*Petromyzon marinus*), brook lamprey (*Lampetra planeri*), river lamprey (*Lampetra fluviatilis*), allis shad (*Alosa alosa*) and bullhead (*Cottus gobio*).

Additional species listed within the Afon Tywi SSSI citation include: water vole (*Muscardinus avellanarius*), Atlantic salmon (*Salmo salar*) and eel (*Anguilla anguilla*). The river supports an excellent population of sea trout (*Salmo trutta trutta*). The Afon Tywi holds approximately 4-5% of the total breeding population of little ringed plover (*Charadrius dubius*), that nest within its shingle banks. The river also provides nesting sites for kingfisher (*Alcedo atthis*), common sandpiper (*Actitus hypoleucos*) and a significant population of sand martins (*Riparia riparia*). Small numbers of overwintering white-fronted geese (*Anser albifrons*) use the adjacent floodplains, where the river also provides feeding grounds for estuarine birds such as black-tailed godwit (*Limosa limosa*), oystercatcher (*Haematopus ostralegus*) and curlew (*Numenius arquata*).

Several sensitive areas are located downstream of the site; including the Carmarthen Bay and Estuaries / Bae Caerfyrddin ac Aberoedd SAC with its northernmost limit

approximately 1.1km to the south and the Bae Caerfyrddin / Carmarthen Bay Special Protection Area (SPA), Pembrey Coast SSSI and Aber Taf / Taf Estuary SSSI approximately 11.5km downstream.

It is important to consider these sites in the baseline despite the distance since a pollution incident as a result of a pipe burst may have a significant effect on these sites through their hydrological connectivity via the Afon Tywi. The proposed works are proposed to address this risk.

Desk study and an Extended Phase 1 Habitat Survey have been undertaken to assess the baseline and identify potential constraints; details are provided in Appendix D. Identified constraints include the likely presence of otter and potential for pollution (spill of pollutants / generation of suspended sediment) in close proximity to the river.

#### **3** Assessment of whether an EIA is required

The EIA Regulations contain schedules of types of projects that either require an EIA to be undertaken (Schedule 1 projects) or which may require an EIA (Schedule 2 projects). Schedule 2 projects will only require EIA if they are considered likely to have a significant effect on the environment, determined by Schedule 3 assessment.

#### **3.1** Schedule 1 Assessment

The proposed improvement works are not of a kind described in Schedule 1 of the EIA Regulations.

#### **3.2** Schedule 2 Assessment

To be classified as a Schedule 2 development a proposal must be of a kind described in Schedule 2 of the EIA Regulations and either, located within a 'sensitive area', or any applicable threshold or criterion must be exceeded or met. In accordance with the Town and Country Planning (Environmental Impact Assessment) (Wales) Regulations 2016, the proposed works may be considered under Schedule 2, (13) (b), which relates to any change or extension of development listed in Schedule 2 by virtue of Schedule 2, (10) (l) installation of long distance aqueducts. For any change or extension, inclusion is dependent upon the threshold set in Schedule 2, (10) (l). The applicable threshold is where the change or extension exceeds 1 hectare. The proposed 1,300m of rising main remediation / replacement exceeds the 1 hectare threshold with a total cumulative area of works equating to approximately 1.3 hectares.

Part of Pensarn Rising Main is located underneath the Afon Tywi SAC and SSSI which is a 'sensitive area' as defined by the EIA Regulations.

Consequently, the proposed works may constitute Schedule 2 development by virtue of their location in a 'sensitive area' and the exceedance of the relevant threshold. However, it should be noted that the majority of this work will be undertaken within existing operational land or by tunnelling to avoid disruption. Furthermore, this work is necessary to protect the adjacent and downstream sensitive areas from the risk of pipe burst.

Schedule 3 assessment is therefore required to determine whether the proposed replacement works are deemed to be 'EIA Development'.

#### 3.3 Schedule 3 Assessment

If the project is a 'Schedule 2 development' the relevant planning authority must then decide whether the project would be likely to have a significant effect on the environment, having regard in particular to the relevant 'selection criteria'.

Three broad criteria which should be considered for Schedule 3 assessment are identified in Welsh Government Circular 11/99: Environmental Impact Assessment (EIA) and are considered in more detail below:

- i. Characteristics of development;
- ii. Location of development;
- iii. Characteristics of the potential impact.

#### **3.3.1** Characteristics of Development

Guidance in Annex A of Circular 11/99: Environmental Impact Assessment (EIA) provides indicative thresholds and criteria for determination of whether Schedule 2 developments in Wales would be likely to have significant effects on the environment (Schedule 3 assessment). Annex A.28 of Circular 11/99 describes the appropriate thresholds at which to undertake EIA as follows:

• Installation of oil pipelines, gas pipelines and long-distance aqueducts (including water and sewerage pipelines):

'For underground pipelines, the major impact to be considered will generally be the disruption to the surrounding ecosystems during construction, while for overground pipelines visual impact will be a key consideration. EIA is more likely to be required for any pipeline over 5 km long. EIA is unlikely to be required for pipelines laid underneath a road, or for those installed entirely by means of tunnelling.'

It is considered that the above is also pertinent to modifications or extensions.

**Size of development:** in accordance with Welsh Government policy (Circular 11/99), the proposed 1,300m rising main replacement does not meet the recommended 5km threshold for which EIA is more likely to be required. Furthermore, remediation works may be undertaken wholly or partly by HDD to minimise intrusive works.

**Disruption to Surrounding Ecosystems**: the proposed works will be localised and follow the route of existing infrastructure; as such open cut sections will be within previously disturbed ground. HDD has been proposed as the most sensitive technique for installation across the river; by tunnelling >3m below the river bed. The river crossing will be undertaken under an NRW Marine Licence (as this section of the river is below the tidal limit) and under an NRW Flood Risk Activity Permit (River Tywi is a 'main river'). Consequently, sufficient checks will be put in place to ensure that no disruption will occur to the surrounding ecosystems.

The ground investigations undertaken to support the design work were undertaken in accordance with an NRW Flood Risk Activity Permit. The application was supported by a Habitats Regulations Assessment (HRA) and Extended Phase 1 Habitat Survey which were approved by NRW. The mitigation measures integrated into the supporting assessments are relevant to the construction works and will be applied via an additional HRA to support the Marine Licence for the full construction works.

The following pollution prevention measures will be integrated into the Contractor's Risk Assessment Method Statement (RAMS):

In the event of a spill on site no matter how minor, site personnel must firstly find the source of the spill and stop it, then contain it by using the equipment available in the Spill Response Kit. Site personnel should then notify the Agent, Foreman or Engineer of the details of the incident.

All site activities will be undertaken in accordance with this Method Statement and in accordance with industry best practice (e.g. Pollution Prevention Guidance: works and maintenance in or near water: PPG5, CIRIA). All plant will be sourced from a trusted reputable company and will come with spill kits which site personnel will be trained to use. Any storage containers required will be appropriately 'bunded' to prevent any spillages or leaks from damaging the local environment and stored in a secure location away from the watercourse. No refuelling operations will be undertaken whilst working near the watercourse.

All site investigation works will be carried out in daylight hours only. Any excavations will be reinstated or covered overnight to prevent animals becoming trapped. Access will be maintained along both banks for otter and other species throughout the duration of works. No disturbance to trees or scrub on the left (eastern) bank will occur without an ecological watching brief. Should evidence of otter be found, all works will stop and NRW will be consulted.

The above measures were approved by NRW in granting a Flood Risk Activity Permit (Ref.: FRA/SW/2016/0057; 11/11/2016) for ground investigations within 16m of the Afon Tywi. We will continue our close engagement with the relevant NRW teams throughout the development of the project.

#### **3.3.2** Location of the Development

For any Schedule 2 development, EIA is more likely to be required if it would be likely to have significant effects on the special character of any 'sensitive area'. Circular 11/99 states however it does not follow that every Schedule 2 development in (or affecting) these areas will automatically require EIA. In each case, it will be necessary to judge whether the likely effects on the environment of that particular development will be significant in that particular location.

Environmental constraints plans (Appendix C) identify the sensitive areas within 2km of the proposed works; these are described in more detail below, effects on these sites are considered in Section 3.3.3.

Site	Designation Status	Distance (km)	Pathway for Effect
Afon Tywi SAC	International	80m HDD tunnel below Afon Tywi SAC.	Yes; appropriate mitigation integrated.
Afon Tywi Site of Special Scientific Interest (SSSI)		80m HDD tunnel below Afon Tywi SAC.	Yes; appropriate mitigation integrated.

#### Table 1 – Sensitive Areas within 2km of the Proposed Works

Site	Designation Status	Distance (km)	Pathway for Effect
Bullwarks Scheduled Monument	National	300m northeast	No
Carmarthen Bay and Estuaries / Bae Caerfyrddin ac Aberoedd SAC	International	Approx. 1.3km south	Yes; appropriate mitigation integrated.
Glan Pibwr Stream Section SSSI	National	Approx. 1.6km south-east	No
Bae Caerfyrddin / Carmarthen Bay SPA	International	Approx. 11.5km south	Yes, hydrological linkage; Do Nothing
Pembrey Coast SSSI	National	Approx. 11.5km south	Yes, hydrological linkage; Do Nothing
Aber Taf / Taf Estuary SSSI	National	Approx. 11.5km south	Yes, Do Nothing

#### **3.3.3** Characteristics of the Potential Impact

The potential effects associated with the proposed works are considered to be:

- Pollutants or high sediment load in surface water runoff from construction areas.
- Noise and vibration disturbance to species.
- Physical restrictions to species movements.

#### **Pollution Risk**

#### **Do Nothing**

In the absence of the proposed works, the deteriorating condition of the pipeline would represent a significant risk of a pipe burst. Such an event would be likely to result in a significant impact on the adjacent (River Tywi SAC and SSSI) and downstream (Carmarthen Bay and Estuaries SAC, Carmarthen Bay SPA, Taf Estuary SSSI) sensitive areas.

#### Construction

In the absence of any mitigation measures runoff from any exposed ground has the potential to result in a pollution incident in the nearby Afon Tywi SAC and Afon Tywi SSSI.

All proposed works will occur within the site boundary and will be carried out in accordance with relevant legislation and undertaken in compliance with the relevant Pollution

Prevention Guidelines (PPGs) and industry best practice (e.g. Pollution Prevention Guidance: works and maintenance in or near water: PPG5, CIRIA). The contractor will have a Site Management Plan in place which will contain site-specific methods to ensure that all site activities are controlled and are in accordance with the aforementioned best practice procedures.

All plant will be sourced from a trusted reputable company and will come with spill kits which site personnel will be trained to use. Any storage containers required will be appropriately 'bunded' to prevent any spillages or leaks from damaging the local environment.

Implementation of such plainly established and uncontroversial mitigation is considered sufficient to avoid any effect.

#### Operation

DCWW's proposed scheme involves the replacement of an existing pipe. The proposed works will not change the current operation of the pipe, other than improve its structural integrity. It is therefore reasonable to conclude that there would be no effect from pollution risk on the features of the River Tywi SAC, River Tywi SSSI, Carmarthen Bay and Estuaries SAC, Carmarthen Bay SPA or Taf Estuary SSSI during operation.

#### Disturbance

No percussive works are required to install the pipeline; as such no significant noise and vibration issues are anticipated.

HDD has been proposed as the most sensitive technique for installation across the river; by tunnelling >3m below the river bed. HDD at this depth is unlikely to incur any significant vibrational / noise effects on fish within the river. Drilling will be of short duration and very localised (e.g. to a small section of a 50m wide river) such that any fish present would not have to travel far to avoid any effects.

The HDD methodology will be reviewed upon engagement of a specialist contractor, whereupon more detailed discussions will be held with NRW. Should it be required a number of mitigation measures could be applied to reduce / avoid potential effects; as follows:

- Programme works to avoid below-river works April to June inclusive.
- Below-river works only at low water (ebb tide) as migration typically occurs during the flood tide.
- Noise / Vibration Breaks: Breaks in below-river works activities; i.e. drill 2 hours, one hour break, drill two hours, one hour break.
- Sensitive working: e.g. slower rotational speeds when drilling, steeper drilling angles to increase depth from river bed.
- Strict pollution prevention measures; pollutants and suspended sediments.

#### **Physical Restrictions to Species Movements**

Otter are a feature of the Afon Tywi SAC and SSSI. A potential pathway exists for individuals to become trapped within excavations associated with the improvement works.

Due to the potential for disturbance within the site from ongoing activities, and the nocturnal nature of the species, the presence of otter within the site is considered unlikely during daylight hours. Any excavations associated with the improvement works will be covered over at night or a suitable means of escape provided, no works will continue after daylight

hours and/or no lighting is to be directed towards the river and its banks, due to the potential for otter to travel through the area at night.

Consequently, it is considered reasonable to conclude that the proposed works would have no significant effect on otter.

#### 4 Conclusion

Under the EIA Regulations, the proposed works are not considered to constitute a Schedule 1 development. The proposed works exceed the Schedule 2 threshold for extension or modification to a Schedule 2 development and are partly located within a 'special area'; the proposed works therefore constitute Schedule 2 development.

Schedule 3 assessment concluded that the proposed works would not be likely to have a significant effect on the environment through the integration of best practice mitigation and by virtue of not meeting the relevant criteria identified in Welsh Government Circular 11/99. The direction in the Circular is that pipelines of less than 5km are not likely to require EIA; as the proposal is for remediation of 1.3km of pipeline, the proposal is not considered to constitute EIA Development.

In addition, any disruption to ecosystems would be avoided through the implementation of best practice techniques and plainly established and uncontroversial measures. Further refinement of the design will occur in consultation with NRW to reduce the potential effects associated with the worst-case outlined above.

Completion of the replacement works would result in a significant reduction in the risk of flooding or contamination through pipe bursting to adjacent and downstream protected sites and their respective features.

Consequently, in accordance with Circular 11/99 and the specific guidance for the installation of long distance aqueducts in Annex A.28, the proposed works are not considered to constitute EIA development.

I hope this information is sufficient for Carmarthenshire County Council to reach a timely decision as to the need for a formal EIA for the proposed works.

If you require any further information to assist the decision making process, please do not hesitate to contact me at the address above, by email or by telephone.

Yours faithfully,

Si Rh

Simon Butler Associate

Appendix A Site Location Plans



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Appendix B

Indicative Replacement Pipeline Drawings





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 NOTES ABOUT STATUTORY UTILITY PROVIDERS RETURNS
 THE POSITIONS OF THE EXISTING SERVICES ON THIS DRAWIN FROM THE STATUTORY LOCAL AUTHORITIES.
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	1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.					
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	ROUTE LENGTHS SUMMARY:					
	PROPOSED ROUTE TOTAL LENGTH = APPROX. 1300m (NOTE: TUNNELED SECTIONS TO BE TWIN MAIN SECTIONS UNDER RAIL & RIVER).					
	RISING MAIN PIPE MATERIAL/ SIZE ASSUMPTIONS					
	NOTE: ALL REPLACEMENT PIPEWORK SHALL BE OPEN CUT CEMENT LINED DN350 DI APPROXIMATELY 1.0m - 2.0m DEPTH APART FROM HDPE TWIN PIPES IN DRILLED SECTIONS.					
	NOTE: ASSUME ALL TUNNELED/ DRILLED SECTIONS TO BE TWIN DN350 HDPE PE100 SDR 17 PIPE.					
	ENVIRONMENTAL REQUIREMENTS:					
	REFER TO ENVIRONMENTAL CONSTRAINTS PLAN.					
	AS NO BADGER SETTS OR RESTING PLACES FOR OTTER (HOLTS) WERE IDENTIFIED WITHIN THE VICINITY OF THE WORKS, THE FOLLOWING MITIGATION IS LIKELY TO BE SUFFICIENT;					
	•NO WORKS TO CONTINUE AFTER DAYLIGHT HOURS OR NO LIGHTING TO BE DIRECTED OUTSIDE THE IMMEDIATE WORKS AREA TOWARDS THE RIVER AND/OR SURROUNDING HABITATS					
	•ANY EXCAVATIONS ON SITE ARE TO BE COVERED AT NIGHT OR AN APPROPRIATE MEANS OF ESCAPE PROVIDED FOR MAMMALS					
	•A POLLUTION PREVENTION PLAN TO PROTECT ADJACENT MARSHY GRASSLAND/REED-BED/RIVER HABITATS					
	•IF ANY AREAS IDENTIFIED AS BEING SUITABLE HABITAT FOR REPTILES ARE TO BE CLEARED, AN ECOLOGIST IS TO BE CONSULTED BEFOREHAND AND ECOLOGICAL SUPERVISION OF THE CLEARANCE WORKS IS REQUIRED.					
	THE FOOTPRINT OF THE SCHEME OUTSIDE THE IMMEDIATE RISING MAIN ROUTE WOULD ALSO NEED TO BE CONSIDERED, AS WELL AS ACCESS ROUTES, COMPOUND AREAS ETC;					
	IN THE WESTERN SECTION OF THE WORKS JUST NORTH OF THE RAILWAY JUNCTION, THE ACTUAL RISING MAIN ROUTE APPEARS TO RUN THROUGH A FAIRLY CLEAR TRACK THROUGH THE MARSHY GRASSLAND, HOWEVER OUTSIDE THIS AREA THERE IS DENSE RUSH WHICH EXTENDS TO THE RIVER BANK, WHICH IS LIKELY TO PROVIDE FORAGING OPPORTUNITIES AND COVER FOR BADGER/OTTER, AND POSSIBLY COVER FOR GROUND NESTING BIRDS. A PRE-CONSTRUCTION CHECK/ECOLOGICAL SUPERVISION MAY BE REQUIRED IF THESE AREAS ARE TO BE CLEARED OR IMPACTED.					
	<ul> <li>REQUIRED IF THESE AREAS ARE TO BE CLEARED OR IMPACTED.</li> <li>RAIL CROSSING NOTES:</li> <li>TWIN 500mm PE100 (PN16) SDR11 PE SLEEVES (ID 412mm (CONSTRUCTED BY DD) WITH INSERTED DN355 PE100(PN10) SDR17 PE PIPES.</li> <li>OR DN400 DI ANCHOR JOINT VIA DD.</li> <li>OR PIPE JACK/ AUGER BORE DN400 STEEL OR CONCRETE SLEEVES.</li> <li>OR PIPE JACK/ AUGER BORE DN900 SLEEVE WITH BOTH PIPES INSERTED INTO SINGLE SLEEVE</li> <li>VALVE CHAMBERS 2.4m DIAMETER</li> <li>SLEEVES TO BE 5m BELOW UNDERSIDE OF SLEEPERS.</li> </ul> PIPELINE VERTICAL PROFILE: GROUND LEVELS ALONG ROUTE ARE BETWEEN 4.2m & 5.5m AOD (EXCEPT FOR RIVER AND RAIL CROSSINGS) WITH PIPE LAID 1m to 2.5m BELOW GROUND LEVEL.					
	BOTTOM OF RIVER CHANNEL APPROX. 1m AOD. PIPES TO PASS 3m (MIN) BELOW THIS.					
	Rev.     Date.     Drawn     Description.     Chkd.     Appd.     Date.					
	Capital Delivery Alliance           Cynghrair Cyflawni Cyfalaf           Ty Awen, Spooner Close, Coed Kernew, Newport, NP108FZ           Project           Name.         AMP6 IST PENSARN RISING MAIN           DCWW.4492.S.213					
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Appendix C

### Environmental Constraints Plans



# Legend

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## Listed Building

Area of proposed works

Scheduled Ancient Monument

Registered Park / Garden

Sites of Special Scientific Interest (SSSI)

A1

Special Areas of Conservation (SAC)

TAN15 Flood Zone

Rev. Date. Drawn. Description. Chkd. Appd. Date.	D1	2016-04-25	СВ	Draft	GM	SB	2016-04-25
	Rev.	Date.	Drawn.	Description.	Chkd.	Appd.	Date.

# Copital Delivery Alliance Cynghrair Cyflawni Cyfalaf

# Ty Awen, Spooner Close, Coed Kernew, Newport, NP108FZ

#### Pensarn Rising Main

Title.	Environmental Constraints Plan		
Suitability.	Draft		Suitability Code. 00
Originator	Designer CB	Date.	2016-04-25
Internal Project Number 241214	4 Scale 1:2,000	Rev.	D1
Drawing Number.			

# **Appendix D** Environmental Baseline

## D1 Environmental Baseline

#### D1.1 Desk Study

The proposed works are anticipated to take place adjacent to and below the Afon Tywi Special Area of Conservation (SAC), where at this location the Afon Tywi also comprises part of the Afon Tywi Special Site of Scientific Interest (SSSI).

The Afon Tywi SAC is designated for its tidal rivers, estuaries, mudflats, sand flats, lagoons (including saltwork basins), salt marshes, salt pastures and salt steppes, in addition to associated habitats such as marshes, heath, and broad-leaved deciduous woodlands. Annex II species that are a primary reason for the selection of the site include twaite shad (*Alosa fallax*) and otter (*Lutra lutra*). Annex II species present as a qualifying feature include sea lamprey (*Petromyzon marinus*), brook lamprey (*Lampetra planeri*), river lamprey (*Lampetra fluviatilis*), allis shad (*Alosa alosa*) and bullhead (*Cottus gobio*).

Additional species listed within the Afon Tywi SSSI citation include: water vole (*Muscardinus avellanarius*), Atlantic salmon (*Salmo salar*) and eel (*Anguilla anguilla*). The river supports an excellent population of sea trout (*Salmo trutta trutta*). The Afon Tywi holds approximately 4-5% of the total breeding population of little ringed plover (*Charadrius dubius*), that nest within its shingle banks. The river also provides nesting sites for kingfisher (*Alcedo atthis*), common sandpiper (*Actitus hypoleucos*) and a significant population of sand martins (*Riparia riparia*). Small numbers of overwintering white-fronted geese (*Anser albifrons*) use the adjacent floodplains, where the river also provides feeding grounds for estuarine birds such as black-tailed godwit (*Limosa limosa*), oystercatcher (*Haematopus ostralegus*) and curlew (*Numenius arquata*).

Several sensitive areas are located downstream of the site; including the Carmarthen Bay and Estuaries / Bae Caerfyrddin ac Aberoedd SAC with its northernmost limit approximately 1.1km to the south and the Bae Caerfyrddin / Carmarthen Bay Special Protection Area (SPA), Pembrey Coast SSSI and Aber Taf / Taf Estuary SSSI approximately 11.5km downstream.

It is important to consider these sites in the baseline despite the distance since a pollution incident as a result of a pipe burst may have a significant effect on these sites through their hydrological connectivity via the Afon Tywi. The proposed works are proposed to address this risk.

There are no local or non-statutory sites within 1km of the proposed works.

Ecological records were obtained from the West Wales Biodiversity Information Centre (WWBIC) on 22<sup>nd</sup> March 2016. The records included protected and priority species<sup>1</sup> up to 2km from the proposed works; the information provided is summarised below.

European protected species present within the 2km search area include:

• A number of bat roost records within the area; pipistrelle (*Pipistrellus spp.*), whiskered bat (*Myotis mystacinus*), unidentified species and Daubenton's (*Myotis daubentonii*) bat have been recorded roosting 652m north-east, a *Pipistrellus spp*. roost was recorded 800m south-west and a *Pipistrellus spp*. maternity roost 992m south-west. There are numerous activity records throughout the area; soprano (*Pipistrellus pygmaeus*) and common pipistrelle (*Pipistrellus pipistrellus*) have been recorded foraging 648m north-

<sup>&</sup>lt;sup>1</sup> EU and UK legally protected species under the Conservation of Habitats and Species Regulations 2010 (as amended) and Wildlife and Countryside Act 1981 (as amended); and species present on the Species of Principal Importance in Wales list under Section 42 of the Natural Environment and Rural Communities (2006).

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west of the site, unspecified bats were recorded 791m north-east and whiskered bat recorded 791m south-east. There is an historic record of whiskered bat 791m north-east and a number of records of *Pipistrellus spp*. and noctule (*Nyctalus noctula*) activity 962m south-east. There are numerous records of brown long-eared bat (*Plecotus auritus*), *Pipistrellus spp*. and unspecified species 1km north-west. There are further records of unspecified species, pipistrelle *spp*., brown long-eared bat and Nathusius's pipistrelle (*Pipistrellus nathusii*) in the wider area.

- Numerous historic<sup>2</sup> and more recent records of otter sightings and road casualties along the Afon Tywi and surrounding fields; the nearest records are approximately 445m north-east and north-west of the proposed rising main route upstream of the site.
- One historic record of freshwater pearl mussel (*Margaritifera margaritifera*) 1.9km north-east.

There are no records of great crested newt (*Triturus cristatus*) or hazel dormice (*Muscardinus avellanarius*) within 2km of the proposed works.

UK protected species present within the 2km search area include:

- Records of badger (*Meles meles*) 652m north-east and 1.5km north. There is a historic record of a sett 1.6km south-west and 1.8km east.
- Records of common lizard (*Zootoca vivipara*) 919m north-west and an historic record 1.8km south-east. There is a historic record of slow worm (*Anguis fragilis*) 1km north-west and a record 1.4km north.

There are no records of water vole (Arvicola amphibius) within the 2km search area.

Schedule 1 bird species that could breed locally recorded within the 2km search area include:

- Two records of Cetti's warbler (*Cettia cetti*) in the vicinity of the proposed works (within marshy grassland at the western extent).
- Kingfisher recorded in the vicinity of the works (within marshy grassland at the western extent), 800m south-east, 828m north-east along the Afon Tywi and 1,300m south-west.
- Peregrine (*Falco peregrinus*) recorded in the vicinity of the works (within marshy grassland at the western extent), 800m south-west and 1,300m west of the proposed works.
- One record of barn owl (*Tyto alba*) 652m north-east of the proposed works.
- One record of merlin (*Falco columbarius*) 1,300m west of the proposed works.

Species of Principal Importance in Wales recorded within 1 km include:

- Tubular water-dropwort (*Oenanthe fistulosa*) 354m north-west of the proposed works.
- West European hedgehog (*Erinaceus europaeus*) 604m north, 698m west, 711m northwest and 919m north.
- Numerous records of invertebrates throughout the search area including cinnabar (*Tyria jacobaeae*), moss carder bee (*Bombus (Thoracobombus) muscorum*), small phoenix (*Ecliptopera silaceata*), garden tiger (*Arctia caja*), dusky thorn (*Ennomos fuscantaria*), buff ermine (*Spilosoma luteum*), white ermine (*Spilosoma lubricipeda*), blood-vein (*Timandra comae*), small square spot (*Diarsia rubi*), etc.

<sup>&</sup>lt;sup>2</sup> Pre-2000 records.

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#### D1.2 Extended Phase 1 Habitat Survey

A Phase 1 Habitat Survey was undertaken on 22nd April 2016 under dry conditions. A summary of the survey is outlined below.

#### D1.2.1 Habitats

The majority of the eastern extent of the proposed works runs through hard standing i.e. through the industrial estate along Pensarn Road. The area of works at the eastern end of the proposed works near the Sewage Pumping Station (SPS) lie adjacent to an area of semi-improved grassland and reed-bed (*Phragmites australis*). This area also contains a large pond and ditch network, which runs behind the SPS site and underneath the A40. Dominant vegetation in this area includes bull-rush (*Typha latifoli*), goat willow (*Salix caprea*), broad-leaved willow-herb (*Epibolium montanum*), bramble (*Rubus fruticosus agg*), and pendulous sedge (*Carex pendula*). Broadleaved woodland lies along the northern edge of the pond and behind the SPS site; species include: hawthorn (*Crataegus monogyna*), alder (*Alnus glutinosa*), goat willow, bramble, lords and ladies (*Arum maculatum*), harts tongue (*Asplenium scolopendrium*) and cleavers (*Galium aparine*). This area contains areas of dense scrub and brash piles from previously cleared areas of vegetation along the A40 verge.

The central area of the proposed works lies along a dry ditch to the rear of the Retail Park and warehouses. This area is dominated by dense scrub and young broadleaved woodland; species include: goat and crack willow (*Salix fragilis*), bull-rush, butterfly bush (*Buddleia davidii*), sycamore (*Acer pseudoplatanus*) cherry laurel (*Prunus laurocerasus*), box (*Buxus spp.*), bramble, ivy (*Hedera helix*), rosebay willow-herb (*Chamerion angustifolium*), hazel (*Corylus avellana*) and hawthorn. Japanese knotweed (*Fallopia japonica*) and Himalayan balsam (*Impatiens glandulifera*) are also present.

The western extent of the proposed works lies to the north of the railway, parallel to which lies a broadleaved treeline and marshy grassland dominated by soft rush (*Juncus effusus*). Mixed woodland covers the north-eastern and south-western verges of the A40, under which the proposed rising main route runs; species include: poplar (*Populus spp.*), ash (*Fraxinus excelsior*), oak (*Quercus spp.*), field maple (*Acer campestre*), meadowsweet (*Filipendula ulmaria*), lesser celandine (*Ficaria verna*), lords and ladies, ground ivy and umbellifer species. The proposed route runs through marshy grassland parallel to the railway line, which contains areas of dense scrub on its northern side. The proposed route runs through the grassland and underneath the railway bridge to the eastern bank of the Afon Tywi, which contains intertidal mud habitat and reed-bed. There are further areas of broadleaved woodland to the south-east of the river. On the western bank of the river, there are stands of Japanese knotweed, around an outfall, and reed-bed habitat. A public path runs along this river bank, to the west of which lies broadleaved woodland, marshy grassland and reed-bed habitat.

#### **D1.2.2** Potential for Protected Species

#### D1.2.2.1 Otter and Water Vole

A number of otter footprints were identified along the eastern bank of the Afon Tywi, underneath the railway bridge and approximately 60m upstream. There were a number of mammal trails across adjacent fields to the north-east and south-east, where otter could possibly be travelling over marshy grassland to forage. A possible otter footprint was also identified within reed bed on the opposite bank, approximately 40m west of the outfall, and numerous footprints under the bridge under the railway. No holts or laying up sites were found during the survey. There is some potential for otter to utilise the pond located in the north-eastern extent of the works, however this water-body is fairly isolated by the A40, A484 and Pensarn Road; no signs of otter were observed in this area during the survey.

There is some potential for water vole to utilise the Afon Tywi and associated ditches/marshy grassland for commuting, however no signs were observed during the survey. There is some potential for water vole to utilise the pond present in the north-eastern extent of the works, however the water quality in the connective ditches was very poor, and no field signs or burrows were observed during the survey.

#### D1.2.2.2 Bats

No features of bat roost potential were identified on site or within the railway bridge during the survey. Bats are likely to commute and forage over the woodland and pond habitat to the north-east, and along the river corridor and adjacent scrub and marshy grassland in the western extent of the works.

#### **D1.2.2.3 Great Crested Newt**

A pond with connection to a ditch network along the rear of the SPS site to the north-east of the works was identified, however this was not considered optimal habitat for great crested newt; the water quality within the ditch was poor, and wildfowl are likely to be present (which predate on newts). The pond is also isolated by road infrastructure on all sides. An additional pond was identified within woodland to the rear of the SPS site. A Habitat Suitability Index (HSI) scores for the three water bodies were between 0.3-0.5; indicating a poor/below average habitat suitability for great crested newts. A dry ditch was also identified along the rising main mid-section (to the rear of the retail park/warehouses) which is also likely to be unsuitable for great crested newts.

#### **D1.2.2.4 Hazel Dormouse**

No suitable habitat for dormice was observed during the survey; some broadleaved and mixed woodland was observed around the pond to the north-east and along the A40 to the west, however they lack the connectivity and diverse understorey structure preferred by dormice.

#### **D1.2.2.5 Breeding Birds**

Breeding bird potential was identified in the woodland and scrub around the pond to the north-east, within woodland and scrub within the midsection (behind retail park/ warehouses), and woodland, scrub and marshy grassland in the western extent of the works. There are potential nesting opportunities within the reed bed along the eastern and western river banks, and reed-bed approximately 40m west of the outfall.

#### D1.2.2.6 Badgers

A mammal trail and badger latrine were identified around the western side of the pond to the north-east of the works. A number of badger footprints were identified along the rising main route through the marshy grassland in the western extent of the works (north of the railway). A latrine was also found in this area, in addition to a number of trails through the marshy grassland and scrub bordering the railway. Further footprints were found underneath the railway bridge. Animals appear to be travelling regularly through the site from the south and across the fields to the north-east. No setts were found within the vicinity of the works, however the railway and A40 embankments provide suitable areas for badger setts; these areas could not be accessed to survey in detail during the Extended Phase 1 habitat survey.

#### D1.2.2.7 Reptiles

Brash piles within the roadside verges adjacent to the pond in the north-east provides potential refuge habitat for common species such as grass snake and common lizard. Open glades with brash and log piles within the mixed woodland along the A40/western extent of the works provide potential reptile habitat. Marshy grassland areas also provide habitat for species such as grass snake.

#### **D1.2.2.8 Invasive Species**

Japanese knotweed was identified around the pond to the north-east of the works and along the rising main midsection (within the ditch and woodland adjacent to/behind the retail park/warehouses). Japanese knotweed was also found around the outfall on the western river bank. Some Himalayan balsam was identified within the midsection of the rising main route (within a ditch along the rear of the retail park/warehouses).