Flood defence consent proforma:
Water Framework Directive Preliminary Assessment:

Strategic Exe Weirs - Bridgetown Weir

Summary

The findings of this preliminary assessment are presented in the pro forma. Supporting photographs are provided in the accompanying appendices to show example of current assessment. The proposed works on the River Exe (Quarme to Haddeo) are considered to be compliant with Water Framework Directive (WFD) objectives for the water body. This document provides further assessment in the form of a desk study and site visits. The rationale for the findings of the preliminary assessment is as follows:

- The River Exe (Quarme to Haddeo) is currently at Moderate ecological status with a status objective of Good by 2015. This was achieved, but has subsequently been degraded to Moderate due to presence of PBDEs and Mercury and Its Compounds. The River Basin Management Plan (RBMP) for the South West region has identified river restoration as a measure for achieving good ecological status.

- Though ecological category Fish is not contributing to the WFD failure for this waterbody, the waterbody acts as highly important spawning and recruitment habitat for protected migratory fish species and Priority Species of Principal Importance. Therefore, the proposed fish passage improvement project aims to help retain the Good status for Fish, and work towards attaining Good status for the Exe catchment holistically.

- Against this background, the proposal is for the improvement of migratory access, both for upstream and downstream migrating fish, over the in-river barrier Bridgetown Weir. This will be achieved by installation of a single flight Larinier super-active baffle fishway at the upstream extent of the weir, and smolt screen and chute at the downstream extent. The NET result will be improved ecological functioning through enhancing natural processes currently restricted due to cumulative effects of multiple in-river barriers along the course of the River Exe.

- A section of true right-hand bank will be excavated to allow for expansion of the downstream pool at the Larinier fishway outlet. This will improve the efficacy of the fish pass. It is not expected for any negative impacts will result from this work as pool habitat already exists at this point, and the new pool will be reinforced with stone to retain fish pass efficacy. The bank will be profiled and reinforced with locally sourced stone to ensure erosion risk is not increased. It is expected that the erosion risk will be NET reduced as the proposed designs will replace the current existing deteriorating bankside wall that is vulnerable to collapse.

- The is no expected change to overall ecological function of the surrounding river channel. The benefits of improving access to high quality spawning and recruitment habitat for migratory fish will give a NET improvement to ecological function of the WFD waterbody.

- No potential for deterioration of the in-river habitat is identified assuming best working practices are observed during all works.

Answer the questions below to determine if you need to: ▪ screen your proposal further; or ▪ establish how to deliver WFD mitigation measures.			
		Yes/No	**Action needed**
Q1	Is the activity proposed listed in Appendix A as not needing an assessment?	No	**Yes,** go to Q3 **No,** go to Q2
Q2	Is the water body only impacted for a short time period?	No	**Yes,** no further WFD assessment needed **No,** go to screening proforma
Q3	Is water body at GES/P?	No	**Yes,** no further WFD assessment needed **No,** go to Measures delivery proforma

Measures delivery proforma

Answer the questions below to determine if you need to deliver WFD mitigation measures			
		Yes/No	**Action needed**
Q1	Has a morphology investigation been undertaken?	No	**Yes**, go to Q2 **No**, go to Q3
Q2	List the refined measures that could be delivered as part of this activity	-	**List measures below**, then go to Q4
	List measures to be delivered here:		
Q3	List the measures that could be delivered as part of this activity		**List measures below**, then go to Q5
	List measures to be delivered here: : Providing improved migratory access to high quality spawning and recruitment habitat for protected fish Species of Principal Importance, including Atlantic salmon (*Salmo salar*) designated as 'At Risk' under Conservation Limit assessment (2019), sea/brown trout (*Salmo trutta*), and three lamprey species (*Petromyzon marinus, Lampetra fluviatilis, Lampetra planeri*). European eel (*Anguilla anguilla*) are believed to have sufficient migratory access. The installation of National Fish Pass Panel approved fish passage improvements, including a single-flight Larinier super-active baffle fishway at the true right hand side (upstream extent), and a seasonal smolt/kelt screen, maintenance walkway, smolt/kelt chute and supporting infrastructure on the true left hand side (downstream extent), of Bridgetown Weir.		
Q4	Will the measure(s) be: ▪ technically infeasible; or ▪ disproportionately costly.	No	**Yes,** go to Q7 **No,** go to Q6

Q5	Will the measure(s) be: ▪ of no ecological benefit; ▪ negatively impact on the modifications itself; ▪ negatively impact on the wider environment; ▪ technically infeasible; or ▪ disproportionately costly.	No	**Yes,** go to Q7 **No,** go to Q6
Q6	Deliver the measure		**Record outcome below**
	Record how measure(s) are to be delivered here: Measures will be delivered by an appropriately qualified and experienced contractor following a competitive tender process. The designs have been created by a specialist contractor (FishTek Consulting) with regular consultation with the National Fish Pass Panel and local Environment Agency Fisheries Technical Specialist. The project will be delivered under Westcountry Rivers Trust project management. The works will be conducted according to responsibilities under the Construction (Design and Management) Regulations 2015. Some dewatering of the river channel will be required for safe installation of the required infrastructure. This will be minimal and restricted to the fish pass channel, and a small area where the screen and chute will be installed. The leat will continue to receive water flow either by diversion around dewatering infrastructure, or by pump. Use of hand techniques where feasible, and appropriately sized low ground pressure machinery for safe and efficient transport and installation of delivery elements.		
Q7	Don't deliver the measure		**Record outcome below**
	Record here reasons why measure(s) won't be delivered here:		

Screening proforma

Step 1. Water body baseline data Provide details of the water bodies affect by the proposal.		
Water body Name(s)	**Water body ID(s)**	**Water body Type(s)**
Exe (Quarme to Haddeo)	GB108045020890	River
Current Ecological Status/Potential	**Ecological Status Objective and date objective to be achieved**	**Reasons for failure**
Moderate	Good by 2015	Supporting elements (Surface Water): Mitigation measures assessment
Hydromorphological Designation	**Reason for Hydromorphologcial Designation**	**Water body length(s) or area**
Not designated artificial or heavily modified	n/a	10.224km
List designated sites	**List protected habitats**	**List protected species**
		Atlantic salmon (*Salmo salar*) Sea lamprey (*Petromyzon marinus*) River lamprey (*Lampetra fluviatilis*) Brook lamprey (*Lampetra planeri*)

Step 2. Proposed scheme data
Provide background information on the project.

Project Manager	Project Name	Project ID No.
Phillip Turnbull	412 Strategic Exe Weirs: Bridgetown	**412**
Grid Reference upstream point	**Grid Reference downstream point**	**Length of river or area of water body affected (metres/hectares)**
SS 96182 29513	SS 93823 26691	30,000m

Describe proposed works (including timing) here:

Replacement of a current pool-traverse fish pass that does not meet modern standards for acceptable migratory fish passage with a new single-flight Larinier super-active baffle fishway, including supporting infrastructure. The new fish pass will utilise the existing fish pass channel so as to have minimal impact on the existing weir, as specified by the planning authority during pre-planning advice. The fish pass will be located at the upstream extent of the weir, on the right-hand bank. The downstream pool will be expanded by machine excavation, and reinforced with stone. To accommodate the expanded downstream pool, a section of the right-hand bank adjacent to the pool will be excavated, reprofiled and reinforced with locally sourced stone. This design has been developed with and approved by the National Fish Pass Panel and local Fisheries Technical Specialist as appropriate for the site.

Installation of infrastructure to facilitate the seasonal installation and removal of a provided smolt screen at the leat entrance, at the left-hand side of the weir (downstream extent). A walkway with a handrail and gated entrance will accompany the screen infrastructure for safe installation and removal, and maintenance such as cleaning of the screen while installed. A smolt/kelt chute will be installed at the location of an existing spillway to guide downstream migrating fish back into the main river. A new pool will be excavated and reinforced with stone at the outlet of the chute to aid safe exit and continued passage of downstream migrating fish.

All delivery elements are expected to be delivered in August/September 2021. Exact timing will depend on planning permission timing and availability of contractors following the competitive tender process.

The length of river affected quoted above includes river channel that is suitable for migratory salmonid spawning and recruitment in the upper River Exe and River Quarme. There are no known major barriers upstream of Bridgetown Weir, and therefore improving access for migratory fish past Bridgetown Weir is expected to have ecological benefits for all river habitat upstream of this point. The length of river directly affected by the works during installation will be 60m. This includes the reach and local flows affected by temporary dewatering exercises.

Please refer to Environmental Permit documents for drawings and plans.

Step 3.1 Will your activity cause deterioration?

Q1 Establish if the scheme will cause deterioration of any of the WFD quality elements by filling in Appendix B.

		Yes/No	Action needed
Q2	One or more quality elements is affected by the project	Yes	**Yes,** go to Q5
Q3	The water body or an element is at high status	No	**Yes,** go to Step 4
Q4	No quality elements are affected by the project	Yes	**Yes,** go to Q5

Does your activity exceed the screening thresholds in look-up Table B?			
Q5	Does the project exceed the screening thresholds or does expert opinion determine that further assessment is required?	No The project provides enhancement. The impacts are benefits.	**Yes,** go to Step 3.4 **No,** go to Step 3.2

Step 3.2 Will your activity have cumulative impacts?			
		Yes/No	**Action needed**
Q1	Will the project have cumulative impacts that lead to deterioration?	No The project provides enhancement. The impacts are benefits.	**Yes,** go to Step 3.4 **No,** go to Step 3.3

Step 3.3 Will your activity affect critical sensitive habitats and species? Check Easimap to establish if the project will have an impact on critical sensitive habitats and species.			
		Yes/No	**Action needed**
Q1	Will the project impact critical sensitive habitats or species?	No The project provides enhancements. The impacts are benefits.	**Yes,** go to Step 3.4 **No,** go to Step 3.4

Step 3.4 What impact will your activity have on mitigation measure delivery?			
		Yes/No	**Action needed**
Q1	Will it cause deterioration or failure to achieve water body objectives?	No The project provides enhancement. The impacts are benefits.	**Yes,** go to Step 4 **No,** go to Step 3.5

Step 3.5 Can you deliver mitigation measures?

The proposals are themselves a mitigation measure and therefore support delivery of the WFD objectives for the water body and for the wider RBMP.

Step 4 Detailed WFD assessment is needed

Contact F&B or consultant to agree the scope of a detailed assessment needed, which may also need to include water quality assessments or sensitive habitats and species assessments.

None required – no residual negative impacts are identified for further assessment.
Best practice in design and implementation is assumed.
Monitoring is recommended.

Appendix A. Activities not requiring a WFD assessment

	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 ▪ Removal or management of in-stream debris/rubbish from culverts/trash screens (**Not woody debris**) ▪ Vermin control ▪ Herbicide application on non-native invasive species ▪ Maintenance of pumps at pumping stations ▪ Maintenance, repair or replacement (like for like) of: o fences; gates; posts; steps; handrails; signs; manhole covers; gauge boards; doors; borehole cabinets; mesh walkway; and telemetry sensors/ducts.
Temporary works	▪ Temporary defences ▪ 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	▪ 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 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, see 488_10 SD02) ▪ Cattle drinks ▪ Mink rafts ▪ Fencing (if open panel/chicken wire) in byelaw margin ▪ Outfall to a river ≤ 300mm Ø

Appendix B. Assessment of impacts on quality elements (rivers, estuaries and coasts)

✓ = potential impact X =no potential impact

	LIST OF ELEMENTS INCLUDED IN SCHEME (Add extra columns if needed)					
WFD QUALITY ELEMENTS	**Larinier fish pass & pool**	**Smolt screen, chute & pool**				
Hydromorphological elements						
Hydrological regime: ▪ Quantity and dynamics of water flow ▪ Connection to groundwater bodies	✓ **Benefit:** Modelled for improved flow attraction for migratory fish with no impact on abstraction licence - so not scoped for further assessment	✓ **Benefit:** Modelled for improved flow attraction for migratory fish with no impact on abstraction licence - so not scoped for further assessment				
Morphological conditions: ▪ River depth and width variation ▪ Structure and substrate of the riverbed ▪ Structure of the riparian zone	✓ **Benefit:** Pool excavation considered improved geomorphological enhancement to allow eased fish passage, mitigating negative impact of weir on this ecological element - so not scoped in for further assessment	✓ **Benefit:** Pool excavation considered improved geomorphological enhancement to allow eased fish passage, mitigating negative impact of weir on this ecological element - so not scoped in for further assessment				

Tidal regime: ▪ Freshwater flow ▪ Wave exposure	N/A not a tidal river	N/A not a tidal river	N/A not a tidal river	N/A not a tidal river	N/A not a tidal river	N/A not a tidal river
Biological elements						
Phytoplankton: ▪ Taxanomic composition ▪ Average abundance ▪ Planktonic bloom frequency and intensity ▪ Biomass	✓ **No change:** Minimal changes to habitat structure (e.g. pool creation and minor flow manipulation for fish pass) - so not scoped for further assessment	✓ **No change:** Minimal changes to habitat structure (e.g. pool creation and minor flow manipulation for fish pass) - so not scoped for further assessment				
Macrophytes and phytobenthos: ▪ Taxanomic composition ▪ Average macrophytes and phytobenthic abundance	✓ **No change:** Minimal changes to habitat structure (e.g. pool creation and minor flow manipulation for fish pass) - so not scoped for further assessment	✓ **No change:** Minimal changes to habitat structure (e.g. pool creation and minor flow manipulation for fish pass) - so not scoped for further assessment				
Benthic invertebrate fauna: ▪ Composition ▪ Abundance	✓ **No change:** Minimal changes to habitat structure (e.g. pool creation and minor flow manipulation for fish pass) - so not scoped for further assessment	✓ **No change:** Minimal changes to habitat structure (e.g. pool creation and minor flow manipulation for fish pass) - so not scoped for further assessment				

Fish fauna: ▪ Species composition and abundance ▪ Presence of type-specific disturbance sensitive species ▪ Age structure of fish communities	✓ **Benefit:** Improved species abundance due to improved access to spawning & recruitment habitat- so not scoped in for further assessment	✓ **Benefit:** Improved species abundance due to improved access from spawning & recruitment habitat- so not scoped in for further assessment				
Critical sensitive habitats/species						
Protected sites: ▪ Atlantic salmon	✓ **Benefit:** Works targeted to increase access to spawning & recruitment habitat - so not scoped in for further assessment	✓ **Benefit:** Works targeted to increase access from spawning & recruitment habitat and to improve survival of downstream migrating fish - so not scoped in for further assessment				
Physico-chemical elements						
▪ Salinity ▪ Nutrient concentrations ▪ pH ▪ Oxygen balance ▪ Acid neutralising capacity ▪ Temperature ▪ Transparency	✓ **No change:** Minimal changes to habitat structure (e.g. pool creation and minor flow manipulation for fish pass) - so not scoped for further assessment	✓ **No change:** Minimal changes to habitat structure (e.g. pool creation and minor flow manipulation for fish pass) - so not scoped for further assessment				

▪ by all priority substances identified as being discharged into the water body ▪ Pollution by other substances identified as being discharged in significant quantities into the water body						

Appendix C. Site photos

Existing pool-traverse fish pass to be replaced with a more effective design

Close up view of the fish pass channel that will house the single-flight Larinier fishway

Context of the fish pass location and showing requirement for an improved pool

Downstream end of the weir clearly funnelling fish towards the leat entrance

Demonstrating the severity of barrier considering the current migratory options

Context of Bridgetown Weir within the surrounding environment