

22503 ECOLOGICAL SERVICES FRAMEWORK 3 (EcoSF3)

**SCHEDULE B PROJECT FORM AND CONFIRMATION OF INSTRUCTIONS
PART 1
PROJECT DETAILS, SPECIFICATION AND EVALUATION CRITERIA**

To be completed by Contracting Authority Project Manager

Project title: Ormesby Beck Intertidal Zone Restoration

Bravo project ref (if applicable): project_32489

Date: 12/03/2021

Contracting Authority (Environment Agency; Natural England; Defra etc)	Environment Agency							
Project Manager:	[REDACTED]		Phone number:					
Budget holder:	[REDACTED]		Cost code:	ENV0003649C				
Commercial Contact (if applicable):	[REDACTED]		Email:					
Project Start Date	23.07.2021 (updated)							
Project Completion Date	22.02.2022 (updated)							
For any projects over £10k, full competition is required (i.e. all suppliers on the Lot invited to quote).	Direct Award		<input type="checkbox"/>		Mini-comp		X	
Call off from Lot number (please tick)	1	<input type="checkbox"/>	2	<input type="checkbox"/>	3	<input type="checkbox"/>	4	X
Proposal return date:	06.04.2021							

Evaluation criteria: Please note price and quality weightings are fixed.

Suppliers: Failure to meet the minimum score threshold stated will result in the bid being removed from the process with no further evaluation regardless of other quality or price scores.

Price	Weighting	50%
Quality	Weighting	50%
Quality Sub-Criteria Weightings:		
Approach & Methodology		50
Proposed Staff (inc Pen Portraits) and Supplier's experience/accreditations.		25
Project Management (including project plan)		15
Health and Safety		10

Specification (Details to be provided by the Contracting Authority Project Manager)

Note – the Supplier's proposal will be limited to a maximum of **10 pages** (including pen portraits for key staff)

The Supplier's required Limitation of Liability is one million pounds.

1. Description of work required – overall purpose & scope (including reporting requirements)

Project Activities

Ormesby Beck is a tributary of the River Tees estuary and flows through the urban centre of Middlesbrough before more industrial areas created through infilling the estuary margin. The North Ormesby Tidal Barrage prevents tidal flows from heading up the beck from the estuary. In addition to perceived flood risk benefits, the barrage may have been installed to prevent the previously heavily polluted River Tees from heading back up into Middlesbrough. The former Cargo Fleet outfall discharged raw sewage at the confluence of Ormesby Beck and the Tees until the mid-1990's, when this practice was prohibited. The Cargo Fleet Pumping Station immediately downstream of the barrage now redirects the raw sewage flow to the Bran Sands Effluent Treatment Plant.

The North Ormesby Tidal Barrage was constructed in the 1995 by Middlesbrough Borough Council, which included the diversion and culverting of Middle Beck. The barrage is currently maintained by the Environment Agency, but it is difficult to access for maintenance and debris removal. In 2010 the Navigation Screen was constructed upstream of the barrage, which is easier to access but debris clearance is still required from both structures.

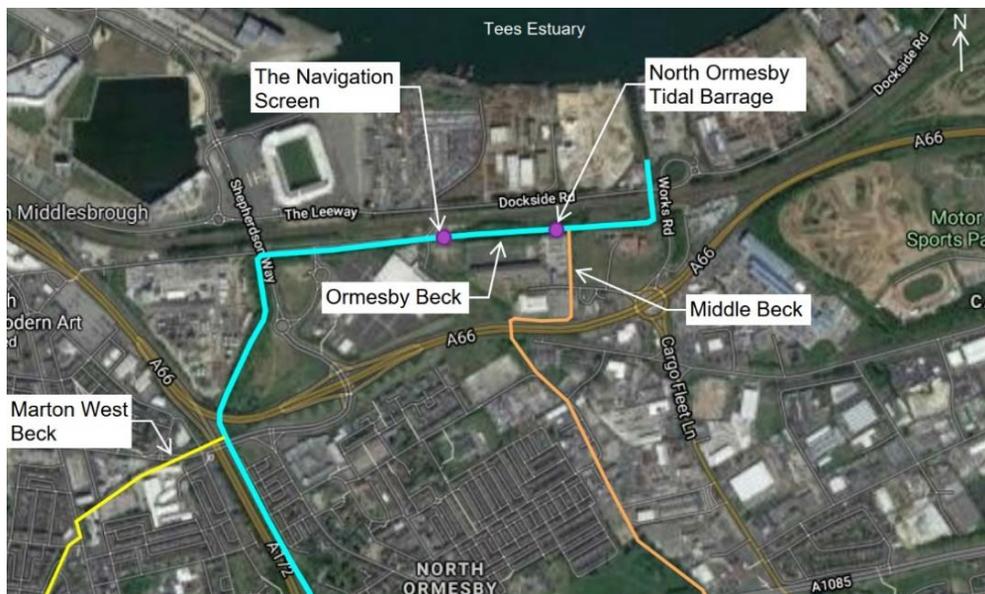


Figure 1 - Location Plan



Figure 2 – North Ormesby Tidal Barrage: downstream (left) and upstream (right)

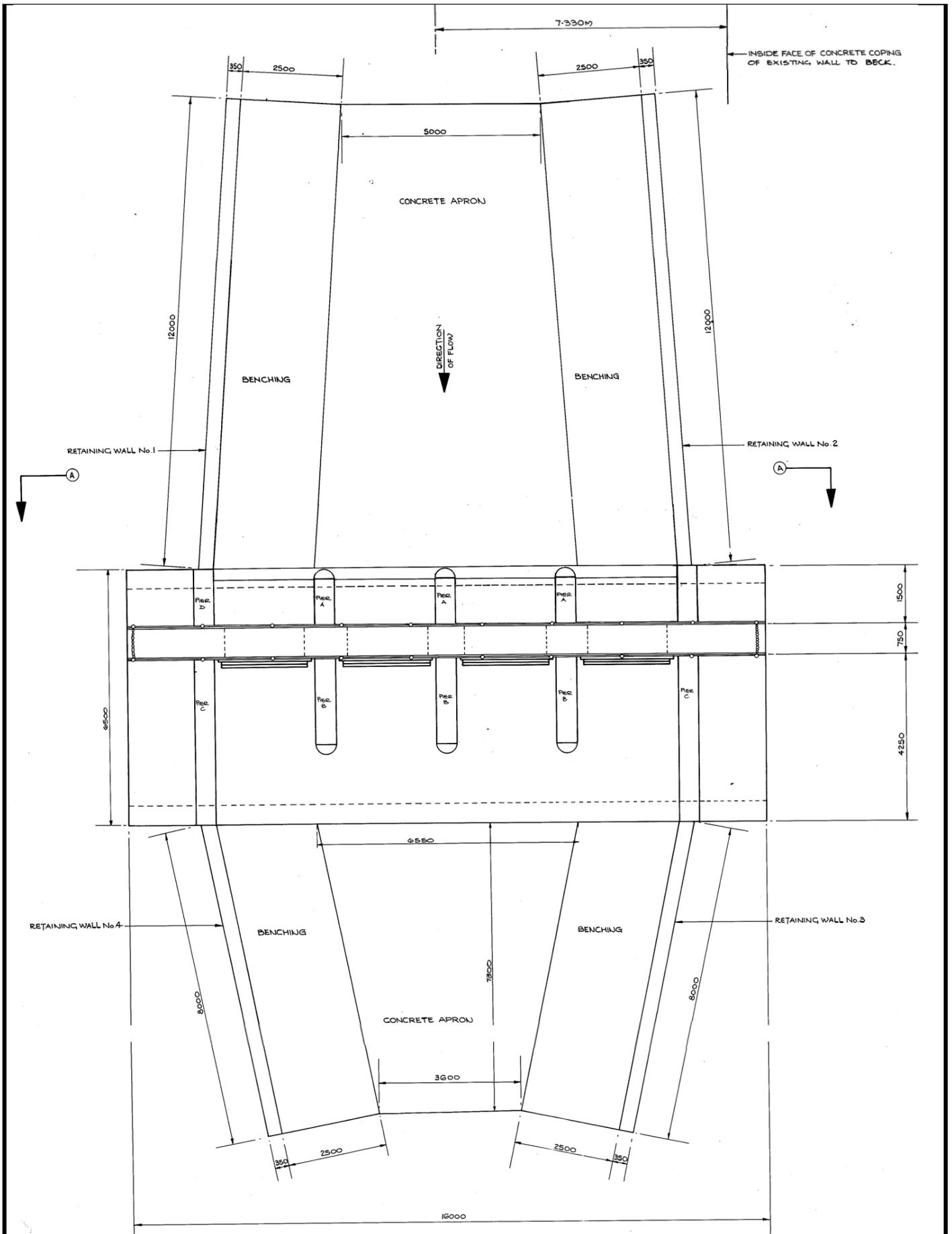
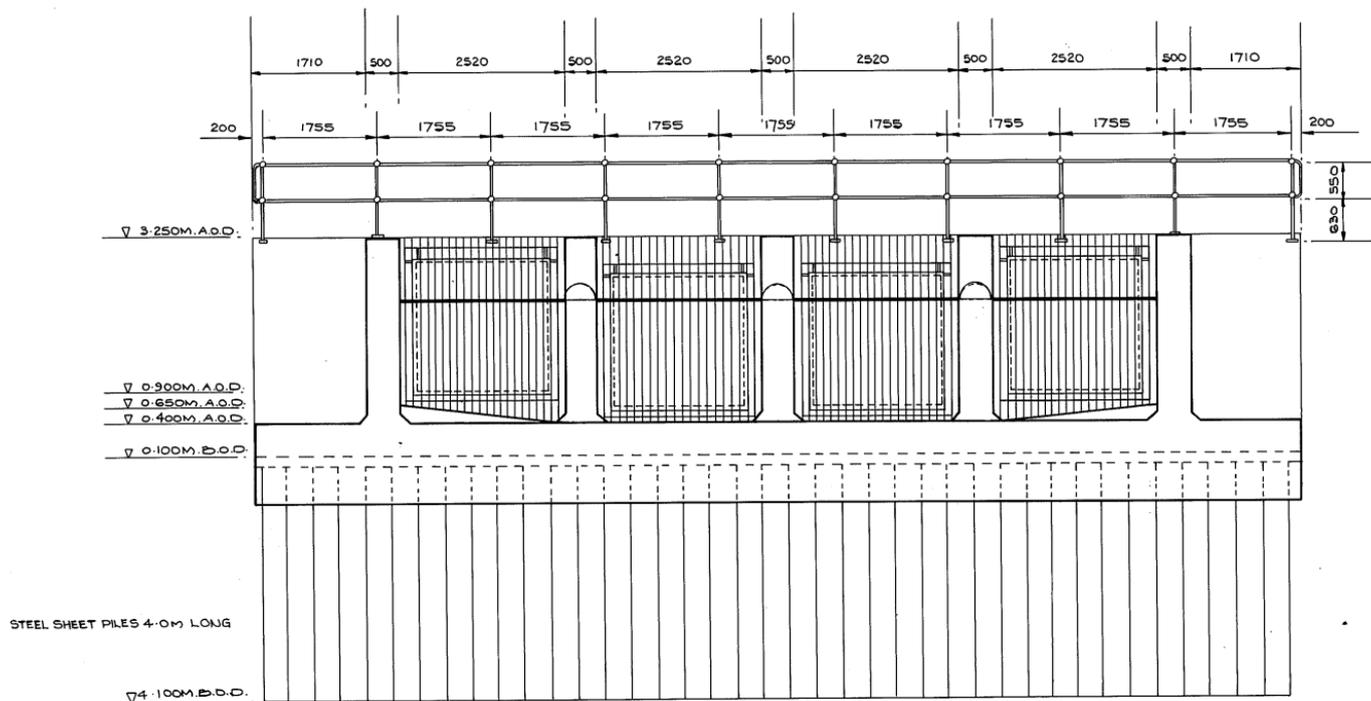


Figure 3 – Plan of North Ormesby Tidal Barrage

Figure 4 – Cross section of North Ormesby Tidal Barrage



Before and after

Navigation Channel Clean up using the Truxor method



Figure 5 – Montage of images for debris removal at North Ormesby Tidal Barrage using an amphibious vehicle

Hydraulic modelling work is currently underway to prove or disprove the flood risk benefits of the barrage but given the structure is overtopped during a 1 in 2 year event, it is unlikely to provide benefits.

Removal of the structures will reduce operational costs and carbon outputs, restore tidal influence on the lower reaches of the Ormesby Beck, giving the opportunity to improve habitats, and improve ecological connectivity between the catchment and estuary.



Figure 6 – Navigation Screen (upstream)

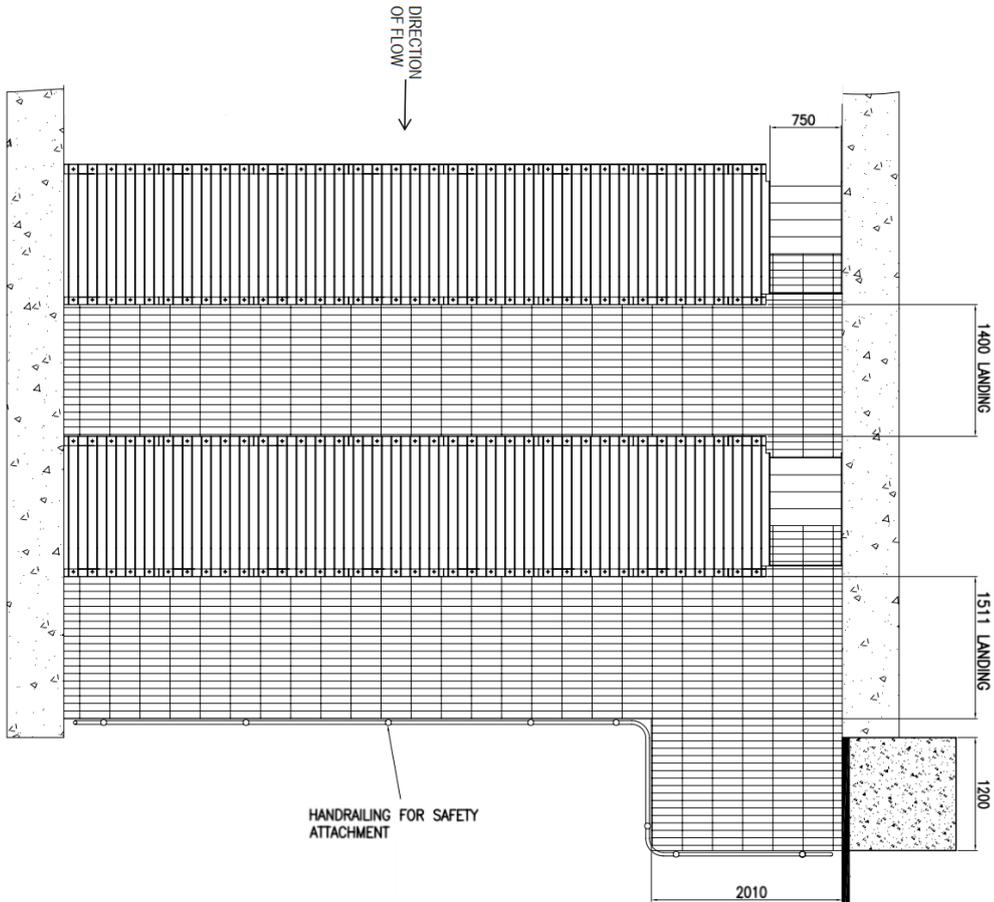


Figure 7 – Plan of Navigation Screen

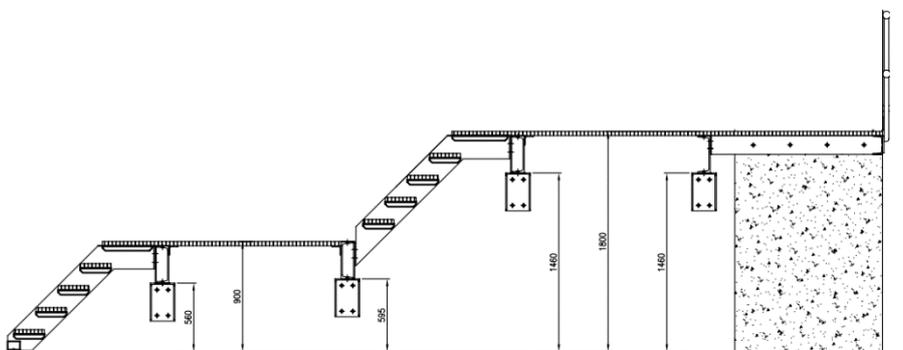


Figure 8 – Cross section of Navigation Screen

Overarching Project Objectives

The objective of the commission is to appraise the removal of the North Ormesby Tidal Barrage and associated structures. This will include the consideration of what 'removal' consists of and exploring opportunities to improve habitats within the sections of the Ormesby Beck, which will become tidally influenced and the opportunities to improve the land adjacent to the beck. This will culminate in a preferred option with associated Outline Business Case.

Project Activities

The Supplier will:

1. Familiarise themselves with available data both held by the Environment Agency and publicly available in order to help them appraise options for the lower Ormesby Beck.
2. Complete a technical appraisal of how best to remove the tidal barrage.
3. Hydraulic modelling for the removal of the barrage is currently underway and when complete, the outcome will be provided to the successful Supplier. If the options appraisal determines that further hydraulic modelling is required, this will be considered as an additional activity and will be instructed to the existing modelling Supplier as a contract variation, in line with the contract and framework's guidelines.
4. Use the outputs of hydraulic modelling and other data to determine opportunities for habitat improvements in the zone of the Ormesby Beck and adjacent land that could become tidally influenced should the tidal barrier be removed.
5. Consider the opportunity to daylight or otherwise improve the lower reach of the Middle Beck, which currently discharges just downstream of the barrage. This section of culvert is within the Cargo Fleet Pumping Station site boundary.
6. Consider the combinations of options developed under activities 2, 4 and 5 and complete options appraisal in line with the FCRM Appraisal Guidance to include monetisation of FCRM and Ecological services benefits. The Supplier shall develop costs for delivery of the various options and produce a DEFRA FCRM GiA Partnership Funding Calculator for each of the options and conclude the outputs of this appraisal in an Economic Appraisal Report.
7. The Supplier will develop the long list of options and host a workshop with the Client and selected stakeholders to confirm the short list. The workshop attendees will be confirmed by the EA Senior User. The Supplier will subsequently host a workshop on completion of the appraisal to confirm the preferred option, which will be used in the OBC.
8. Consider innovative approaches to reducing waste and maximise the reuse of site won materials.
9. Produce a Preliminary Environmental Information Report (PEIR) using existing environmental information available and identifying the need for further surveys/assessments.
10. Complete a biodiversity baseline assessment of the river, estuary and terrestrial habitats within the project area in accordance with DEFRA Biodiversity Metric 2.0 or subsequent version as appropriate.
11. Appraise options using DEFRA Biodiversity Metric 2.0, calculating the likely biodiversity unit changes resulting from the proposed options.
12. Complete outline design (drawing with design assumptions) and cost estimate for preferred option including a method for managing the existing outfalls and the existing right of way.
13. Surveys required to develop the preferred option and outline design (e.g. topographical) will be undertaken by the Supplier as an additional item/variation.
14. The Supplier will determine if any structural or ground investigation is required in order to complete the outline design of the preferred option. If required the following will be treated as an additional item/variation, the

Supplier shall produce the ground investigation specification and the Agency will determine how to procure any intrusive investigation work. The Supplier is expected to then interpret the factual outputs of intrusive investigation work and incorporate it into the optioneering and outline design process.

15. For Client future cost forecasting purposes, the Supplier should in their tender submissions provide indicative costs for their time to specify survey requirements and interpretation of the results. This information will only be used for Client forecasting and will not form part of the tender assessment or be used in the assessment of any future costs under this contract.
16. Prepare the Outline Business Case (OBC) in line with Government and Environment Agency Guidance with input on some of the five cases from the Client. The OBC shall include the biodiversity net gain, economic and carbon estimates for each option assessed to identify a preferred option.

Other services required

17. The Supplier shall attend contract start-up meeting (via Microsoft Teams or Zoom) with the Environment Agency PM to finalise project scope and deliverables for the project.
18. The Supplier will attend monthly progress meetings and produce minutes of the meetings. They will also produce a monthly progress report including details of work completed, risks to delivery and a forecast of likely contract payments until completion.
19. The Supplier will support the Environment Agency in engagement with stakeholders by preparing sketches for the option appraisal. There is also likely to be interest from local interest groups and the local authority. The Supplier should allow for two virtual workshops (one to explore options and one to review the detail of the preferred option). The Supplier will be expected to provide materials for these workshops and produce minutes.
20. The Supplier will actively seek efficient solutions and communicate any efficiencies that could be claimed through the Agency's efficiencies reporting process.
21. The Supplier will also actively seek low carbon solutions and will complete the Agency's Carbon Calculator for any preferred options identified.
22. The Supplier will undertake the role of Designer and Principal Designer under the Construction Design and Management Regulations (2015).
23. The Supplier shall be responsible for complying with copyright, including the procuring of any licences required, relating to the use 3rd party data for the project.
24. The Supplier will be responsible for arranging any access required to undertake site visits in the study areas.
25. All meetings will be conducted in accordance with any Covid-19 restrictions on working practices.
26. In the event the Supplier is instructed to undertake the future OBC-FBC work (refer to below **Potential Future Work**), they must demonstrate that they have capacity, and the staff have the right design skills / competencies to deliver the detailed design and FBC.

Potential Future Work

Dependent on the performance of the Supplier they may be asked to complete the detailed design of the preferred option and production of the Full Business Case (FBC) as an additional task, which would be dependent on the Client determining whether the quote received offer value for money. Should this be required, it will be classed as a contract variation and will be managed in line with the EcoSF3 framework agreement as per Section 6.6 Varying the contract.

2. Information to be returned by the Supplier and the section of Part 2 which the information should be provided in.

Approach and Methodology - Information to be returned by the Supplier in Part 2 Section 1

- Identify proposed methodology to achieve the above outputs and confirm deliverables. This should include assumptions and exclusions.
- Details of how options will be appraised using the analysis tools set out in the Specification above and communications with the Environment Agency.
- Details of how costs will be developed for the various options proposed.
- Identification of key project risks and how they will be mitigated. A summary risk table (including residual risk ownership) should be included in the proposal.
- Include details of how risks relating to the ongoing Covid19 pandemic will be managed, from a business continuity perspective and operationally.
- Include details of how the quality assurance that will be applied to the project and the final outputs.

Project Management (including programme plan) - Information to be returned by the Supplier in Part 2 Section 2

- Project plan shall include, but not limited to, the completion dates for payment schedule tasks (Part 1 Section 3 of this form). Sufficient detail should be provided to evidence a planned approach to delivering the various elements of the project within the required timeframes.
- Project Management should include an overview of the proposed project management and reporting structure.
- Include details on regular reporting and meetings.
- Include details how risks will be managed for the duration of the project, including risk relating to the ongoing Covid19 pandemic.

2. Required skills / experience from the Supplier and staff. Include any essential qualifications or accreditations required to undertake the work. Please provide details for any sub-Suppliers being used.

- Flood risk and habitat creation scheme appraisal in line with FCRM and treasury guidance
- Feasibility and design of solutions that work with nature and of decommissioning assets
- Estuarine restoration
- Stakeholder engagement
- CDM competency
- Project Management

Information to be returned by the Supplier in Part 2 Section 3

Project Staff (including team organisation chart and pen portraits for key project staff). If you propose to use sub-Suppliers to provide key elements of the project, your reply should evidence their skill and experience.

- Demonstrate appropriate skill and competency to deliver the required outputs identified in the Specification above.
- Identify previous relevant experience of undertaking similar projects.

3. Proposed programme of work and payment table (Detailing specific tasks, key milestones, deliverables & completion date where appropriate) Payment schedule should detail the % amount that will be paid after delivery of each task.

Task no.	Task and deliverable	Completion date	Payment schedule
1	Attend contract start-up meeting. This includes, but not limited to:- Familiarisation with the lower Ormesby Beck, complete technical appraisal on how to remove the North Ormesby Tidal Barrage and Ormesby Beck 1 st Screen, including possible options to daylight / improve the lower reach of the Middle Beck.	July 2021	20%

	Determine opportunities for habitat improvements in the zone of the Ormesby Beck and adjacent land that could become tidally influenced should the tidal barrier be removed. Develop the long list of options and host a workshop with the Client and selected stakeholders to confirm the short list.		
2	Evaluate short list of options as agreed at the workshop. This includes, but not limited to:- Complete a biodiversity baseline assessment of the river, estuary and terrestrial habitats within the project area in accordance with DEFRA Biodiversity Metric 2.0 or subsequent version as appropriate. Appraise short list of options using DEFRA Biodiversity Metric 2.0, calculating the likely biodiversity unit changes resulting from the proposed options. Complete options appraisal in line with the FCRM Appraisal Guidance to include monetisation of FCRM and Ecological services benefits for tidal barrage removal and habitat improvement. Consider innovative approaches to reducing waste and maximise the reuse of site won materials. Determine preferred option. Host workshop with the Client and selected stakeholders to confirm the preferred option. Prepare the Outline Business Case.	October 2021	40%
3	Produce outline design (drawing with design assumptions) and outline costs for preferred option including a method for managing the existing outfalls and the existing right of way. Produce a Preliminary Environmental Information Report (PEIR) using existing environmental information available and identifying the need for further surveys/assessments.	November 2021	10%
4	Project completion	December 2021	30%

4. Health and Safety

Information to be returned by the Supplier in Part 2 Section 4

- Demonstrate how the project will have regard to health and safety.
- Demonstrate how the risks associated with working near or over water will be managed.

**22503 ECOLOGICAL SERVICES FRAMEWORK 3 (EcoSF3)
SCHEDULE B PROJECT FORM AND CONFIRMATION OF INSTRUCTIONS**

**PART 2
TASK QUOTATION SHEET**

Framework Supplier name		JBA Consulting	
Supplier Project Manager name		██████████	
Supplier project manager phone number:	██████████	Supplier project manager e-mail address:	████████████████████

Note: Your proposal must not exceed 10 sides of A4 plus the Costs Proposal in Section 4 (unless otherwise indicated in project client's specification above). Attachments must not be included unless requested with the exception of a programme diagram and full cost schedule if you consider these would support your proposal.

Do not make or append Caveats and Assumptions in your proposal – any points of uncertainty must be raised as a clarification point prior to submitting the proposal. Where assumptions are to be made, these will be stated by the Authority's Project Manager.

1. Approach & Methodology

A review would be undertaken by all technical teams including but not limited to engineering and environmental teams to understand existing available data which is provided by the EA and that are publicly available. Furthermore, a desk-based appraisal of publicly available information would be undertaken by all teams to assist with the appraisal of options for the lower Ormesby Beck. Anticipated sources of information that would be available include: Pre-Construction Information (PCI), Strategic Outline Case (SOC), hydraulic modelling results, historic asset data and as-built information, Health and Safety Files where available, Utilities information, asbestos surveys, previous site / ground investigations, confirmation of access routes, landownership, existing operation and maintenance regimes. JBA is currently commissioned to undertake Hydraulic Modelling under a separate contract.

Start-up and Progress Meetings

JBA will chair a start-up meeting with the Agency Project Team to confirm the programme and project objectives. We will organise monthly progress meetings and produce minutes of the meetings. We will provide a monthly progress report including details of work completed, risks to delivery and a forecast of likely contract payments until completion.

Site Visit

An initial site walkover survey would be undertaken at the beginning of the project to understand existing conditions of the site. Attendees of the survey (no more than six) would be limited to key disciplines that require attendance to inform their design/assessment work. Attendees may also comprise of the EA team. Any attendance to site would be undertaken under safe Covid-19 secure procedures and in accordance with the latest government guidelines, alongside normal safe working practices for site visits. JBA have strict health and safety policies under the company's integrated management system and risk assessments would be completed prior to attending site.

Development of Options

Based on information provided in the Strategic Outline Case and our knowledge of the catchment through the studies completed by Newcastle Hydraulic Modelling Team, we will develop a long-list of options. Option development will consider the removal of the North Ormesby Tidal Barrage and associated structures. This will include removal or modification of the structure to explore opportunities to improve habitats within the sections of the Ormesby Beck, which will become tidally influenced and the opportunities to improve the land adjacent to the beck, JBA will develop the long list options for presentation at an Option Workshop with Partners and Stakeholder to undertake the Option review and confirm the short list. Concept design will be undertaken following best practice guidance and standards. Options will be appraised based on the environmental and sustainable benefits, estimated capital costs, operation and maintenance considerations, constructability / construction risk assessments and short term construction impacts. The planning status of the short-listed options will be determined together with any permitting and consenting requirements. Do Nothing and the Maintain will be considered to provide a economic and environmental baseline for the OBC. The long-list will be filtered through application of the following techniques:

- Comparison to Objectives and Critical Success Factors (CSF) developed through consultation with the Environment Agency and project partners;
- Identification of benefits associated with option;
- Undertaking a Multi Criteria Analysis (MCA) to rank options and identify a preferred option (based on technical, economic and environmental criteria); and
- Finalising feasible options and assessing technically, economically, environmentally and socially.

Details of the short-listed options, initial appraisal process and MCA will be summarised in a Technical Note to support the OBC. A key feature of MCA is its emphasis on the judgement of the decision making team, in establishing objectives and criteria, estimating relative importance weights and, to some extent, in judging the contribution of each scenario to each performance criterion (e.g. OM4 creation, low carbon solutions, buildability etc). Refinement of the viable options will require assessment of economic, environmental, technical and risk issues.

Scenario	Flood Risk to property and infrastructure not including agricultural damage	Agricultural impacts	Maintenance costs		Benefits / Cost ratio		Engineering	Landscape & Visual Impact	Environmental Impact			Other Opportunities (e.g. habitat creation, tourism, recreation - Essentially the wider benefits of the Scheme)	Total Score (Highest = Preferred Option)	Rank (Lowest = Preferred Option)	
			£/ha	PV Cost (£) % change	£/ha	B/C Ratio			Ecology	Historic Environment	Geomorphology & Water Framework Directive				
Scenario 1 Status Quo	0 no change in flood risk	0 no positive or negative change	0.0	5,825,876	0%	-1.8	B/C ratio = 0.1	0 No loss or alteration of characteristics, features or elements; no observable impacts in either direction	0 No change from baseline	0 No change from baseline	0 No change from baseline, watercourses remain heavily modified, parking continues	0 No new opportunities	-2.50	3	
Scenario 2A Maintain agricultural land in farmable condition	0 no change in flood risk	-1 some land slightly wetter	0.3	5,542,075	-4%	-1.8	B/C ratio = 0.1	1 Very minor loss or detrimental alteration of one or more characteristics, features or elements (Adverse)	0 No change from baseline	0 No change from baseline	1 Minor beneficial impacts on geomorphology (e.g. reduction in maintenance of minor channels, planting continued)	0 No new opportunities	-3.73	4	
Scenario 2b Maintain agricultural land in farmable condition	0 no change in flood risk	-1 some land slightly wetter	1.2	4,541,373	-23%	-1.4	B/C ratio = 0.1	1 Very minor loss or detrimental alteration of one or more characteristics, features or elements (Adverse)	0 No change from baseline	0 No change from baseline	1 Minor beneficial impacts on geomorphology (e.g. reduction in maintenance of minor channels, planting continued)	3 Several opportunities, some of them important	0.52	2	
Scenario 3 Water farming	0 no change in flood risk	2 some changes in land use due to drainage condition and increased frequency of flooding	2.2	3,324,286	-44%	-1.0	B/C ratio = 1.0	1 Very minor loss or detrimental alteration of one or more characteristics, features or elements (Adverse)	0 No change from baseline	0 No change from baseline	2 Some beneficial impacts on geomorphology (e.g. reduction in maintenance of minor channels, cessation of pumping to more natural water table)	3 Several opportunities, some of them important	1.20	1	
Scenario 4 Restoration of hydrological geomorphological function	-1 increased flood risk to non-essential roads	-4 Some parts of catchment no longer farmed, widespread changes in land use	0.5	5,281,871	-11%	-1.8	B/C ratio = 0.1	2 Technical complications mean option implementation challenging	0 No change from baseline	0 No change from baseline	3 Proactive management to restore some geomorphological features	4 Several potentially important opportunities	-6.26	5	
Scenario 5 Wild Landscape	2 increased flood risk to A roads, other essential infrastructure or small numbers of more valuable non-residential properties	2 Severe impact on agriculture, farming no longer viable in low lying areas, but also changes through study area, major social impact	4.0	162,179	-97%	0.0	B/C ratio = 0.0	2 Technical complications mean option implementation challenging	2 Loss of meadow, but not adversely affecting the integrity, partial loss of damage to key characteristics, features or elements (Adverse)	0 No change from baseline	0 No change from baseline	4 Widespread proactive management to restore geomorphological features	5 Many new opportunities	-7.39	6
Group (Baseline)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.25	0.25	0.25	0.00	7.00		

JBA has developed a bespoke tool for low carbon optioneering. The tool is aimed at workshop settings and encourages project teams and stakeholders to carefully consider available methods and approaches to delivering a reduced carbon impact. We will endeavour to use this throughout any optioneering and design workshops and capture

the outcomes in a carbon register so opportunities identified in workshops can be progressed and specific actions assigned to owners.

Optioneering will allow an opportunity for stakeholders to raise innovative ideas and opportunities (e.g. ideas to reduce waste and increase habitat gain) to be recorded in an innovation and opportunity register. This innovation and opportunity register would then be used to support further development of the short-listed options taken forward, and subsequently the preferred option.

Preferred Option Workshop

Once a preferred option has been agreed with the EA, a further workshop would be held to discuss the preferred option in more detail. Prior to the workshop, sketches and information would be provided in advance to allow participants to review sketches. Participants of the workshop would be allowed opportunities for comment, however it should be noted that the EA (and potentially other stakeholders) would be involved in regular weekly/bi-weekly/monthly communications throughout the design development process, therefore it is anticipated that the workshop would be used as an opportunity to confirm agreement of the final design, or suggestions for minor refinements. The workshop discussions would also be supported by the carbon register and innovation and opportunity register which could be further focused during the workshop for the preferred option.

Overall, JBA would ensure that the Options Appraisal will:

- Provide a clear record of the appraisal process and a well-argued justification for the favoured options;
- Enable the Environment Agency to make informed decisions in regard to support and funding;
- Gain support from other organisations that have an interest in the scheme;
- Consider legal obligations, consultation with third parties, identify the agreements and permissions;
- Assess and manage risk – including the likelihood of design conditions being exceeded or failing; and
- Consider Technical Feasibility consideration of climate change, consideration of land use, sediment transport and hydraulic models to quantify risk, and engineering design and costs.

Economic Appraisal Report

The economic appraisal will consider the flood risk management benefits on receptors at risk and the wider environmental benefits using FCRM Appraisal Guidance to include monetisation of FCRM and **Ecological Services** benefit. As the existing barrage protects to a very low standard of protection, the removal is unlikely to offer significant flood risk benefits. However, to check this and that there is no adverse impact on receptors, we will review the modelling and flood mapping to determine if the FRM benefits need to be assessed. If so, National Receptor Database properties will be compared with the pre- and post-scheme modelling to determine the economic benefits.

Environmental benefit will be considered using a simplified approach that uses the OM4A benefit values for habitat creation and change in condition, and the OM4B values associated with improved channel restoration. Both of these aspects will be

informed by the biodiversity assessment and input from our ecologists/ environmental specialists. We will consider the change in habitats along with the anticipated timing of that change to take into account when the benefits will occur within the present value calculations. We believe this to be a suitable and proportional approach that will allow you to demonstrate the wider benefits of the scheme without a costly full natural capital assessment. However, if this is required we have the necessary experience and methodologies to undertake more detailed quantification of specific ecosystem services, should this be required. We shall consider wider environmental benefits associated with the

Case Study - Billingham Beck Restoration – JBA has extensive experience in developing non-financial / eco-system services for business case justification. Non-financial benefits of the restoration scheme include two enhancements to the watercourse that come under OM4B. The first being 2.8km of WFD water body enhanced, including improvements on Thorpe Beck and Billingham Beck. This was categorised as a comprehensive restoration and the 2.8km reach was attached a value of £13,200/km/year. The second enhancement concerns the opening up of 55km of water body with enhanced fish passage as a result of the new fish pass. This was deemed to be a single major physical/habitat enhancement.

Enhancement	Kms	Predefined OM4B value	Total annual benefit
2.8km of WFD water body enhanced	2.8	13,200	£36,960.00
Opening of 55km of river to fish passage	52.2	3,300	£172,260.00

Table: OM4B values for river enhancement

The 2.8km of WFD water body enhancement was subtracted from the 55km of enhanced fish passage to avoid double counting and was multiplied by the associated value of £3,300).

options (recreation, quality of life, landscape) and look for ways to monetise these in accordance with Appraisal Guidance. Costs to deliver each option will be informed by the engineering teams and will include the whole life costs associated with the works, any additional design and appraisal costs. Allowances for future maintenance costs, risk and optimism bias will also be considered. An assessment of carbon will be made, informed by the EA's ERIC Carbon Planning Tools where possible. We will also discuss with you your current maintenance spend associated with the screen and barrier so that these can be taken into account in the Do Minimum option and to demonstrate the cost and carbon savings made by the implementation of the works – these could be added to the benefits realisation section of the OBC.

A Partnership Funding Calculator will be derived for each option that collates the whole life costs, the present value benefits and the OM4 benefits generated by the options. This will be supplemented by an economic appraisal report that described the approaches taken, the assumptions and the choice of preferred option and any other factors that would change the decision-making process.

Production of a Preliminary Environmental Information Report

JBA would produce a Preliminary Environmental Information Report (PEIR) in accordance with MTR standards. This deliverable would be delivered using existing environmental information provided by the EA, existing publicly available information and information gained from the walk-over surveys. All information provided from these sources are assumed to be correct and the most up to date available information. This would provide an initial environmental baseline for the project and will also serve to identify areas where avoidance and mitigation of environmental impacts can be implemented for the preferred option. A gap analysis of existing environmental information and scope for further surveys and assessments would be undertaken as part of the production of the PEIR and identified for later stages of the Full Business Case.

We will undertake a draft WFD Assessment on the preferred option to ensure that it does not have a deleterious effect on any biological or physico-chemical elements and ensure that it does not cause the waterbody to drop in ecological status nor preclude any future actions that would improve the ecological status of the waterbody.

Terrestrial Unit	Calcs
Baseline units	607.41
Predicted units – terrestrial	645.04
Predicted units – new ditches and ponds	5.47
Predicted units – new river channels	1.93
Total units gained	652.44
Total unit change	+45.03
Total % change	7.41%
River Unit	Calcs
Thorpe beck baseline.	11.27
Thorpe beck potential to achieve through restoration.	+9.83
Billingham beck upper baseline.	9.37
Billingham beck upper potential to achieve through restoration.	+8.19
Total BNG river unit baseline for both sub-sites.	20.64
Potential to achieve through restoration of both sub-sites.	+18.02

The lower section of Ormesby Beck is within the SSSI designation (Teessmouth and Cleveland Coast SSSI) and Teessmouth and Cleveland Coast Special Protection Areas (Marine Components GB). We will undertake a draft Stage 1 of the HRA process, Screening, based on the preferred option. This process identifies the likely significant effects upon a European site based on the proposed project, either alone or in combination with other projects or plans and determines whether these impacts are likely to be significant. We anticipate that this will include assessing the Teessmouth & Cleveland Coast Special Protection Area (SPA) and the Teessmouth & Cleveland Coast Ramsar site. Given the nature of the

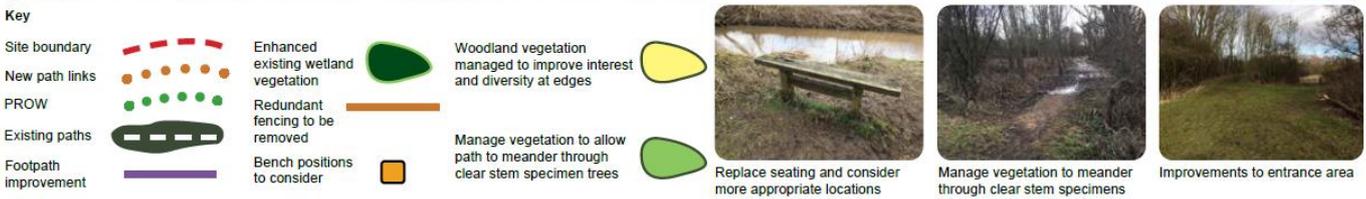
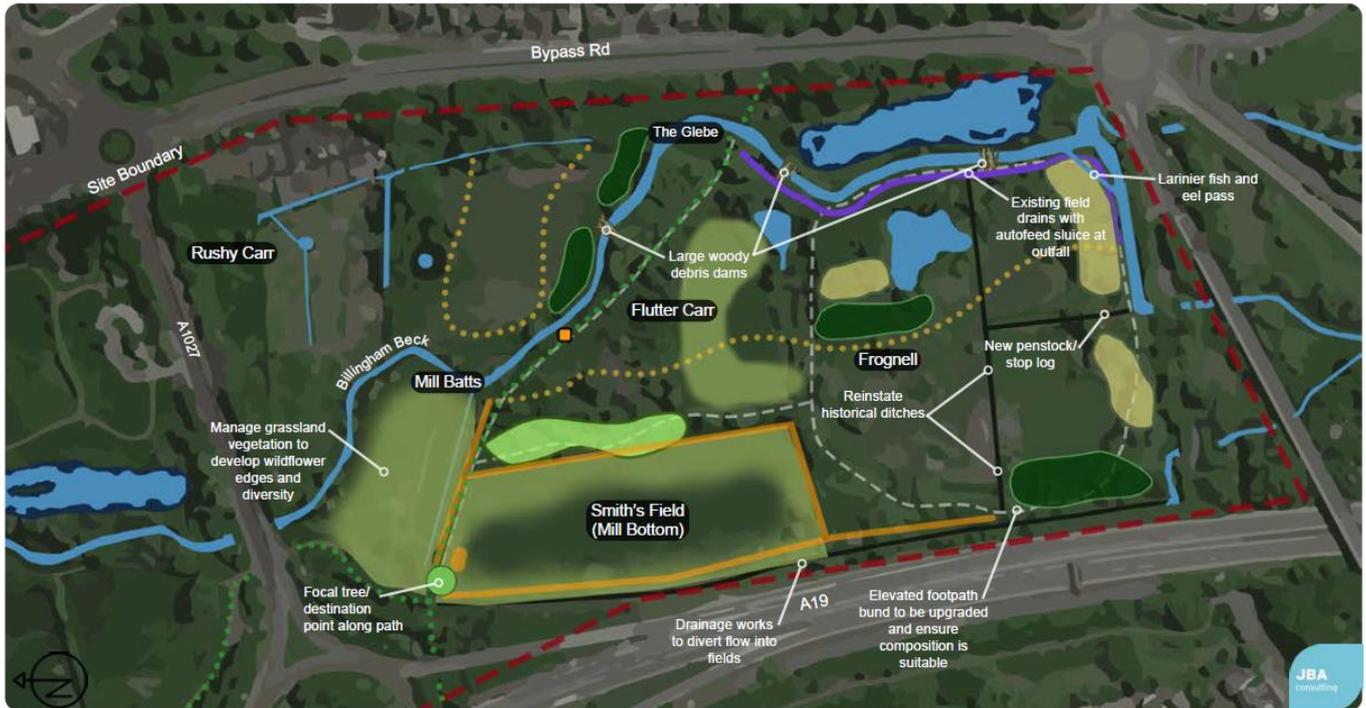
Case Study – Calculating Biodiversity Net Gain

interest features of these international sites and the nature of the likely works to be carried out under the scheme, it is anticipated that a Stage 1 Screening Assessment will suffice. In consequence we have **not costed for Stage 2** (Appropriate Assessment) of the HRA process.

Biodiversity baseline assessment

The Defra Biodiversity Metric 2.0 (or the most current version at the time of application) would be used to calculate a biodiversity baseline assessment of the river, estuary and terrestrial habitats within the project area. Subsequently, an appraisal of the short-listed options would be undertaken using this tool to calculate the likely biodiversity unit changes of each option. The metric will be used to consider the potential BNG as a consequence of the removal of the tidal structure and the day-lighting of the lower reach of the Middle Beck. Where options are similar and may not provide a substantial difference with the BNG matrix, a sensitivity analysis will be undertaken to determine which elements contribute to the BNG score. A target of 20% will be adopted. The results of this would be used to inform the options appraisal and contribute towards identifying the preferred option. Note at the time of writing this tender, a newer version of the Defra Metric (Biodiversity Metric 3.0) with improved functionality is scheduled to be released in Spring 2021(not yet confirmed). Should this be released before the project start date (currently proposed as the beginning of May 2021), JBA would aim to use this most up to date version (pending discussion with the client). The

baseline information will be provided for terrestrial habitats through data collected from the PEA surveys using UKHabs. This detail can then be inputted into the metric (both as baseline and target habitats) allowing detailed calculations of BNG. This would be combined with information from the JBA hydrology team on the frequency and depth of inundation for each option, where possible to determine the area inter-tidal habitats could be restored with the removal or alteration of the function of the structure. As per the expected deliverables, a summary table of the likely biodiversity gain or loss for each habitat type would be produced for each option, allowing a comprehensive assessment to be made of the biodiversity net gain impact for each option to inform the preferred option selection. At this stage, the potential gains and losses would be provisional, and the Metric calculations would need to be updated during detailed design at a future stage of the project (outside the scope of this OBC).



JBA provides specialist teams in stakeholder engagement and chartered landscape architects who can prepare sketches for the option appraisal and presentation to community groups.

Outline Design and Cost Estimate

We assume that the EA will be the client under the CDM Regulations. We will offer [redacted] as the Principal Designer. The preferred design will be developed to outline design with associated drawings to illustrate design assumptions. A Designer's Risk Assessment and buildability statement will be prepared for the Outline Design. The Outline Design will initially be priced against a bill of quantities, following the outline design stage. This will be suitable for developing budgets in the OBC. We will prepare the detailed bill of quantities and cost estimate for the restoration using Civil Engineering Standard method of Measurement. The pricing scheme will be based on Spons Civil Engineering and Highway Works Price Book, which will be reviewed against our records of outturn costs for similar previously completed construction works. It is envisaged that this information will be used to inform the construction contract strategy. We will also recommend the use of the Environment Agency's Long Term Costing tool to establish indicative costs. We will work with the Agency ECI (if available) we will formulate delivery costs and a procurement strategy. Costings will include future management of the existing outfalls.

JBA has considerable experience of whole-life costing for a range of restoration and habitat creation schemes. JBA has worked with the River Restoration Centre and the Tweed Forum to gather case studies and examples of previous natural flood management measures to provide indicative costs. We will seek to utilise this information from this project to ensure consistency with other projects and appraisal studies. Our cost appraisals will consider the information necessary for the preparation of the OBC. If required, whole-life costing will be considered. Whole-life costs enable investment to be more effectively evaluated through the consideration of all costs, rather than just initial

capital costs. This facilitates the choice between competing alternative options / strategies and ensures planning decisions and sustainable solutions are sufficiently robust and backed up by consistent and accurate costed programmes of activities. Existing costs of current management practices provided by the stakeholders will be reviewed if available to inform these aspects.

Identification of likely future surveys and work

JBA considers that a topographical survey would be required to develop the preferred option and outline design. The surveys would be local to the tidal barrier, debris screen and land where the potential daylighting is to be considered. Ground penetrating radar survey in this open land would also be recommended to identify any underground features. The topographical surveys would capture key information about the local area and current situation with river bed levels and thus reduce assumptions and their associated risks.

Should the deculverting go ahead with open cut to form adjacent river channel then Geotech SI likely to be required in the adjacent land. A baseline survey will be undertaken to determine any risks associated with land contamination or Unexploded Ordnance (UXO). No allowance has been at this stage for intrusive Site Investigation works as these will be treated as a contract variation. JBA will produce specifications for any ground investigations and support the Agency in procurement. JBA can offer topographical survey, however we cannot offer invasive site investigation services. Indicative costs for time to specify survey requirements and interpretation of the results is provided in Section 4.

The PEIR will also identify future survey requirements, dependent on the preferred option.

Outline Business Case (OBC)

Based on the range of options considered a **Short Form business case** OBC might be appropriate. JBA will produce the **strategic, economic and financial cases** with the Environment Agency providing the text for the **commercial and management cases**. We would be happy to provide support to the Client team in the development of these cases, however we believe that the Client is best placed to complete this. [REDACTED] will lead the preparation of the OBC, which will be reviewed independently within JBA. [REDACTED] is returning from his secondment with the EA in Newcastle and has direct experience in the preparation of SOC, OBC and FBC for Environment Programme projects and projects with the PCM Teams in the North East. Projects have included Natural Flood Risk Management and Disuse Pollution schemes that have included natural capital or ecosystems services in the development of benefits.

[REDACTED] will provide support and technical review for the OBC. JBA has undertaken several benefit assessments for habitat creation projects at Billingham Beck, Greatham Marshes, Cwm Ivy (South Wales) for Natural Resources Wales, on Hurst Spit for the Hurst to Lymington scheme appraisal for the Environment Agency, and as part of the Committee for Climate Change’s research into Land use: ‘*Reducing emissions and preparing for climate change*’. **Partnership funding scores** will be derived for the preferred option. JBA would actively seek to use low carbon solutions and will complete the **Environment Agency’s Carbon Calculator** for any preferred options that are identified. If any habitat creation is generated by the options, we will assess the net carbon sequestration benefits. The method for accounting for carbon storage services delivered by different land uses is an agreed and standardised process, based on the area of broad habitat. Using the habitat extents identified by the BNG assessment, carbon sequestration rates for habitat types can be transferred to calculate the carbon sequestered over a given period. We have built up our own database of applicable carbon sequestration rates from a wide range of publications which can be applied to this project. This approach can be used to demonstrate the wider benefits (in terms of offsetting the carbon impacts of construction), be included in the economic calculations or be entered into the benefits realisation section of the business case.

A preliminary risk review has been completed and presented in Table 1.

Table 1 - Summary Risk Table

Risk	Description	Mitigation
Presence of contaminated material	The former Cargo Fleet outfall discharged raw sewage at the confluence of Ormesby Beck and the Tees until the mid-1990’s, when this practice was prohibited. There is potential for contaminated material to be present around the Scheme.	Undertake a geo-environmental appraisal to understand contamination potential early and if required, undertake further ground investigation work.
Landownership access	Landowners may not agree to provide access to the Scheme or delays may occur due to negotiations of landowner access agreements.	Engage early with landowners and build a positive relationship with them through an experienced stakeholder engagement officer.
Difficulty accessing site to undertake construction works	The North Ormesby Tidal Barrage is located within Ormesby Beck with existing vegetation such as trees on each side of the banks. Additionally, an existing walking/cycle route is located to the north. Construction	Identify logistical issues early and allow issues to be solved as early as possible. Engage with construction contractors with previous experience of working on similar projects.

	within a watercourse could provide logistical difficulties to construct the Scheme which may mean longer construction times to construct the Scheme.	
Covid-19 induced delays	Due to the unpredictability of Covid-19, there is potential for delays and disruption to the delivery of the Scheme due to government restrictions, staff on the project affected directly/indirectly by Covid-19, reduced efficiency due to Covid-19 safety measures.	Early planning and setting out Covid-19 specific procedures within a business continuity plan to account for potential government restrictions and measures to minimise disruption. Implementation of strict Covid-19 secure measures and protocol for all staff members. Use of virtual meetings to minimise physical contact between staff. Providing secondary contacts for discipline leads to provide staff resilience in case of absence.
Options increase flood risk	Removal of the tidal structure and day-lighting of the culvert increases local flood risk adversely affecting private and public assets.	JBA will work with the Agency and the hydraulic modelling consultants during option development.
Failure to achieve BNG Target	We assume that the BNG Target will be set at 20% in line with the Agency's internal requirements.	A sensitivity analysis will be undertaken to determine which elements contribute to the BNG score.
Objections from stakeholders and land owners	Stakeholders and land owners may object to the preferred option resulting in a delay later stages of the project.	JBA will work with the Agency to maintain communication and ensure that concerns are addressed and fully considered in option development and design.

Key risk will be reviewed at each progress meeting and as part of the option workshops, especially where individual options may change the magnitude and likelihood of certain risks. Risk will be summarised and presented within the OBC. A decision will be made within the Project Team as to whether a full monte carlo risk assessment shall be carried out or that an optimisation bias shall be applied.

2. Project Management (inc Project plan). A project plan may be provided as an attachment with your reply.

Project Management

The Project will be delivered following **JBA Contract Management System**. Delivery for the project will be the programme which sets out milestone and inter-dependent elements. We will report progress against the agreed programme at each progress meeting. [redacted] will act as the Project Director. [redacted] will be the Project Manager. [redacted] will provide a single point of contact with the client and the internal project team. [redacted] will be supported by the various Technical Leads (shown in the Organogram). The Team structure will allow rapid decision making when needed, in the absence of the Project Manager, and will ensure the continuous provision of summary reports on project progress and programme; and deliver the contract management activities. [redacted] is an experienced project manager. [redacted] will ensure that the project is undertaken in accordance with the agreed Project Plan, budget, programme and internal Quality Assurance and Environmental Management Systems procedures. [redacted] will continuously review work to ensure that it is completed to the satisfaction of the client. There will be a systematic approach to record and feedback quality and value issues to the project. We are committed to the continued improvement of our services and our approach will ensure that this can be achieved. [redacted] will also oversee the project outputs and will be involved in the technical review of the draft and final reports.

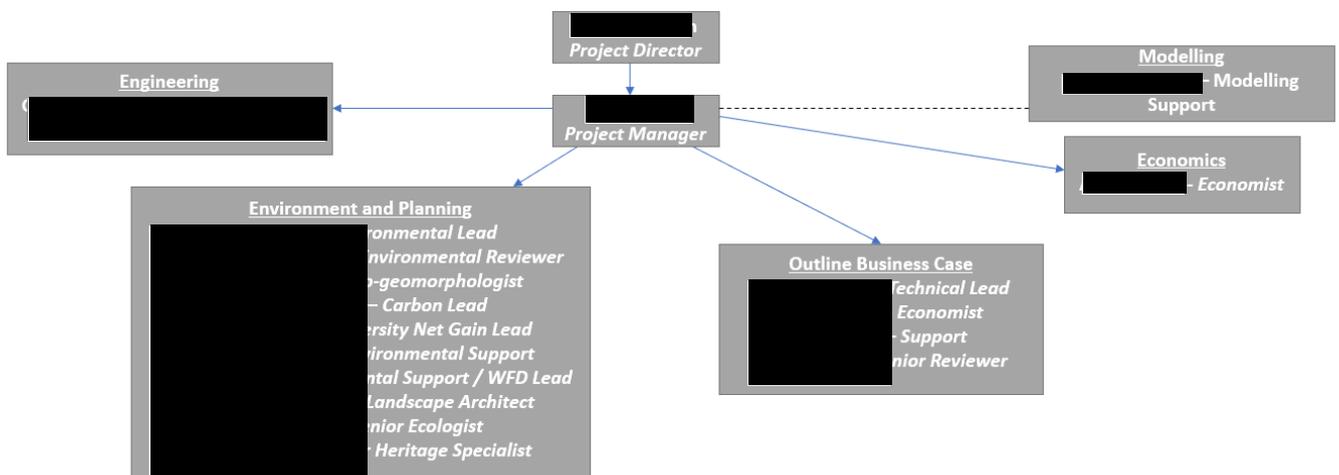


Figure 2 – Team Organogram

[Redacted content]

Relevant Project Experience

Tees Estuary Enhancement Project (Tees Rivers Trust and Environment Agency). JBA was appointed by Tees Rivers Trust (TeRT) to support the detailed design of a series of enhancement features to encourage an increase in inter-tidal habitat on a 500m section of estuary on the River Tees, Middlesbrough. The aim was to increase inter-tidal habitat through widening the river edge using NFM features to provide additional habitat through low, middle and high tidal range over a section c. 500m. Our designs used a combination of naturally sourced materials, including

brush from clearance at a local FRM construction site and coir rolls, avoiding as far as possible the use of micro-plastics found in many geotextiles and aimed to encourage natural accumulation of sediments along the section of the watercourse. JBA helped develop a set of options, co-ordinated the option workshop with key stakeholders (INCA, PD Ports, Natural England, Environment Agency) provided the detailed design of the preferred option and supported TeRT with the submission and planning and the Marine Management Organisation (MMO) Licence. JBA was Principal Designer.

Runswick Bay and Robin Hood's Bay (Scarborough Borough Council): JBA is working with Scarborough Borough Council on a variety of Coastal project including Runswick Bay and Robin Hood's Bay. Runswick Bay included the detailed design (including planning and EIA) and design support



and design support during construction for new section of rip-rap and repairs to the existing sea wall. The new rock fillet was located within the newly designated Marine Conservation Zone. JBA designed a series of enhancements to the imported granite rip-rap including artificially created rockpools, cervices and 'seed-blocks' placed within the new rip-rap. The rock fillet has placed to make sure that existing natural rock pools were not displaced and there was linkage between the new and existing features. The artificial pools were placed in the low, middle and high tidal range. These features were to encourage the colonisation of the rock and to benefit biodiversity. The rock pools have been monitored (by Bournemouth University) since installation and have proved to be highly effective. The application of the artificial pools at Runswick Bay was the largest example in the UK at time of delivery. At Robin Hood's Bay we have design new textured concrete sections where the sea wall requires maintenance.



Screens and Outfalls (CIRIA and Environment Agency): JBA worked with CIRIA on the update of the CIRIA Culvert, Screen and Outfall Manual comparing previous guidance documents into a single document available on line through the CIRIA network (CIRIA C786, 2019). The Guide updated the 2010 Culvert Guidance providing details on culvert design and operation. The guide adopts a whole-life approach to the design and operation of culverts with a focus on asset management, reflecting on the changes that have occurred cover the past 10 years. This is most noticeable for the advance in the understanding and profile of environmental and geomorphological issues in river catchments. The revised Natural Process chapter was authored by [REDACTED], who

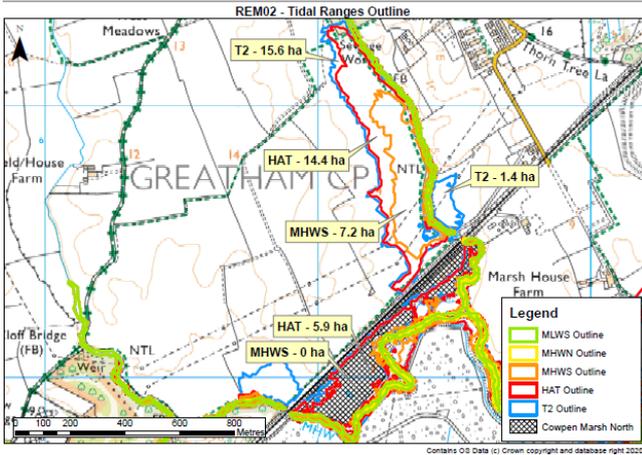
are included as part of the technical team proposed to deliver this project. JBA is currently working with the Environment Agency on a national review of its debris and security screens for compliance with the design guidance (Ciria 2019). Phase 1 of the National Review collected data for 2,549 screens. Screens were ranked with regard to risk, round 90 screens were categorised as higher-risk screens (with greater than 50 properties at risk of flooding in the event of a blockage) and around 800 screens were categorised as lower-risk screens (typically with less than 50 properties at risk of flooding in the event of a blockage). JBA has reviewed these screens based on economic, technical and environmental criteria with recommendations made for short-listed options and developed a programme for the detailed design of the high risk screens to ensure legal compliance in respect of flood risk and public safety; safety and efficiency in operation and maintenance, sustainability and environmental enhancement. We prepared Water Framework Directive assessments for each proposal including environmental enhancements developed in discussion with NEAS and the local FBG Teams.



Ashlone Wharf - Before

Greatham Asset Removal Modelling (Environment Agency): JBA assessed the implications of removing tidal defence assets on Greatham and Claxton Becks, some of which are to be considered here. Our modelling showed no increase in flood risk to property as a result of the removing the specified assets. Through collaborative working between modelling and geomorphology specialists, we identified potential to create saltmarsh habitat.

true extent and connectivity of the drainage system, together with multiple surface flow pathways. In turn, this greater level of detail also provided a better insight into locations where NFM interventions should be targeted to help



maximise their effectiveness in terms of flood attenuation. The outcomes of the study are helping to inform the development of long-term restoration and management plans across different parts of the study area by catchment stakeholders (including individual landowners), provide downstream communities at risk with evidence that NFM measures can help to reduce flood risk to people and properties, and assist in future funding applications for the implementation of suitable NFM interventions across the catchment.

Halton Marshes Wet Grassland Creation Scheme (Able UK Ltd): A detailed, cross disciplinary study into the practicalities of wetland creation at a site within proximity to the Humber Estuary. Able UK Ltd. required a compensatory habitat to enable the development of Able Marine Energy

Park. This compensatory habitat (Halton Marshes) comprised an area of 85.28ha of arable farmland. The proposed wetland design fulfilled the habitat requirements for a number of target bird species. It followed the specifications set out by Natural England and the RSPB. A detailed water balance and the method of achieving this was outlined with reference to site geology and topography. A range of solutions in the form of water control structures were presented with subsequent work discharging the planning conditions of the proposal.

4. Health & Safety (only complete if requested in defined evaluation criteria)

Health and Safety

JBA is ISO 45001:2018 certified. This project will be managed in accordance with JBA standard operating procedures which are based on risk assessment. Examples of site and office risk assessments and a copy of our company H&S policy can be made available on request. Final project specific site risk assessments and safe systems of work (JBA and any sub-contractors) will be agreed with the client before relevant task commencement.

Safe Covid-19 secure procedures and in accordance with the latest government guidelines will be followed, we will use of virtual meetings to minimise physical contact between staff would be used where possible. If the guidelines in place at the time the stakeholder meetings do not permit face to face events taking place, then we will hold the events remotely via audio visual tools, such as *MS Teams* in combination with interactive maps and visualisations. JBA has traded profitably throughout the pandemic and we have measures in place to ensure that this continues. In particular, we have invested heavily in IT over the years and all our staff are equipped with AV technology that will allow them to use *MSTeams* or *Skype for Business*, either from a desk at the office or from home. Many of our staff have been working at home successfully throughout the outbreak and this is currently the preferred option for most staff, however, for CAD and other applications, office working is permitted. Site visits have also been undertaken for essential works and are risk-assessed for Covid-19 on a case by case basis. Typically staff travel separately in their own cars and avoid overnight stays wherever possible. Refuelling takes place near their home at their usual filling station: public transport use is discouraged, and social distancing rules are maintained on site at all times. Visits to crowded locations are avoided. We are proud of our response which we believe is sensible and proportionate and always complies with the guidelines and legislation in force at the time, whilst minimising disruption as much as possible. We aim to continue with this approach to ensure the safety of our staff and the public if awarded this project and we will comply with the Public Health England (PHE) guidelines and legislation when site visits or engagement activities are planned.

Construction, Design and Management (CDM) Regulations: JBA has extensive experience in management of design and construction works under the Construction (Design and Management) Regulations 2015. We will work with the EA as the Client under these regulations. We will provide a Principal Designer as requested by the client and JBA's designers have knowledge, skills and experience to carry out the Designer role under the requirements of CDM. JBA has an experienced team of Principal Designers to meet the challenges of achieving compliance with the EA SHEW CoP, EA Operational Instructions and health and safety legislation including Construction (Design and Management) Regulations 2015 and subsequent updates. JBA has the necessary organisational capability with respect to undertaking the role of Principal Designer.

5. Sustainability (only complete if requested in defined evaluation criteria)

Not applicable - managed at framework level

6. Quality Assurance (only complete if requested in defined evaluation criteria)

Not applicable - managed at framework level

8.-Terms & Conditions

Note to Supplier – All call off contracts under the Ecological Services Framework are subject to the terms and conditions agreed at framework award, including the Prior Rights Schedule and GDPR Schedule completed at award of the call-off contract.

Notes

You must have a purchase order number from the Contracting Authority before you start any work in connection with this proposal.

If you have carried out a protected species survey, data collected must be uploaded onto the [NBN network](#). Please take account of this in your quote.

By signing this form *JBA Consulting* agree to provide the services stated above for the cost set out in your Cost Proposal and in accordance with the Ecological Services Framework 3 Agreement Terms and additional appendices (if used).

Supplier Project Manager: [REDACTED]

Signature:

Date:

6th April 2020

9. Confirmation of Instructions (Contracting Authority Project Manager to complete)**Notes**

All agreed post submission amendments to scope, proposal, timetable or costs must be updated in the sections above prior to accepting the proposal.

A commission code must be obtained from Stephen Perriss prior to confirming award and must be quoted on your purchase order.

A Bravo ECM reference should be obtained from Commercial if the project has been issued via Bravo and quoted on your purchase order.

Authorisation	Name	Signature	Date
Contracting Authority Project Manager	[REDACTED]	[REDACTED]	07/07/21
Authorised Contracting Authority Signature	[REDACTED]	[REDACTED]	08/07/2021
DgC Authorised Signature (if required)	[REDACTED]	[REDACTED]	09/07/21
Commission Code			
Purchase order no.			
Bravo ECM Ref (if applicable)			

The completed Project Form should be returned to the Supplier as authorisation to commence work. A copy must be provided to the named Commercial Lead if the award has been conducted via Bravo.

