NGSA SOC-OBC PSC Standard Scope - Appraisal

Template: LIT 13261 Published: 31/07/2020

Environment Agency

NEC4 Professional Service Contract (PSC)

Scope

Project / contract information

Project name	Southlake Reservoir Improvements
Project SOP code	ENV0000727C
Contract number	TBC
Date	4th March 2021

Assurance

Author	Project Manager [redacted]	Date: 1st March 2021
Consulted	Senior User	Date: Feb 2021
Reviewed	Project Executive	Date:2nd March 2021
Checked prior to issue	Commercial Services Manager	Date:
Consulted	NEAS [redacted]	Date (if required)

Revision History

Revision date	Summary of changes	Version number
	First issue	
2nd March	[redacted]	2

4th March	[redacted]	3
9th March	[redacted]	4

This Scope shall be read in conjunction with the version of the Minimum Technical Requirements current at the Contract Date. In the event of conflict, this Scope shall prevail. The *service* is to be compliant with the following version of the Minimum Technical Requirements:

Document	Document Title	Version No	Issue date
412_13_SD01	**Minimum Technical Requirements**	**2.0**	**18/3/20**

Overview

1.1 Background

Southlake Moor is an off-line flood storage reservoir on the Somerset levels located ~9.5km South East of the town of Bridgwater, Somerset. When certain elements were first built is not known, though it could date back to the times of King Alfred (circa 900AD). It should be noted that the impounding elements were never built to form a reservoir. Southlake Moor is nationally and internationally designated for its freshwater habitat, protected by law.

The moor can retain more than 25,000m^3 above adjacent natural ground to provide a habitat for overwintering birds. As such, the moor is classified as a Large Raised Reservoir under the Reservoirs Act 1975. Under this Act the reservoir is classified as a High-Risk Large Raised Reservoir and has been assessed as a Category D reservoir under the Floods and Reservoirs Safety 4th Edition[1] guidance. It also functions as a flood storage area linked to the Sowy River, which forms part of the River Parrett Relief Channel.

The primary objective of the Southlake Moor Reservoir Improvements project is to address recommendations made as to measures to be taken in the interests of safety (MIOS) and other recommended measures made in the latest Section 10 inspection report, issued in July 2019. In meeting the objectives, the *Consultant* has been instructed to carry out Options Appraisal to OBC for the Southlake Moor Reservoir to address the MIOS Recommendations.

Early screening of potential options to identify and assess a long list of options was completed under a separate commission. Further options appraisal is to be undertaken under this contract to allow for the assessment of the short list of options to arrive at a preferred solution, develop an outline design and to complete the OBC.

[1] Floods and Reservoir Safety, Fourth edition, Authors: Institution of Civil Engineers, Published: 2015

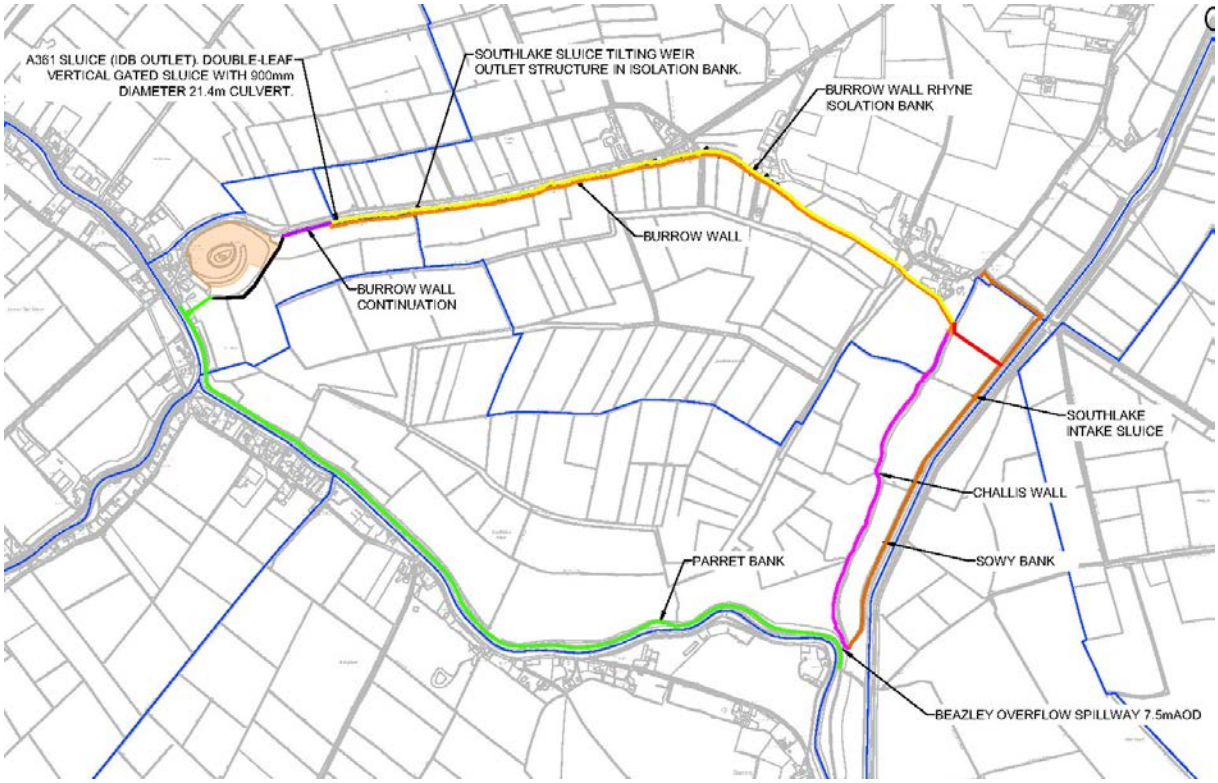

Figure 1-1 - Southlake Moor Reservoir indicative plan view

1.2 Previous Studies

1.2.1 In undertaking the *service* the *Consultant* shall take account of the previous studies detailed in the table below and produce a short technical summary explaining how best use will be made of historical data.

Report	Date	Format E.g. Digital format (enclosed), paper copy (enclosed) or paper copy (available for inspection)	Outcomes of study
Notes and actions from QCE handover site visit 20 Jan 2020	Feb 2020	Asite	
Reservoirs Act 1975. Report on an inspection under Section 10(2)	25/07/2019	Stored on ASite	Recommendations in the interests of safety – Confidential
Ecological Appraisal	July 2018	Stored on ASite	
Southlake Moor Reservoir Final Report	March 2018	Stored on ASite	
Southlake Moor – Freeboard, Risk and Remedial Options Study	March 2018	Stored on ASite	
Somerset Levels and Moors Appraisal Parrett river system, Lowlands Hydraulic modelling report	Nov 2016	Asite	
Somerset Levels and Moors Appraisal Hydrology report	Nov 2016	Asite	

1.2.2 The *Consultant* shall review the information provided and notify the *Client* of any deficiencies in its adequacy. Following this review, and completion of any work required to rectify the deficiencies identified, the *Consultant* shall be responsible for the verified data quality and quantity

1.3 Objective

1.3.1 The primary objective of the Southlake Moor Reservoir Improvements project is to address recommendations made as to measures to be taken in the interests of safety (MIOS) and other recommended measures made in the latest Section 10 inspection report, issued in July 2019, to the satisfaction of the QCE (Qualified Civil Engineer). Both sets of recommendations are repeated below.

For clarity, the MIOS recommendations have been taken directly from the latest Section 10 report and listed below:

Relating to the River Parrett Right Bank:

i. Raise and level the lowest sections of the embankment crest in order to reduce the risk of overtopping erosion leading to embankment failure to acceptable levels. Reinstate the grass cover on the crest and downstream faces as erosion protection.

For reservoir safety the minimum crest width shall be 3m and the embankment shall have a minimum landward gradient of 1 in 3. The riverward gradient shall be stable. The crest shall be of a consistent level along the lowest section of crest, the required level of which shall be determined from the risk assessment using the River Parrett hydraulic model taking into account the left and right embankment crest levels following the planned IDB works. The final dimensions and gradients of the embankments shall be determined by considering the requirements to also achieve acceptable bank stability, seepage and durability against burrowing animals; compliance with EA operational and maintenance requirements (e.g. EA OI 992-14); environmental designations and environmental and landowner impact mitigation.

ii. Repair observed points of existing and on-going leakage through the embankment. Options for this include cutting-off the leakage path e.g. with piles or excavating back and installing a filtered drain to prevent further material washing out of the embankment, but may include other measures which should be re-assessed following the planned IDB works.

iii. Reinstate areas of the bank put at risk of failure due to rabbits and other burrowing animals and install measures to discourage rabbits and other burrowing animals from putting the embankment at risk of failure in future, which should be re-assessed following the planned IDB works.

Relating to other embankments:

iv. Check the level and condition of the bank connecting the River Sowy Bank to the Burrow Wall Rhyne Isolation Bank .If found to be below 4.90m AOD, raise the bank crest to 5.0m AOD and infill existing ruts.

v. Identify locations on the Burrow Wall Rhyne Isolation Bank and River Sowy Bank where the crest is less than 2m wide at an elevation of 4.90m AOD or appears to be defective in other ways and raise and/or reinforce these areas to provide a satisfactory bank with a minimum 2m width at an elevation of 5.0m AOD.

vi. Extend the Burrow Wall Rhyne Isolating Bank west from the A361 sluice to high ground at the Burrow Mump with a crest level above 4.90m AOD in order to

separate Southlake Moor Reservoir from the residential properties on the Burrow Wall.

vii. *Remove trees and other obstructions from low points and around ends of fencing / ditch ends adjoining the Isolation bank. Replace any fencing as necessary.*

Items iv to vii are minimum requirements for reservoir safety. The final design will again be determined by considering requirements to achieve acceptable bank stability, seepage and durability against borrowing animals; compliance with EA operational and maintenance requirements (e.g. EA OI 992-14); environmental designations and environmental and landowner impact mitigation.

Relating to monitoring and flood warning:

viii. *Install a water level recorder connected to the EA telemetry system to allow water levels and speed of rise of water levels on Southlake Moor to be monitored remotely so that warnings may be issued to persons at risk and acted upon accordingly. Incorporate such warnings into an on-site plan for Southlake Moor.*

The above recommendations should be completed within 72 months of the date of issue of this report. This programme takes into account planned dredging works on the River Parrett bank by the IDB in late 2019, the need for a wider flood study to confirm the appropriate protection level for the River Parrett right bank, the need for consultation and consents and the limited seasonal window for working adjacent to the Southlake SSSI, and the need for reinstatement of a good grass cover following completion of the works.

The programme is based on the understanding that the IDB works planned for 2019 will include raising the protection level of the River Parrett right bank to at least 7.65m AOD. Should the IDB works currently planned for 2019 be delayed, then the above programme for completion may need to be re-assessed by the QCE."

As with the MIOS recommendations, the 'Other Measures Recommended' have also been taken directly from the latest Section 10 report and listed below:

Relating to the River Parrett Right Bank, if not already incorporated in the planned IDB dredging works:

i. *Protect the crest surface with gravel where it becomes broken up and loses good grass cover*

ii. *Reprofile the over-steepened areas of the river-side banks where broken down by cattle and exclude cattle access by fencing if necessary. If required, form proper cattle drinking ramps where the embankment profile permits.*

iii. *Widen narrow or uneven sections of the crest to provide reasonable vehicle access along the crest, reprofiling the crest to give an approximately horizontal crest more than 3 wide. Other parts of the crest should be shaped to prevent water ponding on the crest.*

These are the minimum requirements for reservoir safety. The final design will be determined by considering requirements to achieve acceptable bank stability, seepage and durability against borrowing animals; compliance with EA operational and maintenance requirements (e.g. EA OI 992-14) and environmental designations; mitigate environmental and Landowner impact.

Relating to other retaining embankments:

iv. *Improve the safety provision and operation of the control structures along the Burrow Wall Rhyne.*

v. *Inspect embankments after the reservoir has impounded and repair any wave or overtopping damage which has reduced crest level below 4.90m and/or crest width to less than 2.0m.*

Measures Recommended in the Interests of Improving Monitoring and Supervision under Section 11 of the Act.

As with the MIOS recommendations, the 'Measures Recommended in the Interests of Improving Monitoring and Supervision under Section 11 of the Act 'have also been taken directly from the latest Section 10 report and listed below:

iii) Collect together the recently discovered and prepared data and drawings for Southlake Moor and prepare a Description of Works for the reservoir since no such description was attached with the 2006 inspection report. This should include, but not be limited to:

- *Drawings of the hydraulic control structures impounding water within the reservoir from EA and IDB archives. Records of internal hydraulic controls need not be included.*

- *Cross Sections of the River Parrett Right Bank from the IDB dredging proposals 2017 Crest level survey drawings*

In meeting these objectives, the *Consultant* should consider requirements to achieve acceptable bank stability; deal with seepage and improve durability against burrowing animals; compliance with Environment Agency (EA) operational and maintenance requirements and environmental designations; and mitigate possible impacts to the environment and landowners.

2. The Service

2.1 Outcome Specification

The *Consultant* shall produce an outline design which addresses the objectives described in Section 1.3 above.

2.1.1 The *Consultant* shall demonstrate sustainability leadership through fully considering and contributing to achieving the *Client*'s environment and sustainability ambitions and targets. These are set out in the EA2025 Action Plan, e:Mission 2030 Strategy, the Defra 25 Year Environment Plan and are in line with the principles of sustainability as described by the United Nation's Sustainable Development Goals.

2.1.2 The *Consultant* shall design the scheme taking into account the environmental sensitivities and opportunities of the sites and involving key environmental specialists as appropriate within the *Consultant* and the *Client's* organisation.

2.1.3 The *Consultant* shall ensure the optioneering process fully considers and addresses sustainability including carbon reduction as strategic outcomes. The *Client* business case template further requires separate option appraisals of sustainability benefits and whole-life carbon to compare with the economic appraisal and promotes a preference for the most sustainable option.

2.1.4 The *Consultant* shall ensure the optioneering process fully considers environmental mitigation and opportunities to further conserve and enhance as per our legal and policy obligations but to also contribute to the *Client's* ambitions. This includes delivery against OM4, to achieve biodiversity net gain but must also consider wider sustainability opportunities. The *Consultant* shall ensure the optioneering process avoids where possible, minimises and compensates or offsets any adverse environmental effects. . Significant changes to the outline design to compensate for adverse environmental effects that go beyond the options appraisal included in the fee will be instructed as a CE. Changes to the biodiversity net gain targets that result in changes in the outline design will also be managed as a CE.

2.1.5 The *Consultant* shall produce an outline design within the programme constraints which seeks to provide the optimum economic, technical, social and environmental/sustainability/carbon outcomes, supported by evidence that will enable the *Client* to produce an Outline Business Case, with the design capable of being implemented within the *Client* MIOS deadline

2.1.6 The *Consultant* shall produce an appraisal report and outline design that enables the *Client* to achieve efficiency targets set for this commission and future stages of the project using the Combined Efficiency Reporting Tool (CERT). Should additional input be required to complete the CERT then the *Consultant* will be instructed through a separate CE.

2.1.7 The *Consultant* shall ensure that the options and final solution take into consideration all relevant guidance and legislation and seek to minimise long-term asset/land management and maintenance costs and carbon.

2.1.8 The options will also demonstrate that the *Consultant* has learnt from best practice and demonstrate how optimum flood risk reduction, natural processes, carbon reduction, recreation, good ecological water quality and visual amenity can be combined.

2.1.9 This commission will be delivered under the EA permitted development. Should this change and planning permission and all other necessary permissions/licences have to be obtained at outline design stage then this will be subject to a CE.

2.1.10 The *Consultant* shall identify an appropriate shortlist, appraise these to identify a preferred option and develop this option, its impacts, requirements scoped to a level that it can be priced. The *Consultant* shall develop a series of options to meet the above objectives.

2.1.11 The *Consultant* shall assume that the options shortlisted in the OBC will be aligned with the strategy identified in the SOC. However, the *Consultant* shall not assume that the preferred option will necessarily be the same as that identified at the SOC stage.

2.1.12

2.2 Constraints

2.2.1 Advanced surveys are required during 2021 to mitigate potential delays to the detailed design phase and FBC: (See 6.1.16)

2.2.2 The *Consultant* shall produce a Programme such that the following milestone dates are achieved

Date	Event
25/5/2022	MIOS Study Sign Off - Programmed

2.2.3 Options appraisal shall consider impact on the longer *Client* and Utility company maintenance requirements, such that limits on plant size are not introduced.

2.2.4 The latest Section 10 report (July 2019) requires that the MIOS are completed within 72 months of the date of the report i.e. by July 2025.

2.2.5 The Environment Agency Area Team and Senior User have requested that the MIOS deadlines are met in advance to show best practice; 12 months in advance for construction activities to show best practice. Therefore this project seeks to complete works by 25 July 2024.

2.2.6 The anticipated programme would require this commission (appraisal and outline design) to be completed by end of May 2022.

2.2.7 Detailed design would then be completed to facilitate construction procurement and pricing to commence in February 2023.

2.3 Consultant Project Management

2.3.1 In managing the *service* the *Consultant* shall follow all the requirements as set out in the Collaborative Delivery Framework schedules and the relevant content of the Minimum Technical Requirements.

2.3.2 In managing the *service* the *Consultant* shall:

- Contribute as required to the updates to the project risk register.
- Provide input to project efficiency CERT Form.
- Attend progress meetings and prepare record minutes within a week for the *Client* to issue.
-
- Deliver a monthly progress report in the *Client's* standard template (Link) giving progress against programme, deliverables received and expected and financial and carbon summary against programme. Monthly financial updates and forecasts to meet EA deadlines provided by no later than the 10th day of each month, or otherwise agreed at the project start up meeting.
-
- Attend project board meetings as required
- Attend weekly catch ups as required
- Provide regular updates to programme to enable maintenance of project and strategic programmes.
- Ensure quarterly input into framework performance assessment/environmental Performance Measures.
- Ensure the *Consultant's* environmental lead provides monthly progress and risk reviews to the *Client* and attends progress meetings, as invited.
- Maintain and show how accurate and up to date information on the whole-life cost and carbon of options is driving optimum solutions at all stages of design development.
- Capture lessons learnt relevant to scheme delivery for the *Service Manager* to include in the scheme lessons learnt log to be appended to the OBC.
- Provide technical support during development of business case
- Provision of a Principal Designer for the project from 1st May 2021.
- Carbon and CEEQUAL assessment
- Develop the outline design of the preferred option in conjunction with the ECI Contractor, including provision of specification, drawings and documentation required for Early Supplier Engagement

2.3.3 Administer the contract as *Consultant* using FastDraft.

2.4 Outputs and Deliverables

2.4.1 In managing the *service* the *Consultant* shall follow all the requirements as set out in the Collaborative Delivery Framework schedules and the relevant content of the Minimum Technical Requirements.

2.4.2 In managing the *service* the *Consultant* shall:

- Undertake an appraisal of the short lis of options that was prepared under CE42 Southlake OBC Early Start
- Undertake Environmental surveys and studies to support options appraisal
- Provide an Outline design of single preferred option, equivalent OBC level of design

2.4.3 The *Consultant* shall provide input to product descriptions for key outputs and deliverables that the *Consultant* shall produce during the appraisal stage. Agree the list of products with the *Client* and submit the product description for the *Client's* acceptance before commencing work on the product.

2.4.4 The *Consultant* shall produce the following key documents for this commission:

- Modelling report. (Pending confirmation of requirement. Will be managed as a CE)
- Economics report. (Subject to a CE)
- Options appraisal report.
- Documentation of the environmental process and considerations including risks and opportunities (e.g. Scoping Report).
- Outline Design Drawings.
- Carbon Optimisation Report.
- RAG and Designers Risk assessment
- Programme showing milestones to construction completion for the preferred option including funding and environmental constraints and opportunities. The Programme shall take account of the timeframe required for all approvals necessary for mitigation and enabling works to be carried out in advance of main construction.
- Provide draft text within relevant sections of OBC.

3 Site Investigations

3.1 Topographic Survey

3.1.1 Topographic surveys have been completed as part of previous work. If further surveys are required under this Contract, the *Consultant* will be instructed under a separate CE.

3.1.2 The *Consultant* shall use the outputs from the topographic survey in their modelling and option appraisal.

3.2 Ground Investigation

3.2.1 Site Investigations were carried out in November 2020 under a separate contract and full results will be provided to *Consultant*. Should any further GI be required that *Consultant* will be instructed to prepare the GI scope under a separate CE

3.3 Services Search

3.3.1 The *Consultant* will identify affected utilities providers and consult with the providers. This is limited to consultation with up to 3 providers. For additional consultation the *Consultant* will instructed under a separate CE.

3.3.2 The *Consultant* shall obtain services data from utility companies and shall ensure services data is requested from relevant landowners. This shall include direct costs of obtaining data. This shall be incorporated into the appraisal, including preparation of plans.

3.3.3 The *Client* will arrange for a non-intrusive survey to detect key utilities (e.g. GPR etc.) to inform SI and or options appraisal. The *Consultant* shall determine the extent of the survey and produce a specification for the survey in accordance with *Client* Guidance and Principal Designer discussion; defining type and purpose of survey including extents and available information.

3.3.4 The outputs from this survey shall be included in the appraisal, including revising the plans.

4 Hydrology and Hydraulics

Hydraulic modelling is on hold pending clarifications of the requirements and approach. Should any hydraulic modelling be required then the *Consultant* will be instructed under a separate CE.

5 Economics Appraisal

5.1 Where works are required due to legal requirements, for example under the Reservoirs Act 'in the interests of safety', the *Consultant* shall undertake a cost effectiveness analysis (CEA) approach to establish the least cost method of fulfilling the obligations, rather than a full cost benefit analysis (CBA). Economic appraisal is not currently covered in the submitted fee and will be subject to a CE

5.2 The most cost effective option must meet the requirements of the scope.

~~The *Consultant* shall provide the results of this section of the study in an economics report which shall feed into the economics appendix of the OBC. This will provide a clear view of the process in order that the economic lead for the review team can review the process. As a minimum this will include, but not be limited to:~~

- ~~Overview of methodology adopted.~~
- ~~Parameters quantified and standards used (e.g. Multi-Coloured Manual).~~
- ~~Parameters considered and not used together with reasons.~~
- ~~Key receptors/ major beneficiaries.~~
- ~~Wider benefits.~~
- ~~Assumptions made.~~
- ~~How the decision rules have been applied.~~
- ~~What sensitivity tests have been applied and why.~~

- ~~Treatment of climate change, carbon reduction and sustainability benefits.~~
- ~~FCERM-AG spreadsheets and PF calculator.~~

6 Environmental Assessment

6.1 The *Consultant* shall confirm the expected environmental outputs agreed through engagement with NEAS. The activities identified shall take into account proportionality whilst supporting the achievement of the *Client*'s wider aspirations.

6.2 The *Consultant* shall give due consideration of the environment and sustainability risks and opportunities throughout the design evolution of the project to maximise the delivery of *Client* and project objectives.

6.3 The *Consultant* shall ensure that the project level assessment sits within the context of any previous strategic environmental assessment and supporting information for the area and brings forward all relevant information and conclusions.

6.4 The *Consultant* shall establish and understand the baseline and the legal and policy context to identify the key environmental/sustainability risks and opportunities. This shall support the options appraisal and justify the need for any future environmental assessment activity.

6.5 The *Consultant* shall report the findings of the NEAS screening exercise as required which will form an Appendix to the OBC with relevant summary details incorporated into the relevant section(s) of the OBC main text.

6.6 The *Consultant* shall report on the CEEQUAL assessment in accordance with the hub workload plan.

6.7 The Environmental Assessment shall be in the form of an Options Appraisal Summary Table (OAST) to support the Outline Business Case (OBC) and Options Assessment for the Southlake main works.

6.8 The OAST shall summarise the potential economic, environmental, social and legal impacts of proposed options for the Scheme. Wherever feasible, impacts will be quantified and converted into a monetary value. Where impacts cannot be quantified a qualitative assessment will been used. In all cases, impacts will be considered in the context of the legal requirement to meet the MIOS requirements

6.9 The Environmental, Social and Economic Options Appraisal Summary shall include those necessary for proportional assessment of impacts including but not limited to the following:

- Economic:
    - Property impacts (if any)
    - Recreation
- Environmental:
    - Biodiversity
    - Land use/Quality
    - Water (resources/flood risk/WFD)
    - Air Quality
    - Noise
    - Climate Change
    - Heritage/Archaeology
- Social:
    - Risk to life
    - Landscape and Visual Amenity
- Legal obligations (including appraisal of planning requirements)

6.10 To inform the OAST, the following tasks shall be undertaken and the appraisals below will be included but not limited to

- Review of the NEAS Screening
- Liaison with the engineering team
- Liaison with environmental specialists
- Liaison with NEAS

6.11 Appraisals required to inform OAST and highlight potential impacts of each option:

- Preliminary Ecological Appraisal
- WFD Appraisal
- Heritage Appraisal
- Planning Appraisal (to include landowner impacts)
- Landscape Appraisal
- Climate change impacts
- Air Quality and Noise impacts
-
- Interpretation of GI sampling to inform heritage options appraisal and any consultation required to inform OBC.
- High-level Habitats Regulations Assessment (HRA) screening to compare options.

6.12 The *Consultant* shall lead on the items above, ensuring that any consent or communication with Natural England is dealt with in a timely manner and built into the overall programme. All documents including and habitat surveys will be written in collaboration with FBG and NEAS.

7 Ecology

7.1 The Site is located within the Somerset Levels and Moors Ramsar and Special Protection Area (SPA). HRA is required by Regulation 63 of the Conservation of Habitats and Species Regulations 2017 (as amended) (the Habitats Regulations) for all plans and projects that are not directly connected with or necessary to the management of the European Site but which is likely to have a significant effect on a European Site either alone or in combination with other plans and projects. Therefore, a high-level HRA screening assessment shall be carried out by the *Consultant* to compare long-list options and inform the selection of short-list options

7.2 It shall be necessary for the *Consultant* to undertake a Stage 1 Screening. If mitigation is required to avoid any likely significant effects, it will be necessary to proceed to Stage 2 Appropriate Assessment. As mitigation/ controls will be required with regard to water quality, a simple Stage 2 Appropriate Assessment must be carried out. This will be instructed as a separate CE.

7.3 The Options Appraisal Summary Table shall include high level recommendations for each option in terms of each discipline stated above. This will include potential mitigation, consultation requirements and further assessments needed to progress the option post OBC stage. A Preliminary Environmental Impact Report is not included as part of the scope and the *Consultant* will be instructed through a separate CE should it be required.

7.4 All documents, including HRA and habitat surveys shall be subject to review by FBG and NEAS.

7.5 Advanced surveys are required to be undertaken by the *Consultant* during 2021 to mitigate potential delays to the detailed design phase and FBC. The *Consultant* shall advise the *Client* on the timings of all ecology surveys to ensure timely completion of project Gateways.

7.6 Additional ecological surveys may be required to complete all necessary environmental assessment reporting that include making a meaningful contribution to detailed design, development of a proportionate ecological mitigation strategy, consents/permissions and licensing needs for the Scheme, which will inform FBC and procurement of a Contractor. Should these surveys be required, the *Consultant* will be instructed under a separate CE.

7.7 Following completion of ecological surveys, a Protected Species Survey Report will be produced for each species, which will set out agreed avoidance, mitigation, compensation and enhancement measures. Each report will include a protected species survey plan as well as any drawings required detailing the location and mitigation for protected species, produced digitally in QGIS.

8 Option Development

8.1

8.4 The *Consultant* shall undertake further options appraisal following the screening of the long list of options, which was completed under a separate commission to address each Recommendation made in the Section 10 Report.

8.5 Following this screening, the *Consultant* shall prepare a short list of maximum 3 viable options for the *Client's* approval, giving reasons for including or excluding each of the long list options. The most sustainable option shall be included in the short list. On the agreement of the *Client*, the *Consultant* shall assess in detail these options for technical, environmental and economic suitability, as discussed in the relevant sections of this brief, utilising the evidence and data collated as part of this commission. The *Consultant* will be instructed via a separate CE should further options have to be included in this assessment.

8.6 Options appraisal shall include engagement with the ESE contractor on buildability, pricing and maintainability and the *Client* including Field Services and Area FCRM.

8.7 The *Consultant* shall analyse and appraise the carbon footprint of options

8.8 The *Consultant* shall seek options that support the e:Mission 2030 sustainability targets.

8.9 The *Consultant* shall use these outputs to select a preferred option. The *Consultant* shall facilitate design workshops, attend~~/ facilitate (decide who to facilitate)~~ risk workshops to produce a risk register ~~(plus if facilitating)~~ with analysis in accordance with LIT 14847 Risk Guidance for Capital Flood Risk Management Projects

8.10 The aim of the outline design is to:

- Enable pricing to a greater level of certainty than at preliminary design for inclusion into the OBC
- Prepare the specification, drawings and documentation to support Early Supplier Engagement
- Enable the *Client* to draft the scope for the next phase of the project (OBC to FBC)

8.10 The tasks undertaken during outline design will be as follows:

- Outline design of crest raising and embankment reprofiling, spillways and control structures
- Preparation of outline specification for the engineering works
- Identification of locations requiring specific details
- Development of drawings, Buildability Statement and DRA for preferred option to outline design (up to 10no A3).

8.11 The *Consultant* shall support the *Client* in developing the business case for the preferred option and the outline design including provision of specification, drawings and documentation required for Early Supplier Engagement.

8.12 The *Client* shall draft the scope for the next stage of the project (OBC-FBC) and the *Consultant* shall support the *Client* to produce the scope.

Recommendation		Approach
MIOS Recommendation		
i	Parrett Crest Level	Make use of hydraulic modelling and other information as appropriate to define the “design crest level”, including: • Making allowance for the hydraulic gradient on river water level in downstream direction and/or upstream direction, depending upon downstream influencers. • ensuring no increase in flood risk to properties on left (west) bank The approach taken will be to alter the levels and dimensions of the embankment crest in order to meet the above requirements
ii	Parrett Leakage	Depending on the outcome of Task 1 (Section 3.1.1)
iii	Parrett Burrowing Animals	Depending on the outcome of Task 1 (Section 3.1.1)
iv	Southlake Moor Bank Levels	Propose minimum practicable Top Water Level (TWL) and associated works that need to achieve this, taking into consideration: • environmental impacts of changes in water levels • downstream considerations relating to flows over the spillway i.e. can spilling water flow freely downstream • maximizing freeboard (engineering standard is target 0.3m for Category D dam), although this may be reduced if tolerable from a risk based perspective and thus minimising risk of future recommendations under a Section 10 inspection The approach would be be to utilize the connecting bank between the River Sowy Bank and Burrow Wall Rhyne Isolation Bank as a spillway in order to meet the above requirements

v	Reinforce Isolation and Sowy Banks	Reinforce bank where the crest width is <2m wide at 4.9mOD by raising to 5.0mD and providing a crest width of 2m min.
vi	Extend Isolating Bank	Extend the Burrow Wall Rhyne Isolating Bank west from the A361 sluice to high ground at the Burrow Mump with a crest level above 4.90m AOD, if found necessary by topographic survey and subsequent analysis
vii	Removal of Trees	To be addressed as part of MIOS Recommendation v) above
Other Recommendation		
i	Parrett Crest Protection	Protect the surface of the crest where it becomes broken up and loses good grass cover
ii	Parrett Bank Reprofiling	Reprofile over-steepened river-side banks and include measures to exclude access by cattle
iii	Reinforce Parrett Bank	To be addressed as part of MIOS Recommendation i) above
iv	Burrow Wall Rhyne Control Structure Operation	To be addressed as part of MIOS Recommendation v) above

8.14

9 Stakeholder Engagement

9.1 The *Client* will lead on stakeholder engagement and consultation.

9.2 The *Consultant* shall prepare / review and update and maintain a stakeholder engagement plan in accordance with the EA guidance "Working with Others" including agreement of key stakeholders with discussion with the *Client*. The *Consultant* shall ensure that the results from the stakeholder engagement informs the appraisal.

9.3 The *Consultant* shall provide Monthly circulation of updated communications record at progress meetings.

9.4 The *Consultant* shall provide technical support, prepare information for and attend a key stakeholder meeting as well as preparing information and reviewing external communications prepared by others (e.g. quarterly newsletters).

9.5

9.5 The *Consultant* shall provide technical support and attend two no. meetings with key external organisations/individuals impacting upon option selection process. ~~The current known stakeholders are identified in Appendix XX.~~

9.6 The *Consultant* shall consider the following and document how they are addressed on this contract:

- Public diversity in engagement and perception of the project team.
- Accessibility.
- How inclusive environments are created for the project team.

9.7 The *Consultant* shall prepare information for and attend two key stakeholder meetings, one at short list stage and one at preferred option. Due to COVID-19 these meetings will be virtual. Attendees may include:

- Internal EA consultees via NEAS
- IDB
- Landowners
- Local residents (including residents of Burrow Bridge and Stathe)
- RSPB
- Somerset Heritage Society
- Local Planning Authority Archaeological Officer
- Lead Local Flood Authority
- Natural England
- Burrowbridge Parish Council
- Somerset River Authority

9.8 The *Consultant* will prepare information for and review external communications prepared by others (e.g. quarterly newsletters).

9.9 The *Consultant* will provide a monthly circulation of updated communications record at progress meetings.

9.10 The *Client* will arrange and advertise 1 no. public meeting/workshop after a preferred option has been agreed. The *Consultant* shall prepare information for input into the consultation documents and prepare site plans and typical outline design drawings for public display. Attendance at these meetings shall include the *Consultant* project manager and environmental lead.

9.11 The *Consultant* will lead communication with the statutory environmental body Natural England. Further communication with Historic England and Local Planning Authority Archaeological Officer will be subject to a Compensation Event.

9.12 *Client* will lead in the direct communication for obtaining the screening opinion from local planning authority. The *Consultant* will compile the supporting technical documentation required to obtain the screening opinion.

9.13 A stakeholder engagement plan is being developed as part of a separate commission and will be used to further inform the consultation approach. Any changes to the above will be a compensation event.

9.14 The Consultation process will be led by the *Client*, with support from the *Consultant.*

10 Health and Safety

10.1 The *Consultant* shall follow and comply with the requirements outlined in the Safety, health environment and wellbeing (SHEW) Code of Practice (LIT 16559)

10.2 The *Consultant* will provide the Principal Designer for this Scope from contract award until OBC. The Principal Designer duties will include a review of the outline design. As the extent of any site-based works during this scope of work is unknown, the additional input by the Principal Designer for these will be subject to a CE.

10.3 The *Consultant* shall fulfil the Principal Designer (PD) role and discharge the duties in accordance with the requirements of regulations 8, 9, 11 and 12 of the Construction Design Management Regulations 2015

10.4 The *Consultant* shall supply designer risk assessments, drawings and any other data required to fulfil their duties under CDM.

10.5 Not Used

10.6 Health, Safety and Wellbeing (HSW) is the number one priority of the *Client*. The *Consultant* shall promote and adopt safe working methods and shall strive to deliver design solutions that provide optimum HSW to all.

10.7 The PD must be a lead or active designer and can either demonstrate relevant Skills, Knowledge and Experience to undertake the role or have access to relevant support to discharge their duties.

10.8 The PD will demonstrate their compliance with their CDM duties by preparing and updating the Pre-Construction Management Tool on a monthly basis (or more frequently for start of construction activities) and liaising with the CSF Resident Principal Designer.

10.9 The PD will identify and track significant risks, scrutinise the quality of treatment of risks with regards to the principals of prevention, co-ordinate other designers' mitigation and handover designs which can be constructed safely.

10.10 The PD shall ensure there is effective liaison and coordination between phases with the Principal Contractor.

11 Business Case Submission

11.1 The *Consultant* shall support the *Client* in aggregating all of the work undertaken from this commission into a business case document – the Outline Business Case. The format of this document and guidance on the contents is detailed in Write a Business Case LIT 55124 (Link) and the Business Case templates.

11.2 The *Client* shall be responsible for dealing with responses to queries during the approval process and any resubmission required.

The OBC Delivery is to be in accordance with the *Client's* submission programme for either the National Project Assurance Service (NPAS) or the Large Projects Review Group (LPRG) for projects costing over £10m. The *Client* shall be kept up to date of progress and submission dates in order that the delivery of this to the review team can be programmed and a place booked at the appropriate review meeting.

11.3 This section of the study shall conclude with the final approval of OBC using latest EA Guidance including all appendices and FSoD approval following submission to LPRG.

11.4 The *Client* will prepare the draft of the business case. The *Consultant* will provide input into the business case covering the preferred option for all of the areas where the requirement to undertake work has been confirmed.

11.5 The *Consultant* will prepare an Options Appraisal Report, a supporting document to the business case document – OBC. The format of this document and guidance on the contents is detailed in the guidance 'completing a project appraisal report' and the OBC templates.

11.6 The *Consultant* shall be responsible for technical responses to the outline design during the approval process and any resubmission required.

11.7 OBC delivery to be in accordance with the *Client*'s submission programme for LPRG. The *Client* shall keep the *Consultant* up to date of progress and submission dates in order that the delivery of the detailed design (and subsequent construction) can be appropriately resourced to meet the MIOS deadlines.

11.8 Changes to the above approach will be subject to a CE

12 Carbon

12.1 Carbon emissions shall be identified and assessed on a strategic whole life basis (cost and benefit) in the economic appraisal of options and also as a specific operational target (carbon budget) of the *Client*.

12.2 Further details on carbon may be identified during the scoping of the CEEQUAL Assessment and input over and above that described below will be subject to a CE.

12.2 The *Consultant* shall demonstrate how they have met the corporate requirement for carbon reduction using the Carbon Tool, 'ERIC' and:

- Identifying carbon differentials between alternative solution options at appraisal stage.
- Ongoing updates to the carbon calculator and use of the carbon calculator to inform design and construction methodology decisions.
- Completion and submission of the carbon calculator at the pre-defined stages.
- Inclusion of a whole-life carbon appraisal to ensure optimisation of lowest carbon in short-listed and preferred options in OBC.

12.3 The sustainability of the agreed upon preferred option shall be analysed using appropriately detailed carbon costing to gauge influence of carbon costs of the preferred option. The option will be run on the EA carbon calculator. The preferred option is to be compliant with sustainability targets.

12.4 The Carbon Tool to be completed and submitted will include:

- Identifying carbon differentials between alternative solution options at appraisal stage
- Inclusion of carbon considerations in OBC

- Completion of the carbon calculator at the pre-defined stages
- Ongoing updates to the carbon calculator and use of the carbon calculator to inform design and construction methodology decisions

13 General

13.1 The *Consultant* shall complete the CEEQUAL assessment in line with the provided CEEQUAL scoping note based on the CEEQUAL V6 Technical Manual requirements. 5-10 assessment issues to be scoped in will be provided by NEAS.

13.2 The *Consultant* shall provide a qualified CEEQUAL assessor and scope the individual questions within the assessment issues identified for agreement with the *Client*,

13.3 The *Consultant* shall set up and undertake the assessment and evidence-gathering throughout the Services, using the CEEQUAL online tool. The *Consultant* shall ensure that all of the evidence is uploaded prior to completion of the Services.

13.3 Not Used

13.4 The sustainability (CEEQUAL) lead is an integrated member of the project team attending progress meetings, key project workshops including but not limited to options/ design and risk as required providing an update against CEEQUAL targets and championing sustainability across the project team.

13.5 The *Consultant* shall support the Client in defining the CEEQUAL scope and will be instructed in a separate CE to cover the effort required to carry out the assessment and provide the evidence for the selected criteria.

14 Relevant guidance

The *Consultant* shall deliver the *service* using the following guidance:

Ref	Report Name	Where used
LIT 16559	Safety, health environment and wellbeing (SHEW) Code of Practice	Throughout
183_05	Data management for FCRM projects	Mapping and modelling
379_05	Computational Modelling to assess flood and coastal risk	Modelling
LIT 14847	Risk Guidance for Capital Flood Risk Management Projects	Option development
OI 120_16	Whole-life Carbon Planning Tool	Option development
LIT 14284	Whole Life (Construction) Carbon Planning Tool User Guide	Option development
	Access for All Design Guide	Option development
	Project Cost Tool	Costs
LIT 12982	Working with Others: A guide for staff	Consultation & Engagement
Gov.uk	Appraisal Guidance Manual	OBC
672_15_SD03	Business case template – 5 case Model	OBC
672_15_SD02	Short Form Business case template	OBC
LIT 4909	Flood and Coastal Erosion Risk Management appraisal guidance (FCERM-AG)	OBC
	Flood and Coastal Erosion Risk Management: A Manual for Economic Appraisal (the 'Multi Coloured Manual')	OBC
OI 1334_16	Benefits management Framework	OBC
Gov.uk	Partnership Funding Calculator Guidance	OBC
LIT 15030	The Investment Journey	OBC
LIT 55124	Write a Business Case	OBC
LIT 14953	FCRM Efficiency Reporting – capital and Revenue	OBC

Ref	Report Name	Where used
OI992_14	Operating ride on plant on raised embankments, berms or riverbanks	OBC
LIT 12280	Lessons Log template	OBC
LIT 55096	Integrated Assurance & Approval Strategy	Approvals

15 Requirements of the Programme

15.1 The *Consultant* shall provide a detailed programme in Microsoft Project Professional 2016 format ~~version~~ meeting all requirements of Cl.31 of the Conditions of Contract.

15.2 The *Consultant* shall provide a baseline programme for the project start up meeting and shall update the programme monthly for progress meetings with actual and forecast progress against the baseline. The programme shall also include alignment and submission of the BIM Execution Plan (BEP) and Master Information Delivery Plan (MIDP).

15.3 The programme shall cover all the activities and deliverables in the project, and include all major project milestones from commencement to the end of the reporting, consultation and approvals stage.

15.4 The programme shall include review and consultation periods for drafts, scoping letters, statutory consultation etc.

15.5 The programme shall identify time risk allowance on the activities and float.

15.6 The *Consultant* shall contribute to the production of a Programme such that the following milestone dates are achieved

Date	Event
25/05/2022	MIOS Study Sign Off - Programmed

15.7 The following are absolute requirements for Completion to be certified:

- Population of the *Client's* latest version of the Project Cost and Carbon Tool, or its successor
- Transfer to the *Client* of BIM data
- Clause 11.2(2) work to be done by the Completion Date

16 Services and other things provided by the *Client*

16.1 Access to Environment Agency systems and resources including:

- Asite.
- FastDraft.
- Collaborative Delivery Community SharePoint access.
- Letter of Appointment of Principal Designer.
- Site access authorisation letter(s).
- Previous studies listed in Section 1.2.1. The *Client* will provide the previous studies within two weeks of contract award.

17 Data

17.1 Requirements for the handling of project data are covered by the framework schedules.

18 *Client's* Advisors

18.1 The *Client* for the Contract is represented by the Programme & Contract Management (PCM) team, primarily the EA Project Manager, acting as the *Service Manager*, and in their absence the Project Executive. Instructions may only be given by these staff.

18.2 The *Client* has a number of advisory departments. Instructions will only be deemed enacted from them when they are confirmed by an Instruction from the *Client*. These departments include Asset Performance, Partnership & Strategic Overview, NEAS, etc.

18.3 The *Client's* organisation has a regulatory function. Communications from the Environment Agency in its capacity as a regulator are not to be confused with communications as the *Client*.

19 *Client* Documents the *Consultant* Contributes to

19. The *Client* maintains several project documents, the *Consultant* is required to contribute to these *Client* owned documents:

- Project Risk Register.
- Project Efficiency CERT Form.
- Scheme Lessons Learnt Log.
- Cost and Carbon Tool (CCT).
- Outline Business Case

Appendices

Appendix 1 – BIM Protocol

The *Consultant* shall adhere to the Environment Agency's Employers Information Requirements (EIR) framework level minimum technical requirements.
All *Client* issued information referenced within the Information Delivery Plan (IDP) requires verifying by the *Consultant* unless it is referenced elsewhere within the Scope.
https://www.asite.com/login-home
The *Consultant* shall register for an Asite Account and request access to the project workspace to view the IDP.