Environment Agency

NEC4 Professional Service Contract (PSC)

Scope

Project / contract information

Project name	West Moor Reservoir Improvements
Project SOP code	ENV0001197C
Contract number	31638
Date	25th June 2021

Assurance

Author	Project Manager	Date:25th June 2021
Consulted	Senior User	Date:7th June 2021
Reviewed	Project Executive	Date: 7th June 2021
Checked prior to issue	Commercial Services Manager	Date: 7th of June 2021
Consulted	NEAS	Date: 7th of June 2021

Revision History

Revision date	Summary of changes	Version number
1st April 2021	First issue	V1.0
14th April 2021	DW comments incorporated	V2.0
25th June 2021	EA Comments incorporated	V3.0

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:

1 Overview

1.1 Background

1.1.1 West Moor is part of the Somerset Levels and Moors flood plain and is situated in the low-lying ground between the River Parrett and the River Isle immediately upstream of their confluence. It comprises a low-lying area of grazing land drained by a network of wet fence ditches (rhynes) connected to the West Moor Main Drain (Jacobs, 2019).

1.1.2 Middlemoor is a sub-cell of Westmoor, upstream of the Westmoor canal and drains via an inverted siphon under the Westport Canal into West Moor.

1.1.3 South Moor, located to the north of the River Isle, is bounded to the south and east by the raised river embankments of the River Isle and, downstream of their confluence, of the River Parrett. To the north and west, the limits of the reservoir area are natural high ground, although towards the west end, the higher ground is only a low ridge and includes a saddle which can act as a spill point.

1.1.4 West Moor and South Moor are connected by an inverted siphon which is located adjacent to the Midelney Pumping Station (National Grid Reference: ST4171123565). The siphon passes underneath the River Isle, immediately upstream of the River Parrett confluence. All three moors are classified as a single large raised reservoir, West Moor 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 C reservoir under the guidance set out in Floods and Reservoirs Safety (4th Edition). The indicative extent of West Moor Reservoir is shown in Figure 1-1. Figure 2 provides an overview of the Westmoor Siphon.

1.1.5 It should be noted that the impounding elements were never built to form a reservoir, and West Moor Reservoir was only identified as a Large Raised Reservoir in 2006, when it was registered with the Enforcement Authority. It is not a traditional reservoir, but a cell within the Somerset Moors and Levels flood plain which floods naturally along with the rest of the Somerset levels, at times of high river flows with overspill from both the River Parrett and the River Isle.

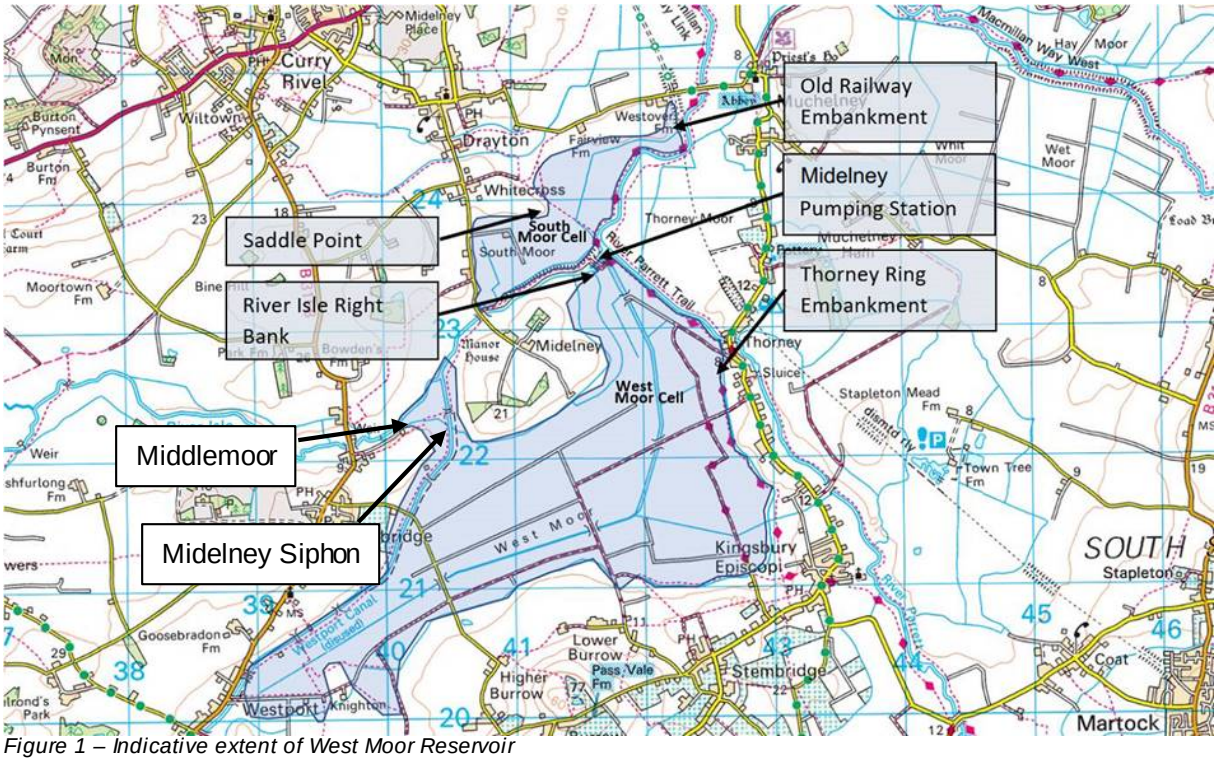

Figure 1 – Indicative extent of West Moor Reservoir

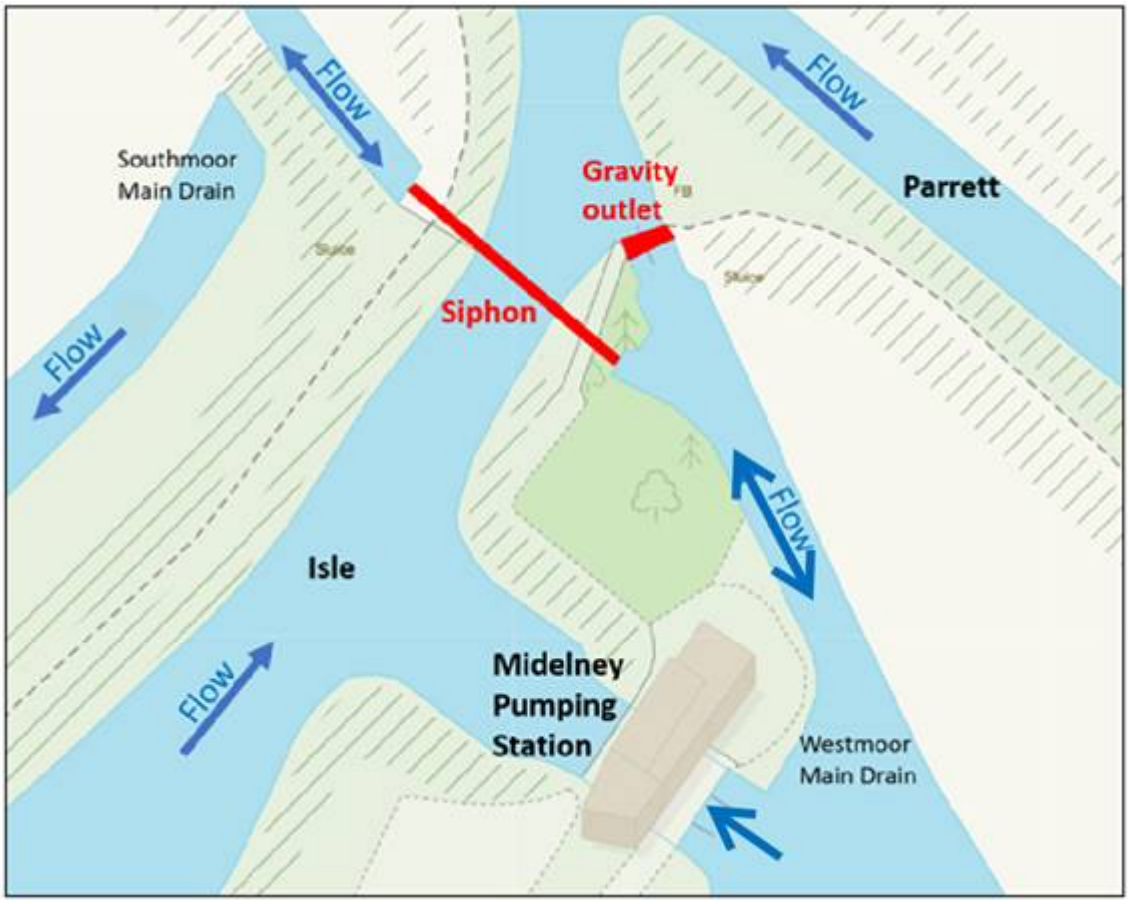

Figure 2 - West Moor Siphon overview map

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
Reservoirs Act 1975. Inspection Report under Section 10. West Moor Reservoir including South Moor (Jacobs)	August 2019	Stored on ASite	Measures in the interests of safety – OFFICIAL SENSITIVE
West Moor Reservoir. Inspecting Engineer's Partial Certificate No 1 Under Section 10(6) Revision 1	January 2020	Stored on ASite	MIOS OFFICIAL SENSITIVE
ENV0001197C-CH2-ZZ-00-RP-C-0003-S4-P03 Midelney Siphon and Gravity Outlet – Shortlist Options Appraisal (Jacobs)	June 2020	Stored on ASite	
ENV0001197C-ATK-XX-3PS-SP-C-000001 P02 West Moor Reservoir Survey Specification: West Moor Syphon and Gravity Outlet (Atkins)	November 2020	Stored on ASite	
Preliminary Ecological Appraisal Report West Moor Revision 1 (Atkins)	October 2020	Stored on ASite	

1.2.2 The previous studies have been undertaken by or for the *Client* using reasonable skill and care and have been accepted. 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 take the risk of any deficiencies in existing data quality and quantity which have not been notified to the *Client*.

1.3 Objective

1.3.1 The primary objective of the West Moor Reservoir Improvements project is to address recommendations made as to Measures to be taken in the Interests of Safety (MIOS) and other statutory requirements made in latest Section 10 inspection report, issued in August 2019. The additional recommendations in the report as to maintenance of the reservoir and other recommended measures will be included where these will not compromise meeting the legally enforceable MIOS recommendations by the required dates. The three sets of recommendations are repeated below. These are works necessary to reduce risk to the public from dam failure and therefore should be carried out as soon as reasonably practicable, and within the timescales set out in the S10, as until completed the dam could be considered to be unsafe.

1.3.2 In meeting these objectives, the *Consultant* shall consider requirements to achieve acceptable bank stability; deal with seepage and improve durability against burrowing animals; compliance with EA operational and maintenance and access requirements (OI992_14) and environmental designations; and mitigate possible impacts to the environment and landowners.

1.3.3 <u>Recommendations as to Measures to be taken in the Interests of Safety</u>
For clarity, the MIOS recommendations have been taken directly from the latest Section 10 report and listed below:

"1. The River Isle siphon culvert structure (*sic* Midelney Siphon) and the West Moor gravity outfall structure and control gates should both be renovated or replaced. It is recommended that this is done in two stages. The first stage is to be a design options study to determine a safe and acceptable approach to achieve this. It is expected that this will include consultation on heritage value of the existing structures. The study should include an assessment of the hydraulic capacity of both the existing siphon and outlet structure. The second stage will consist of detailed design and implementation. While doing this, the riverbanks around the structures at Midelney Pumping Station should be set at or above 9.0m AOD

2. The area of the old railway embankment currently forming the lowest outlet spillway from South Moor should be cleared of the existing thicket and assessed for the need for remedial works. If found necessary, the bank and crest should be reinstated and erosion protected at an appropriate level to act as a spillway for the reservoir, or alternatively, this outlet from South Moor be blocked off by reinstating one of the existing embankments currently below 8.80m as a flood embankment to above 9.00m AOD, topsoiled and grassed. This recommendation should be carried out in two stages with an initial study to determine an appropriate solution, followed by design and implementation.

3. The surveys, drawings of existing structures, and historic reports that that [sic] have been produced or found relating to the reservoir should be collected together with the updated definition of the combined reservoir to produce, so far as is reasonably practicable, a "Description of Works" for the reservoir. This should include preparation of a layout plan for the whole revised reservoir area. A copy of the new Description of Works should be deposited with the Environment Agency's Reservoirs Safety Team in Exeter since no such description was issued following the first inspection of West Moor in 2006."

1.3.4 Recommendations as to maintenance of the reservoir under Section 10 (3) (b) of the Act

As with the MIOS recommendations, the "Maintenance Recommendations" have also been taken directly from the latest Section 10 report and listed below:

"1. The difference in crest level between a substantial length of the River Isle embankment and the crest level of Thorney Ring Bank should be maintained at a minimum of 0.2m (Thorney Ring Bank being higher) to provide an acceptable degree of safety against breach from overflow and wave overtopping. These levels should be checked by survey at approximately 5 year intervals and a plan and record of the survey results kept as part of the reservoir record.

2. The crest of the Thorney Ring Bank is repaired and protected against erosion damage by animal tracking.

3. The crest and slopes of the railway embankment at the north-east corner of the reservoir referred to in Section 15.2.2 above should be maintained clear of undergrowth as a flood embankment to allow inspection and maintenance after recommendation 15.2 a) 2) above is completed."

1.3.5 Other Measures Recommended to be taken but not requiring supervision by a Qualified Civil Engineer within the Meaning of the Act:

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

NB: These recommendations are not currently included in the scope but options to add to the scope will be considered where this will not affect programme for delivery of the MIOS, and /or where the QCE considers it necessary for delivery of the MIOS.

"1. The survey of the River Isle right bank upstream of Midelney Pumping Station should be extended across the field to high ground and the effective crest level in this area determined. Should this area be found to adversely affect the operation of West Moor under flood conditions, it is recommended that the ground levels in this area should be raised or a low, erosion protected embankment provided to match other low areas on the reservoir banks i.e. to about 8.90m aOD. If raised, the raised section should be marked to identify it to the farmer.

2. The low section of bank crest behind the masonry headwall at the blocked-off drainage culvert on the River Isle south bank close to Midelney Pumping Station is raised locally and protected to prevent overtopping flow causing local erosion of the bank."

1.3.6 This document sets out the scope of consultancy services to complete the investigation and appraisal of Sections 1.3.3 MIOS (but presently excludes Sections 1.3.4 Other recommendations and 1.3.5 Additional works) in sufficient detail to identify a preferred option and Support in the preparation of an outline design and prepare the OBC. Detailed design to FBC will be delivered under a new contract.

1.3.7 In meeting all the above objectives currently in the scope, the *Consultant* shall 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

2.1.1 The *Consultant* shall deliver the *service* such that it meets the outcomes listed in this section.

2.1.2 The *Consultant* shall demonstrate sustainability leadership through fully considering and contributing to achieving the *Client's* environment and sustainability ambitions and targets where opportunity arises that does not compromise the programme. 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.

2.1.3 The *Consultant* shall design (to outline design) the scheme to outline design 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.

2.1.4 The *Consultant* shall ensure the optioneering process fully considers and addresses sustainability, including carbon reduction as strategic outcomes where opportunity arises that does not compromise the programme. 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.

2.1.5 The *Consultant* shall ensure the optioneering process fully considers environmental mitigation and opportunities to further conserve and enhance as per the *Client's* legal and policy obligations but to also contribute to the *Client's* ambitions where opportunity arises that does not compromise the programme. 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.

2.1.6 The *Consultant* shall produce an outline design 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.

2.1.7 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.

2.1.8 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, liability and carbon where opportunity arises that does not compromise the programme.

2.1.9 The options shall 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.

2.1.10 The commission will be completed on the basis that the works will be delivered under the EA permitted development rights. Should this change and planning permission and all other necessary permissions/licences have to be obtained at detailed design stage then this will be subject to a CE.

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

2.1.12 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.

2.1.13 The *Consultant* shall identify (through surveys, studies, specialist advice, technical input, and consultation) the works required to carry into effect the MIOS recommendations to the satisfaction of the Qualified Civil Engineer (QCE) appointed under the Reservoirs' Act 1975. Should changes in or additions to QCE guidance / comment occur, where these have been incorporated into the Consultants work addressing them shall be subject to a Compensation Event.

2.1.14 In addition, these works are to be designed to outline design stage to inform the Outline Business Case (OBC), which the *Client* will produce with input from the *Consultant*. The OBC will allow the *Client* to obtain funding for the detailed design and construction works.

2.2 Constraint

2.2.1 The Inspecting Engineer's Partial Certificate No 1 Under Section 10(6) Revision 1 (January 2020) confirms that "the first stage of recommendation [MIOS] 1) has been met in full by the above referenced options study report" and "that the detailed design and implementation included in recommendation [MIOS] 1) should be completed by 12 September 2025".

2.2.2 The "first stage of recommendation [MIOS] 2) should be completed within 2 years of the date [the S10 was issued]". The first stage is taken to refer to the initial study to determine an appropriate solution, with the second stage comprising detailed design and construction. Therefore, the first stage is due by 22 August 2021. The second stage of the programme has been clarified by the QCE as construction being required by 1 November 2023.

2.2.3 "Recommendation [MIOS] 3) should be completed within 3 years of the date [the S10 was issued]". Therefore, this is due by 22 August 2022.

2.2.4 If the above dates are not met then the Environment Agency are non-complaint with the Reservoirs Act and will be included in the public list of non-compliant owners reported to Defra by the Reservoir Safety Team and publicly available via open gov website. In addition, notice may be served on the individual Environment Agency Directors with a formal date for completion.

2.2.5 The *Client*, as the reservoirs enforcement authority, aims to meet construction MIOS deadlines 12 months in advance and studies 6 months in advance to show best practice. The following dates are therefore the Environment Agency's target dates for the completion of the works:

Task	Target study sign off	Target construction completion
MIOS 1	n/a	12 September 2024
MIOS 2	22 February 2021	12 September 2023
MIOS 3	22 February 2022	n/a

2.2.6 Detailed design and preparation of the FBC and pricing would then be completed. (outside of this scope).

2.2.7 In completing the *Service*s the *Consultant* shall take as its starting point work completed under Project ENV0000727C CEN43 West Moor OBC Early Start.

2.2.8 The contract will be administered using FastDraft.

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 monthly to the updates to the project risk register.
- Provide input and maintain the project efficiency CERT Form.
- Attend progress meetings and prepare record minutes within a week for the *Client* to issue. Progress meetings are assumed to be held monthly via Teams or similar software over the programme duration. Progress meetings will be attended by the PM, the environmental lead and selected representatives from the engineering team.
- 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 *Client* 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.
- 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 EA PM to include in the scheme lessons learnt log to be appended to the OBC
- Attend Weekly PM calls with the *Client* Team.
- Provide monthly update on the *Consultant's* programme to inform the master programme.
- The *Consultant* will attend 2no. risk workshops to input into a risk register produced by the *Client*

2.4 Outputs and Deliverables

2.4.1 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* approval before commencing work on the product.

2.4.2 For clarity, the following recommendations from the latest Section 10 Report under the Reservoirs Act 1975 fall within the scope of this project:

- MIOS Recommendations 1) to 3) and 1.3.4 recommendations as to maintenance of the reservoir, as per Section 1.3.

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

- Hydraulic and Hydrology analysis report (Will be managed as CE).
- Options appraisal report.
- Carbon Optimisation Report.
- Carbon Modelling tool
- Draft text within relevant sections of OBC.
- Description of works Document, including design criteria and summary of outputs from analysis etc
- Input (on Consultancy activities) to overarching programme to completion of works on site;
- Documentation of the environmental process and considerations including risks and opportunities (i.e. OAST).

- Outline Design including drawings, EA RAG List and Designers Risk Register.
- Initial PSRA assessment
- Protected species report

2.4.4 The following items comprise the key tasks for the OBC Stage Consultant services covered by this document:

- Project management of Consultant's activities;
- Review of site walk-over and available information (as per Section 1.1) and provision of advice on any further investigations works considered to be required to enable the scope to be met;
- Hydraulic analysis to support options appraisal, scope to be determined;
- Options appraisal;
- Environmental studies to support options appraisal and outline design;
- Outline design of single preferred option including provision of specification, drawings and documentation required for Early Supplier Engagement;
- Consultation with key stakeholders with associated technical support;
- Provision of a Principal Designer for the project;
- Carbon and CEEQUAL assessment (subject to scope agreement);
- Provision of technical support during development of business case;
- Support for the development of the OBC for the preferred option.
- Collation of data and drawings for West Moor Reservoir and preparation of a 'Description of Works' document for the reservoir including preparation of a layout plan for the whole revised reservoir area.

2.4.5 Westmoor is not a conventional Reservoir and an approach using engineering judgment is more appropriate to its appraisal. This approach requires a high level of collaboration from the *Consultant*. with the EA, QCE, Contractor and other stakeholders affected. The *Client* expects the *Consultant* to adopt a pragmatic approach to ensure deliverability by the MIOS date. As a consequence, the *Client* requires limited optioneering recognising that there are numerous constraints and unknowns within the River Parrett catchment.

3 Site Investigation

3.1 Topographic Survey

3.1.1 Topographic surveys were completed under a previous commission. 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 hydraulic analysis and option appraisal.

3.2 Ground Investigation

3.2.1 Site Investigations were carried out in December 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* shall obtain one set of updated 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.

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

3.3.3 The *Consultant* shall provide a site supervisor to manage the survey supplier. This activity is not currently covered in the fee and will be subject to a CE.

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

4 Hydrology and Hydraulics

4.1 The scope of the Hydraulic analysis is to be instructed via a separate commission

5 Economics Appraisal

5.1.1 The *Consultant* shall undertake a cost effectiveness analysis (CEA) approach for short listed options using information provided by the cost consultant appointed by the *Client* to establish the least whole life cost method of fulfilling the recommendations of the S10 report for each location subject to appraisal. A cost benefit analysis (CBA) shall not be required.

5.1.2 Once the outline design has been completed, the location specific economic appraisal will be summarised by the *Consultant* into the Options Appraisal Report.

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 scoping 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. Costs are not currently included and will be subject to a CE.

6.7 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 West Moor main works.

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

6.9 A Preliminary Environmental Information Report (PEIR) is assumed not to be required and is not included in the scope.

6.10 The Environmental, Social and Economic Options Appraisal Summary shall include 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)

6.11 It is anticipated that the proposed options are likely to constitute Permitted Development under The Town and Country Planning (General Permitted Development) (England) Order 2015 (Stat Ins 2015 No 596).

6.12 To inform the OAST, the following tasks shall be completed by the *Consultant*.

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

6.13 The following appraisals shall also be undertaken by the *Consultant*

- WFD Screening;
- Heritage Appraisal;
- High Level Planning Appraisal as discussed above. To include landowner impacts);
- Landscape Appraisal;
- Climate change impacts;
- Ecology Surveys as below

6.14 Aquatic data (invertebrate and Macrophyte) shall be reviewed using Preliminary Ecological Appraisal (PEA) 2020 and up to date *Client* data to establish a baseline within a standalone technical memo; This is currently not covered in the fee and will be instructed as a separate CE.

6.15 Advance ecology work is being completed as part of a separate commission. Additional ecology is not included within this scope or price but will be instructed as a separate CE as required.

6.16 Advance liaise with the Estates team to arrange land access for survey works is being completed as part of a separate commission. Additional liaison is not included within this scope or price but will be instructed as a separate CE as required.

6.17 Outcomes and recommendations from the Environmental Options Appraisal may include the following which are excluded from this Scope:

- Formal EIA Screening;
- Further Heritage/Archaeological investigations/watching briefs;
- Planning Permission;
- Full EIA;
- Noise and/or Air Quality surveys;
- Further ecological surveys;
- Landscape and Visual Impact Assessment.

6.18 The *Consultant* shall obtain Heritage input as required to inform High Level Options Appraisal.

7 Option Development

7.1 The *Consultant* shall undertake an options appraisal, which will include a review of the previous work, to prepare a list of options where one has not already been prepared (up to a maximum of three options per compartment per recommendation). The list will be agreed with the *Client* at an options meeting, where the *Client* will invite representation from Senior User, QCE, Area FCRM, the ESE contractor's representative, NEAS, MEICA, Field Services and the Principal Designer. The *Consultant* shall screen and assess this list of options for technical, environmental, sustainability, carbon and economic suitability, as considered appropriate.

7.2 Options appraisal shall include engagement with the ESE Lot 2 contractor on pricing, buildability and maintainability and the *Client* including Field Services and Area FCRM, Senior User and QCE.

7.3 The *Consultant* shall facilitate design workshops, attend risk workshops to produce a risk register with analysis in accordance with LIT 14847 Risk Guidance for Capital Flood Risk Management Projects.

7.4 The *Consultant* will use the outputs of the Option Appraisal to recommend a preferred option at each location for the *Client's* review. *Client* agreement of the preferred option will freeze the principal features of the arrangement being considered. Following design freeze, the preferred option will be developed into the outline design for more detailed costing (by the *Client's* CCE) and inclusion in the OBC.

7.5 The aim of the outline design is to:

a. Prepare the preliminary specification, drawings and documentation to support Early Supplier Engagement;
b. Enable sufficiently robust pricing by the *Client's* CCE to inform the OBC; and
c. Enable the *Client* to draft the scope for the next phase of the project (OBC to FBC).'
d. Allow issue by the QCE of a partial 10(6) certificate that a satisfactory option in terms of reservoir safety has been identified and committed to by the reservoir owner.

7.6 The *Consultant* shall assist 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.

7.7 The *Client* shall draft the scope for the next stage of the project (OBC-FBC).

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

- Outline design of siphon(s) refurbishment/replacement, crest raising and embankment reprofiling, surface protection, spillways and control structures and any associated maintenance structures or works
- 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).

7.9 The approach to be taken to address recommendations as identified by the *Client's* QCE is summarised in the table below.

Recommendation		Approach
MIOS Recommendation		
1	Midelney siphon culvert, gravity outfall structure and control gates	Based on survey data, ground investigation data and ROV surveys confirm the preferred option from the existing short list options appraisal to take forward to outline design.
2	Spillway(s) and freeboard of retaining banks during dam safety floods	Based on hydraulic analysis, topographic survey data, ground investigation data and other information as appropriate, complete an options appraisal for provision of a spillway in each compartment . And thus TWL required to be defined under the Reservoirs Act, and freeboard to retaining banks when operating as a reservoir to retain water The locations to be assessed as potential spillway locations are South Moor - the low point of the railway embankment and the saddle point, West Moor – Inlet spillway on River Isle, upstream of pumping station Middlemoor – potentially banks of Westport canal may be effective as a spillway and spill excess flow into main West Moor compartment
3	Description of Works	Optioneering not required. contents to be agreed with QCE and provide a comprehensive description of all elements of the reservoir, equivalent to information that would be provided for a new reservoir
Maintenance Recommendations		
1&2	Thorney Ring Bank	Based on hydraulic analysis, topographic survey data, ground investigation data and other information as appropriate, define the required crest level at Thorney Ring Bank to maintain a 0.2m height differential over the River Isle embankment. Complete an options assessment for works to complete the raising, repair and erosion protection along the crest.
3	Railway Embankment Clearance	Optioneering not required.
Other Recommendations (not currently included in scope)		

1	River Isle right bank, immediately upstream of Midelney Pumping Station	Topographic survey data and existing information to be used to complete an assessment of the effective crest level in this area. Hydraulic Analysis to be used to inform an options appraisal of improvements to the bank and to determine the crest level and other works required.
2	River Isle south bank masonry headwall	Depending on the outcome of Other Recommendations 1 above.

8 Stakeholder Engagement

8.1 The *Client* shall lead on stakeholder engagement and consultation.

8.2 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 inform the appraisal.

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

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

8.5 The *Client* will arrange and advertise 1 no. public meeting/workshop. The *Consultant* shall provide technical support, 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, environmental lead and other roles as necessary.

8.6 The *Consultant* shall consider the following and document how they are to be addressed on this appointment:

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

8.7 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 constraints, these meetings will held remotely. Attendees may include:

- Internal EA consultees via NEAS
- IDB
- Landowners
- Local residents

- RSPB
- Somerset Heritage Society
- Local Planning Authority Archaeological Officer
- Lead Local Flood Authority
- Natural England
- Local parish councils
- Somerset River Authority

8.8 The *Consultant* shall lead communication with the statutory environmental body Natural England.

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

- A plan to identify the land
- Description of the development and its location, including environmental sensitivities
- Description of the aspects of the environment likely to be significantly affected, and the nature of those effects

8.10 Up to four newsletters and one resident letter will be prepared by the *Client* during the OBC stage of the project, with the *Consultant* providing input into and reviewing the newsletters. The *Client* will arrange the printing and distribution of the newsletters and resident letter.

8.11 The *Client* will arrange any printing of the public engagement display materials required.

8.12 The *Consultant* shall attend monthly communication progress meetings, which shall change to weekly meetings in the six-week lead up to the public consultation event.

9 Health and Safety

9.1 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.

9.2 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.

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

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

9.5 Any works on site included in the geotechnical section will be subject to notification to the HSE. Appraisal work to outline design shall be treated as if it was notifiable.

9.6 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.

9.7 The PD must be a lead or active designer and able to demonstrate relevant Skills, Knowledge and Experience to undertake the role.

9.8 The PD shall 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.

9.19 The PD shall 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.

9.10 The PD shall ensure there is effective liaison and coordination with the Principal Contractor.

10 Business Case Submission

10.1 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.

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

10.3 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 by the *Consultant* in order that the delivery of this to the review team can be programmed and a place booked at the appropriate review meeting.

10.4 This section of the study shall conclude with the final approval, through FSoD approval following submission to LPRG or NPAS, of OBC using latest EA Guidance including all appendices.

10.5 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.

10.6 The *Client* will prepare the OBC with support from the *Consultant.* The OBC document breaks down in five main parts, which are listed below with the *Consultant's* required input noted.

STRATEGIC CASE: refers back to previous strategic studies, in this case to the Section 10 report. The *Consultant* will prepare the text describing the need for the works with reference to the Section 10 report to be inserted into the OBC.

ECONOMIC CASE: narrative on how the option has been chosen. The content will be taken from the Option Appraisal Report. The *Consultant* will summarise this into the text to be inserted into the OBC.

COMMERCIAL CASE: commercial case for works including procurement strategy, commercial terms. No *Consultant* input - written by the *Client*.

FINANCIAL CASE: summary tables on cost with some background text on affordability. No *Consultant* input: costs supplied by the ECI contractor and collated by the *Client*.

MANAGEMENT CASE: project structure and governance. No *Consultant* input - written by the *Client*.

10.7 The *Client* will finalise the OBC and submit to LPRG or NPAS for approval.

11 Carbon

11.1 Section 11 shall be considered in line with clause 2.1.

11.2 Carbon emissions shall be identified and assessed by the *Consultant* 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*.

11.3 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.

11.4 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.

11.5 At the options appraisal stage the Carbon Modelling Tool (CMT) shall be completed by the *Consultant* for all shortlisted options at each location identifying carbon differentials between alternative options. This assessment will form part of the criteria for the options appraisal.

11.6 In addition, the CMT shall be used by the *Consultant* to establish the carbon baseline for the project. Carbon savings over the project life cycle shall be assessed against this baseline.

11.7 Following the establishment of the carbon baseline and confirmation of the preferred option at each location, the Carbon Calculator shall be used by the *Consultant* to inform design decisions. The process will be used to demonstrate how the project has met the *Client's* corporate requirement for carbon reduction.

11.8 The process of carbon optimisation shall be documented by the *Consultant* through a Carbon Optimisation Report covering the whole project.

11.9 The completed carbon tool (comprising the Carbon Modelling Tool and the Carbon Calculator) and the Carbon Optimisation Report shall be submitted by the *Consultant* as part of the OBC supporting information.

12 General

12.1 The *Consultant* will complete the CEEQUAL assessment in line with the provided CEEQUAL scoping note based on the CEEQUAL V6 Technical Manual requirements. Assessment issues to be scoped in will be provided by NEAS. As the scope of the assessment is currently unknown the assessment is not included in the fee forecast. The scope and costs for all inputs associated with CEEQUAL assessment will be added to the services by a CE once the scope has been agreed.

13 Relevant guidance

13.1 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

Ref	Report Name	Where used
LIT 14953	FCRM Efficiency Reporting – capital and Revenue	OBC
OI 992_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

14 Requirements of the Programme

14.1 The *Consultant* shall provide input on its activities into the detailed programme in Microsoft Project Professional 2016 (managed by the *Client*) meeting all requirements of Cl.31 of the Conditions of Contract.

14.2 The *Consultant* shall review the programme monthly in preparation for progress meetings with actual and forecast progress against the baseline. The *Consultant* shall ensure that the programme shall include alignment and submission of the BIM Execution Plan (BEP) and Master Information Delivery Plan (MIDP).

14.3 The *Consultant* shall ensure that the programme shall cover all the design activities and deliverables in the project, and include all major project milestones from commencement to the end of the reporting, consultation and approvals stage.

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

14.5 The programme shall identify time risk allowance on the activities and float allocated to the Consultant's activities.

14.6 The *Consultant* shall input into the Programme such that the following milestone dates are achieved (examples below, delete if not required):

Task	Target study sign off date	Required study sign-off date
MIOS 1	n/a	n/a
MIOS 2	22 February 2021	22 August 2021
MIOS 3	22 February 2022	22 August 2022

14.7 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

15 Services and other things provided by the *Client*

15.1Access 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.

16 Data

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

16.2 Documents containing information pertinent to reservoir safety shall be marked 'official sensitive'.

17 *Client's* Advisors

17.1 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.

17.2 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.

17.3 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*.

18 *Client* Documents the *Consultant* Contributes to

18.1 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
- Programme (Strategic and Project)

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.