- Review data / checking deliverables.

3.1.2 AD The *Consultant* shall use the outputs from the topographic survey in their modelling and design

3.2 Ground Investigation

3.2.1 AD It is not expected that Ground Investigation will be required to complete the design unless in exceptional circumstances

3.2.2 AD Where required, the *Consultant* shall scope any additional Ground Investigation required to undertake the detailed design and agree the scope with the *Client*

3.2.3 The *Consultant* shall ensure that the environmental risks ~~and opportunities~~ associated with the Ground Investigation, ~~including the collection of environmental evidence to support Appraisal and Assessment~~, are identified and addressed

~~3.2.4 In scoping the Ground Investigation works the *Consultant* shall include the necessary works to facilitate efficient and sustainable materials management planning and re-use within the project.~~

~~3.2.5 The *Consultant* shall identify any contaminated land within the area of the project and specify testing within the Ground Investigation scope such that it can be classified properly for disposal.~~

3 2 6 The *Consultant* shall clearly communicate the scope of the Ground Investigation to the Lot 2 contractor for the Lot 2 contractor to undertake.

3.2.7 The *Consultant* shall supervise the Ground Investigation undertaken by the Lot 2 contractor. The supervision will be subject to a Compensation Event.

3.2.8 The *Consultant* shall produce a summary of key interpretative decisions based on the Ground Investigation undertaken by the Lot 2 contractor

3.2.9 The *Consultant* shall scope any additional Ground Investigation / Site testing required to undertake the detailed design and agree the scope with the *Client* It is envisaged that that the *Consultant's* outputs will include a range of options for different ground conditions. Any Ground Investigation works required shall be capable of being completed using rapid assessment methods (e g local hand dug trial pits) whilst remaining in compliance with the SHEW CoP.

3.3 Ecological surveys

~~3 3 1 Undertake additional surveys consistent with current guidelines, where these are essential to securing permissions or are essential to achieving good environmental design such as informing the Biodiversity Metric. Utilise project information regarding habitat condition as well as the distribution of species and the current understanding of the factors governing their distribution Use habitat, species and survey information in a scientific and informed way to justify environmental decision making~~

Not required

3.4 Services Search

3.4.1 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 design, including preparation of plans The Environment Agency Estates team will be responsible for obtaining services data from relevant landowners.

3.4 2 The *Client* will arrange for a non intrusive survey to detect key utilities (e g GPR) if required to inform SI and/or detailed design. The *Consultant* shall determine the extent of the survey and produce a specification for the survey in accordance with EA Guidance and Principal Designer / CDM Advisor discussion; defining type and purpose of survey including extents and available information.

3.4 3 The *Consultant* shall also provide a site supervisor to manage the survey supplier

3.4.4 The outputs from this survey shall be included in the design, including revising the plans. The output shall be used to make recommendations for any further surveys required which would include intrusive investigations to inform the detailed design

3.4.5 Drainage surveys are not required and any impacts on the existing drainage network can be obtained from records provided by the EA or from services information Should such surveys be required in exceptional circumstances, the *Consultant* will procure, and this will be treated as a Compensation Event

---

4 Hydrology and Hydraulics

4.1 General

~~4.1.1. The existing modelling is identified in the table in section 1.2. The extents of the modelling and assumptions made are within the model report.~~

~~4 1 2 The *Consultant* shall verify the model with quality and extent checks~~

~~4 1 3 The model is to be used for updating levels with detailed design components, if the *Consultant* feels this is necessary. It is not intended for the whole range of options to be re run, only the scheme design at the design flow(s)~~

~~4 1 4 The *Consultant* shall provide the *service* in accordance with the Modelling Technical Scope, included in Appendix 2~~

~~4.1.5. Following completion of the study, this model will be handed over to the Flood Incident Management team and the model should be able to determine thresholds of flooding and trigger levels. All electronic data should be in an agreed format in line with the scheme data management plan. A copy of the plan will be provided by the *Client*.~~

4.1.6. The *Client* shall provide the *Consultant* with the following key information to support the Initial Assessment:

- Peak water level for the barrier design
- Ground levels from LIDAR around each site at key locations of the barrier, (the *Consultant* is to extract this data)

4.1.7. As required the *Consultant* shall use the *Clients* existing hydraulic models to support the application of a FRAP.

4 1 8 The *Consultant* shall be provided with existing hydraulic models and shall assess their relevance for assessing the impacts of the construction of the temporary defences If the hydraulic models are unsuitable for use the *Consultant* shall seek approval from the *Client* on how to proceed.

4.1.9. The *Consultant* shall update the hydraulic model to assess the impacts of the construction of the temporary defences in service, assuming present day conditions. These shall be assessed at the following return periods (or nearest available):

- The 10% Annual Exceedance Probability (AEP) flood event
- The 3 33% AEP food event
- The 1% AEP flood event

4 1 10 The *Consultant* shall produce outputs that are sufficient to demonstrate the operation of the barriers on upstream and downstream communities, outputs shall be used to assess potential detriment caused by the deployment of temporary barriers..

4.1.11. Hydraulic modelling shall be undertaken in accordance with the standards listed in Section 13 of the scope.

5 Economics Appraisal

~~The economics appraisal is intended to take the outputs of the earlier work and update the economic business case for input to the scheme business case. The detail should (normally) be covered by appraisal guidance and the Multi-Coloured Manual (MCM) and by the business case template and guidance. It is anticipated that this work will be undertaken by the *Client*.~~

Not required

6 Environmental Assessment

~~6.1.1 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.~~

~~6.1.2 The *Consultant* shall ensure that the project level assessment sits within the context of any previous strategic environmental assessment and additional information developed in support of the OBC through the Appraisal Stage. This commission will bring forward all relevant information and conclusions.~~

~~6.1.3 The *Consultant* shall be able to demonstrate how the information from the environmental assessment has been used to inform and adapt the detailed design.~~

~~6.1.4 Should the preferred option or the design significantly change (unless instructed to do so by the *Client*), the scope of the environmental assessment shall be adapted accordingly.~~

~~6.1.5 The *Consultant* shall ensure that the detailed design includes all of the necessary information to assure the delivery of all mitigation, management and monitoring measures and the delivery of wider benefits during construction.~~

~~6.1.6 The *Consultant* shall report the findings of the environmental assessment as required which will form an Appendix to the FBC with relevant summary details incorporated into the relevant section(s) of the FBC main text.~~

~~6.1.7 The *Consultant* shall be able to demonstrate how they have taken account of the *Client's* wider sustainability aspirations in the development of the detailed design and the associated benefits.~~

~~6.1.8 AD: The *Consultant* shall report on the CEEQUAL assessment in accordance with the hub workload plan.~~

6.1.9 The *Consultant* shall complete a high level review of specific constraints and the consents that maybe required at each barrier site and report these to the *Client* if the sites pass the initial assessment review and before commencing the stabilisation design.

7 Preferred Option Development – Detailed Design

~~7.1.1 The *Consultant* shall assist with pricing and buildability which will be led by the ESE contractor.~~

~~7 1 2 The *Consultant* shall develop designs with the *Client* including the Field Service and Area Teams.~~

~~7 1 3 The *Consultant* shall discuss with the *Client* where environmental information, landscape details, archaeological information, methodologies or on-site management deviate from that stated in the OBC environmental report or associated documents. This will enable any legal implications to be checked and for the environmental implications of the changes to be assessed.~~

~~7 1 4 The *Consultant* shall discuss developments in the design with the appointed Principal Designer~~

~~7 1 5 The *Consultant* shall discuss with the *Client* how the design enables carbon reduction targets to be met.~~

~~7 1 6 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~~

7.1.7 The *Consultant* shall develop designs with the *Client* including the Field Operations Teams and Area Teams, the design of additional stability measures shall be compatible with the existing barrier systems The *Client's* Field Operations Teams shall lead the buildability of the design, working from the *Consultant's* updated plan for barrier stability.

7 1 8 The *Consultant* shall discuss developments in the design with the appointed CDM Advisor / Principal Designer as required.

7.1.9 The *Consultant* shall attend design workshops, in accordance with LIT 14847 Risk Guidance for Capital Flood Risk Management Projects

8 Stakeholder Engagement

The *Client* will lead on consultation, but the *Consultant* may need to assist and prepare materials for use in meetings.

9 Health and Safety

9 1 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 solutions that provide optimum HSW to all

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

9 1 3 The *Consultant* shall supply designer risk assessments, drawings and any other data required to fulfil their duties under CDM.

~~9 1 4 The works on site included in the geotechnical section will be subject to notification to the HSE Detailed design work shall be treated as if it was notifiable.~~

9 1 5 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 1 6 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

9.1.7 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~~ *Client* CDM Advisor.

9 1 8 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.

9 1 9 The PD shall ensure there is effective liaison and coordination between phases with the Principal Contractor appointed by the *Client*.

---

10 Business Case Submission

~~The *Client* shall aggregate all of the work undertaken from this commission into an update of the Outline Business Case document to create the Full Business Case~~

---

11 Carbon

~~11.1.1 Carbon emissions shall be identified and assessed on a strategic whole life basis (cost and benefit) in the design and also as a specific operational target (carbon budget) of the *Client*.~~

~~11.1.2 The carbon budget for the project has been set to X. The *Consultant* is required to work with the *Client* and the ESE contractor to reduce the project carbon footprint by XX% (we need to define this following our review)~~

~~11.1.3 The *Consultant* shall demonstrate how they have met the corporate requirement for carbon reduction using the Carbon Tool, 'ERIC' and:~~

- ~~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 and Carbon Optimisation Report at the pre-defined stages~~
- ~~Inclusion of a whole-life carbon appraisal to ensure optimisation of lowest carbon in detailed design~~

~~11.1.4 AD: The *Consultant* shall attend a low carbon workshop.~~

~~11.1.5 Add any project specific requirements~~

Not required

---

12 General

~~Use this section to specify any other requirements necessary to deliver the design~~

1. The safe and effective deployment of the flood barrier is not the *Consultant's* responsibility.
2. The *Consultant*'s determination of the design intervention measures is restricted to the limits of the manufacturer's specification.
3. The *Consultant* is not responsible for and shall have no liability in relation to the failure of the A-frame flood barrier and/or any defects occurring in the A Frame flood barrier arising out of or in connection with the exceedance of the limits of the manufacturer's specification.
4. The *Consultant* is not responsible for and shall have no liability in relation to any failures arising out of or in connection with using existing structures for flood defences where a structural assessment has not been completed.
5. The *Consultant* shall not be responsible for independent verification or confirmation of the completeness or accuracy of information provided by the client and/or others and the *Consultant* shall be entitled to rely upon all such information.
6. Notwithstanding any other terms of this Scope the Client warrants the design parameters, including the friction coefficient to be used for all expected deployable surfaces at the start of the project; and

Notwithstanding any other terms of the conditions of contract and/or the contract data (including any incomplete contract data), for the purposes of Clause 80.1 of the conditions of contract Section 8 of the Contract Data should be treated as completed with the following additional *Client's* liabilities:

- A frame flood barrier and/or any defects occurring in the A Frame flood barrier arising out of or in connection with the exceedance of the limits of the manufacturer's specification
- Any flood defence failures arising out of or in connection with using existing structures for flood defences where a structural assessment has not been completed

13 Relevant guidance

13 1 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	Detailed design
~~OI 120_16~~	~~Whole-life Carbon Planning Tool~~	~~Detailed design~~
~~LIT 14284~~	~~Whole Life (Construction) Carbon Planning Tool User Guide~~	~~Detailed design~~
	~~Access for All Design Guide~~	~~Detailed design~~
	Project Cost Tool	Costs
LIT 12982	Working with Others: A guide for staff	Consultation & Engagement
LIT 12280	Lessons Log template	FBC
LIT 55096	Integrated Assurance & Approval Strategy	Approvals
????	Temporary Defence Management Plan Operational Instruction	Detailed Design

Ref	Report Name	Where used
LIT 12048	Use of temporary flood defence barrier systems	Throughout
LIT 12047	Use of demountable flood defence systems	Throughout
LIT 57854	Working in and near Water	Throughout

14 Requirements of the Programme

14.1.1 The *Consultant* shall provide a detailed programme in Microsoft Project format version 2019 meeting all requirements of clause 31 of the *conditions of contract*

14.1.2 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).

14 1 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

14 1 4 The programme shall include review and consultation periods for drafts, ~~scoping letters~~, statutory consultation etc.

~~14 1 5 Include internal project team/board decision gateways (as a minimum) for:~~

~~a) Gateway 3, to ensure the detailed design and costings are complete and the works can be constructed within the allowed time and budget.~~

~~14.1.6 The following consultation periods should be incorporated into the programme, with adequate allowance for review and revision of documents by the project team where appropriate:~~

~~a) *Consultant* internal review (as per *Consultant*'s quality review procedures) and *Client* review of all outputs before circulation to the wider project team to ensure high quality of all output.~~

~~b) Sufficient allowance for internal and external consultation Statutory consultation periods at scoping & draft stages. Note local authority approvals through cabinet prior to public consultation can take a long time.~~

~~c) Local Authority time for planning approval~~

~~d) *Client* approvals as required to include for Reservoirs Act, impoundment licence and working in watercourse approvals~~

~~e) Time for pricing up of the works by the Lot 2 contractor.~~

~~f) Submission for approval and time allowance for the *Client's* approval process~~

14 1 7 The *Consultant* shall seek to produce a programme such that the following milestone dates are achieved

Date	Milestone
15th July 2022	Client acceptance of Initial Assessments
22nd July 2022	Stop / Go Decision of TDMPs
26th August 2022	Draft Design Assessment of TDMP
31st October 2022	Final Issue of TDMP's

14 1 8 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

14 1 9 AD The *Consultant*s programme shall include the following key milestones for each site to be assessed.

Date	Milestone
	Receipt of *Client* data
	Final draft of Initial Assessment
	Final sign off date of Initial Assessment
	Stop / Go decision progress to TDMP
	Draft Design Assessment of TDMP
	Draft issue date of TDMP
	Final issue date of TDMP
	Acceptance of TDMP
	Issue of FRAP
	Receipt of FRAP

15 Services and other things provided by the *Client*

15 1 1 Access to Environment Agency systems and resources including:

- Asite.
- FastDraft.
- Collaborative Delivery Community SharePoint access

15.1.2 Letter of appointment of Principal Designer.

15.1.3 Site access authorisation letter(s).

~~15 1 4 Previous studies listed in Section 1 2 1 The *Client* will provide the previous studies within two weeks of contract award.~~

15 1 5 Existing TDDPs (in original editable source if available), hydraulic modelling and ground levels, evacuation plans and design and testing information on existing barriers

15.1.6 It is not anticipated that Seepage rates will be required, except in exceptional circumstances. Where ground conditions warrant it Any such investigations required, will be subject to a Compensation Event.

Area staff as required to review/develop the plans, the predominant information will be from the FOSC in terms of acting as an ESE supplier. See Clause 7.17

15.1.7 The *Client* will provide access to a technical advisor to assist in reviewing /develop the plans, and to provide advice on the following:

- Compliance with *Clients* requirements;
- Compliance with relevant current design standards;
- Robustness of design assumptions;
- Buildability of proposed design;
- Compliance with CDM regulations; and
- Operational requirements

15.1.8 The *Client*'s duties will be split over several role holders, with specific roles identified below, unless otherwise instructed the *Consultant* shall use these primary contacts:

Client Action	Role within organisation (Typical)
Administration of Contract	Service Manager (pcm Project Manager)
CDM Appointments	Area Operations Manager
Initial Assessment Review	Area CDM client, (typically Catchment Engineer)
Buildability input	Area Field Operations Site Controller (FOSC)
Provision of *Client* Held Data	Area CDM client, (typically Catchment Engineer)
Advice on barriers, and supporting kentledge	Project Senior User, (FCRM Manager Temporary Barrier Review)

Acceptance of Initial Assessment Review	Area Operations Manager (Area CDM Client to lead discussions). Project Senior User (Technical Authority) to be used to confirm decision.
Review of TDMP plans	Area CDM client, (typically Catchment Engineer), supported by *Client's* technical advisor as required
Review / Input into FRAP	Area CDM client, supported by FOSC

Should the Consultant require clarity of roles, this shall be confirmed with the *Service Manager*

16 Data

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

17 *Client's* Advisors

17 1 1 The *Client* for the contract is represented by the Programme & Contract Management (PCM) team, primarily the EA Project Manager and in their absence the Project Executive. Instructions may only be given by these staff.

17 1 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 *Service Manager*. These departments include Asset Performance, Partnership & Strategic Overview, NEAS and others

17.1.3 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* or the *Service Manager*

18 *Client* Documents the *Consultant* Contributes to

18.1.1 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.
- ~~Project Cost Tool (PCT).~~

- Initial Assessment of Temporary Defences
- Temporary Defence Management Plans
- Environment Agency Construction Phase Plans.

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

Appendix 2 – Initial Appraisal Process Flow Chart

~~Appendix 2 – Modelling Technical Scope~~

~~If required, insert the Modelling Technical Scope created using the Quick Scope Writer, referenced in Section 4~~

~~Appendix 3 –~~

Initial Assessment Process