Framework:	**Collaborative Delivery Framework**
Supplier:	**Ove Arup & Partners Ltd**
Company Number:	**01312453**
Geographical Area:	**North East**
Project Name:	**Walsden Flood Alleviation Scheme**
Project Number:	[redacted]
Contract Type:	**Professional Service Contract**
Option:	**Option C**
Contract Number:	**project_35180**
Stage:	**SOC_to_OBC**

Revision	Status		Originator		Reviewer		Date

PROFESSIONAL SERVICE CONTRACT under the Collaborative Delivery Framework
CONTRACT DATA

Project Name Walsden Flood Alleviation Scheme

Project Number ENV0002897C

This contract is made on 17 December 2021
between the *Client* and the *Consultant*

- This contract is made pursuant to the Framework Agreement (the "Agreement") dated 01st day of April 2019 between the *Client* and the *Consultant* in relation to the Collaborative Delivery Framework. The entire agreement and the following Schedules are incorporated into this Contract by reference

- Schedules 1 to 22 inclusive of the Framework schedules are relied upon within this contract.

- The following documents are incorporated into this contract by reference
PSC scope OBC Walsden (arup)

Part One - Data provided by the *Client*

Statements given in all Contracts

1 General

The *conditions of contract* are the core clauses and the clauses for the following main Option, the Option for resolving and avoiding disputes and secondary Options of the NEC4 Professional Service Contract June 2017.

Main Option	Option C	Option for resolving and avoiding disputes	W2

Secondary Options

X2: Changes in the law

X9: Transfer of rights

X10: Information modelling

X11: Termination by the *Client*

X18: Limitation of liability

X20: Key Performance Indicators

Y(UK)2: The Housing Grants, Construction and Regeneration Act 1996

Y(UK)3: The Contracts (Rights of Third Parties) Act 1999

Z: *Additional conditions of contract*

The *service* is Delivery of Outline Business Case

The *Client* is Environment Agency

Address for communications
Lateral
8 City Walk
Leeds
LS11 9AT

Address for electronic communications [redacted]

The *Service Manager* is [redacted]
Address for communications [redacted]

Address for electronic communications [redacted]

The Scope is in
PSC scope OBC Walsden (arup)

The *language of the contract* is English

The *law of the contract* is
the law of England and Wales, subject to the jurisdiction of the courts of England and Wales

The period for reply is 2 weeks

The *period for retention* is
6 years following Completion or earlier termination

The following matters will be included in the Early Warning Register

Early warning meetings are to be held at intervals no longer than 2 weeks

2 The *Consultant's* main responsibilities

The *key dates* and *conditions* to be met are

conditions to be met	*key date*
'none set'	'none set'
'none set'	'none set'
'none set'	'none set'

The *Consultant* prepares forecasts of the total Defined Cost plus Fee and *expenses* at intervals no longer than 4 weeks

3 Time

The *starting date* is 04 January 2022

The *Client* provides access to the following persons, places and things

access	*access date*

The *Consultant* submits revised programmes at intervals no longer than 4 weeks

The *completion date* for the whole of the *service* is 31 October 2022

The period after the Contract Date within which the *Consultant* is to submit a first programme for acceptance is 4 weeks

4 Quality management

The period after the Contract Date within which the *Consultant* is to submit a quality policy statement and quality plan is 4 weeks

The period between Completion of the whole of the *service* and the *defects date* is 26 weeks

5 Payment

The *currency of the contract* is the £ sterling

The *assessment interval* is Monthly

The *Client* set total of the Prices is [redacted]

The *expenses* stated by the *Client* are as stated in Schedule 9

The *interest rate* is 2.00% per annum (not less than 2) above the Base rate of the Bank of England

The locations for which the *Consultant* provides a charge for the cost of support people and office overhead are All UK Offices

If Option C is used

The *Consultant's share percentages* and the *share ranges* are:

share range				*Consultant's share percentage*
less than		*80 %*		*0 %*
from	*80 %*	*to*	*120 %*	*as set out in Schedule 17*
greater than		*120 %*		*as set out in Schedule 17*

6 Compensation events

These are additional compensation events

1. 'not used'
2. 'not used'
3. 'not used'
4. 'not used'
5. 'not used'

8 Liabilities and insurance

These are additional *Client's* liabilities

1. 'not used'
2. 'not used'
3. 'not used'

The minimum amount of cover and the periods for which the *Consultant* maintains insurance are

EVENT	MINIMUM AMOUNT OF COVER	PERIOD FOLLOWING COMPLETION OF THE WHOLE OF THE *SERVICE* OR TERMINATION
The *Consultant's* failure to use the skill and care normally used by professionals providing services similar to the *service*	[redacted]	[redacted]
Loss of or damage to property and liability for bodily injury to or death of a person (not an employee of the *Consultant)* arising from or in connection with the *Consultant* Providing the Service	[redacted]	[redacted]
Death of or bodily injury to the employees of the *Consultant* arising out of and in the course of their employment in connection with the contract	[redacted]	[redacted]
The *Consultant's* total liability to the *Client* for all matters arising under or in connection with the contract, other than the excluded matters is limited to	[redacted]	

Resolving and avoiding disputes

The *tribunal* is litigation in the courts

The *Adjudicator* is	'to be confirmed'
Address for communications	'to be confirmed'
Address for electronic communications	'to be confirmed'
The *Adjudicator nominating body* is	The Institution of Civil Engineers

Z Clauses

Z1 Disputes

Delete existing clause W2.1

Z2 Prevention

The text of clause 18 Prevention is deleted.
Delete the text of clause 60.1(12) and replaced by:
The *service* is affected by any of the following events
• War, civil war, rebellion, revolution, insurrection, military or usurped power;
• Strikes, riots and civil commotion not confined to the employees of the *Consultant* and sub consultants,
• Ionising radiation or radioactive contamination from nuclear fuel or nuclear waste resulting from the combustion of nuclear fuel,
• Radioactive, toxic, explosive or other hazardous properties of an explosive nuclear device,
• Natural disaster,
• Fire and explosion,
• Impact by aircraft or other aerial device or thing dropped from them.

Z3 Disallowed Costs

Add the following in second bullet of 11.2 (18) add:
(including compensation events with the Subcontractor, i e. payment for work that should not have been undertaken).
Add the following additional bullets after 'and the cost of ' :
• Mistakes or delays caused by the *Consultant's* failure to follow standards in Scopes/quality plans
• Reorganisation of the *Consultant's* project team
• Additional costs or delays incurred due to *Consultant's* failure to comply with published and known guidance or document formats
• Exceeding the Scope without prior instruction that leads to abortive cost
• Re-working of documents due to inadequate QA prior to submission, i e. grammatical, factual arithmetical or design errors
• Production or preparation of self-promotional material
• Excessive charges for project management time on a commission for secondments or full time appointments (greater than 5% of commission value)
• Any hours exceeding 8 per day unless with prior written agreement of the *Service Manager*
• Any hours for travel beyond the location of the nearest consultant office to the project unless previously agreed with the *Service Manager*
• Attendance of additional individuals to meetings/ workshops etc who have not been previously invited by the *Service Manager*
• Costs associated with the attendance at additional meetings after programmed Completion, if delay is due to *Consultant* performance
• Costs associated with rectifications that are due to *Consultant* error or omission
• Costs associated with the identification of opportunities to improve our processes and procedures for project delivery through the *Consultant's* involvement
• Was incurred due to a breach of safety requirements, or due additional work to comply with safety requirements
• Was incurred as a result of the *Client* issuing a Yellow or Red Card to prepare a Performance Improvement Plan
• Was incurred as a resulting of rectifying a non-compliance with the Framework Agreement and/or any call off contracts following an audit

Z4 Share on termination

Delete existing clause 93.3 and 93.4 and replace with:
93 3 In the event of termination in respect of a contract relating to services there is no *Consultant's* share'

Z6 The Schedule of Cost Components

The Schedule of Cost Components are as detailed in the Framework Schedule 9.

Z7 Consultant's share

After cl54.2 and before cl54 3, insert the following additional clause:
54 2A If, prior to the Completion Date, the Price for Service Provided to Date exceeds 112% of the total of the Prices, the amount in excess of 112% of the total of the Prices is retained from the Consultant.

Z23 Linked contracts

Issues requiring redesign or rework on this contract due to a fault or error of the *Consultant* will neither be an allowable cost under this contract or any subsequent contract, nor will it be a Compensation event under this contract or any subsequent contract under this project or programme.

Z24 Requirement for Invoice

Add the following sentence to the end of clause 51.1:
The Party to which payment is due submits an invoice to the other Party for the amount to be paid within one week of the *Service Manager's* certificate.
Delete existing clause 51.2 and replace with:
51 2 Each certified payment is made by the later of
• one week after the paying Party receives an invoice from the other Party and
• three weeks after the assessment date, or, if a different period is stated in the Contract Data, within the period stated.
If a certified payment is late, or if a payment is late because the *Service Manager* has not issued a certificate which should be issued, interest is paid on the late payment. Interest is assessed from the date by which the late payment should have been made until the date when the late payment is made, and is included in the first assessment after the late payment is made

Z25 Risks and insurance

The *Consultant* is required to submit insurances annually as Clause Z4 of the Framework Agreement

Secondary Options

OPTION X2: Changes in the law

The *law of the project* is the law of England and Wales, subject to the jurisdiction of the courts of England and Wales

OPTION X10: Information modelling

The period after the Contract Date within which the *Consultant* is to submit a first Information Execution Plan for acceptance is 2 weeks

OPTION X18: Limitation of liability

The *Consultant's* liability to the *Client* for indirect or consequential loss is limited to

[redacted]

The *Consultant's* liability to the *Client* for Defects that are not found until after the *defects date* is limited to

[redacted]

The *end of liability* date is [redacted] after the Completion of the whole of the *service*

OPTION X20: Key Performance Indicators (not used with Option X12)

The *incentive schedule* for Key Performance Indicators is in Schedule 17

A report of performance against each Key Performance Indicator is provided at intervals of

3 months

Y(UK)2: The Housing Grants, Construction and Regeneration Act 1996

The period for payment is 14 days after the date on which payment becomes due

Y(UK)3: The Contracts (Rights of Third Parties Act) 1999

term *beneficiary*

Part Two - Data provided by the *Consultant*

Completion of the data in full, according to the Options chosen, is essential to create a complete contract.

1 General

The *Consultant* is

Name [redacted]

Address for communications [redacted]

Address for electronic communications [redacted]

The *fee percentage* is Option C [redacted]

The *key persons* are

Name (1) [redacted]
Job
Responsibilities
Qualifications
Experience

Name (2) [redacted]
Job
Responsibilities
Qualifications
Experience

Name (3)
Job
Responsibilities
Qualifications
Experience

Name (4)
Job
Responsibilities
Qualifications
Experience

Name (5)
Job
Responsibilities
Qualifications
Experience

Name (6)
Job
Responsibilities
Qualifications
Experience

Name (7)
Job
Responsibilities

Qualifications
Experience

The following matters will be included in the Early Warning Register

3 Time

The programme identified in the Contract Data is

5 Payment

The *activity schedule* is

Resolving and avoiding disputes

The *Senior Representatives* of the *Consultant* are

Name (1)
Address for communications

[redacted]

Address for electronic communications

[redacted]

Name (2)
Address for communications

Address for electronic communications

X10: Information Modelling

The *information execution plan* identified in the Contract Data is

Contract Execution

Client **execution**

Signed Underhand by **[PRINT NAME]** for and on behalf of the Environment Agency

[redacted] 19 January 2022 [redacted]

Signature Date Role

Consultant **execution**

Signed Underhand by **[PRINT NAME]** for and on behalf of Ove Arup & Partners Ltd

[redacted]

[redacted] 10th Jan 2022 [redacted]

Signature Date Role

Environment Agency

NEC4 Professional Service Contract (PSC)

Scope

Project / contract information

Project name	Walsden Flood Alleviation Scheme
Project SOP code	[redacted]
Contract number	
Date	June 2021

Assurance

Author	[redacted]	Date: 03.12.21
Consulted	[redacted]	Date: 15.12.21
Reviewed	[redacted]	Date: 15.12.21
Checked prior to issue	[redacted]	Date: 07.12.21

Revision History

Revision date	Summary of changes	Version number
	First issue	1

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	LIT 13258 / Version 11	16/6/21

1 Overview

1.1 Background

Walsden village is located within a steep sided valley with mixed residential and commercial land, positioned in a densely populated area. The village is located on the banks of Walsden Water and its tributaries. Walsden Water, a tributary of the River Calder, is the main river that runs through the village and joins the Calder at its confluence in Todmorden. There are numerous tributaries joining Walsden Water, including Ramsden Clough, Birks Clough and Hollingworth Clough which contribute to the significant flows in the river. The main transport route in and out of Walsden are the A6033 Rochdale Road and railway line, both of which run through the valley bottom.

Flood risk in this area is comprised of many complex flood mechanisms interacting with each other. Walsden Water flows in a north westerly direction through open watercourse and culverted sections. Ramsden Clough drains Ramsden Clough Reservoir, approximately 1.2km to the South of the area, and outfalls in Walsden Water. Downstream from the outfall, the river runs past the cricket ground and under Bridge 96 (Network Rail asset). Downstream of this bridge the Walsden Water becomes culverted and takes a sharp turn and then runs underneath Rochdale Road and outfalls out the other side of Hollins Mill on Vulcan Street adjacent to Rochdale Road.

On the right side of the catchment Birks Clough joins Walsden Water at the point where it becomes culverted. This passes through two reservoirs and then syphons underneath the Rochdale Canal to connect to Walsden Water. The syphon has been historically recorded as silted-up and causing flows to back up and overtop into the canal contributing to canal flooding.

To the North West of the study area, Kershaw Road ordinary watercourse runs from above Pasture Side Farm and is then culverted underneath Kershaw Road. Half way down this road another ordinary watercourse meets in an open channel section directly behind a residential property on Kershaw Road. The watercourse is then culverted until Clough Road where it momentarily becomes a small open channel reach before becoming culverted again underneath the railway line.

Walsden is affected by multiple sources of flooding, including:

- Walsden Water overtopping
- Rochdale Canal overtopping
- Ordinary watercourses overtopping down Kershaw Road and Clough Road
- Surface water unable to discharge into main rivers due to high river levels
- Overloading and/or blockage of minor watercourses
- Surface water run-off from steeply sloping land and man-made surfaces
- Culvert capacity being reached and overtopping occurring

Walsden has a long history of reported flooding, with the most recent event occurring in February 2020, other severe flood events occurred on December 2015, July 2013, and June 2012.
In December 2015 160 residential properties were affected, 2 commercial properties, as well as severe damage to major infrastructure including Walsden Railway Station and Calder Valley railway line, including Winterbutlee Tunnel. The Walsden cricket club and recreational park area was also inundated in this event.

Other recorded flood events affecting Walsden are shown below:
- 19th Nov 2009 – Surface water flooding of roads.
- 21st January 2008 – Flooding of railway at Dean Royd road, which was worse than in 2012 and 2013.
- 2-3rd July 2006 – Properties flooded from blockage of Kershaw Road culvert underneath Railway Line. Also, 3 properties at the Strines Street and Rochdale Junction flooded due to flows from Ramsden Clough.
- 3rd- 4th June 2000 – Areas flooded due overtopping of Bridge 96.
- 31st January 1995 – Walsden affected by flooding.
- 26-28th December and 1st January 1991 – Bridge 96 overtopped.
- 6/8th September 1950 – Walsden affected by flooding.
- 20 September 1946 – Walsden affected by flooding.
- August 1938 – Walsden affected by flooding.
- 10th October 1935 – Walsden affected by flooding.

The initial assessment completed by [redacted] concluded a final combination of scheme measures likely to effectively reduce flood risk from all identified flood mechanisms were grouped to create the leading option of this study area. Figure 1 (Appendix G of Walsden SOC Leading Option Map ENV00660C-CAA-00-09-MP-LD-B1500-9) highlights shows the preferred option locations. This map extent will be used as boundary of the scope of works provided in the following sections.

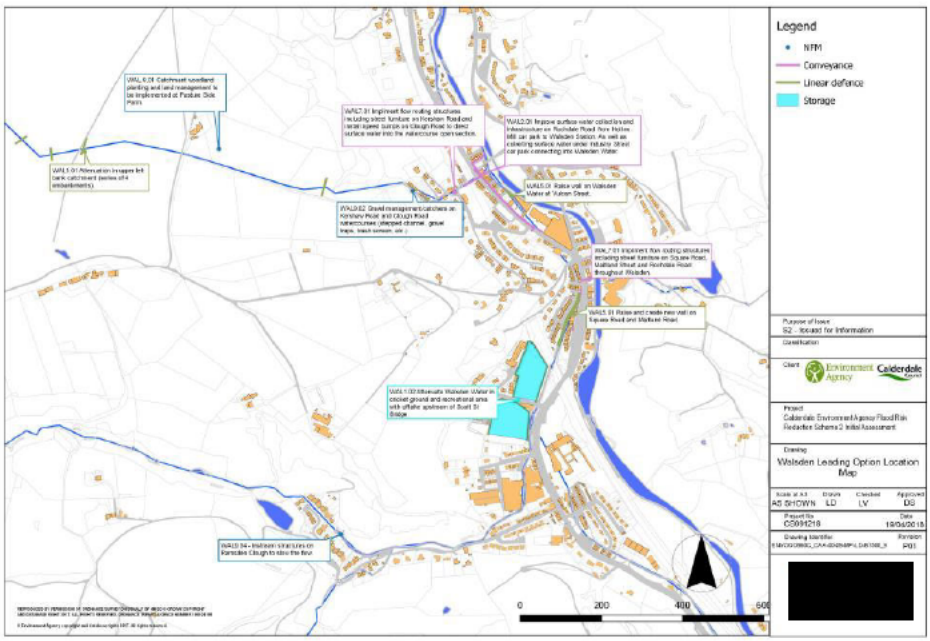

Figure 1 - Appendix G of Walsden SOC - Leading Option Map

The following map (Figure 2) provides a key overview of the catchments and locations of potential storage options identified within [redacted] Technical Note.

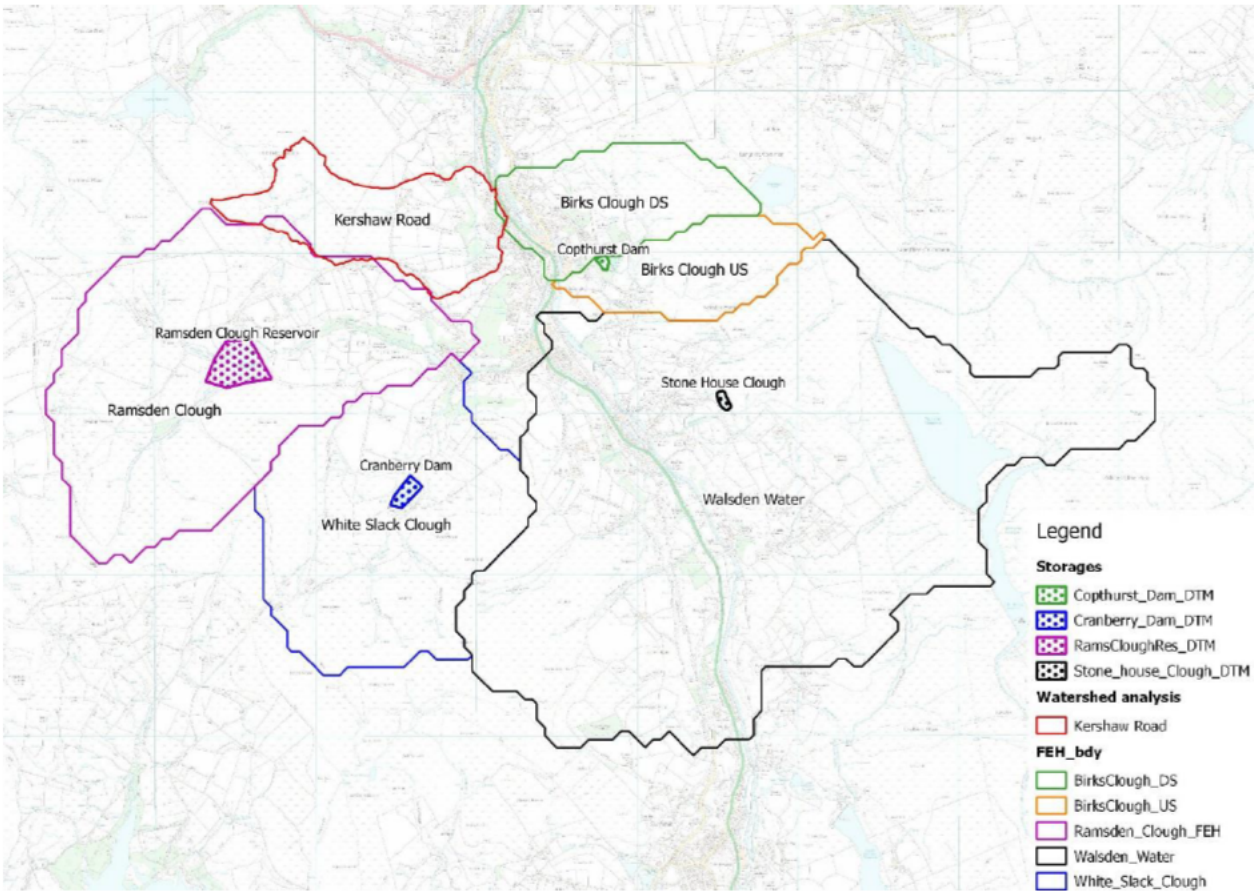

Figure 2: Walsden catchment extent and storage locations overview

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	Outcomes of study
Strategic Outline Case	May 2021	Digital Copy	Based primarily on IA.
Calderdale Flood Risk Reduction Scheme, Walsden, Todmorden, Initial Assessment Report, November 2017, by [redacted])	January 2018	Digital copy (word format)	IA of Walsden to inform SOC development
Walsden Technical Note [redacted]	February 2019	Digital copy (word format)	Modelling to support outcomes from Initial Assessment

Reservoirs Report [redacted] (FMP routing model)	February 2017	Digital copy (word format)	Flood analysis and reservoir storage
[redacted] Study at Kershaw Rd		Digital Copy	Support outcomes from Initial Assessment

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 purpose of this contract is to enable delivery of the Outline Business Case (OBC). This scope will be supported by an NEC4 PSC Option C contract that will be issued to the Consultant for pricing of the OBC. This is to undertake a review of the Strategic Outline Case, all associated documentation and data to facilitate delivery of the OBC for the Walsden FAS project.

1.3.2 In providing the OBC, the Consultant shall seek to review and then build upon the work previously undertaken and identify solutions which reduce flood risk to properties, businesses and essential infrastructure in Walsden.

1.3.3 The previous studies identified the source and volumes of water from contributing catchments that resulted in flooding of Walsden. Taking the previous studies and modelling, the Consultant shall assess the catchments to determine and explore potential measures and volume of storage required upstream of Walsden to ensure that critical flood events in Walsden are mitigated.

1.3.4 The scope of this commission will include assessing the reservoirs capacities and suitability to hold water back and identify measures and locations to slow the flow of tributaries which feed the catchment systems upstream of Walsden to mitigate flooding on the River Walsden Water, ensuring this does not over top and flood Walsden.

1.3.5 The Consultant shall review all information and data provided, to inform regarding the frequency and types of flooding which the Walsden Water catchment and village of Walsden are subjected to.

1.3.6 The Consultant shall work with the project team to provide efficiency, cost, risk and buildability input to inform the development of the leading way forward as set out in this Scope.

1.3.7 This commission is to produce a flood risk management appraisal in line with Flood and Coastal Erosion Risk Management – Appraisal Guidance (FCERM-AG), which will appraise a range of options. This will result in the delivery of a OBC to the Client that gains approval.

2 The service

2.1 Outcome Specification

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

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 EA 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 Environment Agency'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.

2.1.5 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.

2.1.6 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).

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 must consider planning permission and all other necessary permissions/licences being obtained at detailed design stage. The outline design shall feasibly be able to obtain planning permission.

2.1.10 The *Consultant* shall demonstrate that consideration has been given to a long list of potential options, identified an appropriate shortlist, appraised these to identify a preferred option and developed this option, its impacts, planning and Environmental Impact Assessment (EIA) 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 The *Consultant* shall compile the supporting technical documentation required for the *Client* to obtain a screening opinion from the local planning authority.

2.1.13 ~~Add any project specific requirements~~.

2.2 Constraints

2.2.1 Site Visits: The *Consultant* shall inform and agree any site visits with the *Client's* Project Manager. The *Client* will arrange access, based on *Consultant* supplied information and requirements. The *Consultant* shall inform the *Client* at least 7 days before any planned site visits.

2.2.2 Spatial scope: The scope of works is defined by Figure 1. Any works/interactions outside of this study extent will be additional works

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 (strike through any of the following that are not required for the project):

- Contribute monthly 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.

- Produce monthly financial updates and forecasts meeting the *Client's* project reporting timetable together with progress reports. 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.

- Deliver a monthly progress report ~~in the *Client's* standard template~~ giving progress against programme, deliverables received and expected and financial and carbon summary against programme.

- 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.

2.3.3 The contract will be administered using FastDraft.

2.3.4 ~~Add any project specific requirements~~.

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

- Modelling report.

- Economics report.

- Options appraisal report.

- Documentation of the environmental process and considerations including risks and opportunities (e.g. Scoping Report).

- Outline Design(s).

- Carbon Optimisation Report.

- 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.

- Draft text within relevant sections of OBC.

2.4.3 ~~Add any project specific requirements.~~

3 Site Investigation

3.1 Topographic Survey

3.1.1 The *Consultant* will review previous topographic survey to identify gaps in existing data. The Consultant will use this to inform the scope of supplementary topographic survey required.

3.1.2 The *Consultant* shall work with NEAS to ensure that environmental and sustainability constraints within the likely scheme footprint are identified and included in the survey and to determine if efficiencies can be made by joint working.

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

3.1.4 ~~Add any project specific requirements.~~

3.2 Ground Investigation

3.2.1 The Consultant shall scope the Ground Investigation required to be able to undertake an options appraisal and detailed design and agree the scope with the Client.

3.2.2 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.

3.2.3 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.

3.2.4 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.

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

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

3.2.7 The Consultant shall produce a summary of key interpretative decisions for the Ground Investigation undertaken by the Lot 2 contractor.

3.2.8 ~~Add any project specific requirements.~~

3.3 Services Search

3.3.1 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 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 SI and or 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 also provide a site supervisor to manage the survey supplier.

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

3.3.5 ~~Add any project specific requirements~~.

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 *Consultant* shall provide the *service* in accordance with the Modelling Technical Scope, included in Appendix 2.

4.1.4. Additional runs shall be allowed for the final design case to give a sensitivity analysis on key parameters.

4.1.5. The output shall be designed to interface with the economic analysis to allow for depths and durations of flooding to be determined.

~~4.1.6. Add any project specific requirements.~~

5 Economics Appraisal

5.1.1 The Consultant shall undertake an economic appraisal in line with FCERM – Appraisal Guidance (FCERM-AG), Supplementary guidance and the HM Treasury 'Green Book'. This will include a valuation of all the key benefits, both economic and environmental, carbon assessment and whole life costs in order to produce a cost benefit analysis that will be used to determine the selection of a preferred option.

5.1.2 Costs will be the whole life expenditure including, design, investigation, construction, operation and maintenance. Costs can be devised in the most efficient but accurate manner and Early Supplier Engagement (ESE) input is required. The Client will provide support and costs where possible to complete this estimate.

5.1.3 Carbon will be whole-life emissions of an asset including embodied (construction), operation, maintenance and end of life emissions. The values will be calculated from the carbon tool (OI 120_16) to help optimise all options through all stages of design and business case development.

5.1.4 Risk and Optimism Bias allowances shall be calculated in accordance with Risk Guidance for Capital Flood Risk Management Projects. The Consultant shall attend risk workshops facilitated by others / the Consultant to deliver the Scope.

5.1.5 Selection of the preferred option shall be undertaken in accordance with the FCERM-AG decision rules including consideration of the most sustainable and lowest carbon options following the EA business case template and guidance.

5.1.6 The assessment shall include for sensitivity tests to look at the effects of any changes to key parameters / beneficiaries and to demonstrate the robustness of any key assumptions made.

5.1.7 The Consultant shall produce, and maintain through the project, the FCRM Partnership Funding Calculator for Flood and Coastal Erosion Risk Management Grant in Aid (The PF calculator). The PF calculator shall be updated at the request of the Client or when evidence obtained during the project suggests a significant change is likely. The Consultant shall inform the Client of any expected significant change in scheme choice or affordability at the earliest opportunity as the project develops.

5.1.8 The Consultant shall use this data to assist the Client in identifying suitable sources of external funding.

Economic, Sustainability and Carbon Appraisal Deliverables

5.1.9 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.

5.1.10 ~~Add any project specific requirements~~.

6 Environmental Assessment

6.1.1 The Consultant shall confirm in the activity schedule 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.

6.1.2 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.

6.1.3 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.

6.1.4 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.

6.1.5 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.

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

6.1.7 AD:The *Consultant* shall undertake scoping of environmental requirements at subsequent stages of the project (i.e. OBC-FBC) in parallel to and integrated with the options development process in order to ensure that environmental information and environmental stakeholder engagement influences the development, appraisal and selection of options.

6.1.8 AD: The *Consultant* shall support engagement with relevant environmental consultees (internal and external) through a scoping consultation process to inform scheme development. The *Consultant* shall identify opportunities for the scoping consultation process to align with the stakeholder engagement plan for internal and external stakeholders.

6.1.9 AD: projects requiring a statutory Environmental Statement or a non-statutory Environmental Report, the *Consultant* shall record the scoping process and environmental and sustainability assessment methodology for the preferred option in a Scoping Report (Preliminary Environmental Information Report). The Scoping Report shall be proportionate and include the environmental information required to support the Outline Business Case submission, and where necessary, to obtain an Environmental Impact Assessment (EIA) screening opinion from the relevant Competent Authority. Prior to any external consultation, the *Consultant* shall make provision for and incorporate comments from a consultation with internal stakeholders.

Heritage:

6.1.10 AD: Prior to the commencement of any historic environment study, the *Consultant* shall prepare a product description for agreement with the *Client*. The *Client* shall provide an outline template for the product description.

6.1.11 AD: For the study area associated with Conveyance, Linear Defence and Storage proposals shown in Figure 1, the *Consultant* shall establish the historic environment baseline (cultural heritage and archaeology) with reference to the MTR 801_14 SD01 Cultural Heritage and Archaeological Standards. This will be a proportionate baseline appraisal of the cultural heritage baseline followed by the identification of potential constraints.

6.1.12 AD: The *Consultant* shall work collaboratively with the *Client* and the Contractor to ensure the design and delivery of ground investigations realises opportunities for integrating archeologically-led data collection and or archaeological monitoring.

6.1.13 AD: The *Consultant* shall undertake an appropriate level and type of archaeological evaluation to inform the option appraisal as agreed by the *Client*. The scope for the archaeological evaluation shall be informed by the findings of the proportionate historic environment desk-based appraisal, other ground investigations, early engagement of the *Client* (NEAS archaeologist) and be subject to agreement by the *Client*.

Ecology and Biodiversity:

Preliminary Ecological Appraisal (PEA):

6.1.14 AD: For the study area associated with all proposals shown in Figure 1, the *Consultant* shall carry out a Preliminary Ecological Appraisal (PEA) in accordance with best practice guidance (e.g. CIEEM) with supporting field surveys considering both habitats and species. The survey data gathered for the PEA shall be compatible with utilising the Defra Biodiversity Metric 3.0 (or subsequent updates).

6.1.15 AD: The PEA shall inform the development of options, including the application of the mitigation hierarchy with respect to potential ecological impacts. Any requirements for further ecological surveys and assessments shall also be identified and an appropriate programme provided for informing the detailed design.

6.1.16 AD: The PEA and the Biodiversity Net Gain (BNG) assessment shall be mutually supportive, with the PEA establishing the scheme's overall policy context, baseline and ecological appraisal.

7 Option Development

7.1.1 The *Consultant* shall undertake an options appraisal, which will include a review of the previous work, to prepare a long list of options. The long list shall not be constrained by previous work and will be agreed with the *Client* at an options meeting, where the *Client* will invite representation from area FCRM, the ESE contractor's representative, NEAS, MEICA, Field Services and the Principal Designer. The *Consultant* shall screen and assess this long list of options for technical, environmental, sustainability, carbon and economic suitability, as considered appropriate.

7.1.2 Following this screening, the *Consultant* shall prepare a short list of 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.

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

7.1.4 The *Consultant* shall analyse and appraise the carbon footprint of options as outlined in Section 11.

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

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

7.1.7 The *Consultant* shall develop the business case for the preferred option and the outline design including provision of specification, drawings and documentation required for Early Supplier Engagement.

7.1.8 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.

7.1.9 ~~Add any project specific requirements.~~

8 Stakeholder Engagement

~~8.1.1 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.~~

8.1.2 AD:The *Consultant* shall support the client in the development and maintenance of 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.

8.1.3 Consultant will support the client with Quarterly circulation of updated communications record at progress meetings.

8.1.4 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).

8.1.5 The *Client* will arrange and advertise 2 no. public meeting/workshops. 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.

8.1.6 The *Consultant* shall provide technical support and attend 8 no. meetings (based on monthly meeting with CMBC, NR and UU) with key external organisations/individuals impacting upon option selection process. The current known stakeholders are identified in Appendix 3.

8.1.7 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.

8.1.8 ~~Add any project specific requirements.~~

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 design 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. Appraisal work to outline design shall be treated as if it was notifiable.

~~9.1.5 AD: 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 AD: 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 AD: 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.~~

~~9.1.8 AD: 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 AD: The PD shall ensure there is effective liaison and coordination between phases with the Principal Contractor.~~

~~9.1.10 Add any project specific requirements.~~

10 Business Case Submission

10.1.1 The *Consultant* shall aggregate 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 and the Business Case templates.

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

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

10.1.4 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 NPAS or LPRG.

10.1.5 ~~Add any project specific requirements~~.

11 Carbon

11.1.1 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.

11.1.2 The carbon budget for the project has been set to a capital carbon total of 602 tCO2e with the whole life carbon total being 4,436 tCO2e. The Consultant is required to work with the Client and the ESE contractor to reduce the project carbon footprint by 40%.

11.1.3 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.

11.1.4 ~~Add any project specific requirements.~~

12 General

~~12.1.1 Add any project specific requirements.~~

13 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
LIT 12280	Lessons Log template	OBC
LIT 55096	Integrated Assurance & Approval Strategy	Approvals

14 Requirements of the Programme

14.1.1 The *Consultant* shall provide a detailed programme in Microsoft Project format meeting all requirements of Cl.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 The programme shall identify time risk allowance on the activities and float.

14.1.6 The *Consultant* shall produce a Programme such that the following milestone dates are achieved. Milestones to be agreed jointly.

14.1.7 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*

15.1.1 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 ~~Add any project specific requirements~~.

16 Data

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

~~16.1.2 Add any project specific requirements here.~~

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, acting as the Service 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 Client. These departments include Asset Performance, Partnership & Strategic Overview, NEAS, etc.

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.

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.
- Cost and Carbon Tool (CCT).
- ~~Add any project specific requirements~~.

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 – Modelling Technical Scope

Modelling Scope of works:

1. Review hydrology (which has recently been updated)
2. Submit the hydrological calculation audit trail to the Client for review
3. Agree any amendments required following this review and update the hydrology accordingly
4. Review the existing, recently updated, hydraulic model and its representation of the key hydraulic features and controls through Walsden
5. Identify any additional topographical survey required via walkover survey
6. Prepare a scope for the additional topographical survey and commission this (obtain 3 no. quotes, recommending a best value one)
7. Review the completed survey for adequacy and incorporate into the model
8. Review the model calibration/verification
9. Incorporate the Do Nothing and Do Minimum scenarios into the model and provide model outputs for use in the economic assessment. These outputs are to comprise flood depths for a range of return periods at model nodes directly adjacent to the properties at risk of flooding within the town. Outputs are required for each climate change epoch. If difficulties are experienced with achieving model stability at higher AEP floods, communicate the issues immediately to the Client so that an approach can be agreed to providing outputs suitable for use in scheme appraisal.
10. Provide inundation extent and hazard maps (depth/velocity) for the AEPs of flood that characterise the nature of the flooding under the Do Nothing and Do Minimum Scenarios.
11. Develop a “with scheme” models representing the flood management measures listed in the SOC. Run these in “glass wall” mode to identify the height of defences required through the town to achieve a range of SoPs, for use in the economic appraisal. Assume up to four combinations of intervention need to be modelled.
12. Run models of the preferred option, including appropriate uncertainty allowances, to facilitate outline design.
13. Produce a modelling report, submit this to the Client for review and incorporate any agreed amendments into the model and the report following this review.
14. Sensitivity analysis for the base runs.

Appendix 3 – Stakeholder Engagement

Key stakeholders:

Stakeholder	Role / relevance
Calderdale Council	- Local planning authority - Lead Local Flood Authority, responsible for surface water flooding and ordinary watercourse - Highways Authority, responsible for roads and drainage and bridge/culvert assets - Administers Calderdale NFM grant scheme - Statutory consultee
United Utilities	- Owner/operator of reservoirs in catchment incl. Ramsden Clough reservoir - Owner/operator of drainage and sewerage systems - Statutory consultee
Network Rail	- Owner/operator of railway line through Walsden and key river crossing assets such as Bridge 96 - Statutory consultee
Canal and River Trust	Owner/operator of Rochdale canal and assets linked to
Natural England	- Statutory consultee for protected sites (e.g. SSSI, SAC, SPA), where relevant to options