NEC4 Contract Tool

This tool is used to create standard Contract Documents using pre-determined parameters

When started you will see the following tabs

Start-up

1. Supplier Guidance
2. Data Part 2 (input)
3. Cover Sheet
4. Data Part 1
5. CD for X
6. Data Part 2
7. Contract Execution

PART 1

1. Data Part 2 (input)

There are multiple sections to complete

You can only fill in sections in yellow;

If you want to change any section in the yellow boxes, just overtype the entries

If you press the 'Clear Data Part 2' button you will be prompted to confirm this action

Once you have completed all your sections save the document and return this to the Client

[redacted]

[redacted]

Rev 1.4.9

7

[redacted]

Framework:
Supplier:
Company Number:

Geographical Area:
Project Name:
Project Number:

Contract Type:
Option:

Contract Number:

North West
Burrow Beck conveyance Improvement Project
[redacted]

Professional Service Contract
Option E

[redacted]

Revision	Status		Originator		Reviewer		Date

PROFESSIONAL SERVICE CONTRACT under the Collaborative Delivery Framework
CONTRACT DATA

Project Name Burrow Beck conveyance Improvement Project

Project Number ENV0003478C

This contract is made on 18 December 2020
between the *Client* and the *Consultant*

- This contract is made pursuant to the Framework Agreement (the "Agreement") dated 12th 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

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 E

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 The Consultant is required to provide support to the Designer and Client in progressing the scheme through the problem definition stage, concluding at Gateway 1 (SOC submission and approval), including: General project management; Feasibility of potential Short list options selection; and

The *Client* is

Address for communications

Address for electronic communications

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

Address for electronic communications [redacted]

The Scope is in
Bravo document folder

The *partner contract* is

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	18th December 2020

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	01 June 2021
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 *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

6 Compensation events

These are additional compensation events

1. Managing and mitigating the impact of Covid 19 and working in accordance
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*	**£5,000,000** in respect of each claim, without limit to the number of claims	12 years after Completion
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	**£15,000,000** in respect of each claim, without limit to the number of claims	12 years after Completion
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	*Legal minimum* in respect of each claim, without limit to the number of claims	*For the period required by law*
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	**£5,000,000**	

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

Z5 Secondments
When appointing *Consultants* on a secondment basis only:

Add clause 19
19.1 The *Client* will from the *starting date* to the *completion date* indemnify the *Consultant* against any and all liabilities, proceedings, costs, losses, claims and demands whatsoever arising directly or indirectly out of the activities of the *Consultant* in providing the services save where such claims, in the reasonable opinion of the *Client*, arise from or are contributed to by:
19.1.1 Misrepresentation or negligence by or on behalf of the *Consultant*;
or
19.1.2 The *Consultant* has acted contrary to the *Service Manager's* reasonable instructions or wholly outside the scope of the *Consultant's* duties as defined by the *Service Manager*.

Z6 The Schedule of Cost Components

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

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

OPTION X18: Limitation of liability

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

£1,000,000

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

£5,000,000

The *end of liability date is* 6 years 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

Address for communications

[redacted]

Address for electronic communication [redacted]

The *fee percentage* is

Option E

[redacted]

The *key persons* are

Name (1)
Job
Responsibilities
Qualifications
Experience

[redacted]

Name (2)
Job
Responsibilities
Qualifications
Experience

[redacted]

Name (3)
Job
Responsibilities
Qualifications
Experience

[redacted]

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

BurrowBeckSOC_Indicative_Programme.pdf

Resolving and avoiding disputes

The *Senior Representatives* of the *Consultant* are

[redacted]

[redacted]

[redacted]

X10: Information Modelling

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

[redacted]

Consultant **execution**

Consultant **execution**

Signed under hand by

for and on behalf of [redacted]

[redacted]

Signature

[redacted]

Role

[redacted]

Environment Agency
Collaborative Delivery Framework (CDF)

NEC4 Professional Services Contract (PSC)

Scope: to SOC

Project / contract information

Project name	Burrow Beck, Scotforth – Conveyance Improvements
Project reference	[redacted]
Contract reference	[redacted]
Date	27 November 2020
Version number	2
Authors	[redacted]

Revision history

Revision date	Summary of changes	Version number
06/11/20	Draft for discussion	1
27/11/20	Final for issue	2

This Scope should be read in conjunction with the version of the Minimum Technical Requirements current at the Contract Date. In the event of conflict between this Scope and the Minimum Technical Requirements, this Scope shall prevail. The *services* are to be compliant with the Minimum Technical Requirements.

1 Overview

1.1 Summary

[redacted] have recently obtained funding to further investigate and develop local improvements to reduce flood risk to properties located by Burrow Beck, Scotforth.

Significant flooding occurred on 22 November 2017 which flooded 65 properties, mainly from Burrow Beck, but flooding is highly likely to have had surface water origins too. Work carried out by Jacobs in 2018/2019/2020 identified small scale and localised conveyance improvements that could provide an affordable solution to reduce flood risk to a number of properties. Natural Flood Management (NFM) measures and upstream storage on tributaries shall also be considered to reduce flood risk. The local Flood Action Group (FlAG) are keen to see progress with improvements to reduce flood risk.

This contract is to produce a short form Strategic Outline Business Case (SOC) with support from the *Client* and ESE contractor [redacted]

It is estimated that construction costs shall be under £0.5m: The *Consultant* shall be mindful of this and plan works to meet this Scope in a proportionate manner recognising the small scale and localised improvements that are envisaged.

This contract is to be let under the Collaborative Delivery Framework (CDF) and will be compliant with the overarching terms and conditions of this framework.

1.2 Background

The study area centres around the village of Scotforth, near Lancaster (see Figure 1 below).

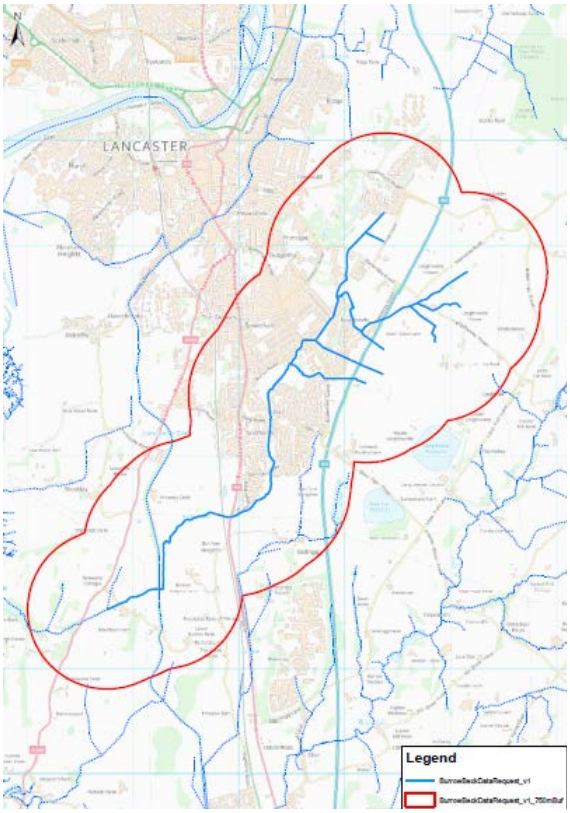

Figure 1: Burrow Beck and 750m buffer zone (red line)

The Scotforth, Hala and Bowerham areas of South Lancaster are heavily urbanised and are drained by Burrow Beck with 151 residential and 5 commercial properties being affected in a 1 in 100 year event.

Flooding occurred on 22 November 2017 which was the most significant on record, although there had been several previous more minor events (22 August 2016 and Storm Desmond in 2015). More recent flood events occurred on 4-5 August 2020 and 10-11 August 2020. These most recent events do not follow the trend of other flooding events, as the flooding was isolated to the Lentworth Drive area; previously the onset of flooding has been in the upper reaches of Burrow Beck near Colchester Avenue and Cranwell Avenue. Flooding was driven by a blockage at the footbridge which links Lentworth Drive to Gressingham Drive on 4-5 August, but on the 10-11 August there was no reported blockage. The footbridge was subsequently removed.

The August 2020 flood events at Lentworth Drive have demonstrated that further flood risk management measures are required in this location. There is considerable momentum amongst the Risk Management Authorities (RMAs) / partners to deliver improvements. Lancaster City Council have secured funding to replace the footbridge off Lentworth Drive and another footbridge off Cranwell Avenue. Any remaining funding could be used to construct a linear defence between Burrow Beck and Lentworth Drive. There is currently a low level sand bag wall wrapped in visqueen acting as a temporary linear defence.

Following recent flood events in August 2020 the political pressure on the EA / partners to carry out intervention works to reduce flood risk is significant.

Flooding upstream of Lentworth Drive remains a concern and the FlAG understand that pursuing conveyance improvements in the short term may be detrimental to future options for larger scale upstream flood storage.

Unconsented structures along Canterbury Avenue have been shown to increase flood risk at low return period events and remain a concern also. The Asset Performance team is considering how best to approach the issue. Enforcement could be difficult given the structures pre-date the river being enmained.

1.3 Previous Studies

The following studies (see Table 1), provided by the *Client*, may support the delivery of this contract.

Table 1: Previous Studies

Report	Date	Format	Outcomes of study
ENV0001472C Scotforth, Burrow Beck project files, deliverables and model	2018/2019/2020	various	Identified conveyance improvements may be achievable to reduce flood risk to properties along Burrow Beck

1.4 Additional Data Provided by the *Client*

The *Consultant* is to refer to and use the following data (which will be provided by the *Client*) throughout the delivery of this contract.

Table 2: Additional Data

Data	Date	Format
Land registry parcels on Canterbury Avenue	2020	jpeg
Phase I and Phase II Geoenvironmental Assessment for land off Grab Lane – prepared for Story Homes by e3p	23/10/2019	pdf
NFM document supplied by Lune Rivers Trust	2020	
IDP	Oct 2020	Available through Asite

1.5 Objectives

The primary objectives of this contract are:

- To undertake an appraisal of small scale local options to reduce flood risk associated with Burrow Beck, Scotforth in line with Flood and Coastal Erosion Risk Management – Appraisal Guidance (FCERM-AG).
- To review and update the work undertaken in project reference ENV0001472C (hydrology, modelling, long list to short list options, economics, standard of protection, environmental sections etc) to optimise funding and potential opportunities.
- Define the flood risk problem and develop fully the Do Nothing (DN) and Do Minimum (DM) baselines (hydrology, model and economics) such that they do not need to be updated or changed post SOC approval.
- Understand and model the viable options and costs.
- Carry out sensitivity testing to maximise best value.
- Assess impacts further downstream with the aim of minimising the impact or offsetting through additional works. This will need to be considered alongside the Lentworth Drive embankment and replacement footbridge works being led by Lancaster City Council with support from VolkerStevin.
- Review the potential for upstream storage on tributary(s) / deculverting of the main tributary within the realms of the FCERM-AG and the viability of the scheme inclusive of the PF calculator.
- Determine if NFM can be of benefit / how it could be implemented.
- Determine whether flood risk to individual properties or clusters of properties could be more cost-effectively managed through Property Flood Resilience.
- Consider whether non-fluvial focused measures such as retrospective SUDS or enhanced highway drainage are worth pursuing either through partnership or individually by the Environment Agency's partner organisations.
- Fully consider and address sustainability including carbon reduction.
- To develop a short form SOC and appendices.

The tasks required to support delivery of the above objectives are set out in Section 2.

1.6 Opportunities

The *Consultant* is to assist and support the *Client* and ESE contractor in identifying potential opportunities within the confines of the appraisal options to:

- deliver works on site as soon as possible;
- collaborate with external partners to meet their aspirations and add value, where possible;
- maximise the reuse and / or recycling of materials and reduce the quantity of waste generated by the options;

- reduce the carbon footprint and environmental impact of possible options towards the *Client's* aspirational target to be net carbon zero;
- identify delivery efficiencies and cost savings;
- deliver habitat improvement; and
- secure external contributions or works in kind from external partners.

2 Tasks Required

2.1 Project Management

2.1.1 Project management – General

As part of the general project management duties the *Consultant* shall, as a minimum, undertake the following activities:

i. General project management and monthly progress reporting (including progress update report, record of deliverables issued, updated programme, financial updates & forecasts and risk management updates) meeting the *Client's* project reporting timetable.
ii. Attend a start-up workshop within two weeks of contract award.
iii. Provide project updates to the *Client* via phone on at least a weekly basis.
iv. Maintain and update a Project Issues Log which will be reviewed at monthly progress meetings and determine the appropriate actions necessary to resolve the identified issues.
v. Attend monthly progress meetings with the *Client* and ESE contractor [redacted] The *Consultant's* Project Manager (or nominated delegate) shall attend each monthly progress meeting with additional technical representation provided on an as needs basis.
vi. Co-operate with the *Client* in the role of the BIM information manager; including production of BIM execution plan and updated Master Information Delivery Plan (MIDP) using the BIM implementation plan and MIDP structures provided by the *Client*.
vii. Capture lessons learnt relevant to project delivery.
viii. Provide input to the project efficiency register at monthly progress meetings.
ix. Provide quarterly input into framework performance assessment and implementation of associated actions arising.
x. Provide input to carbon and sustainability reporting at key project milestones.
xi. General quality assurance of the deliverables and *services* provided under this contract.

The *Consultant* shall make use of the *Client's* web based project collaboration tools (Asite / Adoddle / FastDraft). Unless otherwise agreed with the *Client* in advance of distribution, all project and contract communications and records are to be distributed and stored using these project collaboration tools.

2.1.2 Project Management – Deliverables

The *Consultant* shall produce:

- Monthly financial updates and forecasts;
- Programme, to be updated as a minimum each month; and
- BIM execution plan.

2.2 Health and Safety

2.2.1 Health and Safety – General

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.

The *Consultant* shall follow and comply with the requirements outlined in the Safety, Health Environment and Wellbeing (SHEW) Code of Practice (LIT 16559).

The *Consultant* shall fulfil their duties as Designer under CDM.

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.

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.

At least 7 days in advance of any site visit the *Consultant* must contact the *Client* to assess and understand the existence of any potential hostile sites within the study area.

2.3 Modelling

2.3.1 Modelling - General

The model was updated by [redacted] as part of project reference [redacted] and signed off by the *Client's* Evidence & Risk team.

The *Consultant* shall review the hydrology and hydraulic modelling work previously undertaken and update as required. The *Consultant* shall define the flood risk and suitably develop the DN and DM scenarios so they do not alter during further development of the business case.

The mechanisms and on set of flooding at Lentworth Drive should be explored within this review given the recent flood events. There is also the possibility that drainage from the M6 may enter Burrow Beck from a tributary.

The *Consultant* shall model Do Something (DS) options to inform the short listed options appraisal, including the likely most sustainable option. Options can be a combination of a number of small scale local improvements to reduce flood risk.

The modelling shall consider at least 8 return periods over the 100 year appraisal period accounting for climate change as per the current guidance. Suggested return periods are 1:5, 1:10, 1:20, 1:50, 1:75, 1:100, 1:200 and 1:1,000.

Modelling shall be appropriate to enable depths of flooding of property to be determined for the purposes of economic analysis in accordance with the multi-coloured manual methodologies and the FCERM-AG.

The *Consultant* shall undertake modelling sensitivity analysis to inform flood risk assessments, short listed options and to ultimately inform the sensitivity analysis of economic benefits and costs of options. The *Consultant* shall propose and agree the sensitivity tests with the *Client* before proceeding with the work.

The *Consultant* shall provide written commentary on the Annual Exceedance Probability (AEP) of onset of flooding and Standard of Protection (SoP) (including allowance for residual uncertainty).

The *Consultant* shall work in close liaison with the *Client's* Evidence & Risk team throughout the project.

The interpretative Hydrology & Modelling Report provided by the *Consultant* shall document all the work undertaken in meeting the Scope, including results and analysis. Should outputs from the previous study be suitable for inclusion in this project then these can be presented (i.e. duplication of work is not to be undertaken). As a minimum the report shall:

- Provide a clear technical description of the method used for hydraulic modelling, including agreed changes to the original model.
- Give a high level description of the derivation of the run parameters (e.g. roughness, hydraulic coefficients, etc.) used within both the hydrological assessment and the hydraulic model.

- Exception reporting (describe what non-standard things have been done to build, run or post-process the model). Describe any other criteria used to improve the final results.
- Describe what, where and when the model is sensitive to as highlighted by the sensitivity analysis to give an idea of the robustness of the model.
- Provide a list of the final design runs, together with where the result files can be found. Ensure that this list acknowledges where specific model runs have been combined to achieve the final products (e.g. combined outputs of fluvial and tidal models).
- Provide a summary (tabular or screen capture of relevant simulation window) to show the run time, convergence, stability and mass balance. Include a statement about why these are acceptable. State the minimum and maximum computational time-steps under which the model runs stably and with acceptable convergence for all the key simulations required for the study.

A copy of the model and results / output files (including 2D depth/level/velocity files) shall be provided to the *Client* on a portable hard drive. All electronic data should be in an agreed format and be supplied as native and pdf file formats.

2.3.2 Modelling - Deliverables

The *Consultant* shall provide:

- Hydrology and hydraulic modelling file note;
- Baseline (Do Nothing & Do Minimum) scenarios file note;
- Baseline (Do Nothing & Do Minimum) flood mapping;
- Do Something options flood mapping;
- Hydrology & Modelling Report with a clear handover guide;
- Hydrology & modelling technical note for inclusion in the short form SOC; and
- Updated hydraulic model.

2.4 Economic Appraisal

2.4.1 Economics Appraisal General

The *Consultant* shall produce an economic appraisal in accordance with the FCERM – Appraisal Guidance, supplementary guidance and the HM Treasury ‘Green Book’.

The *Consultant* shall review and develop the existing economic assessment. As part of the review, the *Consultant* shall seek to maximise flood damages/benefits. The *Consultant* shall complete a desk top review of the condition of existing assets and current maintenance programme when developing the economic assessment and options appraisal.

The *Consultant* shall undertake calculation of the Partnership Funding (PF) score for all short listed options throughout the project.

The economic appraisal shall include an economic optimisation of benefit duration with climate change in light of the PF calculator requirements. This is likely to also influence the choice of the preferred option/leading option presented in the short form SOC.

The *Consultant* shall provide the results in an Economics appraisal technical note that will be included as an appendix to the short form SOC. This will provide a clear view of the method, results and interpretation of the economic analysis undertaken. Should outputs from the previous study be suitable for inclusion in this project then these can be presented (i.e. duplication of work is not to be undertaken). As a minimum this will include, but not be limited to:

- Overview of methodology adopted.
- Parameters quantified and standards used (including the Multi-Coloured Manual).

- Assessment of existing assets, breach / failure modes and rates of deterioration.
- Definition of Do Nothing and Do Minimum.
- Definition of Do Something options, including the likely most sustainable option.
- A breakdown of all damages, including both direct and indirect, and a summary of capped damage values inclusive of analysis of how this may be limiting overall damages and scheme viability.
- Identification of key receptors / major beneficiaries, with a breakdown of flood damage values.
- Assumptions made.
- How the decision rule and process has been applied.
- What sensitivity tests have been applied and why, along with results and analysis.
- Treatment of climate change, carbon reduction and sustainability benefits.
- FCERM-AG and PF calculator spreadsheets.
- Presentation of costs and damages using economic spreadsheets provided via the FCERM appraisal pages on the .gov website.

The *Consultant's* economic 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. The scope of the sensitivity assessment will be agreed by the *Consultant* and *Client* dependent upon the options considered. This will include a review of criteria against the economically preferred short listed options and partnership funding score to assess the robustness of the business case. As per the FCERM-AG the sensitivity testing shall be undertaken by the *Consultant* in a manner that identifies tipping points when option choices and decision making would change.

2.4.2 Economic Deliverables

The *Consultant* shall provide:

- Economics review file note;
- PF calculators;
- Economics spreadsheets;
- Economics appraisal technical note as an appendix to the short form SOC; and
- Main text for the short form SOC.

2.5 Environmental Assessment

2.5.1 Environmental Assessment General

The *Consultant* shall carry out all work in accordance with the Minimum Technical Requirements 801_14 Environmental sustainability, design and management and associated guidance documents - 801_14 SD01 Cultural heritage and archaeology and 801_14 SD02 Landscape and environmental design.

The *Client's* National Environmental Assessment & Sustainability (NEAS) team have confirmed the project is of low environmental risk.

The *Consultant* shall produce an Environmental Baseline Report for inclusion in the short form SOC.

The *Consultant* shall identify any risks / opportunities and propose means of resolving / advancing these. The *Consultant* shall identify opportunities for wider environmental enhancements (including Natural Flood Management (NFM)), considering local benefits and stakeholder requirements, and support the *Client* in identifying funding opportunities to aid deliverability of the enhancements.

The *Consultant* shall identify the need for further surveys or assessment at subsequent stages of the business case.

2.5.2 Environmental Deliverables

The *Consultant* shall provide:

- Environmental Baseline Report as an appendix to the short form SOC; and
- Main text for the short form SOC.

2.6 Topographic Survey

2.6.1 Topographic Survey General

The *Consultant* shall assess and carry out a desk study review of the existing LiDAR and topographical data.

Based on this review, the *Consultant* shall provide recommendations for any additional topographical survey works necessary to inform the appraisal and development of short listed options.

2.6.2 Topographic Survey Deliverables

The *Consultant* shall provide:

- Topographic survey desk study; and
- Recommendations for any additional topographical survey works.

2.7 Ground Investigation Survey and Services Search

2.7.1 Ground Investigation General

The *Consultant* shall undertake a statutory undertakers' service search in order to inform the development and selection of long list and short list options.

The *Consultant* shall collate available ground investigation information and undertake a desk study to identify where works are likely to be required during the next stage to inform the appraisal and outline design development. A summary of the anticipated ground conditions and overview of any subsequent ground investigation required shall be provided.

2.7.2 Ground Investigation Deliverables

The *Consultant* shall produce:

- Service Search Desk Study Report.; and
- Summary and Overview of Likely Ground Investigation.

2.8 Option Appraisal

2.8.1 Option Appraisal

The *Consultant* shall compile a long list of options for reducing flood risk. The *Consultant* shall screen and assess this long list of options for technical, environmental and economic suitability, as considered appropriate. The *Consultant* shall also review landownership for each option within the screening assessment.

Following this screening process, the *Consultant* shall establish a short list of viable options, including the likely most sustainable option, for the *Client's* approval, giving reasons for including or excluding each of the long list options. Appraisal Summary Tables as referenced (including a template) by the FCERM-AG may help with this task.

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

The options appraisal will include an appropriate level of option modelling scenarios of the short listed options to identify a preferable combination(s) of short listed options. Modelled return periods and scenarios will be appropriate to inform the economic appraisal and identification of current and post scheme SoP to inform the PF calculator.

The *Consultant* shall derive costs for the short listed options for the whole life expenditure including, design, investigation, construction, operation and maintenance with sufficient detail to allow for selection of short listed options. The *Consultant* shall include an allowance for risk.

The *Consultant* will lead the programme for, and compile, cost estimates with assistance from the *Client's* ESE contractor (VolkerStevin) and the *Client's* Cost and Carbon Estimator (CCE), to undertake the options cost estimating.

The *Consultant* shall work with the *Client's* CCE to use the PCT for establishing option costs. The *Consultant* shall develop option designs in a format that can be used to extract data from PCT. During this activity carbon footprints for all options shall also be calculated using the carbon calculator and shall feed in to the options appraisal and selection process.

The *Consultant* shall produce an Options appraisal technical note that will be included as an appendix to the short form SOC.

For surface water flood risk the *Consultant* shall identify where additional flood risk management action would be required. Should outputs from the previous study be suitable for inclusion in this project then these can be presented (i.e. duplication of work is not to be undertaken).

2.8.2 Option Appraisal Deliverables

The *Consultant* shall provide:

- Options appraisal technical note as an appendix to the short form SOC;
- Main text for the short form SOC;
- Summary of costings and risk allowance; and
- Surface water technical note.

2.9 Strategic Outline Business Case Submission

2.9.1 Strategic Outline Business Case Submission General

The *Consultant* shall compile and produce the technical information and appendices required to support the short form business case at SOC stage of the project in accordance with the latest EA template and guidance. Produced in collaboration with the *Client,* the *Consultant* will lead on strategic, financial and economic cases, and relevant appendices, with the *Client* leading on the commercial and management cases.

The *Consultant* shall work with the *Client* and provide an outline programme to develop the short listed options from SOC to OBC taking into consideration key funding and environmental constraints and opportunities. The *Consultant* shall take into account the time frame to obtain all necessary approvals, along with any mitigation required and any enabling works in advance of construction.

2.9.2 Strategic Outline Business Case Submission Deliverables

The *Consultant* shall provide:

- SOC stage PF calculator;
- Short form SOC input, appendices and technical information; and

- Input into the outline programme for the next stage of the project (SOC to OBC).

2.10 Sustainability Targets

2.10.1 Sustainability Targets – General

In developing the short listed options the *Consultant* shall benchmark it against the *Client's* sustainability targets, which include:

- 40% reduction in construction embedded carbon between baseline set at Gateway 1 and actual achieved at Gateway 4. Work towards the *Client's* aspirational target to be net carbon zero;
- Maximise the reuse and / or recycling of materials and reduce the quantity of waste generated by the scheme. Recover reuse or recycle more than 95% of construction waste.
- 100% of timber purchased to be legal and sustainable.
- At least 85% of construction aggregate to be from a recycled source.

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.

The *Consultant* shall produce a carbon calculator for the short listed options using the *Client's* standard templates and with support from the *Client's* CCE. The carbon calculator will be required for inclusion in the short form SOC.

2.10.2 Sustainability Targets – Deliverables

The *Consultant* shall provide:

- Carbon calculator for inclusion in the short form SOC.

3 Relevant guidance

The *Consultant* shall deliver the *service* using the latest versions of 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	SOC
672_15_SD03	Business case template – 5 case Model	SOC
672_15_SD02	Short Form Business case template	SOC
LIT 4909	Flood and Coastal Erosion Risk Management appraisal guidance (FCERM-AG)	SOC
	Flood and Coastal Erosion Risk Management: A Manual for Economic Appraisal (the 'Multi Coloured Manual')	SOC
OI 1334_16	Benefits management framework	SOC
Gov.uk	Partnership Funding Calculator Guidance	SOC
LIT 15030	The Investment Journey	SOC
LIT 55124	Write a Business Case	SOC
LIT 14953	FCRM Efficiency Reporting – capital and Revenue	SOC
LIT 12280	Lessons Log template	SOC
LIT 55096	Integrated Assurance & Approval Strategy	Approvals

4 Constraints on how the *Consultant* Provides the Service

4.1 Constraints

The *Consultant*'s Project Manager and relevant project team members must be available to attend all monthly progress meetings. Meetings may be held virtually or in the Scotforth / Preston areas.

The *Consultant* shall maintain the same project team throughout the lifetime of the contract. This is key to promoting collaboration with others and to seek efficiencies in working practices.

5 Requirements of the Programme

5.1 Programme

The *Consultant* provides the Programme in accordance with the contract and in Microsoft Project format (Version 2016).

The *Consultant's* Programme should be compatible with the *Client's* whole life programme for the overall project.

The *Consultant* shall ensure that the Programme includes appropriate time allowances for internal quality assurances and review of all deliverables prior to issue to the *Client.*

The *Consultant* shall allow the *Client* a two week period to review each of the deliverables and this should be reflected in the Programme.

6 Services and Other Things Provided by the *Client*

6.1 Data and Information Management and Intellectual Property Rights

All of the data listed as being supplied to the *Consultant* as part of this study remains the intellectual property of the *Client*.

6.2 Data Custodianship

The data custodian for project deliverables from this contract will be the Area Partnership and Strategic Overview team.

6.3 Licensing Information

Licences for LiDAR Data, Ordnance Survey mapping, model, survey, hydrometric and historical data will be provided to the *Consultant* upon award of this contract.

6.4 Data Management and Metadata

The *Client* populates a metadata database called the Information Asset Register (IAR). It is a requirement that all information produced by modelling work is appropriately tagged with metadata. The *Client* will supply an IAR spreadsheet (and any supplementary local metadata requirements if appropriate) where all relevant metadata can be recorded and handed over on project completion.

6.5 Data Security

All model and survey information will be provided to the *Consultant* in an encrypted format (using WinZip 128 bit encryption) according to Environment Agency Data Security Policy. It is expected that once the contract is completed, all the original data sent to the *Consultant*, which is classed as commercially sensitive, is returned in an encrypted format using WinZip 128 bit encryption.

Project deliverables such as model files, survey data or anything of a personal nature such as questionnaires or address data must also be returned in an encrypted format using WinZip 128 bit encryption.

Further details regarding security measures will be discussed at the start-up meeting for this contract.

6.6 Timesheets

Timesheets as normally utilised by the *Consultant* shall be submitted with applications for payment unless otherwise agreed with the *Client's* Project Manager. Electronic submissions are acceptable.

6.7 Payment Procedure

Payment is subject to the procedure agreed in or under the CDF agreement.

6.8 Quality

The *Consultant's* quality plan and quality management system shall comply with the requirements of ISO9001 and ISO14001.

6.9 BIM Protocol – Production and Delivery Table

All *Client* issued information referenced within the Information Delivery Plan requires verifying by the *Consultant* unless stated otherwise in Scope (refer to Schedule 19 Clause 4 of the Framework agreement).

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.