



**Framework:** Collaborative Delivery Framework  
**Supplier:** Ove Arup & Partners Ltd  
**Company Number:** 01312453  
  
**Geographical Area:** North East  
**Project Name:** Skinningrove FAS\_SOC to OBC  
**Project Number:** [REDACTED]  
  
**Contract Type:** Professional Service Contract  
**Option:** Option C  
  
**Contract Number:** project\_36566  
  
**Stage:** SOC\_to\_OBC

Revision	Status		Originator		Reviewer		Date
Rev G	Final		[REDACTED]		[REDACTED]		30/03/2023

**PROFESSIONAL SERVICE CONTRACT under the Collaborative Delivery Framework  
CONTRACT DATA**

**Project Name** Skinningrove FAS\_SOC to OBC

**Project Number** ENV0002570C

This contract is made on 31 March 2023  
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  
Skinningrove FAS Lot 1\_SOC-OBC - Scope Rev D

**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
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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 undertake works to an agreed hold point leading to the development of an Outline Business Case to derive a proposal to deal with flooding in Skinningrove

The *Client* is Environment Agency

Address for communications Tyneside House  
Newcastle Business Park  
Skinnerburn Road  
Newcastle Upon Tyne  
NE4 7AR

Address for electronic communications

The *Service Manager* is  
Address for communications

Address for electronic communications

The *Scope* is in  
Skinningrove FAS Lot 1\_SOC-OBC - Scope Rev D

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 02 May 2023

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 11 January 2024

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 £98,445.00

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:

	<i>share range</i>		<i>Consultant's share percentage</i>
less than	80 %	to	0 %
from	80 %	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 <i>SERVICE</i> OR TERMINATION
The <i>Consultant's</i> failure to use the skill and care normally used by professionals providing services similar to the <i>service</i>		
Loss of or damage to property and liability for bodily injury to or death of a person (not an employee of the <i>Consultant</i> ) arising from or in connection with the <i>Consultant</i> Providing the Service		
Death of or bodily injury to the employees of the <i>Consultant</i> arising out of and in the course of their employment in connection with the contract		
The <i>Consultant's</i> total liability to the <i>Client</i> for all matters arising under or in connection with the contract, other than the excluded matters is limited to		

## Resolving and avoiding disputes

The *tribunal* is litigation in the courts

The *Adjudicator* is  
Address for communications

'to be confirmed'  
'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 c154.2 and before c154.3, 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

██████████

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

██████████

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*

any none

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 Ove Arup & Partners Ltd

Address for communications 8 Fitzroy Street  
London  
W1T 4BQ

Address for electronic communications

The fee percentage is 

Option C

The key persons are

Name (1)  
Job  
Responsibilities  
Qualifications  
Experience

Name (2)  
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  
to follow

### **5 Payment**

The *activity schedule* is

### **Resolving and avoiding disputes**

The *Senior Representatives* of the *Consultant* are

Name (1)

Address for communications

Address for electronic communications

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

A large black rectangular redaction box covering the signature area.

Signature

Date

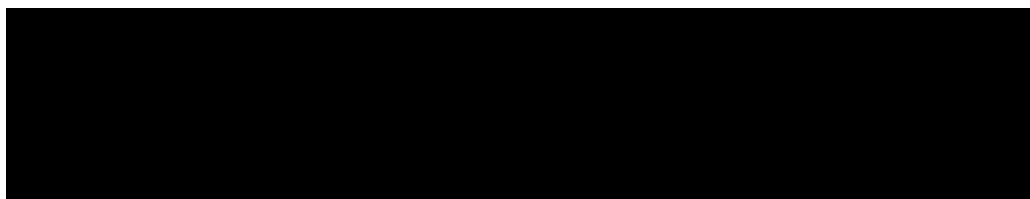
Role

### ***Consultant*** execution

Signed Underhand by [PRINT NAME]

for and on behalf of

Ove Arup & Partners Ltd

A large black rectangular redaction box covering the signature area.

Environment Agency

NEC4 Professional Service Contract (PSC)

Scope

Project / contract information

Project name	Skinningrove FAS Lot 1_SOC-OBC
Project SOP code	
Contract number	
Date	30 <sup>th</sup> March 2023

Assurance

Author		Date: 26 <sup>th</sup> January 2023
Consulted		Date: 26 <sup>th</sup> January 2023
Consulted		Date: 31 <sup>st</sup> January 2023
Reviewed		Date: 31 <sup>st</sup> January 2023
Checked prior to issue		Date: 30 <sup>th</sup> March 2023

Revision History

Revision date	Summary of changes	Version number
26 <sup>th</sup> Jan 2023	First draft of revised scope of works	Rev B
1 <sup>st</sup> Feb 2023	Supplier comments	Rev C
30 <sup>th</sup> March 2023	CSM update – MTR updated for latest	Rev D

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
LIT 13258	Minimum Technical Requirements	Version 12	30 <sup>th</sup> December 2021

# 1. Overview

## 1.1. Background

The village of Skinningrove is situated on the north-east coast, about 1.5 km east of Saltburn-by-the-Sea, in the borough of Redcar and Cleveland. Skinningrove Beck flows in an approximately northerly direction through the centre of the village, before discharging into the North Sea. The study area is shown in Appendix 3.

There is a history of flooding in Skinningrove from Skinningrove Beck. The catchment is particularly steep, and the level of the beck can rise rapidly during heavy rainfall. The catchment is also heavily wooded and there is a high risk of woody debris being washed into the beck. The most serious flooding occurred in November 2000, pre-defences, when 178 properties were affected. The primary mechanism of flooding was the blockage of Stone Row Bridge by woody debris. Over 100 properties were also flooded in July of the same year. Following the November 2000 event, flood defences were constructed in 2002, including flood walls and gates. The defences were designed to provide a 1 in 200 year (0.5% AEP) standard of protection (SoP).

The SoP defences is significantly reduced in the event of blockage. A tree catcher was installed upstream of the village, at Whitecliff Wood, as part of the scheme in 2002 to reduce the amount of woody debris carried downstream. There are, however, significant areas of woodland downstream of the tree catcher and so there remains a risk of blockage due to woody debris being washed into the beck. It is believed that the existing tree catcher alone may not be adequate to effectively manage debris in the catchment. There are also concerns about the stability of the track our field team uses to access the tree catcher. Arup are currently undertaking geotechnical monitoring along a section of the track where there is evidence of some ground movement. A safe system of work has been put in place which prohibits the use of vehicles to access the tree catcher. Whilst this is the case it will be difficult to clear a significant accumulation of large woody debris from the tree catcher. In the interest of time the EA has started to explore alternative locations for the tree catcher. Our intention is to feed this feasibility work into this scheme appraisal.

The existing defences in the village can be challenging to operate during an incident. The flood gates and parapets at Stone Row Bridge must be manually operated on site by our staff. Due to the often rapid onset of flooding, and the remote nature of the village (>30 miles from our nearest depot in Darlington), getting to site to operate the defences in a timely manner can be difficult. This was the case during a flood in September 2013 when Skinningrove Beck responded rapidly to an intense, slow moving thunderstorm in which almost 90mm of rain fall in just a few hours. Due in part to the widespread traffic disruption resulting from the storm, staff (then the local council) were not able to reach the village in time to lower the bridge parapets and close the flood gates. Local residents managed to force the gates closed and avoid major flooding on this occasion. To minimise the risk of this happening again, staff now spend long periods of time on standby in the village, at significant cost, when localised severe weather events, such as thunderstorms, are a possibility. The community flood wardens are currently trained to operate these defences as a last resort. However, a decision has recently been taken by the EA to prohibit their operation of the defences on H&S grounds – adding to the time criticality of the scheme.

This project seeks to:

1. Reduce the flood risk posed by woody debris and silt, including addressing the access issues to our existing tree catcher at Whitecliff Woods,
2. Remove the need for an operational response by our field team at Skinningrove during an incident by removing our existing operational assets at Stone Row Bridge.

## 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.

Ref	Study
A	Skinningrove Beck Flood Risk Mapping Study Phase 1 (██████████)
B	Skinningrove Beck Flood Risk Mapping Study Phase 2 (██████████) <ul style="list-style-type: none"> <li>a 1D HEC-RAS model was constructed by ██████████ for flood mapping purposes.</li> </ul>
C	Skinningrove Beck Flood Alleviation Study (██████████) <ul style="list-style-type: none"> <li>a study to investigate options to improve the standard of fluvial flood protection to properties in Skinningrove. The study concluded that the only option to reduce flood risk, and was technically viable, was the construction of an additional primary trash screen (approximately 50m upstream of Kilton Mill Bridge) and flow diversion channel.</li> </ul>
D	Skinningrove Beck Flood Alleviation Study – Environmental Appraisal (██████████) <ul style="list-style-type: none"> <li>a study to assess the environmental impacts of the flood alleviation scheme proposed in study C.</li> </ul>
E	Skinningrove Beck FAS – Trash Screen. Review of Proposed Log Catcher (██████████) <ul style="list-style-type: none"> <li>the EA commissioned ██████████ to undertake a technical review of the additional primary trash screen proposed by ██████████ upstream of A174 Kilton Mill Bridge.</li> </ul>
F	Skinningrove Bridges Replacement Feasibility Study (██████████) <ul style="list-style-type: none"> <li>a study by ██████████, commissioned by Redcar &amp; Cleveland Borough Council (RCBC), to investigate the feasibility of relocating the existing road bridge crossing in Skinningrove (Stone Row Bridge) to the site of an existing footbridge approximately 315 upstream.</li> </ul>
G	RCBC Skinningrove Coastal Protection Works Project Appraisal Report (2014) <ul style="list-style-type: none"> <li>RCBC undertook a coastal erosion scheme at Skinningrove in 2014-15. This was the Project Appraisal Report (PAR) for that scheme. To avoid double counting of benefits this will need to be looked at in detail during the development of this OBC to ensure the benefits are appropriately apportioned between the two schemes.</li> </ul>
H	Loftus Northumbria Integrated Drainage Partnership (NIDP) Stage 1 Study (2020) <ul style="list-style-type: none"> <li>a very high level assessment of flood risk in Skinningrove as part of the NIDP. Surface water / sewer flood risk in Skinningrove is not a priority for RCBC / Northumbrian Water.</li> </ul>
I	Whitecliff Wood Access Track – Geotechnical and Geo-Environmental Desk Study. Ref 393011 / 04   002   A. (██████████). <ul style="list-style-type: none"> <li>a desk study to identify the overall geotechnical and geo-environmental conditions and risks and inform the scope of any potential ground investigation in relation to the access track.</li> </ul>
J	Whitecliff Woods Access Road Slope Stability Assessment (██████████) <ul style="list-style-type: none"> <li>a study to investigate slope stability along the access track from A174 to the tree catcher. This includes a review of historical &amp; geological information and monitoring data collected by ██████████ between Nov 2019 – Apr 2020. The findings of the desk study and monitoring have been used to undertake a risk assessment of the potential impacts of slope instability on</li> </ul>

	EA operations. Options for potential mitigation measures are presented along with recommendations for further works to more fully understand and manage the risks at the site.
K	Skinningrove Modelling Study Phase 1 ( )
L	Skinningrove Modelling Study Phase 2 ( ) <ul style="list-style-type: none"> <li> have built a new linked 1D-2D model in Flood Modeller Pro of Skinningrove Beck from the confluence of Kilton Beck and Whitecliff Beck to the North Sea. EurOtop used to simulate wave overtopping and assess potential coastal flood risk. <u>This model is to be used as the basis for the appraisal. The modelling scope in Appendix 2 refers to this model.</u></li> </ul>
M	Skinningrove Asset Assessment. Job no. B1105000. ( ) <ul style="list-style-type: none"> <li>a structural assessment of the flood defence assets in Skinningrove, including walkover survey and technical assessment, was completed by in ( ).</li> </ul>
N	Skinningrove Asset Inspection & Assessment Report ( ) <ul style="list-style-type: none"> <li>A structural assessment by Arup of the flood walls in Skinningrove in 2020 including assets 48319, 48561, 49659, 49794, 129371, 170148, 170150 and 172769. A ground investigation, commissioned by the Environment Agency, was also undertaken at the site of the existing footbridge in March 2009 by . A factual Ground Investigation Report (contract number 3582 AD dated May 2009) and associated Geotechnical Interpretative Report (prepared by , report number B1105000/003 dated July 2009) are available.</li> </ul>
O	0.5m resolution LiDAR of study area captured in 2019/2020 is available on Defra Data Services Platform
P	Arup geotechnical monitoring reports <ul style="list-style-type: none"> <li>Arup provide a report after each survey of the access track</li> </ul>
Q	High level benefit apportionment exercise <ul style="list-style-type: none"> <li>the EA have undertaken a high level apportionment of the benefits between this scheme and the RCBC Coastal Protection Works scheme (study G)</li> </ul>
R	<b>Do Nothing Do Minimum Modelling (in progress)</b>

1.1.1. ~~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.~~

AD: 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 if the data is incorrect, contains anomalies, is not adequate for the purposes of detailed design or is based on inappropriate assumptions. This review should be completed using reasonable skill and care and the Consultant should not rely on any existing data that they believe to be suspect/incorrect.

## 1.2. Objective

A scheme to reduce the risk of flooding in Skinningrove is proposed. Under this contract the Consultant will undertake an options appraisal exercise and identify a preferred option for the scheme which will be recorded in an options appraisal report and economics report. This information will identify the likely

feasibility of a scheme in this area and support the *Client's* decision making on whether to further progress work to develop an OBC.

Project objectives:

- To remove the need for an operational response by our field team at Skinningrove during an incident by removing our existing operational assets at Stone Row Bridge (flood gates and bridge parapets) in favour of a passive solution;
- To reduce the flood risk posed by woody debris and silt including addressing the access health & safety issues to our existing log catcher at Whitecliff Woods;
- To identify a preferred option which delivers the optimum economic, technical, social, and environmental / carbon / sustainability outcomes;
- To deliver at least a 20% increase in biodiversity as part of Biodiversity Net Gain (BNG) targets;
- To minimise and mitigate any adverse impacts from a health, safety and environmental perspective that may result from the programme.

## 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.~~

AD: The *Consultant* shall include a high-level assessment of the environmental sensitivities and opportunities of the site as part of the options appraisal process. Additional environmental assessment activities are outside of this scope.

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.~~

AD: The *Consultant* shall include a high-level assessment of the potential to deliver BNG as part of the options appraisal process. 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.~~

AD: The Consultant has reviewed and updated the long and short list options identified in the SOC under the separate Inland FCRM contract. The Skinningrove Flood Risk Management Scheme- Long List Appraisal Report ( [REDACTED] ) sets out the long list options appraised and the options to be taken forward to short list appraisal. The Consultant shall take these short list options identified in this report forward into the appraisal.

~~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.~~

## 2.2. Constraints

2.2.1. No detrimental effects on habitats or species is allowed during investigatory works.

2.2.2. [REDACTED] undertook a coastal erosion scheme at Skinningrove in 2014-15. Partnership funding policy states that benefits cannot be double counted between separate investments. The Consultant shall undertake a proportionate benefit apportionment exercise as part of the appraisal to ensure the maximum grant rate for our flood risk management scheme is not capped at 45%. The results from this detailed benefit apportionment exercise shall be reported in the OBC. This assessment is vitally important and will be pivotal in the successful assurance & approval of the OBC. The potential for this double counting issue has been referenced in the SOC and the relevant assurance body will be looking for evidence of appropriate benefit apportionment in the OBC.

## 2.3. Consultant Project Management

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

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

- Contribute monthly to the updates to the project risk register.
- Provide input 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 10<sup>th</sup> day of each month, or otherwise agreed at the project start up meeting.

- Deliver a monthly progress report in the *Client's* standard template ([Link](#)) giving progress against programme, deliverables received and expected and financial and carbon summary against programme.
- 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. The Consultant is to provide minimum three weeks of notice to the Client to issue Notices of Intended Entry to landowners for any survey works.~~

~~2.3.5. The Consultant will be required to provide a red line boundary drawing showing intended work areas and access routes for any intrusive ground investigations required.~~

## 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. AD: Model Technical Note and Log~~
- Economics report.
- Options Appraisal report.
- ~~▪ Preliminary Environmental Information Report~~
- ~~▪ Preliminary WFD Assessment~~
- ~~▪ Documentation of the environmental process and considerations including risks and opportunities (e.g. Scoping Report).~~
- ~~▪ Outline Design(s).~~

- ~~Carbon Optimisation Report.~~
- ~~Benefits Register~~
- ~~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.~~
- ~~Ground Investigation Interpretative Report~~
- AD: Short technical summary from consideration of previous investigations and surveys, explaining how best use will be made of historical data.

### 3. Site Investigation

#### 3.1. Topographic Survey

- 3.1.1. The *Consultant* will review previous topographic survey to identify gaps in existing data. ~~Remove: 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. ~~A cross sectional survey of the main river is being undertaken by Others and will be provided for the *Consultant* to use in constructing the hydraulic model. The *Consultant* shall liaise with the survey team on the requirements of the survey and the format of output.~~
- 3.1.4. ~~The *Consultant* shall undertake cross sectional survey of the main river and spatial survey of the flood plain sufficient to allow for in bank and floodplain modelling and determination of depths of flooding of properties within the flood plain. Spacing of the survey shall be determined to suit the hydraulic model and shall include a survey of all restrictions, bridges, culverts and structures.~~
- 3.1.5. ~~A topographical survey is required to provide further details of the existing piles so that the alignment of new piles may be optimised relative to this. A survey is also required to supplement that previously undertaken by XXX in order to identify the location of key features on the quay so that we may clearly define working areas and accesses in the ECC scope. Specific requirements are:~~
  - ~~Preparation of a brief and procurement of the survey in accordance with the current version of the Environment Agency's National Standard Technical Specifications for Surveying Services, to enable the above.~~
  - ~~Review and agree surveyors' site risk assessment.~~
  - ~~Supervision and management of topographic survey company.~~
  - ~~Review data / checking deliverables.~~

- ~~The *Consultant* shall undertake the topographic survey necessary to be able to assess the shortlist of options and complete an outline design. If required, this will be instructed as a Compensation Event.~~

~~3.1.6. The *Consultant* shall use the outputs from the topographic survey in their modelling and option appraisal.~~

## 3.2. Ground Investigation

3.2.1. AD: The *Consultant* will review existing ground investigation data against the short list options and confirm the approach to gathering further ground investigation data for the scheme.

~~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. The specification, Pre-Construction Information, Environmental Action Plan, any archaeological deliverables or monitoring and work associated with obtaining any required permissions and consents is not included in this scope and will be instructed as a Compensation Event if required.~~

## 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 from utility companies. 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. If required, the works included in section 3.3.2 of this scope will be instructed as a Compensation Event.~~

~~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.~~

## 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.

## 5. Economics Appraisal

~~Where works are required due to legal requirements, for example under the Reservoirs Act 'in the interests of safety', the *Consultant* shall undertake a cost effectiveness analysis (CEA) approach to establish the least cost method of fulfilling the obligations, rather than a full cost benefit analysis (CBA).~~

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 will provide support and costs where possible to complete this estimate.~~

AD: 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 with the CDT Contractor is required. The *Client* Cost and Carbon Lead will provide a review of costs 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 (LIT 14847). 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.

5.1.9. AD: The *Consultant* will take into account other projects in the same geographic area to ensure there is no double counting of benefits and Outcome Measures. Details on other projects are included in section 1.1.1 of this scope. The *Consultant* will identify a suggested approach to benefit apportionment which will be reviewed by the *Client*. Engagement with RMAs on the approach to benefit apportionment will be led by the *Client* and the *Consultant* will allow for a single virtual discussion which includes the *Client* and

any relevant RMAs. The *Consultant* will allow for a revision of the approach in line with *Client* comments. Any further work will be treated as a CE.

5.1.10. AD: The Do Nothing and Do Minimum modelling and damages assessment has been instructed through the separate Inland FCRM Option E contract.

### **Economic, Sustainability and Carbon Appraisal Deliverables**

5.1.11. 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.
- AD: Reporting on the Do Nothing and Do Minimum damages assessment.
- AD: Reporting on the approach to benefits apportionment identified under section 2.2.2 of this scope.



## 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. The Consultant shall report on the CEEQUAL assessment in accordance with the hub workload plan.~~

### ~~6.2. CEEQUAL Assessment~~

- ~~6.2.1. The Consultant shall complete the CEEQUAL assessment in line with the provided CEEQUAL scoping note based on the CEEQUAL V6 Technical Manual requirements. For these Services, 11 assessment issues have been scoped in.~~
- ~~6.2.2. The Consultant shall provide a qualified CEEQUAL assessor and scope the individual criteria within the assessment issues identified for agreement with the Client.~~
- ~~6.2.3. The Consultant shall set up and undertake the assessment and evidence gathering throughout the Services, using the CEEQUAL online tool via BREEAM Projects. The Consultant shall ensure that all of the evidence is uploaded within 1 month of completion of the Services.~~
- ~~6.2.4. The Consultant shall support the Client with scope submission to BRE as well as provide supporting information to the Client when handling verifier consultation.~~
- ~~6.2.5. The sustainability (CEEQUAL) lead is an integrated member of the project team attending progress meetings, key project workshops including but not limited to options/ design and risk as required providing an update against CEEQUAL targets and championing sustainability across the project team.~~
- ~~6.2.6. The Consultant shall provide all evidence to the Client upon request, to enable programme level external verification.~~

### ~~6.3. Environmental and Planning Deliverables~~

- ~~6.3.1. In support of the OBC, the Consultant shall:~~

- ~~Compile the supporting technical documentation required to obtain an EIA screening opinion. The Client will lead in the direct communication for obtaining the screening and scoping opinion from the Local Planning Authority (LPA) and MMO.~~
  - ~~Include environmental considerations fully within the options appraisal and ensure this information is used to inform the preferred option selection and be incorporated into the Preliminary Environmental Information Report (PEIR)~~
  - ~~The Consultant shall provide a PEIR to enable the Client to seek a screening and scoping opinion from the Local Planning Authority (LPA) under the Town & Country Planning (Environmental Impact Assessment) Regulations (2017), where appropriate.~~
  - ~~The Consultant will be responsible for all associated surveys and data collection, including, but not limited to Phase 1 Habitat Survey and a Preliminary Ecological Appraisal (PEA) including recommendations for likely consents, licences and approvals. A Preliminary Ecological Appraisal (PEA) has been completed as part of the separate Inland FCRM SOC contract. The Consultant will identify the requirements for additional species and habitat surveys required to support the appraisal and planning process. Any surveys identified will be instructed as a CE.~~
- ~~6.3.2. Identify opportunities for wider environmental enhancements, considering local benefits and stakeholder requirements to maximise OM1 where possible, and support the Client in identifying funding opportunities to aid deliverability of enhancements.~~
- ~~6.3.3. Provide environmental resource to support the communications programme and stakeholder/partnership working as stipulated by the Client. This support will be instructed as a Compensation Event.~~
- ~~6.3.4. Undertake a Water Framework Directive (WFD) preliminary assessment which confirms if a detailed WFD assessment is required and sets out its scope. This should include an assessment of opportunities to deliver WFD improvements, through options selection and integrated design elements.~~

## ~~6.4. Biodiversity Net Gain Assessment~~

- ~~6.4.1. The Consultant shall undertake a Biodiversity Net Gain (BNG) assessment using the Biodiversity Metric. Proposals for achieving the 10% biodiversity net gain target, and opportunities for achieving the ambition of 20% biodiversity net gain target shall be included in the OBC, together with any risks to their deliverability. The BNG assessment will include:~~
- ~~— A UK Habitat classification (UK Hab) assessment should be undertaken within the study area of any project where BNG is to be applied.~~
  - ~~— All surveys must follow UK Hab assessment guidelines (<https://ukhab.org/>) and latest BNG technical guidance.~~
  - ~~— The condition of the habitat surveyed must be noted.~~
  - ~~— The habitat should be compartmentalised so similar habitats with different conditions in the same area can be clearly identified.~~
  - ~~— A map should be produced displaying the habitat types present and the condition of these habitats.~~
  - ~~— The comments box within the BNG 3.1 Metric tool should be utilised to explain the reasoning behind the condition score (i.e. invasive species present, water quality in pond appears poor, lack of under storey to woodland etc).~~
  - ~~— Recommendations on how each unit should be managed or uplifted.~~

- ~~— Further BNG assessments will be required if offsite enhancement, creation or offset is likely. If required these will be instructed as a CE.~~
- ~~— Rivers and streams element must also be included in assessment, using standard Morph survey methodology, as there is a watercourse within the footprint of the works.~~
- ~~— Any hedgerows must also be included in the assessment.~~

## ~~6.5. Cultural Heritage and Archaeology~~

~~The Consultant's proposals shall break down costs, deliverables and tasks into the following headings:~~

- ~~○ Environmental assessment (PEIR)~~
- ~~○ Environmental input into options appraisal and OBC input~~
- ~~○ Landscape assessment and appraisal~~
- ~~○ Heritage assessment and appraisal, including GI requirements~~
- ~~○ WFD assessment~~
- ~~○ HRA and associated surveys~~

~~This proposal should include a schedule of the expected Consultant management products as well as a schedule of environmental product delivery timescales that fit the current project plan including key milestones.~~

~~All tasks and deliverables should be clearly allocated to the OBC stage.~~

~~6.5.1. The Consultant will provide a costed proposal for archaeological work for the Client to accept. The outcome of any proposed heritage studies, desk-based assessment and site investigation, will be to influence design and manage the opportunities and risk and so ameliorate any impact to the historic environment (buried and upstanding).~~

~~6.5.2. The archaeological work will be designed and undertaken to gain heritage stakeholder acceptance of the preferred option through Environmental Impact Assessment (EIA) scoping consultation prior to planning as required. The proposed archaeological work and the timing of such will be agreed with the Client and meet the standards identified in the Cultural Heritage MTR and Standards (801\_14\_SD01).~~

~~6.5.3. The Consultant shall produce a heritage desk-based assessment (DBA) of the preferred option, in accordance with MTR 801\_14\_SD01 Cultural Heritage and Archaeology.~~

~~6.5.4. If required, carry out the following work which shall be agreed as a Compensation Event:~~

- ~~• Undertake cultural heritage surveys as necessitated by the option selection to inform the appraisal process and manage the opportunities and risks related to archaeological or heritage features on the detailed project planning or construction phases of the project. This should be scaled to influence the consideration of the options, and then to assess the preferred option in sufficient detail.~~
- ~~• Agree a programme of survey works with the Client's cultural heritage advisor, and prepare heritage project designs, procure, manage and supervise the required surveys in accordance with MTR 801\_14\_SD01 Cultural Heritage and Archaeology,~~
- ~~• Be responsible for the quality of the cultural heritage survey output in accordance with the MTR 801\_14\_SD01.~~
- ~~• Provide deliverables to the Client in accordance with the MTR 801\_14\_SD01 and the programme agreed in the heritage project design.~~

~~6.5.5. All work undertaken by the Consultant shall be reviewed by an appropriate cultural heritage specialist from their team who will be a full member of the Chartered Institute for Archaeologists (CIfA) or the Institute of Historic Building Conservation (IHBC) or equivalent.~~

## ~~6.6. Landscape Assessment and Appraisal~~

The Consultant shall:

~~— In agreement with the Client's NEAS Landscape Architect (LA) and in accordance with the document MTR-801\_14\_SD02 Landscape and Environmental Design (V3) (MTR-LED):~~

- ~~○ Identify the Landscape and Environmental Design (LED) services to be provided to support the development and submission for approval of the OBC with reference to the Landscape Institute Scope of Service schedules and the Environment Agency's Landscape and Environmental Design Guidance (LEDG);~~
- ~~○ Provide a product description for each of the agreed LED activities and products in accordance with section 1.6 of the MTR-LED;~~
- ~~○ Provide a proposal which identifies the LED activities, programme and costs. Any activities identified in this proposal will be instructed as a CE.~~

~~The programme for the delivery of the agreed LED activities and products will be set against the wider project programme and indicate key dates (incorporating a minimum 10 day response period where the Client's NEAS LA is required to review and respond).~~

~~— Undertake a landscape desk study and site walkover survey in accordance with the MTR-LED to identify key landscape and environmental design constraints and opportunities; landscape stakeholders and determine the scope of Landscape and Visual Impact Assessment (LVIA) to be undertaken in a manner proportionate to the project. LVIA shall include townscape assessment as appropriate to the location, scale and type of development proposed. The LVIA will be instructed as a CE.~~

~~— Use the LED products developed from the desk-based assessment, site walkover survey and LVIA to inform the consultation, appraisal outline design process, manage landscape risk, identify landscape mitigation requirements and enhancement opportunities at an appropriate level of detail to support the OBC;~~

~~— Be responsible for the timing of surveys, assessments and consultation with landscape stakeholders and for the quality of landscape assessment, appraisal and design products. Surveys, assessments and consultation will be instructed as a CE.~~

~~— Provide deliverables to the Client in accordance with MTR-LED and with reference to LEDG;~~

~~— Undertake landscape and environmental design activities and deliver landscape products in accordance with the project programme to allow efficient management of risks and issues.~~

~~All work undertaken by the Consultant shall be quality assured and approved prior to submission by their landscape architect who will be a Chartered Member of the Landscape Institute.~~

### ~~EA Standard Landscape Products~~

~~6.6.1. To support preparation of the PEIR, the Consultant will undertake the following landscape activities and deliver the following EA standard LED products, in accordance with the MTR-LED and with reference to the good practice guidance contained within LEDG:~~

- ~~• Landscape desk study;~~
- ~~• Landscape walkover survey.~~

~~6.6.2. To support the OBC, the Consultant will determine the need for, scope of, and where agreed delivery of the following EA standard LED products, in accordance with the MTR-LED and with reference to LEDG. These will be instructed as a Compensation Event:~~

- ~~• Environmental Site Appraisal Plan(s) (ESAP);~~
- ~~• Landscape options plans;~~
- ~~• Indicative Landscape Plan(s) (ILP);~~
- ~~• Baseline Landscape and Visual Assessment (BLVA);~~
- ~~• A proportionate Landscape and Visual Impact Appraisal (LVIA)~~
- ~~• Outline cost estimate (pre-OBC) for landscape and environmental works implementation and agreed 5 year establishment maintenance period, plus a professional fees proposal for inspection and monitoring during the same implementation and establishment period.~~

~~6.6.3. All work undertaken by the Consultant shall be quality assured and approved prior to submission by their landscape architect who will be a Chartered Member of the Landscape Institute.~~

## ~~6.7. Sustainability Targets~~

~~6.7.1. The Consultant shall work towards the Environment Agency's Sustainability and Environmental Management Strategy to 2030 (e: Mission), the 25 Year Environment Plan and the principles of sustainability as described under the United Nations 17 Sustainable Development Goals.~~

## 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 (add or delete as necessary) area FCRM, the ESE contractor's representative, NEAS, MEICA, Field Services and the Principal Designer.~~ AD: Please note that the long list of options in the SOC have been comprehensively reviewed and updated following advances in our knowledge and understanding since its approval in June 2020. This included a long list workshop. 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.~~

AD: Following this screening, the *Consultant* shall, in consultation with the *Client*, prepare a short list of viable options for the *Client's* approval, giving reasons for including or excluding each of the long list options. Both parties, and potentially other stakeholders, will conduct a workshop to determine the final short list. The most sustainable option shall be included in the short list. Then the *Consultant* will document the process undertaken, the final short list and the reason for including or excluding each of the long list options. On the agreement of the *Client*, the *Consultant* shall assess in detail the short listed options identified in Appendix 4 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 (decide who to facilitate) risk workshops to produce a risk register (plus if facilitating) with analysis in accordance with LIT 14847 Risk Guidance for Capital Flood Risk Management Projects.~~

~~7.1.7. The *Consultant* shall develop 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. The *Client* will produce the OBC-FBC scope including the scope for the Detailed Design and Planning and Environmental Services required. The *Consultant* will provide comments on the scope and provide suggested text where amendments and additions are identified. The *Consultant* will allow for two rounds of review of the scope. The *Consultant* will allow for two scoping meetings.~~

7.1.9.AD: A long list appraisal has been undertaken under the separate Inland FCRM SOC contract. The Long List Options Report (ENV0002498C-JAC-XXX-000-TN-RE-0002) is provided in Appendix 3 including a list of short list options for further appraisal. For the purposes of this scope the long list appraisal process is complete. The *Consultant* will advise the *Client* if further work to appraise the long list of options is identified.

7.1.10. AD: The *Consultant* is expected to make a site visit with key members of the team to gain an understanding of the situation on the ground, identify any environmental or communication risks and issues. The *Client* will arrange this.

7.1.11. AD: This section of the study should conclude with an options appraisal report summarising technical issues and the development of the preferred option.

## 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. Monthly/Quarterly circulation of updated communications record at progress meetings.

~~8.1.3. 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). Technical support and the preparation of information will be limited to that gathered as part of this scope. Gathering of additional data or further data assessment or analysis required to support engagement will be treated as a CE.~~

~~8.1.4. 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 concept outline design drawings for the short listed options for public display. Attendance at these meetings shall include the *Consultant* project manager, environmental lead and other roles as necessary. The *Consultant* will allow for 2 attendees from the project team to attend these meetings. Technical support and the preparation of information will be limited to that gathered as part of this scope. Gathering of additional data or further data assessment or analysis required to support engagement will be treated as a CE.~~

~~8.1.5. The *Consultant* shall provide technical support and attend 4 no. 2hr meetings with key external organisations/ individuals impacting upon option selection process. The *Consultant* will allow for 2 attendees from the project team to attend these meetings. The current known stakeholders are identified in Appendix XX. Technical support and the preparation of information will be limited to that gathered as part of this scope. Gathering of additional data or further data assessment or analysis required to support engagement will be treated as a CE.~~

~~8.1.6. The *Consultant* shall consider the following and document how they are addressed on this contract:~~

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

8.1.7. ~~Stakeholder engagement will be led by the Client with technical support from the Consultant.~~



## 9. Health & 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. ~~The *Consultant* shall fulfil the Principal Designer (PD) role and discharge the duties in accordance with the requirements of regulations 8, 9, 11 and 12 of the Construction Design Management Regulations 2015.~~
- 9.1.6. ~~The PD must be a lead or active designer and can either demonstrate relevant Skills, Knowledge and Experience to undertake the role or have access to relevant support to discharge their duties.~~
- 9.1.7. ~~The PD will demonstrate their compliance with their CDM duties by preparing and updating the Pre-Construction Management Tool on a monthly basis (or more frequently for start of construction activities) and liaising with the CSF Resident Principal Designer.~~
- 9.1.8. ~~The PD will identify and track significant risks, scrutinise the quality of treatment of risks with regards to the principals of prevention, co-ordinate other designers' mitigation and handover designs which can be constructed safely.~~
- 9.1.9. ~~The PD shall ensure there is effective liaison and coordination between phases with the Principal Contractor.~~

## **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. with support from the Client in preparing text. The Consultant will lead on the production of the Strategic and Economic Cases, the Client will lead on the production of the Commercial and Financial Cases. The Financial Case will be developed collaboratively with costs provided by the Carbon Cost Lead., particularly for the Strategic, Commercial and Management cases. The format of this document and guidance on the contents is detailed in Write a Business Case LIT 55124 (Link) and the Business Case templates.~~
- 10.1.2. ~~The Consultant shall be responsible for dealing with responses to queries for their authored sections 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.~~

## 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 1,427 tCO<sub>2</sub>e. The *Consultant* is required to work with the *Client* and the ESE contractor to reduce the project carbon footprint ~~by XX%.~~

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.~~

## 12. General

## 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 version 2016 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 (examples below, delete if not required):~~

Date	Event
XX/XX/XXXX	Completion of stakeholder engagement plan
	<del>Consultation meeting Any Village Parish Council</del>
XX/XX/XXXX	Submission of OBC to NPAS

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. AD: Outputs from the Skinningrove Modelling Study Phase 2 (Section 1.2.1 - Study L) including the new 1D/2D baseline model and Do Nothing and Do Minimum modelling results.

## 16. Data



## 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).~~

## 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

This scope should be read in conjunction with LIT 56326 Fluvial Modelling Standards current at the Contract Date. In the event of conflict, this Scope shall prevail. The service is compliant with the minimum technical requirements set out in LIT 56326 Fluvial Modelling Standards and LIT 18686 NEC4 Minimum Technical Requirements for Modelling current at the Contract Date.

### Project Overview

The village of Skinningrove is situated on the north-east coast, about 1.5 km east of Saltburn-by-the-Sea, in the borough of Redcar and Cleveland. Skinningrove Beck flows in an approximately northerly direction through the centre of the village, before discharging into the North Sea.

There is a history of flooding in Skinningrove from Skinningrove Beck. The catchment is particularly steep and the level of the beck can rise rapidly during heavy rainfall. The catchment is also heavily wooded and there is a high risk of woody debris being washed into the beck. The EA currently maintains and operates flood defences in the village including 2 no. flood gates and parapets at Stone Row Bridge which must be closed manually in the event of a flood. Operating these assets in a timely manner is an operational challenge and risk due to the often rapid onset of flooding and remote nature of the village. In September 2013, when Skinningrove Beck responded rapidly to an intense, slow moving thunderstorm, staff (then the local council) were not able to reach the village in time to lower the bridge parapets and close the flood gates. Local residents managed to force the gates closed and avoid major flooding on this occasion. We are developing this scheme with the aim of removing the need for an operational response in the village during an event.

In [REDACTED] [REDACTED] have developed a new linked 1D/2D hydraulic model of Skinningrove Beck for the EA under a separate modelling contract (Skinningrove Modelling Study, [REDACTED], Project No. B550A007). The model, which has been accepted by the Client, provides our latest understanding of flood risk in the study area and is to be used as the baseline model for the scheme appraisal. The Consultant is to use this baseline model to model the full range of exceedance events for 3 no. Do Something scenarios to support the economic damages assessment for the scheme. The Do Nothing and Do Minimum scenarios have already been scoped, created and run for a full range of %AEPs plus climate change under the separate Inland FCRM Option E contract

### 8: Fluvial – Update Existing Hydraulic Model(s)

No model updates are assumed to be required. The model was unstable for some blockage scenarios. If further work is required to improve model stability this would be a Compensation Event.

### 10: Design Simulations & Results

All simulations listed below must be delivered once the preferred option has been selected through the appraisal:

Flood hazard scenarios are modelled with the flood defence system of defended (preferred option).

Fluvial defended: 50%, 20%, 10%, 5%, 3.3%, 2%, 1.33%, 1%, 0.5%, 0.1% AEPs. Climate change scenarios are required as part of this project. Please refer to Minimum Technical Requirements for Modelling for details of climate change requirements and <https://www.gov.uk/guidance/flood-and-coastal-risk-projects-schemes-and-strategies-climate-change-allowances>.

In addition the Consultant shall produce a table of the number of residential, critical infrastructure and other non-residential properties within all defended (preferred option) %AEP outlines referring to the flood level at the nearest relevant river gauge(s) - if applicable .

The Consultant shall provide written commentary on the %AEP of onset of flooding, standard of protection ~~(including Residual Uncertainty Assessment, SC120014 to be applied in accordance with LIT 16924)~~ and suitability of fit with the anecdotal historic evidence of flooding. Limitations with historical evidence results shall be clearly identified in the conclusions and further recommendations shall be given if appropriate (e.g. state where new telemetry gauges shall be installed, where new survey / LiDAR would improve model accuracy etc ). This commentary is to be included within the draft and final Model Report .

#### 19: Options Appraisal

The Do Something options to be modelled will be agreed between the Consultant and Client following the shortlisting of options (as per section 7 'Option Development' of the SOC-OBC scope). It should be assumed that 3 no. Do Something options will need to be modelled for the full range of exceedance events to support the economic damages assessment for the scheme .

Note the Do Nothing and Do Minimum scenarios have already been scoped, created and run for a full range of %AEPs plus climate change under the separate Inland FCRM Option E contract.

Using the Client's accepted baseline model and outputs (Skinningrove Modelling Study, [REDACTED] Project No. B550A007) the Consultant shall construct and deliver flood alleviation scheme design modelling.

The Consultant shall:

Create and run 3 no. Do Something options, once agreed between the Consultant and Client, for a full range of %AEPs, plus climate change. For the purposes of pricing it will be assumed that each Do Something option can be represented by a single model state at each climate change epoch. If additional runs are required these will be instructed as a CE. This is to manage the risk that more than one model set up for each Do Something scenario will be required to represent blockages at more than one location.

Once the preferred option has been chosen, the Consultant shall conduct sensitivity testing of the preferred option to optimise the design (e.g. testing bund height / orifice size / FSR area etc.).

The Consultant shall run the final flood alleviation scheme design model for the following :  
Fluvial defended: 50%, 20%, 10%, 5%, 3.3%, 2%, 1.33%, 1%, 0.5%, 0.1% AEPs.

Climate change scenarios are required as part of this project. Please refer to Minimum Technical Requirements for Modelling for details of climate change requirements. ~~A residual uncertainty allowance assessment is also required.~~

Template Reference: Version: **Security marking:**  
LIT 13261 4.0

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Produce a short report and model log documenting the changes in the model for the Do Something options to support the appraisal and append to the OBC.

Provide modelled flood outlines (in ArcGIS shapefile format) and any other model outputs needed (by the Consultant) to support the economic analysis for the 3 no. Do Something options to be modelled. Map Edit outputs are not required.

Any other modelling required as part of the OBC, for example for the purposes of answering stakeholder queries, would be instructed as a Compensation Event.

## Appendix 3 – Area of Interest

