Environment Agency
NEC4 professional service contract (PSC)
Scope

Project / contract Information

Project name	EA Lower Risk Debris Screen Programme Wessex Area Inspection, Initial Needs Assessment and Outline Design
Project SOP reference	ENV0004369C
Contract reference	
Date	17 Nov 2021
Version number	V007
Author	[redacted]

Revision history

Revision date	Summary of changes	Version number
	Initial Draft for PM & consultant comments	1
27 Sept 21	Optional Outline Design Scope and consultant comments added	2
08 Oct 21	Wessex Area Specific	3
20 Oct 21	PE Amendments	4
29 Oct 21	Scope Freeze Amendments	5
03 Nov 21	Final revision	6
17 Nov 21	CSM minor amendments	7

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, this Scope shall prevail. The *service* is to be compliant with the following version of the Minimum Technical Requirements:

Document	Document Title	Version No	Issue date
412_13_SD01	Minimum Technical Requirements	11	04/05/2021

Details of the *service*

1. Description of the work:

1.1 Background

Following an asset failure, the Environment Agency recognised the need to review its national stock of debris and security screens for compliance with the design guidance that was current at the time of their construction.

a) This National Review collected data for 2,549 screens and found that:
   - Around 40% were designed in line with guidance
   - Around 30% are non-compliant with guidance
   - For around 30% compliance or non-compliance is unclear

b) Focussing on groups 2 and 3, around 90 screens were categorised as higher risk screens (with greater than 50 properties at risk of flooding in the event of a blockage) and around 1,150 screens were categorised as lower risk screens (typically, though not exclusively with less than 50 properties at risk).

c) In the Wessex Area, the Environment Agency has identified **127 lower risk debris** and security screens. The *Service* to be provided is to undertake the inspections, initial assessments and if instructed the outline design for the screens requiring removal, replacement or modification.

d) Assessments and any instructed outline designs are to be made using the CIRIA - Culvert, screen and outfall manual, C786F, 2019.

1.2 Overall project objective

The overall objective is to make the necessary improvements to the Environment Agency's debris and security screens such that they are:

a) Legally compliant in respect of flood risk and public safety
b) Safe and efficient to operate and maintain
c) Low in whole-life financial and carbon cost

1.3 Objectives for the contract

The objectives of this contract are:

a) To establish the degree of compliance of each screen with guidance relevant at the time of construction.
b) Provide a map plotting screen locations and details to aid in subsequent works delivery packages.
c) To determine compliance of each culvert (in terms of requirements for a screen) with the requirements of the CIRIA Culvert, Screen and Outfall Manual, C786F, 2019, completing the Initial Needs Assessment as per Appendix C.
d) To confirm the ongoing need (or otherwise) for any screens on the culvert, within the requirements of the CIRIA Culvert, Screen and Outfall Manual, C786F, 2019, completing the Initial Needs Assessment as per Appendix C.
e) To recommend from the options; remove, replace, modify, or no works (where the screen is deemed to be within (or better than) the parameters of CIRIA Culvert, Screen and Outfall Manual, C786F, 2019.
f) To provide an initial recommendation of the work to be done at each culvert and provide an estimate of the associated construction and design costs. Completing the summary spreadsheet at Appendix D (following the instructions for completion on the instructions tab and as a minimum completing all mandatory inputs as detailed in tab 0. Cover Page.
g) To provide a definitive list of the screens requiring improvement work and thereby form the basis of the subsequent outline design phase, and, subject to later addition to the *Service*.

h) If so instructed, to undertake outline design for screens identified for: removal, replacement or modification.

1.4 Tasks

The *Consultant* shall undertake the following tasks:

Data Gathering & Inspection

a) Review the available information provided by the *Client* and identify where additional information is required to provide the *Service.*
b) Map the culverts onto a location plan with screen details.
c) Request *Client* representation at each site visit from the EA Field and or Asset Management Team and, where not possible hold an initial phone call to gain local knowledge on how each screen operates and performs.
d) Request any *Client*-held missing information from the *Service Manager* who seeks to obtain the information from EA personnel and management systems.
e) Where it is not possible to obtain the necessary information, the *Consultant* shall use knowledge and experience to make rational assumptions about the missing information. Such assumptions are discussed and agreed with the *Service Manager* and documented by the *Consultant*.
f) Undertake a site inspection of each culvert to inform the Initial Needs Assessment (INA) and initial work recommendation.

Initial Assessment

a) Using the relevant procedures of CIRIA C786F (Appendix A2 for security screens; Appendix A3 for debris screens) the *Consultant* shall complete an Initial Needs Assessment (INA) to determine whether each screen is required.
b) Determine, as far as is possible, whether each screen is compliant with the guidance that was current at the time of its construction. In addition, the *Consultant* shall determine whether each screen is compliant with CIRIA C786 guidance and current EA Good Practice Items (available on 'EA Debris screens programme' Sharepoint site, access available on request).
c) Prepare an Initial Needs Assessment (see Appendix C for an example of what is required) for each culvert recommending the components of work needed to achieve compliance with CIRIA C786F for screening. Where the recommendation is to replace or modify an existing arrangement the *Consultant* shall propose the key features of new works including: configuration; minimum effective screen area (in m^2); dimensions; bar spacing; etc., and describe any necessary modifications to supporting structures and other asset elements. The recommendations are based on the Initial Needs Assessment review and site inspection and exclude intrusive site investigations, detailed modelling or other hydraulic assessments. Taking into consideration the upstream and downstream assets and water course.
d) For those screens not requiring any further work due to their compliance with (or better than) CIRIA C786F, the Initial Needs Assessment shall contain the rational analysis that supports the conclusion and be sufficient to allow the decision to be signed and ratified by the *Client's* Design Authority.
e) Complete the Summary Spreadsheet as detailed in Appendix D, as a minimum the mandatory fields as detailed in the spreadsheet (tab 0. Cover Page), following the process flow chart on tab mark Instructions.
f) Compile a list of screens required to be taken to outline design, to include:
   - Primary categories shall be: Remove, Modify, Replace, No Works.
   - Catchment area and location.
   - Sub categorise into simple or complex construction.

- Comment on: Screen size, works to existing structure, water level monitoring, visual monitoring and telemetry requirements, H&S improvements, public and operator safety, buildability, and access complexity.
- Additionally, provide an initial assessment of potential further investigations and environmental assessment /consenting shall be provided.

g) Produce for each screen broad, high level construction and design cost estimates including but not exclusively, requirements for temporary works, hydrology and telemetry requirements, access and welfare. Some costs (e.g. EA staff; ECI; land; etc) are excluded and will be added by the *Client.* The costing model included in Appendix D (tabs B. Design Costs and C. Works Costs). This is achieved by populating tab 7. Costing, within Appendix D.

1.5 Deliverables

The deliverables from the *Consultant* shall be:

a) Location Map with a culverts and screen details (Aims ID, Screen Name, Area and Catchment Area, NGR and Postcode).
b) The Initial Needs Assessments summarising the assessments described above and providing detail for the most likely preferred option. The format and content of the reports shall be as the example provided in Appendix C or otherwise as agreed in writing with the *Client* at the start of the *Service*. The *Consultant* assumes one round of *Client* review of drafts and reissue of the reports as final deliverables.
c) Complete the Summary Spreadsheet (Appendix D) providing key information for all the screens. The *Consultant* assumes one round of *Client* review of drafts and reissue of the spreadsheet as a final deliverable.
d) A list of those debris and security screens that are to be taken into Outline Design.
e) Completion of the Data Gathering Questionnaire for each screen as detailed in Appendix E.

1.6 Further Work

Subject to further instruction the *Consultant* may be instructed to:

a) Prepare a high-level programme for the efficient completion of all improvement works using parameters and constraints provided by the *Client.*
b) Enter updated data to the EA AIMS OM Asset management system.
c) Undertake the Outline Design (see section 1.7 below).

1.7 Outline Design

Subject to being further instructed, the *Consultant* may be instructed to proceed with Outline Design of removal, modification or replacement of some or all the screens based on the information detailed in the Initial Needs Assessments.

If so, the *Consultant* shall undertake the following tasks to suit the nature of the works:

a) Undertake any further site visits necessary to adequately inform the preparation of the outline design.
b) Specify, procure and manage detailed topographic survey of the existing screen/s, culvert, and areas necessary for the purposes of the outline design.
c) Specify and supervise any ground investigations (to be procured and managed by the *Client*) necessary for the preparation of outline designs and produce interpretative reports, (Ground Investigation Contractor will produce Factual Report(s)).
d) Undertake an expanded desktop preliminary environmental study to identify environmental constraints and opportunities, mitigation requirements and potential

enhancements. Environmental surveys may also be included, depending on the likely lag between surveys and the start of the works.

e) Following completion of serial D above, complete the required ecological surveys and produce associated reports, including protected species e.g. water vole, bats. A bat survey, undertaken by qualified person, will be undertaken to confirm the presence of bats within the surrounding area and the culvert area affect by ground investigation and construction activities.
f) Provide a view on the likely need for planning permission or listed building consent for each site and identify at what stage this will be secured/required, outline or detailed design stage
g) Confirm the method of cleaning (manual, mechanical or automatic) in consultation with the *Client's* operational staff.
h) Specify the required screen size (net effective area in square metres) and design envelope, from minimum size for CIRIA C786F compliance up to target size.
i) Specify the required centre-to-centre bar spacing, bar length and inclination to the horizontal.
j) Specify the required top level of the screen and number of stages.
k) Identify other features needed for satisfactory functional (hydraulic) performance (e.g. lifetable sections, by-pass, and upstream primary screen).
l) Identify other features needed for satisfactory operational performance (e.g. access, security or boundary fencing, signage, lighting, working platforms, fall or edge protection, harness attachments, debris storage, hard invert, water level or visual monitoring, lighting).
m) Identify opportunities to improve operational efficiency or achieve whole-life financial or carbon cost savings within the constraints of CIRIA C786F.
n) Undertake a hydraulic performance check in line with CIRIA C786F and confirm that the screen will not increase flood risk under a credible operating condition (with both permanent and temporary blockage). A hydraulic performance check spreadsheet is available on the 'EA Debris screens programme' SharePoint site, access available on request.
o) To secure the approval of the *Client's* Design Authority, prepare a short technical note that demonstrates compliance with CIRIA C786F and, where compliance is not reasonably practicable, justifies any departures, assesses the risks associated with those departures and identifies mitigation measures.
p) Prepare sufficient drawings to demonstrate constructability and geometrical fit into the space available, typically including site location, general arrangement, a longitudinal section and typical cross-section.
q) Prepare health and safety information; a designer's risk assessment, including design assumptions, known hazards, public safety considerations/assessment and any required improvements, (a baseline PSRA for each site), temporary works and a single pre-construction information (PCI).
r) Review the high-level INA capital cost estimate and update as appropriate.
s) Prepare a high-level capital and operational carbon estimate.
t) Submit and present the draft design to the *Client* for comment and amend to meet *Client* requirements (allowing up to two rounds of comments).
u) Following agreement / sign off of the proposed screen and supporting technical note by the *Client's* Design Authority, prepare final outline design drawings for the screen(s) containing sufficient detail to permit the pricing of the detailed design and building by the tendering supplier.
v) Prepare tender documentation for design and build tenderers, to include performance specification, drawings, technical note covering design philosophy and buildability, relevant health and safety information and draft contract.
w) For each screen, and in the context of the proposed work, the *Consultant* shall conduct an initial appraisal of the Water Framework Directive (WFD) data available for the site, assessing environmental constraints and opportunities and provide a high level description of the work needed to respectively mitigate or realise these. The outcomes shall be entered into the Summary Spreadsheet, Appendix D.

x) Consider viable alternatives to screening at each culvert (ie culvert, flood storage area or pumping station) and provide an initial summary description of the likely consequences of changing the existing arrangements, in respect of inspection/maintenance needs, operability, operator and public safety.
y) The *Consultant* will identify the presence, record the location and notify the *Client* of Invasive Non-Native Species (INNS).
z) For each screen undertake an environmental screening to allow completion of sheet 6A of Appendix D (Environmental).
aa) Completion of Appendix F providing a Carbon Assessment for each screen instructed for outline design.
bb) Identify any potential third party constrains, requirements that could impact on detail design and the construction stage.

1.8 Deliverables from Outline Design

The deliverables from the *Consultant* for outline design shall be:

a) Outline compliant design for each screen (CIRIA C786F).
b) Topographic survey.
c) Ground investigation Interpretative Report.
d) Preliminary environmental and WFD appraisal.
e) Hydraulic performance check.
f) Technical notes for Client's Design Authority.
g) Outline Design Drawings.
h) Designers risk assessment.
i) Health and safety information (known hazards, public safety considerations/assessment, PSRA for each site, temporary works and a single pre-construction information (PCI) pack.
j) Confirm method of cleaning.
k) High-level capital and operational carbon estimate.
l) Tender documentation.
m) Indication for the requirement of planning at each site.
n) Environmental screening.

2. Existing drawings, site information or reports already available

In undertaking the *Service* the *Consultant* takes account of the information listed below:

Table 2.1 Existing relevant information

	File Name	Date	Author	Format
Wessex Lower Risk Screen data spreadsheet	Appendix G: Wessex Lower Risk screens data spreadsheet (30_7_2021	30 7 2021	Sean Smithson	Excel

3. Specifications, standards and templates to be used

a) CIRIA - Culvert, screen and outfall manual, C786F, 2019.
b) Minimum Technical Requirements (412_13_SD01, Feb 2020).
c) Environment Agency's SHEW Code of Practice (May 2018).
d) EA Screen Good Practice Items (available on 'EA Debris screens programme' Sharepoint site, access available on request).
e) Appendix C: Initial Needs Assessment (Example).

f) Appendix D: Summary Spreadsheet.
g) Appendix E: Data Gathering Questionnaire.
h) Appendix F: Carbon Assessment.
i) Appendix G: Wessex Lower Risk screens data spreadsheet (30_7_2021).

4. Constraints on how the Consultant Provides the Service

a) Health and safety is the number one priority of the *Client*. The *Consultan*t shall promote and adopt safe working methods and shall strive to deliver solutions that provide optimum safety to all.
   - All work is to be undertaken in accordance with the Environment Agency's SHEW Code of Practice (May 2018).
   - In addition to normal safety requirements, the *Consultant* shall take appropriate measures, following Public Health England Guidance, to protect the public, the *Consultant*'s and *Client*'s staff from COVID-19.
   - The *Service Manager* shall provide the *Consultant* with details of known hostile sites or known contamination risk.

b) The *Consultant* shall make use of existing information and avoid any unnecessary duplication during the delivery of this *Service*.

c) The Initial Needs Assessment (INA) is for the culvert on which the screen lies, an assessment of the site and not just the existing screen. Where reference is made in this Scope to 'screen' it is strictly each culvert, flood storage area or pumping station which is assessed. This may involve assessment of the need for more than one screen (e.g. there may be a need for an outlet screen or separate screen on a by-pass), confirming how many screens and where they are located.

d) The Initial Needs Assessment (INA) specifically excludes the following:
   - Hydraulic Modelling (The INA utilises hand calculations as detailed in the CSOM 2019 guidance)
   - Intrusive site investigations
   - Internal survey of culverts

5. Requirements of the programme

a) The *Consultant* shall provide a programme that is compatible with Microsoft Project Professional 2016.

b) The *Consultant* shall revise the programme monthly in advance of the progress meetings.

c) The *Consultant* shall allow 2 weeks for the *Client* to comment on each of the draft Initial Needs Assessments and the completed Summary Spreadsheet (Appendix D).

6. Meetings, Site Visits and Reporting

a) The *Consultant* shall attend the following meetings:
   - A project start-up meeting with other key project team members including the Design Authority and Area Senior User Representatives. This will be arranged by the *Service Manager.* The *Service Manager* shall set the agenda, record and issue minutes of the Project Start-up Meeting.
   - Up to 3 meetings with EA Ops/AP staff to discuss each culvert prior to the site inspection and completion of the INA but after the receipt from the *Client* of the Data Gathering Questionnaire. The meetings should be held on Teams where photographs, maps and drawings can be shared. This will be arranged by the *Service Manager.*
   - Site inspections. These will be arranged by the *Consultant* in consultation with EA Ops, Asset Performance and EA Field Teams. It is assumed that each visit will be completed by 2 No. Consultant staff (with EA Ops, Asset Performance and Field Teams as appropriate) and that 5 No. sites will be visited in a single day.

- Up to 3 meetings with EA Ops/AP/Design Authority once the Initial Needs Assessments are completed. This will be arranged by the *Consultant.*
- Monthly progress meetings. This will be arranged by the *Consultant.* The *Consultant* shall set the agenda, record and issue minutes of the key decisions and actions arising from the progress meetings. Minutes are issued within one week of the meeting being held. Early Warning meetings – held immediately after the progress meetings or as and when an issue occurs.

b) Meetings other than those requiring or incorporating a site visit are virtual, using Microsoft Teams.
c) The *Service Manager* shall set the agenda, record and issue minutes of the Project Start-up Meeting.
d) The *Consultant* shall maintain weekly verbal contact with the *Service Manager* such that the *Client* is fully informed of progress and issues;
e) The *Consultant* shall co-operate with the *Service Manager* in their role of BIM Information Manager
f) The *Consultant* shall produce a monthly progress report as required by the *Client*.
g) The *Consultant* shall produce a financial report and chair an update meeting no later than the last Thursday of each month of each month. This will include a breakdown of all expenditure to date and forecast future expenditure. In addition, this will identify and provide an estimated valuation of all outstanding compensation events and an estimated value to completion.

7. Completion

a) Completion shall be deemed to have occurred once all the deliverables noted in Section 1.5 (and section 1.8 if Outline Design has been instructed) have been provided and accepted by the *Client.*
b) The following are absolute requirements for Completion to be certified; the *Consultant* shall:
- Transfer to the *Client* of BIM data as detailed in the IR and BEP.

8. Data and Information Management

a) 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 IP of the *Client.*

b) Data custodianship
- The data custodian for project deliverables from this commission will be the relevant Area PSO team.

c) 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 commission.

d) 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 any relevant metadata can be recorded and handed over on project completion.

e) Data security
- All model and survey information will be provided to the *Consultant* in an encrypted format (using WinZip 128 bit encryption) according to *Client* data security policy. It is expected that once the commission 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.

f) *Client*'s Advisors

- The *Client* has a number of advisory departments. Instructions will only be deemed enacted from them when they are confirmed by an Instruction from the *Service Manager*.

g) *Continuous improvement*

- The *Client* hosts the 'EA Debris screens programme' Sharepoint site with the aim of sharing good practice between framework consultants and driving continuous improvement. The *Client* will provide access to the *Consultant* on request. The *Consultant* may use the good practice notes and tools during the performance of the *Services*. The *Consultant* will share knowledge and experience of good practice and provide feedback on existing good practice materials.

Appendices

Appendix A BIM Protocol – Production and Delivery Table

The *Consultant* shall adhere to the *Client*'s 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 B – Example Initial Report JBA (National Example)
Appendix C – Example Initial Report Atkins (Example)
Appendix D – Summary Spreadsheet
Appendix E – Data Gathering Questionnaire
Appendix F – Carbon Assessment
Appendix G – Wessex Lower Risk Debris Screen Area Data 30 07 2021