



Department  
for Environment  
Food & Rural Affairs

# Conditions of Contract Short Form Enhanced

August 2023

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Order Form

<b>1. Contract Reference</b>	C5709
<b>2. Date</b>	22 August 2023
<b>3. Authority</b>	<p>Department for Environment Food &amp; Rural Affairs 3<sup>rd</sup> Floor Seacole Block 2 Marsham Street London SW1P 4DF.</p>
<b>4. Supplier</b>	<p>Water Research Centre Limited Spring Lodge 172 Chester Road Helsby Cheshire WA6 0AR</p> <p>Company registration: 11172223</p>
<b>4a. Supplier Account Details</b>	Supplier to provide account details on invoice.
<b>5. The Contract</b>	<p>The Supplier shall supply the Deliverables described below on the terms set out in this Order Form and the attached contract conditions ("<b>Conditions</b>") and any [<b>Annex/Annexes</b>].</p> <p>Unless the context otherwise requires, capitalised expressions used in this Order Form have the same meanings as in Conditions.</p> <p>In the event of any inconsistency between the provisions of the Order Form, the Conditions and the Annexes, the inconsistency shall be resolved by giving precedence in the following order:</p> <ol style="list-style-type: none"> <li>1. Order Form, Annex 2 (<i>Specification</i>) and Annex 3 (<i>Charges</i>) with equal priority.</li> <li>2. Conditions and Annex 1 (<i>Authorised Processing Template</i>) with equal priority.</li> </ol>

	<p>3. Annexes 4 (<i>Tender Submission</i>) and 5 (<i>Sustainability</i>).</p> <p>In the event of any inconsistency between the provisions of Annexes 4 and 5, Annex 5 shall take precedence over Annex 4.</p> <p><b>Please do not attach any Supplier terms and conditions to this Order Form as they will not be accepted by the Authority and may delay conclusion of the Contract.</b></p>	
<b>6. Deliverables</b>	<b>Goods</b>	N/A
	<b>Services</b>	This research project aims to establish the POP destruction efficiency of municipal waste incinerators. This is relevant given Defra’s current position, based on the Basel Convention technical guidelines <sup>1</sup> , that municipal waste incinerators (MWIs) are an appropriate disposal route for waste containing brominated flame retardants (BFRs), and that there are no significant adverse impacts on the environment from this disposal route (either via emissions to air or the residues produced). In addition to these brominated substances, analysis of Perfluoroalkyl and Polyfluoroalkyl Substances (PFAS), namely Perfluorooctane sulfonic acid (PFOS), Perfluorooctanoic acid (PFOA) and Perfluorohexane sulfonic acid (PFHxS) is also requested.
<b>7. Specification</b>	The specification of the Deliverables is as set out in Annex 2.	
<b>8. Term</b>	<p>The Term shall commence on</p> <p>1<sup>st</sup> September 2023 (the <b>Start Date</b>)</p> <p>and the <b>Expiry Date</b> shall be 26<sup>th</sup> April 2024 unless it is otherwise extended or terminated in accordance with the terms and conditions of the Contract.</p> <p>The Authority may extend the Contract for a period of up to 3 months’ by giving not less than 1months’ notice in writing to the Supplier prior to the Expiry Date. The terms and conditions of the Contract shall apply throughout any such extended period.</p>	

<sup>1</sup> Basel Technical guidelines available online:  
<http://www.basel.int/Implementation/TechnicalMatters/DevelopmentofTechnicalGuidelines/TechnicalGuidelines/ta/bid/8025/Default.aspx>

<b>9. Charges</b>	The Charges for the Deliverables shall be as set out in Annex 3.	
<b>10. Payment</b>	<p>The Authority's preference is for all invoices to be sent electronically, quoting a valid Purchase Order Number (PO Number), to:</p> <p>APinvoices-DEF-U@gov.sscl.com</p> <p>Alternatively, you may post to:  Shared Services Connected Ltd  DEF Procure to Pay  PO Box 790  Newport  Gwent  NP10 8FZ</p> <p>Within <b>10 Working Days</b> of receipt of your countersigned copy of this Order Form, we will send you a unique PO Number. You must be in receipt of a valid PO Number before submitting an invoice.</p> <p>To avoid delay in payment it is important that the invoice is compliant with Annex 3 Non-compliant invoices will be sent back to you, which may lead to a delay in payment.</p> <p>If you have a query regarding an outstanding payment, please contact the Authority's Authorised Representative(s).</p>	
<b>11. Authority Authorised Representative(s)</b>	<p>For general liaison your contact will continue to be</p> <p>██</p> <p>or, in their absence,</p> <p>██</p>	
<b>12. Address for notices</b>	<p><b>Authority:</b></p> <p>██████████</p> <p>Department for Environment Food &amp; Rural Affairs  3<sup>rd</sup> Floor Seacole  Block 2  Marsham Street  London</p>	<p><b>Supplier:</b></p> <p>██████████</p> <p>WRc Ltd  Frankland Road  Swindon  SN5 8YF</p>

	SW1P 4DF Attention: Ecotoxicologist Email: [REDACTED]	Attention: Commercial Manager – Waste & Resources Email: [REDACTED]
<b>13. Key Personnel</b>	<b>Authority:</b> [REDACTED] Attention: [REDACTED] [REDACTED] [REDACTED]	<b>Supplier:</b> [REDACTED] Attention: [REDACTED] [REDACTED]
<b>14. Procedures and Policies</b>	<p>For the avoidance of doubt, if other policies of the Authority are referenced in the Conditions and Annexes, those policies will also apply to the Contract on the basis described therein.</p> <p>The Authority may require the Supplier to ensure that any person employed in the delivery of the Deliverables has undertaken a Disclosure and Barring Service check. The Supplier shall ensure that no person who discloses that they have a conviction that is relevant to the nature of the Contract, relevant to the work of the Authority, or is of a type otherwise advised by the Authority (each such conviction a "Relevant Conviction"), or is found by the Supplier to have a Relevant Conviction (whether as a result of a police check, a Disclosure and Barring Service check or otherwise) is employed or engaged in the provision of any part of the Deliverables.</p>	
<b>15. Limitation of Liabilities</b>	Clause 12.1 of the Contract applies	
<b>16. Insurance</b>	<p>The Supplier shall hold the following insurance cover from the commencement date] for the duration of the Contract:</p> <p>Professional Indemnity insurance £1 million per occurrence and in the aggregate. Public Liability insurance £1 million per occurrence and in the aggregate. Employers Liability insurance £5 million per occurrence and in the aggregate</p>	

Signed for and on behalf of the <b>Authority</b> .	Signed for and on behalf of the <b>Supplier</b> .
Name: [REDACTED] Job title: [REDACTED]	Name: [REDACTED] Job title: [REDACTED]
Date: 1 <sup>st</sup> September 2023	Date: 1 <sup>st</sup> September 2023
[REDACTED]	[REDACTED]

## Annex 1 – Authorised Processing Template

<b>Contract:</b>	[XXXX]
<b>Date:</b>	
<b>Description Of Authorised Processing</b>	<b>Details</b>
Subject matter of the processing	
Duration of the processing	
Nature and purposes of the processing	
Type of Personal Data	
Categories of Data Subject	



## Annex 2 – Specification

### **Investigation into the efficiency of current municipal waste incineration facilities in England to destroy Persistent Organic Pollutants (POPs)**

#### **Aim:**

This research project aims to establish the POP destruction efficiency of municipal waste incinerators. This is relevant given Defra's current position, based on the Basel Convention technical guidelines<sup>2</sup>, that municipal waste incinerators (MWIs) are an appropriate disposal route for waste containing brominated flame retardants (BFRs), and that there are no significant adverse impacts on the environment from this disposal route (either via emissions to air or the residues produced).

#### **Background:**

The UK is a signatory of the UN Stockholm Convention for Persistent Organic Pollutants (POPs)<sup>3</sup> and has regulations in place to meet our obligations under the Convention. The EU Regulation 2019/1021 applies directly in Northern Ireland and has been retained in Great Britain as amended by the POPs Regulations 2020<sup>4</sup>. The Stockholm Convention controls and restricts the global production, use and emissions of substances listed under the Convention as POPs. It also requires that all parties destroy or irreversibly transform all waste containing POPs present above specified thresholds. New POPs are continually being added to the Convention, and very often these substances have been used for many years prior to their restriction coming into force. Depending on the use of these substances it can mean that they are present in consumer items and these items are not easily identifiable as containing POPs. Consequently, identification of contaminated items when they become waste is extremely difficult, meaning the destruction of whole items and/or all items of a certain type. Consequently, this can lead to an increased volume of waste needing to be incinerated (the most widely available destruction technique for some POPs) as opposed to being sent to landfill.

A group of substances known as brominated flame retardants (BFR) have been widely used, several substances from this group have been listed as POPs. They have been used for years as flame retardants in consumer items including electrical equipment and soft furnishings. The POP-BFRs of particular interest include the polybrominated diphenyl ethers (PDBEs), octabromodiphenyl ether (octaBDE), pentabromodiphenyl ether (pentaBDE) and decabromodiphenyl ether (decaBDE) and hexabromocyclododecane (HBCDD). Recently, there have been studies including sampling of waste undertaken to determine POP-BFRs in two major waste streams, waste electrical and electronic equipment (WEEE) and waste

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<sup>2</sup> Basel Technical guidelines available online:

<http://www.basel.int/Implementation/TechnicalMatters/DevelopmentofTechnicalGuidelines/TechnicalGuidelines/tabid/8025/Default.aspx>

<sup>3</sup> UN Stockholm Convention available online:

<http://www.pops.int/TheConvention/Overview/tabid/3351/Default.aspx>

<sup>4</sup> Regulation (EU) 2019/1021 of the European Parliament and of the Council available online:

<https://www.legislation.gov.uk/eur/2019/1021/contents> and The Persistent Organic Pollutants (Amendment) (EU Exit) Regulations 2020 available online: <https://www.legislation.gov.uk/uksi/2020/1358/contents/made>

domestic seating. The group is known as Perfluoroalkyl and Polyfluoroalkyl Substances (PFAS). PFAS, are known to have wide uses, and are found widely in the environment. Two PFAS are listed on the Stockholm Convention as POPs (PFOS and PFOA), and PFHxS has been listed recently, due to be enforced by the Convention in late 2023. PFAS are known to be resistant to thermal degradation, unless under conditions of high temperature incineration, but due to their wide usage over the years they are likely to be present in wastes treated by MWI.

In the UK the Industry Council for Electronic Equipment Recycling (ICER), in cooperation with Defra and EA, published a report in 2020 on an investigation into the presence of chemicals used as flame retardants in more than 2000 items of WEEE. The analysis confirmed that there are often high levels of hazardous chemicals, including PBDEs, in many items of WEEE. DecaBDE was found to be present in many types of WEEE including small mixed WEEE, display devices and refrigerators<sup>5</sup>.

In 2020, Defra funded desk-based study on POPs in soft furnishings aimed to provide data that would allow the identification of articles likely to be contaminated with these substances. The report looked at where materials currently go at end of life and how are they treated and disposed of. The report concluded that decaBDE and HBCDD were used in the back coatings of textile coverings for a range of soft furniture applications. Where this is the case the textile coverings for sofas are likely to have the highest concentrations, with foam and fibre cushioned seating acting as a sink for the decaBDE/ HBCDD, which has leached from the textile covering. The research concluded that domestic seating (such as sofas) should be a priority area for working with the waste handling industry to investigate current waste handling practices and identifying appropriate actions required to ensure that the POPs in waste items are dealt with correctly<sup>6</sup>.

In 2021, a waste domestic seating sampling study was commissioned by the Environment Agency. Approximately 1000 samples from 300 items were screened for the presence of bromine, an indicator of the potential presence of a brominated flame retardant, to provide an understanding of their occurrence in the waste stream. A selection of high bromine samples were then sent for laboratory analysis to identify what proportion of these contained POPs. Results indicated that 44% of items with fabric covers and 12% of items with synthetic leather covers are affected but only a very small proportion of leather covers are potentially affected<sup>7</sup>.

Different POPs are destroyed at different incineration temperatures<sup>1, 10</sup> to meet our obligations to the Stockholm Convention, POPs waste and POPs in waste above the waste limit must be

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<sup>5</sup> Keeley-Lopez P., Turrell J., and Vernon J. (2020). An assessment of the levels of persistent organic pollutants (POPs) in waste electronic and electrical equipment in England and Wales. Water Research Centre Limited (WRc) for Industry Council for Electronic Equipment Recycling (ICER). Available online: <https://icer.org.uk/wp-content/uploads/2020/03/UC14161.3-An-assessment-of-the-levels-of-persistent-organic-pollutants-POPs-in-waste-electronic-and-electrical-equipment-in-England-and-Wales-FINAL-REPORT.pdf>

<sup>6</sup> Wood (unpublished). POPs MMEI (ECM\_52296): Work Package 5. DecaBDE and HBCDD within soft furnishings.

<sup>7</sup> Keeley-Lopez P., Turrell J., Peppicelli C., and Vernon J. (2021). An Assessment of Persistent Organic Pollutants (POPs) in Waste Domestic Seating. Water Research Centre Limited (WRc). Report Reference UC15080.5. Available online: [https://www.circularonline.co.uk/wp-content/uploads/2021/10/WRc-Final-Report\\_UC15080.5\\_An-assessment-of-persistent-organic-pollutants-in-waste-domestic-seating\\_270521.pdf](https://www.circularonline.co.uk/wp-content/uploads/2021/10/WRc-Final-Report_UC15080.5_An-assessment-of-persistent-organic-pollutants-in-waste-domestic-seating_270521.pdf)

destroyed or irreversibly transformed. To determine destruction, destruction efficiency<sup>1, 10, 8</sup> for POPs needs to be measured or estimated. The Basel Convention guidance<sup>1</sup> states that PBDEs can be destroyed in Municipal Waste Incinerators (MWIs) which<sup>9</sup>, in the UK, are required to operate at 850°C or above. We recognise that this guidance is based on a limited number of studies and that further work to consider the performance of UK facilities would be valuable. We consider that MWIs are the most appropriate disposal route for waste containing BFRs and there is currently no evidence to the contrary. A Defra Evidence Statement highlighted the need for more data on the emissions of POPs from thermal destruction processes using complex, heterogeneous waste streams<sup>10</sup>. This work will build on the evidence detailed in this Evidence Statement and is to provide further evidence that can be used to evaluate Defra's current position.

In the UK it is understood that items of soft furnishings are likely to contain a higher concentration of flame retardants compared to that of other countries, for example across Europe. This is because the UK has more stringent Furniture and Furnishings (Fire Safety) Regulations. Therefore, this project will provide a valuable perspective given the relatively unique UK waste mix.

### **Overarching objectives:**

The objectives of this project are to:

1. Monitor the emissions to air of polybrominated dibenzo p-dioxins and polybrominated dibenzofurans (PBDD/F) from three MWIs which are actively taking either domestic seating waste and/or brominated Waste Electrical and Electronic Equipment (WEEE) plastics from density separation plants (often in Solid Recovered Fuel (SRF) or Refuse Derived Fuel (RDF)) at the time of monitoring and three MWIs not actively taking either of these waste streams. Using the established methods of sampling for chlorinated dioxins as a guide and to inform the number of samples to take per site to be sufficiently representative.
2. Sample and analyse the bottom ash and Air Pollution Control (APC) residue of these incinerators for PBDD/F, total bromine and residual BFRs (including but not restricted to POP (Persistent Organic Pollutant) BFRs found in waste domestic seating and WEEE). In addition to these brominated substances, analysis on POP Perfluoroalkyl and Polyfluoroalkyl Substances (PFAS), namely Perfluorooctane sulfonic acid (PFOS), Perfluorooctanoic acid (PFOA) and Perfluorohexane sulfonic acid (PFHxS) is also requested. There is relevant guidance available on sampling methodology such as the Environmental Services Association (ESA) sampling and testing protocol to assess the

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<sup>8</sup> IPEN (2021). Non-combustion technology for POPs waste destruction: Replacing incineration with clean technology. Available online: [https://ipen.org/sites/default/files/documents/ipen-noncombustion-en-v1\\_2aw.pdf](https://ipen.org/sites/default/files/documents/ipen-noncombustion-en-v1_2aw.pdf)

<sup>9</sup> UNEP (2017). Technical guidelines. Addendum. General technical guidelines on the environmentally sound management of wastes consisting of, containing, or contaminated with persistent organic pollutants. UNEP/CHW.13/6/Add.1. Available from:

<sup>10</sup> Defra (2020), Methods for the pre-treatment and destruction of persistent organic pollutants. Evidence Statement 11. Available online: [http://randd.defra.gov.uk/Document.aspx?Document=14870\\_ES11\\_DestructionofPOPs\\_FINAL.PDF](http://randd.defra.gov.uk/Document.aspx?Document=14870_ES11_DestructionofPOPs_FINAL.PDF)

status of incinerator bottom ash (IBA)<sup>11</sup> as well as the Guidance on the classification and assessment of waste (WM3)<sup>12</sup>. Guidance such as this should be referred to ensure the number of samples taken per site are sufficiently representative. Obtain and include any existing information available from the operator relating to these chemicals in IBA, APC residue and emissions.

3. Estimate the total quantities of PBDD/F, total bromine and residual BFRs (including but not restricted to POP BFRs) within bottom ash and APC residue results, PBDD/F in stack emissions.
4. Estimate the Destruction Efficiency for POP BFRs for each of the three MWIs that are actively taking brominated wastes.
5. Analyse and report the results and state conclusions in respect of the environmental impact of this disposal route, including comparison to results reported in relevant academic literature and relevant reports.

#### **Project Outcomes:**

The project will determine levels of brominated dioxins and furans in the emissions to air and levels of brominated dioxins and furans, bromine, and residual BFRs in the residues (bottom ash and Air Pollution Control (APC) residues) from MWIs which are actively taking either domestic seating waste and/or brominated WEEE plastics from density separation plants at the time of monitoring. These levels will be compared with those levels from MWIs not actively taking either of these waste streams. Once sampled and analysed the levels will be detailed within a report. Destruction efficiency will be determined.

In addition to these brominated substances, analysis on POP PFAS, namely PFOS, PFOA and PFHxS is also requested. The analysis of these POP PFAS is required to assess whether the current and any future POP waste limits for these substances are being met within this waste stream. Therefore, results will be compared to the current and proposed waste limits.

The analysed results within the report will supply Defra with data derived from sites in England but should provide UK relevant evidence on the efficiency of MWIs at destroying brominated flame retardants. It will provide evidence on the current efficiency and potential future efficiencies if the quantity of waste containing brominated flame retardants being sent to MWI increases. Therefore, the project methodology should be designed to include consideration of the highest feasible BFR input, i.e., a reasonable worst- case scenario.

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<sup>11</sup> Environmental Services Association (ESA): A sampling and testing protocol to assess the status of incinerator bottom ash (IBA) available online:

[https://www.esauk.org/application/files/7915/3589/6448/20180130\\_IBA\\_Protocol\\_revised\\_-\\_Jan\\_2018\\_version.pdf](https://www.esauk.org/application/files/7915/3589/6448/20180130_IBA_Protocol_revised_-_Jan_2018_version.pdf)

<sup>12</sup> Guidance on the classification and assessment of waste (first edition v1.2.GB) Technical Guidance WM3. available online:

[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/1021051/Waste\\_classification\\_technical\\_guidance\\_WM3.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1021051/Waste_classification_technical_guidance_WM3.pdf)

This project is fully funded by Defra with technical knowledge and support provided by the Environment Agency. The outputs from this project will be used by Defra and the Environment Agency to support policy development and regulation. The final report will be published and therefore may be used by stakeholders including NGOs and academia in the field of POPs and destruction of waste chemical content or by others internationally, including Parties to United Nations Stockholm and Basel Conventions.

### **Project Outputs:**

1. An initial project plan detailing the proposed methodology, including the sites selected, sampling schedule, number of samples taken per site, chemicals being analysed and the approach to assessing destruction efficiency. This project plan will need to be agreed with by the authority prior to the start of sampling.
  
2. A written report meeting the objectives and requirements set out in the work packages below. The report should include the following:
  - Details of the waste being received by the facilities being sampled including waste type and quantity, with specific consideration of whether or not the facility receives waste domestic seating alone or as part of a mixed waste or receives the separated WEEE plastics from a density separation plant (which would typically be as part of SRF or RDF).
  - Specification of the incinerators being run at the facilities being sampled including furnace type, thermal input in megawatts (MW), primary and secondary measure for dioxin control, average operating temperatures and other relevant technical data.
  - The results of PBDD/F emissions monitoring and residue sampling from 6 MWIs in England (3 that are taking specific waste streams containing brominated POPs and 3 that are not) with 3 samples taken for each plant.
  - The results of the POP PFAS in the APC residue and bottom ash compared to POP waste limits.
  - An analysis of the results to consider destruction of BFR's and brominated POPs, impact of emissions to air and residues.
  - A calculation of destruction efficiency for POP BFRs, according to the methodology proposed and agreed by authority.
  - Comparison of results to those reported in academic literature and relevant reports.
  - The information provided in the report must be sufficient to allow Defra to draw conclusions around the suitability of MWIs for disposing of this material.
  - All sampling and analytical methodology used, including limits of detection, uncertainty, limitations and recommendations must be clearly documented within the report.
  - All spreadsheets/tables of raw anonymised data must be submitted to Defra at the end of the project, to allow, if necessary, further analysis to be undertaken either by Defra or externally.

- An executive summary of no more than 2 pages that summarises the findings for an informed but non-technical policy audience.

All outputs must be provided by email to the Defra Project Officer.

### Approach and Methodology:

An outline draft project plan, including the proposed approach to each of the work packages and an outline timetable, must be submitted in the tender. This should include numbers of samples and proposed analytical methods for the target substances.

The authority suggests that the collection of samples should be carried out in conjunction with current monitoring contractors at the relevant sites.

The authority has suggested a list of target substances, this list will be confirmed with the Tenderer within the first Work Package, but capabilities to measure these substances should be detailed within the methodology.

Table 1. Suggested target substances for analysis

Sample	Target substance
Air emission	Polybrominated dioxins and furans (PBDD/F)
	Polychlorinated dibenzo p-dioxins and furans (PCDD/F)
Bottom ash and APC residue	PBDD/F
	PCDD/F
	Total bromine
	Residual POP BFRs (polybrominated diphenyl ethers (PDBEs), octabromodiphenyl ether (octaBDE), pentabromodiphenyl ether (pentaBDE) and decabromodiphenyl ether (decaBDE) and hexabromocyclododecane (HBCDD))
	Other BFRs (decabromodiphenyl ethane (EBP), tetrabromobisphenol A (TBBPA))
	Dechlorane plus
	Chlorinated paraffins: short chain chlorinated paraffins (SCCPs) and medium chain chlorinated paraffins (MCCPs)
	Perfluorooctane sulfonic acid (PFOS)
	Perfluorooctanoic acid (PFOA)
	Perfluorohexane sulfonic acid (PFHxS)

Tenderers will need to participate in regular fortnightly meetings with Defra and EA to discuss progress the project.

Tenderers will be expected to agree non-disclosure agreements with the operators and anonymise the results in the report.

**Work Package 1:** Agree site selection, sampling schedule and substances and detailed sampling and destruction efficiency methodology.

Agree with Defra and EA on the relevant sites selected, demonstrating that agreement from site operators has been sought. Agree non-disclosure agreements with the operators. Determine a detailed sampling schedule for each site, including the number of samples taken per site, when the samples will be sent for analysis and when the results are expected, including proposals for appropriate sampling and analysis methods for each substance. If a sub-contractor is being used, proof that they have agreed the schedule must be supplied.

A list of substances being analysed in the samples must also be agreed with the authority (see Table 1 for suggested chemicals for inclusion).

A methodology for determining the destruction efficiency for POP BFRs must also be proposed, for agreement by the authority. This should include consideration of how the amount of BFRs in waste fed into the incinerator will be determined, including consideration of the reasonable worst-case scenario. Standard approaches that have been adopted in other similar studies should be considered.

Sites selected should include at least one incinerator that currently receives waste domestic seating, and one that receives RDF/SRF containing the brominated WEEE plastic fraction from a density separation plant.

**Work Package 2:** Conduct air emission monitoring and residue sampling and laboratory analysis. Emission monitoring and residue sampling completed. Alongside recording/estimating the relevant information on the input material needed to allow assessment of destruction efficiency according to the agreed methodology. Appropriate testing methods should be used and samples should be representative. Undertake laboratory analysis of samples.

**Work Package 3:** Analyse sampling results and produce report.

Report the anonymised results of the sampling and analysis. The report should include the data on the specification of the incinerators being run at the facilities sampled including furnace type, MW thermal input, primary and secondary measure for dioxin control, average operating temperatures and other relevant technical data. The results for anonymised sites must include emissions of brominated and chlorinated dioxins and furans (PBDD/F and PCDD/F) in emissions to air and concentration of BFRs, bromine content PCDD/F, PBDD/F and POP PFAS in the samples of the bottom ash and APC residue. The report must also include the estimates of POP BFR destruction efficiency.

### Timetable: (TO EDIT based on updated timelines)

The below timetable is indicative and to be finalised and agreed with the contractor at the inception meeting. The project will start the August 2023.

Tenderers should allow time for review of reports and Defra quality assurance, including possible internal review of final report and project outputs.

Milestones	Deliverables	Deadline
Inception meeting	Kick off meeting with Defra and EA	Early September 2023
Progress updates	Fortnightly updates on progress to update Defra project officer on progress, with EA if required	Ongoing throughout project
Work package 1 invoice	Initial project plan and agree WP1 with Defra and EA	Mid-late September 2023
Work package 2 invoice	Rolling spreadsheet of all available analytical data in WP2	Mid-late December 2023
Work package 2 2 <sup>nd</sup> invoice	Delivery of analytical data not previously reported	January 2023
Draft final report	Draft report including sampling data, analysis, and recommendations	Mid-late January 2023
Report meeting	To discuss draft final report and comments	Early-mid February 2023
Work package 3 invoice	Submission of final report WP3	Late February 2024
Contract end		26 <sup>th</sup> April 2024*

**\*Final invoice must be received before 31<sup>st</sup> March 2024.**

### Financial Arrangement

Tenderers must submit a proposed project delivery plan including interim deliverables and milestone dates. The proposed project delivery plan should identify the costs for delivery of each work package.

Payment will be in accordance with project milestones agreed with the successful Tenderer following the award of the contract.

### Technical Evaluation Questions

If the bidder passes the technical stage, the commercial stage will be evaluated. The technical stage is worth **70%** and commercial stage is worth **30%**.

### Scoring Criteria (for information)

- **For a score of 100:** Excellent – Response is completely relevant and excellent overall. The response is comprehensive, unambiguous and demonstrates a thorough understanding of the requirement and provides details of how the requirement will be met in full providing additional added value.



- **For a score of 70:** Good – Response is relevant and good. The response demonstrates a good understanding and provides details on how the requirements will be fulfilled.
- **For a score of 50:** Acceptable – Response is relevant and acceptable. The response provides sufficient evidence to fulfil basic requirements.
- **For a score of 20:** Poor – Response is partially relevant and/or poor. The response addresses some elements of the requirements but contains insufficient / limited detail or explanation to demonstrate how the requirement will be fulfilled.
- **For a score of 0:** Unacceptable – Nil or inadequate response. Fails to demonstrate an ability to meet the requirement.

If a score of twenty or zero is awarded to a response to one (1) or more of questions E01 – E05 the Authority may choose to reject the Tender.

## Technical Questions

### E01 Organisational Experience, Capability and Resources (Weighting: 20%)

Please describe your organisation’s capability in delivering research projects that are relevant or comparable to this specification. Please include a list of up to 5 references to relevant publications and or projects that your organisation has managed within the last 5 years. The Authority will not consider projects above the first 5 references, or projects that are provided without dates. Please describe any resources that you think are relevant to the delivery of the project such as asset and risk management, interpretation and understanding of legislation, undertaking evidence reviews and undertaking and interpreting stakeholder engagement and a variety of complex and conflicting views.

It is expected that your organisation or sub-contractors carrying out the stack emissions monitoring hold MCERTS (or ISO 17025) accreditation for EN 1948-1. In addition, the analytical laboratory analysing the samples should be accredited to EN 1948-2 and -3. Where possible this should include details of your organisation’s and where applicable your sub-contractor’s experience in delivering research detailed in this specification. Please include details of the number of years your organisation or the proposed team has been involved in the activities related to this project specification. Please demonstrate the proposed project team’s relevant skills and expertise in relation to the needs of the project

Your response must be a maximum of 2 sides of A4, font size 12. Please upload a document with the filename: “E01 - Your Company Name”. Any responses exceeding two sides of A4 will not be evaluated beyond the second side.

Please provide details of the proposed project team and team structure that you intend to use to deliver this project. CVs for each team member must be submitted to support your response (these are in addition to the above page limit). Evaluation criteria

Higher marks will be awarded to submissions which demonstrate:

- That the expected relevant accreditations are held by your organisation, subcontractors and any laboratories used for sample analysis.
- Significant and relevant recent experience and capability of effectively delivering comparable projects to those required for delivering these Services.
- Overview of relevant resources to deliver this project such as asset and risk management, interpretation and understanding of legislation, undertaking evidence reviews and

undertaking and interpreting stakeholder engagement and a variety of complex and conflicting views.

## **E02 Understanding Project Objectives (15%)**

Please provide an overview of your understanding of the project and the objectives of the research. This section should demonstrate your understanding of the project, the key issues/challenges involved in carrying out the research, provide an overview of how your recommended approach and method will address the research aim and objectives and the questions posed.

Your response must be a maximum of 3 sides of A4, font size 12 (including diagrams). Any responses exceeding 3 sides of A4 will not be evaluated beyond the third side. Links to other documents will not be considered as part of your response e.g., links to published documents online. Please upload a document with the filename: "E02 Your Company Name".

### **Evaluation Criteria**

Higher marks will be awarded to submissions which demonstrate:

- An understanding of the rationale and context for the project, and not simply a copy of the ITT.
- An awareness of the key issues and challenges in relation to carrying out the project and achieving the aims and objectives, and how these will be managed.
- Clearly show how your overall recommended approach will address each of the aims and objectives.
- Clearly show how your overall recommended approach will address the research questions.

## **E03 Approach and Methodology (Weighting 35%)**

Please detail the methodology to be adopted to meet the project aims and objectives. The Tenderer should set out in detail each element of the methodology and how this will be carried out, including the approach, design, analytical analysis and any related risks. The Tenderer should demonstrate their knowledge of relevant research approaches that could be used and suggest an appropriate methodology that will deliver the full scope of requirements in the specification. Any input required from the Authority should be outlined, as well as the approach to disseminate the findings.

Your response must be a maximum of 8 sides of A4, font size 12. Any responses exceeding 8 sides of A4 will not be evaluated beyond the eighth side. Links to other documents will not be considered as part of your response e.g., links to published documents online. Please upload a document with the filename: "E03 Your Company Name".

### **Evaluation Criteria**

Higher marks will be awarded to submissions which demonstrate:

- A clear approach to each of the aims and objectives.
- Understanding of how the methodological elements will link together and answer the research questions.

- How each element of the specification of requirements will be fulfilled.
- An awareness of appropriate dissemination activities.
- An awareness of risks associated with the methodological approach, including risk rating and proposed mitigation measures.
- The level of input and guidance that the successful supplier will require from the Authority.

#### **E04 Proposed Project Team (Weighting: 20%)**

Please provide details of the proposed project team and team structure that you intend to use to deliver this project, including any sub-contractors and/or associates. CVs for key staff should be submitted to support your response (max 2 A4 sides per CV).

In your response, please include a table showing the staff days expected to be spent on the project per task, including both specialists and assistants. This table should match the staff days provided in Appendix D.

Please identify the individual(s) who will have overall management responsibility for the research and/or identify the Project Director and nominate a representative for day-to-day contact with the Authority's Project Officer.

Your response must be a maximum of 2 sides of A4 font size 12. Please also include details within Appendix D. Any responses exceeding 2 sides of A4 will not be evaluated beyond the second side. Links to other documents will not be considered as part of your response e.g., links to published documents online. Please upload a document with the filename: "E04 Your Company Name".

#### **Evaluation Criteria**

Higher marks will be awarded to submissions which demonstrate:

- Senior staff are putting sufficient time into the key phases of the project.
- The individuals who make up the proposed team have sufficient and relevant experience, influence/authority and capability to successfully deliver this project.
- The size and structure of the proposed project team is sufficient to ensure that adequate resources have been allocated for all of the required roles and responsibilities.
- If there are proposals for consortium/sub-contracting arrangements, they are comprehensive and reasonable and there are measures in place to effectively manage these arrangements throughout the contract.
- The experience of the staff proposed is appropriate to the roles allocated.
- Staff retention plans are in place to minimise turnover of key staff members.
- The individuals who will fulfil key roles e.g., Project Director and Project Manager.

#### **E05 Project Management (10%)**

Please detail the adequacy of the proposed project management arrangements including day to day working for the project, the proposed timetable for the project, risk log and mitigation actions and Gantt chart.

Your response must be a maximum of 2 sides of A4, font size 12, and one side of A3 for the Gantt Chart. Links to other documents will not be considered as part of your response e.g., links

to published documents online. Any responses exceeding 2 sides of A4, and one side of A3 for the Gantt Chart will not be evaluated beyond the last page. Please upload a document with the filename: "E05 Your Company Name".

### Evaluation Criteria

Higher marks will be awarded to submissions which demonstrate:

- Your organisational approach to project management and how this is implemented.
- How you plan to keep the authority informed of progress made and any difficulties encountered. You must address a minimum of fortnightly calls and monthly progress reports.
- A Gantt Chart presenting timelines and inter-dependencies between work streams, particularly sequencing of work, and a float after each task.
- Clear risk register identifying project risks, cause, level of risk, likelihood of risk and action required to mitigate against the risk occurring.

Stakeholder Name	Role in Procurement Activity	Organisation
[REDACTED]	Budget Holders	Defra
[REDACTED]	[REDACTED]	Defra
[REDACTED]	Technical Evaluator (b)	Environment Agency
[REDACTED]	Technical Evaluator (c)	Environment Agency
[REDACTED]	Commercial Manager	Defra – Defra Group Commercial

## Annex 3 – Charges

Defined terms within this Annex:

**E-Invoicing:** Means invoices created on or submitted to the Authority via the electronic marketplace service.

**Electronic Invoice:** Means an invoice (generally in PDF file format) issued by the Supplier and received by the Authority using electronic means, generally email.

### 1. How Charges are calculated

#### 1.1 The Charges:

1.1.1 shall be calculated in accordance with the terms of this Annex 3; and

1.1.2 cannot be increased except as specifically permitted by this Annex.

1.2 Any variation to the Charges payable under the Contract must be agreed between the Supplier and the Authority and implemented using the procedure set out in this Annex.

1.3 Invoices will be aligned with milestones for the work packages.

WP1 September 2023 Initial Project Plan: [REDACTED]

WP2 interim - December 2023 Rolling spreadsheet of all available analytical data: [REDACTED] minus outstanding analyses

WP2 January 2023 Outstanding analyses not already reported

WP3 February 2024 Final Report: [REDACTED]

2. Rates and Prices

Personnel/Activity	Staff Time (Days)	Rate (£, Daily)	Total cost (£)
<b><u>Work Package 1</u></b>			
WRc: ██████████	██	██	██
██████████	██	██	██
██████████	██	██	██
██████████	██	██	██
██████████	██	██	██
		██████████	██████████
<b><u>Work Package 2</u></b>			
██████████	██	██	██
██████████	██	██	██
██████████	██	██	██
██████████	██	██	██
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██████████			██
		WP2 Total Cost	██████████
<b><u>Work Package 3</u></b>			
██████████	██	██	██
██████████	██	██	██
██████████	██	██	██
██████████	██	██	██
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██████████	██	██	██
		WP3 Total Cost	██████████
		<b>Total Project Cost</b>	██████████

### **3. Currency**

All Supplier invoices shall be expressed in sterling, or such other currency as shall be permitted by the Authority in writing.

### **4. Variations**

The Authority may make reasonable changes to its invoicing requirements during the Term after providing 30 calendar days written notice to the Supplier.

In the event that the team cannot obtain access to any particular EfW facilities, or that appropriate samples cannot be obtained as a result of unplanned operational outages at any given facility, but having already incurred costs, WRc would liaise with the Authority regarding suitable recompense. In the event that samples cannot be obtained for the above reasons, after liaising with the Authority regarding suitable recompense, WRc would request a variation to contract to facilitate invoicing for that suitable recompense those missing samples.

### **5. Electronic Invoicing**

- 5.1 The Authority shall accept for processing any electronic invoice that it is valid, undisputed and complies with the requirements of the Authority's e-invoicing system:
- 5.2 The Supplier shall ensure that each invoice is submitted in a PDF format and contains the following information:
  - 5.2.1 the date of the invoice;
  - 5.2.2 a unique invoice number;
  - 5.2.3 the period to which the relevant Charge(s) relate;
  - 5.2.4 the correct reference for the Contract
  - 5.2.5 a valid Purchase Order Number;
  - 5.2.6 the dates between which the Deliverables subject of each of the Charges detailed on the invoice were performed;
  - 5.2.7 a description of the Deliverables;
  - 5.2.8 the pricing mechanism used to calculate the Charges (such as fixed price, time and materials).

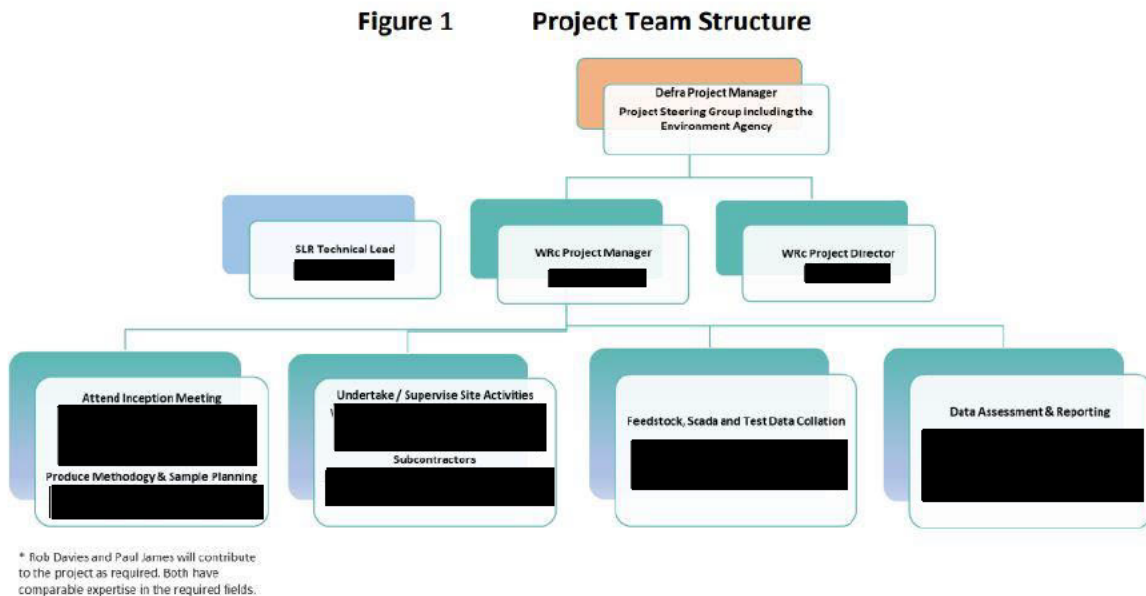
- 5.2.9 any payments due in respect of achievement of a milestone, including confirmation that milestone has been achieved by the Authority's Authorised Representative
  - 5.2.10 a contact name and telephone number of a responsible person in the Supplier's finance department and/or contract manager in the event of administrative queries; and
  - 5.2.11 the banking details for payment to the Supplier via electronic transfer of funds (i.e., name and address of bank, sort code, account name and number);
- 5.3 The Supplier shall submit all invoices and any requested supporting documentation through the Authority's e-invoicing system or if that is not possible to: Shared Services Connected Ltd, PO Box 790, Newport, Gwent, NP10 8FZ with a copy (again including any supporting documentation) to such other person and at such place as the Authority may notify to the Supplier from time to time.
- 5.4 Invoices submitted electronically will not be processed if:
- 5.4.1 The electronic submission exceeds 4mb in size
  - 5.4.2 Is not submitted in a PDF formatted document
  - 5.4.3 Multiple invoices are submitted in one PDF formatted document
  - 5.4.4 The formatted PDF is "Password Protected"



## Annex 4 – Tender Submission

### E01 – Organisational Experience, Capability and Resources

Waste characterisation experts WRc, will be supported by SLR in the engineering aspects of thermal treatment combustion technology and emissions monitoring. Analytical support is from Marchwood Scientific Services, Fraunhofer Institute, Intertek and Alkali Environmental (Figure 1).



WRc: WRc’s Waste & Resources team has expertise in sampling and testing complex wastes with challenging analytical matrices. We have monitored thermal treatment residues since the 1990s, authored the ESA IBA Protocol (ESA, 2018) and run an end-to-end service for EfW clients from sample preparation, management of testing and hazardous property assessments. Other complex wastes studied include incinerator bottom ash aggregate (MIBAAA) and shredder residues and cables (BMRA). Recent POPs project references include ‘POPs in WEEE’ (ICER, 2020), ‘POPs in waste domestic seating’ (EA, 2021), and projects undertaken in 2020-2022 for the EA (POPs in separated WEEE plastics) and NRW (POPs in carpets). The research projects have been led by [REDACTED], who has extensive relevant experience including co-authorship of sampling and testing standards and guidance. [REDACTED] nominated [REDACTED], oversees WRc’s routine EfW residue monitoring service. [REDACTED], with a research background in APCr will manage technical delivery supported by [REDACTED]. They have either taken the lead for or assisted in the field monitoring programmes, specialist sample preparation and/or data analysis for BMRA cables and shredder residues projects and the current EA POPs in battery casing project. Other qualified members of the Waste & Resources team can cover for leave or sickness if required. The above projects have all provided challenges requiring asset and risk management such as gaining access to sites for sampling that require site personnel to support sampling activities. This experience will be needed when liaising with the EfW facilities to arrange access and onsite support from mobile plant drivers, control room operators, and operational managers to ensure the facility is

running to an agreed process specification, with the correct in-feed waste and sampling is undertaken according to the pre-agreed methodology as examples. They have also involved interpreting and understanding legislation, undertaking evidence reviews, and 2 understanding and interpreting stakeholder engagement. A variety of complex and conflicting views have often been encountered as might be expected with industry-sponsored research where the regulator has a keen interest, or regulatory projects requiring access to industrial treatment facilities. SLR: [REDACTED], co-leads, have extensive regulatory and engineering consultancy backgrounds in incineration and power generation and a deep understanding of the relevant legislation. [REDACTED] has been a regulatory Adviser on Incineration BAT, author of the EU Incineration BREF (2001-2005), EU adviser on the POPs BAT BEP guidance and [REDACTED] have advised the EA on measuring NOX reductions at EFW facilities and provided appraisals of a number of facilities on the application of BAT against the latest BREF guidance (no reference but working with [REDACTED] of the Environment Agency). Ibai [REDACTED] qualified Associate Consultant, will lead air emission monitoring and data analysis as an expert in industrial and waste sector abatement system design, maintenance, optimisation and efficiency checks. [REDACTED] will support methodology planning and process monitoring during sampling. She has been responsible for maintaining asset and work management systems to implement the whole lifecycle asset management approach within EFW plant and has particularly acquired sound knowledge and awareness of environmental, safety and asset management regulation in the energy from waste industry. SLR brings considerable expertise in asset and risk management. Laboratories: We will be working with test facilities that have existing working relationships with the project team and appropriate experience with the relevant matrices. No one test facility can offer all analyses and other organisations we have previously worked with either have no capacity in the required timeframes or lack relevant experience or validated methods for these matrices. Marchwood Scientific Services: UK experts in dioxin and furan analysis providing UKAS accredited testing for thermal residues and stack emissions. Upkeep of accreditation is based on PT schemes such as EURL, NIPH, BIPEA, InterCIND, LGC and INERIS. In 2022, Marchwood became the first laboratory in the UK to offer brominated dioxin/furans and also offers speciated PFAS. BDM [REDACTED] (18 years) and Technical Manager, [REDACTED] (11 years) have lengthy POPs experience. The Fraunhofer Institute (Germany): recognised as a world leader in PBDE analysis with 20 years' experience in the determination of brominated and chlorinated flame retardants in thermal treatment residues. Fraunhofer has taken a lead in PBDE method development, published relevant scientific articles, been involved in PBDE pan-European interlaboratory assessments Intertek (Germany): SCCP / MCCP analysis of residues in accordance with EN ISO 22818. Alkali Environmental: UKAS & MCERTS accredited stack emissions testing and analytical laboratory formed by a group of highly experienced professionals with collectively 60 years of experience in emissions monitoring. It is accredited to EN1948:2006 for stack emission monitoring of chlorinated and brominated dioxins and furans and PCBs. Alkali worked with Marchwood Scientific Services to complete UKAS accreditation to the new requirements for brominated dioxins in order to twin track the accreditation of both organisations. The test report has been accepted by UKAS and the schedule of accreditation will be updated shortly to reflect the accreditation status for dioxin sampling to EN 1948-1. Specific test methods carried out in

WRC's laboratories are UKAS accredited to ISO/IEC 17025:2017. Although these methods will not be used in this project all in-house preparation techniques are carried out with the same stringency to the UKAS methods.

## **E02 - Understanding Project Objectives**

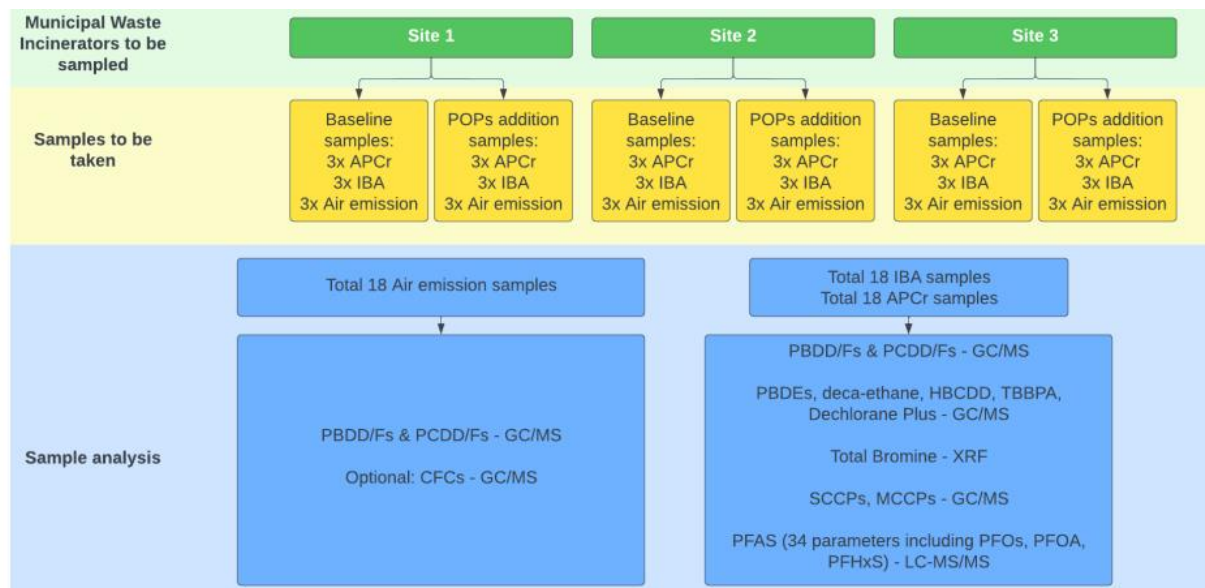
The UK is a signatory of the United Nations Stockholm Convention for Persistent Organic Pollutants (POPs) which controls and restricts the use of POPs and requires destruction of waste containing POPs above specified thresholds. In recent years multiple studies commissioned by UK industry and regulators have identified POPs in a variety of waste materials. Waste electronic and electrical equipment (WEEE) and soft furnishings have both been identified as containing POPs classified brominated flame retardants. Additionally, more recent UK led investigations have identified that POPs compounds are present in other waste materials such as non-WEEE waste cables, carpets/flooring, polymer from battery cases, and residues from shredding of mixed waste including end-of-life vehicles. As a result, identification of POPs contaminated items is highly challenging and may result in broad classification of whole waste streams that require destruction. This will lead to an increased volume of waste requiring destruction i.e., thermal treatment. In real time, the most commonly identified POPs classified compound was decabromodiphenyl ether (BDE-209). However, hexabromocyclododecane (HBCDD) and short-chain chlorinated paraffins (SCCPs) have also been identified in textiles and polymer materials. It is also plausible that household textiles act as a 'sink' for the POPs classified perfluoroalkyl and polyfluoroalkyl substance (PFAS) perfluorooctanoic acid (PFOA) which is commonly used in cleaning products. Over the lifetime of soft furnishings and textile flooring products they may accumulate PFOA particles from airborne dust. As a result, in the UK there are an increasing number of wastes that exceed concentration thresholds for POPs compounds. In addition to those wastes now being classified as POPs waste, a number of other compounds are under investigation for their persistent and accumulative characteristics. For instance, medium-chain chlorinated paraffins (MCCPs), dechlorane plus and UV-328 are chemicals proposed for listing under the Stockholm Convention. Further, tetrabromobisphenol A (TBBPA) has 'persistent, bioaccumulative and toxic' properties of concern according to the European Chemicals Agency. TBBPA in particular has been widely used in polymers as a replacement for other restricted/banned flame retardants. Should any of those chemicals be listed under the Stockholm Convention as POPs compounds, it is likely the number of different wastes classified as POPs waste will increase as would the volume. At present, high temperature thermal treatment is considered the best available technique to destroy POPs compounds present in POPs waste. The operating temperature of thermal treatment facilities must exceed 850°C (for municipal waste) which is in excess of the temperature at which some POPs compounds decompose. For instance, 99% of deca-BDE decomposes at 300°C. However, different POPs are destroyed at different incineration temperatures. Some PFAS are resilient to thermal degradation and decompose at significantly higher temperatures. In addition, some brominated flame retardants act as potent precursors for the secondary formation of polybrominated dibenzo-p-dioxins and furans (PBDD/DFs). Similarly, the carbon-fluorine bond of PFAS poses a challenge for compound destruction due to its high stability. Incineration of PFAS containing waste may result in the

formation of ozone depleting chlorofluorocarbons as well as fluorinated greenhouse gases (tetrafluoromethane and hexafluoroethane), fluoro-dioxins, fluoro-benzofurans, fluorinated aromatic compounds and perfluorinated carboxylic acids. Process control and grate loading may also play a key part in determining destruction efficiencies. 2 There is therefore a need for an investigation into the effectiveness of thermal treatment facilities, particularly municipal solid waste incineration facilities, that accept POPs waste such as soft furnishings or the 'heavy' POPs containing fraction produced from density separation of WEEE to remove metals and concentrate the POPs content of the polymer fraction. This testing programme will therefore determine the concentrations of key POPs compounds in both solid residues and air emission samples in order to establish the POPs destruction efficiency of the incinerators processing POPs waste. In order to achieve the aims of this project, appropriate sites must be selected to take part in the testing programme, a suitable sampling and testing regime must be designed, complex data gathered and analysed (relating to facility input feed and operating conditions), representative samples of air emissions and solid residues must be taken and a broad suite of analyses must be completed on prepared analytical test samples. Figure 1 includes a summary of WRc / SLR proposed approach to deliver this project to establish the POPs destruction efficiency of municipal waste incinerators. The following key factors must be taken into account order to accurately determine the POPs destruction efficiency during incineration.

- Matched samples under stable operating conditions: in order to assess the impact of the input feed on the bottom ash, air pollution control residues and the air emissions, the input feed must be matched with appropriate sample collection after stable running conditions have been achieved. This will involve stabilisation of the input feed for a number of hours prior to sampling coupled with monitoring of the operating conditions. Incremental samples of solid residues will be taken to ensure representative samples are taken over a six-hour period. Similarly, air emission samples will be taken over a 6-hour period.
- Feedstock control: In order to assess the impact of POPs waste input into an incinerator, control over the proportion added into the process will be required. This will be achieved by working with operators who accept separated WEEE or soft furnishings which can be added into the waste input feed at a controlled proportion. Three sites will be selected for sampling following discussions with the operators. The sites will be reflective of different operating technology types and different facility ages as these factors could influence the emissions via air and solid residues. The three sites will be sampled at two separate conditions, a 'baseline' condition, which will be reflective of typical municipal waste input (which is still likely to be made up of a small proportion of items which contain POPs) and a 'POPs addition'. The POPs addition condition will include feedstock where POPs classified material, such as the RDF POPs containing fraction from treated WEEE or soft furnishings, are added to the typical feedstock at a known ratio. This approach is recommended in favour of sampling six different facilities as it reduces the number of variables when comparing the data between baseline conditions and POPs addition conditions. For instance, were elevated PBDD/Fs to be identified under a POPs addition in comparison to the baseline feedstock at the same facility, there would be fewer variables in comparison to a situation where a difference were to be identified between two separate facilities. It is also recommended that different facilities include different feedstock for the POPs addition condition. For instance, one selected facility should include the POPs containing

fraction from density separated WEEE only, one different facility should include soft furnishings only and one facility should include a mixed addition.

Figure 1 Summary of sampling and analysis approach



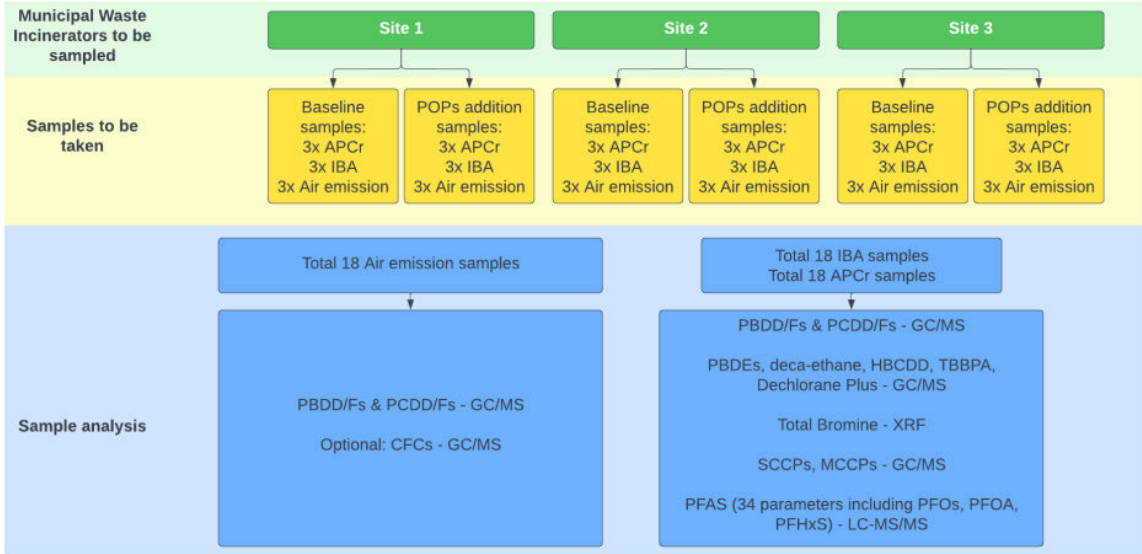
The EfW facility sampling exercises will require a considerable amount of pre-planning and coordination to ensure that all elements can be undertaken at the appropriate time, including corraling input of a range of site operations staff, and that the samples are representative. In addition, many of the aspects of analysis are challenging, for example PFAS and brominated dioxins determinations in these challenging matrices are relatively new offerings. The project team will use its extensive experience from similar regulatory or industry-funded POPs-related waste stream projects, and EfW residue sampling and testing experience, including contracting experienced laboratories, to ensure the datasets required for the POPs destruction determinations are fit for purpose. The POPs destruction efficiency of each of the three facilities (while taking domestic seating waste, or brominated WEEE plastics or none) will be evaluated upon completion of analysis of the baseline and POPs addition IBA, APCr and air emission samples. Concentrations of POPs compounds (and future POPs compounds) will be compared against current and likely future concentration thresholds. During evaluation of the three sites, the maximum feasible input of POPs waste into each process will be established. This data can be used to help establish the likely worst-case scenario based on POPs waste input and maximum identified concentrations of POPs in the solid residues and air emissions samples. All relevant information will be reported that will enable Defra to assess the suitability of EfW for disposal of the relevant waste types. Reported information will include details of waste infeed, incineration specifications, all analytical data (anonymised spreadsheets as well as the collated data with supporting methodology and performance information), data analysis, POPs destruction calculations, comparisons with other credible information and conclusions regarding environmental impact of the disposal route. An executive summary will be provided. Ultimately the project will generate UK evidence on the current efficiency of POPs destruction (including BFRs) by MWI and assist future forecasts of efficiency if these waste streams increase

in volume. This information will inform future policy and regulation development in the UK and will contribute to the international evidence base, including that used by the UN's Stockholm and Basel Conventions.

**E03 - Approach and Methodology**

WRc and their sub-consultant SLR are experienced in working throughout the EfW sector. The collaboration has specific expertise in BREF and BAT emission trials, expertise in designing sampling and testing schemes for waste treatment processes for ash residue characterisation, and POPs testing from waste treatment processes for WEEE and ELV shredder residues. WRc will provide the project lead and project manager and will undertake all liaison with SLR and analytical subcontractors (except Alkali who will be managed by SLR) to deliver the project. WRc will provide specific input to development of the over-arching sampling and testing methodology, planning of site-based activities and delivery of quality outputs with support where appropriate from SLR. SLR input will be focussed on engineering / combustion aspects and stack emission monitoring. The proposed timeline is displayed in Figure 1 below. The contract award date is March 2023. A project inception meeting is planned for the 22nd of April 2023. Any extension to this date will cause corresponding delays in commencing the sampling and testing programme and delivery of the draft project report. A draft project plan, methodology, site selection criteria and a possible short-list of sites will be produced for this meeting. It is hoped that the methodology can be agreed with the client by the end of March, and that site contact and planning for the site sampling can be accomplished in a further two weeks. The methodology will provide a crucial audit trail to validate test data. As lead authors of BS EN 14899 (Sampling Framework) and experts in sampling residues and emission monitoring at EfWs the team are confident that this will be in line with current best practice and meet the project objective to assess POPs destruction in UK EfWs. This turnaround will be tight but will be facilitated by a pre-sampling site visit to ensure that processing parameters, waste inputs and sampling locations are all in place ahead of the target trial and sampling dates.

**Figure 1 Summary of sampling and analysis approach**



Selected members of across the project team will also be available to discuss progress in the project in fortnightly meetings with Defra and EA. The team would not expect any additional support from the Defra / Environment Agency teams over that provided in regular catchups or report review. Delivery risks: 1. The proposed Defra timescales for delivery of WP1 and 2 represent a significant challenge and we have therefore extended the period to deliver the analysis elements of the programme to the 12th of June. This should only impact on delivery of the draft report the 16th of June. All site related data and information will be collated during sampling and while test 2 data is awaited from the analytical laboratories who will need a period of four working weeks to report the required complex suite of organic test parameters. 2. Whilst the project team will make every effort to accommodate timely delivery of this project, we cannot be responsible for any costs incurred where a site has an unplanned outage or can no longer accommodate the tests for reasons outside our control. Where possible sampling would be delayed, but if failure occurs during sampling and a new test trial is needed any rearrangement would come at an additional cost. The project team will require the support of each selected EfW facility to complete sampling and testing in terms of site access, controlling waste inputs, operation of the process under 'standard' conditions (to be agreed) and personnel to assist with mechanical collection of residue samples. However, in the limited four-week period available for sampling it is not considered likely that the target sites would have stack monitoring booked in or might be able to process on-site POPs containing wastes as required for the test and for the period required. A single stack monitoring contractor (Alkali Environmental) will be used to carry out all monitoring to avoid any disparities in the data set that may be introduced by sampling techniques even where this is MCERTs accredited. E03.1 Work Package 1 – Site selection, schedules and testing suites To achieve project aims appropriate sites must be selected and a suitable sampling and testing regime designed. Comprehensive process data will be gathered and analysed (relating to facility input feed and operating conditions), representative samples of air emissions and solid residues will also be taken and a broad suite of analyses completed on WRc prepared analytical test samples. Figure 1, includes a summary of WRc / SLR proposed approach to deliver this project to establish the POPs destruction efficiency of municipal waste incinerators. A total of 18 IBA and APCr samples will be collected along with 18 air emission samples (consisting of a control and two test samples taken back-to-back). To achieve representative sampling, we need to ensure:

- Tight control over the fuel is achieved by working with the facilities who accept RDF from separated POPs containing WEEE polymers and soft furnishings that can be added in controlled proportions.
- Matched samples are collected under stable operating conditions to assess the impact of the input feed on the bottom ash, air pollution control residues and the air emissions.
- samples should only be collected after a suitable period of process stabilisation for the feedstock.
- Incremental samples of solid residues will be taken to ensure representative samples are taken over the test combustion period. Each air emission sample will be taken over a 6- hour period.

Following discussions with Defra and the Environment Agency at the project inception meeting WRc would lead the consultancy team in development of a finalised project delivery plan, data collation, sampling and testing methodology and a final list of participating sites by the end of March. It has been assumed to minimise staff costs and carbon miles that three sites can be selected (without compromise to the test programme that are located with a two-hour drive of each other). Following agreement with the project steering group planning of site visits will commence to allow sampling to hopefully start at the first site by the 17 th April 2023. Arrangement for further sites can be on-going, but it is intended that these will be back-to-back to avoid any project time delays. WRc appreciate that there is likely to be some



commercial sensitivity associated with this project especially as details of the processes will be required. Although the data will be anonymised and WRc will only use vital pieces of information in any reporting, having the support of the trade body ESA is likely to help to alleviate any fears the operators may have. 3 non-disclosure agreements will be agreed with the participating sites and all reported results will be anonymised in the project data spreadsheets and reports. Identification of each facilities operating conditions and adaptation of the sampling protocol to take into account facility difference will be important as this could have a very significant influence on speciation / partitioning of contaminants through the system. Site selection would be led by WRc with support and input from SLR. Both parties have good relationships with all the main operators of MWI facilities in the UK. We also have good experience of working on similar emissions related projects with the Environment Agency with who we would continue to interface with throughout the project. This is required to ensure that we have stakeholder agreement for the trials at particular sites. This will take time to arrange and set up. We can also involve ESA, the trade body for the waste management sector in the UK, to support the project and provide leverage if needed. At a basic level the sites will be reflective of different operating technology types and different facility ages as these factors could influence the emissions via air and solid residues. As part of planning a site reconnaissance visit is allowed for each site to discuss the required programme with the operator and ensure all required conditions can be met and sampling point locations agreed. This will be attended by a member of SLR and WRc in order to identify any sampling challenges for both solid and air sampling. Materials containing POPs can enter the waste stream from a variety of different sources, including through normal municipal waste collections, bulky waste collections, HWRC feedstocks and commercial / industrial waste sources. By considering weighbridge records and EWC codes for received materials at EfW facility, it is possible to approximate the amount of POP-rich material entering the plant. However, much of this would not be measurable without carrying out large scale sample waste compositional sorting to assess the proportions within these EWC codes that exist in the waste stream and therefore we would consider this limited in its value. The ITT (Project Outputs) identifies that results are ideally required from six sites, three of which would be taking specific streams containing brominated POPs, and three of which that are not taking such streams. However, taking into account uncertainties around POPs inputs we propose that an alternative methodology be adopted. This will allow a clear baseline to be established on a facilities normal operating profile with analysis of the output streams. This will be reflective of typical municipal waste input (which is still likely to be made up of a small proportion of items which contain POPs). Following the baseline samples being taken, a POPs rich feedstock (at a dosing rate agreed with the operator based on typical inputs or at a stretch target) will be added to the bunker for processing. For instance, one selected facility should include the RDF / dense POPs WEEE plastic fraction from a density separation plant only, one facility should include soft furnishings only and one facility should ideally take both. This would entail the use of three sites, instead of six, allowing the sampling process to be streamlined and for more consistency in the results to be obtained as any relative variation will be, to a large extent, removed from the analysis. The POPs addition condition will include feedstock where POPs classified material added to the standard MW feedstock at a known ratio. However, if the quantities of waste containing brominated flame retardants being sent to EfWs increases it will be important to assess the highest feasible BFR input as a reasonable worst- case scenario. This could be done either by increasing the input volume of waste or load by concentration. This will be considered at one site and may be more easily achieved for an EfW facility accepting the brominated WEEE plastic



fraction from a density separation / XRF separation plant. The results from the project will provide evidence on the current POPs destruction efficiency. Samples will then be taken under both baseline and POPs addition scenarios to determine if there is any increase in target contaminant levels within the residues and gaseous emissions. 4 It should be noted that the duration of each test run will be a minimum of 360 minutes (6 hours) which is guided by the requirements for stack emission monitoring to allow for the collection of an appropriate sample under EN1948 1-4. Where small concentrations are expected to be present, this long sample period allows for the collection of a (potentially) measurable concentration. There will need to be a period of process stabilisation for the baseline combustion and known POPs inputs scenarios which is likely to be a minimum of 12 hours, before sampling and between a change in feedstock. The team would discuss this approach with the project steering group at the inception meeting to agree a way forward and a preferred methodology if appointed for the project. The authority has suggested a list of target substances, and this list will be confirmed during this WP1. Details for the proposed analytical suite are provided in WP2. E03.2 Work Package 2 – Conduct sampling (air and residues) and analysis E03.2.1 General Approach The timing of collection of samples to known input feedstock rates / loading is complex. Details of standard process operating conditions will be used to understand waste feed-in rates and residence times within the combustion system, IBA being discharged to the grate and collection of matched APCr samples across the period used for stack monitoring which would be carried out under MCERTS guidelines. Rather than take solid residue samples on a per load basis which is the basis of the ESA Protocol it may be important to take incremental samples across a longer period to reflect air monitoring, but this will be discussed with Defra and the Environment Agency at the inception meeting. Sampling will be supervised by the project team at the start of baseline sampling and POPs monitoring by SLR. They can contact WRc in case of queries on solid residue sampling, to minimise sampling costs. As a minimum SLR will be present at the start and finish of the emission tests for a period of a few hours each time to ensure that everything is running smoothly. They will also need to gather data on the running of the plant to establish the operating parameters at the time of the test (what is being fed, plant conditions, issues, etc). This will be logged in a way that is required for the end reporting so is an important task. Additional resource would be required to supervise the sampling across three weeks so there is a risk that the operator could make unintentional changes to the programme. SKADA / DCS data, and waste input data will be collated and reviewed in real time to ensure that changes can be made if required to avoid samples being compromised. A running spreadsheet containing this data and any analytical data will be provided early June. E03.2.2 Sample transportation and preparation Air monitoring samples will be transferred directly to the test facility MSS for PCDD/F and PBDD/F analysis all solid residues will be taken to WRc for expert sample preparation to produce a finely ground sample for analytical testing (a minimum of 5 working days per batch to allow time for bottom ash drying ahead of milling). WRc would courier the samples to the basket of identified sub-contractors for quantitative testing (testing will take up to 4 working weeks). Ahead of sample dispatch WRc will also complete XRF scanning on these samples to provide a measure of total bromine. The WRc laboratory operates under ISO/IEC 17025:2017 and UKAS accreditation. Although, these accreditations are not for the specific techniques to be used in this project, all in-house preparation techniques performed in the WRc laboratories are carried out with the same stringency as the UKAS methods. WRc routinely prepares c. 130 IBA and APCr samples a month for the UK EfW industry and are well-versed in the requirements of preparation of these types of residues. We will prepare a representative 20 kg taken from a 40 kg IBA sample and 5 kg

from a representative 10 kg APCr sample to a < 250 µm particle size produced in a number of size reduction steps. 5 The prepared samples will be sent to MSS, Intertek and Fraunhofer for analysis. WRc will implement a full audit trail of sample movements in-house and provide appropriate chain of custody forms which will be sent with the samples to ensure no samples are mixed. E03.2.3 Approach to analysis WRc have already discussed required analysis delivery dates and sample scheduling with the test facilities and they have confirmed their availability to meet the required timescales if we are successful in this bid. WRc and SLR's routine monitoring work for clients means that team members are well-versed in scrutinising laboratory data to ensure confidence in the results. WRc and SLR will undertake a critical analysis of the data received from the analytical subcontractors (WRc solid residues and SLR stack emission monitoring data). This will provide an additional layer of quality control to ensure data accuracy, identification of inconsistencies and a general sense check. Retests will be requested if required. Testing will be completed as follows: Total bromine: X-ray fluorescence (XRF) using a portable handheld XRF analyser will be used as a basic screen for bromine in the samples. The technique can be used to rapidly identify what proportion of the waste stream is potentially contaminated with POPs. A representative sample of the finely ground residues will be screened using WRc's in-house Bruker S1 TITAN handheld XRF analyser in five different positions. Chlorinated and brominated dioxins and furans (PCDD/F and PBDD/Fs): Marchwood Scientific Services are recognised UK experts in dioxin and furan analysis providing UKAS accredited testing (UKAS Laboratory Number 1668) for thermal residues and stack emission testing by high resolution GC-MS. The upkeep of accreditation is based on continually entering PT schemes such as EURL, NIPH, BIPEA, InterCIND, LGC and INERIS. In 2022, Marchwood became the first laboratory in the UK to offer brominated dioxin/furans to EA requirements from January 2023. Marchwood also offers speciated PFAS in all environmental matrices by LC-MS/MS. This is based on US EPA method 537.1 v2.0 and draft method 1633, the reference method applied as regulation is being implemented worldwide. Both [REDACTED] (18 years) and [REDACTED] (11 years) have serviced the POPs market for a considerable time. Stable isotopically labelled analogues are spiked into representative test portions. The sample is then extracted by organic solvent via Soxhlet or accelerated solvent extraction. After extraction the solid sample extract is concentrated by rotary evaporation in preparation for clean-up. Clean up is performed on DSP system (MIURA). This is an automated system with four chromatography columns (basic silica, acid silica, carbon and alumina column). After clean-up the sample is concentrated to 20µl and spiked with the recovery standard. The instrumental analysis is based on USEPA1613 Isotope dilution methodology. The analytes are separated by the GC and detected by a high resolution (≥10,000) mass spectrometer using Thermo GC / Thermo DFS system or Agilent GC / Waters AutoSpec (Premier). The LOD varies depending on the sample type and system but is expected to be c. 0.1ng/kgTEQ. The chlorinated compounds will be analysed using a UKAS method. The method for brominated compounds is not currently UKAS accredited but this is being sought later this year. The method for stack emission samples is MCERTS accredited for the filter and XAD-2 Trap but not for the wash. The anticipated LOD is 1-3pg for a sample volume of 4m<sup>3</sup>. The test parameter specification is as follows:

Chlorinated Dioxins/Furans Congeners (17)	Brominated Dioxins/Furans Congeners (14)
2378-TCDD	2378-TBDD
12378-PeCDD	12378-PeBDD
123478-HxCDD	123478-HxBDD / 123678-HxBDD
123678-HxCDD	123789-HxBDD
123789-HxCDD	1234678-HpBDD
1234678-HpCDD	OBDD
OCDD	2378-TBDF
2378-TCDF	12378-PeBDF
12378-PeCDF	23478-PeBDF
23478-PeCDF	123478-HxBDF / 123678-HxBDF
123478-HxCDF	1234678-HpBDF
123678-HxCDF	OBDF
234678-HxCDF	<i>Total Toxicity Reported in ng/kgTEQ</i>
123789-HxCDF	
1234678-HpCDF	
1234789-HpCDF	
1234678-HpCDF	
OCDF	
<i>Total Toxicity Reported in ng/kgTEQ</i>	

PFAS (Per and Polyfluorinated Alkyl Substances) analysis by LC-MS/MS: MSS will also complete PFAS testing on solid residues. The method quantifies 34 selected per- and polyfluorinated alkyl substances (PFAS), from 7 different groups, using liquid chromatography tandem mass spectrometry (LC-MS/MS). This method has been developed by MSS and is based on the US EPA method 537.1 v2.0 and draft method 1633. Samples are fortified with internal standard before extraction under basic conditions and clean up and concentration by solid phase extraction (SPE). The compounds are separated using a RP C18 column and quantified against a series of external standards. PFAS free consumables and reagents are used within the method as well as a delay column to ensure inevitable background PFAS is monitored and controlled within the method. This method is not UKAS accredited but provides the opportunity to look at 34 specific PFAS compounds. Accreditation for the method is in progress. The anticipated LOD in ash residues will be 0.1 mg/kg. The list of parameters to be included in testing are provided below:

PFAS Compounds	CAS No.
Perfluorobutanoic acid (PFBA)	375-22-4
Perfluoropentanoic acid (PFPeA)	2706-90-3
Perfluorohexanoic acid (PFHxA)	307-24-4
Perfluoroheptanoic acid (PFHpA)	375-85-9
Perfluorooctanoic acid (PFOA)	335-67-1
Perfluorononanoic acid (PFNA)	72968-3-88
Perfluorodecanoic acid (PFDA)	98 335-76-2
Perfluoroundecanoic acid (PFUdA)	2058-94-8
Perfluorododecanoic acid (PFDoA)	307-55-1
Perfluorotridecanoic acid (PFTrDA)	72629-94-8
Perfluorotetradecanoic acid (PFTeDA)	376-06-7
Perfluorohexadecanoic acid (PFHxDA)	67905-19-5
Perfluorooctadecanoic acid (PFODA)	16517-11-6
Perfluorobutane sulfonate (PFBS)	375-73-5

PFAS Compounds	CAS No.
Perfluoropentane sulfonate (PFPeS)	2706-91-4
perfluorohexane sulfonate (PFHxS)	355-46-4
Perfluoroheptane sulfonate (PFHpS)	375-92-8
perfluorooctane sulfonate (PFOS)	1763-23-1
Perfluorononane sulfonate (PFNS)	68259-12-1
perfluorodecane sulfonate (PFDS)	335-77-3
Perfluorododecane sulfonate (PFDoS)	343629-43-6
1H, 1H, 2H, 2H-perfluorohexane sulfonate (4:2 FTS)	27619-93-8
1H, 1H, 2H, 2H-perfluorooctane sulfonate (6:2 FTS)	27619-94-9
1H, 1H, 2H, 2H-perfluorodecane sulfonate (8:2 FTS)	27619-96-1
1H, 1H, 2H, 2H-perfluorododecane sulfonate (10:2 FTS)	108026-35-3
N-methyl perfluorooctane sulfonamidoacetic acid (N-MeFOSAA)	2355-31-9
N-ethyl perfluorooctane sulfonamidoacetic acid (N-EtFOSAA)	2991-50-6
Perfluorooctane sulfonamide (PFOSA)	754-91-6
N-methyl perfluorooctane sulfonamide (N-MeFOSA)	31506-32-8
N-ethyl perfluorooctane sulfonamide (N-EtFOSA)	4151-50-2
2-(N-methyl perfluorooctane sulfonamido)-ethanol (N-MeFOSE)	24448-09-7
2-(N-ethyl perfluorooctane sulfonamido)-ethanol (N-EtFOSE)	1691-99-2
1H, 1H, 2H, 2H-perfluorodecyl phosphate (8:2-diPAP)	407582-79-0
2,3,3,3-tetrafluoro-2-(1,2,2,3,3,3-heptafluoropropoxy)propanoic acid (HFPO-DA)	13252-13-6

Chlorinated and brominated FRs: Fraunhofer IVV - WRc will contact the Fraunhofer Institute (Fraunhofer IVV) to undertake the analysis of samples for PBDE's, HBCDD, EBP, TBBPA and Dechlorane Plus. Fraunhofer IVV has 20 years' experience in the determination of brominated and chlorinated flame retardants including in thermal treatment residues. WRc have a solid working relationship with Fraunhofer on projects including the 2019 ICER study into the presence of Persistent Organic Pollutants (POPs) in plastic and the study on POPs in plastic run by WRc for Defra in 2012. All analytical methods have undergone appropriate method

development for POPs. Fraunhofer adopts a flexible approach to test for these chemicals and adapt the method according to the analytical needs and matrix using techniques including gas chromatography (GC)- quadrupole mass spectrometry (MS), gas chromatography – high resolution mass spectrometry (GC-HRMS), liquid chromatography – mass spectrometry (LC-MS/MS) and/or X-ray fluorescence (XRF). Fraunhofer IVV is recognised as a world leader in PBDE analysis. It has been involved in panEuropean interlaboratory assessments for PBDE analysis to ensure quality. They have also taken a lead in PBDE method development and have published several scientific articles in this field. Methods include the use of internal standards ("isotope dilution") to allow estimates of test parameter recoveries (extraction efficiencies) and limits of detection (LODs) for each individual sample. An important step for quality control is also the analysis of sufficient blank samples. Fraunhofer work to a quality management system based on DIN EN 45001. The quality management system meets the requirements of DIN EN ISO/IEC 17025: 2018 and hence also the requirements of ISO 9001:2015 for the test laboratories. The test laboratories were re-accredited (D-PL-11140-04-00) in 2016 by the DAkkS (Deutsche Akkreditierungsstelle), the national accreditation body of the Federal Republic of Germany. The use of GC-HRMS enables Fraunhofer to perform the analysis selectively and with strict observation of the bromine isotopic ratios. This reduces the potential for extraction overlap of different PBDE congeners which can cause an overestimate of some and an underestimate of others. 8 SCCPs /MCCPs: Intertek (Nuremberg, Germany) will complete the SCCP / MCCP analysis in accordance with DIN EN ISO 22818, which is a chromatographic method that determines the amount of short-chain chlorinated paraffins (SCCPs: C10-C13) and middle-chain chlorinated paraffins (MCCPs: C14-C17) by means of solvent extraction and gas chromatography negative ion chemical ionization mass spectrometry (GC-NCI-MS). Stack emissions monitoring: will be completed by Alkali Environmental who have recently achieved MCERTS accreditation for this activity, but who have been involved in air monitoring for many years. Testing will be completed by MSS. The sampling and analyses as per standard requirements will include three sample kits which would be used for each measurement, one would be retained as a control against any potential batch contamination, the other two would then be used to extract samples. The sampling team would remain on site throughout the sampling process to ensure that isokinetic samples are taken throughout the testing period, where minor adjustments to the equipment may be required to ensure that the extraction of the samples is consistent. Isokinetic samples would be packaged up and returned to the laboratory for analysis, ash samples would be prepared for analyses using standard and agreed procedures by WRc prior to submitting to the laboratory. E03.3 Work Package 3: Analyse sampling results and produce report WRc will lead on this activity and SLR will feed into the interpretation and calculations review as required. Data pertaining to the process operating conditions at each facility will be collated during each sampling event. As a minimum, and as identified in the ITT this will include furnace type, MW thermal input, primary and secondary measure for dioxin control, average operating temperatures and other relevant operating parameters that may have an impact of understanding the destruction efficiencies calculated from the testing data. Whilst the facility parameters will not be taken under performance test conditions, it is preferred to have knowledge of the status of the plant throughout the test such that any anomalies can be discussed. Such data will be collected through the sites SCADA/DCS system and extracted for the period of operation in which the samples were extracted, together with relevant log entries for the plant in that period. This will be assessed in real time to identify any potential issues that need to be discussed with the project steering group where they may compromise the integrity of the project aims. SLR will provide EfW combustion



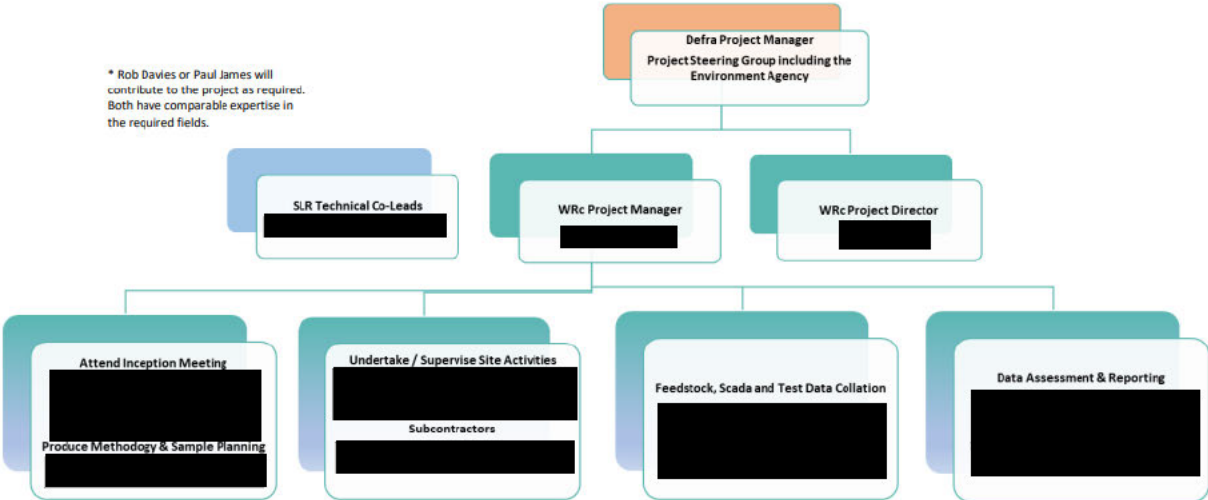
technical expertise to help decipher the inevitable variations in process data acquired during the tests and whether that undermines the destruction efficiency calculations. Test data for residue and air emission monitoring will be collated from the basket of analytical subcontractors by WRc. The test suite will as a minimum reflect the requirements of the ITT, but as previously discussed will also include speciated PFAS compounds. WRc analyse all data sets pertaining to the solid residues and evaluate this in terms of limits of detection, recovery of internal standards and measurement uncertainty. The SLR Air Quality compliance expert will analyse the air emissions monitoring data, including the analysis of the quality standards used during testing. The results will be compiled within a series of spreadsheets that will have no reference to the location of the sites used by the 23rd of June, in addition to a draft report. This will allow data manipulation and destruction efficiency calculations to be applied. The output from this process will be a databook containing all the data and results obtained, together with a technical report containing all pertinent details of the project as specified in point 2 of the project outputs and finally a concise, 2-side Executive Summary that is anonymised, but contains sufficient information to detail the destruction efficiency potential of EfWs for the compounds of interest. This will be written for a non-technical audience. A meeting to discuss the draft is scheduled for the 30th of June. This timetable is extremely tight and it may be sensible to assume there may be some slippage, but this can be discussed at the project inception meeting and a final timescale agreed.

#### **E04 - Proposed Project Team**

The delivery team is provided in Figure 1. [REDACTED], will liaise directly with the Defra project manager on a day-to-day management issues, will be the primary point of communication within the WRc team and the point of contract with the SLR team who will be sub-contracted to WRc. [REDACTED] will be responsible for team resourcing, financial administration, project progress and ensuring that delivery of outputs are on time. [REDACTED] has significant experience of managing sub-contractors including laboratories, in his role overseeing routine EfW residue monitoring contracts (60 thermal treatment facilities in 2022). Project Director and primary contact for technical matters will be [REDACTED] in the Waste and Resources team. This is a role she performed in the recent POPs related projects for the EA (e.g., waste domestic seating and WEEE separated plastics), NRW (carpets), BMRA (shredder residues and cables), ICER (WEEE) and PFAS from paper mills (EA). [REDACTED] was also a lead author in the development of the ESA Protocol for sampling incinerator bottom ash (IBA). [REDACTED] and [REDACTED] completed site testing work, data analysis and reporting for the most of the POPs research projects above and routinely work on EfW residue characterisation projects. [REDACTED] will lead planned site liaison, site sampling and testing, data assessment and report writing for this project, supported by [REDACTED] with our SLR partners. A team of laboratory technicians in WRc's waste laboratory will provide sample preparation support according to agreed standard working procedures and analytical plans. SLR will be co-led by [REDACTED] or [REDACTED], experienced technical advisors in the waste and power generation sectors and as regulatory advisors. SLR will provide specific support in the assessment of process combustion conditions during sampling and calculation of destruction efficiencies with specific expertise in stack emission monitoring analysis. [REDACTED], Associate Consultant with 20 years air quality monitoring experience and full Mcerts qualifications, will lead air emission monitoring and data analysis. He is as an expert in industrial and waste sector abatement system design, maintenance, optimisation and efficiency

checks. [REDACTED] will support the methodology planning and process monitoring during sampling. Her expertise in commissioning and process optimisation at an energy from waste plant, includes a focus on boiler performance, plant steam throughput and flue gas treatment process. The team has significant experience of the Waste BREF and BAT requirements an area where they have provided support to the EA, and in supporting BAT nitrous oxide emission trials with EfW operators which they will bring to this testing programme. Two-sided CVs are appended. Both WRc and SLR have additional experts and project managers to offer the project in the event of sickness or other extenuating circumstances. The WRc Waste and Resources team specialises in the pre-planning and implementation of large and complex waste sampling and testing programmes. SLR also support the UK thermal treatment industry around process control and monitoring. The team identified for this project have built good relationships within UK EfW companies and suppliers of waste be that municipal waste or unprocessed / processed waste materials requiring destruction due to their POPs content – many as part of previous characterisation projects in the POPs space. These contacts will be used to ensure smooth stakeholder engagement and identification of participating EfW facilities. The team has substantial understanding of input waste waste characteristics, assessment of appropriate loading and operating conditions and residue monitoring which will mitigate the risks associated with collection of representative samples during the testing programme. The WRc / SLR team have tried and trusted relationships with our sub-contract 2 sampling team (air emission monitoring) and analytical sub-contractors (Marchwood Scientific – chlorinated and brominated dioxins (residues and air monitoring) and PFAS (residues); Fraunhofer - chlorinated and brominated flame retardants; and Intertek – SCCPs / MCCPs). Subcontractors have been chosen to provide maximum expertise in the analysis of the target group of determinands in the test matrices. Subcontractors are on WRc’s Approved Suppliers List and will be invoiced under standard purchase order arrangements. The selected analytical providers have strength and depth to cover for instrumentation failure, staff leave and sickness if required. Many experienced test facilities were not able to deliver test data in the required time period.

**Figure 1 Project Team**



Seventy percent of the project budget has been allocated to generating high quality test data for the target parameters identified in the specification. Even giving limited time for the project

team to complete pre-planning, sampling supervision activities, and reporting means that the offered bid is higher than the target supplied by the client. It is considered that the project is not deliverable without this additional time. This allocation could be discussed if this project team is awarded the project.

**Table 1 Proposed team effort allocation by task (days)**

Personnel	WP1	WP2	WP3
<b>WRc</b>			
	2.8	2	3.4
	0.4	1.25	1.25
	5.3	2.0	8.3
	0	0.7	3.5
Lab technicians	0	19.2	0
<b>SLR</b>			
	3.3	0	2.9
	0	10.5	0
	2.5	0	4

## E05 - Project Management

Project Management [REDACTED] in WRC’s Waste and Resources team, will manage the project including resourcing, financials and meeting of delivery targets and day to day contact with the EA. [REDACTED] will be the Project Director and will liaise with the client on all technical issues. [REDACTED] has extensive experience working with trade organisations and regulatory bodies on similar projects, including a strong working relationship with the Environment Agency. [REDACTED], who has also had a major role in recent POPs related projects will manage day to day technical operations and sample and data management. The project will be included in the team’s weekly sprint cycle to manage workload and delivery. Internal scrums are conducted twice weekly to review progress of work against the plan and identify any issues at the earliest opportunity. This approach provides assurance to our clients that work will be completed to schedule and allows WRC to act quickly to changing demands. A draft project plan will be discussed with the client at the inception meeting. This will include deliverables, milestone dates and a proposed invoicing profile. The project plan will include a consideration of key risks and uncertainties that could impact on delivery of the required project outcomes including the time, budget, or scope of the work. Key risks and mitigations for this project are listed below. We have identified other technical risks due to our experience on similar projects. These and the range of risks normally logged for complex sampling and testing programmes involving driving, site safety, managing a range of subcontractors etc will be included in a comprehensive risk log which will be reviewed at the inception meeting and any additional risks and/or mitigation actions agreed.



Uncertainty/risk	Potential Impact	Level	Likelihood	Mitigation
No MWI site access due to unplanned outage	Timescale slippage/ cost increases	M	L	Include back-up sites in sampling plan to avoid repeat visit/repeat sampling
Infeed/residue/air samples not matched during complex sampling	Data not fit for purpose for data comparison and destruction efficiency calculations	H	M	Expert understanding of correct residence time in system and fate of compounds of interest. Expert pre-planning/comms to ensure right material available at right time
Poor analysis – inconsistent, poor LODs, poor recovery		M	M	Competent labs with experienced personnel in relevant matrix/determinand
Timescale slippage of any element of site sampling or analysis	Project completion delays	M	M	Modifications to timescales proposed for discussion at inception meeting

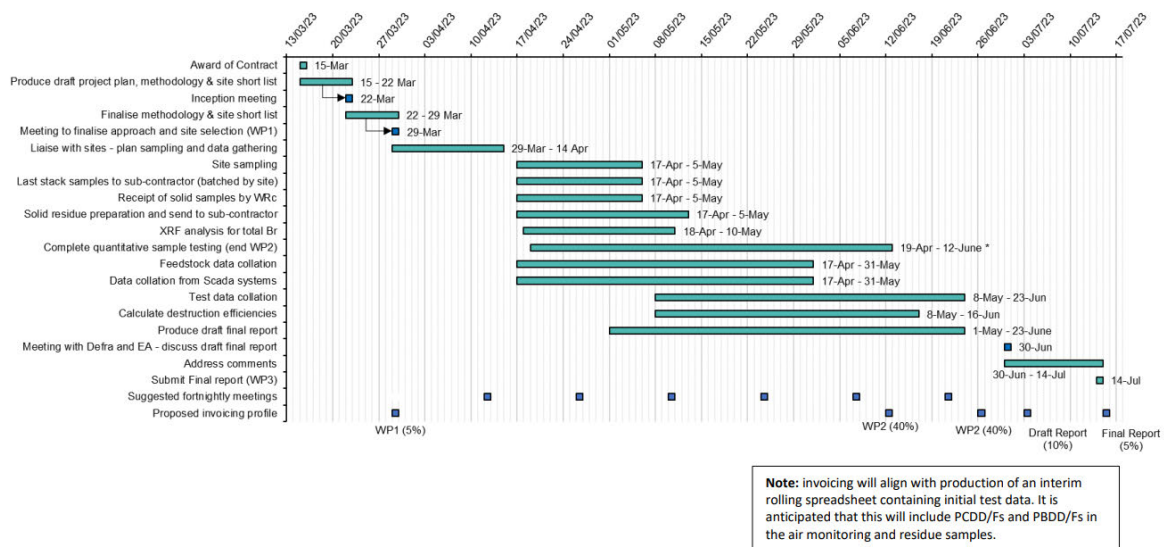
Reporting against these risks will then become part of our project management communication with the client. Good communication between WRc, the Defra Project Manager, the SLR consultancy and our analytical sub-contractors will be undertaken to ensure that risks are adequately identified, reviewed, acted upon and controlled. A minimum frequency of two-weekly updates have been included in the project programme. WRc have been able to identify and mitigate a number of technical risks due to our experience in similar projects. The inception meeting will also be an opportunity to agree any immediate variations to scope such as test numbers and analytical suites.

**2 Quality management** It is the policy of WRc to maintain a high standard of quality in all aspects of its operation and in the services, it offers to its customers. WRc aims to ensure that the needs of its customers are clearly understood and met through close liaison at all stages of the work. All work is conducted to a high professional standard with technical and commercial integrity. WRc operates a Quality Management System certified to ISO 9001:2015 by National Quality Assurance Ltd, certificate number 17198. WRc's Quality Management System (QMS) has been developed so that those aspects of WRc's processes that most directly affect the quality of the services provided to customers are identified and controlled. To aid the QA of test data and report outputs to Defra we have therefore identified a project team which provides a deputy or alternative contact for each of the technical disciplines we believe might be drawn upon. Doing this ensures that there is a 'sounding' board for our staff, should this be required, and also a route for technical quality checking of specific pieces of information or advice being provided. We will ensure this wide team is compliant with the confidentiality and data security requirements and manage conflicts of interest for the entire team. The Project Manager is responsible for all aspects of ensuring that deliverables supplied to the Environment Agency meet the agreed requirements. All materials produced for Defra will undergo checking and approval as part of the monitoring process. Regarding confidentiality, all staff involved in working on a project will have sight of, accept and adhere to all obligations of confidentiality imposed by a client. All staff observe an appropriate degree of confidentiality and professionalism commensurate with the nature of the work and in the light of client objectives and sensitivities. Staff will avoid putting themselves in a position, for example attending meetings, where there is any risk of breaching confidentiality and of compromising themselves or their clients in any way.

**Project Timeline** The proposed timeline is displayed in Figure 1 below. The contract award date is March 2023. A project inception

meeting is planned for the 22nd of April 2023. Any extension to this date cause corresponding delays in commencing the sampling and testing programme and delivery of the draft project report. A draft project plan, methodology, site selection list criteria and a possible short-list of sites will be produced for this meeting. It is hoped that the methodology can be agreed with the client by the end of March, and that site contact and planning for the site sampling can be accomplished in a further two weeks. This turnaround will be tight but will be facilitated by a pre-sampling site visit to ensure that processing parameters, waste inputs and sampling locations are all in place ahead of the target trial and sampling dates. It is intended that the sampling visits would be completed by the 5th May. Each site sampling activity will take four days (not including a period of running on baseline waste inputs for a period of at least 12 hours beforehand). This period assumes baseline and POPs enriched waste are sampled at the same facility (i.e., three sites in total). It is hoped that we can arrange the three site visits back-to-back and a period of four weeks has been allowed in the work programme to provide some contingency time. Air monitoring samples will be transferred directly to the test facility MSS for PCDD/F and PBDD/F analysis. All solid residues will be taken to WRc for expert sampling preparation to produce a finely ground sample for analytical testing (a minimum of 5 working days per batch to allow time for bottom ash drying ahead of milling). WRc would courier the samples to the basket of identified sub-contractors for quantitative testing (testing will take up to 4 working weeks). Ahead of sample dispatch WRc will also complete XRF scanning on these samples to provide a measure of total bromine. SKADA / DS data, and waste input data will be collated and reviewed in real time to ensure that changes can be made if required to avoid samples being compromised. It is intended that a running spreadsheet containing this and any analytical data will be provided early June. A completed spreadsheet and draft report will be produced for the 23rd of June. A meeting to discuss the draft is scheduled for the 30th of June. This timetable is extremely tight and it may be sensible to assume there may be some slippage, but this can be discussed at the project inception meeting. A final version amended for any comments from Defra and the Environment Agency is planned to be submitted by 14th July 2023 which brings this report within the timeframe proposed by the client in the ITT.

Figure 1 Proposed Project Gantt



## Annex 5 – Sustainability

### Sustainability

1.1 The Supplier must comply with the Authority's Sustainability Requirements set out in this Contract. The Supplier must ensure that all Supplier Staff and subcontractors who are involved in the performance of the Contract are aware of these requirements in accordance with clauses 8.1(c) and 13.2.

1.2 The Authority requires its suppliers and subcontractors to meet the standards set out in the Supplier Code of Conduct in accordance with clause 13.1(c).

1.3 The Supplier must comply with all legislation as per clause 13.1.

### 2 Human Rights

2.1 The Authority is committed to ensuring that workers employed within its supply chains are treated fairly, humanely, and equitably. The Authority requires the Supplier to share this commitment and to take reasonable and use reasonable and proportionate endeavours to identify any areas of risk associated with this Contract to ensure that it is meeting the International Labour Organisation International Labour Standards which can be found online - Conventions and Recommendations (ilo.org) and at a minimum comply with the Core Labour Standards, encompassing the right to freedom of association and collective bargaining, prohibition of forced labour, prohibition of discrimination and prohibition of child labour.

2.2 The Supplier must ensure that it and its sub-contractors and its [or their] supply chain:

2.2.1 pay staff fair wages and

2.2.2 implement fair shift arrangements, providing sufficient gaps between shifts, adequate rest breaks and reasonable shift length, and other best practices for staff welfare and performance.

3 Equality, Diversity and Inclusion (EDI) 3.1 The Supplier will support the Authority to achieve its Public Sector Equality Duty by complying with the Authority's policies (as amended from time to time) on EDI. This includes ensuring that the Supplier, Supplier Staff, and its subcontractors in the delivery of its obligations under this Contract:

3.1.1 do not unlawfully discriminate either directly or indirectly because of race, colour, ethnic or national origin, disability, sex, sexual orientation, gender reassignment, religion or belief, pregnancy and maternity, marriage and civil partnership or age and without prejudice to the generality of the foregoing the Supplier shall not unlawfully discriminate within the meaning and scope of the Equality Act 2010;

3.1.2 will not discriminate because of socio-economic background, working pattern or having parental or other caring responsibilities.

3.1.3 eliminates discrimination, harassment, victimisation, and any other conduct that is prohibited by or under the Equality Act 2010;

3.1.4 advances equality of opportunity between people who share a protected characteristic and those who do not;

3.1.5 foster good relations between people who share a protected characteristic and people who do not share it;

3.1.6 identifies and removes EDI barriers which are relevant and proportionate to the requirement; and

3.1.6 shall endeavour to use gender-neutral language when providing the Deliverables and in all communications in relation to the Contract.

## 4 Environment

4.1 The Supplier shall ensure that any Goods or Services are designed, sourced, and delivered in a manner which is environmentally responsible and in compliance with paragraph 1.3 of this Annex;

4.2 In performing its obligations under the Contract, the Supplier shall to the reasonable satisfaction of the Authority ensure the reduction of whole life cycle sustainability impacts including;

4.2.1 resilience to climate change;

4.2.2 eliminating and/or reducing embodied carbon;

4.2.3 minimising resource consumption and ensuring resources are used efficiently;

4.2.4 avoidance and reduction of waste following the waste management hierarchy as set out in Law and working towards a circular economy;

4.2.5 reduction of single use consumable items (including packaging), and avoidance of single use plastic in line with Government commitments;

4.2.6 environmental protection (including pollution prevention, biosecurity and reducing or eliminating hazardous substances; and

4.2.7 compliance with Government Buying Standards applicable to Deliverables and using reasonable endeavours to support the Authority in meeting applicable Greening Government Commitments.

## 5 Social Value

5.1 The Supplier will support the Authority in highlighting opportunities to provide wider social, economic, or environmental benefits to communities through the delivery of the Contract.

5.2 The Supplier will ensure that supply chain opportunities are inclusive and accessible to:

5.2.1 new businesses and entrepreneurs;

5.2.2 small and medium enterprises (SMEs);

5.2.3 voluntary, community and social enterprise (VCSE) organisations;

5.2.4 mutuals; and

5.2.5 other underrepresented business groups.

# Short Form Terms

## 1. Definitions used in the Contract

In this Contract, unless the context otherwise requires, the following words shall have the following meanings:

"Authority"	means the <b>authority</b> identified in paragraph 3 of the Order Form;
"Authority Data"	a) the data, text, drawings, diagrams, images or sounds (together with any database made up of any of these) which are embodied in any electronic, magnetic, optical or tangible media, including any of the Authority's confidential information, and which: i) are supplied to the Supplier by or on behalf of the Authority; or ii) the Supplier is required to generate, process, store or transmit pursuant to the Contract; or b) any Personal Data for which the Authority is the Data Controller;
"Authority Cause"	any breach of the obligations of the Authority or any other default, act, omission, negligence, or statement of the Authority, of its employees, servants, agents in connection with or in relation to the subject-matter of the Contract and in respect of which the Authority is liable to the Supplier;
"Central Government Body"	for the purposes of this Contract this means a body listed in one of the following sub-categories of the Central Government classification of the Public Sector Classification Guide, as published and amended from time to time by the Office for National Statistics: <ul style="list-style-type: none"><li>• Government Department;</li><li>• Non-Departmental Public Body or Assembly Sponsored Public Body (advisory, executive, or tribunal);</li><li>• Non-Ministerial Department; or</li><li>• Executive Agency;</li></ul>
"Charges"	means the charges for the Deliverables as specified in the Order Form and Annex 3;
"Confidential Information"	means all information, whether written or oral (however recorded), provided by the disclosing Party to the receiving Party and which (i) is known by the receiving Party to be confidential; (ii) is agreed by the Parties to be confidential;

"Contract"	means this contract between (i) the Authority and (ii) the Supplier which is created by the Supplier signing the Order Form and returning it to the Authority.
"Controller"	has the meaning given to it in the "UK GDPR";
"Crown Body"	means any department, office, or agency of the Crown, including any and all Local Authority bodies;
"Data Loss Event"	any event that results, or may result, in unauthorised access to Personal Data held by the Supplier under this Contract, and/or actual or potential loss and/or destruction of Personal Data in breach of this Contract, including any Personal Data Breach;
"Data Protection Impact Assessment"	an assessment by the Controller of the impact of the envisaged processing on the protection of Personal Data;
"Data Protection Legislation"	(i) the UK GDPR and any applicable national implementing Laws as amended from time to time; (ii) the Data Protection Act 2018 to the extent that it relates to Processing of personal data and privacy; (iii) all applicable Law about the Processing of personal data and privacy;
"Data Protection Officer"	has the meaning given to it in the GDPR;
"Data Subject"	has the meaning given to it in the GDPR;
"Data Subject Access Request"	a request made by, or on behalf of, a Data Subject in accordance with rights granted pursuant to the Data Protection Legislation to access their Personal Data;
"Date of Delivery"	means that date by which the Deliverables must be delivered to the Authority, as specified in the Order Form;
"Deliver"	means handing over the Deliverables to the Authority at the address and on the date specified in the Order Form, which shall include unloading and any other specific arrangements agreed in accordance with Clause 4. Delivered and Delivery shall be construed accordingly;
"Deliverables"	Goods and/or Services that may be ordered under the Contract including the Documentation;

"Documentation"	<p>descriptions of the Services, technical specifications, user manuals, training manuals, operating manuals, process definitions and procedures, system environment descriptions and all such other documentation (whether in hardcopy or electronic form) that is required to be supplied by the Supplier to the Authority under the Contract as:</p> <p>a) would reasonably be required by a competent third party capable of Good Industry Practice contracted by the Authority to develop, configure, build, deploy, run, maintain, upgrade and test the individual systems that provide the Deliverables</p> <p>b) is required by the Supplier in order to provide the Deliverables; and/or</p> <p>c) has been or shall be generated for the purpose of providing the Deliverables;</p>
"Existing IPR"	any and all intellectual property rights that are owned by or licensed to either Party and which have been developed independently of the Contract (whether prior to the date of the Contract or otherwise);
"Expiry Date"	means the date for expiry of the Contract as set out in the Order Form;
"FOIA"	means the Freedom of Information Act 2000 together with any guidance and/or codes of practice issued by the Information Commissioner or relevant Government department in relation to such legislation;
"Force Majeure Event"	any event, occurrence, circumstance, matter or cause affecting the performance by either Party of its obligations under the Contract arising from acts, events, omissions, happenings or non-happenings beyond its reasonable control which prevent or materially delay it from performing its obligations under the Contract but excluding: i) any industrial dispute relating to the Supplier, the Supplier Staff (including any subsets of them) or any other failure in the Supplier or the subcontractor's supply chain; ii) any event, occurrence, circumstance, matter or cause which is attributable to the wilful act, neglect or failure to take reasonable precautions against it by the Party concerned; and iii) any failure of delay caused by a lack of funds;
"Goods"	means the goods to be supplied by the Supplier to the Authority under the Contract;
"Good Industry Practice"	standards, practices, methods and procedures conforming to the law and the exercise of the degree of skill and care, diligence, prudence and foresight which would reasonably and ordinarily be expected from a skilled and experienced person or body engaged within the relevant industry or business sector;
"Information"	has the meaning given under section 84 of the FOIA;



"Information Commissioner"	the UK's independent authority which deals with ensuring information relating to rights in the public interest and data privacy for individuals is met, whilst promoting openness by public bodies;
"Insolvency Event"	occurs in respect of a legal person (for example an individual, company or organisation): i) if that person is insolvent; ii) if an order is made or a resolution is passed for the winding up of the person (other than voluntarily for the purpose of solvent amalgamation or reconstruction); iii) if an administrator or administrative receiver is appointed in respect of the whole or any part of the persons assets or business; or iv) if the person makes any arrangement with its creditors or takes or suffers any similar or analogous action to any of the actions detailed in this definition as a result of debt in any jurisdiction whether under the Insolvency Act 1986 or otherwise;
"IP Completion Day"	has the meaning given to it in the European Union (Withdrawal) Act 2018;
"Key Personnel"	means any persons specified as such in the Order Form or otherwise notified as such by the Authority to the Supplier in writing;
"Law"	means any law, statute, subordinate legislation within the meaning of Section 21(1) of the Interpretation Act 1978, bye-law, right within the meaning of Section 4(1) EU Withdrawal Act 2018 as amended by EU (Withdrawal Agreement) Act 2020, regulation, order, regulatory policy, mandatory guidance or code of practice, judgment of a relevant court of law, or directives or requirements of any regulatory body with which the Parties are bound to comply;
"New IPR"	all and any intellectual property rights in any materials created or developed by or on behalf of the Supplier pursuant to the Contract but shall not include the Supplier's Existing IPR;
"Order Form"	means the letter from the Authority to the Supplier printed above these terms and conditions;
"Party"	the Supplier or the Authority (as appropriate) and "Parties" shall mean both of them;
"Personal Data"	has the meaning given to it in the UK GDPR;
"Personal Data Breach"	has the meaning given to it in the UK GDPR;
"Processing"	has the mean given to it in the UK GDPR;
"Processor"	has the meaning given to it in the UK GDPR;
"Purchase Order Number"	means the Authority's unique number relating to the order for Deliverables to be supplied by the Supplier to the Authority in accordance with the terms of the Contract;

"Regulations"	the Public Contracts Regulations 2015 and/or the Public Contracts (Scotland) Regulations 2015 (as the context requires) as amended from time to time;
"Request for Information"	has the meaning set out in the FOIA or the Environmental Information Regulations 2004 as relevant (where the meaning set out for the term "request" shall apply);
"Services"	means the services to be supplied by the Supplier to the Authority under the Contract;
"Specification"	means the specification for the Deliverables to be supplied by the Supplier to the Authority (including as to quantity, description, and quality) as specified in Annex 2;
"Staff Vetting Procedures"	means vetting procedures that accord with good industry practice or, where applicable, the Authority's procedures for the vetting of personnel as provided to the Supplier from time to time;
"Start Date"	Means the start date of the Contract set out in the Order Form;
"Subprocessor"	any third Party appointed to process Personal Data on behalf of the Supplier related to the Contract;
"Supplier Staff"	all directors, officers, employees, agents, consultants and contractors of the Supplier and/or of any subcontractor engaged in the performance of the Supplier's obligations under the Contract;
"Supplier"	means the person named as Supplier in the Order Form;
"Sustainability Requirements"	means any relevant social or environmental strategies, policies, commitments, targets, plans or requirements that apply to and are set out in the Annex 5;
Tender Submission	means the Supplier's response to the invitation to the bidder pack (including, for the avoidance of doubt, any clarification provided by the Supplier).
"Term"	means the period from the Start Date to the Expiry Date as such period may be extended in accordance with the Order Form or terminated in accordance with Clause 11;
"UK GDPR"	means Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data (General Data Protection Regulation) (United Kingdom General Data Protection Regulation), as it forms part of the law of England and Wales, Scotland and Northern Ireland by virtue of section 3 of the European Union (Withdrawal) Act 2018 (and see section 205(4)).

"VAT"	means value added tax in accordance with the provisions of the Value Added Tax Act 1994;
"Workers"	any one of the Supplier Staff which the Authority, in its reasonable opinion, considers is an individual to which Procurement Policy Note 08/15 (Tax Arrangements of Public Appointees) ( <a href="https://www.gov.uk/government/publications/procurement-policy-note-0815-tax-arrangements-of-appointees">https://www.gov.uk/government/publications/procurement-policy-note-0815-tax-arrangements-of-appointees</a> ) applies in respect of the Deliverables;
"Working Day"	means a day (other than a Saturday or Sunday) on which banks are open for business in the City of London.

## 2. Understanding the Contract

In the Contract, unless the context otherwise requires:

2.1 references to numbered clauses are references to the relevant clause in these terms and conditions and references to numbered paragraphs are references to the paragraph in the relevant Annex;

2.2 any obligation on any Party not to do or omit to do anything shall include an obligation not to allow that thing to be done or omitted to be done;

2.3 the headings in this Contract are for information only and do not affect the interpretation of the Contract;

2.4 references to "writing" include printing, display on a screen and electronic transmission and other modes of representing or reproducing words in a visible form;

2.5 the singular includes the plural and vice versa;

2.6 a reference to any law includes a reference to that law as amended, extended, consolidated, or re-enacted from time to time and to any legislation or byelaw made under that law;

2.7 any reference in this Contract which immediately before the IP Completion Day (or such later date when relevant EU law ceases to have effect pursuant to Section 1A of the European Union (Withdrawal) Act 2018) is a reference to (as it has effect from time to time):

- i. any EU regulation, EU decision, EU tertiary legislation or provision of the European Economic Area ("EEA") agreement ("EU References") which is to form part of domestic law by application of Section 3 of the European Union (Withdrawal) Act 2018 and which shall be read on and after IP Completion Day as a reference to the EU References as they form part of domestic law by virtue of Section 3 of the European Union (Withdrawal) Act 2018 as modified by domestic law from time to time; and

- ii. any EU institution or EU authority or other such EU body shall be read on and after the date of exit from the EU as a reference to the UK institution, authority, or body to which its functions were transferred.

2.8 the word 'including', "for example" and similar words shall be understood as if they were immediately followed by the words "without limitation";

2.9 a person includes a natural person, corporate or unincorporated body (whether or not having separate legal personality);

2.10 any Annexes form part of this Contract and shall have effect as if set out in full in the body of this Contract. Any reference to this Contract includes the Annexes; and

2.11 all undefined words and expressions are to be given their normal English meaning within the context of this Contract. Any dispute as to the interpretation of such undefined words and expressions shall be settled by reference to the definition in the Shorter Oxford English Dictionary.

### **3. How the Contract works**

3.1 The Order Form is an offer by the Authority to purchase the Deliverables subject to and in accordance with the terms and conditions of the Contract.

3.2 The Supplier is deemed to accept the offer in the Order Form when the Authority receives a copy of the Order Form signed by the Supplier.

3.3 The Supplier warrants and represents that its Tender Submission and all statements made and documents submitted as part of the procurement of Deliverables are and remain true and accurate.

### **4. What needs to be delivered**

#### **4.1 All Deliverables**

(a) The Supplier must provide Deliverables: (i) in accordance with the Specification and Tender Submission; (ii) to a professional standard; (iii) using all reasonable skill and care; (iv) using Good Industry Practice; (v) using its own policies, processes and internal quality control measures as long as they don't conflict with the Contract; (vi) in accordance with such policies and procedures of the Authority (as amended from time to time) that may be specified in the Contract (vii) on the dates agreed; and (viii) in compliance with all applicable Law.

(b) Without prejudice to the Specification the Supplier must provide Deliverables with a warranty of at least 90 days (or longer where the Supplier offers a longer warranty period to the Authority) from Delivery against all obvious damage or defects.

## 4.2 Goods clauses

(a) All Goods Delivered must be capable of meeting the requirements set out in the Specification and be either (i) new and of recent origin, (ii) reused or (iii) recycled.

(b) All manufacturer warranties covering the Goods will be assigned to the Authority on request and for free.

(c) The Supplier transfers ownership of the Goods on completion of Delivery (including off-loading and stacking) or payment for those Goods, whichever is earlier.

(d) Risk in the Goods transfers to the Authority on Delivery but remains with the Supplier if the Authority notices any damage or defect following Delivery and lets the Supplier know within three Working Days of Delivery.

(e) The Supplier must have full and unrestricted ownership of the Goods at the time of transfer of ownership.

(f) The Supplier must Deliver the Goods on the date and to the specified location during the Authority's working hours.

(g) The Supplier, its subcontractor(s) and supply chain must minimise packaging used whilst providing sufficient packaging for the Goods to reach the point of Delivery safely and undamaged. The Supplier must take back any primary packaging where it is possible to do so. Packaging must be 100% re-usable, recyclable, or compostable, use recycled content where reasonably practicable and support the Government's commitment to eliminate single use plastic.

(h) All Deliveries must have a delivery note attached that specifies the order number, type, quantity of Goods, contact and details of traceability through the supply chain.

(i) The Supplier must provide all tools, information and instructions the Authority needs to make use of the Goods. This will include, where appropriate, any operation manuals which, unless specified otherwise, will be written in English and provided in electronic form.

(j) The Supplier will notify the Authority of any request that Goods are returned to it or the manufacturer after the discovery of safety issues or defects that might endanger health or hinder performance and shall indemnify the Authority against the costs arising as a result of any such request. Goods must be disposed of in line with the waste management hierarchy as set out in Law. The Supplier will provide evidence and transparency of the items and routes used for disposal to the Authority on request.

(k) The Authority can cancel any order or part order of Goods which have not been Delivered. If the Authority gives less than 14 calendar days' notice, then it will pay the Supplier's reasonable and proven costs already incurred on the cancelled order as long as the Supplier takes all reasonable steps to minimise these costs.

(l) The Supplier must at its own cost repair, replace, refund or substitute (at the Authority's option and request) any Goods that the Authority rejects because they don't conform with clause 4.2. If the Supplier doesn't do this, it will pay the Authority's costs including repair or re-supply by a third party.

(m) The Authority will not be liable for any actions, claims, costs and expenses incurred by the Supplier or any third-party during Delivery of the Goods unless and to the extent that it is caused by negligence or other wrongful act of the Authority or its servant or agent. If the Authority suffers or incurs any damage or injury (whether fatal or otherwise) occurring in the course of Delivery or installation then the Supplier shall indemnify from all losses, damages, costs or expenses (including professional fees and fines) which arise as a result of or in connection with such damage or injury where it is attributable to any act or omission of the Supplier or, where related to the Contract, any of its subcontractors or suppliers.

### **4.3 Services clauses**

(a) Late delivery of the Services will be a breach of the Contract.

(b) The Supplier must co-operate with the Authority and third-party suppliers on all aspects connected with the delivery of the Services and ensure that Supplier Staff comply with any reasonable instructions including any security requirements.

(c) The Authority must provide the Supplier Staff with reasonable access to its premises at such reasonable times agreed with the Authority for the purpose of supplying the Services.

(d) The Supplier must at its own risk and expense provide all equipment required to deliver the Services. Any equipment provided by the Authority to the Supplier for supplying the Services remains the property of the Authority and is to be returned to the Authority on expiry or termination of the Contract.

(e) The Supplier must allocate sufficient resources and appropriate expertise to the Contract.

(f) The Supplier must take all reasonable care to ensure performance does not disrupt the Authority's operations, employees, or other contractors.

(g) On completion of the Services, the Supplier is responsible for leaving the Authority's premises in a clean, safe and tidy condition and making good any damage that it has caused to the Authority's premises or property, other than fair wear and tear and any

pre-existing cleanliness, safety or tidiness issue at the Authority's premises that existed before the commencement of the Term.

(h) The Supplier must ensure all Services, and anything used to deliver the Services, are of the required quality and free from damage or defects.

(i) The Authority is entitled to withhold payment for partially or undelivered Services or for Services which are not delivered in accordance with the Contract but doing so does not stop it from using its other rights under the Contract.

## 5. Pricing and payments

5.1 In exchange for the Deliverables delivered, the Supplier shall be entitled to invoice the Authority for the charges in Annex 3. The Supplier shall raise invoices promptly and in any event within 90 days from when the charges are due.

5.2 All Charges:

(a) exclude VAT, which is payable on provision of a valid VAT invoice and charged at the prevailing rate;

(b) include all costs connected with the supply of Deliverables.

5.3 The Authority must pay the Supplier the charges within 30 days of receipt by the Authority of a valid, undisputed invoice, in cleared funds to the Supplier's account stated in the Order Form.

5.4 A Supplier invoice is only valid if it:

(a) includes all appropriate references including the Purchase Order Number and other details reasonably requested by the Authority as set out in Annex 3; and

(b) includes a detailed breakdown of Deliverables which have been delivered (if any).

Details of the Authority's requirements for a valid invoice at the Start Date are set out in Annex 3.

5.5 If there is a dispute between the Parties as to the amount invoiced, the Authority shall pay the undisputed amount. The Supplier shall not suspend the provision of the Deliverables unless the Supplier is entitled to terminate the Contract for a failure to pay undisputed sums in accordance with clause 11.6. Any disputed amounts shall be resolved through the dispute resolution procedure detailed in clause 35.

5.6 If any sum of money is recoverable from or payable by the Supplier under the Contract (including any sum which the Supplier is liable to pay to the Authority in respect of any breach of the Contract), that sum may be deducted unilaterally by the Authority from any sum then due, or which may become due, to the Supplier under the Contract or under any other

agreement or contract with the Authority. The Supplier shall not be entitled to assert any credit, set-off or counterclaim against the Authority in order to justify withholding payment of any such amount in whole or in part.

5.7 The Supplier must ensure that its subcontractors and supply chain are paid, in full, within 30 days of receipt of a valid, undisputed invoice. If this doesn't happen, the Authority can publish the details of the late payment or non-payment.

## **6. The Authority's obligations to the Supplier**

6.1 If the Supplier fails to comply with the Contract as a result of an Authority Cause:

(a) the Authority cannot terminate the Contract under clause 11 on account of the failure to comply, provided this will not prejudice the Authority's right to terminate for another cause that may exist at the same time;

(b) the Supplier will be relieved from liability for the performance of its obligations under the Contract to the extent that it is prevented from performing them by the Authority Cause and will be entitled to such reasonable and proven additional expenses that arise as a direct result of the Authority Cause;

(c) the Supplier is entitled to any additional time needed to deliver the Deliverables as a direct result of the Authority's Cause;

(d) the Supplier cannot suspend the ongoing supply of Deliverables.

6.2 Clause 6.1 only applies if the Supplier:

(a) gives notice to the Authority within 10 Working Days of becoming aware of an Authority Cause, such notice setting out in detail with supporting evidence the known reasons for the Authority Cause;

(b) demonstrates that the failure only happened because of the Authority Cause;

(c) has used all reasonable endeavours to mitigate the impact of the Authority Cause.

## **7. Record keeping and reporting**

7.1 The Supplier must ensure that suitably qualified (and authorised) representatives attend progress meetings with the Authority and provide progress reports when specified in Annex 2.

7.2 The Supplier must keep and maintain full and accurate records and accounts on everything to do with the Contract for seven years after the date of expiry or termination of the Contract.

7.3 The Supplier must allow any auditor appointed by the Authority access to their premises to verify all contract accounts and records of everything to do with the Contract and provide copies for the audit.



7.4 The Supplier must provide information to the auditor and reasonable co-operation at their request.

7.5 If the Supplier is not providing any of the Deliverables, or is unable to provide them, it must immediately:

- (a) tell the Authority and give reasons;
- (b) propose corrective action;
- (c) agree a deadline with the Authority for completing the corrective action.

7.6 If the Authority, acting reasonably, is concerned either:

- (a) as to the financial stability of the Supplier such that it may impact on the continued performance of the Contract; or
- (b) as to the sustainability or health and safety conduct of the Supplier, subcontractors and supply chain in the performance of the Contract;

then the Authority may:

(i) require that the Supplier provide to the Authority (for its approval) a plan setting out how the Supplier will ensure continued performance of the Contract (in the case of (a)) or improve its sustainability conduct or performance (in the case of (b)) and the Supplier will make changes to such plan as reasonably required by the Authority and once it is agreed then the Supplier shall act in accordance with such plan and report to the Authority on demand

(ii) if the Supplier fails to provide a plan or fails to agree any changes which are requested by the Authority or materially fails to implement or provide updates on progress with the plan, terminate the Contract immediately for material breach (or on such date as the Authority notifies).

## 8. Supplier staff

8.1 The Supplier Staff involved in the performance of the Contract must:

- a) be appropriately trained and qualified;
- b) be vetted using Good Industry Practice and in accordance with the instructions issued by the Authority in the Order Form;
- c) comply with the Authority's conduct requirements when on the Authority's premises including, without limitation, those Sustainability Requirements relating to Equality, Diversity & Inclusion (EDI) contained in Annex 5; and

d) be informed about those specific requirements referred to in Clause 13.2.

8.2 Where an Authority decides one of the Supplier's Staff isn't suitable to work on the Contract, the Supplier must replace them with a suitably qualified alternative.

8.3 If requested, the Supplier must replace any person whose acts or omissions have caused the Supplier to breach clause 8.

8.4 The Supplier must provide a list of Supplier Staff needing to access the Authority's premises and say why access is required.

8.5 The Supplier indemnifies the Authority against all losses, damages, costs, or expenses (including professional fees and fines) arising from claims brought against it by any Supplier Staff caused by an act or omission of the Supplier or any other Supplier Staff.

8.6 The Supplier shall use those persons nominated in the Order Form (if any) to provide the Deliverables and shall not remove or replace any of them unless:

- (a) requested to do so by the Authority;
- (b) the person concerned resigns, retires, or dies or is on maternity, adoption, shared parental leave or long-term sick leave; or
- (c) the person's employment or contractual arrangement with the Supplier or any subcontractor is terminated.

## 9. Rights and protection

9.1 The Supplier warrants and represents that:

- (a) it has full capacity and authority to enter into and to perform the Contract;
- (b) the Contract is executed by its authorised representative;
- (c) it is a legally valid and existing organisation incorporated in the place it was formed;
- (d) there are no known legal or regulatory actions or investigations before any court, administrative body or arbitration tribunal pending or threatened against it or its affiliates that might affect its ability to perform the Contract;
- (e) it maintains all necessary rights, authorisations, licences and consents to perform its obligations under the Contract;
- (f) it doesn't have any contractual obligations which are likely to have a material adverse effect on its ability to perform the Contract; and

(g) it is not impacted by an Insolvency Event.

9.2 The warranties and representations in clause 9.1 are repeated each time the Supplier provides Deliverables under the Contract.

9.3 The Supplier indemnifies the Authority against each of the following:

(a) wilful misconduct of the Supplier, any of its subcontractor and/or Supplier Staff that impacts the Contract;

(b) non-payment by the Supplier of any tax or National Insurance.

9.4 If the Supplier becomes aware of a representation or warranty that becomes untrue or misleading, it must immediately notify the Authority.

9.5 All third-party warranties and indemnities covering the Deliverables must be assigned for the Authority's benefit by the Supplier.

## 10. Intellectual Property Rights (IPRs)

10.1 Each Party keeps ownership of its own Existing IPRs. The Supplier gives the Authority a non-exclusive, perpetual, royalty-free, irrevocable, transferable worldwide licence to use, change and sub-license the Supplier's Existing IPR to enable it and its sub-licensees to both:

(a) receive and use the Deliverables;

(b) use the New IPR.

10.2 Any New IPR created under the Contract is owned by the Authority. The Authority gives the Supplier a licence to use any Existing IPRs for the purpose of fulfilling its obligations under the Contract and a perpetual, royalty-free, non-exclusive licence to use any New IPRs.

10.3 Where a Party acquires ownership of intellectual property rights incorrectly under this Contract it must do everything reasonably necessary to complete a transfer assigning them in writing to the other Party on request and at its own cost.

10.4 Neither Party has the right to use the other Party's intellectual property rights, including any use of the other Party's names, logos, or trademarks, except as provided in clause 10 or otherwise agreed in writing.

10.5 If any claim is made against the Authority for actual or alleged infringement of a third party's intellectual property arising out of, or in connection with, the supply or use of the Deliverables (an "IPR Claim"), then the Supplier indemnifies the Authority against all losses, damages, costs, or expenses (including professional fees and fines) incurred as a result of the IPR Claim.

10.6 If an IPR Claim is made or anticipated the Supplier must at its own expense and the Authority's sole option, either:

(a) obtain for the Authority the rights in clauses 10.1 and 10.2 without infringing any third-party intellectual property rights;

(b) replace or modify the relevant item with substitutes that don't infringe intellectual property rights without adversely affecting the functionality or performance of the Deliverables.

## 11. Ending the contract

11.1 The Contract takes effect on the date of or (if different) the date specified in the Order Form and ends on the earlier of the date of expiry or termination of the Contract or earlier if required by Law.

11.2 The Authority can extend the Contract where set out in the Order Form in accordance with the terms in the Order Form.

### Ending the Contract without a reason

11.3 The Authority has the right to terminate the Contract at any time without reason or liability by giving the Supplier not less than 90 days' written notice and if the Contract is terminated, clause 11.5(b) to 11.5(g) applies.

### When the Authority can end the Contract

11.4 (a) If any of the following events happen, the Authority has the right to immediately terminate its Contract by issuing a termination notice in writing to the Supplier:

(i) there is a Supplier Insolvency Event;

(ii) if the Supplier repeatedly breaches the Contract in a way to reasonably justify in the Authority's opinion that the Supplier's conduct is inconsistent with it having the intention or ability to give effect to the terms and conditions of the Contract;

(iii) if the Supplier is in material breach of any obligation which is capable of remedy, and that breach is not remedied within 30 days of the Supplier receiving notice specifying the breach and requiring it to be remedied. Where a material breach is not capable of remedy, the Authority has the right to immediately terminate the Contract;

(iv) there is a change of control (within the meaning of section 450 of the Corporation Tax Act 2010) of the Supplier which isn't pre-approved by the Authority in writing;

(v) if the Authority discovers that the Supplier was in one of the situations in 57 (1) or 57(2) of the Regulations at the time the Contract was awarded;

(vi) the Supplier or its affiliates embarrass or bring the Authority into disrepute or diminish the public trust in them;

(vii) where a right to terminate described in clause 27 occurs;

(viii) the Supplier is in breach of any of its health, safety and well-being obligations under clause 28.1(a); and

(ix) where, in accordance with clause 33.3, there is or may be an actual or potential conflict of interest. .

(b) If any of the events in 73(1) (a) to (c) of the Regulations (substantial modification, exclusion of the Supplier, procurement infringement) happen, the Authority has the right to immediately terminate the Contract and clause 11.5(a) to 11.5(g) applies.

### **11.5 What happens if the Contract ends**

Where the Authority terminates the Contract under clause 11.4 all of the following apply:

(a) the Supplier is responsible for the Authority's reasonable costs of procuring replacement deliverables for the rest of the Term ;

(b) the Authority's payment obligations under the terminated Contract stop immediately;

(c) accumulated rights of the Parties are not affected;

(d) the Supplier must promptly delete or return the Authority Data except where required to retain copies by law;

(e) the Supplier must promptly return any of the Authority's property provided under the Contract;

(f) the Supplier must, at no cost to the Authority, give all reasonable assistance to the Authority and any incoming supplier and co-operate fully in the handover and re-procurement;

(g) the following clauses survive the termination of the Contract: 3.3, 7.2, 7.3, 7.4, 9, 10, 12,13.3, 14, 15, 16, 17, 18, 19, 20, 32, 35, 36 and any clauses or provisions within the Order Form or the Annexes which are expressly or by implication intended to continue.

## 11.6 When the Supplier can end the Contract

(a) The Supplier can issue a reminder notice if the Authority does not pay an undisputed invoice on time. The Supplier can terminate the Contract if the Authority fails to pay an undisputed invoiced sum due and worth over 10% of the total Contract value or £1,000, whichever is the lower, within 30 days of the date of the reminder notice.

(b) If a Supplier terminates the Contract under clause 11.6(a):

(i) the Authority must promptly pay all outstanding charges incurred to the Supplier;

(ii) the Authority must pay the Supplier reasonable committed and unavoidable losses as long as the Supplier provides a fully itemised and costed schedule with satisfactory evidence - the maximum value of this payment is limited to the total sum payable to the Supplier if the Contract had not been terminated;

(iii) clauses 11.5(d) to 11.5(g) apply.

## 11.7 Partially ending and suspending the Contract

(a) Where the Authority has the right to terminate the Contract it can terminate or suspend (for any period), all or part of it. If the Authority suspends the Contract, it can provide the Deliverables itself or buy them from a third party.

(b) The Authority can only partially terminate or suspend the Contract if the remaining parts of it can still be used to effectively deliver the intended purpose.

(c) The Parties must agree (in accordance with clause 25) any necessary variation required by clause 11.7, but the Supplier may neither:

(i) reject the variation; nor

(ii) increase the Charges, except where the right to partial termination is under clause 11.3.

(d) The Authority can still use other rights available, or subsequently available to it if it acts on its rights under clause 11.7.

## 12. How much you can be held responsible for

12.1 Each Party's total aggregate liability under or in connection with the Contract (whether in tort, contract or otherwise) is no more than the value of the Charges or £5,000,000 (five million pounds) [whichever is higher] unless specified in the Order Form.

12.2 No Party is liable to the other for:

(a) any indirect losses;

(b) loss of profits, turnover, savings, business opportunities or damage to goodwill (in each case whether direct or indirect).

12.3 In spite of clause 12.1, neither Party limits or excludes any of the following:

(a) its liability for death or personal injury caused by its negligence, or that of its employees, agents or subcontractors;

(b) its liability for bribery or fraud or fraudulent misrepresentation by it or its employees;

(c) any liability that cannot be excluded or limited by law.

12.4 In spite of clause 12.1, the Supplier does not limit or exclude its liability for any indemnity given under clauses 4.2(j), 4.2(m), 8.5, 9.3, 10.5, 13.3, 15.28(e) or 31.2(b).

12.5 Each Party must use all reasonable endeavours to mitigate any loss or damage which it suffers under or in connection with the Contract, including where the loss or damage is covered by any indemnity.

12.6 If more than one Supplier is party to the Contract, each Supplier Party is fully responsible for both their own liabilities and the liabilities of the other Suppliers.

## 13. Obeying the law

13.1 The Supplier must, in connection with provision of the Deliverables:

(a) comply with all applicable Law;

(b) comply with the Sustainability Requirements

(c) use reasonable endeavours to comply and procure that its subcontractors comply with the Supplier Code of Conduct appearing at:

[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/779660/20190220-Supplier Code of Conduct.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/779660/20190220-Supplier_Code_of_Conduct.pdf)

13.2 The Sustainability Requirements and the requirements set out in Clause 27, 28 and 30 must be explained to the Supplier's Staff, subcontractors and suppliers who are involved in the performance of the Supplier's obligations under the Contract and where it is relevant to their role and equivalent obligations must be included in any contract with any suppliers or subcontractor that is connected to the Contract.

13.3 The Supplier indemnifies the Authority against all losses, damages, costs, or expenses (including professional fees and fines) resulting from any default by the Supplier relating to any applicable Law to do with the Contract.

13.4 The Supplier must appoint a Compliance Officer who must be responsible for ensuring that the Supplier complies with the Law and its obligations under the Contract.

13.5 "Compliance Officer" the person(s) appointed by the Supplier who is responsible for ensuring that the Supplier complies with its legal and other obligations under the Contract.

13.6 The Supplier will provide such evidence of compliance with its obligations under this Clause 13 as the Authority reasonably requests.

## **14. Insurance**

14.1 The Supplier must, at its own cost, obtain and maintain the required insurances as set out in the Order Form.

14.2 The Supplier will provide evidence of the required insurances on request from the Authority.

## **15. Data protection**

15.1 The Authority is the Controller and the Supplier is the Processor for the purposes of the Data Protection Legislation.

15.2 The Supplier must process Personal Data and ensure that Supplier Staff process Personal Data only in accordance with this Contract.

15.3 The Supplier shall take all reasonable measures relating to the security of processing which are required pursuant to Article 32 of the UK GDPR including, without limitation, those security measures specified in this clause 15.

15.4 The Supplier must not remove any ownership or security notices in or relating to the Authority Data.

15.5 The Supplier must make accessible back-ups of all Authority Data, stored in an agreed off-site location and send the Authority copies every six Months.

15.6 The Supplier must ensure that any Supplier system holding any Authority Data, including back-up data, is a secure system that complies with the security requirements specified in writing by the Authority.

15.7 If at any time the Supplier suspects or has reason to believe that the Authority Data provided under the Contract is corrupted, lost or sufficiently degraded, then the Supplier must notify the Authority and immediately suggest remedial action.



15.8 If the Authority Data is corrupted, lost or sufficiently degraded so as to be unusable the Authority may either or both:

(a) tell the Supplier to restore or get restored Authority Data as soon as practical but no later than five Working Days from the date that the Authority receives notice, or the Supplier finds out about the issue, whichever is earlier;

(b) restore the Authority Data itself or using a third party.

15.9 The Supplier must pay each Party's reasonable costs of complying with clause 15.8 unless the Authority is at fault.

15.10 Only the Authority can decide what processing of Personal Data a Supplier can do under the Contract and must specify it for the Contract using the template in Annex 1 of the Order Form (*Authorised Processing*).

15.11 The Supplier must only process Personal Data if authorised to do so in the Annex to the Order Form (*Authorised Processing*) by the Authority. Any further written instructions relating to the processing of Personal Data are incorporated into Annex 1 of the Order Form.

15.12 The Supplier must give all reasonable assistance to the Authority in the preparation of any Data Protection Impact Assessment before starting any processing, including:

(a) a systematic description of the expected processing and its purpose;

(b) the necessity and proportionality of the processing operations;

(c) the risks to the rights and freedoms of Data Subjects;

(d) the intended measures to address the risks, including safeguards, security measures and mechanisms to protect Personal Data.

15.13 The Supplier must notify the Authority immediately if it thinks the Authority's instructions breach the Data Protection Legislation.

15.14 The Supplier must put in place appropriate Protective Measures to protect against a Data Loss Event which must be approved by the Authority.

15.15 If lawful to notify the Authority, the Supplier must notify it if the Supplier is required to process Personal Data by Law promptly and before processing it.

15.16 The Supplier must take all reasonable steps to ensure the reliability and integrity of any Supplier Staff who have access to the Personal Data and ensure that they:

(a) are aware of and comply with the Supplier's duties under this clause 15;

(b) are subject to appropriate confidentiality undertakings with the Supplier or any Subprocessor;

(c) are informed of the confidential nature of the Personal Data and do not provide any of the Personal Data to any third party unless directed in writing to do so by the Authority or as otherwise allowed by the Contract;

(d) have undergone adequate training in the use, care, protection and handling of Personal Data.

15.17 The Supplier must not transfer Personal Data outside of the EU unless all of the following are true:

(a) it has obtained prior written consent of the Authority;

(b) the Authority has decided that there are appropriate safeguards (in accordance with Article 46 of the UK GDPR);

(c) the Data Subject has enforceable rights and effective legal remedies when transferred;

(d) the Supplier meets its obligations under the Data Protection Legislation by providing an adequate level of protection to any Personal Data that is transferred;

(e) where the Supplier is not bound by Data Protection Legislation it must use its best endeavours to help the Authority meet its own obligations under Data Protection Legislation; and

(f) the Supplier complies with the Authority's reasonable prior instructions about the processing of the Personal Data.

15.18 The Supplier must notify the Authority immediately if it:

(a) receives a Data Subject Access Request (or purported Data Subject Access Request);

(b) receives a request to rectify, block or erase any Personal Data;

(c) receives any other request, complaint or communication relating to either Party's obligations under the Data Protection Legislation;

(d) receives any communication from the Information Commissioner or any other regulatory authority in connection with Personal Data processed under this Contract;

(e) receives a request from any third party for disclosure of Personal Data where compliance with the request is required or claims to be required by Law;

(f) becomes aware of a Data Loss Event.

15.19 Any requirement to notify under clause 15.17 includes the provision of further information to the Authority in stages as details become available.

15.20 The Supplier must promptly provide the Authority with full assistance in relation to any Party's obligations under Data Protection Legislation and any complaint, communication or request made under clause 15.17. This includes giving the Authority:

- (a) full details and copies of the complaint, communication or request;
- (b) reasonably requested assistance so that it can comply with a Data Subject Access Request within the relevant timescales in the Data Protection Legislation;
- (c) any Personal Data it holds in relation to a Data Subject on request;
- (d) assistance that it requests following any Data Loss Event;
- (e) assistance that it requests relating to a consultation with, or request from, the Information Commissioner's Office.

15.21 The Supplier must maintain full, accurate records and information to show it complies with this clause 15. This requirement does not apply where the Supplier employs fewer than 250 staff, unless either the Authority determines that the processing:

- (a) is not occasional;
- (b) includes special categories of data as referred to in Article 9(1) of the UK GDPR or Personal Data relating to criminal convictions and offences referred to in Article 10 of the UK GDPR;
- (c) is likely to result in a risk to the rights and freedoms of Data Subjects.

15.22 The Supplier will make available to the Authority all information necessary to demonstrate compliance with clause 15 and allow for and contribute to audits, including inspections, conducted by the Authority or another auditor appointed by the Authority.

15.23 The Supplier must appoint a Data Protection Officer responsible for observing its obligations in this Contract and give the Authority their contact details.

15.24 Before allowing any Subprocessor to process any Personal Data, the Supplier must:

- (a) notify the Authority in writing of the intended Subprocessor and processing;
- (b) obtain the written consent of the Authority;
- (c) enter into a written contract with the Subprocessor so that this clause 15 applies to the Subprocessor;

(d) provide the Authority with any information about the Subprocessor that the Authority reasonably requires.

15.25 The Supplier remains fully liable for all acts or omissions of any Subprocessor.

15.26 At any time the Authority can, with 30 Working Days' notice to the Supplier, change this clause 15 to:

(a) replace it with any applicable standard clauses (between the controller and processor) or similar terms forming part of an applicable certification scheme under UK GDPR Article 42;

(b) ensure it complies with guidance issued by the Information Commissioner's Office.

15.27 The Parties agree to take account of any non-mandatory guidance issued by the Information Commissioner's Office.

15.28 The Supplier:

(a) must provide the Authority with all Authority Data in an agreed open format within 10 Working Days of a written request;

(b) must have documented processes to guarantee prompt availability of Authority Data if the Supplier stops trading;

(c) must securely destroy all storage media that has held Authority Data at the end of life of that media using Good Industry Practice;

(d) must securely erase or return all Authority Data and any copies it holds when asked to do so by the Authority unless required by Law to retain it;

(e) indemnifies the Authority against any and all losses, damages, costs, or expenses (including professional fees and fines) incurred if the Supplier breaches clause 15 and any Data Protection Legislation.

## 16. What you must keep confidential

16.1 Each Party must:

(a) keep all Confidential Information it receives confidential and secure;

(b) not disclose, use, or exploit the disclosing Party's Confidential Information without the disclosing Party's prior written consent, except for the purposes anticipated under the Contract;

(c) immediately notify the disclosing Party if it suspects unauthorised access, copying, use or disclosure of the Confidential Information.

16.2 In spite of clause 16.1, a Party may disclose Confidential Information which it receives from the disclosing Party in any of the following instances:

(a) where disclosure is required by applicable law, permitted in respect of an audit pursuant to clause 7.3, or by a court with the relevant jurisdiction if the recipient Party notifies the disclosing Party of the full circumstances, the affected Confidential Information and extent of the disclosure;

(b) if the recipient Party already had the information without obligation of confidentiality before it was disclosed by the disclosing Party;

(c) if the information was given to it by a third party without obligation of confidentiality;

(d) if the information was in the public domain at the time of the disclosure;

(e) if the information was independently developed without access to the disclosing Party's Confidential Information;

(f) to its auditors or for the purposes of regulatory requirements;

(g) on a confidential basis, to its professional advisers on a need-to-know basis;

(h) to the Serious Fraud Office where the recipient Party has reasonable grounds to believe that the disclosing Party is involved in activity that may be a criminal offence under the Bribery Act 2010.

16.3 The Supplier may disclose Confidential Information on a confidential basis to Supplier Staff on a need-to-know basis to allow the Supplier to meet its obligations under the Contract. The Supplier Staff must enter into a direct confidentiality agreement with the Authority at its request.

16.4 The Authority may disclose Confidential Information in any of the following cases:

(a) on a confidential basis to the employees, agents, consultants and contractors of the Authority;

(b) on a confidential basis to any other Central Government Body, any successor body to a Central Government Body or any organisation that the Authority transfers or proposes to transfer all or any part of its business to;

(c) if the Authority (acting reasonably) considers disclosure necessary or appropriate to carry out its public functions;

(d) where requested by Parliament; and/or

(e) under clauses 5.7 and 17.

16.5 For the purposes of clauses 16.2 to 16.4 references to disclosure on a confidential basis means disclosure under a confidentiality agreement or arrangement including terms as strict as those required in clause 16.

16.6 Information which is exempt from disclosure by clause 17 is not Confidential Information.

16.7 The Supplier must not make any press announcement or publicise the Contract or any part of it in any way, without the prior written consent of the Authority and must take all reasonable steps to ensure that Supplier Staff do not either.

16.8 Where essential to comply with or carry out their statutory functions the Authority may disclose Confidential Information.

## **17. When you can share information**

17.1 The Supplier must tell the Authority within 48 hours if it receives a Request For Information.

17.2 Within the required timescales the Supplier must give the Authority full co-operation and information needed so the Authority can:

(a) comply with any Freedom of Information Act (FOIA) request;

(b) comply with any Environmental Information Regulations (EIR) request.

17.3 The Authority may talk to the Supplier to help it decide whether to publish information under clause 17. However, the extent, content and format of the disclosure is the Authority's decision, which does not need to be reasonable.

## **18. Invalid parts of the contract**

If any part of the Contract is prohibited by Law or judged by a court to be unlawful, void, or unenforceable, it must be read as if it was removed from that Contract as much as required and rendered ineffective as far as possible without affecting the rest of the Contract, whether it's valid or enforceable.

## **19. No other terms apply**

The provisions expressly incorporated into the Contract are the entire agreement between the Parties. The Contract replaces all previous statements and agreements whether written or oral. No other provisions apply.

## 20. Other people's rights in a contract

No third parties may use the Contracts (Rights of Third Parties) Act 1999 (CRTPA) to enforce any term of the Contract unless stated (referring to CRTPA) in the Contract. This does not affect third party rights and remedies that exist independently from CRTPA.

## 21. Circumstances beyond your control

21.1 Any Party affected by a Force Majeure Event is excused from performing its obligations under the Contract while the inability to perform continues, if it both:

- (a) provides written notice to the other Party;
- (b) uses all reasonable measures practical to reduce the impact of the Force Majeure Event.

21.2 Either party can partially or fully terminate the Contract if the provision of the Deliverables is materially affected by a Force Majeure Event and the impact of such event lasts for 90 days continuously.

21.3 Where a Party terminates under clause 21.2:

- (a) each party must cover its own losses;
- (b) clause 11.5(b) to 11.5(g) applies.

## 22. Relationships created by the contract

The Contract does not create a partnership, joint venture, or employment relationship. The Supplier must represent themselves accordingly and ensure others do so.

## 23. Giving up contract rights

A partial or full waiver or relaxation of the terms of the Contract is only valid if it is stated to be a waiver in writing to the other Party.

## 24. Transferring responsibilities

24.1 The Supplier cannot assign the Contract, or any rights under it, without the Authority's written consent.

24.2 The Authority can assign, novate, or transfer its Contract or any part of it to any Crown Body, any contracting authority within the meaning of the Regulations or any private sector body which performs the functions of the Authority.

24.3 When the Authority uses its rights under clause 24.2 the Supplier must enter into a novation agreement in the form that the Authority specifies.

24.4 The Supplier remains responsible for all acts and omissions of the Supplier Staff as if they were its own.

24.5 If the Authority asks the Supplier for details about its subcontractors and/or supply chain, the Supplier must provide such details as the Authority reasonably requests including, without limitation:

- (a) their name;
- (b) the scope of their appointment; and
- (c) the duration of their appointment.

## **25. Changing the contract**

25.1 Either Party can request a variation to the Contract which is only effective if agreed in writing and signed by both Parties. No oral modifications to the Contract shall be effective. The Authority is not required to accept a variation request made by the Supplier.

## **26. How to communicate about the contract**

26.1 All notices under the Contract must be in writing and are considered effective on the Working Day of delivery as long as they're delivered before 5:00pm on a Working Day. Otherwise, the notice is effective on the next Working Day. An email is effective when sent unless an error message is received.

26.2 Notices to the Authority or Supplier must be sent to their address in the Order Form.

26.3 This clause does not apply to the service of legal proceedings or any documents in any legal action, arbitration, or dispute resolution.

## **27. Preventing fraud, bribery and corruption**

27.1 The Supplier shall not:

- (a) commit any criminal offence referred to in the Regulations 57(1) and 57(2);
- (b) offer, give, or agree to give anything, to any person (whether working for or engaged by the Authority or any other public body) an inducement or reward for doing, refraining from doing, or for having done or refrained from doing, any act in relation to the obtaining or execution of the Contract or any other public function or for showing or refraining from showing favour or disfavour to any person in relation to the Contract or any other public function.



27.2 The Supplier shall take all reasonable steps (including creating, maintaining and enforcing adequate policies, procedures and records), in accordance with good industry practice, to prevent any matters referred to in clause 27.1 and any fraud by the Supplier, Supplier Staff (including its shareholders, members and directors), any subcontractor and the Supplier's supply chain in connection with the Contract. The Supplier shall notify the Authority immediately if it has reason to suspect that any such matters have occurred or is occurring or is likely to occur.

27.3 If the Supplier or the Supplier Staff engages in conduct prohibited by clause 27.1 or commits fraud in relation to the Contract or any other contract with the Crown (including the Authority) the Authority may:

(a) terminate the Contract and recover from the Supplier the amount of any loss suffered by the Authority resulting from the termination, including the cost reasonably incurred by the Authority of making other arrangements for the supply of the Deliverables and any additional expenditure incurred by the Authority throughout the remainder of the Contract; or

(b) recover in full from the Supplier any other loss sustained by the Authority in consequence of any breach of this clause.

## 28. Health, safety and wellbeing

28.1 The Supplier must perform its obligations meeting the requirements of:

- (a) all applicable Law regarding health and safety;
- (b) the Authority's current health and safety policy and procedures while at the Authority's premises, as provided to the Supplier.
- (c) the Authority's current wellbeing policy or requirements while at the Authority's premises as provided to the Supplier.

28.2 The Supplier and the Authority must as soon as possible notify the other of any health and safety incidents, near misses or material hazards they're aware of at the Authority premises that relate to the performance of the Contract.

28.3 Where the Services are to be performed on the Authority's premises, the Authority and Supplier will undertake a joint risk assessment with any actions being appropriate, recorded and monitored.

28.4 The Supplier must ensure their health and safety policy statement and management arrangements are kept up to date and made available to the Authority on request.

28.5 The Supplier shall not assign any role to the Authority under the Construction (Design and Management) Regulations 2015 (as amended) (the 'CDM Regulations') without the Authority's prior express written consent (which may be granted or withheld at the Authority's absolute discretion). For the avoidance of doubt so far as the Authority may fall within the role of client

as defined by the CDM Regulations in accordance with CDM Regulation 4(8) the parties agree that the Supplier will be the client.

## 29. Business Continuity

29.1 The Supplier will have a current business continuity plan, which has assessed the risks to its business site/s and activities both directly and with regards to reliance on the supply chain and will set out the contingency measures in place to mitigate them and adapt. As part of this assessment, the Supplier will take into account the business continuity plans of the supply chain. The Supplier's business continuity plan must include (where relevant), an assessment of impacts relating to extreme weather, a changing average climate and/or resource scarcity.

29.2 The Supplier's business continuity plan will be reviewed by the Supplier at regular intervals and after any disruption. The Supplier will make the plan available to the Authority on request and comply with reasonable requests by the Authority for information.

## 30. Whistleblowing

30.1 The Authority's whistleblowing helpline must be made available to the Supplier and Supplier Staff, subcontractors and key suppliers in the supply chain in order to report any concerns.

30.2. The Supplier agrees:

(a) to insert the following wording into their whistleblowing policy and communicate to all staff:

"If you feel unable to raise your concern internally and it relates to work being carried out for which the ultimate beneficiary (through a contractual chain or otherwise) is Defra group, please email [Whistleblowing@Defra.gov.uk](mailto:Whistleblowing@Defra.gov.uk)."

(b) to ensure that their Sub-contractors have free access to the Authority's whistleblowing policy.

House, Deanery Road, Bristol BS1 5AH, email [peter.kellett@environment-agency.gov.uk](mailto:peter.kellett@environment-agency.gov.uk) mobile 07810 180974", and

(a) to ensure that their Sub-contractors have free access to the Authority's whistleblowing policy".]

## 31. Tax

31.1 The Supplier must not breach any tax or social security obligations and must enter into a binding agreement to pay any late contributions due, including where applicable, any interest

or any fines. The Authority cannot terminate the Contract where the Supplier has not paid a minor tax or social security contribution.

31.2 Where the Supplier or any Supplier Staff are liable to be taxed or to pay National Insurance contributions in the UK relating to payment received under this Contract, the Supplier must both:

- (a) comply with the Income Tax (Earnings and Pensions) Act 2003 and all other statutes and regulations relating to income tax, the Social Security Contributions and Benefits Act 1992 (including IR35) and National Insurance contributions;
- (b) indemnify the Authority against any Income Tax, National Insurance and social security contributions and any other liability, deduction, contribution, assessment, or claim arising from or made during or after the Term in connection with the provision of the Deliverables by the Supplier or any of the Supplier Staff.

31.3 If any of the Supplier Staff are Workers who receive payment relating to the Deliverables, then the Supplier must ensure that its contract with the Worker contains the following requirements:

- (a) the Authority may, at any time during the term of the Contract, request that the Worker provides information which demonstrates they comply with clause 31.2, or why those requirements do not apply, the Authority can specify the information the Worker must provide and the deadline for responding;
- (b) the Worker's contract may be terminated at the Authority's request if the Worker fails to provide the information requested by the Authority within the time specified by the Authority;
- (c) the Worker's contract may be terminated at the Authority's request if the Worker provides information which the Authority considers isn't good enough to demonstrate how it complies with clause 31.2 or confirms that the Worker is not complying with those requirements;
- (d) the Authority may supply any information they receive from the Worker to HMRC for revenue collection and management.

## 32. Publicity

32.1 The Supplier and any subcontractor shall not make any press announcements or publicise this Contract or its contents in any way; without the prior written consent of the Authority.

32.2 Each Party acknowledges to the other that nothing in this Contract either expressly or by implication constitutes an endorsement of any products or services of the other Party and each Party agrees not to conduct itself in such a way as to imply or express any such approval or endorsement.

### **33. Conflict of interest**

33.1 The Supplier must take action to ensure that neither the Supplier nor the Supplier Staff are placed in the position of an actual or potential conflict between the financial or personal duties of the Supplier or the Supplier Staff and the duties owed to the Authority under the Contract, in the reasonable opinion of the Authority.

33.2 The Supplier must promptly notify and provide details to the Authority if a conflict of interest happens or is expected to happen.

33.3 The Authority can terminate its Contract immediately by giving notice in writing to the Supplier or take any steps it thinks are necessary where there is or may be an actual or potential conflict of interest.

### **34. Reporting a breach of the contract**

34.1 As soon as it is aware of it the Supplier and Supplier Staff must report to the Authority any actual or suspected breach of Law or breach of its obligations under the Contract.

34.2 Where an actual or suspected breach is notified to the Authority under clause 34.1, the Supplier will take such action to remedy any breach as the Authority may reasonably require. Where the breach is material, the Authority has the right to terminate under clause 11.4.

34.3 The Supplier must not retaliate against any of the Supplier Staff who in good faith reports a breach listed in clause 34.1.

### **35. Resolving disputes**

35.1 If there is a dispute between the Parties, their senior representatives who have authority to settle the dispute will, within 28 days of a written request from the other Party, meet in good faith to resolve the dispute.

35.2 If the dispute is not resolved at that meeting, the Parties can attempt to settle it by mediation using the Centre for Effective Dispute Resolution (CEDR) Model Mediation Procedure current at the time of the dispute. If the Parties cannot agree on a mediator, the mediator will be nominated by CEDR. If either Party does not wish to use, or continue to use mediation, or mediation does not resolve the dispute, the dispute must be resolved using clauses 35.3 to 35.5.

35.3 Unless the Authority refers the dispute to arbitration using clause 35.4, the Parties irrevocably agree that the courts of England and Wales have the exclusive jurisdiction to:

- (a) determine the dispute;
- (b) grant interim remedies;

(c) grant any other provisional or protective relief.

35.4 The Supplier agrees that the Authority has the exclusive right to refer any dispute to be finally resolved by arbitration under the London Court of International Arbitration Rules current at the time of the dispute. There will be only one arbitrator. The seat or legal place of the arbitration will be London and the proceedings will be in English.

35.5 The Authority has the right to refer a dispute to arbitration even if the Supplier has started or has attempted to start court proceedings under clause 35.3 unless the Authority has agreed to the court proceedings or participated in them. Even if court proceedings have started, the Parties must do everything necessary to ensure that the court proceedings are stayed in favour of any arbitration proceedings if they are started under clause 35.4.

35.6 The Supplier cannot suspend the performance of the Contract during any dispute.

35.7 The provisions of this clause 35 are without prejudice to the Authority's right to terminate or suspend the Contract under clause 11.

## **36. Which law applies**

36.1 This Contract and any issues arising out of, or connected to it, are governed by English law.

36.2 The courts of England and Wales shall have jurisdiction to settle any dispute or claim (whether contractual or non-contractual) that arises out of or in connection with the Contract or its subject matter or formation.