Department
for Environment
Food & Rural Affairs

Conditions of Contract

Short Form Enhanced

October 2021

Environment Agency

Contents

University of Exeter
Northcote House,
The Queen's Drive,
Exeter,
EX4 4QJ

Attn: [redacted]

Date: 25/08/2022
Your ref:
Our ref: ecm_65544

Dear [redacted]

Supply of SC220003: Development of experimental approaches for determining selection concentrations for antifungals

Following your tender/ proposal for the supply of SC220003: Development of experimental approaches for determining selection concentrations for antifungals to the Environment Agency, we are pleased confirm our intention to award this contract to you.

The attached contract details ("**Order Form**"), contract conditions and the Annexes set out the terms of the contract between the Environment Agency and the University of Exeter for the provision of the deliverables set out in the Order Form.

We thank you for your co-operation to date and look forward to forging a successful working relationship resulting in a smooth and successful delivery of the deliverables. Please confirm your acceptance of the Conditions by signing and returning the Order Form via Bravo within 7 days from the date of this letter, which will create a binding contract between us. No other form of acknowledgement will be accepted. Please remember to include the reference number above in any future communications relating to this contract.

We will then arrange for the Order Form to be countersigned so that you have a signed copy of the Order Form for your records.

Yours faithfully,

[redacted]

Order Form

1. Contract Reference	Ecm_65544	
2. Date	25/08/2022	
3. Authority	Environment Agency Horizon House, Deanery Road, Bristol, BS1 5AH	
4. Supplier	University of Exeter Northcote House, The Queen's Drive, Exeter, EX4 4QJ	
5. The Contract	The Supplier shall supply the Deliverables described below on the terms set out in this Order Form and the attached contract conditions ("**Conditions**") and any Annexes. Unless the context otherwise requires, capitalised expressions used in this Order Form have the same meanings as in Conditions. 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: 1. Order Form, Annex 2 (*Specification*) and Annex 3 (*Charges*) with equal priority. 2. Conditions and Annex 1 (*Authorised Processing Template*) with equal priority. 3. Annexes 4 (*Tender Submission*) and 5 (*Sustainability*). In the event of any inconsistency between the provisions of Annexes 4 and 5, Annex 5 shall take precedence over Annex 4. **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.**	
6. Deliverables	**Goods**	None
	Services	SC220003: Development of experimental approaches for determining selection concentrations of antifungals To be performed at the supplier's premises.
7. Specification	The specification of the Deliverables is as set out in Annex 1.	

8. Term	The Term shall commence on 01/09/2022 and the Expiry Date shall be 31/03/2022, unless it is otherwise extended or terminated in accordance with the terms and conditions of the Contract.
9. Charges	The Charges for the Deliverables shall be as set out in Annex 2.
10. Payment	The Authority's preference is for all invoices to be sent electronically, quoting a valid Purchase Order Number (PO Number), to: APinvoices-ENV-U@gov.sscl.com Alternatively, you may post to: For EA SSCL (Environment Agency) PO Box 797 Newport Gwent NP10 8FZ Within **10** Working Days 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. 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. If you have a query regarding an outstanding payment please contact the Authority's Authorised Representative(s).
11. Authority Authorised Representative(s)	For general liaison your contact will continue to be [redacted] or, in their absence, [redacted]

<table>
<tr><td>12. Address for notices</td><td>[redacted]</td></tr>
<tr><td>13. Key Personnel</td><td>
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<tr><th></th><th>Authority</th><th>Supplier</th></tr>
<tr><td>Name</td><td>[redacted]</td><td>[redacted]</td></tr>
<tr><td>Address</td><td>[redacted]</td><td>[redacted]</td></tr>
<tr><td>Job Title</td><td>[redacted]</td><td>[redacted]</td></tr>
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<tr><td>14. Procedures and Policies</td><td>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.

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.</td></tr>
<tr><td>15. Limitation of Liabilities</td><td>As set out in Clause 12.1</td></tr>
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16. Insurance	The Supplier shall hold the following insurance cover from the start date/commencement date for the duration of the Contract in accordance with this Order Form - Professional Indemnity insurance with cover (for a single event or multiple with an aggregate) of not less than £5m; - Public Liability insurance with cover (for a single event or multiple with an aggregate) of not less than £5m; - Employers Liability insurance with cover (for a single event or multiple with an aggregate) of not less than £5m; - Product Liability insurance with cover (for a single event or multiple with an aggregate) of not less than £5m;

Signed for and on behalf of the **Supplier**	Signed for and on behalf of the **Authority**
Name: [Insert name] Insert [job title]	Name: Insert [name] Insert [job title]
Date:	Date:
Signature:	Signature:

Annex 1 – Specification

The Authority's Priorities

Over the next 12 months, commencing April 2022, the Environment Agency is undertaking a research project to explore how to carry out environmental surveillance of Antimicrobial Resistance (AMR). The 'Pathogen Surveillance in Agriculture, Food, and the Environment (PATH-SAFE)' programme, is a cross-governmental project in partnership with UK Health Security Agency, Defra, and Food Standard Agency. The PATH-SAFE programme's objectives are to address the risks from food borne pathogens and develop surveillance techniques to monitor AMR in the environment.

There is a need for environmental surveillance and action to minimise the ongoing development and spread of AMR. This need is recognised in both the cross-government UK 20-year vision and 5-year National Action Plan.

Scope

The Customer

The Chief Scientist's Group is part of the Environment and Business Directorate which is one of the Environment Agency's National Office. The Chief Scientist's Group is responsible for identifying and accessing the science and evidence needed to support and inform the decisions of the Environment Agency.

This requirement is being undertaken on behalf of the Research Department within the Chief Scientist's Group who are responsible for identifying the gaps in our evidence and addressing these by undertaking work ourselves or by accessing knowledge, data, and information from 3rd parties. Our Research Teams work across our key business areas providing scientific leadership and ensuring that our decisions are supported by the latest research.

For further information please visit:

https://www.gov.uk/government/organisations/environment-agency

Business requirement

This contract is for the development of experimental approaches for determining selection concentrations for antifungals and will build on previous work.

The aim of this project is to explore the development of an experimental assay(s) to determine antifungal selective concentrations. This work will focus predominantly on the development of method(s) for the derivation of antifungal Minimum Selection Concentrations (MSCs) data for a range of antifungals used in healthcare (antifungal medication) and/ or agriculture (fungicides).

The supplier will need to consider the scientific validity as well as the practical considerations, such as time and resources required to use the method and ease of application. Further considerations will also refer to the media of interest and the range of organisms of interest (e.g., yeast and/ or moulds) in the development of these assays. While this work will focus on the water environment, it should be noted if the techniques can be used in other media (e.g., soil).

Based on the outcomes, the method developed will be used to determine selective concentrations for specified antifungals, that have been identified and will be confirmed by the EA team as being of environmental relevance. It is anticipated that if this stage of work is feasible based on the development work, then up to 10 antifungals could be considered. Table 1 below show some potential compounds under consideration.

Table 1: Examples of antifungals for potential consideration in this project
Clinical antifungals: Amorolfine, bifonazole, climbazole, clotrimazole, econazole, enilconazole, fluconazole, flucytosine, griseofulvin, itraconazole, ketoconazole, miconazole, nystatin, posaconazole, terbinafine, tioconazole, tolnaftate, and vorniconazole. Agricultural antifungals: Azoxystrobin, bixafen, boscalid, captan, chlorothalonil, cyazofamid, cymoxanil, cyprodinil, cyproconazole, dazomet, difenoconazole, dimethomorph, dodine, epoxiconazole, fenpropimorph, fluazinam, fludioxonil, fluopicolide, fluopyram, fluoxastrobin, fluxapyroxad, folpet, mancozeb, mandipropamid, metconazole, myclobutanil, prochloraz, propamocarb hydrochloride, pyraclostrobin, spiroxamine, tebuconazole, trifloxystrobin, and triticonazole.

This work will require:

• Proven capability to carry out research and laboratory analysis

• Experience of delivering projects to time and cost

• Technical and scientific expertise of research in the field of AMR, microbiology & mycology

• Previous experience of solving problems/ developing innovative approaches

• Excellent communication (written/ verbal)

• Accredited laboratory with experience of developing and testing of new methods

As a final output we would expect a report outlining the experimental work undertaken (e.g., outlining the development steps and lab protocols). This will also include MSC data derived as part of this project for selected antifungals using the proposed approach if the work on the development of an assay progresses to the point that this is possible within the scope of the project.

Annex 2 – 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.

2. **Are costs and expenses included in the Charges**

2.1 Except as expressly set out in Paragraph 3 below, the Charges shall include all costs and expenses relating to the provision of Deliverables. No further amounts shall be payable in respect of matters such as:

2.1.1 incidental expenses such as travel, subsistence and lodging, document or report reproduction, shipping, desktop or office equipment costs, network or data interchange costs or other telecommunications charges; or

2.1.2 costs incurred prior to the commencement of the Contract.

3. Rates and Prices

Task No.	Deliverables	Duration (working days)	Milestone Date	Number of days input for each project member	Each staff cost excluding VAT	Travel and subsistence	Total Price (ex VAT) (£)
	[redacted]					[redacted]	
1	Kick off meeting (virtual), setting out the development of experimental assay(s) to determine antifungal selective concentrations	1 day	End Aug/ beginning Sept 2022	[redacted]	[redacted]		
2.1.a	Progress meetings	4 day	Oct 2022 (tbc)	[redacted]	[redacted]		

	(virtual) on development work		Nov 2022 (tbc) Dec 2022 (tbc) Late Jan/Feb 2023 (tbc)	
2.1.b	Delivery of draft protocols to review development work		Dec/ Jan 2022	
2.2.a	Depending on task 2.1. Determination of MSCs for selected antifungals (max 10)		March 2023	
2.2.b	Progress meeting on task 2.2.a Determination of MSCs for selected antifungals	1 day	Feb 2023	

3.	Final draft of project report		End Feb/ Mid-March 2023	[redacted]	[redacted]		

4. CURRENCY

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

5. Variations

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

6. Electronic Invoicing

6.1 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:

6.2 The Supplier shall ensure that each invoice is submitted in a PDF format and contains the following information:

6.2.1 the date of the invoice;

6.2.2 a unique invoice number;

6.2.3 the period to which the relevant Charge(s) relate;

6.2.4 the correct reference for the Contract

6.2.5 a valid Purchase Order Number;

6.2.6 the dates between which the Deliverables subject of each of the Charges detailed on the invoice were performed;

6.2.7 a description of the Deliverables;

6.2.8 the pricing mechanism used to calculate the Charges (such as fixed price, time and materials);

6.2.9 the total Charges gross and net of any applicable deductions and, separately, the amount of any reimbursable expenses properly chargeable to the Authority under the terms of this Contract, and, separately, any VAT or other sales tax payable in respect of each of the same, charged at the prevailing rate;

6.2.10 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

6.2.11 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);

6.3 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 797, 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.

6.4 Invoices submitted electronically will not be processed if:

6.4.1 The electronic submission exceeds 4mb in size

6.4.2 Is not submitted in a PDF formatted document

6.4.3 Multiple invoices are submitted in one PDF formatted document

6.4.4 The formatted PDF is "Password Protected"

Annex 3 – Tender Submission

Understanding of need and context

Summary
Antimicrobial resistance (AMR) is the ability of organisms (such as bacteria, viruses, fungi and parasites) to resist the drugs designed to kill them or inhibit their growth, rendering such treatments ineffective. AMR is predicted to cause 10 million deaths annually by the year 2050 [1] and was already associated with 5 million deaths in 2019 [2]. In addition to increased mortality, AMR also threatens the global economy and food security [1].

Antifungal resistance (AFR) is the ability of fungi to resist treatment with antifungals and is one aspect of AMR that has received far less attention than antibiotic (or antibacterial) resistance (ABR). AFR in the clinical environment is a huge challenge, severely restricting effective infection management with only three main classes of antifungals to treat invasive fungal disease, resulting in excess mortality [3]. Additional settings increasingly being recognised to play a role in the evolution and spread of AFR [4]. The environment, for example, harbours diverse fungal communities that are regularly exposed to antifungal pollutants, potentially increasing AFR selection risk [5]. The direct application of effect concentrations of azole fungicides to agricultural crops and the incomplete removal of pharmaceutical antifungals in wastewater treatment systems are of particular concern [6]. Currently, environmental risk assessment (ERA) guidelines do not require assessment of antifungal agents in terms of their ability to drive AFR development, and there are no established experimental tools to determine antifungal selective concentrations. Without data to interpret the selective risk of antifungals, our ability to effectively inform safe environmental thresholds is severely limited.

Context
AMR has traditionally been studied and combatted through a human health lens, but the One Health agenda is becoming increasingly embedded in international, European, and national strategies. The Quadripartite Joint Secretariat on AMR, comprising of the World Health Organisation (WHO), United Nations Environment Programme (UNEP), Food and Agricultural Organisation (FAO) and WOAH (World Organisation for Animal Health) has recently been formed, which will support the global response to AMR across One Health sectors [7] Specifically, the WHO has described the importance of antimicrobial pollution in driving AMR, stating that understanding and managing this pollution should be a priority for all countries [8].

Ecotoxicological risks have been used to inform the European Water Framework Directive's 'Watch List' [9]. AFR selection is not an endpoint that is currently considered within antifungal ERAs (e.g., for pesticides), and it is unclear whether existing ecotoxicological assays are protective of AFR selection at environmentally relevant concentrations [11]. Importantly, previous research on antibiotics has shown that conventional ecotoxicological test data using traditional endpoints [11] are not always protective of ABR selection [10, 12-13], raising concerns this may also be the case for AFR.

Within the UK, HM's Government recently supported tackling AMR with a One Health approach in the Climate and Environment and Health G7 communiqués [14, 15]. Similarly, the current five-year national action plan (Tackling Antimicrobial Resistance 2019 – 2024) and the 20-year vision for AMR both repeatedly reference the environment, emphasising the need to minimise environmental pollution and to better understand environmental risk [16, 17].

Study of AMR within the One Health agenda has progressed, but the environmental aspects of AMR remain the least well studied. Data on the concentrations of antimicrobials that select for AMR remain scarce. These data are essential for understanding environmental hazards resulting from chemical (including antimicrobial) pollution, which are key topics within the UK's 25-year Environment Plan [18].

Some progress has been made through study of selection for antibacterial (or antibiotic) resistance (ABR) by antibacterials (antibiotics). For example, concentrations predicted to select

for ABR have been modelled from clinical minimum inhibitory concentration data [12]; these have since been adopted by the AMR Industry Alliance as voluntary targets for manufacturing emissions [13]. In the absence of experimental data, these estimated predicted no effect concentrations for resistance (PNECRs) are useful, but the approach is not without limitations and should not be relied upon indefinitely without further empirical study [12]. Various experimental approaches have been used to determine minimal selective concentrations (MSCs) or PNECRs in single species and complex communities of bacteria [19]. However, there are no experimental MSC or PNECRs currently available for antifungals, as the methodologies have not yet been developed or trialled [20].

Project Scope

This project will build upon the scoping review [21] co-authored by the team and Environment Agency colleagues that explored potential experimental methods for determining selective concentrations of antifungals. It will:

- Trial two different experimental approaches for the determination of selective concentrations of antifungals
- Use a combination of genotypic, molecular methods and growth-based, phenotypic methods to study selection of AFR
- Aim to determine the first experimentally derived selective concentrations of antifungals that select for AFR
- Aim to establish at least one experimental, proof of concept system that can be used to generate more selective concentration data beyond the scope of this project.

References

1. O'Neill, Tackling drug-resistant infections globally: Final report and recommendations. 2016. **2.** Murray, C.J.L., et al., Global burden of bacterial antimicrobial resistance in 2019: a systematic analysis. The Lancet, 2022. **3.** Fisher, M.C., et al., Tackling the emerging threat of antifungal resistance to human health. Nature Reviews Microbiology, 2022. 20(9): p. 557-571. **4.** Perlin, D.S., R. Rautemaa-Richardson, and A. Alastruey-Izquierdo, The global problem of antifungal resistance: prevalence, mechanisms, and management. The Lancet Infectious Diseases, 2017. 17(12): p. e383-e392. **5.** Assress, H.A., et al., Antifungal azoles and azole resistance in the environment: current status and future perspectives—a review. Reviews in Environmental Science and Bio/Technology, 2021. 20(4): p. 1011-1041. **6.** Assress, H.A., et al., Target quantification of azole antifungals and retrospective screening of other emerging pollutants in wastewater effluent using UHPLC –QTOF-MS. Environmental Pollution, 2019. 253: p. 655-666. **7.** FAO. 2022 [cited 2022 12/08/2022]; Available online. **8.** WHO. World leaders and experts call for action to protect the environment from antimicrobial pollution. 2022 02/03/2022 [cited 2022 12/08/2022]; Available online. **9.** Gomez Cortes, L., et al., Selection of substances for the 3rd Watch List under the Water Framework Directive. 2020: Luxembourg: Publications Office of the European Union, 2020. **10.** Le Page, G., et al., Integrating human and environmental health in antibiotic risk assessment: A critical analysis of protection goals, species sensitivity and antimicrobial resistance. Environment International, 2017. 109: p. 155-169. **11.** Bhagat, J., et al., A comprehensive review on environmental toxicity of azole compounds to fish. Chemosphere, 2021. 262: p. 128335. **12.** Bengtsson-Palme, J. and D.G. Larsson, Concentrations of antibiotics predicted to select for resistant bacteria: Proposed limits for environmental regulation. Environ Int, 2016. 86: p. 140-9. **13.** Tell, J., et al., Science-based targets for antibiotics in receiving waters from pharmaceutical manufacturing operations. Integrated Environmental Assessment and Management, 2019. **14.** HM Government, G7 Climate and Environment: Ministers' Communiqué, London, 21 May 2021. 2021: Online. **15.** HM Government, G7 Health Ministers' Meeting, communique, Oxford, 4 June, 2021. 2021: Online. **16.** HM Government, Tackling antimicrobial resistance 2019–2024: The UK's five-year national action plan. 2019. **17.** HM Government, Contained and controlled: the UK's 20-year vision for antimicrobial resistance. 2019. **18.** HM Government, A Green Future: Our 25 Year Plan to

Improve the Environment. 2018. **19.** Murray, A.K., et al., Dawning of a new ERA: Environmental Risk Assessment of antibiotics and their potential to select for antimicrobial resistance. Water Research, 2021: p. 117233. **20.** Stevenson, E.M., et al., Antifungal Exposure and Resistance Development: Defining Minimal Selective Antifungal Concentrations and Testing Methodologies. Frontiers in Fungal Biology, 2022. 3.

Approach and methodology

Approach

In a recent review we co-authored with the Environment Agency [1], we discussed the different approaches used to study selection for antibiotic resistance (ABR) in bacteria, and how these could be adapted to study selection for antifungal resistance (AFR). In this project, we will trial two of these different experimental approaches, using a combination of growth-based, phenotypic, and genotypic methods.

Background

There are two main ways that selection (for AFR or ABR) can be considered: 1) enrichment of pre-existing resistance (i.e., a resistant strain increases in number, relative to the number of susceptible strains) and 2) a previously susceptible strain develops *de novo* resistance (i.e., a novel mutation arises, which confers increased resistance). There are also two ways by which AFR may be selected for; either directly, or indirectly. Direct selection would arise when a strain that is resistant to one antifungal is enriched over susceptible strains when exposed to that antifungal. Indirect selection, also known as co-selection, can also occur. This is when exposure to one antifungal could select for resistance to a different antifungal, either due to genetic linkage of multiple different resistance mechanisms or if a single resistance mechanism (e.g., a mutation) confers resistance to multiple antifungals (called cross-resistance). We will consider all these processes in this project.

Overarching Aims

1. Develop an experimental system for determining antifungal MSCs.
2. Determine MSCs of antifungals 'of interest' (specified by the Environment Agency).

Specific Objectives

1. Develop a proof of principle, single species competition assay experimental system, to determine the MSC where a resistant strain is enriched over a susceptible strain.
2. Sequence ancestor and evolved strains, to identify frequency and type of, and MSC for, *de novo* resistance arising during the above competition assays.
3. Pilot use and validation of the SELECT (SELection Endpoints in Communities of bacTeria [2]) method, adapted for fungal culturing.

Selection of yeasts as test organism

Given the length of this project, we will focus solely on selection for resistance within yeast species/communities. This is because there are key differences in the growth, structure, and function of yeast cells in comparison to moulds, which impact the organism's ability to evolve and maintain AFR and therefore our ability to quantify resistance selection (see Table 1, reproduced from [1]). Furthermore, the similarities between yeast and bacteria will simplify the development of experimental assays (Table 1).

We will focus on *Candida* species, yeasts which are ubiquitous and present in various aquatics environments, including sewage-derived communities [4-6]. Acquired and intrinsic AFR are both well documented in *Candida* species, and complicate effective management. Candidemia is the fourth most common hospital acquired bloodstream infection, with a 40% mortality even when patients are receiving antifungal therapy [7]. *Candida glabrata* is causing up to 30% of candidemia and shows a high level of resistance against fluconazole and echinocandins [8]. *C. glabrat*a shows an increasing spread of resistance [9] and has a hypermutator phenotype because of defects in DNA mismatch-repair machinery [8, 10] making this species particularly evolvable and so well suited for study in evolution experiments.

Table 1 – Reproduced from [3].

Bacteria	Yeast	Mould
Unicellular	Unicellular	Multicellular
Asexual reproduction	Asexual reproduction	Asexual & sexual reproduction
Non-hyphal	Non-hyphal	Hyphae (filamentous)
Non-sporous & sporous	Non-sporous	Sporous
Short cultivation time	Short-medium cultivation time	Medium-long cultivation time

Methodology

Objective 1. Experimental system 1: Single species competition assays

This objective will determine at which concentration a resistant strain containing a given resistance mechanism is enriched over a susceptible strain lacking that resistance mechanism. This is important for understanding how pre-existing AFR in the environment may be maintained or enriched in the presence of an antifungal.

MSCs of antibiotics that select for ABR have been determined, first with single species competition assays, and then later with experimental systems using single species or complex bacterial communities. The strengths and weakness of these different approaches have been recently summarised [11] and key points are reproduced below (Table 2). Given the length of this project and lack of antifungal MSC data, we have elected to start with single species competition assays, like the first studies looking at MSCs of antibiotics.

Table 2. Adapted from [11].

	Strengths	Weaknesses
Single species competition assays	• Original method to determine MSCs • Low complexity reduces experimental variance • Use of defined strains increases replicability	• Less environmentally relevant • May not reflect competition occurring within and between taxa in natural communities
Complex community experiments	• More environmentally relevant • Would reflect competition occurring within and between taxa in natural communities • Community context has been shown to be important for ABR selection [12], unclear if this holds for AFR selection	• Less replicable than single species assays • High complexity increases experimental variance • More expensive to analyse • Potential to choose inappropriate target for MSC determination

Test strain(s)

Fluorescently tagged strains of *C. glabrata,* one resistant and one susceptible, will be used in competition assays. The MRC Centre for Medical Mycology (MCMM) has a collection of fluorescently tagged *C. glabrata* isogenic strains with resistances to various clinically used antifungals.

Test compound(s)

Initially, we will test a number of antifungals as defined being of interest by the Environment Agency and for which EUCAST clinical breakpoints for *C. glabrata* exist (e.g., fluconazole, itraconazole and voriconazole). Tagged *C. glabrata* strains with those resistances tagged are available in the MCMM. In addition, we will screen these clinical isolates for cross-resistance to agricultural azoles. This will inform whether competition assays with agricultural azoles will be possible, as well as generating novel data on co-selection potential between clinical and agricultural antifungals.

Experimental set up

Two, isogenic strains of *C. glabrata*, tagged with different fluorescent proteins, will be mixed 1:1 and co-cultured for six days in the presence of a range of different antifungals in a range of concentrations, starting at the defined EUCAST clinical breakpoint concentrations, decreasing with two-fold dilutions down to environmentally relevant concentrations (e.g., low µg/L [13]). On days three and six, destructive samples will be taken to:

1. Enumerate the numbers of resistant and susceptible strains, to see if and at which antifungal concentration numbers of the resistant strains increase.
2. Separate strains for DNA extraction and sequencing (Objective 2).

Objective 1 Deliverables

1. Proof of concept competition assay developed.
2. MSCs of one to three clinical azoles determined, for the first time.
3. Resistant strains screened for cross-resistance to agricultural antifungals.
4. Dependent upon 3, a minimum of one agricultural antifungal MSC will be determined.

Objective 2: Sequencing of evolved and ancestor isolates

This objective will determine 1) MSCs for *de novo* resistance, 2) if common resistance mechanisms are consistently evolved, and 3) if those resistance mechanisms are of concern (e.g., increase the minimum inhibitory concentrations (MIC) or confer cross-resistance).

Following evolution experiments carried out in Objective 1, we will sequence evolved and ancestor isolates to characterise the type and frequency of *de novo* resistance arising during the evolution experiments. Adoption of whole genome sequencing (WGS) has broadened understanding and documentation of resistance mechanisms and the key resistance mutations responsible in fungal species [14].

Two pipelines, up and running in-house, will be used to detected single nucleotide polymorphisms (SNPs) and changes in copy number variants (CNVs) within genomes [15] (with changes in ploidy sometimes conferring changes in susceptibility [16]). Sequenced isolates will also undergo phenotypic MIC assays using a range of antifungals relevant to the original test compound used in Objective 1 (e.g., multiple azoles), so that genotypic changes can be linked to phenotypic changes in MIC and co-selection potential of resistance mechanisms can be assessed.

Objective 2 Deliverables

1. WGS of evolved and ancestor resistant and susceptible isogenic strains, to determine if antifungals evolve *de novo* resistance.
2. Putative *de novo* resistance SNPs/CNVs linked to phenotypic changes in MIC.
3. Cross-resistance potential of *de novo* resistance assessed.

Objective 3. Experimental system 2: The SELECT Method

Based on the hypothesis proposed in the initial antibacterial MSC work [17] the MSC was derived where numbers of resistant bacteria are expected to increase over time, relative to non-resistant bacteria. A recent mathematical model [18] also found that a loss in net bacterial growth, especially of susceptible strains, was found to be the most sensitive parameter for MSC predictions. The SELECT (SELection Endpoint in Communities of bacTeria) method [2] is based on using this reduction in growth as a proxy for selection for AMR. It exposes wastewater-derived complex communities of bacteria to a gradient of antibacterial concentrations [2]. This generates selective concentrations that can be used to derive predicted no effect concentrations for resistance (PNECRs). Significant reduction of growth was shown to be a good proxy for selection for key ABR gene markers, as quantified using qPCR, following longer (weeklong) evolution experiments [2]. We will use the SELECT method to determine if a reduction in growth

of simple community of yeasts is a proxy for enrichment of resistant yeast strains within that community.

Methodology
How to adapt the SELECT method to culture yeasts was detailed in our publication with the Environment Agency [1], derived from EUCAST guidelines for broth microdilution assays [19].

Test strain(s)
For reasons detailed above, we will focus solely on yeast species, specifically, *C. glabrata*. We will mix, in equal proportions, a minimum of three and a maximum of five different *C. glabrata* strains tagged with different fluorescent proteins. Jane Usher (JU) *et al.* have already demonstrated that three differentially tagged strains can be mixed and then successfully enumerated and separated following co-culture (unpublished data). One strain will harbour resistance to the test compound, all other tagged strains will be isogenic but susceptible. Reducing the complexity of the community (i.e., from multiple species to a single species culture but of multiple strains, with different susceptibility profiles) allows greater control over experimental conditions and reduces the number of community interactions. However, the mixing of susceptibility profiles provides greater real-world representation than a simple single species assay (Objective 1). This approach has been used previously as a standalone assay to determine selective concentrations of antibiotics using mixed communities of *Escherichia coli* bacterial strains [20].

Test compound(s)
Initially one test compound, identified of interest by the Environment Agency (e.g., itraconazole), will be used. This will correspond to resistance harboured by the tagged strain.

Fungal adapted SELECT validation
As discussed in our publication with the Environment Agency [1], it is vital to demonstrate reduction in growth of fungal species could be a good predictor for selection for AFR, as is observed in wastewater bacterial communities [2]. Increases in resistance will be quantified by enumerating the differentially tagged strains (Figure 1), to verify the concentration where overall community growth reduced is the same concentration where the resistant strain significantly increases in number.

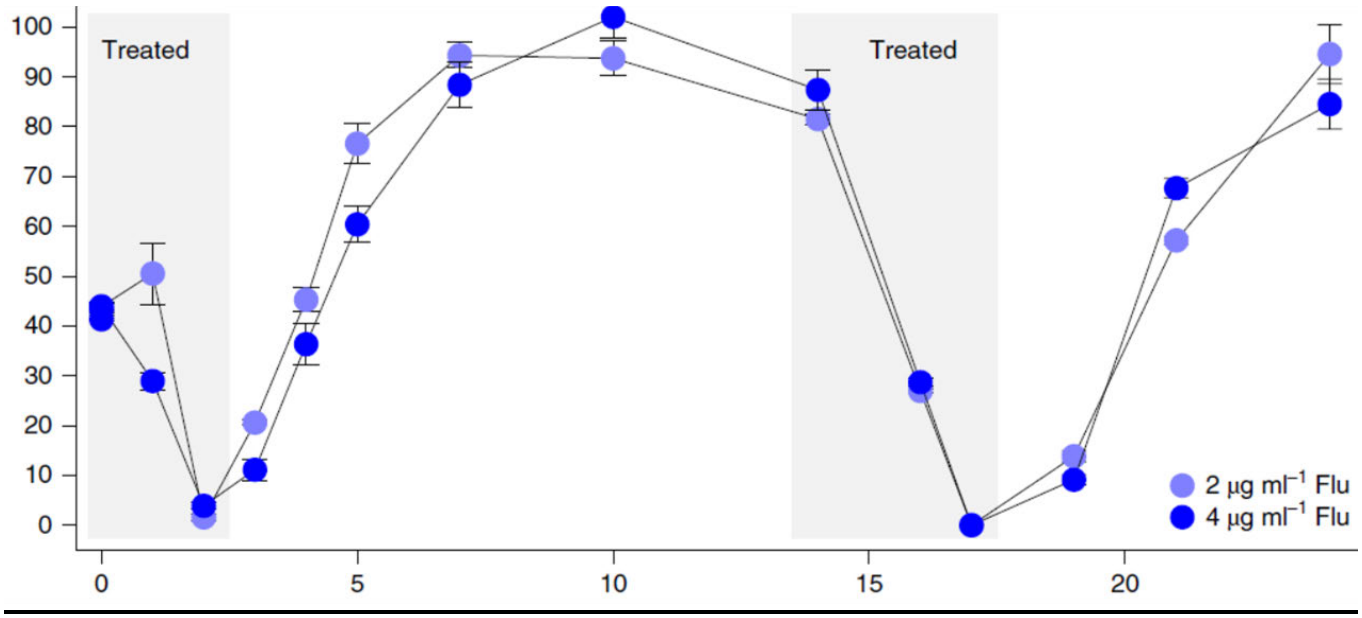

Figure 1. Two fluorescent labelled *C. glabrata* strains (one a lab strain (dark blue) and one a clinical isolate (light blue)) were inoculated at 50:50 proportions in media containing fluconazole for 2 days and the lab strain frequency decreases. After 2 days the fluconazole was removed, and the lab strain recovered. When drug stress is later re-applied, the lab strain again decreases and the cycle repeats. Cellular fluorescence from GFP and YFP was determined quantitatively with the FACSAria flow cytometer. Unpublished data (Usher *et al.*).

Objective 3 Deliverable(s)

1. Initial trial of using the SELECT method to study selection for AFR in yeasts.
2. Novel method for SELECT validation trialled, by enumerating tagged strains.

Relevant experience

Objective 1. Murray (AKM) and Gaze (WG) have experience in conducting competition assays with bacterial species for environmental risk assessment and using these data to determine MSCs and PNECRs. Gow (NG), Warris (AW) and Usher (JU) have a shown track record in assessing and identifying antifungal resistance mechanisms, using a range of state-of-the-art techniques including genome-wide and phylogenetic approaches. Inman (RI) has an extensive knowledge of antifungals, antimicrobial susceptibility testing protocols (EUCAST and CLSI) for the major *Candida* species and has established in-house medium throughput screens for small molecular inhibitors of fungal growth (also relevant to Objective 2).

Objective 2. JU developed the in-house pipeline for detecting SNPs in *C. glabrata* genomes, and with her collaborators, the pipeline for detecting changes in CNVs within genomes [15].

Objective 3. AKM originally developed the bacterial SELECT method, with WG. Adaptation of the method was designed with team members AKM, WG, AW, NG, JU and Stevenson [1].

References

1. Stevenson, E.M., et al., *Antifungal Exposure and Resistance Development: Defining Minimal Selective Antifungal Concentrations and Testing Methodologies.* Frontiers in Fungal Biology, 2022. 3. **2.** Murray, A.K., et al., *The 'SELection End points in Communities of bacTeria' (SELECT) Method: A Novel Experimental Assay to Facilitate Risk Assessment of Selection for Antimicrobial Resistance in the Environment.* Environmental Health Perspectives, 2020. 128(10): p. 107007. **3.** EA, *Scoping review into environmental selection for antifungal resistance and testing methodology*. 2022, EA: Bristol. **4.** Assress, H.A., et al., *Target quantification of azole antifungals and retrospective screening of other emerging pollutants in wastewater effluent using UHPLC –QTOF-MS.* Environmental Pollution, 2019. 253: p. 655-666. **5.** Assress, H.A., et al., *Azole antifungal resistance in fungal isolates from wastewater treatment plant effluents.* Environmental Science and Pollution Research, 2021. 28(3): p. 3217-3229. **6.** Monapathi, M.E., C.C. Bezuidenhout, and O.H.J. Rhode, *Water quality and antifungal susceptibility of opportunistic yeast pathogens from rivers.* Water Science and Technology, 2016. 75(6): p. 1319-1331. **7.** Kullberg, B.J. and M.C. Arendrup, *Invasive Candidiasis.* New England Journal of Medicine, 2015. 373(15): p. 1445-1456. **8.** Perlin, D.S., R. Rautemaa-Richardson, and A. Alastruey-Izquierdo, *The global problem of antifungal resistance: prevalence, mechanisms, and management.* The Lancet Infectious Diseases, 2017. 17(12): p. e383-e392. 9**.** Farmakiotis, D. and D.P. Kontoyiannis, *Epidemiology of antifungal resistance in human pathogenic yeasts: current viewpoint and practical recommendations for management.* International Journal of Antimicrobial Agents, 2017. 50(3): p. 318-324. **10.** Healey, K.R., et al., *Prevalent mutator genotype identified in fungal pathogen Candida glabrata promotes multi-drug resistance.* Nature Communications, 2016. 7(1): p. 11128. **11.** Murray, A.K., et al., *Dawning of a new ERA: Environmental Risk Assessment of antibiotics and their potential to select for antimicrobial resistance.* Water Research, 2021: p. 117233. **12.** Klümper, U., et al., *Selection for antimicrobial resistance is reduced when embedded in a natural microbial community.* The ISME Journal, 2019. 13: p. 2927-2937. **13.** Fick, J., et al., *Results from the Swedish National*

Screening Programme 2010 Subreport 3. Pharmaceuticals. 2011. **14.** Ball, B., M. Langille, and J. Geddes-McAlister, *Fun(gi)omics: Advanced and Diverse Technologies to Explore Emerging Fungal Pathogens and Define Mechanisms of Antifungal Resistance.* mBio, 2020. 11(5). **15.** Abbey, D.A., et al., *YMAP: a pipeline for visualization of copy number variation and loss of heterozygosity in eukaryotic pathogens.* Genome Medicine, 2014. 6(11): p. 100. **16.** Gerstein, A.C. and N.P. Sharp, *The population genetics of ploidy change in unicellular fungi.* FEMS Microbiology Reviews, 2021. 45(5). **17.** Gullberg, E., et al., *Selection of Resistant Bacteria at Very Low Antibiotic Concentrations.* Plos Pathogens, 2011. 7(7). **18.** Greenfield, B.K., et al., *Modeling the emergence of antibiotic resistance in the environment: an analytical solution for the minimum selection concentration.* Antimicrob Agents Chemother, 2017. **19.** Van Dijck, P., et al., *Methodologies for in vitro and in vivo evaluation of efficacy of antifungal and antibiofilm agents and surface coatings against fungal biofilms.* Microb Cell, 2018. 5(7): p. 300-326. **20.** Kraupner, N., et al., *Selective concentration for ciprofloxacin resistance in Escherichia coli grown in complex aquatic bacterial biofilms.* Environment International, 2018. 116: p. 255-268.

Ability to deliver

Example 1

Project description
The University of Exeter was awarded [redacted] by the Environment Agency Spring 2021 to co-produce a scoping review and journal publication discussing potential methodologies for studying selection for antifungal resistance (AFR). Both objectives were achieved, with the scoping review finalised July 2021 and the journal publication finalised soon after, this was submitted to a special issue in April 2022 and accepted in May 2022.

Team member	Role(s) within the project
[redacted]	• [redacted]
[redacted]	• [redacted]
[redacted]	• [redacted]
[redacted]	• [redacted]
[redacted]	• [redacted]
[redacted]	• [redacted]

The success of this project can be attributed to several key factors:
1. Expertise. Leading world experts on fungal biology and antifungal resistance [redacted] and environmental dimensions of AMR particularly selection for antibiotic resistance in bacteria [redacted]
2. Previous experience of collaboration. [redacted]
3. Clear roles and responsibilities. Team members had clear roles defined at the start of the project, ensuring accountability and effective cooperation.

4. Regular communication. Achieved through levering available technologies, weekly meetings between [redacted], and regular meetings with the entire team.
5. Commitment. Active participation, including meeting attendance and producing outputs.

Example 2

Project: GW4 AMR Alliance: 'Our Interdisciplinary Approach to One Health AMR'
The GW4 (Great West) Alliance brings together the assets from the University of Exeter, the University of Bristol, the University of Cardiff, and the University of Bath to share resources and achieve high scale, collaborative, interdisciplinary working. The GW4 AMR Alliance's research vision is to become the UK's leading 'One Health' Antimicrobial Resistance (AMR) research consortium, recognised globally, as a partner of choice for future AMR research consortia funding to help mitigate the urgent threat of AMR. The AMR Alliance builds on strong and diverse portfolios of AMR research across all four institutions, particularly in the 'One Health' domain, but the global challenge of AMR can only be tackled by all disciplines working together including the arts, humanities, social sciences, STEM subjects and the clinical sciences (along with stakeholders, industry, and civic partners). The group has a high-level facilities inventory of relevant shared equipment and has generated case studies and data sets that are making a significant impact in AMR. Examples of major capabilities include the MRC Centre for Medical Mycology at Exeter, ALSPAC data at Bristol, and Bath's Manduca Sexta colony. Gaze, Warris and Gow lead the Exeter component of this collaboration and are actively involved in generating synergies between the four universities. At Exeter, the "Microbes and Society" research network (dovetailed with the GW4 AMR Alliance) was recently established to bring together microbiologists, mycologists, social scientists, and AMR researchers to address interdisciplinary research questions such as the proposed project.

Team member	Role(s)
[redacted]	• [redacted]
[redacted]	• [redacted]
[redacted]	[redacted]

The combined expertise of the team in their respective research areas and management of high-level consortia and institutions has contributed to this project's success.

[redacted]

[redacted]

Timetable

Deliverables GANNT chart

Deliverables	Aug	Sept		Oct		Nov		Dec		Jan		Feb		March	
1. Kick-off meeting To discuss roles, timelines, experimental plans (all team members)															
2. Progress meetings Regular meetings with select team members to discuss experimental progress															
3. Delivery of draft protocols Written summary of protocols trialled, for incorporation into final report															
4. Determination of minimal selective concentrations See below for additional details															
5. Final draft of project report Writing of report															
Final draft of project made available to the Environment Agency for review															

Details on Deliverable 4.
(Determination of minimal selective concentrations)

Objective	Task	Oct		Nov		Dec		Jan		Feb		Mar	
Objective 1. Trial of experimental system 1: Single species competition assays	Measure growth rate of selected test strains, to determine relative fitness												
	Single species competition assays (initially with clinical antifungals)												
	Screening strains for resistance to agricultural azoles												
	Data analysis												
Objective 2. Determine if *de novo* resistance arises under sub-inhibitory exposure	DNA extraction												
	Send samples for sequencing												
	Sequence analysis												
Objective 3. Trial use of the SELECT method with a culture of mixed *Candida glabrata* tagged with different fluorescent proteins	Confirm ability to separate 3 – 5 differentially tagged strains following mixing												
	SELECT assay												
	Enumerating strains												
	Data analysis												

Gantt chart of planned work

Deliverables	Aug	Sept		Oct		Nov		Dec		Jan		Feb		March	
Kick-off meeting To discuss roles, timelines, experimental plans (all team members)															
Progress meetings Regular meetings with select team members to discuss experimental progress															
Delivery of draft protocols Written summary of protocols trialled, for incorporation into final report															
Determination of minimal selective concentrations															
Final draft of project report Final draft of project made available to the Environment Agency for review															

Quality assurance

We set up agreements to cover any work undertaken. This ensures that everyone's responsibilities are clear with key milestones. It is the Academic Lead's responsibility to monitor progress in line with the timeline and quality of work in line with Exeter University's Research Standards. Research is about discovery and outcomes are unpredictable, so while we cannot guarantee any specific outcome, our researchers will always complete projects to be able to fully report on the processes and outcomes such that we can learn and progress from these.

Programme management
As a University, we have a permanent team, long term strategy and expertise within the field. Bidding will only take place if the research group has capacity to deliver on time and on budget. Generally, our research projects at the University are longer term, at an average of 1-2 years in length. This allows us to take on shorter projects in the interim, using our researchers who work with our academics and professors and are an agile group that can be deployed to meet the outputs of specific projects.

This project will draw upon the expertise of world-renowned experts in the fields of fungal biology and One Health/environmental dimensions of antimicrobial resistance. We will adapt the same method of working as in our previous project with the EA, by having regular team meetings, keeping in touch via email, and establishing clear roles for individuals at the beginning of the project.

Once the project has begun, the academic lead will work closely with the project team to ensure the workplan stays on track in terms of budget, timelines and deliverables. The workplan has been set out in line with the individuals' expertise and availability and is deemed to be reasonable and feasible to meet the expectations of the project.

Risk management
The risks of undertaking such work would be related to health and safety, challenges to delivery due environmental or disease shocks to normal working practices, and workload management in academic teams. All of these would be carefully articulated and mitigated through the selective nature of the framework and meticulous project planning and effective monitoring and evaluation against stated timelines and key milestones.

In addition to the risk management within the project team, we are further supported through a central team, the Compliance, Governance and Risk team, who provides professional advice, support and guidance to the University's Colleges and Professional Services on institutional, academic and corporate governance and oversee key aspects of legislative and regulatory compliance.

Handling complaints
Where issues relate to the performance of an academic member of staff, we would involve the hierarch of the academic College to which that academic belongs as part of the escalation process, starting with the academic's Head of Department, further escalating to College Associate Dean for Research and finally the College Pro-Vice Chancellor if needed.

Contingencies
In the unlikely event of injury, illness, death or resignation of key personnel, the work would be completed in time by redeploying other academic and research personnel with necessary expertise, or in the unlikely event that none is available, employing a suitable person.

Communications with EA Project Manager
The University of Exeter is a leading UK research institution with much experience of delivering projects with customers, and a comprehensive understanding of the relationship and communication requirements that form a key part of the delivery of these projects. Lines of communication and frequency of reporting will be established as part of each proposal submitted and a Lead Academic will be identified and will act as the main point of contact for reporting and progress updates.

We would envisage each project to have a defined reporting schedule for formal progress updates, which would be monthly or quarterly depending on complexity of the project. These

formal meetings will allow both parties to discuss the project implementing and discuss any concerns that may have arisen during the reporting period.

In addition to these formal meetings, the Academic Lead will be available via email or video conference for urgent enquiries and matters.

Project Team

CVs

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

- [redacted]
- [redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]

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[redacted]	[redacted]
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[redacted]	[redacted]

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[redacted]

[redacted]

GDPR

The University takes data protection (and wider GDPR) extremely seriously and is mandated to conform to the controls required to protect individual's data. Additionally, the University also has other important and valuable data; sometimes collectively referred to as Intellectual Property (IP).

Data Protection Impact Assessments will be undertaken to identify the probability and impact of security failures and to determine the appropriate security measures to be applied to information. The University will maintain an information asset register. The University adopts a standards-based framework for information security and will use the BS ISO / IEC 27000 Information Security Standard suite of documentation.

For this study, there are no research participants, and all Academics and Researchers are University of Exeter employees, who are bound by their employment contract – with regard to data protection, IP, GDPR. Any breaches will be overseen by [redacted]

The project will ensure that, if any individual's data processing is necessary, that the data processing is lawful, minimised and accurate. Written consent will be sought from any individual affected before any data is obtained if none of the other five alternatives, relating to Lawfulness of Processing apply. The University's Information Asset Register will be completed in accordance with any data processing and the decision. The University of Exeter, all it's employees and subcontractors are bound by employment contracts or subcontracts that ensure they adhere to all 8 GDPR principles.

All University Laptops are encrypted with BitLocker to prevent unauthorised access. Online information is held on servers which only authorised personnel have access to and further security measures for classified information (e.g. further password protection for specific drives) can be obtained from the IT department.

All staff are required to undertake mandatory information governance training, in order to ensure people are aware of obligations and to remove the human element from information security. It allows the University and individuals to ensure that information is accurate, dealt with legally, securely, efficiently and to deliver the best possible service. This applies to all information that is owned, stored or processed by the University or on behalf of the University.

This University's Policy will be regularly reviewed by the Information Governance & Security Steering Group to ensure that it remains appropriate in the light of any relevant changes to the law, University policies, contractual obligations, technological developments and emerging threats.

Information Commissioner's Office Registration Number: Z5785872

Sustainability

Social Value

This project will contribute towards environmental stewardship by informing regulatory targets for antifungals and providing means to generate more data by establishing a test system.

Sustainability

This project will contribute to environmental sustainability by generating data that will be useful for understanding risks of antifungal pollution in the environment. This may lead to regulatory changes in future.

The University of Exeter has ISO 14001 accreditation and is working strategically to improve sustainability across its entire operations through its Environmental Sustainability Policies. The 2020 Environment and Climate Emergency Policy Statement Goals are: 1) All Campus activities/ operations shall have a carbon net zero impact and or result in environmental gain by 2030 and aim to be carbon net zero by 2050. 2) The University aims to be a leader within the sector as set out in the Environment and Climate Emergency Working Group Report (Nov 2019).

Our research laboratories adhere to a constantly evolving set of rules and standards that allow us to minimise laboratory waste as much as possible. Reducing the use of single-use laboratory plastics is vital here. Consequently, the University is working to support our research laboratories to use, recycle, and dispose of plastic items in a responsible possible and be as sustainable as possible.

The University has adopted a variety of methods that allow us to reduce the use of single-use plastic within lab settings. These include substituting single-use plastic apparatus with glass, substituting single-use plastic apparatus with reusable items, reducing packaging plastics, planning experiments more efficiently to reduce plastic.

As an organisation, we apply circular economy principles, develop pragmatic solutions with impact and work in partnership with third parties who provide retail and residential services on our campuses. This has ensured we use less single-use plastics, utilise alternative materials and adopt sustainable disposal solutions wherever possible. As part of our strategy:

- We monitor national/regional markets for innovation and plastic free solutions and implement where feasible.
- We seek to reduce the number of single-use plastics we use on our campuses by eliminating their use, reducing the amount we use or promoting reuse solutions.
- We ensure we have a sustainable waste management solution for those single-use plastics we use and seek to close the loop by purchasing products made from recycled materials.

We have introduced a series of initiatives that enable us to carry out sustainable research. Our green lab programmes are evolving every day to address new problem areas and ensure sustainability. The Green Rewards initiative at University of Exeter rewards students and staff for taking positive sustainability and wellbeing actions.

The University of Exeter has protocols in place regarding lab consumables – the project will follow these guidelines which constitute the only supply chain element.

Furthering equal opportunities

The University of Exeter has been a member of Advance HE's Athena SWAN charter since 2011 and has held an institutional Silver award since 2018, while departmental awards are held by all nine of our STEMM departments at either Bronze or Silver level.

The University's vision is to create a positive and inclusive working environment which is a great place to work. Promoting and embedding gender equality is central to this vision and our progress in this area has been recognised with our institutional Athena SWAN Silver Award. In addition to this, we continue to develop initiatives and actions to support staff of all genders in their careers.

Credibility of project delivery
This project will be delivered by an expert team with a track record of collaboration and project delivery for the Environment Agency. We will utilise inhouse strain collections and up and running analysis pipelines to streamline data collection and analysis. Our team includes two post-doctoral researchers and a Research Fellow collaborator that will perform lab work, based in a cutting-edge and established laboratory; as well as team members that will work specifically on writing the report. No foreseeable risks to on-time delivery are anticipated.

Progress monitoring and reporting
The University of Exeter is a leading UK research institution with much experience of delivering projects with customers, and a comprehensive understanding of the relationship and communication requirements that form a key part of the delivery of these projects. Lines of communication and frequency of reporting will be established as part of each proposal submitted and a Lead Academic will be identified and will act as the main point of contact for reporting and progress updates.

We would envisage each project to have a defined reporting schedule for formal progress updates, which would be monthly or quarterly depending on complexity of the project. These formal meetings will allow both parties to discuss the project implementing and discuss any concerns that may have arisen during the reporting period.

In addition to these formal meetings, the Academic Lead will be available via email or video conference for urgent enquiries and matters.

Timeline
August – September: Project meetings, set up.
October – March: Wet and dry data generation and analyses.
October – March: Writing draft of final report.
End of March: Delivery of draft of final report.

Method statement
We will achieve our expected deliverables by drawing upon the pool of expertise of all team members, from the research-specific to project management to on the ground training, mentoring and laboratory techniques. We have set out a clear experimental plan with minimal foreseeable risks, to deliver the outcomes requested by the Environment Agency. We will build upon existing collaborations to work cohesively as a team to deliver these.

Annex 4 – Sustainability

1 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 though 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 authority 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: • Government Department; • Non-Departmental Public Body or Assembly Sponsored Public Body (advisory, executive, or tribunal); • Non-Ministerial Department; or • Executive Agency;
"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"	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: 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 b) is required by the Supplier in order to provide the Deliverables; and/or c) has been or shall be generated for the purpose of providing the Deliverables;
"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) (https://www.gov.uk/government/publications/procurement-policynote-0815-tax-arrangements-of-appointees) 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

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.

15.20The 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 the Environment Agency, please contact Peter Kellett, Director of

Legal Services at Horizon House, Deanery Road, Bristol BS1 5AH, email peter.kellett@environment-agency.gov.uk mobile 07810 180974", and

(b) 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.