Agreed Work Order Form

In respect of the Plant and Bee Health Services Call-Off Agreement dated 11 March 2015.

Customer to complete:

Parties to Additional Services:	THE SECRETARY OF STATE FOR ENVIRONMENT, FOOD AND RURAL AFFAIRS acting through the Department for Environment, Food and Rural Affairs (Defra) and Fera Science Limited a company incorporated in England and Wales (registered with number 09413107) and whose registered office is at 65 Gresham Street, London, EC2V 7NQ (the "Company").
Customer Directorate:	Plant and Bee Health
Customer day to day contact (name, email, telephone):	[redacted]
Additional Services Title:	**Identification service for of invasive invertebrate pests and diseases in the UKOTs**
Additional Services Ref:	**FR/002742**
Start Date:	19th August 2022
End Date:	31st March 2025
Address for invoices (non-Defra group customers only)	N/A

Details of work requirement:

P&BH Call-Off Agreement:	Commercial costing form to be complete by Fera.
Aim and Objectives of the requirement:	The aim of the project is to strengthen biosecurity in the UK Overseas Territories by delivering the following objectives: 1. Provide an identification service for invasive invertebrate plant pests for all of the UKOTs: including invasive non-native invertebrate plant pests which impact on biodiversity and commercial interests. Identifications will primarily be based on morphology, but molecular

	diagnosis will be provided for up to 15 samples where appropriate. 2. Provide rapid advice, wherever possible, when bio security threats are detected, in the form of guidance on appropriate measures. 3. Provision of remote (e.g. online) basic training to colleagues in overseas territories so that local capacity is developed where resources permit this. 4. Provide support in the identification of invasive ants (Hymenoptera: Formicidae) in the UKOTs (specifically Ascension Island and Saint Helena). 5. Provide identifications of pathogens on endangered and endemic plants in the UKOTs
Policy Rationale:	The UKOTs are recognised as having a rich biodiversity that is under serious threat from invasive non-native species. Preventing the establishment of invasive alien species in the UKOTs is a strategic priority set out in the *UK Overseas Territories Biodiversity Strategy*. This project also supports objectives in the *GB Non-Native Species Strategy.* Rapid and accurate identification of potential invasive non-native species is the essential first step in preventing their establishment. The Plant Protection Programme (PPP) at Fera Science Ltd. provides statutory diagnostic and training services for the England and Wales Plant Health Service, and has a wealth of experience and expertise in the identification of all plant-feeding insects, mites and nematodes, as well as plant pathogens. The Invertebrate Identification Team within the PPP has led a Defra-funded project to provide an identification service for invasive invertebrate pests for the UKOTs since November 2009. Providing this service would help meet our commitments set out in the 25 Year Environment Plan, specifically taking action to recover threatened, iconic or economically important species and, where possible, to prevent human-induced extinction or loss of known threatened species in the Overseas Territories. In addition, it would also contribute to improving OTs' ability to meet international obligations to protect biodiversity, including under the Convention on Biological Diversity and UN Sustainable Delivery Goals.

Main Deliverables and Performance Indicators	The Company shall perform the Additional Services in accordance with the specification of requirements below and the terms of the Call-Off Agreement. In particular, the Company shall comply with any timelines and provide any deliverables set out in the specification of requirements. ***WP1: Identification service for of invasive invertebrate pests in the UKOTs*** • Provide an identification service for invasive invertebrate plant pests for all the UKOTs; including invasive non-native invertebrates which impact on biodiversity and commercial interests. • Identifications will primarily be based on morphology, but molecular diagnosis will be provided for up to 15 samples where appropriate. • Provide rapid advice, wherever possible, when biosecurity threats are detected, in the form of guidance on appropriate measures. • Provision of remote (e.g. online) basic training to colleagues in overseas territories so that local capacity is developed where resources permit this. ***WP2: Identification of invasive ants (Hymenoptera: Formicidae) in the UKOTs*** • Provide a protocol for collection, preservation, and submission of ant samples to Fera. • Identify ants to species using morphological study and DNA sequencing. • Identify future threats, based on the previous Horizon Scanning study and on new data gathered during this study • Provide specialist training on ant collection, identification and preservation during planned training visits. In year one, a continuation of the initial 'proof of concept' study with a focus on the invasive ants of Ascension Island and Saint Helena (ODA) and identify potential future threats. In year two, expand the project to two territories within the Caribbean

	(Montserrat (ODA) and one other to be agreed). In year three, expand the study to two further territories (to be agreed). **WP3: Identification of plant pathogens on endemic and endangered plants in the UKOTs** • Support conservation and biosecurity efforts in the UKOTs by identifying pathogens on endemic and endangered plant species. Biosecurity staff, RBG Kew and National Trust staff will photograph samples of suspected disease symptoms on plants and submit them to Fera. Fera pathologists will determine whether submission of a sample is necessary. • Samples submitted will be tested using the most appropriate morphological and molecular method. **WP4: Gut content analysis of invasive predatory invertebrates in Saint Helena** • Support Saint Helena National Trust's endemic invertebrate recovery project (Darwin Initiative) in determining whether two invasive species, the common wasp (*Vespula vulgaris)* and the springbok mantis (*Miomantis caffra*) are preying upon SH's endemic invertebrates, such as the spiky yellow woodlouse, *Pseudolaureola atlantica.* • Analyse the gut contents of 50 to 70 individual invertebrates using DNA-based methods (DNA metabarcoding) • Identify prey contents to species (for those represented on DNA databases) and to genus or family (for those not represented) and give approximate figures for the total number of species (identified and unidentified) • DNA sequencing of target endemic invertebrates. Should COVID19 impact upon the UKOTs ability to submit samples for identification the cost of this service should be reviewed. The number of samples processed will be limited by the staff time allocated to the project. If a large number of samples are received, these will be triaged and priority samples identified to species, and lower priority samples may be identified to a higher taxon

Is Personal data to be used in this requirement? Please outline information on any personal data	n/a
Required deliverables:	**WP1:** Provide a written annual report detailing: • The territories that have made use of the service. • The number of samples provided. • A summary of the results, details of advice and training provided. • Required by: **March 31st 2023, March 31st 2024, 31st March 2025** **WP2:** • Provide a protocol for collection, preservation, and submission of ant samples to Fera. • Provide training on ant collection, preservation methods and identification to UKOT biosecurity officers, increasing in territory capacity to identify non-native ants. • Produce a written report detailing ant species identified and a field-guide to the ant species. • Update checklists of invasive ants in the UKOTs to enable future potential threats to be identified. • Pin, label and photograph ants identified. Set up reference collections of validated specimens for the UKOTs. • Required by: **31st March 2025** **WP3:** Provide an annual written report detailing: • The territories that have made use of the service, the number of samples provided, a summary of the results, details of advice and training provided. • Required by: **31st March 2023, 31st March 2024, 31st March 2025** **WP4:** Provide a written report detailing: • Outcome of gut content metabarcoding analysis for each sample

	• Details of identifications of prey contents to species (for those represented on DNA databases) and to genus or family (for those not represented) and give approximate figures for the total number of species (identified and unidentified) • Required by: **31st March 2025**	
Requirement	Activity	Method of Monitoring
WP1: Identification service for of invasive invertebrate pests in the UKOTs	Provision of a written report	Review and acceptance of report by Defra
WP2: Identification of invasive ants (Hymenoptera: Formicidae) in the UKOTs	Development of sampling protocols; training; horizon scanning and curation of reference sample collection	Review and acceptance of report by Defra
WP3: Identification of plant pathogens on endemic and endangered plants in the UKOTs	Provision of a written report	Review and acceptance of report by Defra
WP4: Gut content analysis of invasive predatory invertebrates in Saint Helena	Provision of a written report	Review and acceptance of report by Defra

Fera to complete:

Fera day to day contact (name, email, telephone):	[redacted]			
Total cost of Additional Services (Call-Off Day Rates set out in Schedule 10 of the Framework Agreement shall apply to the additional services set out in this Work Order).	£155,325 Total cost should be quoted less VAT which should be added to invoices at the prevailing rate.			
Cost by Financial Year	2022/23	2023/24*	2024/25*	
	£61,137.12	£46, 287	£47,901	

Costing Detail

[redacted]	[redacted]			[redacted]			[redacted]			[redacted]
	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	
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[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	
[redacted]							[redacted]	[redacted]	[redacted]	
							£61,137.12	**£46,286.92**	**£ 47,900.69**	**£ 155,324.73**

Payment: Annually upon completion of FERA WP report.

***Costs will be subject to annual CPI rate adjustment and will be confirmed prior to the start of the relevant financial year.**

Fera to complete where proposed work will impact on Plant and Bee Health Call-Off Agreement and Specialist Facilities and Services Call-Off Agreement:

Does the delivery of this additional work affect delivery of the agreed annual plan and/or use the facilities covered by the above agreements?	No If yes please describe below:

Authorising Signatures:

[redacted]