Serapis Tasking Form

Tasking Form Part 1: (to be completed by the Authority's Project Manager)

То:	Lot 5 Newman & Spurr Consultancy Ltd	ot 5 Newman & Spurr From: The Authority Consultancy Ltd						
Any Task placed as a result of your quotation will be subject to the Terms and Conditions of Framework Agreement Number:								
LOT 5 DSTL/AGR/SERAPIS/SSE	/01							
VERSION CONTROL								
V1.4								
REQUIREMENT								
Proposal Required by:	28/02/2022	Task ID Number:	SSE39					
The Authority Project Manager:	[REDACTED]	The Authority Technical Point of Contact:	[REDACTED]					
Task Title:	TRED Simulation Environ	emt, Data and API						
Required Start Date:	08/04/2022	Required End Date:	17/06/2022					
Requisition No:	RQ0000003002	Budget Range	£65k					
TASK DESCRIPTION AND SPEC	CIFICATION							
Serapis Framework Lot	Serapis Framework Lot □ Lot 1: Collect □ Lot 2: Space systems □ Lot 3: Decide □ Lot 4: Assured information infrastructure □ Lot 5: Synthetic environment and simulation □ Lot 6: Understand □ Lot 6: Understand □							
Statement of Requirements (SC	PR)							
For Dstl and specifically the Defence AI Centre Experimentation Hub (DAIC-X) delivery team for concept 1 there is a requirement to showcase and demonstrate AI-services that control a platform with stealthy behaviour as well as having the ability to react accordingly to a dynamic scenario to enable future exploitation of the AI-services involved by the [REDACTED] project. This behaviour is to be referred to as being "threat aware". The first step is to utalise a simulated environment that will allow for ideas to be developed and experimendted with in a safe and cost effective manner. A previous [REDACTED] simulated environment, developed by [REDACTED], was used								

suitable starting point to be able to generate AI-enabled "threat aware" behaviour, but there is a requirement to add to and adjust its current capabilities in order to be effective.

With the understanding that development of this dynamic "threat aware" behaviour has already begun the requirements for this work comes in two stages which allow for access to the initial environment, terrain data and

proved for an un-crewed air vehicle (UAV) before proceeding to trials. This existing simulation environment is a

Python API in stage 1 and an updated/refined versions in stage 2. The requirement for each element have been detailed below.

Terrain Data:

To allow for an efficient and iterative approach to developing the concept, the delivery team require accurate and representative data to be provided/accessible that will act as a conduit to deploying an AI-service trained in early stages to be able to perform well in the full simulation environment (for further details see The Unity Environment section). The data will be required to contain environment terrain information to include at least the height and type of the terrain, natural elements and man-made structures. This will be able to be used in conjunction with the delivery team's own risk-maps in order to train AI algorithms to be able to complete a mission whilst being "threat aware".

Python API:

The Python API that is designed to be used in the final delivery of the simulation should be provided so that development of the AI-services can progress in the direction of the future simulation software, allowing for an easier transition between Stage 1 and Stage 2 deliverables as the environment gets updated. The API should include config and a post mission report formats. This will allow for the delivery team to configure suitable experiments and provide information for further analysis on the missions, timestamped location data should be accessible for all of the entities within the environment.

The Unity Environment:

The previous TRED simulated environment was developed using Unity3D and this should remain the case for the further development as this will maintain engagement and familiarity to the customer. A standalone Unity 3D desktop application should be provided to give the delivery team full access to the simulated environment to be able to conduct the necessary tests and experiments. For the best engagement the simulated environment should reflect a realistic scenario as far as possible, this means that a number of features should be included:

- Realistic Terrain: Inclusion of natural elements (trees, grass, rivers, ponds, etc.), standard routes that could be followed (paths, roads, trails, etc.), man-made structures (buildings, fences and other static objects) and moving elements vehicles (pedestrians, cars, vans, trucks, etc.)
- Physics and Control: Flight dynamics and emulated control modules should be used to ensure realistic motion of UAV and other threat elements within the environment. Game engine physics is expected to control aspects such as collisions and gravity.
- User Configurable Entities: The users need to be able to configure the environment in a suitable way for the development and demonstration of AI-services. This means that physical characteristics of the platform and threats should be configurable (speed, acceleration, mass, etc.). In addition the routes that the platform and threats could follow and at what times should be configurable. The total number of dynamic threats should not be constrained and left to the delivery team to decide how complex the scenarios should be in this regard.

Procurement Strategy	
\Box Lot Lead to recommend	⊠Single Source / Direct Award
Directed Supplier:	
[REDACTED]	
Pricina:	

Firm Pricing

 \Box Ascertained Costs*

□ Other*

Firm Pricing shall be in accordance with DEFCON 127 and DEFCON 643

Ascertained Costs shall be in accordance with DEFCON 653 or DEFCON 802.

*only at Authority's discretion

Task IP Conditions

TaskIPConditions(Followthe[REDACTED]guide to identify your information andIP requirements for each deliverable)	Summary of the Authority's rights in foreground IP (IP generated by the supplier in performance of the contract)
DEFCON 703 🛛	Vests ownership with the Authority
DEFCON 705 Full Rights	Enables MOD to share in confidence as GFI or IRC under certain types of agreements. Can be shared in confidence within UK Government.
OTHER IP DEFCONS: 14 [*] □, 15 [*] □, 16 [*] □, 90 [*] □, 91 [*] □, 126 [*] □	Generally only suitable for deliverables at TRL 6 and above.
BESPOKE IP Clause *	Details to be added and agreed by IP Group
* Do not use without IPG advice and approval	

Please state in this text box if MOD or the customer has a requirement a) that one or more Other Government Departments is able to share confidentially with their own suppliers, b) to publish but you do not think there is a requirement to own or control the deliverable, or c) to share under a procurement* Memorandum of Understanding (MOU).

If any of these three issues applies, please contact IPG for advice before completing this form. *Listing research MOUs is not required, but can be a helpful courtesy to the supplier.

DELIVERABLES

<u>Ref</u>	<u>Title</u>	Due by	<u>Format</u>	<u>TRL</u>	Expected classification (subject to change)	Information required in deliverable	IPR DEFCON
D1.1	Terrain Data	T0+5 weeks	Terrain data maps		[REDACTED]	Height, texture and type of feature that is present within the simulation at all possible locations within the environment.	703

D1.2	Early Stage Unity Desktop	T0+5 weeks	Unity Executable (.exe) and	[REDACTED]	A Unity 3D simulation environment Desktop executable that:	703
	Executable		user guide		Allows AI services trained using data from D1.1 or data directly from the environment (D2.1) to manoeuvre a UAV that is following waypoints or direct control using accurate physics and emulated flight control systems	
					• Contains realistic scenarios including features such as buildings, roads, paths and trees etc.	
					• Contains elements that can be considered as a threat, e.g. cars and pedestrians, that can be either static or dynamic	
					 Allows for a suitable degree of configuration for the environment, including the platform dynamics, threat dynamics and their waypoints 	
					Visualises a risk-map that is representation of the "Threat Aware" elements for the UAV for demonstration purposes Eacilitates suitable bardware	
					in-the-loop	
D1.3	Early Stage API Design	T0+5 weeks	Config file and post mission report format	[REDACTED]	Information on how to construct config files and post mission report files such that it adheres to the full simulation environment being developed (D1.1).	703
D1.4	Interim Review meeting	T0+5 weeks	Virtual Meeting	[REDACTED]	Meeting to discuss and review the work that has been done to date and to inform the next stage of development.	703
D2.1	Updated Unity Desktop Executable	T0+10 weeks	Unity Executable (.exe) and user guide	[REDACTED]	 A Unity 3D simulation environment Desktop executable that: Allows AI services trained using data from D1.1 or data directly from the environment (D2.1) to manoeuvre a UAV that is following waypoints or direct control using 	703

					 emulated flight control systems Contains realistic scenarios including features such as buildings, roads, paths and trees etc. Contains elements that can be considered as a threat, e.g. cars and pedestrians, that can be either static or dynamic Allows for a suitable degree of configuration for the environment, including the platform dynamics, threat dynamics and their waypoints Visualises a risk-map that is representation of the "Threat Aware" elements for the UAV for demonstration purposes Facilitates suitable 	
					 Facilitates suitable hardware-in-the-loop 	
D2.2	Final API Design	T0+10 weeks	Config file and post mission report format	[REDACTED]	Information on how to construct config files and post mission report files such that it adheres to the full simulation environment being developed (D2.1).	703
D2.3	Final Review meeting	T0+10 weeks	Virtual Meeting	[REDACTED]	Meeting to discuss and review the work that has been done to date and to cover the close of the project.	703

DELIVERABLE: ACCEPTANCE / REJECTION CRITERIA

Unless otherwise stated below, Standard Deliverable Acceptance / Rejection applies. This is 30 business days, in accordance with DEFCON 524 Rejection, and DEFCON 525 Acceptance.

Standard Deliverable Acceptance / Rejection:-

Yes ⊠ (DEFCON 524 Rejection, and DEFCON 525 Acceptance)

Deliverable Acceptance / Rejection Criteria:-

If there are any other specific acceptance/rejection criteria you would like to apply to any of the deliverables, please state them here.

Government Furnished Assets (GFA)

ISSUE OF EQUIPMENT/RESOURCES/INFORMATION/FACILITIES (*if not applicable, delete table and insert "None" in this text box*)

<u>Unique</u> Identifier/ Serial No	<u>Description</u>	Classification	Туре	<u>Available</u> <u>Date</u>	<u>lssued</u> by	<u>Return or</u> <u>Disposal</u> <u>Date</u>	Any restrictions?
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Serial no	Description	[REDACTED]	Equipment	00/00/0000	lssuer	00/00/0000	Include here	details	
QUALITY	STANDARDS				L				
□ ISO900	1 (Quality Manag	gement Systems	3)						
□ ISO140	01 (Environment	Management Sy	stems)						
□ ISO122	07 (Systems and	software engine	ering — soft	ware life cycl	e)				
🗆 TickITF	Plus (Integrated a	oproach to softw	are and IT d	evelopment)					
□ Other:	(Please speci	fy in free text be	low)						
[REDACTE	ED]								
TAOK OVE					F (00 s s				
TASK CYE	BER RISK ASSESS	MENI. (In acco	rdance with	<u>DEFSTAN 0</u>	<u>5-138</u> and	the <u>Risk Ass</u>	essment	<u>vvorktiow</u>)	
Cyber Ris	sk Level	[REDACTED]							
Risk Asse	Risk Assessment Reference [REDACTED]								
ADDITIONAL TERMS AND CONDITIONS APPLICABLE TO THIS CONTRACT									
[REDACT	[REDACTED]								

Please ensure all completed forms are copied to <u>DSTLSERAPIS@dstl.gov.uk</u> when sending to the Lot Lead.

Tasking Form Part 2: (To be completed by the Lot Lead)

To: The Authority		From:	The Lot Lead							
Proposal Reference NSC	Proposal Reference NSC-820-1761 V1.0 (attached)									
Delivery of the requirement:	Delivery of the requirement:									
The proposal <u>shall</u> include, bu	The proposal <u>shall</u> include, but not be limited to:									
 A full technical proposal that meets the individual activities that are detailed in Statement of Requirements (Part 1 to Tasking Form). Breakdown of individual Deliverables, with corresponding Intellectual Property rights applied. Breakdown of Interim Milestone Payments, with corresponding due dates. A work breakdown structure/project plan with key dates and deliverables identified. A list of required Government Furnished Assets from the Authority, including required delivery dates. A clear identification of Dependencies, Assumptions, Risks and Exclusions which underpin your Technical Proposal. 										
Sub-Contractors Personr	iel Partic	ulars Research W	orker Form and secu	rity clearances (if applicable)						
You are to use the costs detailed the Serapis Framework Agreeme limited to: Lot Lead Rates, Sub-co you are requested to provide c underpin your price.	l in Item 2 ent. Plea ontractors lear deta	2 Table I in the So se also provide a s costs and rates, ills of all Depend	chedule of Requireme price breakdown wh travel and subsistenc dencies, Assumptions	ent and at Annex E Table 2 of ich should include, but is not e. In support of your Proposal c, Risks and Exclusions that						
Offer of Contract: (to be comple	eted and s	signed by the Cor	ntractor's Commercial	or Contract Manager)						
Total Proposal Price in £	£64,55	1.19		(ex VAT)						
Start Date:	08/04/2	022	End Date:	17/06/2022						
Lot Leads Representative	Name	[REDACTED]	•							
	Tel	[REDACTED]								
	Email [REDACTED]									
Date 28 Mar 22										
Position in Company	[REDA	CTED]								
Signature										

Core Work – Breakdown [REDACTED]

Lot Lead Rates for Self-Delivery (only complete if applicable – otherwise delete table) Please insert/delete rows as necessary

Team Member Name	Role	Activity Type	Rate (£)	Total Hours	LMS recovery per role per hour ('d' element)	Total LMS recovery due (£) ('d' x total hours)	Total Self Delivery Cost (£) (Rate x total hours)
N/A	Choose an item.	Choose an item.					
		Total					

Work Delivered by Sub-Contractor(s)

We recognise that suppliers may fit into multiple categories, please choose the drop down that categorises the supplier by the definition that is lowest on the list (i.e. a Defence Supplier Academic would be treated as an Academic.

Please insert/delete rows as necessary

[REDACTED]			

Travel, Subsistence, Materials & Equipment						
Please insert/delete rows as necessary						
Supplier Name	Spend Type	Description / Unit Rationale Cost (£)		Qty	Total Cost (£)	
N/A Choose an item.						
Total						

Core Work – Milestone breakdown costs

Proposed Milestones Payments

Your TMS bid costs shall be included in milestone 1.

The final Milestone must reflect the actual cost of the deliverable, and be greater than 20% of the Task value, unless otherwise agreed with your Commercial POC

Please duplicate the template per milestone table format below as necessary, and rename milestone number accordingly.

Milestone 01						
[REDACTED]						
Milestone LMS recovery (£)	£235.88					

Milestone 02							
Description	TMS cost (£)	Self- Delivery cost (£)	Sub- contractor cost (£)	Total milestone cost (£)	Milestone due date	DEFCON	
[REDACTED]							
Milestone LMS recovery (£)	£235.88						

Options – Summary

Options Breakdown

Full breakdowns will be requested upon invoking through the Serapis Contract Amendment Form. (If you do not currently know the full options breakdown, please include what you do know and rough order of magnitude costs.)

Only complete if applicable – otherwise delete table.

Re f No	Description	TMS cost (£)	Self- Deliv ery cost (£)	Sub- contractor cost (£)	T&S, Materia I & Equip	<u>Pricing</u>	<u>Star</u> <u>t</u> dat <u>e</u>	<u>End</u> date
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					Cost (£)		
[R ED AC TE D]							
2						Choose an item.	
3						Choose an item.	
4						Choose an item.	
5						Choose an item.	
Please Note: Task Option authorisation is to be issued by the Authority's Commercial Officer through a completed Contract Amendment Form and approved purchase order. No work is to be carried out prior to both of these being issued.							

Tasking Form Part 3:

To be completed by the Authority's Commercial Officer and copied to the Authority's Project Manager.

1. Acceptance of Contract:						
Authority's Commercial Officer Name		[REDACTED]				
	Tel	[REDACTED]				
	Email	[REDACTED]				
	Date	07/04/2022				
Requisition Number		RQ000003002				
Contractor's Proposal Number		NSC-820-1761 V1.0				
Purchase Order Number		DSTL000002458				
Signature		[REDACTED]				
Please Note: Task authorisation to be issued by the Authority's Commercial Officer or Contract Manager. Any work carried out prior to authorisation is at the Contractor's own risk.						