

## RCloud Tasking Form – Part B: Statement of Requirement (SoR)

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| <b>Title of Requirement</b> | Tactical Remote Effects Delivery Long Range Phase 4 (TRED LR4) |
| <b>Requisition No.</b>      | RQ0000009282   |
| <b>SoR Version</b>          | 0.1  |

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| <b>1.</b>  | <b>Statement of Requirements</b>   |
| <b>1.1</b> | <b>Summary and Background Information</b>  |
|            | <p>TRED LR phases 1 to 3 demonstrated a GNSS denied navigation system using Artificial Intelligence (AI) techniques to take off, transit and drop off a payload from an Uncrewed Aerial System (UAS) during the day. Work was conducted under this contract to de-risk the operation at night using novel techniques and equipment solutions. This work package is designed to mature the night time GNSS denied navigation solution to TRL6 and demonstrate it.</p> <p>Military reliance on GPS is becoming ever more vulnerable and the requirement for military users to operate in GNSS denied environments has increased. Navigation and delivery of payloads with GPS accuracy in GNSS denied environments is therefore a critical requirement. This can be seen in the recent transition of Dstl research to UKSTRATCOM for maturation and delivery to the user community <b>Redacted FOI Exemption</b>. This work package is a continuation of previous TRED LR research and will deliver a night time GNSS denied system integrated with the day time solution for subsequent UK STRATCOM maturation to TRL8 and exploitation.</p>  |
| <b>1.2</b> | <b>Requirement</b>   |
|            | <p>Dstl requires the delivery of two core work packages. One providing a GNSS denied navigation solution for night time operations and a second establishing the performance of the day and night time delivered solutions across the world outside the UK temperate environment that has been the test location so far.</p> <p>The work packages and detailed components are listed below. Delivery of these components can be in series of in parallel.</p> <p>Work Package 1 – Night Operations</p> <ul style="list-style-type: none"><li>1.1 Progress map reader for night transit geolocation.</li><li>1.2 Progress visual odometry for night transit dead reckoning.</li><li>1.3 Progress landmark recognition for low light / night high accuracy position fix.</li><li>1.4 Progress map reader for low light transit geolocation.</li><li>1.5 Progress visual odometry for low light transit dead reckoning.</li><li>1.6 Progress landmark recognition for low light high accuracy position fix.</li><li>1.7 Use of active sensor for night final approach.</li><li>1.8 Data collection flights 1.</li><li>1.9 Data collection flights 2.</li><li>1.10 Exercising integrated night method set in flight.</li></ul> |

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|            | <p>Work Package 2 – Global Capability</p> <p>2.1 Extended mission simulation &amp; OA for jamming / spoofing resilience.</p> <p>2.2 Night mission simulation.</p> <p><b>Redacted FOI Exemption</b></p> <p><b>Redacted FOI Exemption</b></p> <p><b>Redacted FOI Exemption</b></p> <p><b>Redacted FOI Exemption</b></p> <p><b>Redacted FOI Exemption</b></p> <p><b>Redacted FOI Exemption</b></p> <p>Note that location of <b>Redacted FOI Exemption</b> trials is TBC and will be subject to user availability and aviation permissions.</p> <p>Dstl requires quarterly progress reports and a final technical deliverable showing evidence of completion of all listed work package components and/or hardware purchases.</p> |
| <b>1.3</b> | <b>Options or follow on work</b> <i>(if none, write 'Not applicable')</i>   |
|            | Not applicable. Should Dstl require further work a new contract option would be developed.  |
| <b>1.4</b> | <b>Contract Management Activities</b>   |
|            | Monthly progress meetings and report from contract award.   |
| <b>1.5</b> | <b>Health &amp; Safety, Environmental, Social, Ethical, Regulatory or Legislative aspects of the requirement</b>  |
|            | <b>ISO9001</b> (Quality Management Systems)   |

| 1.6  | Deliverables & Intellectual Property Rights (IPR) |            |  |  |  |   |
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| Ref. | Title   | Due by     | Format                                 | Expected classification<br>(subject to change) | What information is required in the deliverable  | IPR Condition   |
| D-0  | Hardware purchases ahead of technical build       | Q1 FY22/23 | Images and technical data              | Redacted FOI Exemption                         | Hardware component purchases required for low light and infra-red vision.<br><br>Hardware component purchases for low SWAP edge computing. | <b>DEFCON 705</b><br><br>Standard R-Cloud T&Cs<br><br>MOD may want to exploit outputs and transition to DE&S<br><br>MOD may want to share with other contractors and international partners |
| D-1  | Q2 Progress Report                                | Q2 FY22/23 | Word document and PowerPoint slideshow | Redacted FOI Exemption                         | Progress report showing technical progress to date, plans for subsequent quarter and progression towards final technical deliverable.      | <b>DEFCON 705</b><br><br>Standard R-Cloud T&Cs<br><br>MOD may want to exploit outputs and transition to DE&S<br><br>MOD may want to share with other contractors and                        |

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|     |                    |             |  |                        |  | international partners  |
| D-2 | Q3 Progress Report | Q3 FY22/23  | Word document and PowerPoint slideshow | Redacted FOI Exemption | Progress report showing technical progress to date, plans for subsequent quarter and progression towards final technical deliverable.  | <b>DEFCON 705</b><br>Standard R-Cloud T&Cs<br>MOD may want to exploit outputs and transition to DE&S<br>MOD may want to share with other contractors and international partners |
| D-3 | Final report       | NLT 31/3/23 | Word document and PowerPoint slideshow | Redacted FOI Exemption | <ul style="list-style-type: none"> <li>• Presentation of whitepaper key notes in PowerPoint format to allow discussion and dissemination by Dstl to stakeholders.</li> </ul> | <b>DEFCON 705</b><br>Standard R-Cloud T&Cs<br>MOD may want to exploit outputs and transition to DE&S<br>MOD may want to share with other contractors and international partners |

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| D-4 | Night time demonstration                | NLT 31/3/23 | Demonstration flight |  | Live demonstration at supplier selected location of night time system at TRL 6  | <b>DEFCON 705</b><br>Standard R-Cloud T&Cs<br>MOD may want to exploit outputs and transition to DE&S<br>MOD may want to share with other contractors and international partners |
| D-5 | Demonstration<br>Redacted FOI Exemption | NLT 31/3/23 | Demonstration flight |  | <ul style="list-style-type: none"> <li>Live demonstration at location agreed by supplier and Dstl of day time system Redacted FOI Exemption at TRL 6</li> </ul> | <b>DEFCON 705</b><br>Standard R-Cloud T&Cs<br>MOD may want to exploit outputs and transition to DE&S<br>MOD may want to share with other contractors and international partners |
| D-6 | Demonstration<br>Redacted FOI Exemption | NLT 31/3/23 | Demonstration flight |  | Live demonstration at location agreed by supplier and Dstl of day time system in Redacted FOI Exemption at TRL 6  | <b>DEFCON 705</b><br>Standard R-Cloud T&Cs<br>MOD may want to exploit outputs   |

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|  |  |  |  |  |  | and transition to<br>DE&S<br>MOD may want to<br>share with other<br>contractors and<br>international<br>partners |
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| <b>1.7</b> | <b>Deliverable Acceptance Criteria</b>   |
|            | <p>All reports included as Deliverables under the Contract must comply with the Defence Research Reports Specification (DRRS) <a href="https://www.gov.uk/guidance/submit-a-report-to-athena">https://www.gov.uk/guidance/submit-a-report-to-athena</a> , which defines the requirements for the presentation, format and production of scientific and technical reports, prepared for the MOD.</p> <p>This could be ‘as per Framework T&amp;C’s’ once an appropriate framework is later confirmed (links to section 13 of RCA). Consider the timeframe for our review of deliverable(s) (acceptance/rejection).</p> <p>All Reports included as Deliverables under the Contract e.g. Progress and/or Final Reports etc. must comply with the Defence Research Reports Specification (DRRS) which defines the requirements for the presentation, format and production of scientific and technical reports prepared for MoD.</p> <p>Interim or Progress Reports: The report should detail, document, and summarise the results of work done during the period covered and shall be in sufficient detail to comprehensively explain the results achieved; substantive performance; a description of current substantive performance and any problems encountered and/or which may exist along with proposed corrective action. An explanation of any difference between planned progress and actual progress, why the differences have occurred, and if behind planned progress what corrective steps are planned.</p> <p>Any Final Reports: shall describe the entire work performed under the Contract in sufficient detail to explain comprehensively the work undertaken and results achieved including all relevant technical details of any hardware, software, process or system developed there under. The technical detail shall be sufficient to permit independent reproduction of any such process or system.</p> <p>All Reports shall be free from spelling and grammatical errors and shall be set out in accordance with the Statement Of Requirement (1) above.</p> <p>Failure to comply with the above may result in the Authority rejecting the deliverables and requesting re-work before final acceptance.</p> |

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| <b>2</b> | <b>Evaluation Criteria</b>   |
| 2.1      | Method Explanation   |
|          | The criteria for selection will be conducted as a single source contract and therefore no formal evaluation will be undertaken |
| 2.2      | Technical Evaluation Criteria  |

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|     | N/A   |
| 2.3 | Commercial Evaluation Criteria  |
|     | Commercial evaluation will be undertaken to ensure submission is in line with R-Cloud T&C's |