**RPAS Operations Manual**

**APPENDIX 2**

**Site Safety Assessment Form**

**INSERT AREA NAME AND COUNTRY HERE**

**INSERT DATE HERE**

**INSERT AUTHOR HERE**

**The University Of Edinburgh (School of Geosciences)**

|  |
| --- |
| **Template Version Info.** |
| **Version** | **Date** | **Author (Institution)** | **Note** |
| R0 | 2014-06-18 | TW (UoE), SGP (SRUC) | Initial development draft |
| R0.1 | 2014-06-25 | TW | Reformatted; development draft |
| R0.2 | 2014-10-09 | TW | Reformatted; overlap with on-site survey form removed; hazard log format incorporated. |
| R0.3 | 2015-05-18 | TW | Changes to airspace considerations, added contemporaneous note for landowner consent; some reformatting of signatures/approvals |
| R0.4 | 2015-09-07 | TW | Re-designated Appendix C1Added name/date author field to front page |
| R1-1 | 2015-11-12 | TW | Significant reformatting |
| R1-2 | 2016—4-12 | TW | Landowner Consent form reformatted |

**Terminology**

AFIS Aerodrome Flight Information Service

AGL Above Ground Level

AIAA Areas of intense aerial activity

AMSL Above Mean Sea Level

ATZ Aerodrome Traffic Zone

CAA Civil Aviation Authority

CTR Controlled Traffic Region

FPV First Person View

GVS Gas Venting Stations

HIRTA High Intensity Radio Transmission Areas

LZ Landing Zone

MATZ Military Aerodrome Traffic Zone

NOTAM Notice to Airmen

TMA Terminal Manoeuvring Area

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## General Information

|  |  |
| --- | --- |
| 1. Name / ID of the area under proposal
 |  |
| 1. Project Name / ID if applicable
 |  |
| 1. Reference Coordinate (Lat/Lon)
 |  |
| 1. Applicable Landowner (s)
 |  |
| 1. Country within which the proposed operating area is located
 |  |
| 1. Validity Period Required
 |  |
| 1. Nature of Operation (e.g. training, survey, atmospheric profiling etc):
 |  |
| 1. Classes of UA to be used within the area
 | Fixed wing <7 kg [ ]  Fixed wing > 7kg < 20 kg [ ]  Multi- Rotor <7kg [ ]  Multi-rotor > 7kg < 20 kg [ ]  |
| 1. Minimum Crew Requirement (based on risk assessment below)
 |  |
| 1. Minimum pilot qualification / training requirement
 |  |
| 1. Any specific limitations on area usage
 |  |
| 1. General Area / Site Description
 |  |

## Charts

### Aeronautical Chart

*Please add overlay of proposed area on a current, official VFR type aeronautical chart (1:500K or larger scale wherever possible; for electronic versions of official UK charts are available from Memory Map Ltd).*

*NOTE: Please do not use on-line flight planning tools (e.g. SkyDemon etc) for this purpose; these are not official chart sources and do not guarantee the accuracy of their content; it is also possible to inadvertently deselect relevant data from their output. While such tools are useful for initial planning purposes, the final safety assessment MUST be carried out against current official chart sources such as the CAA VFR charts reproduced electronically by Memory Map Ltd.*

### Satellite Image / Topographic Chart

*Please add overlay of proposed area on satellite imagery and/or large scale topographic charts that will allow identification of buildings, obstacles etc. within the area and its surrounds.*

### Other Charts / Images

*Please add any additional useful chart or image data here.*

## Overseas Operations ONLY – Summary of Regulations & Requirements

PLEASE COMPLETE THIS SECTION IF OPERATING **OUTSIDE OF THE UK** **ONLY**;

Regulation of small UAS operations is undertaken at the national level and national rules DO vary considerably. It is essential that local regulations are thoroughly researched prior to any overseas operation and any requirements for permissions etc. identified and actioned well in advance.

Please summarise (briefly) the applicable local regulations, limitations in the table below (expand the table as may be required).

|  |  |
| --- | --- |
| **Topic** | **Reference & Summary of regulation / requirement** |
| 1. Any requirement for approval / permission to undertake RPAS ops for scientific research and/or as a foreign operator
 |  |
| 1. Visual line of sight rules or equivalent (i.e. max range)
 |  |
| 1. Minimum separation distances from people, property, built up areas etc.
 |  |
| 1. Requirements for operation in controlled airspace (if applicable)
 |  |
| 1. Any security / privacy / data related regulations
 |  |
| 1. Radio Frequency management (Ofcom equivalent)
 |  |
| 1. Others…
 |  |

## Permissions & Exemptions Checklist

|  |  |  |
| --- | --- | --- |
| **Type of Permission / Exemption** | **Required?** | **Permission / Exemption Reference and/or Comments** |
| 1. Aerial Work (or overseas equivalent)
 | Y [ ]  N [ ]  |  |
| 1. Operation as foreign operator and/or for scientific research (overseas only)
 | Y [ ]  N [ ]  |  |
| 1. Operations at reduced separation from / within congested areas (i.e. built up areas, people etc.)
 | Y [ ]  N [ ]  |  |
| 1. Operations at Extended VLOS (or overseas equivalent)
 | Y [ ]  N [ ]  |  |
| 1. ATC permission (required >7kg within controlled airspace or ATZ, UK)
 | Y [ ]  N [ ]  |  |
| 1. Permission to operate in Restricted / Danger / Prohibited area
 | Y [ ]  N [ ]  |  |
| 1. Exemptions from local bylaws etc.
 | Y [ ]  N [ ]  |  |
| 1. Other
 | Y [ ]  N [ ]  |  |

## Notifications Checklist

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Type of Notification** | **Normal Ops.** | **Emerg-ency** | **Not Reqd.** | **Details (when required, who to notify etc.; please enter contact details in the separate section below)** |
| 1. ATC
 |[ ] [ ] [ ]   |
| 1. Local operators / training organisations
 |[ ] [ ] [ ]   |
| 1. NOTAM (other airspace users, civil & military)
 |[ ]  N/A |[ ]   |
| 1. CANP (mil. acft; HRA Only)
 |[ ]  N/A |[ ]   |
| 1. Landowner / manager / operators
 |[ ] [ ] [ ]   |
| 1. Local residents
 |[ ] [ ] [ ]   |
| 1. Police
 |[ ] [ ] [ ]   |
| 1. University Emergency Response Coordinator
 | N/A |[ ]  N/A |  |
| 1. Other
 |[ ] [ ] [ ]   |

## Operational Risk Assessment

### Aeronautical & Operational Hazards - Checklist

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Hazard / Consideration** | **Normal Operations (Note 1)**  | **Abnormal Operations (Note 2)**  | **None to Affect** | **Note Ref. 3** |
| 1. Entry into Controlled Airspace (Class A, C, D or E)
 |[ ] [ ] [ ]   |
| 1. Entry into Aerodrome Traffic Zone (ATZ), Military ATZ (MATZ), or 2.5 nm radius of airport within a CTR
 |[ ] [ ] [ ]   |
| 1. Entry into Restricted, Danger or Prohibited Area
 |[ ] [ ] [ ]   |
| 1. Conflict with other Aerial Operating Sites (e.g. non-licensed aerodromes, microlight sites, parascending sites)
 |[ ] [ ] [ ]   |
| 1. Conflict with other operations notified by NOTAM
 |[ ] [ ] [ ]   |
| 1. Gas Venting Stations (GVS)
 |[ ] [ ] [ ]   |
| 1. High Intensity Radio Transmission Areas (HIRTA)
 |[ ] [ ] [ ]   |
| 1. Live Firing Ranges
 |[ ] [ ] [ ]   |
| 1. Areas of intense aerial activity (AIAA)
 |[ ] [ ] [ ]   |
| 1. Military Low Flying Activity
 |[ ] [ ] [ ]   |
| 1. Other specific hazards to aviation
 |[ ] [ ] [ ]   |
| 1. Nuclear power plants, prisons requiring special measures
 |[ ] [ ] [ ]   |
| 1. Specific structures, buildings, obstacles, pylons, cables etc.
 |[ ] [ ] [ ]   |
| 1. Habitation / Recreational Areas
 |[ ] [ ] [ ]   |
| 1. Accidental reduced separation (< 150m) from congested area
 |[ ]  N/A |[ ]   |
| 1. Accidental reduced separation (< 50m) from public/vehicles etc
 |[ ]  N/A |[ ]   |
| 1. Specific Meteorological Hazards (e.g. mechanical turbulence etc)
 |[ ]  N/A |[ ]   |
| 1. Any Other Hazards
 |[ ] [ ] [ ]   |

**Notes:**

**Normal Operations:** The consideration encompasses, is in contact with, or is enclosed by the planned Operating Area, and will affect or be affected by normal planned operations.

**Abnormal Operations:** The consideration lies in the vicinity of (or above) the planned operating area limits, and may be affected by the operation in the event of an abnormal or emergency situation such as a fly-away.

**Note Ref:** Please enter the appropriate line number from the table in the expanded notes section 3.4 below, and put full details of the potential hazard and planned mitigation measures in that table; if already covered please add reference to section and table row above (E.g. Section 5 Row (d))

### Aeronautical & Operational Hazards – Risk Assessment & Mitigation Notes

Please complete the following hazard log for the area under consideration; link to the checklist above using the ‘Note Ref.’ field where appropriate. Please evaluate initial and final (post-mitigation) risk according to the risk matrix on the following page.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Note Ref.** | **Description of Consideration / Hazard** | **Initial Risk** | **Mitigation**  | **Final Risk** |
| 01 |  |  |  |  |
| 02 |  |  |  |  |
| 03 |  |  |  |  |
| 04 |  |  |  |  |
| 05 |  |  |  |  |
| 06 |  |  |  |  |
| 07 |  |  |  |  |
| 08 |  |  |  |  |
| 09 |  |  |  |  |
| 10 |  |  |  |  |

|  |  |
| --- | --- |
| **RISK RATING (R)**Likelihood (L) x Severity (S) | **HAZARD SEVERITY (S)** |
| **NEGLIGIBLE**Negligible injury, no absence from work | **SLIGHT**Minor injury requiring first aid treatment | **MODERATE**Injury leading to a lost time accident | **HIGH**Involving a single death or serious injury | **VERY HIGH**Multiple deaths |
| **LIKELIHOOD OF OCCURRENCE (L)** | **VERY UNLIKELY** A freak combination of factors would be required for and incident/accident to result | **LOW****1** | **LOW****2** | **LOW****3** | **LOW****4** | **MEDIUM****5** |
| **UNLIKELY**A rare combination of factors would be required for an accident/incident to result | **LOW****2** | **LOW****4** | **MEDIUM****6** | **MEDIUM****8** | **MEDIUM****10** |
| **POSSIBLE**Could happen when additional factors are present but otherwise unlikely to occur | **LOW****3** | **MEDIUM****6** | **MEDIUM****9** | **MEDIUM****12** | **HIGH****15** |
| **LIKELY**Not certain to happen but an additional factor may result in an accident/incident | **LOW****4** | **LOW****8** | **MEDIUM****12** | **HIGH****16** | **HIGH****20** |
| **VERY LIKELY**Almost inevitable that an accident/incident would result | **MEDIUM****5** | **MEDIUM****10** | **HIGH****15** | **HIGH****20** | **HIGH****25** |
| **ACTIONS TO BE TAKEN:****1-5**  **LOW RISK** - May be acceptable; however, review task to see if risk can be reduced further.**6-12 MEDIUM RISK**- Task should only proceed with appropriate consultation with specialist personnel and safety team. Where possible the task should be refined to take account of the hazards involved or the risks should be reduced further prior to task commencement**13+** **HIGH RISK**- Task should not proceed. It should be redefined or further control measures put in place to reduce risk. The controls should be re-assessed for adequacy prior to task commencement. | **RISK EVALUATION:****Likelihood of Occurrence (L) –** How often could the hazard occur? Consider the task frequency, duration, method of work, employees involved.**Hazard Severity (S)-** How serious would the hazards effect be if realised. Consider type of hazard, biological, ergonomic, physical and chemicalTo Evaluate the likelihood and severity, this will produce a **Risk Rating (R)****Risk(R)=Likelihood (L) x Severity (S)** |

## Contact Details

*This section should provide a quick reference summary of contact details for all units / individuals that may need to be notified either prior to normal operations or in the venet of emergency.*

|  |  |  |  |
| --- | --- | --- | --- |
| **Category Note 1** | **Name / ID / Unit** | **Contact Details** | **Notification Requirements** |
| Univ. Emergency Response |  |  | In event of emergency / accident involving injury and /or damage to property damage |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

Notes:

1. E.g. ATC / Aerodrome operator; Danger/restricted/ prohibited Areas controller; Aerial Operating Site operators; Police; Emergency Response (UoE); Landowner (s) etc

## Additional Information / Free Notes Section

*This section should provide any additional information / notes relevant to operations within the area.*

*It may be updated post-operation in order to provide enhanced guidance to other crews operating within the area without the requirement for further sign-offs etc.*

|  |
| --- |
| **Notes / Comments** |
| (Please add any further notes/ comments that may be of use to crews in the field, along with author and date info) |

## Landowner Permission for UAS Operations

This section provides the basis for the authorisation by the landowner for UAS operations to be undertaken from their property.

Please copy and repeat this section for each applicable landowner, if more than one permission is required.

Where a signed approval is impractical and only verbal or email consent is possible at the planning stage, please tick the appropriate box in the table below and countersign. Please note that prior to making such a ‘contemporaneous note’ of consent, the landowner should be informed that their consent will be recorded in this way.

Where possible, however, please ask the applicable landowner / manager to provide a signed copy of the formbelow.

**Landowner Consent**

|  |
| --- |
| Consent is provided by the landowner (s) / representative (s) for UAS operations within the area described herein as follows: (please copy and paste additional rows as required) |
| **Landowner / Representative** | **Verbal** | **Email** | **Signature (if available) or UoE contact for verbal/email consent** | **Date** |
|  |[ ] [ ]   |  |
|  |[ ] [ ]   |  |
|  |[ ] [ ]   |  |
| **Notes / Comments:** |

## Signatures / Approvals

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Print** | **Signature** | **Date** |
| Prepared By: |  |  |  |
| Check By (Airborne GeoSciences Facility Manager): (Note 1) |  |  |  |
| Approved By (School Health & Safety Manager): |  |  |  |
| **Approval Comments / Notes:** |
|  |

Notes:

1. Check not required when SSA prepared by holder of CAA recognised RPAS pilot qualification.