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US ARMY RESEARCH, DEVELOPMENT AND ENGINEERING COMMAND  
AVIATION AND MISSILE RESEARCH, DEVELOPMENT, AND ENGINEERING CENTER  
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AMSRD-AMR-AE-V

12 March 2008

AWR GMAV20080312

MEMORANDUM FOR Project Manager, Unmanned Aircraft Systems (SFAE-AV-UAS),  
Redstone Arsenal, AL 35898-5000

SUBJECT: Airworthiness Release (AWR) for Operation of Gasoline Micro Air Vehicle  
(gMAV) Unmanned Aircraft System (GMAV20080312) (TN 55026)

1. Scope: This memorandum constitutes an Airworthiness Release Qualification Level 3 authorizing operation of the Gasoline Micro Air Vehicle Unmanned Aircraft System within the Federal Aviation Administration (FAA) approved Certificate of Authorization (COA) area within the Fort Bliss cantonment area (reference D-4).
2. Validity: This AWR is new and terminates on 5 April 2008, upon changes in configuration of the subject equipment, or upon issuance of a later AWR, whichever occurs first. This AWR is valid only for operations within the FAA approved COA area within the Fort Bliss cantonment area (reference D-4).
3. Appendices: This memorandum and its appendices shall be carried in the logbook, controlling Ground Control Station (GCS), and kept in the aircraft historical record file.

Appendix A - Restrictions and Operating Information  
Appendix B - Configuration and Installation Detail  
Appendix C - Inspections, Maintenance, and Logbook Instructions  
Appendix D - Reference List

4. The points of contact (POC) are (b) (6) commercial (256) 842-7134,  
e-mail (b) (6) @us.army.mil or (b) (6) commercial (256) 313-5347, or  
e-mail (b) (6) @us.army.mil.

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Engineering

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## **Appendix A - Restrictions and Operating Information**

### **WARNING**

The gMAV UAS has not completed full airworthiness qualification. All flight operations shall be conducted in a manner to minimize exposure to manned aircraft and populated ground areas.

### **WARNING**

Accidental operation of the gMAV UAS outside of the FAA approved COA shall be immediately reported to Air Traffic Control (ATC) / Range Control. The operator shall make immediate actions to correct the flight path and/or follow ATC/Range Control direction.

### **WARNING**

The gMAV UAS has not undergone complete Electromagnetic Interference/Electromagnetic Compatibility (EMI/EMC) testing. Flight into high intensity EMI areas may result in erroneous data reports and/or loss of control of aircraft. Operators shall avoid known high intensity EMI areas.

### **WARNING**

The gMAV UAS has not undergone Explosive Atmosphere testing. A serious fire or explosion may result if the aircraft is powered while flammable vapors are present during ground or flight operations. The precautions in paragraph 3 of this appendix shall be observed in order to ensure safe operations.

### **WARNING**

The gMAV UAS does not have a sense and avoid system. Mid-air collision is a risk. All flight operations shall be conducted to ensure that minimum separation standards are maintained.

### **WARNING**

During manual flight control where the speed is limited to 5.3 knots, and the altitude is less than or equal to 200 ft AGL, ensure that personnel maintain a horizontal separation distance of no less than 50 meters from the air vehicle and its flight path.

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### **WARNING**

During autonomous flights up to 30 knots, and at altitudes less than or equal to 200 ft AGL, ensure that personnel maintain a horizontal separation distance of no less than 260 meters from the air vehicle and its flight path.

### **CAUTION**

The gMAV UAS has not been tested for the effects of lightning. Flight operations shall be restricted to no less than 25 nautical miles from lightning activity.

1. The aircraft operating instructions, procedures, and limitations shall be in accordance with references D-1 through D-4 and this AWR. In the event of conflict between these documents, the information in this AWR shall prevail.
2. Flight of the gMAV UAS is restricted to Visual Meteorological Conditions (VMC).
3. Due to lack of SOF Explosive Atmosphere testing, the following precautions shall be observed in order to ensure safe flight:
  - a. The aircraft shall be un-powered and grounded IAW reference D-1 during refueling operations.
  - b. Ground operations of the aircraft shall be conducted at the greatest distance practical (no less than 50 feet) from all other aircraft and fuel depots.
4. Data link frequencies shall be de-conflicted through the local manager/coordinator before any operations.
5. An appropriate Return Home Point shall be set such that the aircraft will not exit the COA area during lost link flight.
6. In the event of loss of control, local ATC/Range Control shall be notified.
7. In case of loss of communications between the aircraft operator and local ATC/Range Control, the aircraft shall be directed to the appropriate Return Home Point.
8. Observer shall maintain uninterrupted visual contact with the gMAV aircraft while within the FAA approved area. Additionally, the observer shall maintain continuous radio contact with both ATC and the controlling GCS while the air vehicle is within the area. In the event that visual contact with the gMAV aircraft is interrupted, the observer shall immediately notify both ATC and the GCS which shall initiate Return to Base or flight termination procedures.

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9. Flight over personnel is prohibited.
10. During preflight someone other than the operator shall verify that the Return Home Point is entered correctly.
11. Local ATC/Range Control shall be notified with a flight plan or flight strip prior to departure, to aid in airspace de-confliction.
12. Verified loss of any aircraft flight critical subsystem or Ground Control Station (GCS) flight critical sub-system shall require return to the appropriate Return Home Point.
13. Any unexplained anomaly shall initiate a return to the appropriate Return Home Point.
14. Any procedural deficiencies or flight anomalies detected during operations shall be corrected, annotated, and reported to the POC listed in paragraph 4 of this AWR.
15. Commander's Corner:
  - a. The gMAV UAS has not completed full airworthiness qualification testing. Strict adherence to the Operators Manual and this AWR will minimize the hazards of operation.
  - b. Coordination of channel selection with other systems operating in the area is critical to avoiding interference between systems, thus reducing accident rates

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**Appendix B - Configuration and Installation Detail:**

Configuration - The gMAV UAS is defined in the operator's manual (see reference D-1). Any changes in configuration shall be approved in writing by the Aviation Engineering Directorate (POC in cover memorandum paragraph 4) for this AWR to be valid.

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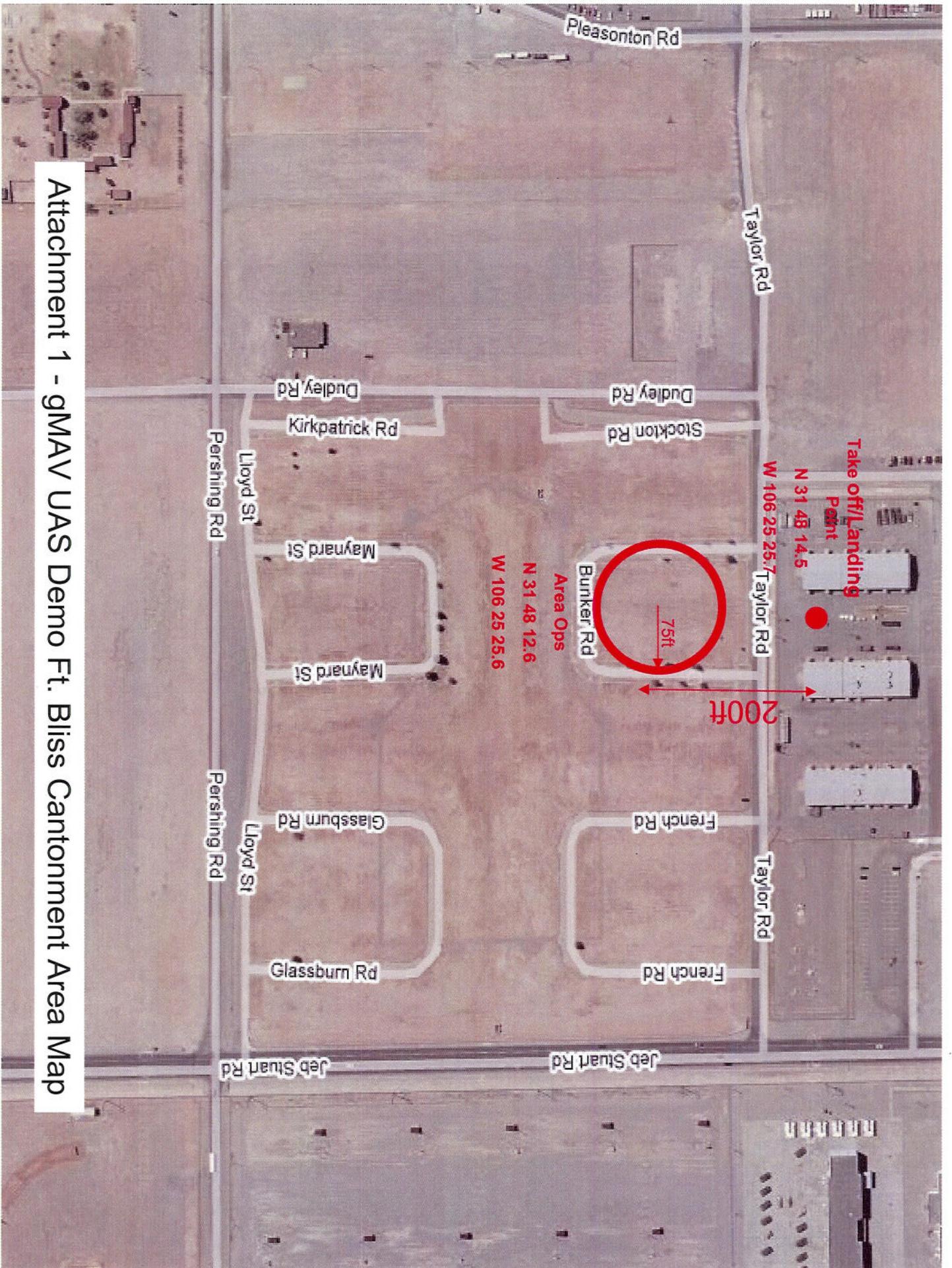
**Appendix C - Inspections, Maintenance, and Logbook Instructions:**

1. Conduct inspections and maintenance as specified in reference D-1 and D-2.

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**Appendix D - Reference List:**

1. Technical Manual, Operator's and Crew Members Operator's Manual For Flight Operations, Honeywell Micro Air Vehicle (MAV) 8532075, 851, 861, 901, OMTM8532075-100, Rev 0, dated 07 December 2007.
2. Technical Manual, Operator's and Crew Members Operator's Maintenance Manual, Honeywell Micro Air Vehicle (MAV) 8532075, 851, 861, 901, MMTM8532075-100, Rev 0, dated 07 December 2007.
3. ATFC-I, Memorandum for Record, Subject: CL I UAS gMAV SOP Ft. Bliss Cantonment Area, dated 08 January 2008.
4. gMAV UAS Demo Ft. Bliss Cantonment Area Map (Attachment 1).



Attachment 1 - gMAV UAS Demo Ft. Bliss Cantonment Area Map