



AIRFIELD OPERATIONS MANUAL



TURNER FIELD

Marine Corps Air Facility
Quantico, Virginia

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UNITED STATES MARINE CORPS
MARINE CORPS AIR FACILITY
2100 ROWELL ROAD
QUANTICO, VIRGINIA 22134-5063

IN REPLY REFER TO:
AFO 3700.1M
AF 143

AIR FACILITY ORDER P3700.1M

From: Commanding Officer
To: Distribution List

Subj: AIRFIELD OPERATIONS MANUAL, MARINE CORPS AIR FACILITY
QUANTICO, VIRGINIA (SHORT TITLE: AIRFIELD OPERATIONS
MANUAL)

Ref: (a) OPNAVINST 3710.7V, NATOPS Standardization Program
(b) NAVAIR 00-80T-114, NATOPS ATC Manual
(c) 14 CFR PART 91, General Operating & Flight Rules
(d) NAVAIR 00-80R-14, USN ARFF Manual
(e) NAVAIR 00-80T-124, NATOPS USN Airfield Operations Manual
(f) 32 CFR PART 766, Civil Aircraft Use of DoN Aviation Facilities
(g) DoD 4515.13, Air Transport Eligibility
(h) OPNAVINST 4630.25, Government Air Transport Eligibility
(i) NAVAIR 00-80T-103, NATOPS Conventional Weapons Handling
(j) NAVAIR 00-80T-109, NATOPS Aircraft Refueling Manual
(k) OPNAVINST 3700.19E, Foreign Military & State Aircraft Landing Clearance
(l) OPNAVINST 3721.20D, DoD Notices To Airmen System
(m) OPNAVINST 3750.6S, Naval Aviation Safety Management
(n) NAVSEA OP-5 Vol I, Ammunition & Explosives Safety Ashore
(o) FAA JO 7110.65, Air Traffic Control
(p) MCO 4630.16C, Air Transport Eligibility
(q) AFO P11320.4D, ARFF SOP

1. Situation. This manual supplements reference (e) with MCAF Quantico specific aerodrome data and services, rules and procedures. This order includes substantial revisions and should be reviewed in its entirety.

2. Cancellation. AFO P3700.1L.

3. Mission. This Order details aerodrome data and services and establishes local policies, rules and procedures to ensure a safe and secure aerodrome environment for all users.

4. Execution.

a. Commander's Intent and Concept of Operations

(1) Commander's Intent. The intent of this order is to publish local aerodrome

data and services and establish sound operating procedures and ground rules aboard and within MCAF Quantico's area of responsibility to ensure a safe, secure and efficient environment enabling mission success.

(2) Concept of Operations. This Order shall be used in conjunction with references and other current regulations and directives to ensure compliance with established policies and procedures from higher headquarters. Requests for deviation from procedures and instruction in this Order shall be referred to the MCAF Quantico Airfield Manager or Operations Officer (OPSO). The Airfield Manager is responsible to the OPSO for review and update.

b. Coordinating Instructions

(1) All Air Facility staff sections and tenant commands shall conduct a thorough review of this manual.

(2) Amendments to this order not requiring a complete revision shall be effected by a change to this order.

5. Administration and Logistics. File this order in accordance with current Marine Corps directives.

6. Command and Signal

a. Command. This order is applicable to all commands operating from, visiting and transiting MCAF Quantico.

b. Signal. This order is effective the date signed.



D. M. MURPHY

DISTRIBUTION: A

Electronic only, via <http://www.quantico.marines.mil/mcaf/>

RECORD OF CHANGES

Log completed change action as indicated.

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CHAPTER 1

GENERAL

1000. GENERAL PRUDENTIAL RULES

1. Scope. The regulations prescribed herein shall govern the operation of all aircraft at Marine Corps Air Facility (MCAF) Quantico, Restricted Area 6608 (R-6608), DEMO Military Operating Area (MOA), and control areas under cognizance of this air facility. The rules and regulations established by this manual govern aircraft operations at MCAF Quantico and in the local flying area. References (a) through (q) apply. All personnel operating from MCAF Quantico shall comply with the provisions of this manual.
2. Intent. The intent of these rules and regulations is to ensure an efficient flow of air traffic, prevent air traffic conflicts, and provide for the uniform delivery of aviation services. These rules and regulations do not cover every contingency.
3. Responsibility and Authority of the Pilot in Command. The pilot in command is responsible for the safe and orderly operation of the aircraft and the well-being of the crew. The pilot in command retains the prerogative to exercise best judgment and may deviate from these rules and regulations during an emergency.
4. Personnel authorized to operate vehicles on the airfield. Personnel other than pilots who have specific duties or functions on the airfield are expected to be familiar with applicable portions of these regulations.
5. Vehicle Operations. This manual regulates vehicle operations on the MCAF Quantico airfield movement areas (see paragraph 3012).

1001. DEFINITIONS. Word usage and intended meanings as used in this manual are as follows:

1. Shall. Used when application of a procedure is mandatory.
2. Should. Used when application of a procedure is recommended.
3. May and Need Not. Used when application of a procedure is optional.
4. Will. Used only to indicate futurity. Never indicates any degree of requirement for application of a procedure.
5. Units of measurement. Unless otherwise specified, all headings in this manual are magnetic, all distances are in nautical miles, all altitudes are in height above Mean Sea Level (MSL), and all times are local.

1002. AIRFIELD LOCATION. MCAF Quantico is located on the west bank of the Potomac River, 25 nautical miles south of Washington D.C. and 60 nautical miles north of Richmond, Virginia, at latitude 38° 30' 13.048"N, longitude 77° 18' 18.114"W. The assigned magnetic variation is 10° 25' west and field elevation is 11 feet MSL.

1003. AIRFIELD DATA

1. Physical Layout. The airfield consists of one concrete/asphalt runway: 02/20; five taxiways: A, B, C, D, and E; a LCAC landing site; and a 300' x 300' auxiliary asphalt helicopter landing site (LZ-1A).

2. Runway. The runway consists of two materials. The first 1,300 feet of RWY 02 and first 1,550 feet of RWY 20 are constructed with concrete grooved with standard and trapezoid patterns for increased friction. The remainder of the runway is constructed with non-grooved asphalt. There are no paved shoulders nor an overrun on the south end. Runway dimensions are as follows:

<u>Runway</u>	<u>Dimensions</u>	<u>Overrun</u>
02/20	4,250' X 200'	RWY 02: 100' x 200'

3. Weight Bearing Capacity.

a. The Aircraft/Pavement Classification Number (ACN/PCN) System is utilized for MCAF Quantico. Based upon the most recent Pavement Load Evaluation (March 2011), PCN data is reported as follows. NOTE: Additional Aircraft Gross Load data is available upon request from the MCAF Airfield Manager.

<u>Area</u>	<u>PCN</u>
Runway 02/20.....	69 R/B/W/T
Taxiway A.....	7 R/C/W/T
Taxiway B.....	60 F/C/W/T
Taxiway C.....	58 F/B/W/T
Taxiway D.....	7 F/C/W/T
Taxiway E	49 R/B/W/T
LZ-1A.....	80 F/B/W/T
N Apron.....	7 R/C/W/T
S Apron (in front of Hgr 2132/3).....	32 R/B/W/T
S Apron (in front of Hgr 2134).....	49 R/B/W/T

b. ACN values for DoD aircraft at empty and maximum takeoff weight are contained in the Flight Information Handbook. An ACN value for an intermediate weight can be calculated by interpolation between the limits or referencing appropriate individual aircraft publications. Any deviations to ACN/PCN limits shall be addressed to the MCAF Airfield Manager or Operations Officer for approval.

4. Parking Plan

a. The Visiting Aircraft Line (VAL), located southeast of the control tower, consists of four spots configured for transient C-17 and smaller aircraft. C-17 and C-130 aircraft are normally required to park nose in and back taxi out of parking. The VAL also includes two Red Label spots parallel to Taxiway B and sited for limited amounts of Hazard Division 1.3 and 1.4 explosives. See Chapter 3 for further details.

b. The North Ramp is restricted to MV-22 and rotary wing aircraft due to deteriorating pavement conditions. Exceptions must be approved by the MCAF Airfield Manager or Operations Officer.

c. The South Ramp is utilized by HMX-1 for parking of MV-22, VH-60, and VH-3 aircraft. The southern-most parking apron is a designated restricted area.

d. Taxiway D may be utilized for overflow parking of transient C-17 and smaller aircraft. AM-2 matting is placed 185' across the taxiway due to asphalt pavement failure beneath the surface. Aircraft utilizing Taxiway D during hours of darkness should be lit by light cart due to close proximity to RWY 02/20. Light carts must be requested by contacting Flight Clearance at least 24 hours prior. NOTE: Two designated combat aircraft loading area (CALA) spots are located on the eastern portion of Taxiway D. See Chapter 3 for further details.

1004. WASHINGTON SPECIAL FLIGHT RULES AREA (SFRA)

1. SFRA. An area of airspace over land or water in which the ready identification, location, and control of civil aircraft is required in the interest of national security.

2. The Washington, DC Metropolitan SFRA. That airspace described by current Notice to Airmen (NOTAM), the dimensions of which change based upon the terrorism threat level. No aircraft may operate within the Washington SFRA unless they:

- a. Are equipped with an operable two-way radio.
- b. Establish and maintain two-way radio communication with ATC prior to entering the SFRA and subsequently maintain communication while operating within.
- c. Receive an ATC clearance to enter class B, C, D, or E airspace within the SFRA.
- d. Are equipped with an operating transponder with automatic altitude reporting capability.
- e. Receive a discrete transponder code from ATC.
- f. Continuously emit the appropriate ATC assigned code.

g. File and activate a flight plan prior to entering or departing the SFRA. Exception: HMX-1 aircraft have pre-approved discrete transponder codes which allow ATC personnel to readily identify their aircraft thus no prior coordination is required.

h. Have completed FAA mandated SFRA training to operate within 60 miles of DCA VOR.

3. The Flight Restricted Zone (FRZ) surrounding the Washington, D.C. Metropolitan Area is a part of the Washington SFRA and is also described by NOTAM. Unless specifically authorized by the FAA and other appropriate authorities, flight operations are prohibited within the Washington Metropolitan FRZ.

1005. PRIOR PERMISSION REQUIRED (PPR) POLICY

1. All transient aircraft require a pre-approved PPR to land at MCAF Quantico. Pilots may obtain a PPR number by contacting the Flight Clearance Office 24 hours in advance at DSN 278-2085/2908, COMM (703) 784-2085/2908 (see Chapter 6).

2. Civil Aircraft. Civil aircraft may operate at MCAF Quantico if the proposed operation is in conjunction with official government business. In addition to a PPR number, a Civil Aircraft Landing Permit is required (see Chapter 6).

1006. HANGAR AND SERVICE FACILITIES

1. Transient services are available on a limited basis. PPR numbers are required. Limited hangar space is available to transient aircraft for emergency repairs only. Federal Aviation Administration (FAA) flight inspection aircraft shall be given priority for refueling and servicing over routine transient aircraft.

2. Fuel and Oil Available

a. Fuel: Jet A (FLIP code: A++, NATO code: F-24)

b. Oil: 23699 oil for turbine engines

3. Ground Support Equipment (GSE). Coordinated through the Flight Clearance Office: DSN 278-2085/2908, COMM (703) 784-2085/2908. Requires 24 hour prior request to the max extent practical.

a. Electric starting units, NC-10.

b. Tugs – max 100,000lb.

c. Air Start Unit – flow 56 PSIA or Bleed Air 204 lb/min.

d. Tow Bar L5 short and Tow Bar 24 long.

4. Arresting Gear. M-31 arresting gear support pads are available for installation of arresting gear equipment; however, no M-31 equipment or personnel are located at MCAF Quantico. All requests for arresting gear installation support must be submitted to 2d Marine Aircraft Wing (G-3/AGSD) via Marine Forces Command utilizing the Automated Message Handling System (AMHS) a minimum of 45 days prior to intended arresting gear operations. Pilots requiring arresting gear must contact the Airfield Manager or Operations Officer at (703) 784-1449/1448 or DSN 278 at least 60 days prior to intended landing or operation.

5. MCAF Quantico is not an Aerial Port of Debarkation (APOD). There are no organic Air Freight or Passenger Section capabilities. The following cargo and/or passenger coordination requirements must be met:

a. Military Customs Inspectors (MCI) are available to inspect travelling military personnel. All non-military personnel require inspection by U.S. Customs and Border Protection officers. Seventy-two (72) hour advance notification is required for all customs support. See Chapter 6 for further details.

b. Arrangements for inbound and outbound freight loading/unloading will be made by the shipping/receiving organization.

c. Organizations arranging freight and passenger transportation will furnish an on-the-spot supervisor for cargo loading/unloading and for passenger loading/unloading when ground transportation is required.

d. The Visiting Aircraft Line (VAL) will be utilized for all routine arrival and departure of passengers. Very Important Person (VIP) flights will board and disembark at the VIP spot located at the southeast corner of Hangar 2105.

6. "Space Available/Space Required" Flight Information. No space available travelers are authorized to arrive or depart MCAF Quantico. The Air Facility is not an Air Mobility Command (AMC) terminal and does not have regularly scheduled flights.

7. Complete flight planning and weather service facilities are available in the Airfield Operations Building (Hangar 2105).

8. There are no designated engine test/run-up areas for high power engine runs of transient aircraft. Requests for high power engine runs may be accommodated on a case-by-case basis on Taxiway B or either end of RWY 02/20 pending de-confliction of scheduled flight activities. Contact the MCAF Airfield Manager or Operations Officer for approval.

1007. AIRFIELD LIGHTING

1. Runway Lighting

a. Runway 02/20

- (1) Variable, High Intensity Runway Edge Lights (HIRL).
 - (2) Runway End Identifier Lights (REIL) with strobes.
 - (3) Precision Approach Path Indicator (PAPI), 3.0 degree angle, non-coincidental with Precision Approach Radar (PAR) glideslope for Runway 02.
 - (4) Runway 02, high intensity centerline lights, first 1,000' of runway.
2. Runway 02 has a 125' unlit, hard surface overrun.
 3. Airfield Beacon. A standard, military, alternating green and dual-peaked white rotating beacon is located 1,850 feet south of the air traffic control tower. The airfield beacon operates between the hours of sunset and sunrise, when the airfield is below basic Visual Flight Rules (VFR), and continuously when the airfield is closed.
 4. Taxiway Lighting/Signage
 - a. Blue LED taxiway edge lighting of fixed intensity is available on Taxiways A, B, C and E. Taxiway D is not lighted; however, retro-reflective markers are installed to supplement lighting. Aircrew must exercise extreme caution on Taxiway D during hours of darkness.
 - b. Lighted runway exit guidance signs are located on side of runway prior to Taxiway Alpha, Bravo, Charlie, and Echo intersections.
 - c. Lighted mandatory runway VFR hold position, taxiway location, and informational signs are located on Taxiways C and E only. NOTE: Mandatory runway hold position signs on Taxiway C are missing co-located runway VFR hold position markings.
 - d. There are no internally lit signs on Taxiways A, B, or D.
 5. Runway Distance Markers. Lighted runway distance markers are located on both sides of Runway 02/20 and indicate the length of usable runway remaining in thousands of feet.

1008. HOURS OF OPERATION

1. Normal airfield hours of operation below are published in the DOD Instrument Flight Rules (IFR) Supplement; however, airfield hours, ATC services, and aircraft ground support availability vary based upon operational requirements.

<u>Day</u>	<u>Hours</u>
Monday	0800 - 2100
Tuesday	0800 - 2100
Wednesday	0800 - 2100
Thursday	0800 - 2100

Friday	0800 - 1700
Saturday	Closed
Sunday	Closed

2. Requests for changes to operating hours to meet special requirements should be made to the MCAF Quantico Airfield Manager or Operations Officer 24 hours in advance. Operations may be extended, suspended, or curtailed temporarily by the MCAF Commanding Officer or his/her representative for the following reasons:

- a. Prevailing weather
- b. Conditions of landing area (e.g. FOD, severe bird or wildlife activity/dispersal, snow and ice removal operations, aircraft arresting system install and certification, pavement repairs, etc.)
- c. Priority Missions
- d. Degraded airfield support capability

3. There are four conditional categories of aerodrome operations, as follows:

- a. Normal. MCAF Quantico (Turner Field) open; Tower Class D, radar, and standard aircraft ground services available.
- b. Tower Only. MCAF Quantico open including Tower/Class D services; radar services unavailable. For radar services, aircrew must contact Potomac Approach.
- c. Quantico Radar Services Only. MCAF Quantico Radar remains open during published hours while Tower and the airfield are NOTAM closed.
- d. Closed Field Operations. This condition allows aircraft to operate uncontrolled when MCAF Tower, Radar, and the airfield are closed. See Chapter 3 for course rules.

(1) Authority to conduct closed field operations is granted to HMX-1 personnel by the MCAF Quantico Commanding Officer as outlined in reference (a) and in accordance with the Letter of Agreement between MCAF and HMX-1. All aircraft will utilize see-and-avoid procedures with other aircraft and all ground personnel/vehicles.

(2) Transient aircraft are not authorized to conduct closed field operations on MCAF Quantico unless prior approved by the MCAF CO for official business only and as a last resort when manning, crew rest, or time constraints do not permit opening the airfield. Note: Transient pilots assume all risks when operating during airfield closure.

(3) Prior to closed field operations, ARFF shall visually inspect the runway, primary taxiways and applicable parking aprons per Section 4001 of this manual.

(4) ARFF will maintain the capability to respond to aircraft emergencies within five (5) minutes when the airfield is closed. Exception: ARFF will provide immediate emergency response during closed field fixed wing aircraft arrivals/departures by holding short of RWY 02/20 at Taxiway D.

1009. COMPASS REFERENCE LINE. Compass calibration is available on the north ramp (see Appendix A).

1010. WEATHER SERVICES

1. General. The MCAF Quantico Weather Service Branch is responsible for providing meteorological services to the Air Facility, tenant organizations, Marine Corps Base (MCB) Quantico, Marine Corps Combat Development Command (MCCDC), and transient aircrews in accordance with current directives. The weather forecaster can be reached at DSN 278-2468, COMM (703) 784-2468, METOC frequency 355.3.

2. Average/Annual Weather Data

a. Winter temperatures at MCAF Quantico are normally 2-3 degrees (Fahrenheit) higher than outlying areas due to the influence of the Potomac River. Snowfall amounts are particularly influenced by the higher temperatures, with differences of 2-3 inches occurring within 1/2 mile west of the airfield. The mean annual snowfall is 19 inches, but the rapid melt-off results in small accumulations. Accumulations more than 10 inches are rare. The mean snow depth for the months of December through March (when over 95% of the snowfall occurs) is 4 inches, 5 inches, 4 inches, and 4 inches, respectively.

b. Rainfall is relatively moderate, averaging close to 38 inches annually and 3.2 inches monthly. There is no significant dry or moist season, but the month of October has the lowest average of 2.5 inches, while August has the greatest average of 4.3 inches.

c. Summers are warm and humid, and winters are mild. During spring and autumn, generally pleasant weather prevails. The coldest weather occurs during January and February. The warmest weather occurs in late July and early August. The annual mean temperature is 57 degrees Fahrenheit. Temperature extremes range from 5.0 to 105.0 degrees Fahrenheit. Mean relative humidity is 69%.

d. The visibility remains greater than three miles and the ceiling above 1,000 feet 90% of the time. The prevailing winds are northwesterly with a mean speed of six knots.

e. Although Quantico's weather is sometimes influenced by passing tropical disturbances, extensive damage is rare.

3. Services

a. A DD-175-1 Flight Weather Brief is prepared for all flights for which a DD-175 is received. The DD-175-1 may be provided via fax or in person. DD-175-1 briefs will normally

not be provided by METRO over the telephone. Weather briefs will be provided via <https://fwb.metoc.navy.mil>. A brief requires one-hour advance notice to allow time for preparation.

b. VFR briefs may be stamped upon request for local flights in forecast visual meteorological conditions.

c. Flight Weather Packages are normally provided upon request for cross-country or transoceanic flights. The package will include a forecast Horizontal Weather Depiction chart, flight level winds/temperatures, DD-175-1, and flight forecast folder. Routine flight weather packages require four hours for preparation.

d. Squadron/Strike briefs are available with 48-hour advance notification for routine missions. The brief will include a flight weather presentation and may include electromagnetic predictions, electro-optical tactical decision aids, and other environmental products relevant to the mission.

e. Climatologic briefs and Climatology/Astronomical/Tidal Data reports are available for any location.

1011. DANGER TO LIFE OR PROPERTY. A pilot shall report, without delay, to the MCAF Airfield Manager or Operations Officer if any of the following occur:

1. Unintentional or unintended jettison of ordnance outside the limits of regularly defined target areas.
2. Post-flight inspection determines that ordnance and/or aircraft parts or stores have been inadvertently dropped. Reporting pilot shall initiate a "Things Falling off Aircraft" (TFOA) report with the MCAF Airfield Manager if required.
3. Any flight maneuver that is employed, or gives the appearance of endangering the life or property of military or civilian personnel.
4. Observes an apparently uncontrolled fire or ship in distress.
5. Observes violations of flying regulations or of the general prudential rules of flying.

1012. LIGHTNING WITHIN 10 NAUTICAL MILES

1. When lightning is detected or observed within 10 nautical miles (NM) of the airfield, all non-emergency outdoor activities shall cease and personnel shall seek immediate shelter.
2. All fueling operations shall immediately cease whenever lightning is reported or observed within ten nautical miles (NM) of the airfield or when the airfield is in Thunderstorm Condition I. Fueling may resume only after MCAF Weather has determined that the electrical storm has moved a sufficient distance and lightning is no longer observed within 10 NM of the airfield.

1013. ENVIRONMENTAL CONCERNS. Tenant and transient aircrews and maintenance personnel will work to eliminate all possible hazardous material (HAZMAT) releases and spills from their aircraft, auxiliary internal tanks, external fuel pods, repair and cleaning materials, and all servicing equipment.

1. In the event of a HAZMAT release/spill, personnel involved will: Immediately secure the source/flow of the material if possible, clear all personnel from the endangered area, and report the HAZMAT release/spill by telephone to the MCAF Airfield Manager or Operations Officer at DSN 278-1449/1448, COMM (703) 784-1449/1448, or after hours to Aircraft Rescue and Fire Fighting (ARFF) at DSN 278-2312/2571, COMM (703) 784-2312/2571, and Natural Resources and Environmental Affairs at (703) 784-4030.
2. The person(s) responsible for a HAZMAT release/spill and that person's command/unit are accountable for the HAZMAT cleanup, to include contracted support if required. The MCAF Quantico Commanding Officer or Marine Corps Installation National Capital Region Commanding Officer may initiate administrative or punitive actions; and/or Federal, State, or Local Environmental Protection Agencies may impose fines.
3. Per reference (e), pint-size fuel spills involving an area less than 18 inches in any dimension require no emergency action; however ramp personnel shall stand by with a fire extinguisher until operations are complete and/or the aircraft departs. Other small spills involving an area 18 inches to 10 feet in any dimension shall have a fire guard posted, equipped with at least one fire extinguisher and must be absorbed with absorbent cleaning agents or emulsion compound. Large spills covering an area greater than 10 feet in any dimension or over 50 square feet in area require handling by the designated spill response team.

1014. PERIODS OF CONSTRUCTION

1. All airfield construction activity phases (e.g. design, work-in-project, and completion) must be pre-coordinated with and approved by the Airfield Manager.
2. Major airfield construction activities affecting aircraft operations will be pre-coordinated with tenant flying units and TACC. Closed areas will be appropriately marked and Notices to Airmen published to apprise aircrew of associated hazards and restrictions.
3. Prior to the start of work, the contractor team shall be security vetted, attend a tailored briefing given by Airfield Operations and successfully complete the airfield vehicle operator course (AVOC), as required. Contractors shall notify the Airfield Manager or Flight Clearance at the start and finish of each work day.
4. Contractor vehicles must be equipped with an amber-rotating beacon mounted on the uppermost part of the vehicle structure or carry a flag attached to a staff flying above the vehicle for ready visibility. Flags must be at least 3'x3' square having a checkered pattern of international orange and white squares at least 1' on each side.

5. Construction within close proximity to the runway or other active aircraft movement areas will require two-way radio communications with the Control Tower. Radios will be signed out at the Flight Clearance desk located inside Hangar 2105.

6. Contractors may be required to stop work, remove equipment and clear the work area for short periods of time, in case of an emergency or under special conditions required for safety or special activities.

1015. AIR FACILITY PHOTOGRAPHIC SECURITY

1. No military, civilian, or news media representatives are permitted to take official or unofficial photographs (still or video) of any aircraft operating area without the specific authorization from the Commanding Officer of Marine Corps Air Facility Quantico, or his/her designated representative.

2. All personnel are directed to be alert for unauthorized personnel taking photographs (still or video) aboard the air facility. Unauthorized personnel discovered to be violating this order will be reported immediately to HMX-1 security personnel. The MCAF Installation Protection Officer will be notified at the earliest opportunity at DSN 378-1417, COMM (703) 432-1417.

3. MCAF Quantico and MCB Quantico are "No Drone Zones". See respective FAA regulations and forthcoming orders for further guidance. Report all drone sightings to the HMX-1 Security Front Desk at (571) 494-4811, and MCAF CDO at (703) 784-3623.

4. Violators are subject to military jurisdiction under the Uniform Code of Military Justice, MCAF CO/MCINCR CO initiated punitive and/or administrative actions, and stiff civil fines and criminal penalties.

1016. BASE OPERATIONS FREQUENCY. MCAF Quantico Base Operations frequency is UHF 355.3 (same as the METRO frequency). Transient aircrew are encouraged to call Base Operations to confirm estimated time of arrival (ETA), any codes aboard, fuel requests, or special requirements 30 minutes prior to arrival. This frequency is available during normal and any special hours of operation.

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CHAPTER 2

FLIGHT PLANNING

2000. GENERAL. Flights originating at MCAF Quantico will be authorized in accordance with procedures outlined in Office of the Chief of Naval Operations (OPNAV) Instructions, FAA directives, Flight Information Publications (FLIP), and this manual. The Flight Clearance Section provides planning services for tenant and transient aircrews.

2001. FLIGHT PLAN APPROVAL AUTHORITY. The pilot in command (PIC) of an aircraft or formation leader is responsible for filing a flight plan or ensuring the aircraft is on the squadron's daily flight schedule. The PIC/formation leader is authorized to approve the flight plan for his/her proposed flight or modification thereof.

2002. FLIGHT PLANNING PROCEDURES

1. Flight Planning Room. A flight planning room is available during airfield operating hours and is located on the southeast corner of the first deck of Hangar 2105. A computer, phone, current FLIP, charts, maps, local displays, and planning tools are provided for aircrew use.

2. Flight Plans. DD Form 175, Military Flight Plan or DD Form 1801, DoD International Flight Plan, shall be filed for all flights originating at MCAF Quantico in accordance with procedures established in General Planning Chapter 4, with the following exceptions:

a. Local Visual Flight Rules (VFR) flights which originate and terminate at MCAF Quantico and are conducted solely within the local flying area. (See Appendix M)

b. Local VFR flights which utilize R-6608 and the MCAF Quantico local flying area that are cleared by a published squadron flight schedule submitted to the Flight Clearance Section, or individually with the HMX-1 Operations Duty Officer (ODO) prior to departure.

3. Filing

Flight plan revisions for airborne aircraft may be filed through ATC using normal flight planning procedures.

a. VFR flight plans should be filed 30 minutes prior to the estimated time of departure (ETD).

b. Instrument Flight Rules (IFR) flight plans should be filed at least 45 minutes prior to the ETD.

c. International flight plans should be filed at least 60 minutes prior to the ETD.

2003. WEATHER MINIMA

1. VFR Minima. Ceiling not less than 1,000 feet and visibility not less than three statute miles.

2. Special VFR (SVFR) Minima. Ceiling of 500 feet and one statute mile visibility in controlled airspace. In uncontrolled airspace, 1,200 feet above ground level (AGL), clear of clouds, when visibility is less than one statute mile if operated at a speed that allows the pilot adequate opportunity to see and avoid other air traffic and maintain obstacle clearance.

3. SVFR Procedures

- a. Pilots must request authorization from ATC for SVFR operations.
- b. Aircraft must remain clear of clouds.
- c. Pilots and aircraft must be certified for instrument flight when operating under SVFR conditions. The number of SVFR aircraft in the tower pattern will be at the discretion of ATC and in accordance with FAAJO 7110.65.

4. IFR Departure Minima

- a. Special Instrument Rating. No take-off ceiling or visibility minima apply. Take-off shall depend on the judgment of the pilot and the urgency of the flight.
- b. Standard Instrument Rating. Ceiling of 600 feet, one statute mile visibility, or ceiling 300 feet and $\frac{3}{4}$ to one statute mile visibility, provided Quantico Arrival is open (check lowest takeoff minima).

5. IFR Landing Minima. Pilots shall be guided by the minima published for the utilized approach.

CHAPTER 3

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CHAPTER 3

COURSE RULES

3000. GENERAL. The pilot in command of an aircraft is directly responsible for the safe conduct of the flight and for compliance with all regulations governing that flight. ATC personnel are responsible for the issuance of clearances and control instructions based on known traffic and airport conditions. ATC will issue advisory assistance with regard to field and weather conditions, as required. Pilots operating in visual meteorological conditions, regardless of the type of clearance (IFR/VFR), are ultimately responsible for avoidance of other aircraft. Note: For the purposes of this section, MV-22 aircraft operating in conversion mode are considered rotary wing/helicopters, and MV-22 aircraft operating in airplane mode are considered fixed wing.

1. Positive Control. Aircraft shall contact Quantico Tower prior to entering the Quantico Class Delta Surface Area (CDSA). Deviations from clearances or control instructions are permitted only in the event of an emergency or when, in the judgment of the pilot, adherence would jeopardize safety.

2. Course Rules Brief. The course rules brief covers local flying procedures and special considerations while operating at MCAF Quantico. Course rules briefs are available to all transient aircrew. Contact ATC personnel at DSN 278-1470, COMM (703) 784-1470 to arrange a course rules brief.

3001. AUTOMATIC TERMINAL INFORMATION SERVICE (ATIS)

1. The ATIS is broadcast on 263.15.
2. ATIS information includes, but is not limited to weather and field conditions, BASH, landing runway, NOTAMS, status of restricted areas and Military Operating Areas (MOA), and other pertinent information.
3. Pilots should obtain ATIS information prior to contacting Ground Control, Approach Control, or Tower, and advise on initial contact which current ATIS information has been received.

3002. TAXI INSTRUCTIONS

1. All aircraft shall request taxi and departure instructions from Ground Control prior to aircraft movement. Taxiing aircraft shall remain on the Ground Control frequency and monitor Guard until ready for departure or instructed to switch frequency by Ground Control.
2. Aircraft shall be taxied only on the runway, designated taxiways, and/or parking ramps. Taxiway Echo (south diagonal) is closed to all aircraft except HMX-1 (see Appendix A).
3. Pilots of taxiing aircraft sighting emergency vehicles on the field displaying a flashing red light, or having knowledge that the Control Tower is controlling an emergency, shall stop and

hold their position until authorized to proceed by radio or light signals from the Control Tower. During emergencies, taxiing aircraft will maintain strict radio discipline.

4. Clearance delivery will normally be accomplished on Ground Control frequency and clearances should be requested prior to requesting taxi instructions.

3003. TAKE-OFF INSTRUCTIONS

1. Aircraft shall not take position on the runway or depart without specific clearance from the Control Tower.
2. Rotary-wing aircraft may operate on LZ-1A but are advised to utilize caution as LZ-1A is a non-movement area.
3. Fixed-wing section departures for aircraft of similar performance are authorized in accordance with reference (a) provided weather conditions are VMC and approved by the parent unit.

3004. LANDING INSTRUCTIONS

1. Fixed Wing. Fixed wing aircraft shall contact Quantico Tower at least ten miles out for landing information and instructions to follow one of the below procedures:

- a. Overhead Approach. The initial point is located on the extended runway centerline, five miles from the approach end of the runway. Initial altitude is 1,500 feet with a level break over the runway at mid-field descending to 1,000 feet on downwind. The initial point will be approached at a 45 degree angle or less to the extended runway centerline with right breaks to Runway 02 and left breaks to Runway 20 (see Appendix B).

- b. Straight-in Approach. Straight-in approaches shall commence at least five miles from the runway at or above 1,000 feet.

- c. Downwind Entry. Aircraft shall enter the downwind leg at a 45 degree angle or less at 1,000 feet.

2. Rotary Wing

- a. Runway. Rotary wing aircraft will conform to the flow of runway traffic at a pattern altitude of 500 feet. Alternate altitudes above 500 feet may be approved upon request with the tower.

- b. LZ-1A (Landing Zone One Alpha). Rotary wing aircraft operations may be approved upon pilot's request; however, pilots are to use caution because LZ-1A is a non-movement area. The LZ-1A landing zone is 96' X 96' and constructed of asphalt. Arrivals and departures directly to the west of the airfield from LZ-1A are not authorized. Closed traffic operations to LZ-1A shall

conform to the flow of runway traffic at an altitude of 300 feet or below, and remain at least 250 feet from the eastern edge of Runway 02/20.

c. Helicopter Overhead Approach. The initial point is located at five miles on the extended centerline of the runway of intended landing. Standard break point is over the upwind numbers, for spacing purposes, unless otherwise instructed by the control tower. Altitude is 1,000 feet throughout the procedure.

3005. ORDNANCE/WEAPONS/HAZARDOUS CARGO AREAS

1. MCAF Quantico has two red label area (RLA) aircraft parking spots, two combat aircraft loading area (CALA) spots and one (1) ordnance staging area sited for explosive limits of 1,000 lbs. of class and division (C/D) 1.3, and 1.4 materials for each location.

2. CALA 1 and 2 are located on Taxiway Delta, oriented to the north with an ordnance staging area on northeast corner of the taxiway. Red Label Areas 1 and 2 are located on the VAL line. Locations are graphically depicted in Appendix A.

3. Use of CALA and RLA spots requires 48 hour advance coordination with and approval from the MCAF Airfield Manager or Operations Officer due to potential negative impact to airfield operations and limited munitions load/unload support capabilities.

4. All rotary wing aircraft with 1.3 and 1.4 ordnance are required to have ordnance systems on standby prior to landing. Landings will take place on CALA spots on Taxiway Delta, to allow for the grounding of aircraft and refueling trucks. The arm/de-arm heading for CALA spots is 160.

5. Arming/de-arming of aircraft shall cease during all Thunderstorm Conditions. A lightning protection system is not installed due to interference with airfield facility criteria. A lightning warning system will be used, operations terminated and personnel evacuated upon approach of an electrical storm.

6. Fueling/de-fueling is not authorized during arming/de-arming operations.

7. MCAF Quantico does not handle nuclear cargo.

3006. HUNG/UNEXPENDED ORDNANCE

1. Aircraft with hung/unexpended ordnance will avoid all populated and built-up areas. Explosive laden aircraft exceeding sited explosive limits at MCAF Quantico are only authorized to land in the event an in-flight emergency exists. Recommended divert airfields for non-emergency aircraft are Andrews Air Force Base (AFB) and Naval Air Station (NAS) Patuxent River.

2. Pilots will inform ATC of hung ordnance conditions as soon as possible and proceed as pre-briefed, or return to the staging area, i.e. NAS Patuxent River, R-5 buildup area, or home base (whichever is applicable), and execute hung ordnance procedures for that station.

3. In the event of an emergency landing with hung/unexpended ordnance, a straight-in approach will be executed. Upon landing, the aircraft will be taxied to CALA spot 1 or 2 on Taxiway Delta and shut down on a heading of 160 degrees. The aircrew will pin and make safe all ordnance on the aircraft. Under no circumstances will aircraft be fueled or maintenance performed while the aircraft is armed with hung ordnance.

3007. JETTISON AREA. The ordnance jettison area is TA-9 (R-6608) and shall be used only after prior coordination with the Commander, MCB Quantico (Attn: Director, Operations Division). External ordnance shall be dropped in the safe position. Range Control's frequency is 323.7, and Range Control's telephone is DSN 278-5502, COMM (703) 784-5502.

3008. NOISE ABATEMENT/AVOIDANCE AREAS

1. Aircraft operating in the vicinity of MCAF Quantico shall maintain a distance of one mile or a minimum altitude of 1,000 feet from the following areas:

- a. Mainside (west of the airfield).
- b. MARCORSYSCOM facilities (northeast of airfield).
- c. Industrial area (northwest of airfield).

2. Aircraft operating to the west of MCAF Quantico shall maintain a distance of one mile or a minimum altitude of 1,500 feet from the MCCDC Ammunition Supply Point (ASP) located four and one half miles west of MCAF Quantico.

3. Aircraft operating in the vicinity of MCAF Quantico are required to maintain a 500 foot radius around and 1,000 feet above any Bald Eagle nesting areas. Known eagle nesting areas in the local area can be found at the following Center for Conversation Biology website:

<http://www.cbbirds.org/what-we-do/research/species-of-concern/virginia-eagles/nest-locator/>

3009. LOCAL FLYING AREA. MCAF Quantico's Class D airspace is depicted in Appendix K. VFR entry and exit points are depicted in Appendix F.

1. Entry Altitudes

- a. Helicopter – 500' Mean Sea Level (MSL) (Swamp 1000' MSL for EPA minimum)
- b. Fixed Wing – 1,000' MSL

2. Exit Altitudes

a. Helicopters – 800’-1,000’ MSL

b. Fixed Wing – 1,000’

3. Swamp Arrival/Departure. All arriving aircraft entering through the swamp procedure will ensure 1,000’ MSL is maintained. Report 1 NM west of the airfield for “over the top” crossing permission. Upon reaching midfield, begin descent into a right or left downwind for a Runway 02/20 arrival. For aircraft departures, depart Runway 02/20, enter a downwind, climb to 1000’ MSL, and proceed to the west. Report clear of the airspace.

3010. RESTRICTED AREAS AND MILITARY OPERATING AREAS (MOA)

1. Definition

a. Restricted Area. A restricted area is airspace within which the flight of aircraft, while not wholly prohibited, is subject to restriction. Most restricted areas are designated joint use, and IFR/VFR operations in the area may be authorized by the controlling ATC facility when it is not being utilized by the using agency. Restricted areas are depicted on enroute and sectional charts. Where joint use is authorized, the name of the ATC controlling facility is also shown.

b. Military Operating Areas. A MOA is an airspace assignment of defined vertical and lateral dimensions established outside positive control areas to separate/segregate certain military activities from IFR traffic and to identify for VFR traffic where these activities are conducted.

NOTE: Caution should be exercised when working in MOAs, as civilian aircraft operating VFR may fly in or through these areas without contacting ATC. MCB Quantico’s DEMO MOAs are located above and south-southwest of R-6608 (see Appendices C, D).

2. Location of areas. Restricted areas and MOAs are located to the west, south, and southwest of MCAF Quantico (see Appendix C).

<u>AREA</u>	<u>VERTICAL LIMITS</u>	<u>CONTROLLING AGENCY</u>	<u>USING AGENCY</u>
R6608	SFC – 10,000	Potomac TRACON	MCB Quantico
R6601	SFC – 5,000	Potomac TRACON	Fort A.P. Hill
R6611	SFC – 40,000	Washington Center	Navy Dahlgren
R6612	SFC – 7,000	Washington Center	Navy Dahlgren
R6613	SFC – 40,000	Washington Center	Navy Dahlgren
DEMO 1	500 – 5,000	Potomac TRACON	MCB Quantico
DEMO 2	10,000 – 15,000	Potomac TRACON	MCB Quantico
DEMO 3	5,000 – 15,000	Potomac TRACON	MCB Quantico

HILL

SFC – 3,000

Potomac TRACON

Fort A.P. Hill

3. Scheduling and procedures

a. R-6608 and DEMO MOAs 1, 2, and 3

(1) Ranges for live-fire exercises and demonstrations are available in R-6608.

(2) All units requiring use of these areas shall request scheduling from MCB Quantico Range Control at DSN 278-5502 or COMM (703) 784-5502. Once scheduling is confirmed, the user will contact the Fire Desk at DSN 278-5321 or COMM (703) 784-5321 for frequency, location and logistics coordination.

(4) Pilots planning to utilize R-6608 shall check the weekly Terrain and Gate Schedule (MCCDCBul 1500), prior to launch, for detailed information on scheduled activity.

(5) No aircraft shall enter a restricted area without first contacting MCB Range Control on UHF 323.7 or VHF 134.1 for authorization to enter R-6608 and DEMO MOA, in accordance with MCCDCO P1500.1.

(6) Aircraft requesting an IFR clearance upon exiting the restricted area should advise Quantico ATC of their request at least five minutes prior to their exit time. This procedure will allow for coordination with Potomac Terminal Radar Approach Control (TRACON) and reduce delay time for aircraft clearance exiting the area.

(7) Quantico ATC shall provide radar containment services for fixed-wing aircraft operating in R-6608 and the DEMO MOAs. Quantico Arrival will coordinate containment services with aircraft upon entry into R-6608 or DEMO MOA.

NOTE: Due to the close proximity of the Dulles Class B Airspace and the Manassas and Stafford Airports to the DEMO MOAs and R-6608, pilots must be extremely vigilant when working these areas to avoid spill outs. The area north of R-6608 and DEMO 2 has become increasingly congested with commercial and private aircraft because of its close proximity to Manassas Airport. Pilots should exercise vigilance when inbound to or outbound from the Quantico restricted areas in VFR conditions due to primary arrival and departure corridors located west and east of R-6608. It is recommended that Pilots request flight following from Quantico Arrival to avoid traffic in those areas (see Appendices C, D, and E).

b. R-6601 and Hill MOA. For scheduling of R-6601 and Hill MOA, contact AP Hill Aviation Operations at DSN 578-8713, COMM (804) 633-8713. Units intending to conduct extensive training exercises requiring range occupancy for multiple days must prior coordinate no later than 30 days in advance of requested times.

3011. LOCAL OBSTRUCTIONS

1. Local obstructions that are hazardous to flight within five miles of MCAF Quantico are:

OBSTRUCTION	LOCATION	HIGHEST POINT
Transmitter tower	2.25 NM N	358'
Power Plant	2 NM NNE	396.19'
Power Lines West Bank	2 NM NE	274.59'
Power Lines East Bank	2 NM NNE	244.84'
ASR Antenna	0.75 NM SE	252'
Rotating Beacon	0.5 NM SE	83'
Church	1 NM SSW	161.37'
Tree Line	0.5 NM W	255.38'
Tower	1 NM NNW	252'
Water Tower	1.75 NM N	338.7'
Water Tower	2.5 NM NW	337.19'
Control Tower	Hangar 2105	85'

2. All obstructions within the traffic pattern, except terrain, are clearly marked by obstruction lights. See Appendix K.

3012. AIRPORT VEHICLE RESTRICTIONS/TRAFFIC PROCEDURES

1. Only personnel and vehicles in direct support of aircraft and airfield services will be authorized unescorted access to aircraft movement areas. All other vehicles shall utilize the perimeter road. The MCAF Airfield Manager and/or Operations Officer will determine authorization for airfield use.

2. Any person whose official duties require operation of a vehicle on the airfield shall obtain an airfield vehicle operator license prior to operating an unescorted vehicle of any type (i.e. GSE, maintenance/construction equipment, etc.) on the airfield in accordance with reference (a) and (b).

3. ATC administers the airfield vehicle operator's course (AVOC). Personnel requiring initial or refresher training must contact the ATC Tower Chief at DSN 278-1470, COMM (703) 784-1470 for scheduling. Upon successful completion, the Airfield Operations Department will issue an airfield driver license valid for one year from date of issue.

4. Vehicle operators must complete annual refresher AVOC training (in addition to required MOS/equipment training) prior to license expiration. Any person who fails to complete refresher training will automatically lose airfield driving privileges and shall not operate a vehicle on the airfield until training is re-accomplished and a new license issued.

5. An operator may be challenged to prove certification to operate a vehicle on the airfield by exhibiting a valid airfield driver's license to Airfield Operations Department personnel. Failure to show a valid license requires airfield exit unless an authorized escort is provided.
6. Vehicles operating on aircraft movement areas shall be equipped with an operational two-way radio for communication with Quantico Ground Control, and an amber rotating beacon or orange and white checkered flag.
 - a. The operator of a vehicle not equipped with a radio shall obtain a hand-held radio from Flight Clearance. A limited number of portable rotating beacons are available for issue from Fuels. Flags are available upon request from the Airfield Manager. A valid airfield driver's license must be shown at time of receipt.
 - b. When a rotating beacon is unavailable, vehicle operators shall use flashing hazard lights.
7. Vehicle operators shall maintain two-way radio communication with and obtain approval from Quantico Ground Control prior to accessing or crossing a runway, taxiways, the runway shoulders, runway end zones, or landing zones. Before runway entry, vehicle operators shall ensure the runway is clear of aircraft.
 - a. All vehicles must stop at the yellow non-movement line, located at the old ARFF burn pit site and contact Ground Control for approval to proceed north of the burn pit and along the access road.
 - b. Upon approval from Ground Control to cross or enter the runway from the burn pit, vehicle operators must proceed without delay.
 - c. If a reasonable delay will occur north of the burn pit, i.e. construction, repairs, or emergencies, personnel shall inform ATC of the reason and length of delay.
8. Vehicles should remain on improved, paved surfaces. If necessary to travel on an unpaved or unimproved surface, operators shall conduct a thorough "rolling" FOD check immediately upon returning to the hard surface.
9. Aircraft shall have the right of way over all vehicle traffic except emergency vehicles responding to an emergency.
10. Aircraft under-tow on a movement area must be in two-way radio communication with Tower.
11. Do not park or drive a vehicle closer than 25 feet forward and 200 feet aft of a fixed wing aircraft with engines running or 50 feet forward and 100 feet aft the propeller arcs of a rotary wing aircraft with rotors spinning.
12. All vehicles will approach parked aircraft with the driver side nearest the aircraft.

13. Vehicles will not be driven within 25 feet of any aircraft except when servicing, loading or off-loading the aircraft.

14. Vehicles will not be backed in the direction of an aircraft without a spotter behind the vehicle.

15. Speed Limits. Emergency vehicles shall adhere to the established speed limits except during an emergency or drill and then at speeds commensurate with safe vehicle operation with special consideration to weather, ambient light, airfield surface conditions, and proximity to aircraft.

The following speed limits shall be observed:

- a. Vehicles towing aircraft – 5 MPH
- b. Vehicles in close proximity to aircraft (within 50') – 5 MPH
- c. Vehicles on parking and ramp areas – 10 MPH
- d. Vehicles on taxiways – 15 MPH
- e. Vehicles on runway – 25 MPH
- f. Snow and ice removal vehicles will operate at speeds commensurate with safety during snow and ice control operations.
- g. Emergency response vehicles may exceed speed limits with due regard for the safety of persons and property.
- h. The Airfield Manager, Flight Clearance, and escorted MCBQ Wildlife Biologists may exceed speed limits commensurate with safety to expedite dispersal and/or depredation of mammals/birds posing a hazard to aircraft operations.
- i. Anytime Tower directs a driver to “expedite” or “proceed” without delay, or directs a vehicle action with the term “immediately”, the driver may temporarily exceed the speed limit commensurate with safety to avoid endangerment. Once the vehicle is clear of the aircraft movement area, the driver will resume normal speed limits.
- j. All aircraft shall be taxied at a safe and reasonable speed commensurate with safe operation in relation to existing conditions and with due regard for other aircraft, persons and property.

16. During the hours of darkness, the following rules shall apply:

- a. Aircraft that are being towed with internal power systems shall have external lights on.
- b. Headlights shall be on low beam. Vehicles shall not be operated with only parking lights illuminated.

c. Vehicles shall be operated in such a manner that headlights are not directed at aircraft taxiing, departing or arriving.

17. Cunningham Road has two red traffic lights installed to control vehicle movement on the access road near the southern end of the runway. After passing through Cunningham Gate, vehicles shall stop at the traffic light and take the following action:

a. If the red light is flashing, vehicles shall stop, conduct a visual sweep of the runway and the approach zone, ensuring there are no aircraft with which they would conflict. Once it is determined all is clear, the vehicle shall proceed, with no undue delay, to their destination.

b. If the red light is steady red, the vehicle shall stop and wait for it to begin flashing before proceeding.

18. Vehicles shall never pass an aircraft during arming/de-arming of weapons systems unless required for the arm/de-arming operation.

19. All vehicles entering an automated gate must wait until the gate is completely closed behind them before they can proceed further.

20. Control Tower/RATCF Access. All persons, except those duly authorized, who desire access to enter the Control Tower or RATCF shall obtain permission from the Air Traffic Control Facility Officer (ATCFO).

21. HMX-1 Restricted Area. The most southern portion of the south ramp and west side of Taxiway Echo are designated a restricted area delineated by a red painted line and warning signs every 45 feet (See Appendix A). Unauthorized personnel are prohibited from entering this area without pre-arranged HMX-1 escort. To arrange escort for official purpose, individuals shall contact HMX-1 Security at (571) 494-4811.

3013. CLOSED AIRFIELD OPERATIONS

1. Authority to conduct closed airfield operations is granted to tenant HMX-1 personnel by the Commanding Officer of MCAF Quantico as outlined in reference (a) and in accordance with the Letter of Agreement (LOA) between MCAF and HMX-1.

2. Emergencies

a. When the field is closed, ARFF services are reduced in accordance with reference (d), to a level below operational airfield category limits. Pilots assume additional risk during closed airfield operations due to a potential delay in emergency response.

b. ARFF, with backup from the MCB Quantico Fire Department, will respond when alerted to an emergency or medical evacuation (MEDEVAC). Medical support must be dispatched from the MCB Quantico Clinic.

c. To report an emergency during closed field, use any of the following:

<u>Unit</u>	<u>DSN 278-</u>	<u>COMM(703) 784-</u>	<u>VHF</u>
ARFF Dispatch	2571/2312	2571/2312	140.1
Fire Department		911	

3. When the field is closed weather information may be obtained via <https://weather.navy.mil/AviationWeb/ViewLocalForecast?stationId=35>

4. Flight planning can be accomplished by contacting Flight Service Station (FSS) Leesburg at 1-800-992-7433 or by radio contact once airborne.

5. Closed Airfield Course Rules

- a. The MCAF Quantico Course Rules are in effect for Closed Airfield Operations.
- b. No more than two (2) aircraft are allowed in the touch and go pattern during closed airfield operations.
- c. At least one hour prior to closed airfield operations the HMX-1 Operations Duty Officer (ODO) or the pilot in charge of the aircraft shall notify the Potomac (PCT) Operations Manager in Charge (OMIC) and the National Capitol Regional Coordination Center (NCRCC), IAW the MCAF and HMX-1 LOA.
- d. Once airborne, the pilot shall establish and continuously monitor PCT Approach frequency(s) 128.525/306.925 to verify that the aircraft has an operable transponder in order to conduct closed airfield operations in the SFRA.
- e. During closed airfield operations, pilots shall broadcast in the blind to "Quantico Traffic" on tower frequency: 118.6.
- f. Pilots of departing aircraft shall report all movement on the airfield and when airborne until clear of MCAF Quantico's Class D airspace. Pilots of arriving aircraft shall report entering MCAF Quantico's Class D airspace and all subsequent movement on the airfield until parked.
- g. The pilot in command is responsible to see and avoid other aircraft and to prevent traffic conflicts by strict adherence to the course rules.
- h. No vehicles will proceed onto the runway or taxiways when the airfield is closed, with the exception of ARFF, HMX-1 Security, VAL, Airfield Manager and ATCM vehicles performing official duties in accordance with an approved letter of agreement. During airfield closure, authorized vehicle operators will announce "in the blind" aircraft movement area entry and exit via the land mobile radio (LMR) "Ground" net. During airfield closure, the Ground and Local frequencies are combined to form a CTAF. Vehicle operators and pilots are responsible for closely monitoring this frequency to maintain situational awareness. Upon notification of pilot

intentions to arrive or depart the runway, vehicle operators will immediately exit the runway and/or applicable taxiway to give way to aircraft.

3014. LOST COMMUNICATIONS. Aircraft without radio communications shall squawk 7600 and over-fly the airport at 1,500 feet or higher to ascertain the current landing pattern direction. Aircraft shall then enter the pattern via the downwind leg, rocking wings (daylight hours) or flashing lights (after dark), and observe the tower for the appropriate light gun signals.

3015. HOT BRAKES. Aircraft with smoking or apparently overheated brakes shall not return to normal parking areas until it is determined that no fire hazard exists. When aircrew notice the existence of hot brakes, an emergency shall be declared and the aircraft shall plan to exit the runway and proceed to the designated hot brakes area depicted in Appendix A or as otherwise directed by Tower.

3016. OVERDUE AIRCRAFT

1. Responsibility. An aircraft is considered overdue when neither communications nor radar contact can be established and the aircraft is 30 minutes beyond its destination ETA. The Flight Clearance Section shall monitor all DD-175 flight plans inbound to MCAF Quantico. HMX-1 shall monitor local squadron flights on their daily flight schedule. Flight Clearance should be notified immediately when an aircraft becomes overdue.

2. Procedures for Overdue Aircraft. Flight following procedures shall be initiated and monitored by Flight Clearance. The following action shall be taken for overdue aircraft:

a. Initiate a check at the destination airfield for the aircraft in question. Tenant unit will make a physical check of their apron and report results to Flight Clearance.

b. Contact FSS and request a preliminary communications search be initiated.

c. For local flight plans, if the aircraft has not been located within one hour after issuance of the alert notice, the MCAF Operations Officer or Airfield Manager shall ensure the Rescue Coordination Center, Tyndall AFB, Florida has been notified at DSN 523-5955/COMM (850) 283-5955 or (800) 851-3051.

d. The MCAF Commanding Officer shall be notified when preliminary communications search activities are unsuccessful and/or an expected inbound aircraft becomes one hour overdue.

3017. DIVERT AIRFIELDS

1. Military

a. Primary Divert – Andrews AFB

b. Secondary Divert – NAS Patuxent River

2. Civilian

- a. Primary Divert – Manassas Regional Airport
- b. Secondary Divert – Stafford Regional Airport or Shannon airfield

3018. VIOLATIONS OF FLIGHT REGULATIONS. Violations of flight regulations will be reported to the MCAF Airfield Manager or Operations Officer at DSN 278-1449/1448 or COMM (703) 784-1449/8. The MCAF Airfield Manager or Operations Officer will notify the MCAF ATCFO who will investigate each incident and determine if a flight violation did occur. A report of his/her investigation and appropriate recommendations will be forwarded to the MCAF Commanding Officer via the MCAF Operations Officer for action as set forth in either reference (a) or FAA regulations, as applicable. The MCAF Operations Officer shall initially investigate, on an informal basis, all accidents of inadvertent discharge/jettison of ordnance or aircraft components and report all such incidents to the MCAF Commanding Officer.

3019. AIRSPEEDS. To reduce midair collision hazards associated with high aircraft speeds at low altitudes, references (a) and (c) impose a maximum airspeed limitation of 250 knots indicated airspeed (KIAS) on all aircraft operating below 10,000 feet MSL in airspace where references (a) and (c) apply, and a maximum of 200 KIAS for aircraft operating:

1. At or below 2,500 feet above the surface within four NM of the primary airport of a class C or D airspace area.
2. In the airspace underlying a class B airspace area designated for an airport or in a VFR corridor designated through such a class B airspace area. The regulation grants exceptions for operations that cannot safely be conducted at airspeeds less than the prescribed maximum airspeed. The FAA has authorized the DoD to exceed the 250 KIAS below 10,000 feet MSL for certain military requirements.
3. Aircraft engaged in drug interdiction operations are exempted from the general speed limit of 250 knots below 10,000 feet MSL. However, pilots of aircraft so involved are required to establish and maintain two-way radio communication with the tower prior to entering the class B, C, or D airspace and, unless otherwise authorized by ATC, avoid the traffic patterns for any airport in class B, C, or D airspace.

3020. UNUSUAL MANEUVERS. Pilots shall not request deviations from 14 CFR Part 91 including unusual maneuvers such as low passes, fly-bys, or high-performance takeoffs.

3021. QUIET HOURS. During published quiet hours, all airfield movement will be limited. Requests for quiet hours shall be forwarded to the MCAF Airfield Manager or Operations Officer.

1. Quiet Hours are a restriction on aircraft, GSE, heavy equipment, and flight operations.

2. Units shall submit a written request not later than five working days prior to the planned ceremony. The request must specify date, time, location, type of ceremony, and requested duration.
3. Approved quiet hour periods should not normally exceed one hour.
4. Appropriate Ceremonies. Quiet hour requests are normally for an officially sanctioned and scheduled ceremony.

5. Prohibited Activities

a. Ceremonies on or within .5 NM of MCAF (OCS, Lejeune Hall field, etc.)

- (1) Operation of mobile electric power carts and other heavy equipment on the airfield within 500 yards of the ceremony.
- (2) Vehicle operations within 100 yards of ceremonies held inside the airfield.
- (3) Aircraft ground operations.
- (4) Aircraft operations in the Class D Surface Area within three nautical miles of the airfield or below 2,500 feet above ground level (AGL), touch-and-go landings, missed/low approaches, low altitude flyovers, and departures and arrivals except as specified by paragraph 3021.6.

b. Ceremonies on MCB Quantico greater than .5 NM from the airfield yet located within a standard low level flight path (e.g. Marine Corps University, etc.). Select aircraft ground and flight operations may be prohibited as determined by location and type of ceremony considerations except as specified by paragraph 3021.6.

6. Exceptions for Aircraft Arrivals/Departures During Quiet Hours

- a. In-flight Emergencies. Aircraft experiencing a declared in-flight emergency may land.
- b. Banner Missions. Aircraft designated as Banner Missions directly support the President of the United States and may land and depart during quiet hours.
- c. Marine Helicopter Squadron One (HMX-1). HMX-1 helicopters are authorized to arrive and depart during quiet hours providing the mission is in direct support of Presidential or Vice Presidential movement missions.
- d. Operational Support Aircraft. Operational support aircraft (OSA) with an assigned Joint Operational Support Airlift Center (JOSAC) mission to support a DV (military Code 6 and above or civilian equivalent) may, with prior approval from the Commanding Officer of MCAF Quantico, operate during quiet hours.

7. Arrivals During Quiet Hours. Pilots shall plan for a straight-in, full-stop landing. Pilots shall land and taxi directly to parking for shutdown or land and shutdown immediately after clearing the runway.

8. Departures During Quiet Hours. Pilots shall use minimum time on the runway and plan to depart straight-out or as vectored by ATC while climbing to their initially assigned altitude as expeditiously as possible consistent with aircraft limitations and passenger comfort.

9. Quiet hours shall not be extended past the approved duration without approval from the Commanding Officer of MCAF Quantico.

10. ATC shall include quiet hour periods in the ATIS broadcast and shall announce the beginning of quiet hours 30 minutes prior to start.

11. Pilots operating in the local traffic pattern or on LZ-1A shall plan to depart or land and taxi to parking for shutdown prior to the beginning of quiet hours.

3022. LASER RANGE FINDER OPERATIONS

1. The Naval Research Lab (NRL) operates a laser range finder used to determine the orbital paths of various satellites. The operation of this laser can result in permanent ocular damage to aircrew. The hazard is higher when in close proximity to the laser emitter. The characteristics of the beam and built-in safety systems to prevent direct lasing of aircraft in the beam path significantly reduce the possibility of any exposure to aircrew. Additional procedures have been created to further reduce the risk in the immediate vicinity of the emitter. This section describes the characteristics of the laser system being used, built-in safety systems to prevent lasing of aircraft, and local procedures that shall be undertaken to mitigate the hazard to aircrew.

2. System Description. The laser system is characterized by high-energy pulses of very short duration repeated at a slow rate, with a wide beam width. The result is a moderate energy density for each pulse.

a. Location. The laser is located in the Midway housing area at N 38° 29' 57.17447" W 77° 22' 15.98160" at 78.523 feet MSL (See Appendix J).

b. Wavelength. 1064Hz. This wavelength is not visible to human eyes, therefore dazzle or flash-blinding are not hazards to aviators.

c. Radar Coverage

(1) Range: 22.6 NM

(2) Altitude: Up to 50,000 feet

3. Built-In Safety System. The laser system is equipped with a radar system that scans for aircraft within a narrow cone around the beam. Detection of an aircraft inside this cone will cause the laser to shut down before lasing of the aircraft occurs.

4. Local Procedures

a. Notification of intent to conduct laser procedures.

(1) NRL will notify the following agencies prior to conducting laser operations: HMX-1 Operations Duty Officer (ODO), MCAF S-3, Marine Corps Base G-3 and MCB Range Control.

(2) Notification will be made one hour prior to commencement, at the end of operations, and at 0800 daily during extended operations.

3023. NIGHT VISION DEVICE (NVD) OPERATIONS

1. Night vision device operations and associated aircraft lighting in the CDSA shall comply with reference (a). FAA regulations prohibit ATC personnel from using NVDs to locate aircraft operating on the airfield movement areas and within the CDSA. Therefore, aircraft conducting NVD operations within the CDSA and on the airfield movement areas shall use appropriate overt lighting commensurate with safety of flight and collision avoidance. Pilots shall notify ATC upon initial contact of intent to conduct NVD operations and any special handling required.

2. Airfield Lighting. Aircraft may request intensity reduction or suspension of runway/taxiway lighting during NVD operations. Airfield lighting shall be returned to standard settings to support the arrival and departure of non-NVD aircraft.

3. VFR Traffic Pattern. A maximum of three NVD aircraft shall operate in the VFR traffic pattern simultaneously. Only aircraft operating with similar lighting configurations will be allowed to operate in the VFR pattern, i.e. non-NVD with non-NVD or NVD with NVD.

CHAPTER 4

INSPECTIONS AND CHECKS TABLE OF CONTENTS

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CHAPTER 4

INSPECTIONS AND CHECKS

4000. GENERAL. Airfield inspections and checks shall be conducted by the Airfield Manager, Flight Clearance, and/or ARFF personnel to ensure the airfield remains safe for flight operations in accordance with reference (e).

4001. AIRFIELD INSPECTIONS

1. A daily airfield inspection of the runway, taxiways, and parking aprons shall be conducted to identify FOD, deteriorating pavement, obstructions, airfield marking, lighting and sign outages/discrepancies, bird/wildlife threats and any other unsafe condition(s). Results of daily inspections shall be reported to the OPSO/AOPSO, Airfield Manager, Flight Clearance and ARFF. The Tower Watch Supervisor shall be notified of any discrepancies that may adversely impact aircraft operations.

2. When authorized closed airfield operations are expected, the ARFF Division shall inspect the runway, taxiways, and parking ramps for FOD, obstructions, or any other unsafe condition(s) prior to the start of flying activities. New hazards (those not reported on the day the airfield was last open) will be reported to the HMX-1 Duty Officer and forwarded to the Airfield Manager or Flight Clearance the next day the airfield is open.

3. Tenant units occupying hangar space are responsible for daily FOD prevention inspections of hangar(s) and parking apron(s) from which they operate. Those conditions that cannot be corrected by the unit, or are beyond their capability will immediately be reported to the Airfield Manager. A sweeper may be requested by contacting Flight Clearance.

4. Construction inspections shall be performed before and after completion of any major airfield project. The inspection team should include the Airfield Manager, MCAF Facilities, MCAF Safety Department, MCB Quantico Public Works, contracting representative, and construction manager. Findings will be documented and monitored by the government appointed construction manager and contracting officer until corrected.

5. An Airfield Certification/Safety Inspection shall be conducted annually using the checklist in Appendix L of reference (e). At a minimum, the OPSO, PWO, Airfield Manager, GEMO, ATCFO and MCAF Safety shall participate. Results of the inspection shall be forwarded to the CO every 12 months.

4002. AIRFIELD CHECKS

1. Airfield checks are a subset of the full airfield daily inspection to examine the condition of primary take-off, landing and taxi-surfaces, and lighting and markings before the start of flying activities each day and throughout the day following significant events that have the potential to impact the integrity of those areas (e.g. wide body or heavy aircraft arrivals/departures,

bird/wildlife hazard response, runway surface conditions, severe weather, construction or maintenance activity, airfield driving violations, unauthorized aircraft landings, etc.).

2. An airfield check is not a substitute for the required daily airfield inspection.

4003. DOCUMENTATION AND REPORTING

1. Results of airfield inspections and checks shall be documented on the MCAF Airfield Inspection/Check Checklist and forwarded to the OPSO, AOPSO, Airfield Manager, Flight Clearance, and ARFF. Identified discrepancies will be reported to Facilities or other appropriate agency for correction. Discrepancies will be tracked until closed.
2. Problems that may affect safety of flight shall be immediately relayed to Tower.
3. Airfield Operations shall notify pilots of airfield hazards that may affect the safe movement of aircraft (e.g. taxiway closure, construction or maintenance activity, obstruction data, lighting outages, runway surface contamination, snow banks, pavement failure/deficiencies, etc.) by NOTAM and local briefings. ATC shall include pertinent NOTAM information in the ATIS broadcast. NOTAM information is available from the Defense Internet NOTAM Service (DINS) web site: <https://www.notam.jcs.mil>.

4004. EMERGENCY EQUIPMENT CHECK. Prior to the start of daily flight operations, the ARFF Division will complete pre-operational inspections of assigned aircraft firefighting and support vehicles and organic equipment required to support the level of scheduled flight activity. Required equipment that is not operational will be reported to the OPSO. A reduction of flight operations per reference (d) may be required.

4005. CRASH ALERT SYSTEM CHECK. ATC will check the primary crash phone 10 minutes prior to the scheduled field opening on a daily basis. Flight Clearance will check the secondary crash phone once a week, on Monday or the first operational day of that week, immediately after the primary crash phone check.

CHAPTER 5

AIR TRAFFIC CONTROL TABLE OF CONTENTS

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CHAPTER 5

AIR TRAFFIC CONTROL

5000. GENERAL. All aircraft shall obtain specific ATC clearance prior to maneuvering on an airport movement area, or within MCAF Quantico's designated airspace. Positive air traffic control shall be exercised by Quantico Tower over all civil and military aircraft during published operating hours. No aircraft may operate on the Quantico Movement Area or Class D Surface Area without two-way radio communications unless prior coordination has been accomplished.

5001. AIRSPACE DESCRIPTION

1. Quantico Arrival Airspace. Quantico Arrival Control Airspace is located immediately south of the Baltimore-Washington TRI-AREA Terminal Control Area (TCA). Adjacent ATC facilities include Reagan National to the NNE, Navy Patuxent River to the east, Richmond to the south, and Dulles to the NNW. By letters of agreement, Dulles, Richmond, and Washington National (PCT) delegated MCAF Quantico that airspace depicted in Appendix C.

2. Civil aircraft are approved to transition through Quantico's Class D airspace on a non-interference basis.

5002. FREQUENCIES AND NAVIGATIONAL AIDS

1. Frequencies. Commonly used frequencies are listed in Appendix G.

2. Navigational Aids

a. Brooke VORTAC

(1) Located 10 miles south of MCAF Quantico

(2) Identifier – BRV

(3) Frequency – 114.5 / Channel 92

5003. AIR TRAFFIC CONTROL SERVICES

1. VFR Control. Quantico Tower exercises positive control over all air traffic within its operational airspace. When deemed safe, efficient, and in accordance with Letters of Agreement, Quantico Tower may exercise procedural control on operations conducted to both the active runway and LZ-1A. All aircraft operating on the airport will be issued instructions and clearances by radio or visual techniques.

2. IFR Control. Quantico Arrival Control is responsible for all IFR aircraft operation and IFR handling of VFR aircraft within the Arrival Control Airspace assigned to MCAF Quantico. Besides MCAF Quantico, arrival control services are also provided to Shannon Airport,

Dahlgren Naval Surface Weapons Center, Stafford Regional Airport, and Fort A. P. Hill. Standard separation procedures are applied for all aircraft operating within Quantico Arrival Control jurisdiction.

3. SVFR Procedures. SVFR operations are authorized within the MCAF Quantico Airspace. Quantico Tower issues SVFR clearances after obtaining approval from Arrival Control.

5004. APPROACH PROCEDURES

1. Available navigation aids and approved instrument approach procedures are published in current DoD Flight Information Publications (FLIP). Radar and instrument approaches are available to Runway 02 only, with priority given to inbound IFR traffic. The PAR to Runway 02 is the primary approach in use at MCAF Quantico. Pilots can expect to be offered this approach upon initial contact.

2. In the event an HMX-1 aircraft requests to enter the Tower pattern when conducting an opposite direction PAR approach, the pilot shall be informed to expect the approach to be terminated at 2NM. At 2NM, unless otherwise coordinated with Tower, the PAR controller shall terminate the aircraft's radar service and instruct them to enter the Tower pattern.

PHRASEOLOGY: "(Distance from touchdown) (Course call) Radar service terminated, enter left downwind Runway Two Zero, contact Tower". This procedure shall only be utilized by HMX-1 aircraft conducting VFR practice PAR approaches.

3. Pilots should be vigilant when flying in the vicinity of Brooke VORTAC as it is the initial approach fix for Stafford Regional Airport, Shannon Airport, and MCAF Quantico. Brooke VORTAC is also used as a feeder fix for Dulles Airport. Pilots should be especially vigilant for commercial and private aircraft descending to 4,000 feet proceeding northbound from Brooke VORTAC.

4. MCAF Quantico is equipped with a Precision Approach Radar and any restrictions to this system are contained in the FLIP.

5005. CIRCLING APPROACHES. When Runway 20 is the duty runway, pilots can expect to circle east of the field for landing due to the unavailability of instrument or radar approaches to Runway 20. Caution should be exercised during these operations because of the necessity of the Control Tower to control opposite direction traffic.

NOTE: Circling is not authorized west of the airfield or from a PAR approach.

5006. DUTY RUNWAY DESIGNATION. The Tower Watch Supervisor is responsible for designating the duty runway. In making this designation, primary consideration is given to prevailing wind direction and speed. Other weather and airfield conditions, status of available NAVAIDS, and type of air traffic expected are taken into consideration. Pilots experiencing an emergency will be given their choice of runway whenever possible.

5007. EMERGENCY PROCEDURES

1. Pilots of aircraft experiencing an emergency should notify ATC as soon as possible of intent to declare an emergency. This procedure will give the Control Tower maximum time to notify appropriate supporting agencies.
2. Pilots of distressed aircraft should provide the following information to ATC as soon as possible:
 - a. Call sign.
 - b. Type of aircraft.
 - c. Nature of emergency.
 - d. Position.
 - e. Intentions.

NOTE: Above is the minimum information required by ATC to plan their actions. If time permits, the following info should be provided:

- f. Number of persons on board.
 - g. Fuel remaining in minutes.
 - h. Ordnance/Hazardous cargo.
3. Aircraft with an emergency will be given priority over all other aircraft.
4. When an emergency is declared, the Ground Controller and Tower Watch Supervisor shall notify the ARFF Division. The Tower Flight Data Controller shall notify other sections with immediate responsibilities using the Primary Crash Phone. The Flight Clearance Section shall provide follow-up notification using the Secondary Crash Phone.
5. The ARFF Watch Section Supervisor is solely responsible for the movement and control of all crash vehicles. ATC shall not deny permission for movement on the runways and taxiways unless it presents a hazard. The ARFF Watch Section Supervisor or other competent authority shall secure emergencies.

5008. MINIMUM FUEL

1. Pilots should be aware of the distinction made between the terms "Emergency Fuel" and "Minimum Fuel."

2. Pilots should advise ATC of minimum fuel status when the fuel supply is such that upon reaching your destination, you cannot accept any undue delay.
3. Declaring “minimum fuel” does not indicate an emergency situation. Declaring “minimum fuel” merely indicates an emergency situation is possible should any undue delay occur and does not imply a need for priority handling.
4. If the remaining usable fuel supply suggests the need for traffic priority to ensure a safe landing, pilots should declare an emergency (“emergency fuel”) due to low fuel and report fuel remaining in minutes.

5009. WHEELS CHECK PROCEDURES

1. Voice Report

- a. All pilots will report “wheels down and locked” prior to landing. This report will normally be given prior to turning base leg or prior to one mile final on a straight-in approach.
- b. If the wheels down report has not been received by base leg, ATC shall advise the aircraft to “check wheels down” prior to issuing a landing clearance.

2. Visual Check. When doubt exists as to the position of the landing gear, pilots may request clearance for a low pass for a visual inspection by the Control Tower.

5010. MV-22 DAMAGED/MALFUNCTIONING LANDING GEAR

1. Upon notification of an inbound MV-22 with damaged or malfunctioning landing gear, HMX-1 maintenance personnel shall setup padded pallets consisting of secured mattresses at the designated emergency landing pad located on the North Ramp (See Appendix A).
2. All non-essential personnel shall remain clear of the North Ramp during a MV-22 landing gear emergency.

5011. ATC LIGHT SIGNALS

1. Standard light signals are used. A departure clearance will not be granted to NORDO aircraft using light signals without the prior permission of the Airfield Operations Officer.
2. All personnel operating aircraft or vehicles, whether in the Class D Surface Area or on the airfield movement area, shall be familiar with the ATC light gun signals depicted in Appendix L.

CHAPTER 6

TRANSIENT AIRCRAFT

6000. GENERAL

1. Facilities available to transient aircrew and aircraft are limited. Aircrew should consult the IFR Supplement, AP/1, and NOTAMs for current information.
2. Flight Clearance/VAL personnel are responsible for the initial marshalling of transient aircraft to parking and coordination of aircraft ground and flight planning support services. Visiting aircrews are responsible for arranging their own billeting and transportation requirements.

6001. TRANSIENT AIRCRAFT OPERATIONS. All transient military and civilian aircraft require a MCAF Flight Clearance issued Prior Permission Required (PPR) number prior to landing, performing VFR pattern work or touch and goes with exception of aircraft that have declared an emergency and as otherwise stated in this chapter and reference (f). Emergency services will be provided to any aircraft upon request.

1. Military

- a. Pilots of inbound aircraft are requested to make maximum use of VFR pattern and radar services available, consistent with their mission. Aircraft will be handled as routine traffic and approved by ATC on a non-interference basis.
- b. C-17, C-130, and other military fixed wing aircraft will be parked on the VAL. Transient rotary wing aircraft will be parked on the VAL or North Ramp unless prior arrangements have been made with tenant activities. Taxiway D is used for overflow parking and aircraft CALA operations.
- c. The designated VIP ramp is located immediately south of the Control Tower (VIP-1).
- d. Hangar space is limited and restricted to small aircraft. Hangar 2105 does not have a foam activation fire suppression system. Transient aircrew requesting hangar space shall contact the MCAF Airfield Manager or Operations Officer for scheduling.

2. State, Federal, County, and Life Flight

- a. Pilots of State, Federal, County, and Life Flight aircraft may conduct practice radar approaches terminating in either a low approach or missed approach and do not require a CALP to land when purpose is for official business at MCAF Quantico per reference (f). PPR coordination/approval is still required to ensure adequate airfield operations support is available.
- b. Practice approaches shall not interfere with locally based aircraft operations. For practice approaches when Runway 20 is the duty runway, a two mile turnout will be issued for all aircraft

conducting practice approaches if two or more military aircraft are in the local pattern. Practice approaches to Runway 02 will be authorized at the discretion of the tower supervisor.

3. Civil

- a. Civil aircraft use of Navy and Marine Corps aviation facilities is governed by reference (f).
- b. Civil aircraft are not permitted to use MCAF Quantico unless prior coordination has been made with the MCAF Operations Department. Civil aircraft may conduct practice approaches terminating in either a low approach or missed approach.
- c. Civil aircraft require an approved CALP to land at MCAF Quantico unless declaring an emergency or otherwise exempt per reference (f). For emergencies, the pilot must fulfill requirements in reference (f) prior to the aircraft being authorized to depart.
- d. To apply for a CALP, applicants must provide the MCAF Airfield Manager with a completed original copy of DD Form 2400, Certificate of Insurance, DD Form 2401, Civil Aircraft Landing Permit, and DD Form 2402, Hold Harmless Agreement at least 30 days prior to proposed landing to allow for processing, verification, and Commanding Officer approval. Forms require hand scribed blue ink signatures; therefore, faxes or PDFs cannot be used as original documents. Forms may be found at: <http://www.quantico.marines.mil/mcaf/>.

6002. BILLETING

1. Military. Transient quarters are available at MCB Quantico and are arranged through the Bachelor Housing Transient Quarters at DSN 278-3148/3149, COMM (703) 784-3148/3149 or the Crossroads Inn at (800) 965-9511 or (703) 630-4444.
2. Civil. The area surrounding the base offers several motels for those personnel authorized or who desire to use off station quarters. Contact Flight Clearance, DSN 278-2085/2908, COMM (703) 784-2085/2908 for a listing of available off-base lodging.

6003. MESSING

1. Military Facilities. Officers and enlisted service members may eat in the Air Facility mess hall. Personnel on COMRATS/Per Diem must pay for their meals.
2. Flight Rations. Flight rations are available. Requests should be made 24 hours in advance.

6004. TRANSPORTATION

1. MCAF Quantico has limited military transportation available. There is no base taxi. Information regarding government transportation is available from the Flight Clearance section when requesting a PPR.

2. A civilian taxi service is available for those personnel who desire to go off base. The Yellow Cab Company can be reached at (703) 640-6464.
3. Rental cars are available through Enterprise Rentals, located in the Quantico Marine Corps Exchange. Enterprise may be reached at (800) 736-8222.

6005. EMBARKATION OF PASSENGERS

1. A passenger is any individual traveling in an aircraft that is not part of the aircrew.
2. No person shall enplane as a passenger nor any cargo be embarked on a Naval aircraft, unless authorization has been granted by competent authority in accordance with references (g) and (h).
3. Squadron commanders may exercise passenger clearance authority for passengers embarked on their squadron aircraft.
4. Pilots will attach to their flight plan, or file with their squadron, a complete roster containing last and first name; middle initials, grade, last four of their Social Security Number, and parent unit of all passengers on board.
5. No Space "A" passengers will be on or offloaded aboard the air facility due to security requirements.

6006. DISTINGUISHED VISITORS (DV)

1. All individuals requesting a PPR must notify MCAF Flight Clearance when aircraft will be transporting DVs including rank, name, title and purpose of visit. Aircraft inbound to MCAF Quantico shall notify ATC upon initial radio contact of VIPs on board and provide the following information:
 - a. Highest code on board.
 - b. Chock time.
 - c. Landing site if other than the airfield.
 - d. Transportation requirements.
 - e. Any other requests.
2. Pilots should anticipate parking on the VIP spot.
3. The Flight Clearance Section will notify the MCAF Operations Officer of the estimated time of arrival/departure of VIPs.

6007. ORDERS ENDORSEMENT. All endorsements for quarters and messing can be obtained through the Bachelor Housing Transient Quarters at DSN 278-3148/3149, COMM (703)784-3148/3149.

6008. CUSTOMS

1. A customs, agriculture, and immigration inspection is required for all aircraft, flight crew, passengers, and cargo arriving directly from outside the Customs Territory of the United States (CTUS), which is defined as the 50 states, District of Columbia, and Puerto Rico.
2. Aircrew or mission scheduler(s) shall contact the Airfield Manager a minimum of 72 hours in advance if customs support will be required at DSN 278-1449, COMM (703) 784-1449. It is the aircraft commander's responsibility to ensure that prior customs arrangements have been made.
3. U.S. Customs and Border Protection (CBP) of Richmond, VA is subject to respond to all arrivals; however, CBP officers may authorize designated Military Custom Inspectors (MCI) assigned to MCAF Quantico to clear military aircraft and personnel. All non-military aircraft or personnel arriving from non-CTUS require inspection by U.S. Customs and Border Protection.

6009. CLASSIFIED MATERIAL AND WEAPONS

1. There are no storage facilities available at MCAF Quantico for classified material. Transient flight crew may store registered materials with the MCB Quantico Classified Material Control Center, Building 3250, DSN 278-1444, COMM (703) 784-1444. Turn-ins and pick-ups are to be made during normal working hours.
2. Small arms may be temporarily stored at the MCAF Quantico Armory, Building 2110. To store small arms after normal working hours, prior arrangements must be made by contacting the armory at DSN 278-2247, COMM (703) 784-2247.

CHAPTER 7

AIRCRAFT RESCUE AND FIRE FIGHTING TABLE OF CONTENTS

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CHAPTER 7

AIRCRAFT RESCUE AND FIRE FIGHTING

7000. GENERAL

1. AFO P11320.4D, Aircraft Rescue and Fire Fighting (ARFF) Standard Operating Procedures (SOP), provides detailed instructions and procedures for the conduct of ARFF operations at MCAF Quantico. Each station or department concerned shall respond to all crash or emergency alarms in accordance with the instructions contained in the ARFF SOP.
2. The MCAF Operations Officer exercises direct control over the ARFF facilities assigned to MCAF Quantico. Firefighting and Rescue shall be under the supervision of the senior qualified member of the MCAF ARFF crew on duty.
3. Only ARFF and security personnel are authorized access to the scene of a crash. Unit commanders of aircraft involved, their Accident Investigation Board, Naval Criminal Investigative Service (NCIS), and certain other technical personnel will be authorized access to the crash site at the earliest possible time consistent with safety.
4. In the event a crash occurs during closed airfield operations, ARFF will ensure that the following personnel are notified in the following order:
 - a. MCAF Operations Officer
 - b. MCAF Executive Officer
 - c. MCAF Commanding Officer

7001. SEARCH AND RESCUE. There are no designated Search and Rescue (SAR) services or aircraft at MCAF Quantico. All SAR services are provided by the Air Force Rescue Coordination Center, Tyndall AFB, Florida, DSN 523-5955/COMM (850) 283-5955 or (800) 851-3051.

7002. AIRCRAFT SALVAGE

1. Salvage operations by the responsible unit will not commence until the aircraft is released by the reporting custodian of the aircraft and will be completed as expeditiously as possible. The principal focus of salvage operations is the safe continuation of flight operations with the following priorities: runway, taxiways, HMX-1 operations, and the Visiting Aircraft Line.
2. The MCAF Operations Officer will take the following actions during salvage operations:
 - a. If not already activated, activate the Air Facility Aviation Mishap Response Plan.
 - b. Assist in rescue or salvage, if practical.

- c. Maintain liaison with the command affecting the salvage operation.
 - d. Assist in providing transportation to the scene of the crash if required.
3. The MCAF Quantico Logistics Officer will assist in the coordination efforts during salvage operations. Personnel and equipment support can be requested from MCB Quantico as required.

CHAPTER 8

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CHAPTER 8

FOREIGN OBJECT DEBRIS/DAMAGE (FOD) PREVENTION

8000. GENERAL

1. The presence of foreign object debris (FOD) poses a significant flight and ground safety threat. FOD has the potential to damage aircraft during critical phases of flight, which can lead to catastrophic loss of life and airframe, and at the very least, increased maintenance and operating costs. Types of potential damage include: cutting aircraft tires, being ingested into engines; or becoming lodged in mechanisms affecting flight operations. FOD can severely injure or kill ground personnel and damage equipment when jet blast propels FOD at high velocities.
2. The ingestion of FOD is a continuous problem currently accounting for the largest percentage of premature removal of gas turbine engines from naval aircraft. It is also significant that the majority of gas turbine engines undergoing depot rework exhibit some degree of FOD. The present and upward trend of engine rejection due to FOD is excessive and, in the interest of economy, safety, and operational readiness, cannot and must not be tolerated aboard MCAF.
3. Although FOD prevention aboard MCAF is an all hands program, the following sections or individuals are considered to be essential in FOD prevention and are responsible for areas identified in Appendix M:
 - a. The Aviation Safety Program Manager is responsible for the oversight of the Installation FOD Prevention Program.
 - b. The Airfield Manager is designated in writing as the Airfield FOD Prevention Officer. Additionally, a senior enlisted person may be assigned as Airfield FOD Prevention NCO from within the Flight Clearance section of MCAF and tasked with ensuring daily compliance with the FOD Prevention Program within Zones 2 and 3.
 - c. HMX-1 Quality Assurance is responsible for executing squadron policy as governed by the Naval Aviation Maintenance program within Zone 1, and to every extent possible, assist the Airfield Manager with FOD prevention in Zone 2 during loading and unloading evolutions.
 - d. The Airfield Manager will conduct surface checks of runway and taxiway areas prior to airfield opening on normal duty days M-F. Aircraft Rescue and Fire Fighting will conduct surface checks at all other times and when requested by the Airfield Manager.
 - e. MCAF will conduct a minimum of two weekly FOD walks except during short weeks, adverse weather conditions or other circumstances as determined by the OPSO or designated representative.

8001. TENANT COMMANDS. Tenant commands are responsible for:

- a. Conducting FOD walks on a daily basis prior to the opening of the field for operations. The area of responsibility is shown in Appendix M.

b. Providing appropriately marked, covered containers for loose objects picked up during FOD prevention activities. These must be placed in strategic and accessible locations.

c. Reporting all cases of chipping, surface deterioration, or other FOD hazards to the Airfield Manager.

8002. TRANSIENT COMMANDS. In accordance with reference (a), transient commands occupying hangar space are responsible for maintaining a FOD Prevention Program in the hangar and ramp vicinity. Those conditions which cannot be corrected will immediately be reported to the Airfield Manager.

8003. FOD WALKS

1. During FOD walks, personnel will maintain a side-by-side formation and even spacing to ensure the best coverage. Talking will be kept to a minimum.
2. Movement will be at a slow pace, paying special attention to tie-downs, grounding points, expansion joints, and cracks in pavement.
3. Senior staff will walk behind to spot check and maintain quality assurance.
4. Any unique objects or hardware (e.g. nut, washer, etc.) discovered, should be given to the FOD walk supervisor and provided to the Airfield Manager to include time identified and location where item was found.

8004. VEHICLES AND EQUIPMENT

1. Prior to airfield entry (or immediately upon entry for multiple or oversized vehicles), vehicle operators must conduct a thorough FOD check which shall, at minimum, consist of the following:
 - a. A "rolling" inspection of vehicle tires. Stop the vehicle, check and remove debris (e.g., rocks, gravel, etc.) from all tires, pull the vehicle forward 18 to 24 inches, then once again, check for and remove any debris.
 - b. A visual check to ensure all external vehicle components and equipment carried on the vehicle is properly stowed and secured, including all tie-down device loose ends such as chains, ropes, packaging, or other items that may become dislodged during movement while on the airfield.
 - c. A thorough walk around of the vehicle to check for damaged, loose, or worn parts.
2. Designated red FOD containers have been placed at airfield vehicle entry gates for collection of debris. Personnel shall not use containers for disposal of hazardous material or personal trash.
3. Vehicle operators must make every attempt to stay on paved surfaces and avoid driving on unimproved surfaces (e.g., dirt or grass). If driving on unimproved surfaces is required, drivers

must conduct a thorough FOD check upon exit of these areas or returning to paved surfaces and remove any debris from tires prior to re-entry onto paved areas.

4. Vehicle operators must conduct a FOD check immediately prior to or upon entry to aircraft movement areas from airfield access roads.

5. All vehicles operating on the airfield during hours of darkness must have a serviceable flashlight to perform rolling FOD checks.

6. Emergency vehicles responding to actual emergencies are exempt from conducting a FOD check prior to entering the airfield; however, must complete a FOD check once the actual emergency is over.

7. All personnel are responsible for keeping the airfield safe and FOD-free. Any person identifying debris on the airfield must stop, pick it up, and properly dispose of it. Immediately report large amounts of debris to the Airfield Manager or Flight Clearance. Small rocks, plastic wrappers, and similar debris warrant only efficient collection and disposal while other items such as hardware should be reported and given to the Airfield Manager for follow up and trend analysis.

8. All airfield support vehicles will be equipped with a FOD container secured by lid or other suitable closure method. Shops may fabricate or procure small portable containers such as coffee can, FOD bag, ammo can, etc. FOD containers will be marked as "FOD" with letters no less than 2" tall. Containers will be emptied when full. Vehicle floorboards and beds will be kept FOD free at all times.

9. Supervisors will ensure that all personnel who work in and around or drive through operational areas of the airfield receive initial and annual recurring FOD prevention program training.

10. Escorts of visiting personnel will ensure FOD prevention measures are taken.

8005. HEADGEAR/CLOTHING

1. Hats/berets/covers will not be worn on the airfield within 200 feet of operating aircraft engines.

2. Authorized headgear for extreme cold weather protection may be worn; however, every effort must be made to prevent such headgear from coming loose during duty performance. Special attention to the FOD potential and safety of personnel will be prime considerations when determining extreme cold weather clothing authorizations.

3. All personnel are prohibited from wearing loose fitting items that could be ingested by operating jet engines. The wearing of metal hair fasteners, earrings or other jewelry in high FOD potential areas is prohibited. Wigs and hairpieces will not be worn within 200 feet of operating aircraft engines. Badges will be secured with a nylon/cotton cord or plastic armband.

8006. MISSING OBJECT

1. Personnel performing any type of maintenance or operation on the airfield involving the use of tools or equipment, must maintain accountability for materials used and conduct a thorough FOD check prior to exiting the area(s). Anytime hardware, equipment, or other objects are discovered missing within aircraft operations or maintenance areas, immediately notify the Airfield Manager and/or Flight Clearance. Provide airfield location, time of equipment operation prior to the missing item discovery, as applicable, and a description of the item missing.
2. Upon notification, responsible agencies will perform the appropriate search to ensure aircraft movement areas are free of foreign objects.

8007. SWEEPER USE

1. An airfield sweeper is available on MCAF and may be requested by contacting the Airfield Manager or Flight Clearance.
2. A minimum of four MCAF assigned personnel shall be trained and licensed to operate the airfield sweeper at all times.
3. S-4 is responsible for ensuring recurring airfield sweeper vehicle and equipment maintenance is regularly performed. S-4 will notify the Airfield Manager or Operations Officer when the airfield sweeper is down for maintenance or when sweeping requests cannot be met.
4. When manning permits, a regular sweeping schedule, such as shown in Appendix N, shall be followed. Otherwise, sweeping operations will be curtailed per manning capabilities and upon urgent request due to reported FOD.
5. Sweeper operators must be constantly aware of the performance of their equipment, and should regularly check to make sure visually detected FOD is in fact collected.
6. Personnel shall check in with Flight Clearance prior to and upon completion of sweeping operations and shall not exit the airfield until a thorough check of the pavement is conducted at conclusion of the sweeping procedure.

8008. TURF AREAS. Grass and ditches collect and hold large amounts of debris that can blow back into areas traveled by aircraft unless collected in a timely manner.

8009. FENCE-LINES. Fences tend to collect trash on windy days. This FOD should be collected before wind increases or shifts direction and the trash blows back on aircraft movement areas.

8010. DUMPSTERS/REFUSE CONTAINERS

1. Dumpsters or other outdoor refuse containers on the airfield are highly discouraged and must be approved by the Airfield Manager before use. Dumpsters/refuse containers shall be securely covered and/or closed at all times to prevent trash from escaping and becoming a FOD hazard. Any dumpster/container determined unsuitable must be removed from the airfield environment and replaced by one in good working condition, as applicable.
2. Dumpsters and other outdoor refuse containers located outside the airfield perimeter on MCAF shall also be securely closed to prevent trash from wandering onto the airfield from high winds or scavenging wildlife.

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CHAPTER 9

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CHAPTER 9

BIRD/WILDLIFE AIRCRAFT STRIKE HAZARD (BASH) PLAN

9000. GENERAL. Birds and other wildlife pose a serious hazard to safe flight operations. Annually, BASH strikes cause more than \$950 million dollars in damage to U.S. civil and military aircraft and put the lives of aircrew and passengers at risk. Globally, wildlife strikes have killed more than 262 people and destroyed over 247 aircraft since 1988. An active program has been implemented at MCAF Quantico to reduce aircraft exposure to bird and animal hazards on and around the airfield through increased awareness, control measures, and avoidance techniques.

9001. BASH WORKING GROUP (BWG)

1. A BWG has been established consisting of the following MCAF personnel: Operations Officer, Safety Officer, Airfield Manager, and representatives from Base Operations, Air Traffic Control, and Facilities Maintenance. Additional members include Marine Corps Base Quantico (MCBQ) wildlife biologists, conservation law enforcement officers, and Marine Helicopter Squadron One (HMX-1) Aviation Safety Officer (ASO). HMX-1 Security is encouraged to attend.
2. BWG meetings will be held semi-annually, typically during early spring and fall. Additional meetings may be held, as required. Topics should include but are not limited to: reported bird/wildlife strikes and incidents aboard the facility; locally observed/reported wildlife and expectations of upcoming migratory activity; airfield inspection and survey results; wildlife habitat management/modifications; dispersal, harassment and depredation effectiveness/deficiencies; environmental concerns; budgeting issues; and local BASH procedures and responsibilities. Minutes of these meetings will be taken by and maintained in the Installation Safety Office.
3. Annually, each tasked BWG member will review this chapter for accuracy and compliance with current directives and submit necessary changes to the MCAF Airfield Manager.

9002. BIRD WATCH CONDITIONS (BWC)

1. The following standardized terminology will be used for rapid dissemination of bird activity threats in conjunction with location and direction of flight, as applicable. Appropriate mitigating procedures and operational considerations are established based upon the set BWC.
 - a. Bird Watch Condition LOW. Bird activity on and around the airfield representing low potential for strikes.
 - b. Bird Watch Condition MODERATE. Bird activity near the active runway or other specific location representing increased potential for strikes. BWC moderate requires increased vigilance by all agencies and supervisors, and caution by aircrews.
 - c. Bird Watch Condition SEVERE. Bird activity on or immediately above the active runway or other specific location representing high potential for strikes. This condition requires immediate dispersal efforts to reduce the threat and downgrade the BWC. SEVERE should last

no more than 15-20 minutes. Supervisors and aircrews must thoroughly evaluate mission need before conducting operations in areas under condition SEVERE.

2. The Tower Watch Supervisor, Airfield Manager, and Flight Clearance all have the authority to upgrade the BWC based on visual observation or report from a reliable source (e.g. airfield personnel, airborne/taxiing aircraft, ATC radar, etc.). A decision to downgrade the BWC requires concurrence between the Airfield Manager/Flight Clearance and Tower Watch Supervisor.
3. Aircrew shall be made aware of the current BWC and potential hazards via Automatic Terminal Information Service (ATIS) and ATC advisories, as required, whenever hazardous bird/animal activities are observed or reported. Flight Clearance will post the BWC on the Visual Information Display System (VIDS) and flight planning room airfield status boards.
4. Flight operational changes may be necessary based upon the severity of bird/wildlife activity, performance capability of the aircraft and training or readiness requirements. In any event, tenant aircraft custodians and/or Pilot-In-Command of an aircraft are directly responsible for and the final authority as to the operation of that aircraft and therefore have the final decision whether to takeoff or land due to BASH conditions.
5. The AVIAN HAZARD ADVISORY SYSTEM (AHAS) (<http://www.ahas.com>) is a valuable resource available for aviators in determining bird strike risk. AHAS continuously monitors real-time bird activity using NEXRAD weather radar, utilizes the Bird Avoidance Model (BAM) to predict high concentrations of birds for any two week period, and the Migratory Bird and Soaring Bird Forecast Model (SOAR) to forecast areas/altitudes where conditions are favorable for bird activity and generate accurate risk for periods within the next 24 hours. AHAS incorporates Google Maps and Google Earth into its forecasting products allowing users to overlay airspace boundaries, route structures, and AHAS forecast levels onto displays. NOTE: AHAS shall strictly be used to assist in risk determination and shall not be used as the determining factor for BWC declaration at MCAF.

9003. BIRD ASSESSMENT. Due to the unique geographical location of MCAF, two distinct categories of hazards exist.

1. Transient. Situated with the Potomac River to the east, and the Chopawamsic Creek watershed to the west, a variety of waterfowl species use MCAF airspace as a means to move between bodies of water. Increased bird activity is expected during migration periods.
2. Resident. There are over 100 aviary species aboard MCBQ that are listed as “common” or “abundant.” Although most can be found in the hardwood and pine covered training areas of the base, some, because of the suitable habitat that exists, are more commonly found at MCAF. It is these species of birds that will require aggressive and proactive strategies to reduce the risk of a BASH incident.
 - a. Gulls. Gulls represent the most significant hazard to aircraft worldwide. Due to their omnivorous feeding habits and preference for flat, open areas to rest, they are commonly found on airfields. During cold weather and rainy days gulls often use the runway and taxiways as areas to warm themselves. Persistent harassment using pyrotechnics and bioacoustics is

necessary to discourage these birds. Do not allow these birds to establish a habit of using the airfield to feed, breed, or rest as it is difficult to remove them afterwards.

b. Blackbirds, Grackles, and Starlings. These birds can be particularly hazardous because they frequently occur in huge flocks. Blackbirds and starlings are attracted to flat, open areas to feed, rest, or stage/pre-roost. Do not allow seed-producing weeds to grow on the airfield and eliminate roost sites near the flight line. Selectively prune or remove roost trees, brush, or cattails if blackbirds and starlings use them to roost. Blackbirds and starlings respond well to an intense frightening program using bioacoustics and pyrotechnics.

c. Waterfowl (Ducks, Geese, Swans). Waterfowl are attracted to any area to breed or feed that contains a suitable water source. Ponds, lakes, waterlogged ditches, etc., may attract these birds, particularly if these areas contain emergent or submerged vegetation for feeding, nesting, or shelter. Steepening ditch and pond banks and removing vegetation will reduce waterfowl numbers. When possible, drain all standing water sources after ensuring compliance with wetlands laws and regulations. Wetland areas should be relocated as far from the runways and traffic patterns as possible.

d. Raptors (Hawks, Eagles, Osprey, Vultures). These birds can be particularly hazardous to aircraft because of their size and widespread distribution. Raptors are commonly seen on or near the air facility because of the abundance of food and wide area to hunt. An effective integrated rodent control program, the removal of perching and nesting materials, proper grass height management, removal of dead animals and the use of pyrotechnics to frighten raptors from the airfield are all relatively effective measures to reduce the hazard. Assistance from the MCBQ Wildlife Biologist and conservation law enforcement officials is critical when dealing with federally protected wildlife.

e. Long-Legged Waders (Herons, Egrets). These species are normally attracted to shallow water, grasslands, and flooded grasslands where they feed on fish, amphibians, reptiles, rodents and arthropods. Control is best accomplished by eliminating food sources. Steepening the sides of drainage ditches and ponds, draining seasonally flooded areas and removing emergent vegetation will reduce accessibility. Cattle egrets prefer open mowed fields where they feed primarily on insects and commonly follow mowers for stirred up food sources. When cattle egrets are present, mow during non-flying hours. Periodic pesticide application may be necessary for insect control. Use pyrotechnics and limited lethal reinforcement to control long-legged waders.

f. Killdeer. These birds are attracted in flocks to low land areas with shallow water. They nest in gravel. Drain, fill, or cover wetlands (permit required). Eliminate nesting cover. Pave or remove gravel and cinder surfaces such as old taxiways. Use pyrotechnics and proper grass-height management.

g. Crows. These birds may gather in large flocks, particularly at sunset and sunrise as they move to and from roosting areas. Remove any known roosting sites on or around the airfield. Use pyrotechnics and lethal methods to control these birds.

h. Swallows. These birds are commonly found on airfields feeding. Fortunately, swallows are small agile birds normally flying in very small loose flocks and are adept to avoiding aircraft.

Swallows are difficult to discourage from an airfield as they habituate to pyrotechnics very quickly and do not respond to bioacoustics. Insect control and discouragement of nesting will decrease numbers.

9004. OTHER WILDLIFE. Other species known to inhabit MCBQ and present a potential hazard to flight operations at MCAF include whitetail deer, red and gray fox, coyote, and various smaller forms of wildlife such as ground hog, raccoon, skunk, and opossum. Deer, fox and ground hogs are among the most common observed. Any deer, fox or coyote within the airfield perimeter poses a potentially serious flight safety hazard and requires expedient control measures which may include depredation should dispersal efforts fail. According to the National Wildlife Strike Database, deer and coyote are the most frequently struck terrestrial mammals. From 1990 to 2015, over 1,107 deer-aircraft collisions and 487 coyote-aircraft collisions were reported to the Federal Aviation Administration (FAA). Ground hogs and other smaller mammals usually pose less of a threat but may still require dispersal or depredation based upon the determined risk.

9005. CONTROLS. Active and passive techniques are used to successfully reduce hazardous wildlife threats. These techniques vary in cost and effectiveness depending on the situation. Active control requires perseverance and involves causing wildlife to disperse from the airfield to give short-term relief. Passive techniques are more long-term in nature and involve managing the airfield environment to eliminate or reduce bird/wildlife attractants.

1. Active Controls. The following wildlife dispersal methods will be used concurrently with passive control measures to reduce the threat of wildlife strikes at MCAF. Although no single method will alleviate all threats, the collective use of the following techniques offers effective risk mitigation over time. Coordination with Tower is required prior to initiation of dispersal or depredation activities during flight operations.

a. Pyrotechnics. Pyrotechnics are noise-producing devices, which are effective in bird and wildlife dispersal. MCAF utilizes the 15mm screamer cartridge with maximum range of 240', 15 mm banger cartridge (150' range) and CAPA anti-bird strike cartridge (1,000' range). Cartridges and launchers are commercially available and not considered firearms or weapons. Pyrotechnics can be used to flush and direct flocks of birds in a desired direction. For example, if a flock of gulls is feeding near an active runway, a scare cartridge exploded between the birds and the runway will usually cause the birds to fly away from the source of the noise and not pass over the runway. Close coordination with Tower is essential so birds or wildlife are not directed into the path of arriving or departing aircraft.

b. Bioacoustics. This dispersal technique uses broadcasts of recorded bird distress calls and is best effective when combined with other frightening techniques such as pyrotechnics. Depending on the species, the calls may create differing responses; some birds will come to the calls while others may immediately depart the area. For this reason, the sound source must be properly placed so the birds fly away from the runway.

(1) MCAF utilizes a vehicle equipped Bird Gard Super Pro Digital Bird Repeller to produce distress calls. Once the vehicle is driven as close as possible to the birds (100-200 meters max), the distress call is played for 15 to 20 seconds. If the birds do not move within 20 seconds, the call is played again. If birds have not moved by the third attempt, other methods are required.

(2) Distress calls have limited use in many situations. Not all birds are affected by bioacoustics. Birds often react to the calls by flying toward the source, circling it, and gradually moving away. This takes time and may create a momentary hazard. Combining bioacoustics with pyrotechnics can best disperse these birds. The distress call is played to get the birds in the air, then, pyrotechnics are used to disperse them. Hazards to flying operations can be alleviated by using these techniques before flying begins or during breaks in flight activities.

(3) Gulls, starlings, blackbirds, and crows can be effectively dispersed with bioacoustics. Occasionally, recorded distress calls of different bird species will frighten a variety of birds; however, species-specific distress calls are the most effective.

c. Depredation. If bird or other wildlife activity presents an immediate hazard to aircraft operations and normal dispersal efforts are ineffective, depredation may be necessary. Depredation may also be required to re-enforce reaction to pyrotechnics. The approval authority for depredation is the MCBQ Natural Resources Office. MCBQ Conservation Law Enforcement Officers are the only authorized to use lethal force in removing aviary or wildlife hazards, and can be contacted at (703) 432-6793/6794/6795. Exception(s): MCBQ Conservation Law Enforcement may authorize HMX-1 Security or MCAF personnel to depredate on a case-by-case basis when officers are unable to timely respond or when pre-coordinated approval is received. Planned depredation efforts on MCAF shall also be pre-coordinated with HMX-1 Safety, HMX-1 Security, MCAF Safety Officer, Airfield Manager and MCAF Operations Officer. An observer will act as depredation supervisor and will have the authority to stop shooting or depredation operation at any time. Depredation will be stopped anytime an unsafe act or condition exists. Clear "hold fire" communication will be established and briefed prior to depredation efforts.

d. Active Control Discipline

(1) The objective of wildlife dispersal and depredation is to maintain airfield safety. It is not done for the sake of recreation, target practice, or simple harassment. The extent of harassment or depredation efforts will be based upon professional judgement and determined risk to flight operations. State and federal laws will be strictly followed.

(2) To prevent injury and unnecessary interference, non-BASH response team personnel are highly discouraged from approaching wildlife or participating in dispersal efforts. Animals are unpredictable, especially dangerous when frightened, and often carry disease including rabies.

(3) Deer have an erratic tendency when frightened to run themselves into fencing or other structures and have been known to get caught up in concertina wire causing severe injury. Humane consideration should be given whenever possible.

2. Passive Controls

a. Grass Height. Primary focus should be on the grass height and weed seed heads. Grass between 7-14 inches discourages flocking species from foraging on the airfield because limited visibility disrupts inter-flock communication and flock integrity by reducing the ability to detect

predators. Grass exceeding 14 inches (36 cm) will attract some bird species and rodents, which in turn attract raptors. Most grass seeds found on the airfield are less desirable as food than available weed seeds. Eliminating weeds and cultivating a uniform monoculture of grasses can be more effective in discouraging seed-eating birds from feeding on the airfield than mowing grass seed stalks. Maintain grass height at 7-14 inches to the maximum extent possible, making sure faster growing weeds are cut before they go to seed to discourage seed eating birds from using the airfield. Begin mowing adjacent to runways and finish in the infield or outer most grass areas. This causes insects and other animals to move away from aircraft takeoff and landing areas. Also, avoid mowing grass shorter next to the runway than in other areas, as much as possible.

b. Herbicides and Growth Retardants. Keep broad-leafed weeds to a minimum on the airfield. Apply herbicides as practical to control weeds. Broad-leafed weeds attract a variety of birds, may produce seeds or berries, and may limit grass growth.

c. Removal of Edge Effects. Remove brush and weeds to maintain the airfield vegetation environment as uniform as possible. This will eliminate the cover and food source that many birds, rodents, and large mammals require.

d. Removal of Trees and Shrubs. Remove all trees or shrubs that attract birds within the airfield boundaries. Contact the Base Natural Resources Manager prior to removing any trees or shrubs to prevent violation of the Endangered Species Act of 1973.

e. Planting Bare Areas. Bare areas should be tilled and planted with a locally adapted grass that does not produce a food source. Soil cementing is another option for small areas where re-vegetation has not worked or cannot work.

f. Fertilization. Fertilization is recommended to reduce the edge effect of uneven grassy areas, promoting a uniform cover.

g. Leveling. Level high spots and fill low spots and rutting to reduce attractiveness to wildlife and prevent standing water.

h. Fence Vegetation Control. Clear vegetation growth at least 10 feet either side of the perimeter fence and remove all vegetation attached to or growing through the perimeter fence using standard mechanical and herbicide-application methods.

i. Protruding Vegetation. Apply herbicide and/or remove any vegetation growing in joints and cracks in airfield pavements.

j. Dead Vegetation. Remove dead vegetation such as brush piles and excessive grass clippings that afford cover and attract rodents.

k. Drain Maintenance. Maintain airfield drains along paved shoulders free from vegetation.

l. Control Water. Maintain ditches to ensure proper flow and drainage of water. Eliminate areas of standing water that pose a risk of attracting wildlife. Seed large bare areas to prevent erosion.

m. Pest Control. Invertebrates and rodents are key food sources for many birds. Periodically survey and coordinate with the Natural Resources Management Office to reduce these pests when required.

n. Fencing. Proper fencing is the best way of keeping medium to large terrestrial mammals off aircraft movement areas. A chain-link fence topped with outward-facing outriggers and 3 strands of barbed wire will normally be enough to deter most encroachments by deer, coyotes, fox, and other such animals. The bottom of the fence must be properly secured at or underneath the ground to prevent animals from digging or pushing under the fence. Frequent surveys of the perimeter fence should be conducted to identify vulnerabilities. Washouts, breaks, or other holes in the fence must be corrected as soon as possible. Gates should close with less than 6" gaps to prevent entry by deer or coyotes. Gaps along the bottom of gates can be corrected by installation of concrete speed bumps under the gate. Installation of heavy brush material or interlocking metal bars between gates and poles will also preclude entry by deer and coyote. In some cases, a single strand of barbed wire strung between the bottom of the fence and the ground where there are gaps will minimize the potential for wildlife access.

o. Dead Animals. Any carcass found on or near the airfield must be removed as soon as possible to prevent attraction to vultures and other scavengers.

p. Dumpsters. All open top and side door dumpsters located on MCAF must remain closed to prevent attraction to gulls, crows and other scavengers.

q. Nest Removal. During the spring nesting season, nests of non-federal listed, non-threatened/non-endangered species should be removed as soon as construction of the nest begins. Persistence is the key since birds will attempt to nest at the same location several times before going to another location. Nests may be removed without a depredation permit prior to egg laying. Once eggs have been laid, a depredation permit is required for all protected migratory birds. Always consult with MCBQ wildlife biologists prior to nest removal.

3. Hangar Management. The control of birds, nests, and fecal material in hangars is necessary to prevent FOD and corrosion damage to aircraft and equipment, and reduce the health risk of disease to personnel. Control methods include denying birds entry by keeping doors closed, screening windows and blocking entry holes, netting beneath superstructure to exclude pest birds from roosting areas, weather stripping or screening installation over doors, spike installation and bio-acoustics. Nest removal and use of a pellet rifle to remove unprotected birds are additional abatement measures that must first be approved by MCBQ Conservation Law Enforcement.

9006. TASKS AND RESPONSIBILITIES

1. MCAF Operations Officer

- a. Chair the Bird Hazard Working Group (BHWG).

2. MCAF Airfield Manager

- a. Serve as BASH Program Manager.

- b. Execute/direct wildlife hazard abatement actions.
- c. Conduct BASH checks before airfield opening, prior to fixed wing aircraft arrival/departure, following report of hazardous bird/wildlife observation and as otherwise required to monitor and abate bird/wildlife hazards.
- d. Upgrade the bird watch condition to MODERATE or SEVERE based on observation or input from any credible source. Inform Flight Clearance and Tower of the new condition.
- e. Downgrade the bird watch condition with concurrence of the Tower Watch Supervisor. Inform Flight Clearance of the new condition.
- f. Provide liaison with Tanker Airlift Control Center (TACC) to develop and maintain awareness of this instruction.
- g. Coordinate with MCB Quantico Fish, Wildlife, and Agronomy and Conservation Law Enforcement sections to assist with BASH.
- h. Maintain reference material to assist in identifying migration patterns and knowledge of different species of frequent bird activity on or near the air facility.
- i. Maintain an adequate supply of bird scare pyrotechnics and launchers. Track the inventory and trend usage of pyrotechnics to ensure supplies are not depleted.
- j. Provide annual pyrotechnic use training to Flight Clearance personnel.
- k. Gather and submit bird remains (e.g. whole feathers, non-fleshy parts, downy feathers, blood smears) and a copy of the Naval Safety Center's WESS Wildlife Strike Report to the Smithsonian Institution's Feather Identification Laboratory for processing and identification.
- l. Maintain records of reported animal/bird strikes and observed wildlife activity posing a threat to aircraft operations.

3. Flight Clearance

- a. Conduct airfield BASH checks prior to fixed wing aircraft arrival/departure, following report of hazardous bird/wildlife observation and as otherwise required to monitor and abate bird/wildlife hazards.
- b. Notify the Airfield Manager and Tower regarding observed or reported wildlife activity which may pose a hazard to aircraft operations and/or warrant changing the BWC.
- c. Set the BWC when the Airfield Manager is unavailable.
- d. Post the current BWC on the Visual Information Display System (VIDS) and flight planning room airfield status boards.

- e. Notify Tower, the Airfield Manager, HMX-1 and transient aircrew, as applicable, of any changes to the bird watch condition.
- f. Notify the Airfield Manager and MCAF Safety Department of any reported bird strikes or remains found during airfield checks.
- g. Transcribe wildlife observation information reported by ARFF personnel during surface check to the wildlife activity log.

4. Air Traffic Control

- a. Tower Watch Supervisor will upgrade bird watch condition to MODERATE or SEVERE based upon observation or credible report and inform Flight Clearance of the new condition.
- b. Tower Watch Supervisor may downgrade the bird watch condition with Airfield Manager's concurrence (or Flight Clearance if Airfield Manager is unavailable).
- c. Issue BWC via Automatic Terminal Information Service (ATIS) and provide additional bird advisories as needed in accordance with FAAO JO 7110.65. For rapidly changing BWC, place a statement on the ATIS advising aircrews to contact Ground or Tower for the latest BWC.
- d. Coordinate with Flight Clearance to initiate bird dispersal/abatement procedures when potentially hazardous bird or other wildlife activities are observed or reported on the airfield.
- e. Provide Airfield Manager/Flight Clearance personnel with expeditious runway and taxiway access to disperse observed or reported birds/wildlife posing an immediate threat to aircraft operations.
- f. Notify Flight Clearance 15 min prior to estimated arrival/departure time of fixed-wing aircraft or as soon as practical to allow time for a BASH check.
- g. Submit a FLASH report via the unit FLASH reporting system for all reported aircraft strikes, deviations, wave-offs, or evasive maneuvering as a result of bird or animal activity.
- h. Forward a copy of animal/bird strike reports to the MCAF Airfield Manager and Safety Department.
- i. Educate all airfield personnel on Tower/Flight Clearance notification requirements for problem wildlife and the prevention of wildlife related FOD in the AVOC course.

5. MCAF Safety Officer

- a. Report BASH damage from Class A, B, or C mishaps to the BWG.
- b. Provide the BWG with current BASH guidance from HQMC, the Naval Safety Center BASH Team, the Federal Aviation Administration, and local observations.
- c. Maintain a BASH information file folder for trend analysis in order to ensure continuity of knowledge during personnel changes.

d. Report applicable BASH incidents using the Web Enabled Safety System (WESS) according to OPNAVINST 3750.6R requirements.

6. Facilities

a. Provide routine airfield facility maintenance in support of the BASH program to include passive methods described in paragraph 9005.2 of this chapter.

b. Maintain runway lateral and approach zones in a manner that is least attractive to birds per direction of the BWG.

c. Plan long-term improvements, modifications, and routine maintenance to airfield areas, especially inside the airfield fence, in coordination with Natural Resource Management and the Airfield Manager.

7. Aircraft Rescue Fire Fighting (ARFF)

a. Document bird and other wildlife activity observed during weekend or other pre-coordinated airfield surface checks. Report wildlife activity deemed hazardous to aircraft operations to Tower and Flight Clearance, as required.

b. Ensure high pressure water sprayed during daily operational checks is not pointed directly at ground to avoid rutting, erosion and ponding. Do not spray water in low areas where ponding exists or is likely to occur.

8. Natural Resources Program (NRP) Management Office (includes NRP Manager, Wildlife Biologists and Conservation Law Enforcement)

a. Participate in the BWG.

b. Review adequacy of BASH plan procedures and techniques for bird/wildlife control. Ensure BASH programs and plans are in compliance with state and federal natural resource laws and regulations including but not limited to the Endangered Species Act, Migratory Bird Treaty Act, and Sikes Act.

c. Provide technical information and expertise to the BWG on bird/wildlife biology, expected seasonal activity, species identification, wildlife attractants identified on or near MCAF and active/passive control options.

d. Address BASH issues in the Integrated Natural Resources Management Plan. Identify wildlife species that may pose a hazard to aircraft operations, and habitat management techniques that can be used to mitigate the threat.

e. Conduct periodic wildlife hazard surveys on and around the airfield and make recommendations for further refinements or modifications. Brief survey results at BWG.

f. Coordinate and manage all applicable natural resources consultations and permits necessary to support the BASH program including but not limited to annual U.S. Fish and Wildlife Services (USFWS) migratory bird depredation permits, and Endangered Species Act Section 7 consultations.

g. Determine acceptable mitigation actions when federally protected birds pose a hazard to flight operations.

h. Assist with strike identification.

i. Initiate and/or assist with necessary environmental impact assessments, statements, and documentation for airfield modifications as required by law.

j. Provide timely depredation response and/or approval for HMX-1 Security/MCAF to depredate when notified that wildlife are posing an immediate hazard to flight operations.

9. HMX-1 Security

a. Provide emergency depredation operations support on the airfield, as requested by MCAF Operations and approved by MCB Conservation Law Enforcement.

10. Tenant Squadron Aviation Safety Officers

a. Attend BWG meetings.

b. Ensure aircrews participate in the BASH reduction program by promptly reporting all wildlife strikes and hazardous conditions encountered at MCAF.

c. Ensure an adequate supply of bird strike report forms and information on local wildlife hazards are readily available for mission planning.

d. Send a copy of the WESS BASH report to the MCAF Airfield Manager.

e. Ensure aircrew are familiar with Bird Watch Condition codes and applicable operational guidance for each condition.

f. Make operational recommendations, as necessary, for squadron aircraft during increased periods of wildlife activity.

g. Make seasonal bird hazards a regular topic at flight safety meetings.

11. Aircrew

a. Brief fellow crew members on potential bird problems and a strong lookout doctrine. Discuss emergency procedures before departure, including aborts following a strike and engine failure.

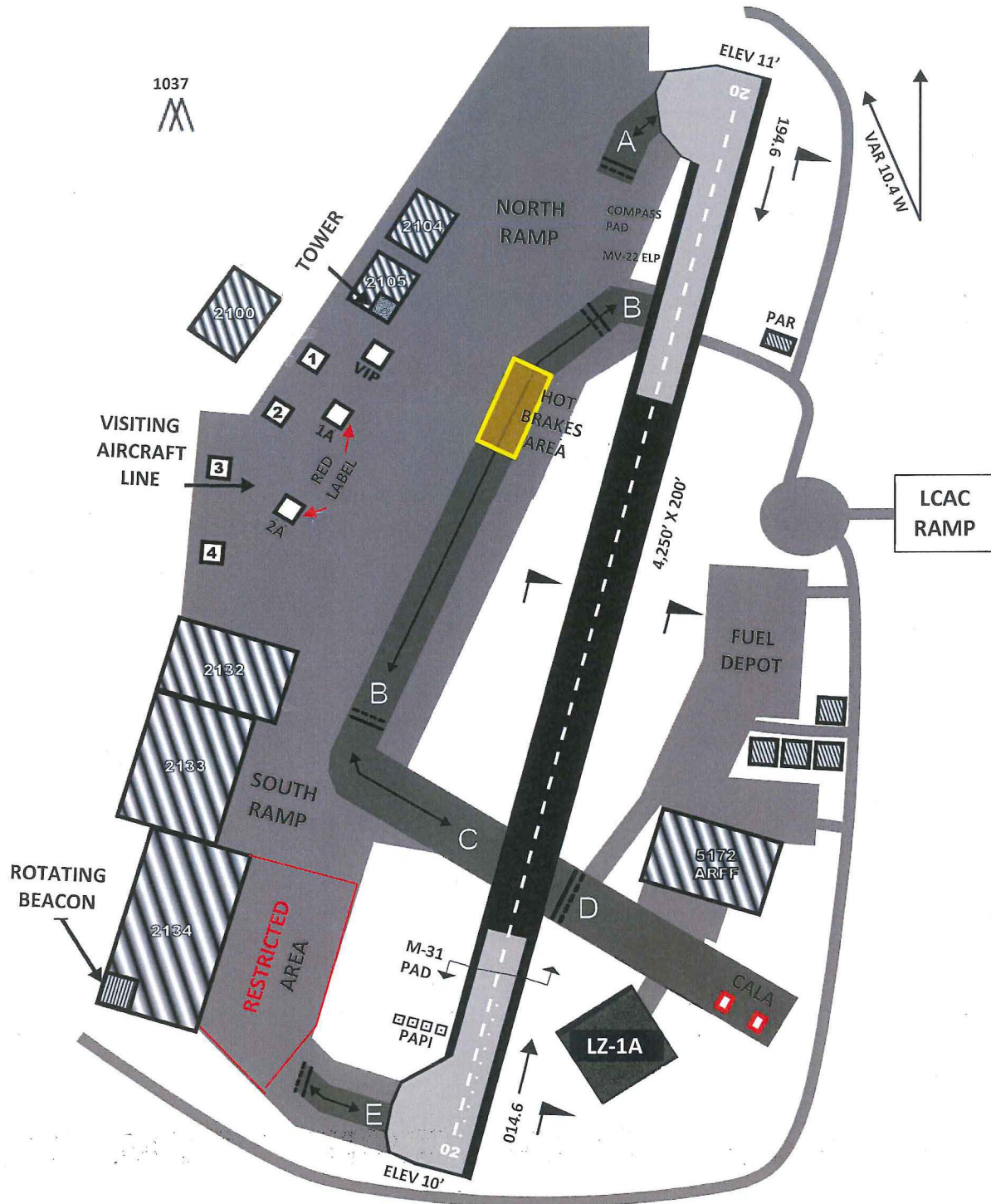
- b. Listen to the ATIS for current BWC. Ask Tower for specific bird locations or additional information.
- c. Assess all low altitude tactical and VFR training areas using Avian Hazard Avoidance System (AHAS) and Bird Avoidance Models (BAM).
- d. Report hazardous bird/wildlife sightings to Tower.
- e. Avoid flying one hour before and after dawn and dusk to the maximum extent possible.
- f. Report strikes even if no bird remains are found on the aircraft.
- g. After post-flight inspection, preserve remains (e.g. whole feathers, non-fleshy parts, downy feathers, blood smears) and forward to the MCAF Airfield Manager along with copy of completed bird strike report.
- h. Transient aircrews involved in a bird strike are responsible for reporting the event to the Naval Safety Center (and/or appropriate service safety center) and sending in any wildlife remains found on the aircraft.

12. All personnel

- a. Any person observing birds or other wildlife posing an immediate threat to safe flight operations must notify Tower and/or Flight Clearance. Report should include species observed, number, location, direction of movement, estimated altitude and behavior, as applicable.
- b. Any person witnessing or finding evidence of a wildlife strike shall immediately notify the Airfield Manager or Flight Clearance, complete a wildlife strike report and provide non-fleshy remains, as applicable.
- c. Any person finding dead wildlife within the airfield perimeter should immediately remove it from the airfield environment to avoid attracting scavengers. Personnel are cautioned to wear gloves and use a shovel whenever handling dead wildlife.
- d. Any person finding a carcass or remains within 200 feet of the runway centerline and overrun areas, whether the result of a bird strike or not, should immediately remove it, notify the Airfield Manager or Flight Clearance and provide non-fleshy remains for "strike" data reporting and identification.

APPENDIX A

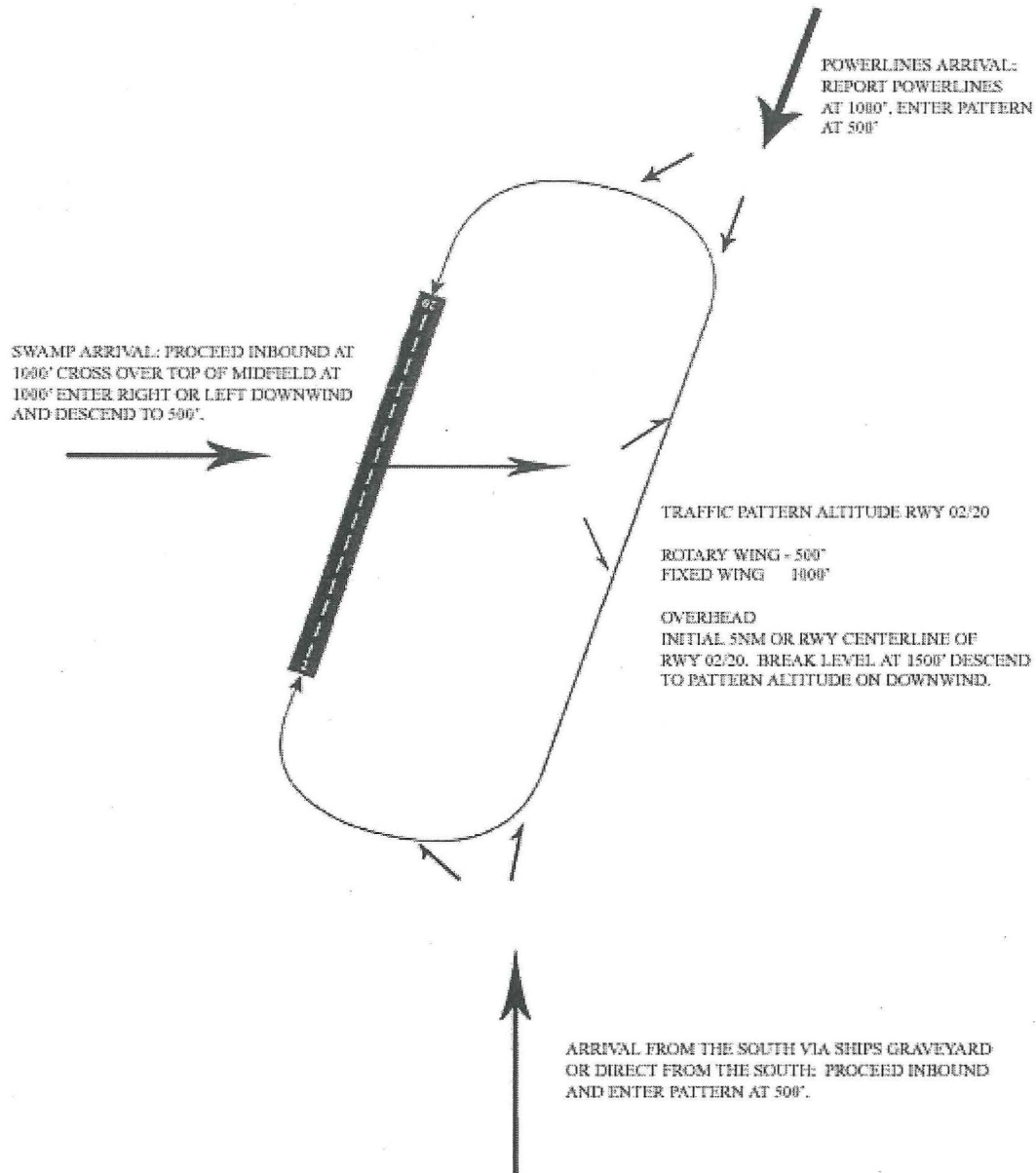
MCAF QUANTICO AIRFIELD LAYOUT



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APPENDIX B

TRAFFIC PATTERNS

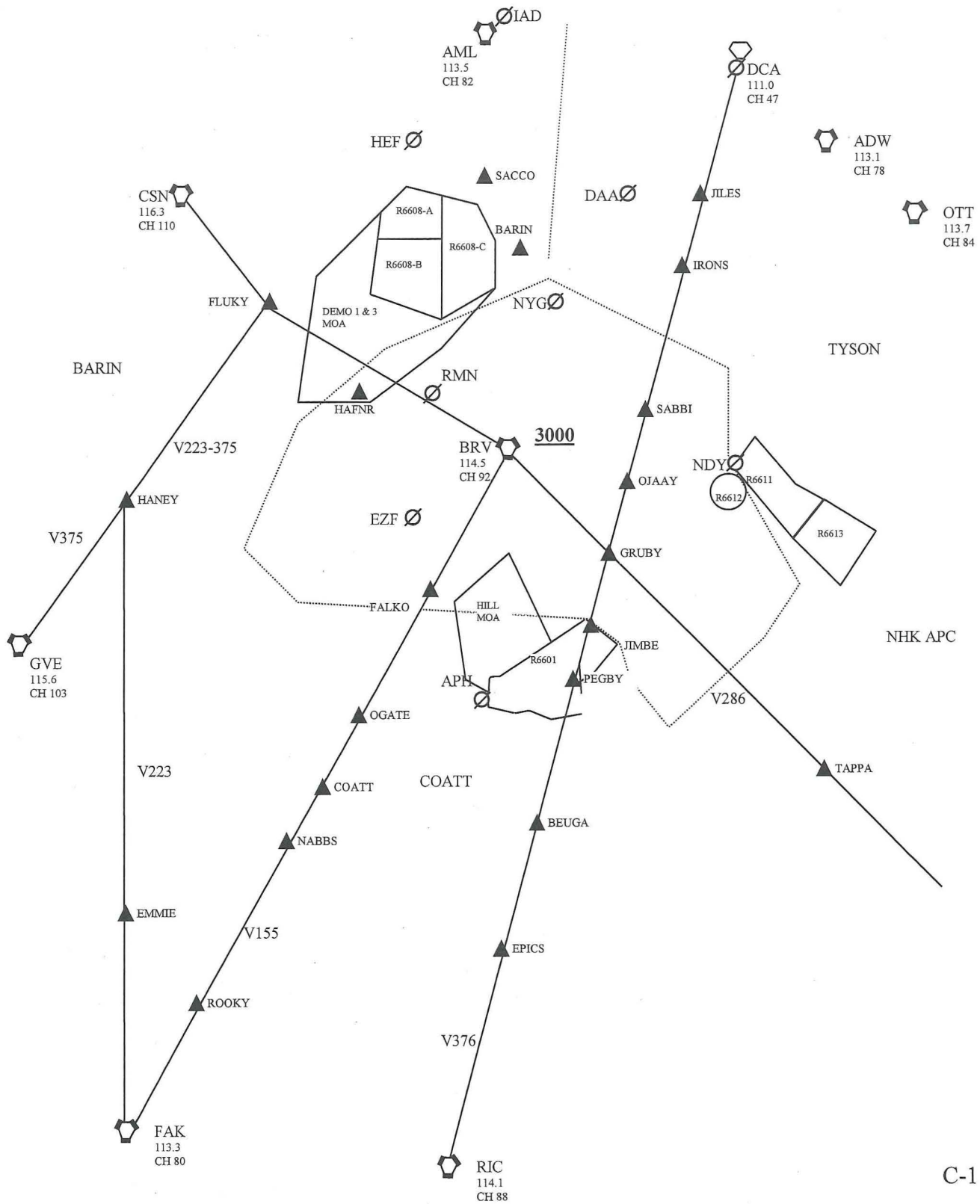


Note: For the purposes of this section, MV-22 aircraft operating in conversion mode are considered rotary wing/helicopters, and MV-22 aircraft operating in airplane mode are considered fixed wing.

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APPENDIX C

RESTRICTED AREA/ARRIVAL CONTROL AIRSPACE

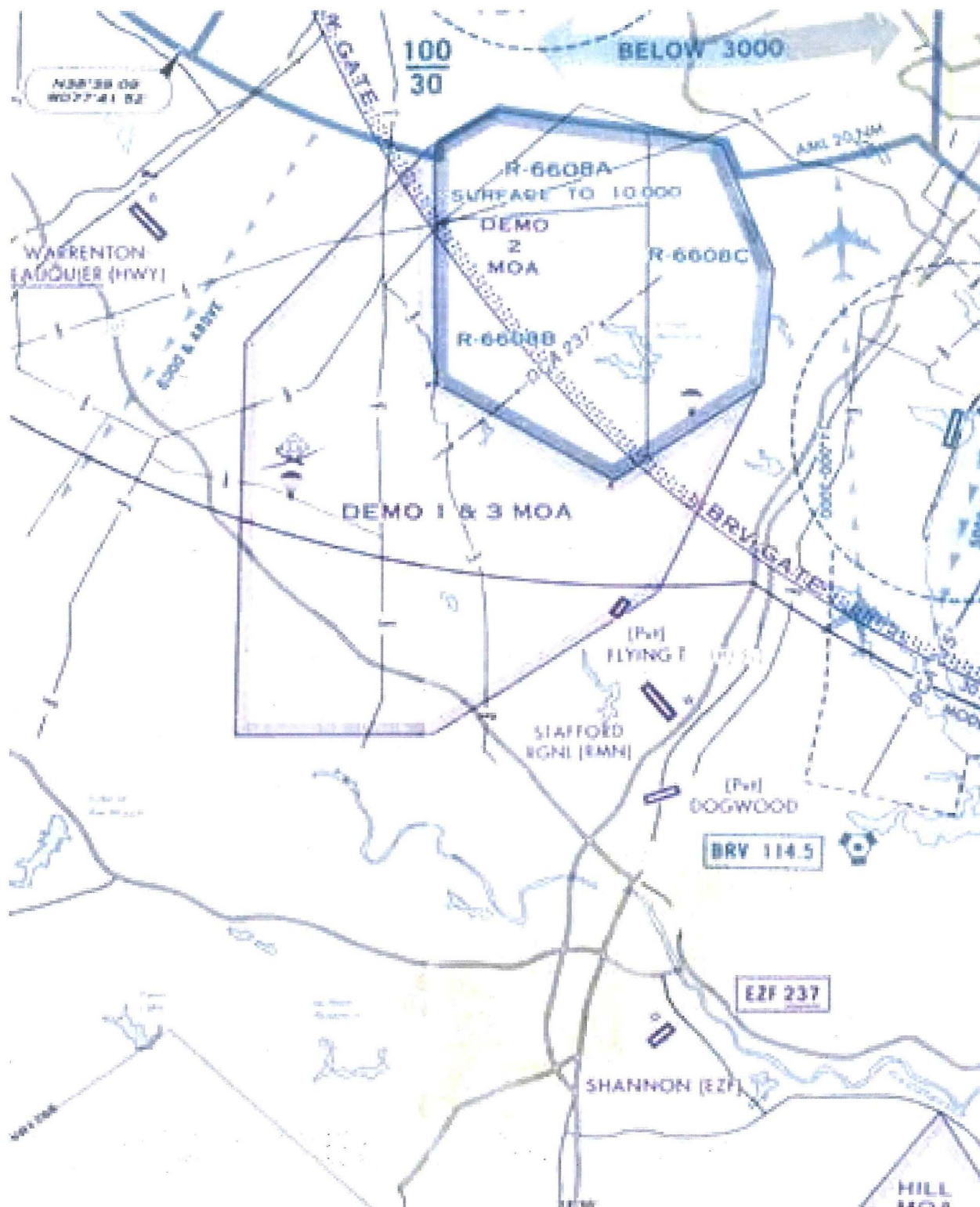


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APPENDIX E

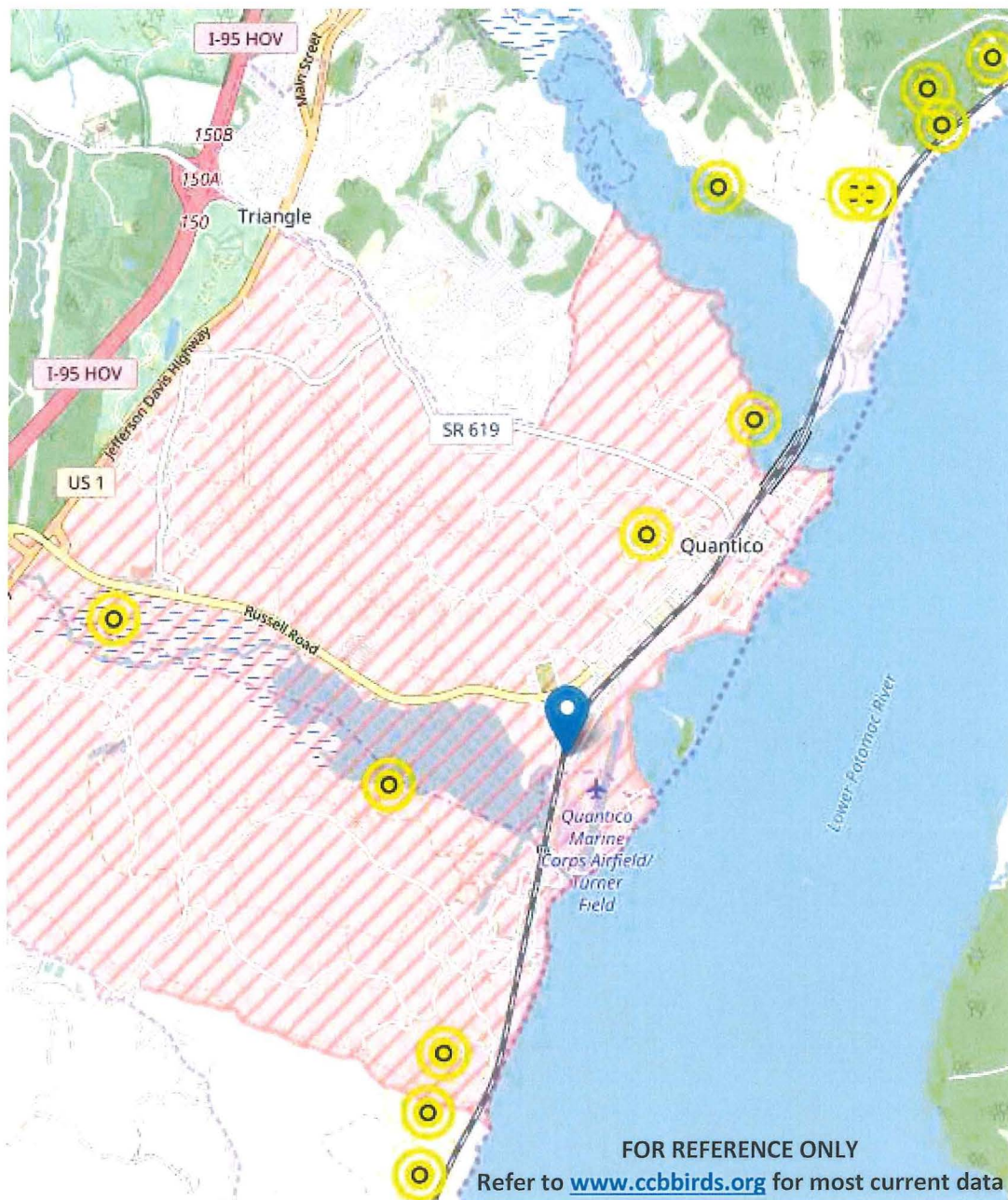
R-6608, DEMO MOAS, AND CLASS B AIRSPACE



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APPENDIX F

LOCAL EAGLE NESTING AREAS



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APPENDIX G

COMMONLY USED FREQUENCIES

	<u>VHF</u>	<u>UHF</u>	<u>FM</u>
NYG ARRIVAL/DEPARTURE:	127.05	290.375	
NYG CONTAINMENT:		346.25	
R6608 RANGE CONTROL:	134.1	323.7	38.70
NYG SFA:	120.925	351.95	
		353.65	
		363.15	
NYG TOWER:	118.6	360.2	
NYG GROUND:	121.75	340.2	
NYG METRO/BASOPS:		355.3	
NYG ATIS:		263.15	
POTOMAC APPROACHES (PCT):			
- BARIN (IAD):	128.52	306.925	
- TYSON (DCA):	118.95	257.2	
- FLATROCK (FAK):	126.75 (V155)	307.2	
- TAPPA:	126.4 (V286)	282.375	
- CHARLOTTESVILLE (CHO):	132.85	323.12	
EZF UNICOM:	122.8		
- EZF AWOS:	128.125		
- EZF GCO:	135.075		

APPENDIX G
COMMONLY USED FREQUENCIES

VHF

RMN UNICOM:	122.725	
- RMN GCO:	135.075	
- RMN AWOS:	126.325	
BROOKE VORTAC:	114.5	CH92

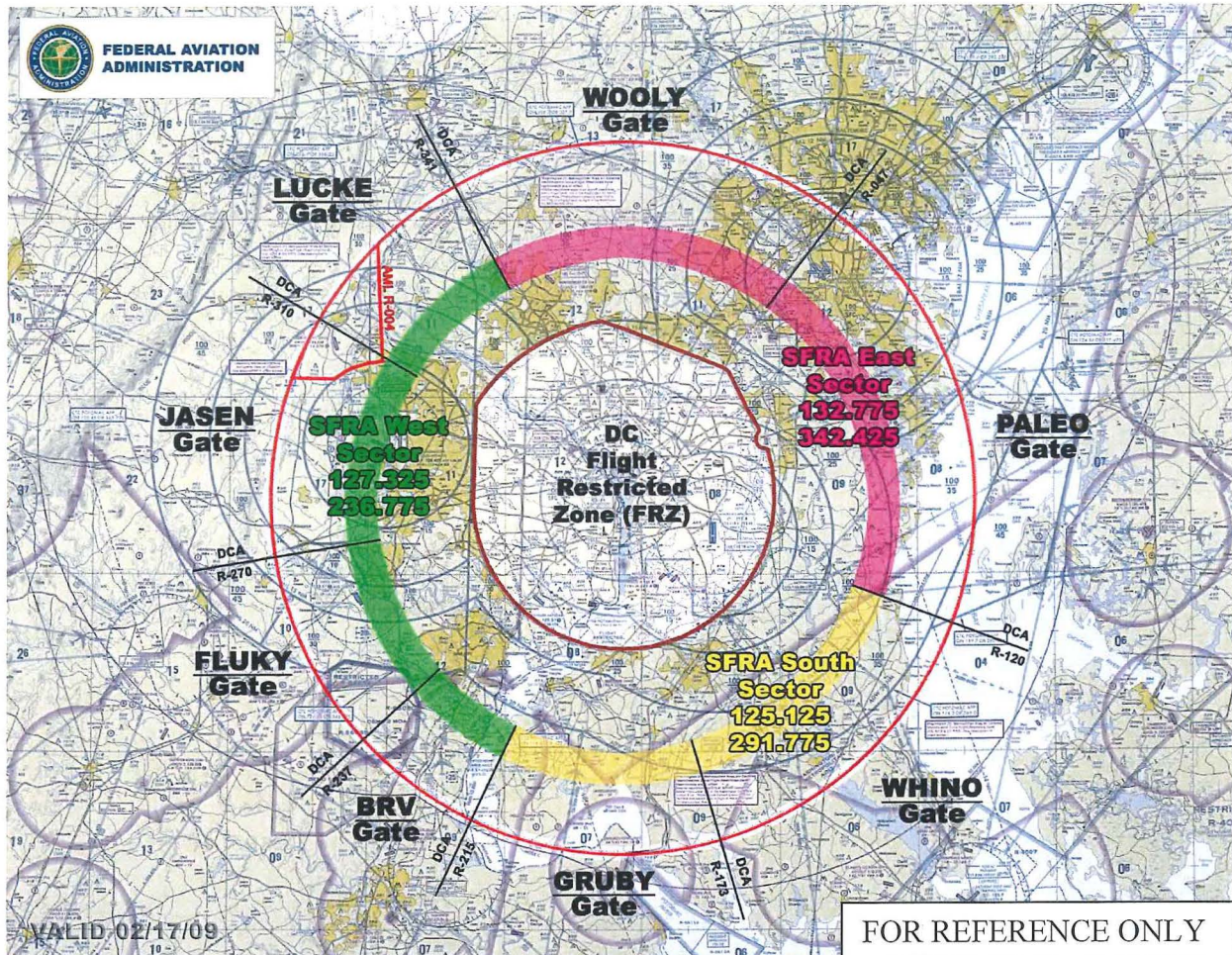
APPENDIX H

AIRFIELD PHONE DIRECTORY

COMMANDING OFFICER	(703) 784-1432/2442
EXECUTIVE OFFICER	(703) 784-1433/2442
OPERATIONS OFFICER	(703) 784-1448
OPERATIONS CHIEF	(703) 784-1474
AIRFIELD MANAGER	(703) 784-1449
ATC FACILITY OFFICER	(703) 784-1455
ATC SNCOIC	(703) 432-0490
ATC OFFICE	(703) 784-1470
ATC MAINTENANCE OFFICER	(703) 784-1464
ATC MAINTENANCE SNCOIC	(703) 432-0390
ATC MAINTENANCE	(703) 784-2490/2604
WEATHER OFFICE	(703) 784-2468
FLIGHT CLEARANCE	(703) 784-2085
AIRCRAFT RESCUE FIRE FIGHTING (ARFF)	(703) 784-2571/4862
ARFF DISPATCH EMERGENCY	(703) 784-2312/2571
AIRCRAFT REFUELING	(703) 784-4297/432-1569
ARMORY	(703) 784-2247
HMX-1 ODO	(571) 494-4875
MCB QUANTICO RANGE CONTROL	(703) 784-5502
DSN PREFIX (784)	278-XXXX
DSN PREFIX (432)	378-XXXX

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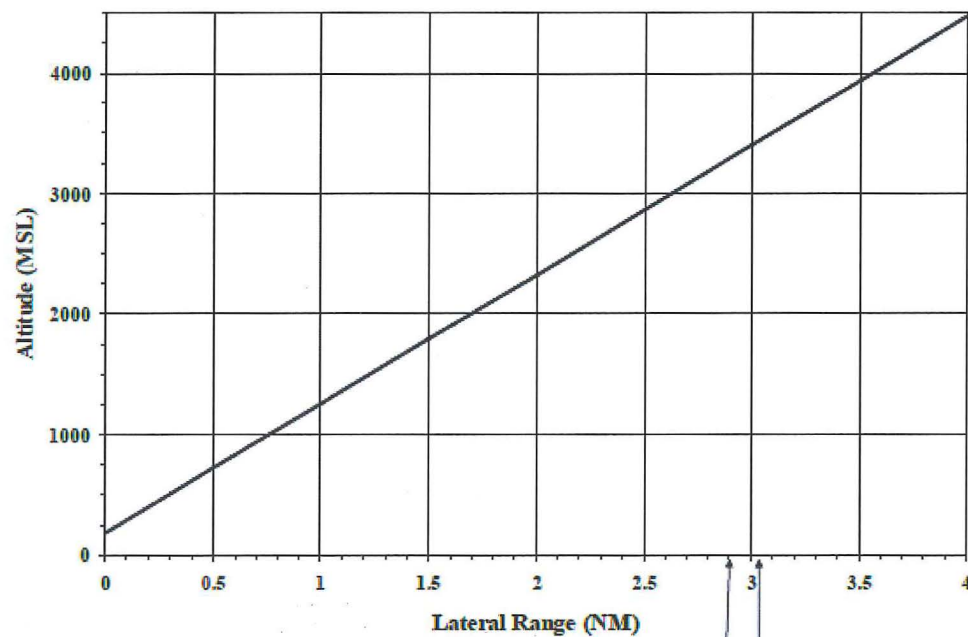
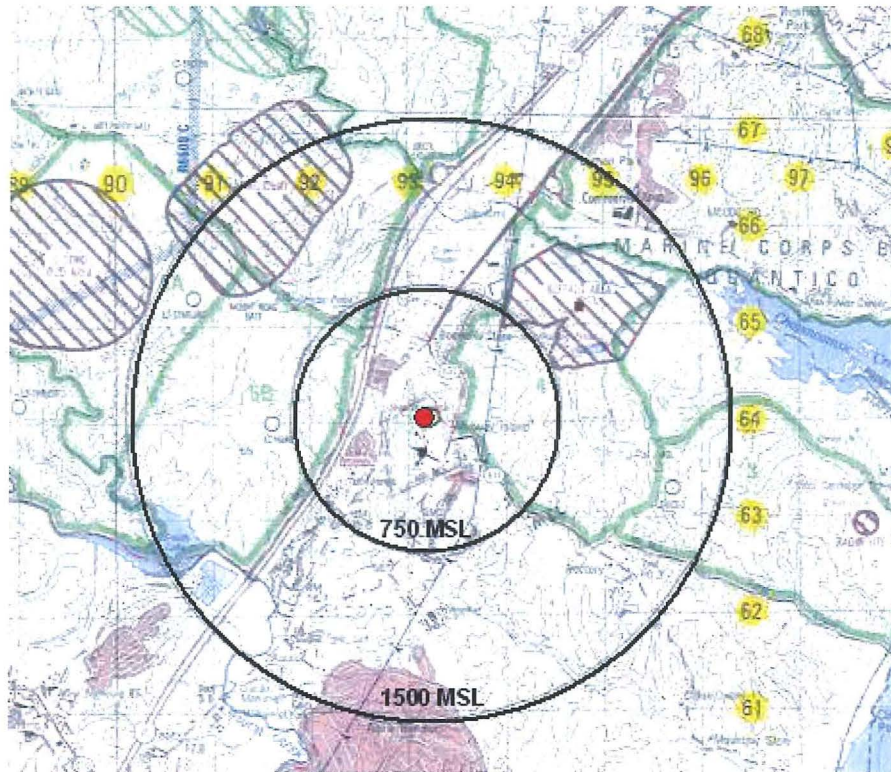
APPENDIX I

THE FLIGHT RESTRICTION ZONE (FRZ) AND
SPECIAL FLIGHT RULES AREA (SFRA)

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APPENDIX J

LASER RANGE FINDER OPERATIONS



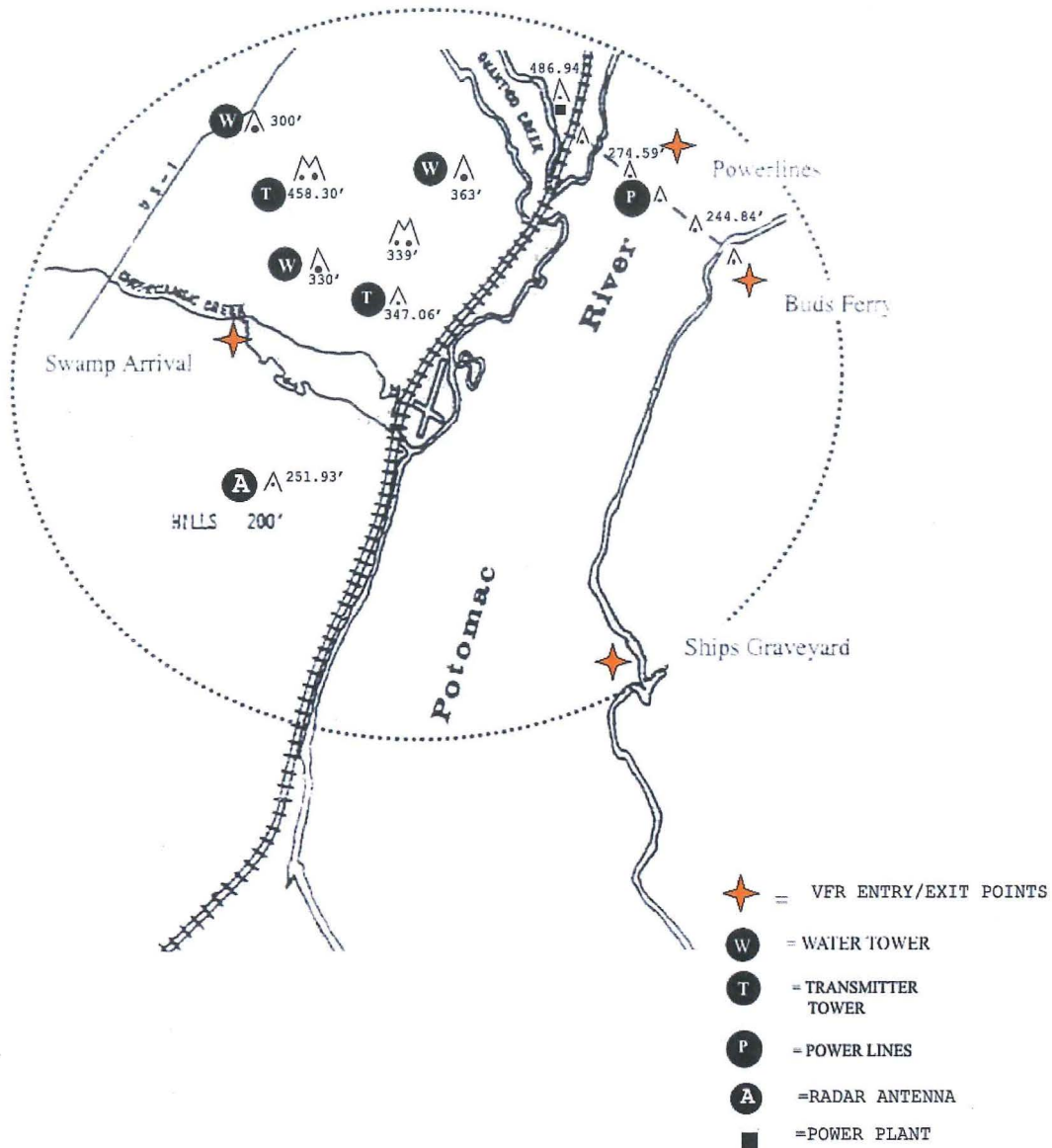
MCAF

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APPENDIX K







QUANTICO CLASS D AIRSPACE
LOCAL OBSTRUCTIONS AND REPORTING POINTS



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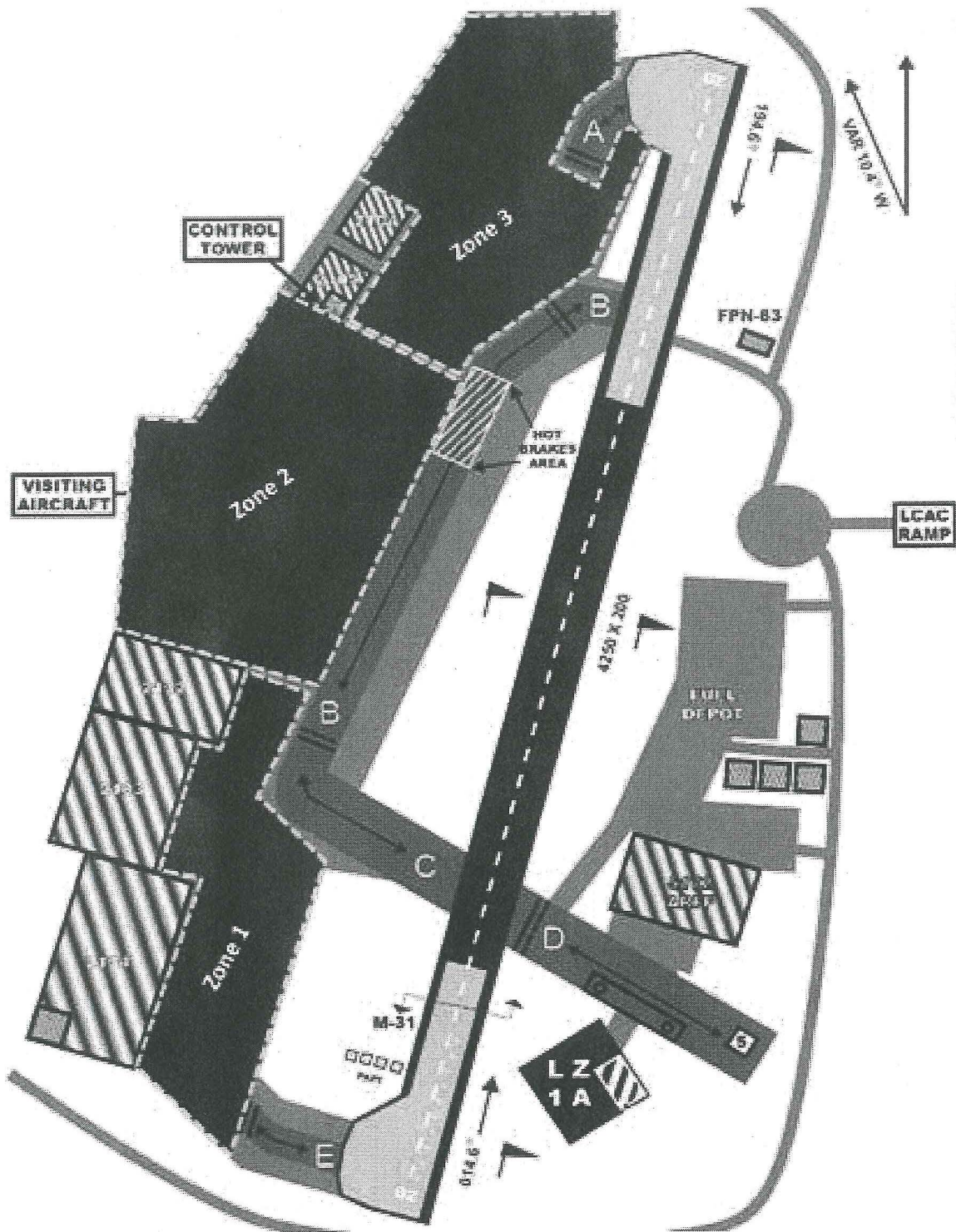
APPENDIX L

AIR TRAFFIC CONTROL LIGHT GUN SIGNALS

	MEANING TO AIRCRAFT ON GROUND	MEANING TO AIRCRAFT IN FLIGHT	MEANING TO VEHICLES, EQUIP & PERSONNEL
STEADY GREEN 	CLEARED FOR TAKE-OFF	CLEARED TO LAND	CLEARED TO CROSS, PROCEED, GO
FLASHING GREEN 	CLEARED TO TAXI	RETURN FOR LANDING (FOLLOWED BY STEADY GREEN AT PROPER TIME)	N/A
STEADY RED 	STOP	GIVE WAY TO OTHER AIRCRAFT AND CONTINUE CIRCLING	STOP
FLASHING RED 	TAXI CLEAR OF LANDING AREA/ RUNWAY IN USE	AIRPORT UNSAFE; DO NOT LAND	CLEAR THE TAXIWAY/RUNWAY
FLASHING WHITE 	RETURN TO STARTING POINT ON AIRPORT	N/A	RETURN TO STARTING POINT ON AIRPORT
ALTERNATING RED/GREEN 	GENERAL WARNING – EXERCISE EXTREME CAUTION	GENERAL WARNING – EXERCISE EXTREME CAUTION	GENERAL WARNING – EXERCISE EXTREME CAUTION

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APPENDIX M
FOD ZONE MAP



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