of airspace or changes in aircraft densities may require notification to the FAA Administrator. Promptly submit a notice of proposed construction or alternation (for example, FAA Form 7460-1 (Notice of Proposed Construction or Alternation) see para 32-10) to have the FAA conduct an aeronautical study of potential obstructions such as tall equipment (for example, cranes, concrete pumps), stockpiles, and haul routes. One form may be filed describing the entire construction area and maximum equipment height or a separate form can be filed for each potential obstruction. In the former case, a separate form must be filed for any object beyond or higher than the originally evaluated obstruction. (32-8.e)

f. Prohibitions. (32-8.f)

(1) Do not use tall equipment (for example, cranes, concrete pumps) unless an FAA Form 7460-1 (Notice of Proposed Construction or Alternation) (see para 32-10) response determination letter is issued by the FAA for such equipment.

(2) Do not use open-flame welding or torches unless fire safety precautions are provided, and the Airport Operator has approved their use.

(3) Do not use electrical blasting caps on or within 1,000 feet (305 m) of the airport property.

(4) Do not use flare pots within the AOA.

32-9. Figures and Tables.
Not Applicable.

32-10. Checklists and Forms.
FAA Form 7460-1, Notice of Proposed Construction or Alternation (https://www.faa.gov/forms)

Chapter 33
Uncrewed Aircraft

33-1. References.

a. AR 95-1, Flight Regulations (https://armypubs.army.mil/ProductMaps/PubForm/AR.aspx) (33-1.a)

b. AR 95-20, Contractor Flights and Ground Operations (https://armypubs.army.mil/ProductMaps/PubForm/AR.aspx) (33-1.b)

c. AR 385-10, Army Safety Program (https://armypubs.army.mil/ProductMaps/PubForm/AR.aspx) (33-1.c)

d. FAA Advisory Circular (AC) 2G: 5370-2G, Operational Safety on Airports During Construction https://www.faa.gov/airports/resources/advisory_circulars/index.cfm/go/document.current/documentNumber/150_5370-2) (33-1.d)

e. FAA, FAA-H-8083-2, Risk Management Handbook (https://www.faasafety.gov/files/gslac/courses/content/62/740/FAA-H-8083-2.pdf) (33-1.e)

f. FAR Clause 42.302(a)(56), Maintain Surveillance of Flight Operations (https://www.govinfo.gov/content/pkg/CFR-1996-title48-vol1/pdf/CFR-1996-title48-vol1-sec42-302.pdf) (33-1.f)

g. National Defense Authorization Act (NDAA) 848 FY2020 (https://www.congress.gov/116/crpt/hrpt333/CRPT-116hrpt333.pdf) (33-1.g)

h. USACE HQ Aviation Policy Letter (APL) 95-1-1, USACE Aviation Policies and Standards (https://usace.dps.mil/sites/KMP-UAS) (33-1.h)

i. USACE Management Information System for Aviation & Remote Systems (MARS) (https://uas.sec.usace.army.mil) (33-1.i)

j. 14 CFR 91, General Operating and Flight Rules (https://www.govinfo.gov/content/pkg/CFR-2020-title14-vol2/pdf/CFR-2020-title14-vol2-part91.pdf) (33-1.j)

k. 14 CFR 107, Small Unmanned Aircraft Systems (https://www.govinfo.gov/content/pkg/CFR-2020-title14-vol2/pdf/CFR-2020-title14-vol2-part107.pdf) (33-1.k)

l. 36 CFR 327, Rules and Regulations Governing Public Use of Water Resource Development Projects Administered by the Chief of Engineers (https://www.govinfo.gov/content/pkg/CFR-2011-title36-vol3/pdf/CFR-2011-title36-vol3-part327.pdf) (33-1.l)

m. 49 USC 40102, Transportation (https://www.govinfo.gov/content/pkg/USCODE-2021-title49/pdf/USCODE-2021-title49-subtitleVII-partA-subparti-chap401-sec40102.pdf) (33-1.m)

n. 49 USC 40125, Qualifications for Public Aircraft Status (https://www.govinfo.gov/content/pkg/USCODE-2011-title49/pdf/USCODE-2011-title49-subtitleVII-partA-subparti-chap401-sec40125.pdf) (33-1.n)

33-2. Definitions.

a. Aircrew Training Program Manager (ATPM). Individual designated in writing by the Commander/Director, with concurrence from the Aviation Program Manager (APM), who has delegated authority to implement and manage the Small Uncrewed Aircraft System (SUAS) program. (33-2.a)

b. Air Mission. An approved flight, or series of flights, for a clearly defined task, purpose, and end-state. (33-2.b)

c. Air Mission Approval Authority (AMAA). Individual approved by the APM and delegated authority by the Commander/Director to accept risk and approve missions. (33-2.c)

d. Aviation Program Manager (APM). Individual designated by the Assistant Secretary of the Army (Civil Works), and delegated the authority by the Commanding General, USACE, to implement and oversee the USACE Aviation Program. (33-2.d)

e. Certificate of Authorization (COA). An authorization issued by the Air Traffic Organization to a public operator for a specific uncrewed aircraft (UA) activity. (33-2.e)

f. Field Operating Activity (FOA). All USACE Divisions, Districts, Labs, and Centers, as well as any other operational activity. (33-2.f)

g. Government Flight Representative (GFR). (Required for Aircraft Flight and Ground Operations). A current or previously rated U.S. Military officer or previously rated Government civilian. GFRs are appointed to perform the Contract Administration Services function, FAR Clause 42.302(a)(56). (33-2.g)

h. Uncrewed Aircraft System (UAS) Groups. (33-2.h)

(1) Group 1 UAS. UAS typically less than 20 pounds in weight; normally operate below 1200 feet AGL) at speeds less than 250 knots.

(2) Group 2 UAS. UAS typically are in the 21 – 55-pound weight class; normally operate below 3500 feet AGL at speed less than 250 knots.

(3) Group 3 UAS. These UAS weigh more than 55 pounds, but less than 1320 pounds. They normally operate below 18,000 feet mean sea level at speeds less than 250 knots.

i. Management Information System for Aviation & Remote Systems (MARS). A management information database that tracks equipment and personnel and assists in mission planning, approval, tracking, and archiving. (33-2.i)

j. Mission Briefing Officer (MBO). MBOs interact with the mission crew to validate the flight plan, risk assessment, and risk mitigation measures for approval by the AMAA. (33-2.j)

k. Mission Coordinator (MC). MCs are the overall SUAS mission leader and operational authority. MCs are selected for their level of aviation proficiency, judgment, and communication skills. The Remote Pilot (RP) is automatically the MC unless otherwise directed. MC and RP duties may be performed simultaneously. A single MC must be designated for missions involving more than one crew. (33-2.k)

l. Remote Pilot (RP). The RP is responsible for safe mission execution and is the final authority for operating, servicing, and securing the UA. RP is the base qualification for crewmembers, MBOs, and AMAAs. (33-2.l)

m. Small Uncrewed Aircraft System (SUAS). Group 1 or 2 remotely piloted aircraft, the associated control unit, antennas, and ancillary equipment. The term SUAS applies when referring to the entire system. (33-2.m)

n. Trusted Agent (TA). TAs are selected by the ATPM and appointed in writing by the APM (see figure 22 in APL 95-1-1), to validate the contractor's SUAS fleet and periodically monitor flight operations for compliance with the cybersecurity rules outlined by DoD. (33-2.n)

o. Visual Observer (VO). VOs are fully integrated crewmembers who attend and participate in the crew brief and debrief. VOs maintain visual contact with the UA and communicate its proximity to hazards, other aircraft, direction of travel, and location. (33-2.o)

33-3. Personnel Required Qualification/Training.

a. SUAS Aircrew. Provide training to SUAS Aircrew Personnel to ensure compliance with FAA, Army, and USACE policy, rules, and regulations. (33-3.a)

b. USACE Remote Pilots (RP). RPs must complete the USACE SUAS Qualification Course, be appointed in writing, and be in possession of a USACE SUAS Operator's Certificate. RP is the base qualification for crewmembers, MBOs, and AMAAs. (33-3.b)

c. Contractor SUAS Operators. Contractors operating SUAS in support of USACE projects must comply with the training and medical standards of 14 CFR 107, have written authorization from the APM, adhere to TA oversight, and comply with AR 95-20 and APL 95-1-1. (33-3.c)

d. Mission Briefing Officers (MBO). MBOs must be graduates of the USACE SUAS Qualification Course and be appointed in writing by the FOA ATPM. MBOs are selected based on their aviation knowledge, experience, maturity, and judgment. (33-3.d)

e. Visual Observers (VO). RPs are automatically qualified to perform VO duties, but in rare circumstances when a second crewmember is not available, the RP may select an untrained individual by briefing the following topics: (33-3.e)

(1) Identifying hazards to flight and communication.

(2) Directional, steering, and flight path cues to avoid hazards.

(3) Crew coordination.

(4) Conducting two-way radio communications.

(5) Emergency procedures.

(6) Monitor system indications.

(7) Medical requirements.

Note. Frequent utilization of untrained VOs requires an exception to policy approval from the APM.

Note. VOs are required for all USACE SUAS flights unless waived in writing by the APM.

f. Trusted Agents (TA). TA must be trained by an ATPM. Training must include the following: (33-3.f)

(1) Cybersecurity protocols in APL 95-1-1, Section 7.

(2) Information requirements for the contractor's flight request.

(3) Flight, accident and near miss, and reporting requirements.

33-4. Roles and Responsibilities.

a. Aircrew Training Program Manager (ATPM). ATPMs are the Commander's/Director's designated representative required to manage the SUAS program, which includes overseeing and implementing the aircrew training program, maintaining individual flight records, and managing the SUAS fleet. The ATPM is the primary point of contact for the FOA's aviation operations per APL 95-1-1. (33-4.a)

b. Mission Coordinator (MC). MCs are selected for their level of aviation proficiency, judgment, and ability to effectively communicate with other crews and the customer. For a single crew, the RP is the MC unless otherwise directed. MC and RP duties may be performed simultaneously. A single MC must be designated for missions involving more than one crew. The MC is the final authority for SUAS operations. (33-4.b)

c. Mission Briefing Officer (MBO). MBOs review proposed SUAS missions and provide intermediate approval before it is reviewed and approved by the ATPM and AMAA. (33-4.c)

d. Remote Pilot (RP). RPs are responsible for the safe and legal conduct of UA missions for USACE. The RP is the final authority for operating, servicing, and securing the UA and its associated equipment according to APL 95-1-1. (33-4.d)

e. Visual Observer (VO). VOs are mandatory for all USACE SUAS flights. VOs are required to be knowledgeable on the platforms and briefed on mission details before missions are executed according to APL 95-1-1. VOs must maintain visual contact with the UA at all times and perform other duties as assigned by the RP. The VO accurately describes the UA's proximity to hazards and other aircraft, direction of travel, and aircraft location relative to the launch and recovery site. Effective crew coordination between the VO and RP is critical to prevent an unsafe condition from developing into an accident or near miss. The VO must also communicate with the airspace control authority, controlling entity, and/or MC, as directed by the RP. VOs must attend and participate in crew briefs and debriefs. (33-4.e)

f. Trusted Agent (TA). TAs must review and acknowledge the requirements in APL 95-1-1 prior to being designated. (33-4.f)

g. Government Flight Representative (GFR). GFRs designated for USACE contracts and Government civilians must be current or former Rated Military Officers and vetted by the APM prior to designation by the Approval Authority. GFRs must work closely with the Headquarters Aviation GFR to standardize surveillance activities. (33-4.g)

33-5. Inspection Requirements.
Not Applicable.

33-6. Activity Hazard Analysis (AHA) Requirements.
Develop AHAs according to paragraphs 1-6 or 2-6, as applicable. AHAs must also address:

a. Section 12 of APL 95-1-1. (33-6.a)

b. Environmental. The SUAS environmental limitations must be considered when operating unprotected from the elements such as heat, cold, rain, snow, and/or wind. (33-6.b)

33-7. Minimum Plan Requirements.

a. Mission Risks. Mission risks must be evaluated, documented, and approved in MARS or on a DD Form 2977 (Deliberate Risk Assessment Worksheet) (see para 33-10.a) and then re-evaluated prior to launch for each SUAS mission per APL 95-1-1. (33-7.a)

b. Infrastructure. All missions, regardless of location, require a documented terrain and critical infrastructure analysis of the surrounding area within a distance prescribed by HQ USACE (5 miles in MARS). (33-7.b)

c. Deliberate and Operational Risk Assessments. Small Uncrewed Aircraft Crewmembers (SUACs) must define, consider, and mitigate risk in all phases of flight. (33-7.c)

d. Airspace. Determine the airspace classification and associated requirements. See APL 95-1-1, figure 8, FAA Airspace Guidance for Small UAS Operators, for further guidance. (33-7.d)

e. Daily Risk Assessment Worksheets (RAW). Crewmembers must complete the RAW as close as possible to takeoff to assess the most current mission risk factors associated with that day's flight per approved mission plan and documented MARS. (33-7.e)

Note. If the Risk Assessment Value on the RAW is higher than the projected level then the mission is cancelled until crewmembers receive written approval from the AMAA to fly. Text messages are an authorized means of written mission approval.

f. Pre-Accident Plan. USACE Aviation Pre-Accident Plans must be developed. Incorporate the plans into the Aircrew Reading File according to APL 95-1-1. (33-7.f)

33-8. General Requirements.

a. Coordinate all SUAS operations through the USACE HQ Aviation Program Office and follow APL 95-1-1 requirements. (33-8.a)

b. Authorizations. (33-8.b)

(1) SUAS crewmembers must coordinate with the airport/airfield manager before flying near an airport/airfield with an operational control tower.

(2) Airspace authorization is needed for controlled airspace (that is, Class B, C, D, E). Authorization must be coordinated through USACE HQ Aviation and granted by a COA from the FAA. Class B, C, D, and E airspace are controlled airspace needing additional authorization and clearance to access.

(3) Coordinate flights within restricted areas on DoD lands through the installation's Range Control activity.

c. Prohibitions. (33-8.c)

(1) Only c-compliant aircraft and Defense Innovation Unit Blue Cleared-List aircraft with an Authorization to Operate are authorized to fly with an approved mission packet.

(2) USACE employees and contractors supporting USACE projects are prohibited from purposefully collecting information, personal data, or images of private citizens that is outside of the mission parameters (see APL 95-1-1, section 11).

(3) Prolonged or hovering flight over people is not permitted. Transient flight (that is, traffic patterns) is acceptable (see APL 95-1-1).

d. Contractor Missions. (33-8.d)

(1) FOAs must work closely with USACE HQ Aviation for all new aviation contracts to determine its status as a Public or Civil Aircraft Operation (CAO).

(2) A Public Aircraft Operation (PAO) is a flight activity which meets the qualifications for public aircraft status in 49 USC 40125. All crewed and uncrewed aviation contracts for inherently governmental functions using Government owned aircraft, or contractor owned aircraft under purview of the Army Airworthiness Authority, must be examined by HQ USACE Aviation to determine the appropriate level of surveillance according to AR 95-20.

(3) Federal, DoD, and Army Regulations require USACE to maintain surveillance of contractor-supported and contractor-pure PAOs (see APL 95-1-1, section 14).

(4) A CAO is a flight activity which does not meet the qualifications for public aircraft status in 49 USC 40125. The contractor maintains responsibility for all aspects of the flight activity and verifies compliance with USACE and Army cybersecurity in APL 95-1-1. CAO flights must be conducted according to required federal, state, and local requirements for SUAS flights, and under the supervision of a USACE-TA per APL 95-1-1. Contractor flights are not permitted without prior written approval (signed paper copy, e-mail, or text message) by the TA.

(5) Third party operations on or near USACE projects introduce potential for loss of information protection and security regarding Army activities. Third party SUAS

operations conducted for commercial purposes must have District Commander/Lab Director approval according to 36 CFR 327. (See APL 95-1-1, section 14)

Note. The TA must e-mail HQAviation@usace.army.mil with the data from the contractor notification and submit a close-out report after the flight(s). If the flight is cancelled or delayed, the close-out report is still required to notify USACE HQ Aviation per APL 95-1-1.

e. USACE Missions. (33-8.e)

(1) SUACs Physically Capable. SUACs are prohibited from performing crewmember duties without first ensuring they are physically capable. ATPMs must ensure all SUACs complete and sign the ENG Form 6150 (Small UAS Operator - Health Self-Assessment Tool) (see para 33-10.b) annually. As a part of the Operational Risk Management process, SUACs must review their medical requirements prior to each mission. See APL 95-1-1 (and FAA-H-8083-2) for information on aviation personnel medical requirements.

(2) All SUAS Mission Planning Procedures. SUAS missions must be planned, approved, executed, and debriefed utilizing MARS according to (and currently only available in) APL 95-1-1.

f. Crewed Aircraft. (33-8.f)

(1) All PAO contract pilots must meet the qualification, evaluation, and currency requirements of AR 95-20.

(2) All contractor-owned aircraft must be registered and equipped according to the requirements of AR 95-20, Army Airworthiness Authority, and/or FAA-issued Air Worthiness Certificate, as required.

(3) All contractor flight and ground operations must follow the requirements of AR 95-20.

33-9. Figures and Tables.
Not Applicable.

33-10. Checklists and Forms.

a. DD Form 2977, Deliberate Risk Assessment Worksheet (https://armypubs.army.mil/ProductMaps/PubForm/Details.aspx?PUB_ID=104201) (33-10.a)

b. ENG Form 6150, Small UAS Operator - Health Self-Assessment Tool (https://www.publications.usace.army.mil/USACE-Publications/Engineer-Forms/) (33-10.b)