



FIELD OPERATIONS

Pre-Flight Checklist & Mission Readiness Pack

A complete pre-flight, on-site, and post-flight
protocol for professional drone surveyors
operating under FAA Part 107

AeriusView

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HOW TO USE THIS PACK

Run through each checklist before every mission. The checklists are ordered chronologically: plan the day before, verify gear before departure, assess the site on arrival, and close out after landing. Every item maps to FAA Part 107 requirements or industry best practice.

SECTION 01

Pre-Flight Planning Checklist

Complete this checklist the day before your mission. Every item can be verified from your desk or truck before you set foot on the site.

Airspace Authorization

- ☐ Check airspace class on FAA B4UFLY or Aloft for the mission area
- ☐ If in controlled airspace (Class B/C/D/E surface), obtain LAANC authorization before departure
- ☐ Confirm LAANC approval window matches planned flight time with buffer for delays
- ☐ Verify no TFRs active via FAA TFR map or B4UFLY

Weather Verification

- ☐ Wind speed at flight altitude under 15 mph sustained (data quality degrades above 15 mph)
- ☐ Wind gusts under 10 mph spread from sustained speed
- ☐ Temperature within drone operating range (typically 32°F–104°F)
- ☐ Precipitation at 0% for the flight window; even light mist degrades photogrammetry
- ☐ Visibility 3 statute miles or greater (Part 107 VFR minimum)

NOTAM & Flight Plan

- ☐ Search active NOTAMs via FAA NOTAM Search for flight area and surrounding 5 NM
- ☐ Flight plan loaded into ground station with waypoints and survey boundary verified
- ☐ Flight altitude set for required GSD (200–400 ft AGL yields 1–3 cm/pixel)
- ☐ Front overlap 75–80%, side overlap 65–70% for photogrammetry
- ☐ Battery budget: mission time ÷ 0.75, plus 20% contingency and one spare

SAFETY-CRITICAL

If LAANC authorization cannot be obtained for controlled airspace, do not fly. Flying without authorization violates 14 CFR Part 107.41 and carries civil penalties up to \$27,500. For areas without LAANC, apply for manual authorization via DroneZone at least 90 days in advance.

SECTION 02

Equipment Verification Checklist

Inspect every component before leaving for the site. A failed component in the field means an aborted mission and a return trip.

Drone Airframe & Motors

- ☐ Visual inspection for cracks, stress marks, or impact damage on arms and body
- ☐ All screws and fasteners tight; check motor mounts and gimbal attachment points
- ☐ Spin each motor by hand to check for binding, grinding, or excessive play
- ☐ Firmware on drone, controller, and battery confirmed current

Batteries & Propellers

- ☐ All flight batteries charged to 100%; verify percentage in battery app, not just LED
- ☐ Battery health checked; retire any above 200 cycles or cell imbalance over 0.1V
- ☐ Propellers inspected for nicks, chips, or hairline cracks on leading edge
- ☐ Spare propeller set packed; prop screws torqued to manufacturer spec

Camera, Sensors & Storage

- ☐ Lens cleaned; camera set to manual mode, ISO 100, shutter 1/1000+ for daylight
- ☐ RTK/PPK base station powered on with FIX status confirmed (not FLOAT)
- ☐ GCPs placed and surveyed; minimum 5 targets with 1 checker point, evenly distributed
- ☐ SD card formatted in-drone; capacity verified (1–2 GB per battery at 1-sec intervals)
- ☐ Spare SD card packed; card rated U3 or V30 minimum

Component	Critical Failure Mode	Pre-Flight Check
Motor	Bearing seizure mid-flight	Spin by hand; listen for grinding
Battery	Cell imbalance → voltage sag	Check cell voltages in app
Propeller	Blade separation at high RPM	Inspect leading edge; torque screws
SD Card	Write failure → no data	Format in-drone; check free space
RTK Link	Loss of fix → geotag drift	Confirm fix status before takeoff

SECTION 03

On-Site Arrival Checklist

Before you unpack the drone, assess the environment and establish safe operating conditions. This takes 10–15 minutes—do not rush it.

Site Hazard Assessment

- ☐ Walk perimeter to identify overhead hazards: power lines, towers, tall trees, turbines
- ☐ Identify ground hazards: open water, livestock, embankments, construction traffic
- ☐ Note RF interference sources: cell towers, broadcast facilities (can disrupt RC/GPS)
- ☐ Identify emergency landing zones: flat, clear areas for forced landing

Bystander Management & Launch Zone

- ☐ Maintain minimum 30-foot clear radius around launch point (50 ft for large platforms)
- ☐ Brief anyone on-site that the drone is about to fly; ask them to stay back
- ☐ If operating over people, confirm Part 107 Category 1–4 compliance by drone weight
- ☐ Select flat, level launch pad; use landing mat on grass or gravel to prevent debris
- ☐ Take off and land into the wind when possible for stability and battery conservation

GPS, Compass & Flight Parameters

- ☐ GPS lock: minimum 8 satellites; drone reports "Ready to Fly"
- ☐ RTK: confirm FIX solution, not FLOAT (FLOAT can produce 1m+ positional error)
- ☐ Compass calibration: run if moved 200+ miles since last calibration or app warns of interference
- ☐ RTH altitude set above tallest obstacle; low-battery RTH at 30%, critical landing at 15%
- ☐ Max altitude at or below 400 ft AGL (Part 107.51); failsafe set to RTH on lost link

DO NOT FLY IF

Wind exceeds your drone's rated maximum at ground level. Visibility below 3 statute miles. A TFR activates during your window. You cannot maintain 8+ satellite GPS lock. Abort and reschedule—a re-flight is always cheaper than a lost drone.

SECTION 04

Post-Flight Checklist

A disciplined post-flight routine protects your data, extends equipment life, and creates records for client deliverables and regulatory compliance.

Landing Inspection & Shutdown

- ☐ Power down in correct sequence: stop motors → controller off → drone off
- ☐ Visual inspection for new damage; photograph any damage for records
- ☐ Motors cool to the touch; unusually hot motors indicate potential bearing failure
- ☐ Batteries removed and stored in fireproof bag; discharge to 50–60% if not flying within 48 hrs

Data Verification

- ☐ Image count on SD card matches drone flight log; any discrepancy means dropped frames
- ☐ Front/side overlap visually confirmed by reviewing consecutive images in the field
- ☐ Geotags present in EXIF data; RTK/PPK accuracy flag confirmed in metadata
- ☐ GCP targets visible in at least 3 images each for reliable photogrammetry tie-pointing

Flight Records & Data Backup

- ☐ Flight log entry: date, location, duration, battery cycles, total flight time
- ☐ Mission notes: weather, anomalies, GCPs placed; retain LAANC authorization 3+ years
- ☐ Accident meeting Part 107.9 criteria (serious injury, property damage over \$500)? File FAA report within 10 days
- ☐ SD card data copied to primary drive, then backed up to secondary before processing
- ☐ SD card reformatted in-drone only after both backups are verified

DATA LOSS PREVENTION

The most common cause of lost survey data is not a crash—it is a corrupted SD card reformatted before the backup was verified. Always copy to two locations, confirm file count matches the flight log, and only then reformat.

SECTION 05

Emergency Procedures Summary

Emergencies are rare but you have seconds to respond. Memorize these protocols and review before every mission.

EMERGENCY 1 — LOST LINK

Symptom: "Signal Lost" or no telemetry

Do not move. Wait 3 seconds for failsafe RTH to trigger. Visually track the drone as it climbs to RTH altitude and returns. If link does not restore within 10 seconds, raise controller, remove 2.4 GHz interference, switch to ATTI mode if available. If out of VLOS, move to last known position and search. Log the event.

EMERGENCY 2 — FLYAWAY

Symptom: Drone not responding, moving away

Switch to ATTI mode to disable GPS position hold and regain manual control. Note direction of travel, wind, and last altitude. If heading toward populated area or controlled airspace, call nearest airport tower or FAA regional ops center. File FAA flyaway report via DroneZone within 24 hours.

EMERGENCY 3 — BATTERY EMERGENCY LANDING

Symptom: Low battery (30%) or critical (15%)

At 30%: initiate RTH immediately—do not finish the current grid line. At 15%: drone will auto-land; do not fight it unless you have a better landing zone. After landing, power off drone immediately. Inspect battery for swelling before recharging—a low-voltage landing may cause cell damage.

EMERGENCY 4 — AIRSPACE INCURSION REPORTING

Symptom: Unauthorized entry into controlled airspace

Land immediately. Document time, location, altitude, and duration. For near mid-air collisions, contact nearest FSDO or ATC within 24 hours. File a confidential ASRS report at asrs.arc.nasa.gov within 10 days (may provide enforcement immunity). For accidents meeting Part 107.9 criteria, file FAA report via DroneZone within 10 calendar days.

Emergency	First Action	Reporting Requirement
Lost Link	Hold; wait for RTH	Log in flight records
Flyaway	ATTI mode; track visually	FAA DroneZone within 24 hrs
Battery Emergency	RTH at 30%; land at 15%	Inspect battery; log event
Airspace Incursion	Land; document incident	FSDO 24 hrs; ASRS 10 days
Accident (107.9)	Secure scene; render aid	FAA report within 10 days

SECTION 06

Ready to Fly Quick Checklist

This is your one-page printable summary. Print it, laminate it, keep it in your flight kit. Every item here is pulled from the full sections above. If you are short on time, this is the minimum protocol for a safe, legal, survey-grade flight.

Before You Leave

- ☐ Airspace confirmed (LAANC approval in hand if controlled airspace)
- ☐ TFRs and NOTAMs checked for flight date and location
- ☐ Wind under 15 mph (20 mph absolute max), no gusts over 20
- ☐ No precipitation in forecast window (plus 30 min buffer)
- ☐ Visibility at least 3 statute miles
- ☐ Cloud ceiling at least 500ft above planned AGL
- ☐ Temperature within battery operating range (32F to 104F)
- ☐ Mission file loaded and verified on ground station
- ☐ Battery budget calculated (land with 30% minimum reserve)
- ☐ At least two emergency landing zones identified

Equipment Check

- ☐ Propellers inspected (no chips, cracks, or play)
- ☐ Motors spin freely, no grinding or resistance
- ☐ Airframe structurally sound, no loose screws
- ☐ Gimbal moves freely through full range
- ☐ All batteries at 90%+ charge, no swelling or damage
- ☐ Spare batteries packed for multi-battery missions
- ☐ Controller fully charged and powers on
- ☐ SD card formatted in-aircraft, sufficient capacity
- ☐ Camera lens cleaned with microfiber
- ☐ RTK/PPK base station configured and charged (if applicable)
- ☐ GCP targets packed and coordinates verified (if applicable)

On-Site

- ☐ Power lines noted (height and orientation)
- ☐ Takeoff zone: 15ft clear radius, flat, stable, debris-free
- ☐ Bystander zones established (30ft min separation)
- ☐ GPS lock: minimum 8 satellites
- ☐ RTK fixed solution confirmed (survey-grade only)
- ☐ Compass calibration performed if new location
- ☐ Home point set to current takeoff location
- ☐ Geofence active (horizontal + vertical limits verified)
- ☐ Test hover at 3-5ft AGL: stable, no errors, normal motor sound
- ☐ Battery voltage and temperature normal on ground station

Post-Flight

- ☐ Airframe inspected for damage on landing
- ☐ Image count matches expected (flight time / shutter interval)
- ☐ Image overlap verified (min 70% front, 60% side)
- ☐ GPS data present in EXIF
- ☐ No corrupted images on SD card
- ☐ Drone powered off, then controller
- ☐ Batteries removed for transport
- ☐ Flight logged: time, location, conditions, anomalies
- ☐ Data transferred to primary storage
- ☐ Backup copy created and verified
- ☐ SD card not formatted until backup confirmed at two locations

PRINT THIS PAGE

This section is designed as a standalone reference. Print page 8, laminate it, and keep it in your flight kit. Run through it before every mission. If any item fails, resolve it before you fly.

READY TO FLY?

Ready to get matched with survey jobs in your area?

AeriusView connects Part 107-certified drone operators with vetted survey projects from construction, agriculture, and real estate clients. No marketing, no bidding wars—just qualified jobs delivered to your inbox.

Join the AeriusView Operator Network

aeriusview.com/surveyors/



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