

sUAS

Rotorcraft & Fixed Wing

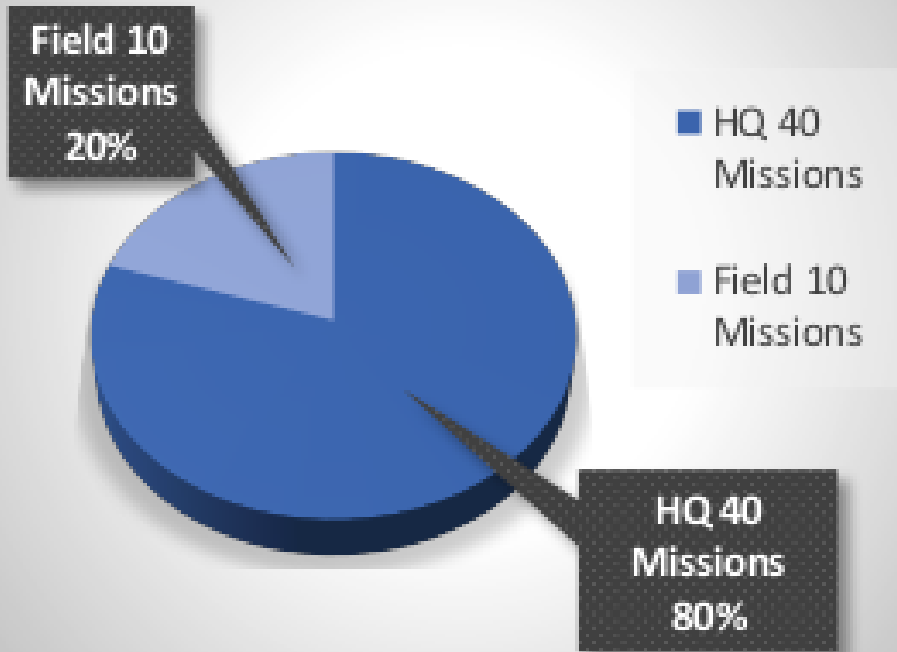
# What do these have in common?



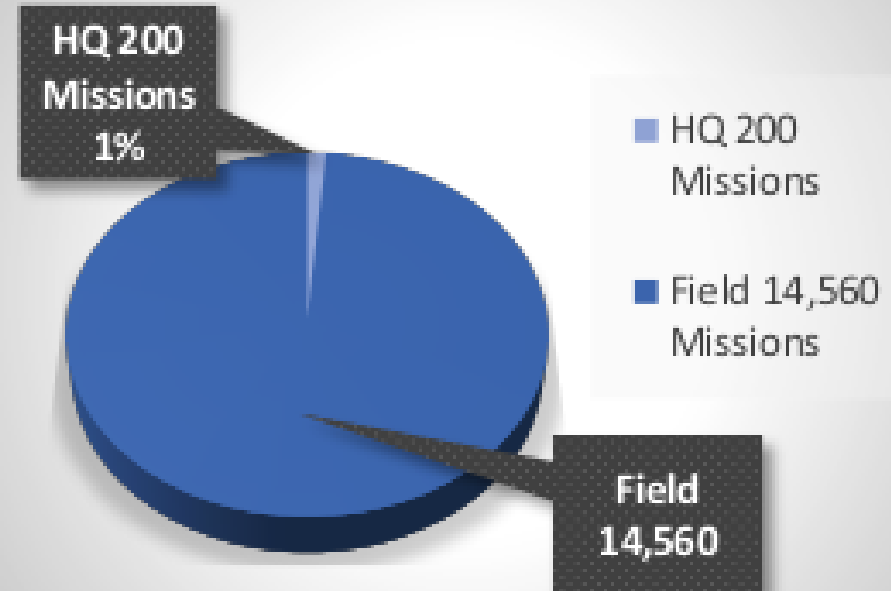
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# Projected UAS Growth

## UAS Missions 2017



## UAS Missions 2023



14760 Estimated Missions:

56 Offices: 1 SWAT, 1 SOG, 1 SSG, 1 ERT, 1 Misc. missions / per week

$56 \times 5 \times 52 = 14560 + 200 \text{ HQ Missions} = 14760$  Annual low-end projection

# Program Growth

SWAT



Indoor - LOKI

COTS Outdoor small QuadCopter



ERT / LAB



DJI Inspire Pro ?

Large QuadCopter

WMD

Small Quadcopter / Larger QuadCopter / Tethered Asset?

PA / TD / ET

Small Quad – EVO?



Surv



Lockheed Martin Stalker XE

Lockheed Martin Stalker XE



Medium DOD Quad – Indigo / Sky Raider?

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# 2020 Fixed Wing UAS Offices



# Puma and Wasp







# Stalker XE





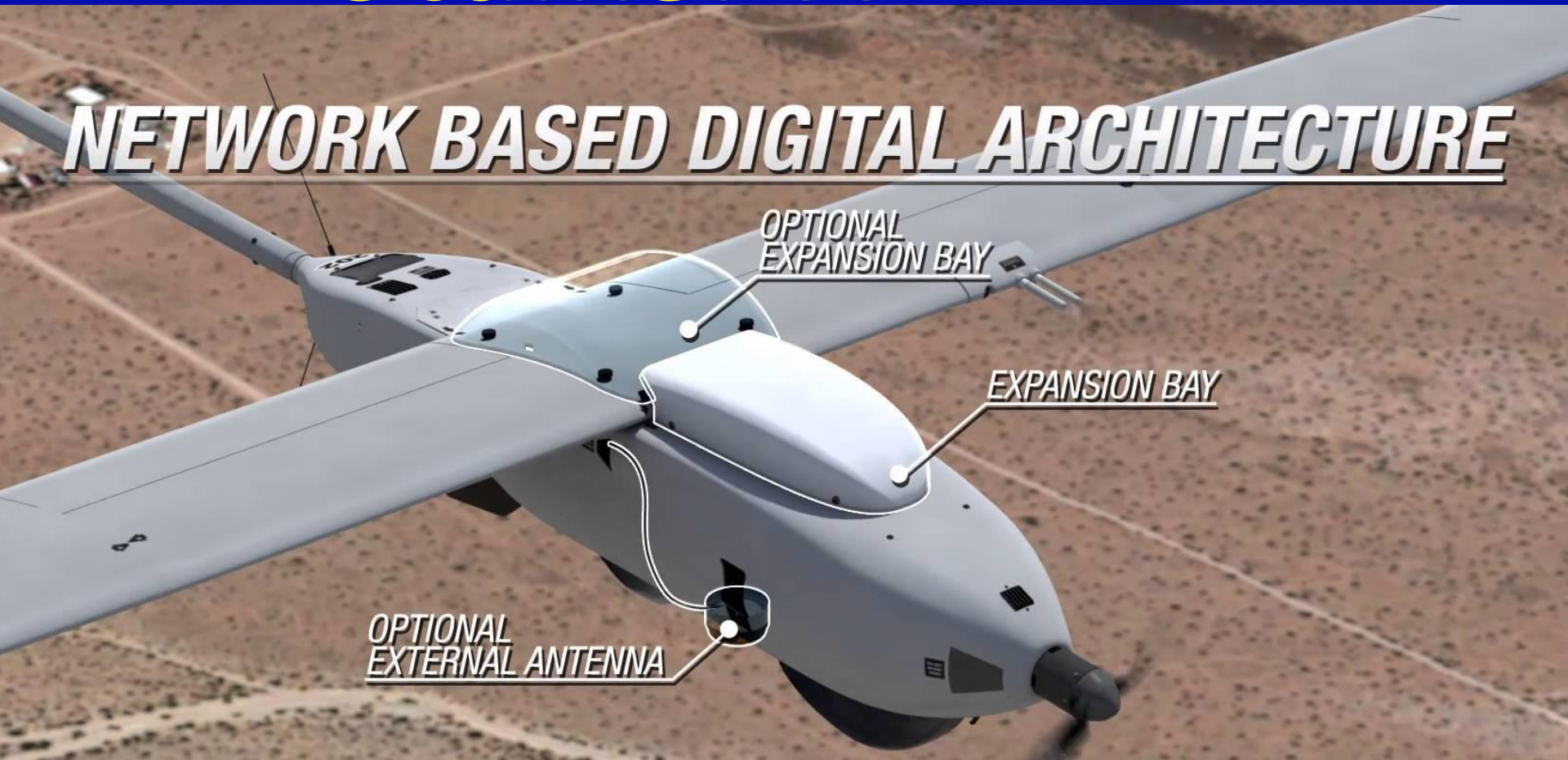
# Stalker XE





# Stalker XE

## ***NETWORK BASED DIGITAL ARCHITECTURE***

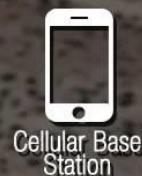


***OPTIONAL  
EXTERNAL ANTENNA***

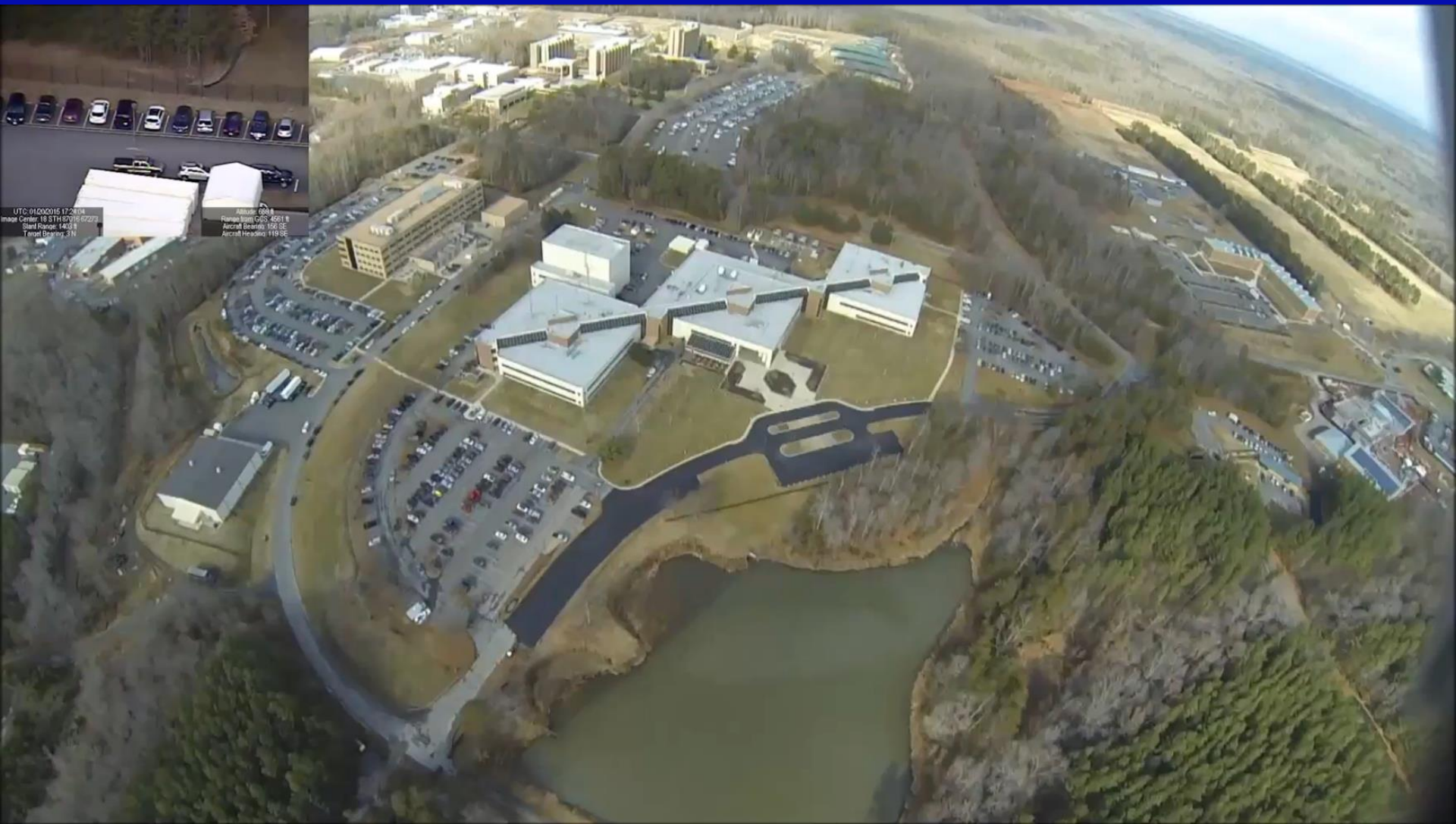
***OPTIONAL  
EXPANSION BAY***

***EXPANSION BAY***

### ***COMMUNICATIONS PAYLOADS***



# Stalker XE





ISO  
200Shutter  
1/100EV  
+0.3WB Auto  
4400K

1080P/60

Slow

SD Card

AFC/MF

AE

# Quadcopters



05:20



D 10134 ft

H 155 ft

H.S 0.5 mph

V.S 0.0 mph



10087.5





# Outdoor sUAS

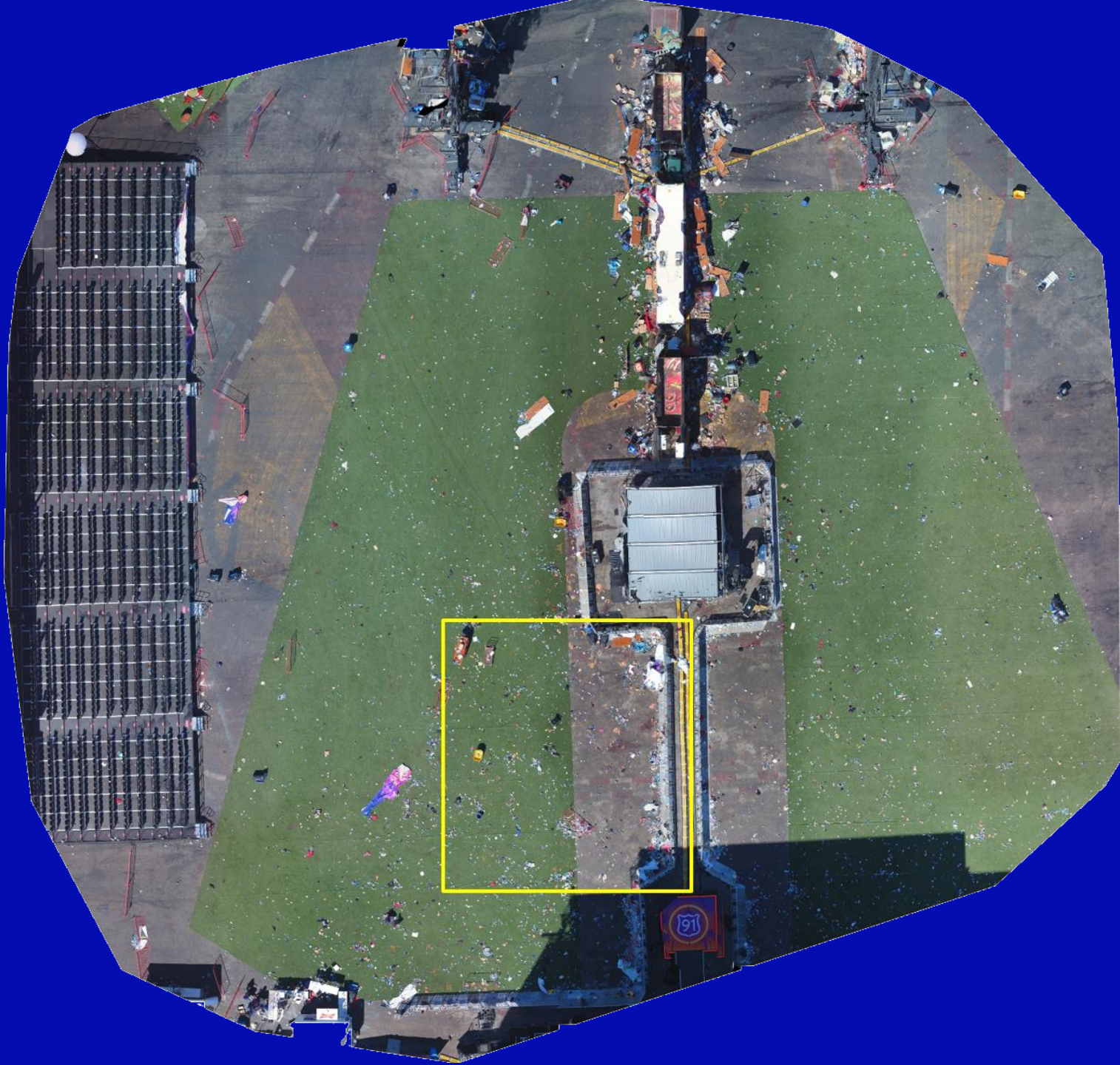
## Challenges

- Airspace
- Public Perception
- REP and Case Law
- COTS
- Low Light Camera

## Benefits

- SWAT
  - Pre Op Look
- Search and Arrest
  - Pre Planning
  - Rural Properties
- Surveillance
  - 400-800 Foot Instant Pole Cam

# Evidence





# Scene Documentation





# Evidence Gathering





# 2D & 3D Mapping

Mapping with 14 minute flight at 400ft



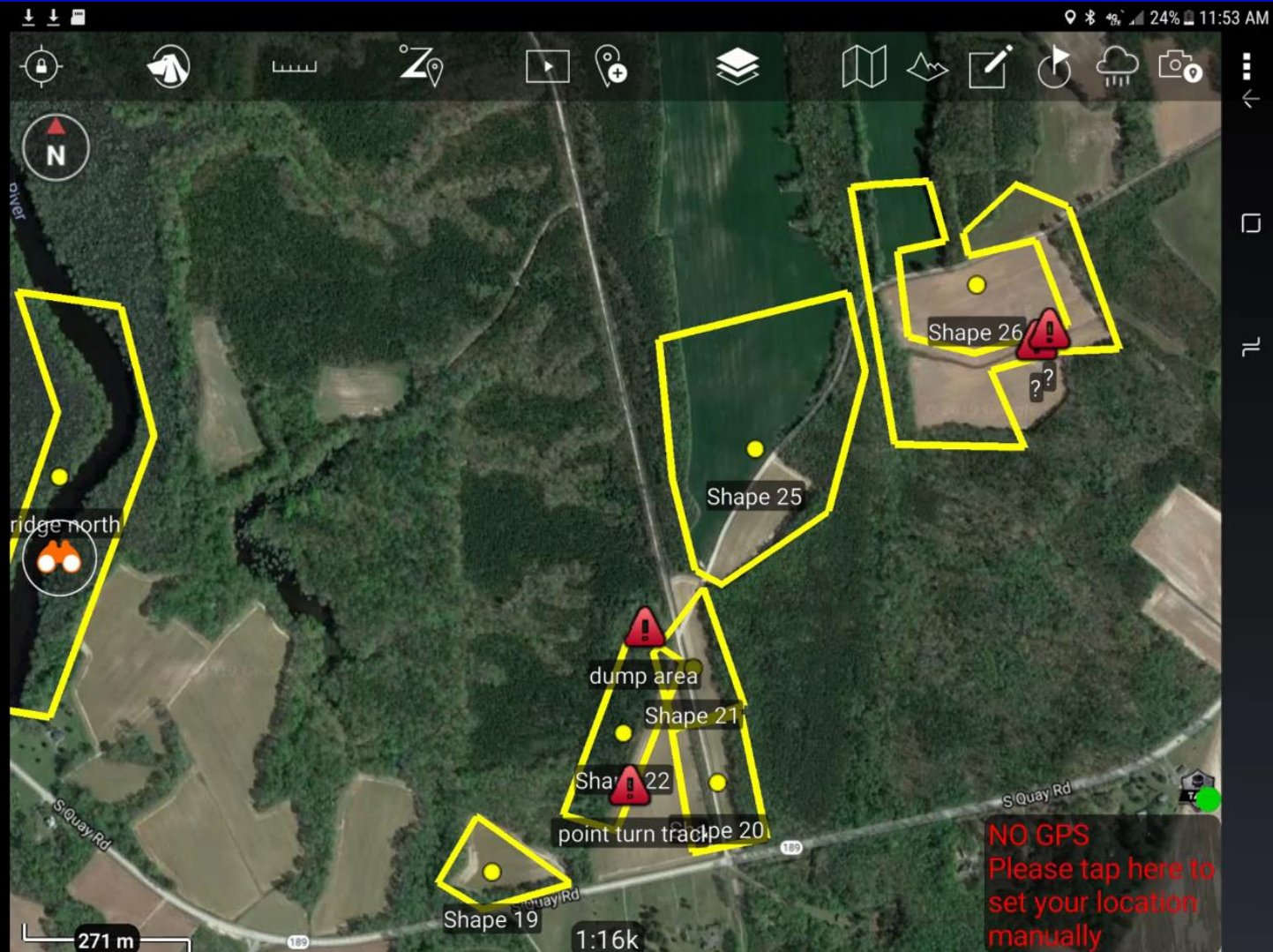




Profile #1



# Rural Searches





# Rural Searches



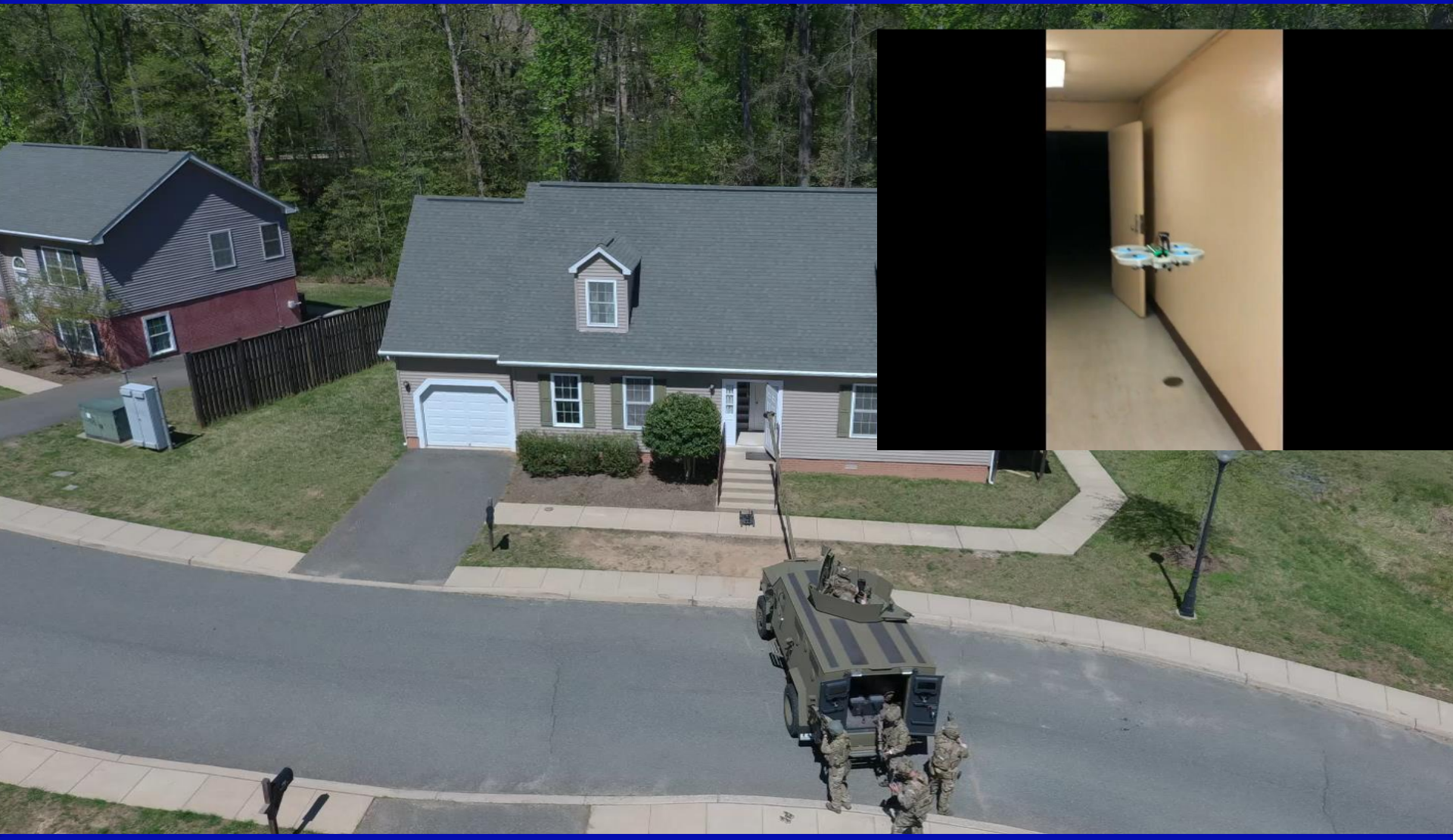


# Sky-tools “LOKI”



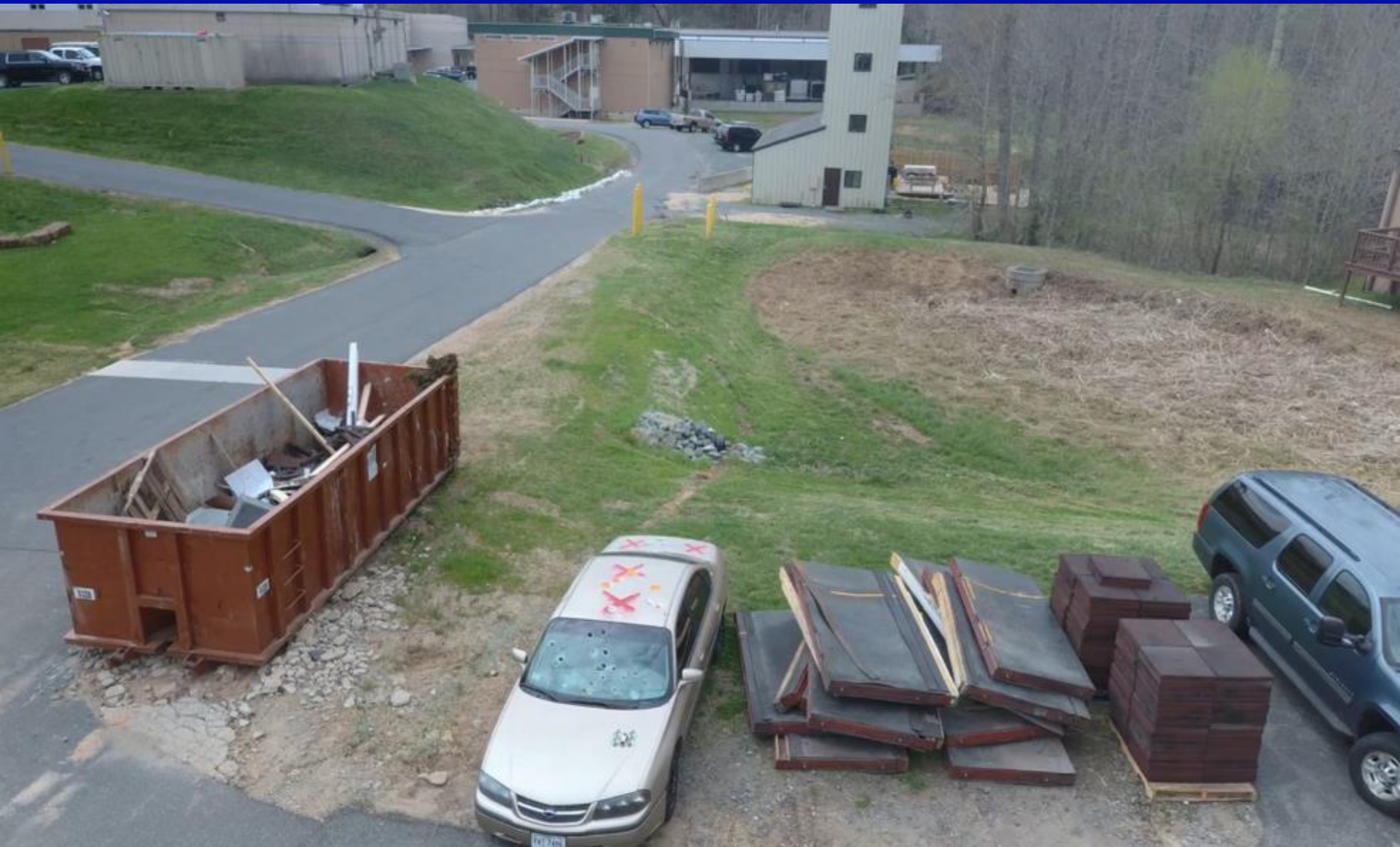
- RF Hobby Controller
- Purpose built for indoor operations. (Belgium DOD)
- 15 Minute Flight / Hour+ video
- Low-light camera
- GCS can operate 2 vehicles
- 3D printed Shell
- ”Turtle” capable
- Challenging to fly

# Sky-tools “LOKI”





# 1 Foot Wide Jagged Entry Point



# Sky-tools “LOKI”





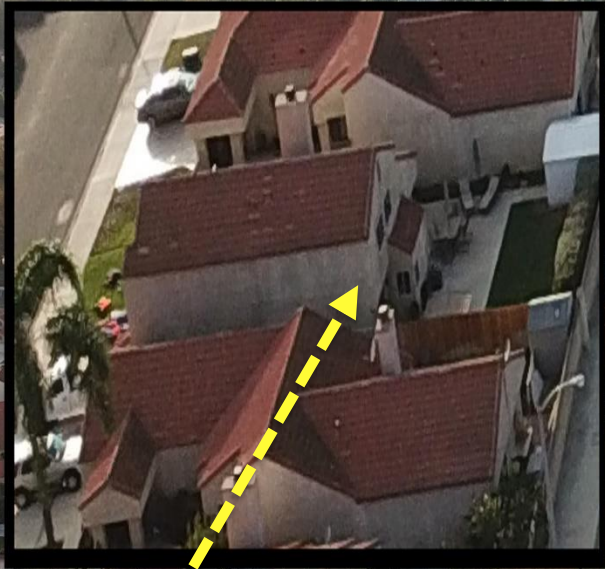
# Training Support

## Using sUAS to document training





# Observation

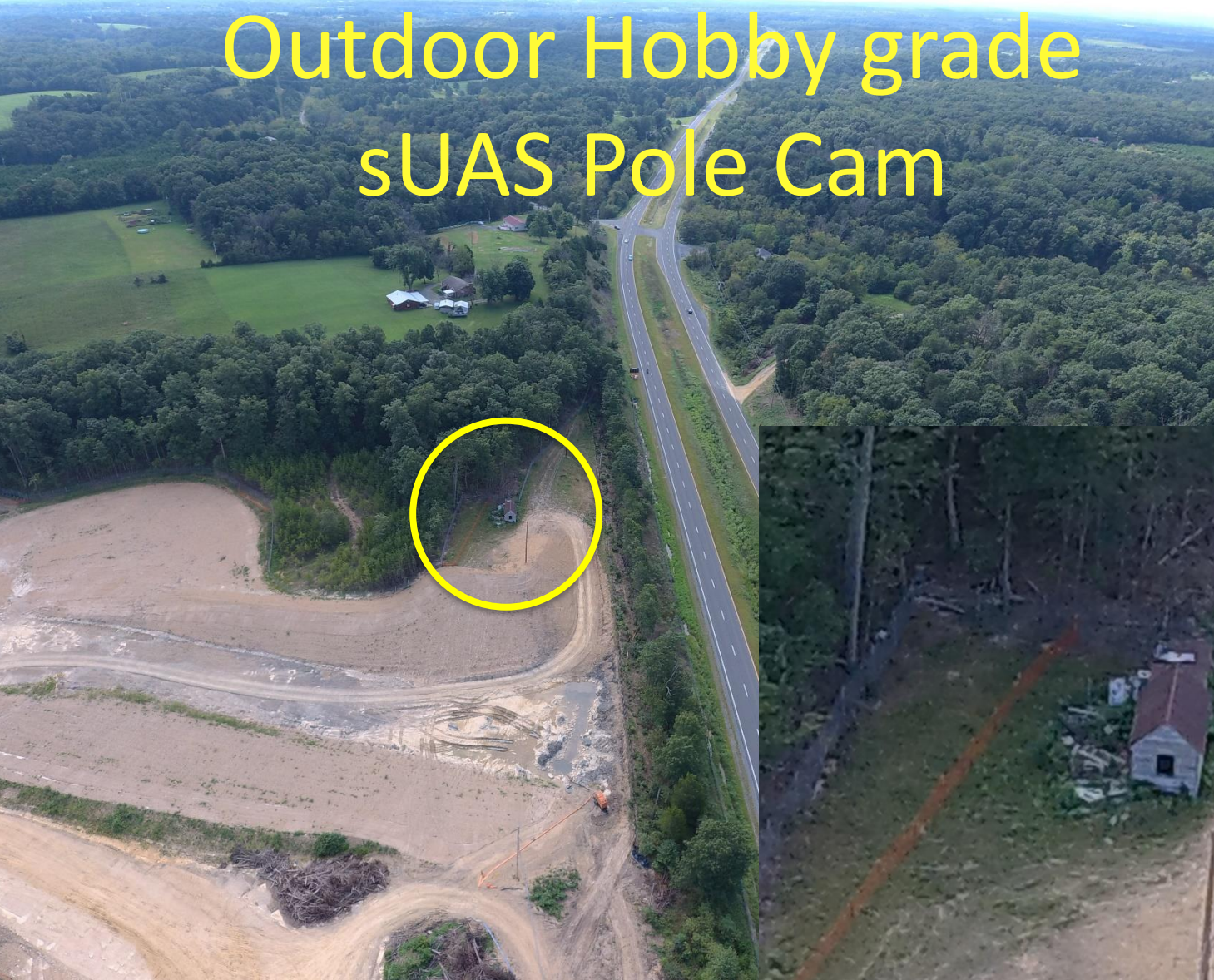


R.E.P ?





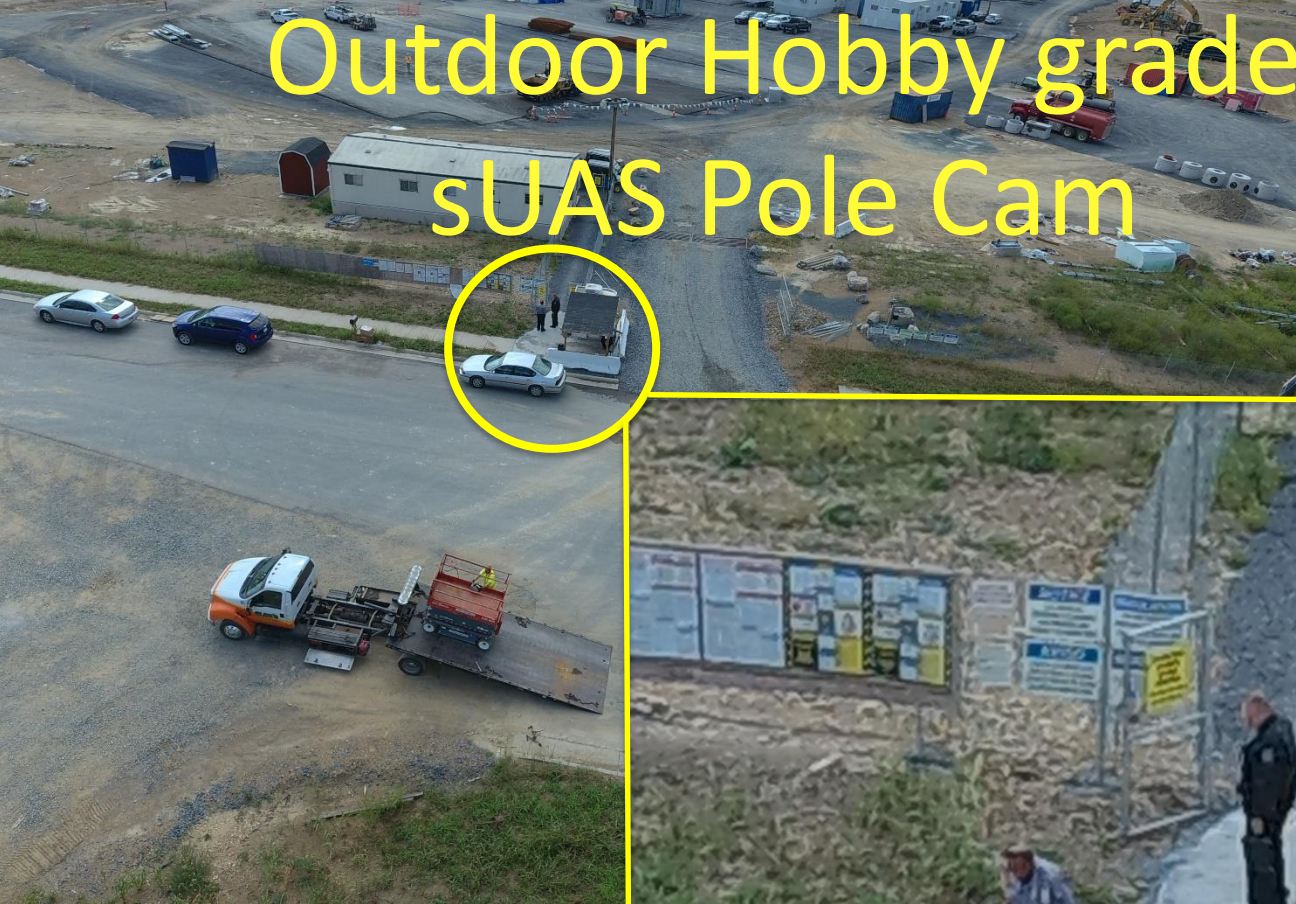
# Outdoor Hobby grade sUAS Pole Cam



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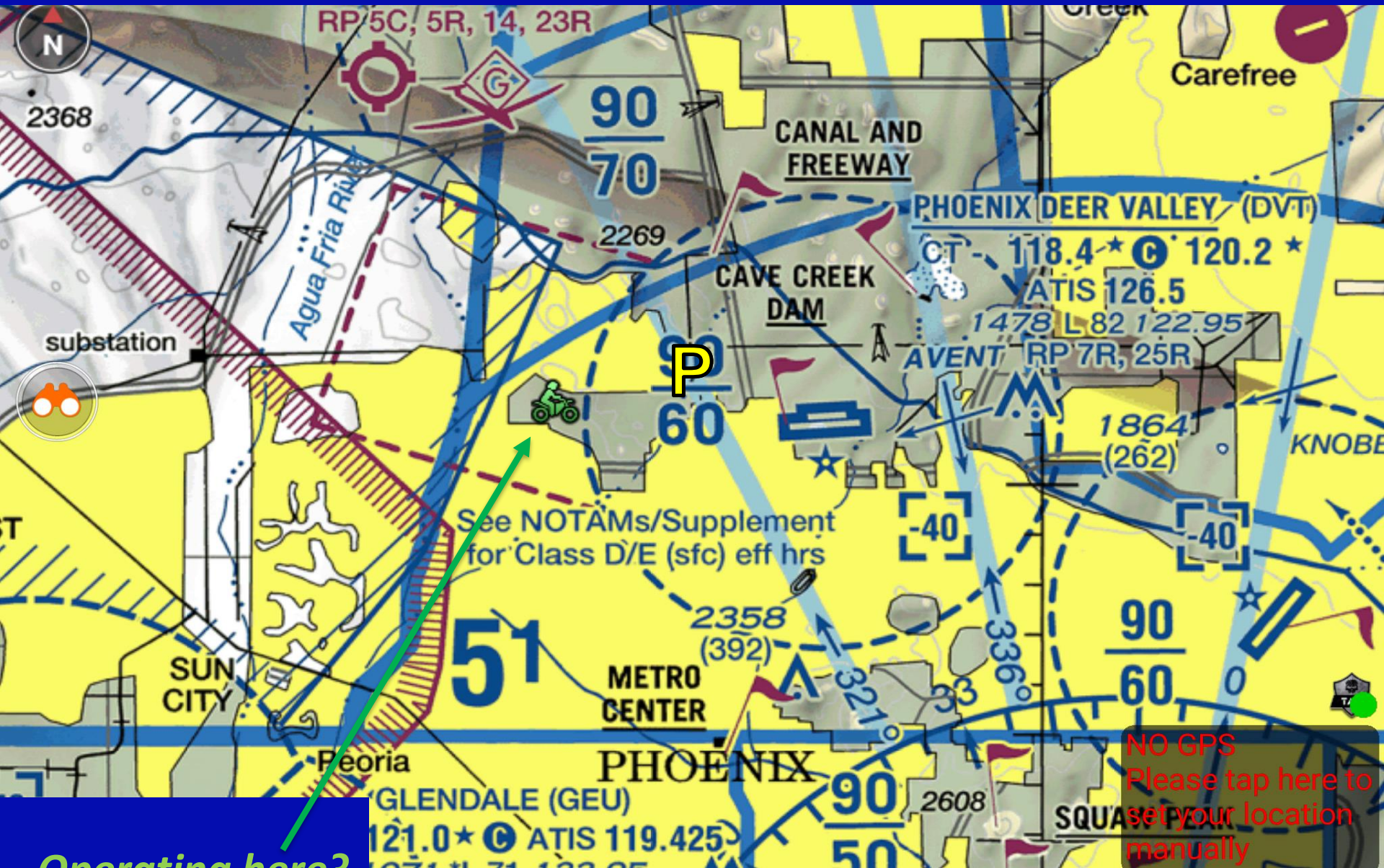
# Outdoor Hobby grade sUAS Pole Cam



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# FAA Compliance Challenge



# Mitigation & Acceptance



Small COTS will be damaged

Large UAS must be treated  
with respect





# sUAS Rotorcraft and Fixed Wing Platforms

CIRG SAS FFOU  
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