Drone Magix
from
Merlin Industries

TOPICS

- Introduction
- Applications
- Tool Kit
- Pre Flight-Set up
- Drone Flight
- Common Obstacles
- Submittion process
- Q&A

INTRODUCTION TO DRONE TECHNOLOGY

What Are Drones?

- Unmanned Aerial Vehicles (UAVs) equipped with cameras and sensors.

Originally used in military applications, now widely adopted in various industries.

Key advantage: Ability to capture aerial perspectives efficiently.

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WHY USE DRONE MAGIX FOR POOL MEASUREMENT?

- **Efficient:** The poolside setup for Merlin Drone Magix is quick with only 6 measurements needed to make a well-fitted safety cover. This means more measurements in a day!
- **Easy to Use:** Merlin Drone Magix requires only one good photo of the pool and provides step by step instructions for easy execution.
- **Saves Time & Money:** Photos can be taken with an existing safety cover on the pool. No need to pack & ship the cover to Merlin, saving you time & money!

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IDEAL POOLS

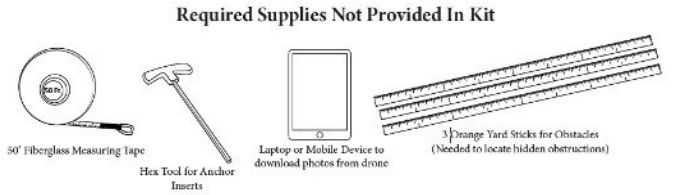
Ideal: Best for single plane shapes, ideal for freeform, covered pools(remakes), Anchor matching, basic raised spas.

Not Ideal: Grotto/caves, obscured deck level pool perimeter, multiple riser raised spa, vanishing edge.

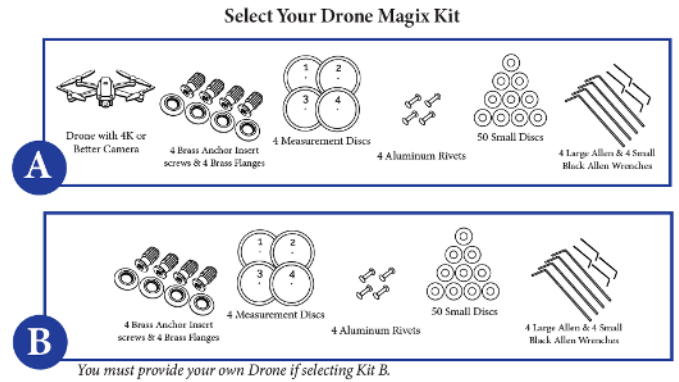
EQUIPMENT OVERVIEW

Drone:
Minimum specifications include 4K camera with high resolution 48MP, gimbal with 90-degree setting, and hovering capability (e.g., DJI Mini 3).

Your supplies:
100’ measuring tape, cell phone/tablet, 4 yardsticks, drone



Measurement Kit:
4 numbered measurement discs and brass anchor screws. 60 anchor markers, Hex tool for anchor inserts.



Software: DJI Fly app

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PREPARING FOR ON-SITE MEASURING

Calibrate the Drone in Office: Update firmware. Check GPS signal and camera alignment.
Prepare the Pool

Assess the Site: Verify no-fly zones or airspace restrictions. Check for obstacles (trees, power lines, etc.).

Pool Area: Plan on placing 4 numbered measurement discs in a clockwise orientation around the pool. Ensure a clear line of sight between discs.

Plan Your Flight Path: Map the pool area. Define key feature to capture, plan to take excess pictures of features and obstacles to best aid our design team.

AT THE JOB SITE
PRO TIPS FOR A COVERED POOL

1

Drone Magix can be used on pools with the safety cover in place.

2

Be sure that the cover is free of heavy debris or water. The cover needs to be as taut as possible.

3

You will be assembling and positioning 4 numbered discs to create a large rectangle that will encompass a majority of or the entire pool.

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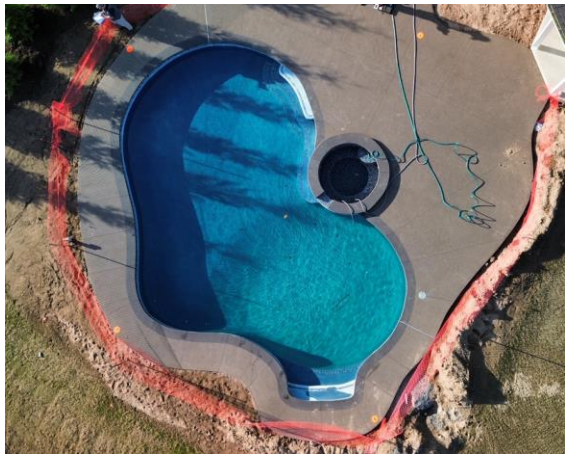
PREPARING THE JOB SITE

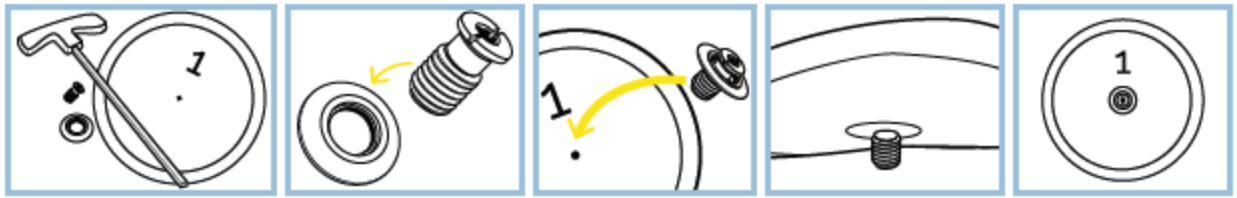
POOLS WITH

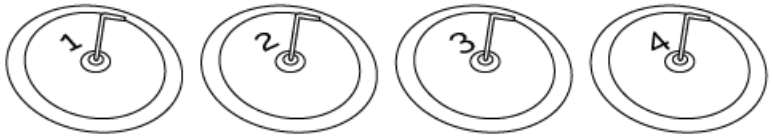
AND WITHOUT ANCHORS



Preparing the Jobsite for a Pool WITH Existing Anchors

Use the hex tool to assemble the four discs with the four brass anchor insert screws and the four anchor flanges shown below. Then follow the steps below. Note: There is no need to remove the anchor inserts if the small Allen wrenches fit the existing inserts.

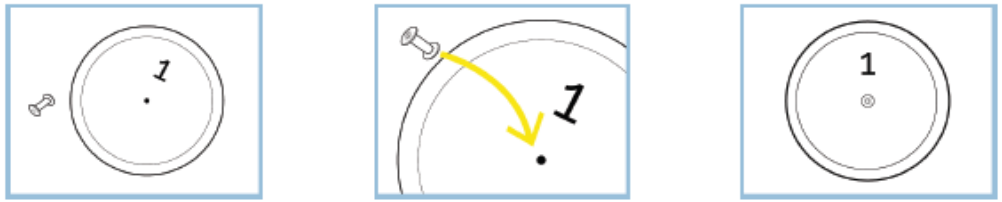




Preparing the Job Site for a Pool WITHOUT Existing Anchors

For this method, two people are needed. You will assemble the 4 discs with the aluminum rivets provided in your kit. *See image below.*

When you begin to measure, one person will stand at the first disc holding one end of the measuring tape while the other stands at the next disc with the other end of the measuring tape. Hold the tape in the center of each disc and follow the steps on Page 6.

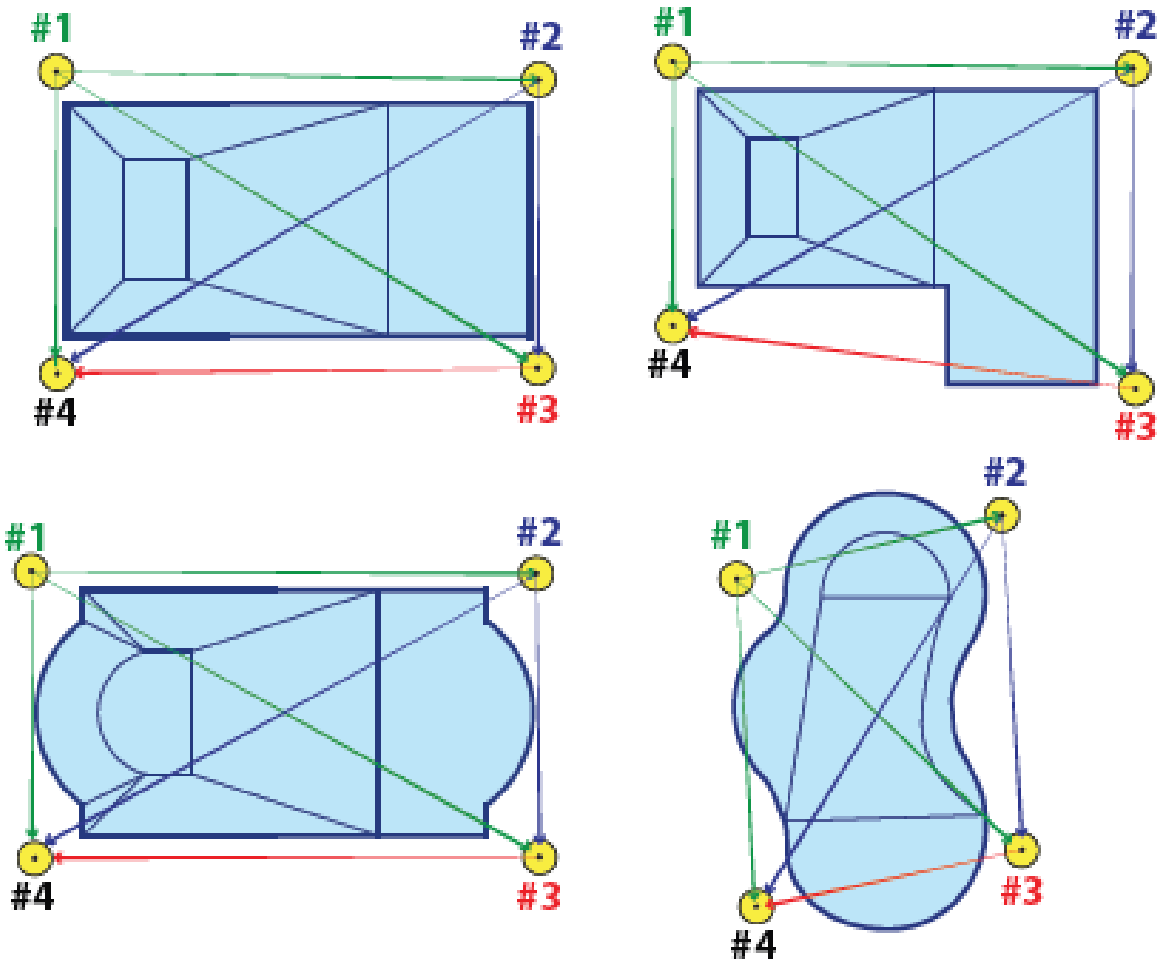


PLACING THE MEASURING DISCS TARGETS

Discs MUST be placed in a clockwise orientation.

Start with Disc #1 placed at the top left of the pool.

Place discs #2, #3 and #4 moving clockwise around the pool to complete the rectangle.



Pro Tip: Place markers on existing anchors **if replacement cover**

Merlin Drone Magix Measurement Form

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Take a photo of this completed form and along with your drone pictures in **JPEG format only**, send it to **The Merlin Drone Magix Portal**

Job Name:	Homeowner Address:

Date: PO#(if an order):

Process as: ☐ Order ☐ Quote

Dealer Information		
Dealer Name:		
City:	ST:	Zip:
Contact Name:		
Phone:		

Distributor Information		
Distributor Name:		
City:	ST:	Zip:

Shipping Instructions:

☐ Ship to Dealer ☐ Ship to Distributor ☐ Pick up at Merlin

Drop Ship Name:		
Drop Ship Address:		
City:	ST:	Zip:
Phone Number:		

Cross Dimensions

Discs **MUST** be placed in a clockwise orientation around the pool perimeter. Use the center of the disc as the start and end points for cross-dimensional measurements.

Step #1 - Disc #1 Starting Point	Distance	Re-check
Disc #1 to Disc #2		
Disc #1 to Disc #3		
Disc #1 to Disc #4		
Step #2 - Disc #2 Starting Point	**Distance**	**Re-check**
Disc #2 to Disc #3		
Disc #2 to Disc #4		
Step #3 - Disc #3 Starting Point	**Distance**	**Re-check**
Disc #3 to Disc #4		

Raised Spa or Obstacle Height: _____ ft. _____ in.

Material Type

☐ Dura-Mesh II
☐ Patented SmartMesh™
☐ Solid XLS ☐ with pump* ☐ with drain panel (additional charges apply)
☐ Pool Guard
☐ Classic Mesh Green Economy Cover

Material Color

☐ Black* ☐ Green ☐ Blue
☐ Tan ☐ Gray
*Black color only available for Dura-Mesh II and SmartMesh.

Kaleidoscapes! Material

☐ Indicate color(s) Below (Check Brochure)

Please choose Pump* or Drain Panel for Kaleidoscapes! Below:

☐ Pump* ☐ Drain Panel
*Additional Charges For Pump Apply.

☐ Pool Guard Kaleidoscapes!
Color _____
☐ Send Pool Guard Without Pump**
**Pool Guard covers must have pump installed in order to meet ASTM Safety Standards.

Spacing

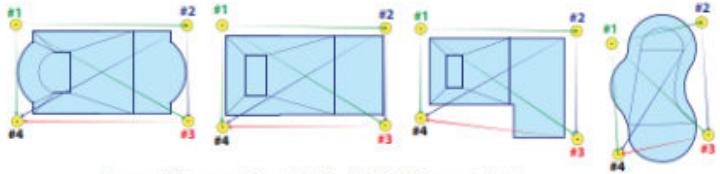
☐ 3x3 ☐ 5x5

Overlap

☐ 12" ☐ 18" ☐ Other_____

Treatment and Hardware

☐ Cable ☐ Up & Over
☐ Tubes ☐ Entire Pool ☐ Or Qty_____



Drone Pictures Must Be in JPEG Format Only.

Notes:

PRE-FLIGHT ANALYSIS

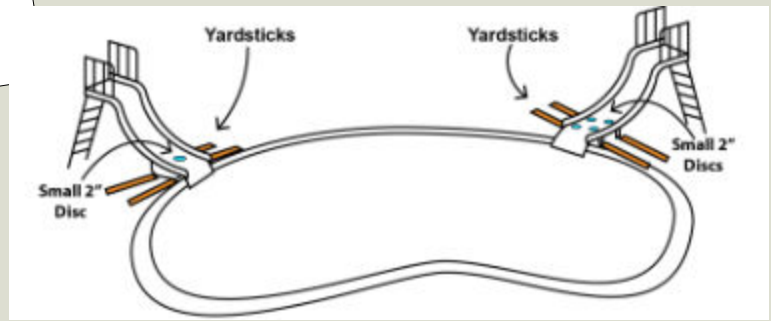
1

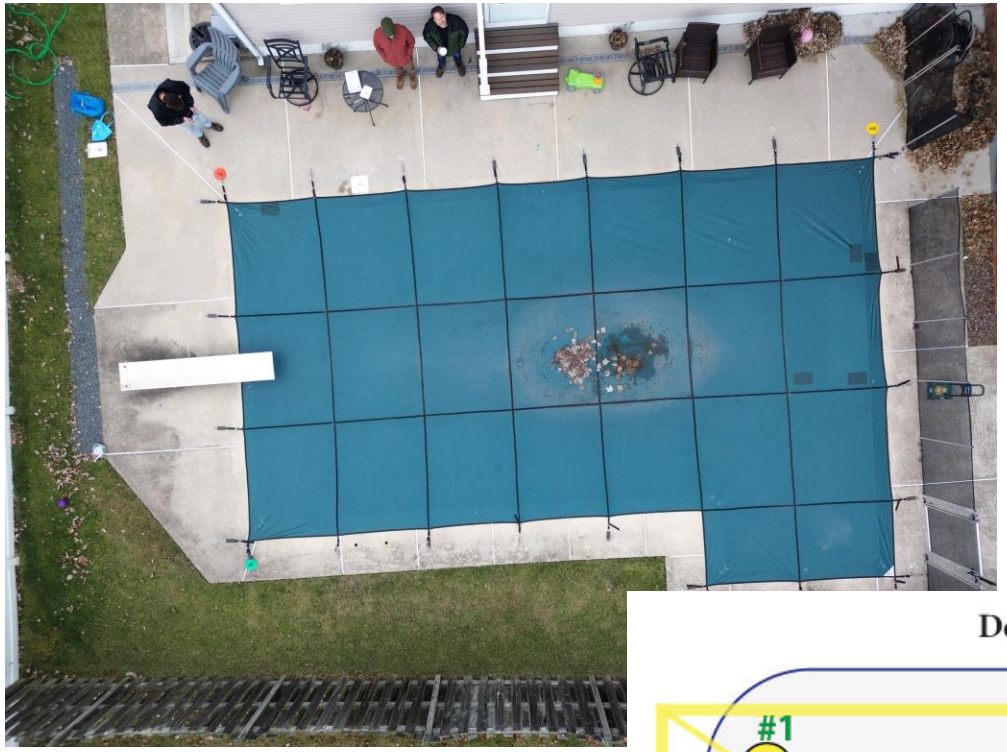
Fill out contact information on Drone Magix measuring form.

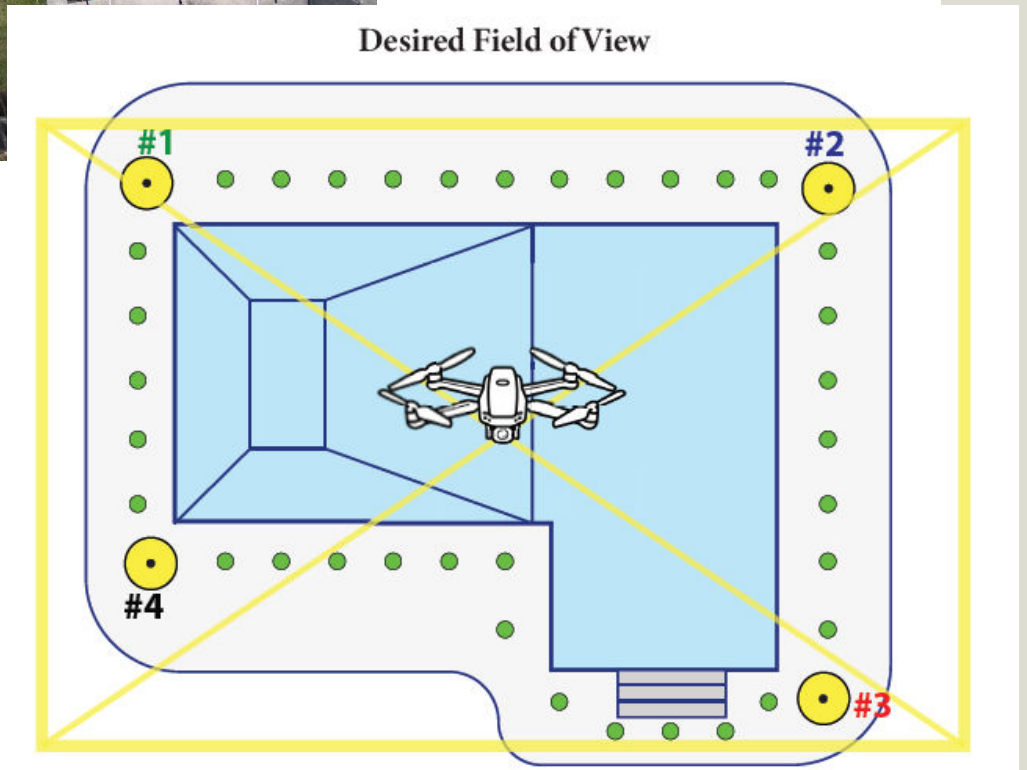
2

Record six cross-dimension measurements using the Merlin Drone measuring form.

Pro Tip: Use yardsticks blue targets to highlight hidden obstacles in drone photos for accurate dimensioning.







TIME TO TAKE FLIGHT

Launch the Drone: Start from a safe, clear area.

Capture Images: Take pictures of the whole pool including the numbered and anchor markers. Avoid direct sunlight and adjust gimbal to from 80˚-90˚ degrees to capture the exact edge of pool.

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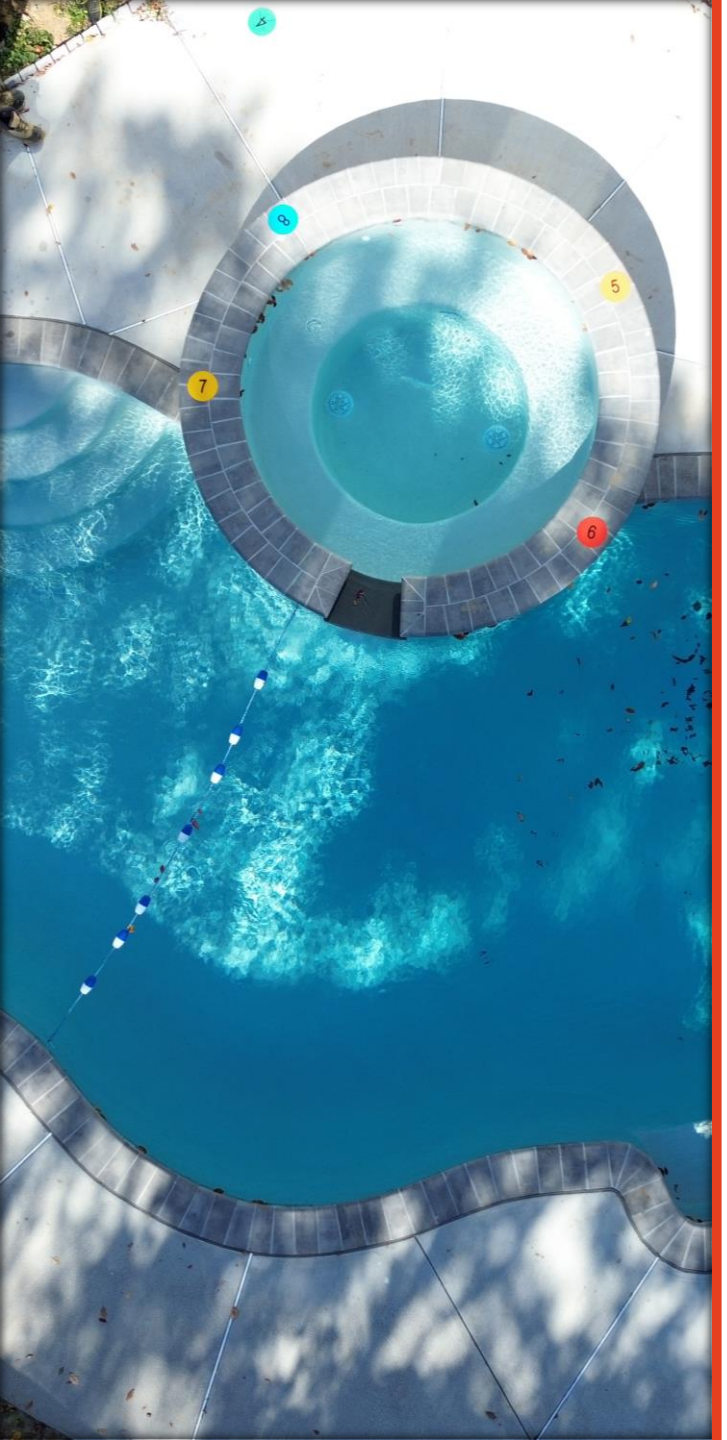
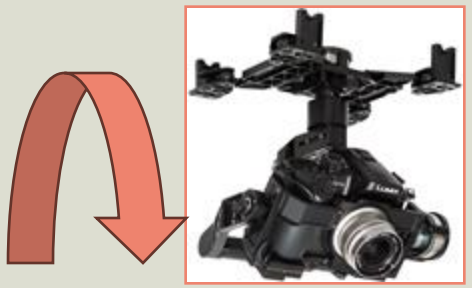


WHEN TO TAKE AN ANGLED PHOTO

- Raised walls, raised spas, obstructions that hit the exact pool perimeter
- Try to stay between 80˚- 90˚ control using gimbal

80˚-90˚



RESTRICTED FLY ZONES

Geo Zones are fences in the sky near airports, military, government buildings

5 kinds of zones

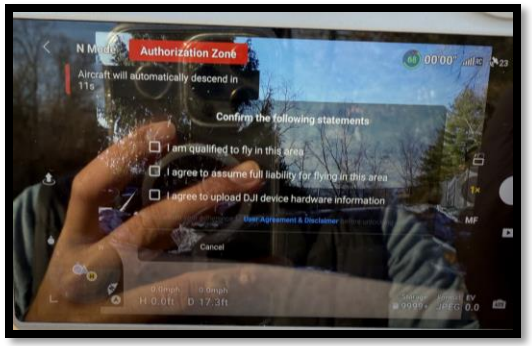
Restricted – authorization needed

Altitude – Altitude is limited

Authorization – pilot is prompted limited flight

Warning – pilot prompted with warning

Enhanced – pilot prompted but not background check needed



- Create DJI account, go to DJI Flysafe
  - Go to unlock zone
    - Unlock request
    - Custom unlocking or zone unlocking
    - Add drone model/SN
    - Choose location where you are flying
    - Download unlocking license
    - At job connect device to Wi-Fi and upload license

OPTIMAL PHOTOS

- Using the drone app, set drone camera to 48MPs
- Automatic mode optimizes this for you.
- Merlin needs a picture where we can clearly see the coping.
- Only fly high enough to capture discs & pool perimeter/anchors.

COMMON CHALLENGES AND SOLUTIONS

Challenge: Poor image quality due to lighting.

- **Solution:** Avoid midday sun; fly during early morning or late afternoon or adjust camera settings.

Challenge: GPS signal loss.

- **Solution:** Choose open areas and ensure firmware is updated.

Challenge: Raised spa/stone features.

- **Solution:** Rotate camera angle no less than 80 degrees.

Challenge: Obstacles interfering with flight.

- **Solution:** Conduct a thorough site assessment beforehand.

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SUBMISSION PROCESS

1

Download drone images and measurement data.

2

Submit via email:
Use the Drone Magix Portal to submit your orders

(a link is provided on the Merlin website)

3

Receive a quote and finalize your order with Merlin Industries.