



■ GOLF COURSE MAPPING · CASE STUDY

COURSE INTELLIGENCE REPORT

High-resolution drone mapping of a 31.69-acre golf course —
turf health, drainage performance, and feature inventory
captured in a single coordinated flight.

● PLATFORM · DJI Matrice 4E

● RTK FIXED

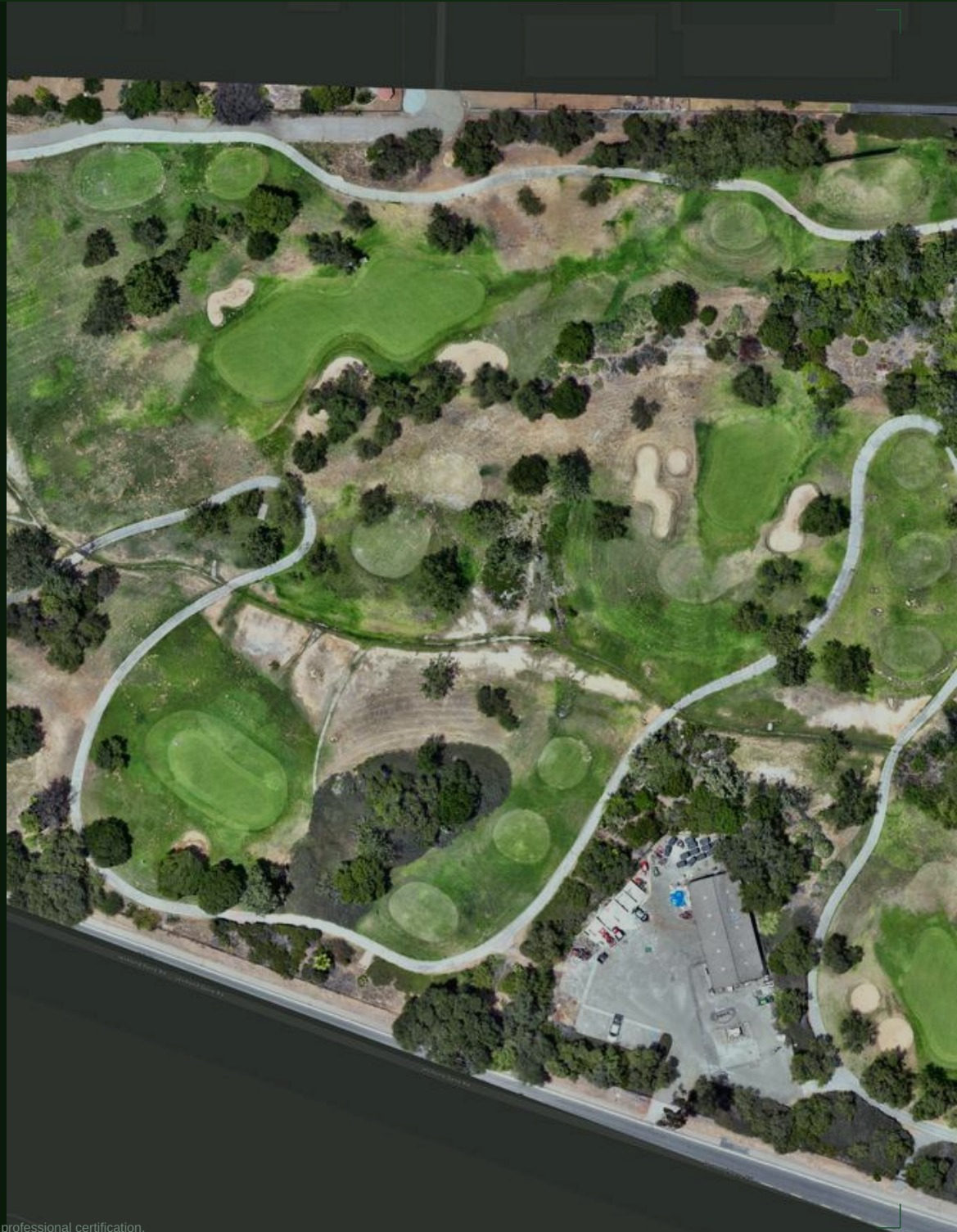
● GSD · 1.8 CM/PX

● COVERAGE · 31.69 AC

DRONE MAPPING & GEOSPATIAL ANALYSIS · SOUTHERN CALIFORNIA

FILE / AA-CS-001

For planning and due diligence purposes only. Does not substitute for a licensed land survey, engineering assessment, or professional certification.



EXECUTIVE SUMMARY

SITE INTELLIGENCE OVERVIEW

Prepared from mission data, quality metrics, and site observations.

EXECUTIVE SUMMARY

Executive Summary

Reidy Creek Golf Course – Aerial Mapping & Site Documentation Prepared by Aerial Atomics Date: June 11, 2026

Aerial Atomics completed a comprehensive aerial mapping and site documentation mission of Reidy Creek Golf Course utilizing high-resolution drone imagery and photogrammetric processing techniques. The project produced a current visual record of site conditions through the creation of an orthomosaic, Digital Surface Model (DSM), elevation products, and vegetation analysis datasets.

The survey covered approximately 31.7 acres (0.128 km²) and was captured using 759 aerial images with a final average resolution of 1.8 cm per pixel, allowing for detailed observation of golf course features, cart paths, drainage corridors, vegetation conditions, greens, fairways, bunkers, and surrounding infrastructure. Processing successfully reconstructed 100% of captured imagery and generated a dense point cloud exceeding 42 million points, providing a highly detailed representation of existing site conditions.

KEY FINDINGS

1

High-resolution aerial survey completed across approximately 31.7 acres of the golf course.

2

Orthomosaic provides a current visual record of fairways, greens, bunkers, cart paths, vegetation, and supporting infrastructure.

3

Digital Surface Model identified terrain variation and drainage corridors throughout the property.

4

Several low-lying areas and drainage flow paths were visible and can be monitored for future stormwater management.

5

Vegetation analysis revealed noticeable variation in turf density and vegetation health across different portions of the course.

MISSION AT A GLANCE

31.69 ac

SITE AREA

1.8 cm/px

RESOLUTION

759

IMAGES

RTK Fixed

POSITIONING

42.9M

POINT CLOUD

SECTION 01 · MISSION BRIEF

PROJECT BRIEF

A single UAV mission documented the full course — fairways, greens, bunkers, cart paths, and irrigation — as a measurable, georeferenced baseline for turf management and maintenance planning.

PREPARED BY

AERIAL ATOMICS

Curtis Emmanuel
Director of Aerial Intelligence

- RTK FIXED
- CENTIMETER RESOLUTION

MISSION SCOPE

LOCATION

Escondido

DATE

2026-06-11

COVERAGE

31.69 acres

EQUIPMENT · HW

- DJI Matrice 4E
- RTK Fixed
- Mechanical-shutter camera

FLIGHT PARAMETERS · OPS

- Front overlap 85%
- Side overlap 85%
- Fixed altitude
- Altitude 213.0 ft AGL

DELIVERABLES PRODUCED · OUT

- 1.8 cm/px orthomosaic
- Digital Surface Model (DSM)
- Dense point cloud (42.9M pts)
- Turf condition layer
- Condition analysis report
- Drainage analysis layer
- Interactive GIS web map
- PDF assessment report

■ FIG. 01 · ORTHOMOSAIC

SURVEY FOOTPRINT

The full property was reconstructed from 759 images into a seamless 1.8 cm/pixel orthomosaic — one georeferenced base layer for every measurement and condition call.

TOTAL AREA

31.69 ac

IMAGES

759 shots

AVG GSD

1.8 cm/px

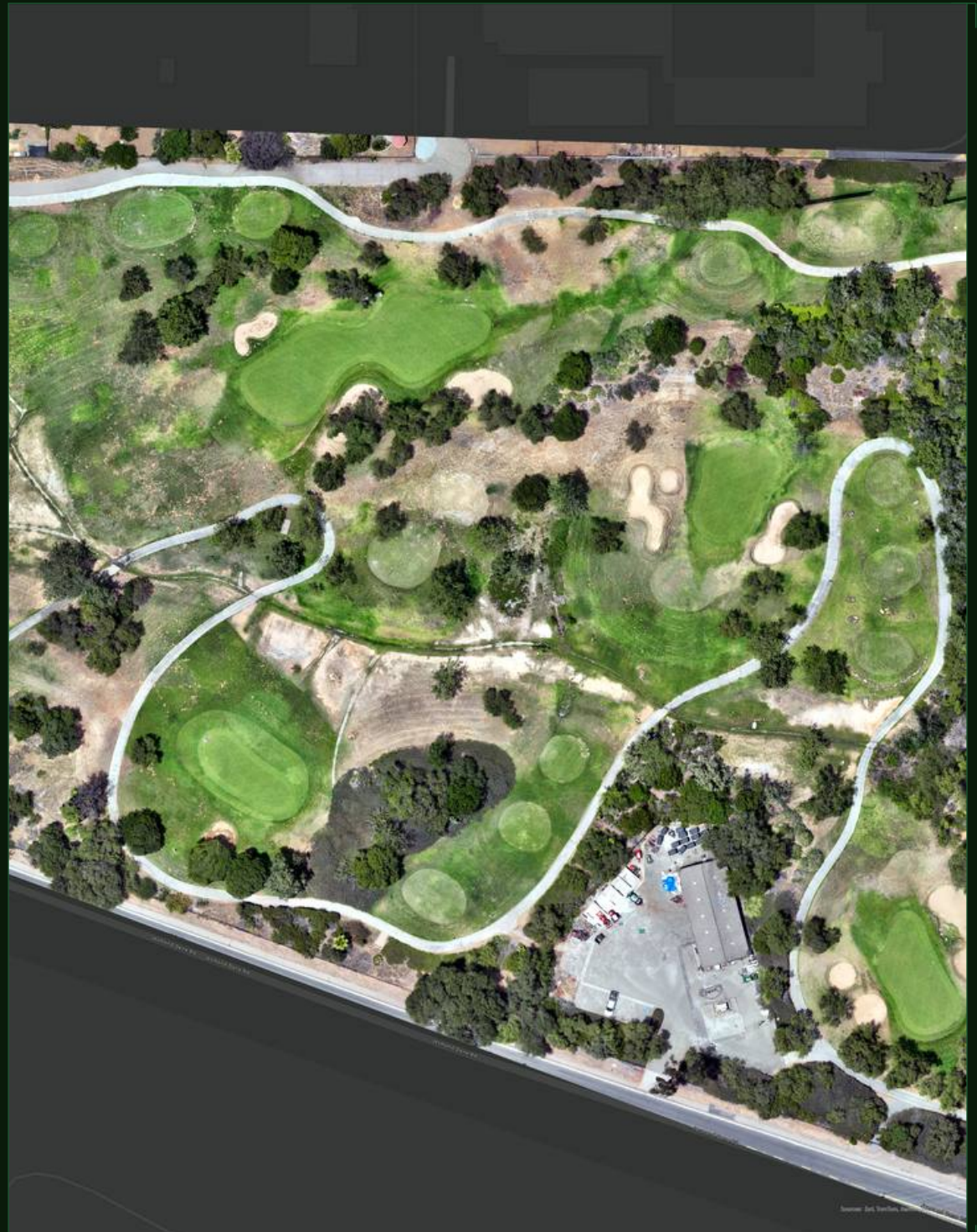
ELEV. RELIEF

26.9 m

REPROJ. ERR

1.14 px

POINT CLOUD

42.9M pts

SECTION 02 · QUALITY ASSURANCE

DATA QUALITY & ACCURACY

The photogrammetric report confirms centimeter-grade RTK Fixed positional control and reliable image alignment — the basis for confident measurement and condition interpretation.

RECONSTRUCTION READOUT	QA / GEOREF
GPS RMS ERROR ✓ WITHIN TOLERANCE	0.9 cm
ABSOLUTE HORIZONTAL · CE90 ✓ WITHIN TOLERANCE	1.0 cm
ABSOLUTE VERTICAL · LE90 ✓ WITHIN TOLERANCE	1.2 cm
REPROJECTION ERROR ✓ WITHIN TOLERANCE	1.14 px
SPARSE RECONSTRUCTION RATE ✓ WITHIN TOLERANCE	97.1 %

INTERPRETATION
- Centimeter-grade RTK Fixed accuracy - Excellent image alignment - Reliable orthomosaic generation - High confidence in observations

RTK FIXED CLASS
Sub-5 cm horizontal/vertical confidence

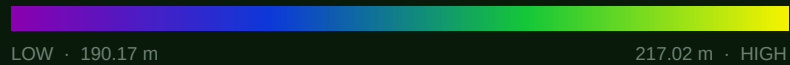
POSITIONAL ACCURACY REFERENCE · PLAIN LANGUAGE			
METRIC	WHAT IT MEASURES	THIS PROJECT	INTERPRETATION
GPS RMS Error	Overall 3D position accuracy	0.9 cm	Absolute position of each pixel
CE90 Horizontal	90% of points within X cm horiz.	1.0 cm	Horizontal measurement confidence
LE90 Vertical	90% of points within X cm vert.	1.2 cm	Elevation surface reliability
Reprojection Err	Image-to-model alignment quality	1.14 px	Lower is sharper orthomosaic

■ FIG. 02 · ELEVATION

DIGITAL SURFACE MODEL

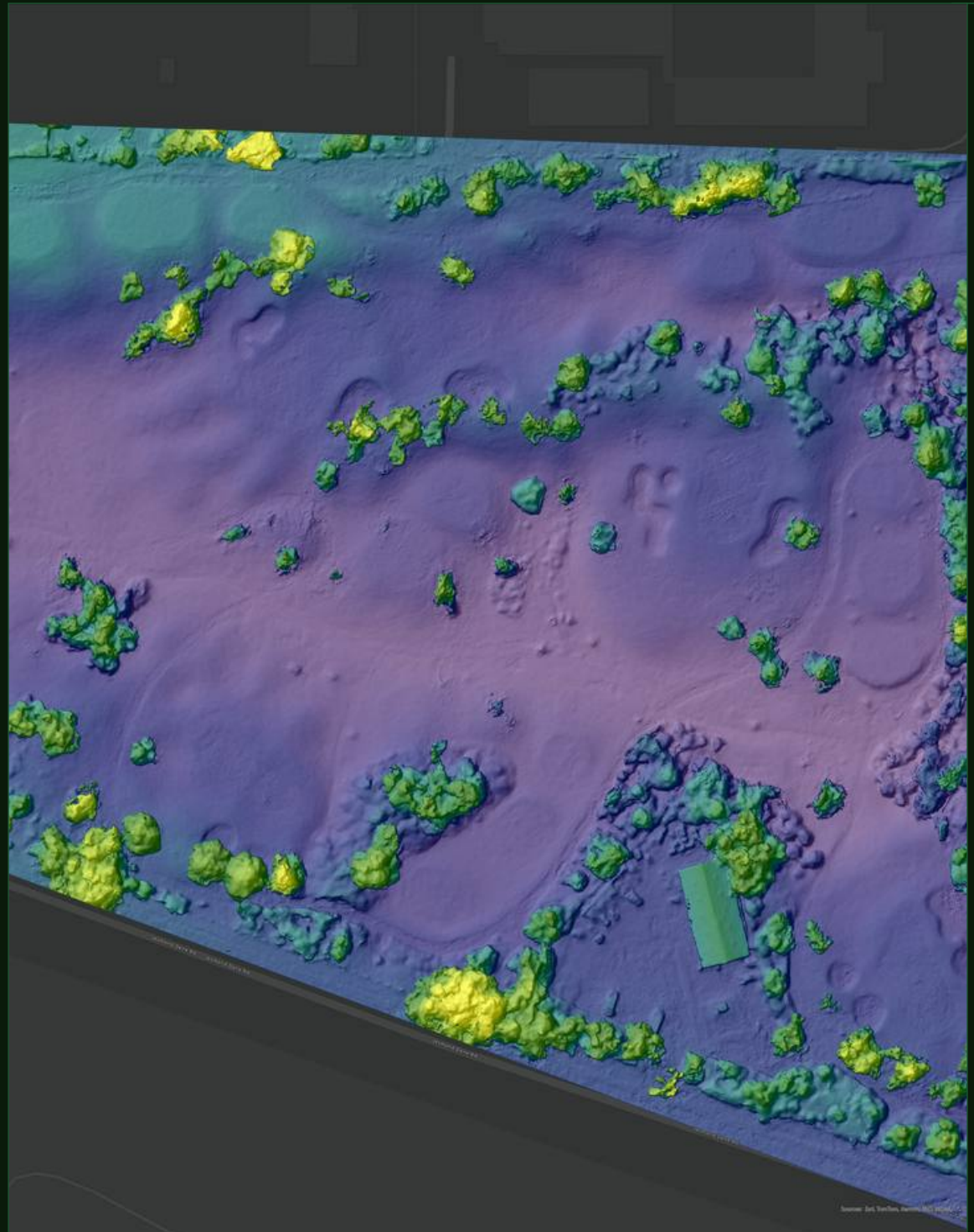
The DSM records the elevation of every feature — structures, vegetation, and terrain — across the 31.69-acre footprint.

RELATIVE ELEVATION



KEY INSIGHTS

- Identifies high and low points across the property
- Highlights drainage patterns and ponding-prone areas
- Visualizes structure and vegetation height
- Supports grading and stormwater analysis



SECTION 03 · TURF & FEATURES

TURF & FEATURE ANALYSIS

At 1.8 cm/pixel, surface conditions, wear patterns, and drainage indicators are clearly resolved across the entire site footprint.

OBSERVED INDICATORS

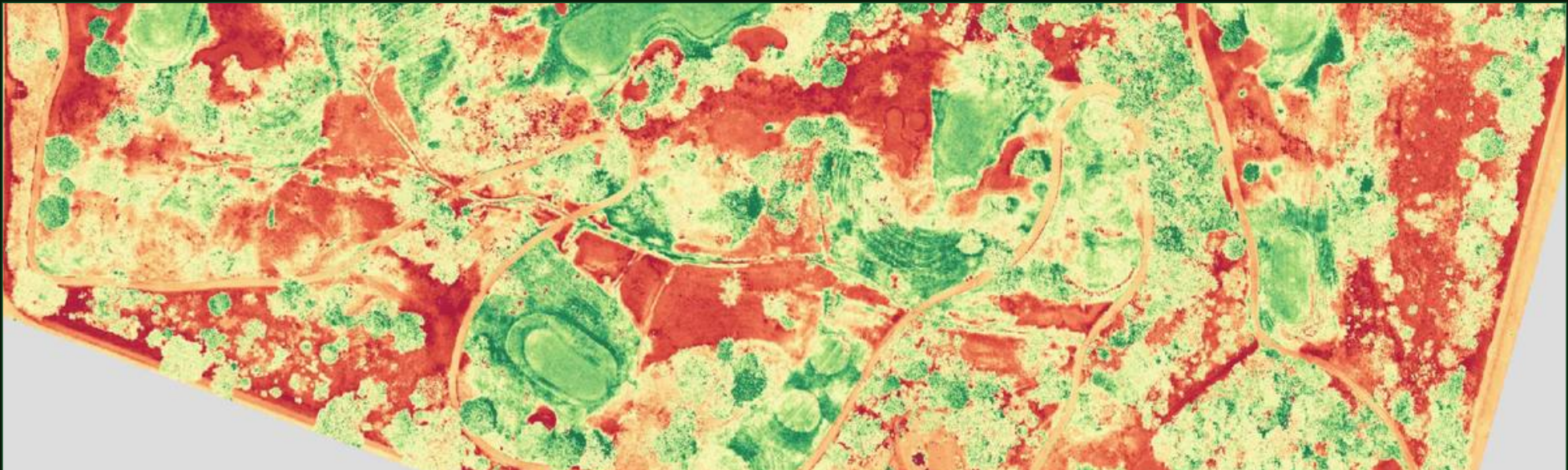
- Stress / discoloration visible
- Bare or thin areas
- Uniform healthy coverage
- Overseeding zones visible

OWNER VALUE

- Prioritize areas needing attention
- Quantify area for contractor bids
- Track condition over time
- Document for insurance / records

STAKEHOLDER VALUE

- Build accurate proposals remotely
- Reduce on-site time & risk
- Support capital planning
- Improve documentation quality



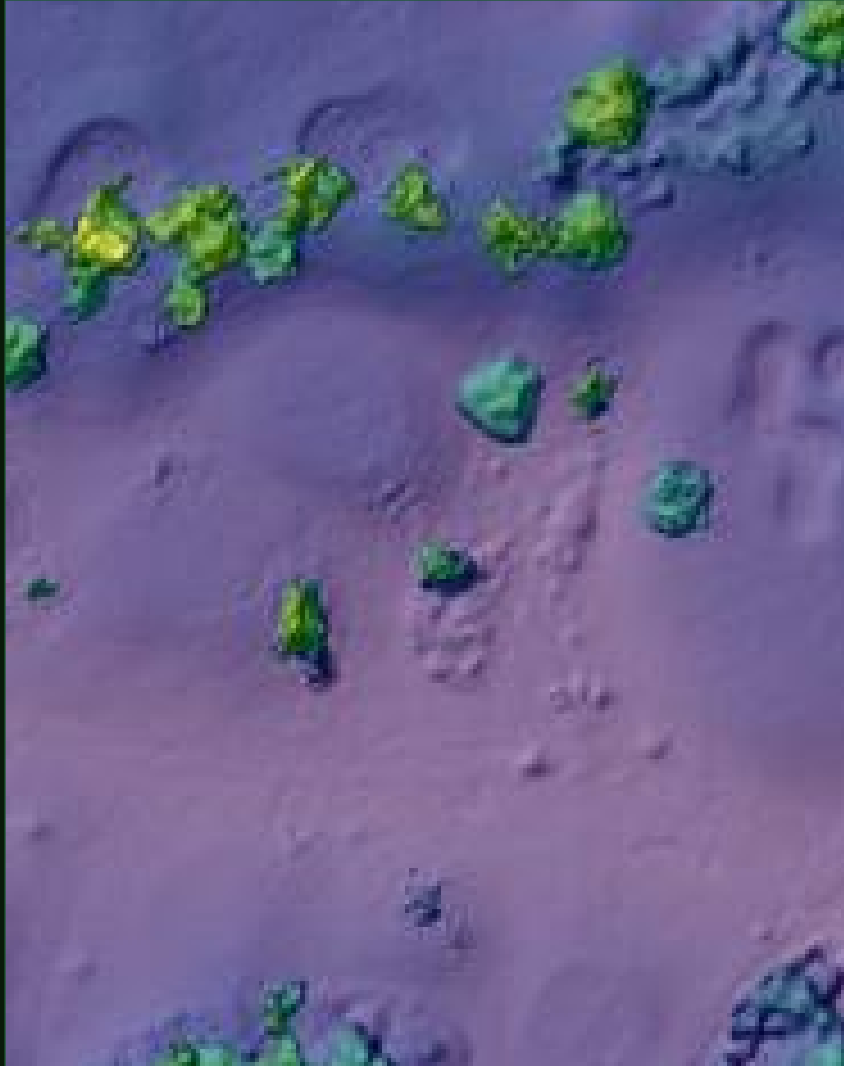
TURF STRESS / DISCOLORATION

SCOPE NOTE — All observations are derived from aerial imagery and constitute visual indicators only. This report does not constitute a structural inspection, engineering assessment, or certified condition report.

■ SECTION 04 · DRAINAGE & INFRASTRUCTURE

SITE SURFACES & DRAINAGE

The DSM converts surface form into actionable drainage and condition analysis — pairing what the orthomosaic shows with where water actually moves.



SWALE / DRAINAGE CORRIDOR

SURFACE CONDITIONS

- Fairway low spots / ponding
- Swale performance
- Bunker drainage issues
- Wet areas / saturation

DRAINAGE VALUE

- Plan grading & swales
- Locate ponding areas
- Reduce flood risk
- Support permitting

ADDITIONAL FINDINGS

- Tree encroachment on fairways
- Rough vegetation density
- Native area containment
- Weed pressure

BENEFICIARIES

- Property owners
- Engineers & planners
- Maintenance teams
- Insurance / legal

SECTION 05 · OUTPUT PACKAGE

DELIVERABLES & APPLICATIONS

Every engagement produces a GIS-ready dataset that drops directly into maintenance systems, engineering workflows, and budgeting models — no specialized software required to view it.

CORE DELIVERABLES

- Orthomosaic (GeoTIFF)
- Digital Surface Model (DSM)
- Condition assessment report
- Site surface documentation
- Interactive GIS web map
- Area & distance measurements

DELIVERY FORMATS

- Cloud-optimized GeoTIFF
- DSM raster (GeoTIFF)
- Point cloud LAS / LAZ
- Hosted ArcGIS Online map
- PDF condition report

COMMON APPLICATIONS

- Condition inspections
- Capital planning & budgeting
- Drainage & grading evaluation
- Insurance condition records
- Monitoring & change detection

STAKEHOLDER BENEFITS

- | | | |
|---|---|---|
| ● Detect missing or damaged surface areas | ● Identify standing water / poor drainage | ● Measure area for contractor bids |
| ● Document pre-existing conditions | ● Reduce risky manual site access | ● Integrate into existing GIS & CMMS |
| ● Support capital planning & budgeting | ● Enable repeatable change detection | ● Build accurate proposals without site visit |
| ● Reduce manual inspection exposure | ● Deliver reports within 48–72 hours | ● Establish measurable condition baseline |

INTERACTIVE MAP



SCAN TO OPEN MAP

MAP URL

<https://palomar.maps.arcgis.com/apps/mapviewer/index.htm>

PROFESSIONAL DISCLOSURE

This report is produced from aerial photogrammetric data and is intended for planning, due diligence, and asset management purposes only. It does not constitute or substitute for a licensed land survey, boundary determination, structural engineering assessment, environmental report, or any professional certification required by law. All measurements, elevations, and visual observations are derived from aerial imagery and are subject to the accuracy specifications stated in the Quality Assurance section of this report. Aerial Atomics LLC is not a licensed land surveyor or professional engineer. Consult a licensed professional for any regulatory, legal, or engineering application.

SECTION 06 · WHY IT WORKS

OPERATIONAL ADVANTAGES

01

CENTIMETER PRECISION

Centimeter-resolution data for confident condition calls.

02

REPEATABLE MISSIONS

Future flights compare against the same baseline.

03

FULL-SITE COVERAGE

One mission documents large sites efficiently.

04

SIMPLE DELIVERY

PDF reports and web maps — no special software needed.

TRADITIONAL INSPECTION VS AERIAL INTELLIGENCE

METHOD

DIMENSION

TRADITIONAL MANUAL INSPECTION

AERIAL ATOMICS MAPPING

FIELD TIME

Multi-day, crew on site

Single coordinated flight

COVERAGE

Sampled / spot checks

Continuous 31.69-acre dataset

RECORD

Notes & loose photos

Georeferenced, measurable layers

SAFETY

Ladder & roof exposure

No manual access required

RE-SURVEY

Restart from scratch

Repeat against same baseline

DELIVERABLES

Written report, loose photos

GIS dataset + interactive web map

TURNAROUND

Days to weeks for report

48–72 hour standard delivery



AERIAL ATOMICS

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FAA PART 107 CERTIFIED



INSURED