

Australian Unmanned Systems Academy

Scenario 5 – Kilcoy Golf Club

Due Date 30/07/2021 Date Submitted 23/07/2021

Student Name Your Name School Your School

Mission Objectives:-

The customer requires a topographical map of the entire Kilcoy Golf Club.

The golf club is located at -26.93760176, 152.5576731

The Golf Club has requested a topographical map of a section of the golf course, as they are planning to remodel that part of the course. (Please see Figure 1)

Required Outcomes:-

- Determine the viability of the mission.
- Plan and detail the mission, and prepare a detailed mission briefing for the company Chief Pilot

A layout of the relevant section of the Kilcoy Golf Club is shown in Figure 1

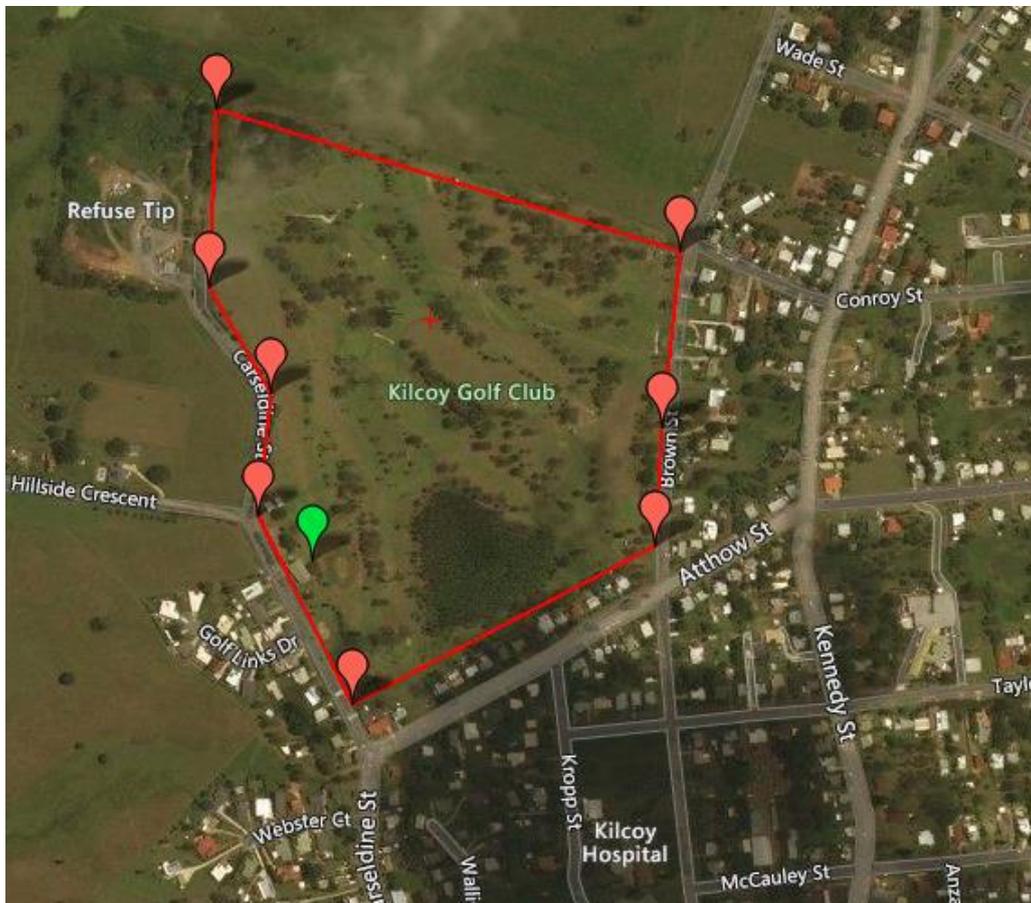


Figure 1 Section of the Kilcoy Golf Course

Mission Brief:-

The following flight plan has been developed for the mission in order to satisfy both CASA regulations and the customer requirements.



Figure 2 Proposed Flight Path

Area:	221,855.27 m ²	Pictures:	209	Flight Time (est):	12:60 min	Min Shutter Speed:	1/1668
Distance:	7.8 km	No of Strips:	17	Photo every (est):	2.39 s		
Dist between images:	30 m	Footprint:	90.3 x 59.9 m	Turn Dia (at 45d):	46 m		
Ground Resolution:	1.50 cm	Dist between lines:	36.1 m	Ground Elevation:	115-150 m		

Figure 3 Mission Details

To achieve the required ground resolution of 1.5 cm/pixel the mission will be flown at a height of 252ft AGL.

Referring to the Brisbane VTC it is seen that Kilcoy airfield (YKCY) is located **2.2NM** from the golf course on a bearing of 157° Magnetic. ERSA shows YKCY is a **non-towered airfield**, the CTAF being 126.7.

In order for this mission to proceed contact will need to be made with the airfield operator, South East Queensland Sport Aircraft Club, and Air Services Brisbane. As this mission is planned for 252ft AGL, which is below the nominal 400ft AGL limitation for an RePL licence, and has an endurance of approximately 15 minutes, with permission this mission should proceed.

In order to limit the distance the aircraft will travel away from the ground control station (GCS), and being mindful of the one visual line of sight distance requirement, it has been decided to locate the GCS in the centre of the golf course, in the vicinity of the red '+' in the centre of Figure 2. The furthest the aircraft will travel away from the GCS is approximately 388m, and therefore in order to maintain true visual awareness of the aircraft (V-TOL Seeker aircraft) an observer will be placed on the southern (bottom) edge of the flight path while the aircraft is completing the lower half of the flight plan, with the observer moving to the northern (upper) half of the golf course as the aircraft enters that part of the flight plan. The flight crew will therefore comprise a pilot, a co-pilot and an observer.

Referring to the Brisbane VTC it is noted that the Kilcoy Golf Club is in Class G airspace, however it is within 3nm of a non-towered airfield. The airspace immediately above the golf club is Class C, at LL 8500, and Class A at LL FL180.

Although the entire flight plan is in Class G airspace, and a qualified observer will be used to maintain situational awareness, the proximity to the non-towered airfield will necessitate permission from Air Services, and an agreement from the airport managing authority (all concerned parties).

From the flight manual for the V-TOL Seeker aircraft, the maximum range of the aircraft in calm conditions is approximately 40km. The Kilcoy Golf Club is located immediately adjacent to the township of Kilcoy, and therefore a fly-away occurrence could place the aircraft over persons or property not associated with the flight.

The FIA information has been gained from the Brisbane Visual Terminal Chart (VTC), which indicates that the radio frequency to be monitored for this area is 129.0 (Mt Glorious)

The flight crew will comprise THREE persons, being Pilot in Charge, Co-Pilot and a qualified observer. The observer is required because of the distance the aircraft will fly from the co-pilot, and the requirement for maintaining visual line of sight.

As this is a golf club, and it is the golf club that is requesting this flight, there will be no special access permissions required. It will however be necessary to restrict access to the golf course during the flight to ensure that the flight is not conducted within 30M of persons not associated with the flight.

Care will also need to be taken to ensure that the aircraft remains 30M within the boundaries of the golf course so that the aircraft does not fly over houses adjoining the golf club, and that the aircraft does not fly over or present a hazard to any traffic using the roads immediately adjacent to the golf course. The flight plan has been adjusted to account for this, but a close watching brief will remain necessary during flight operations.

Subject to permission being granted by Air Services, and the airport authority, this flight is viable.