Environmental Impact Assessment Scoping Opinion for the Proposed Relocation of the Existing Aerodrome on Little Cayman

Prepared by the Environmental Assessment Board Subcommittee of the National Conservation Council

10 November 2023

Finalised 15 December 2023

1. Introduction

At its meeting on 28 August 2023, the National Conservation Council (NCC) agreed to appoint an Environmental Assessment Board (EAB) comprising members of the Department of Environment (DoE), Planning Department, Civil Aviation Authority, and Water Authority as well as The Cayman Islands Fire Service. The EAB has been appointed to guide the Environmental Impact Assessment (EIA) for the relocation of the Existing Aerodrome on Little Cayman (Edward Bodden Airfield) as proposed by Cayman Islands Airport Authority ('the proponent') as shown in Figures 1 & 2. Two separate EABs have been convened for EIAs for projects by the proponent on both Cayman Brac and Grand Cayman, and members from those EABs, including the Cayman Islands Coast Guard, contributed to the EIA scoping exercise. A summary of the appointments by the NCC for each EAB is provided below in Table 1:

Table 1. NCC appointments of Environmental Assessment Boards for each Environmental Impact Assessment for projects by the proponent.

Agency	Relevant EIA		
	Grand Cayman	Cayman Brac	Little Cayman
Civil Aviation Authority	Yes	Yes	Yes
Cayman Islands Fire Service	Yes	No	Yes
Coast Guard	Yes	No	No
Hazard Management Cayman Islands	Yes	No	No
National Roads Authority	Yes	No	No
Department of Planning	Yes	Yes	Yes
Water Authority	Yes	Yes	Yes

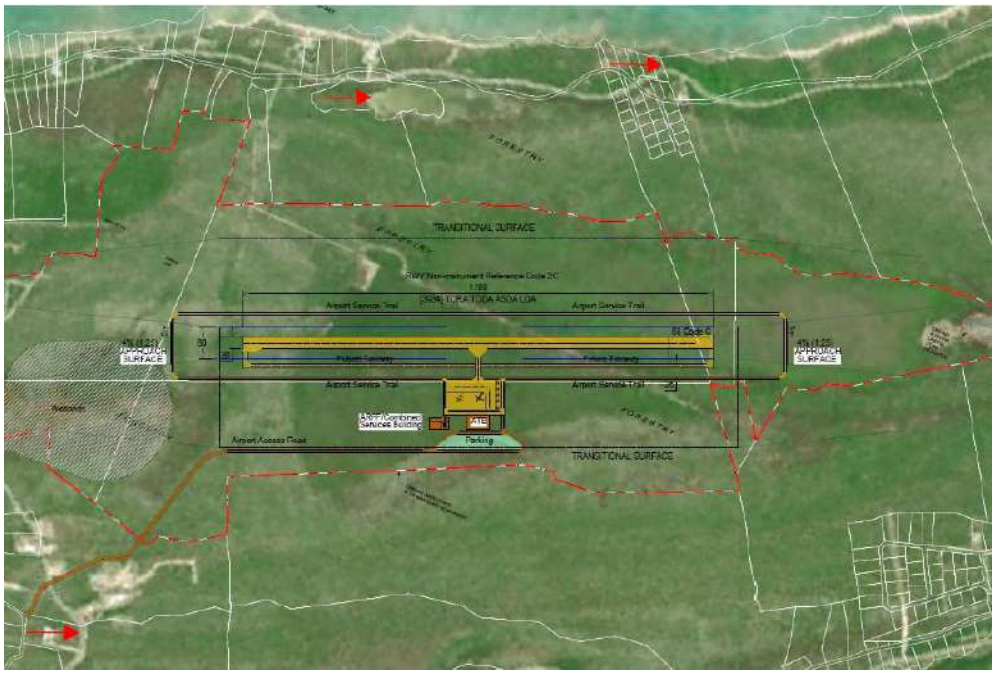

Figure 1. Site of the proposed relocation of the existing aerodrome on Little Cayman (Edward Bodden Airfield) (CIAA, 2023)

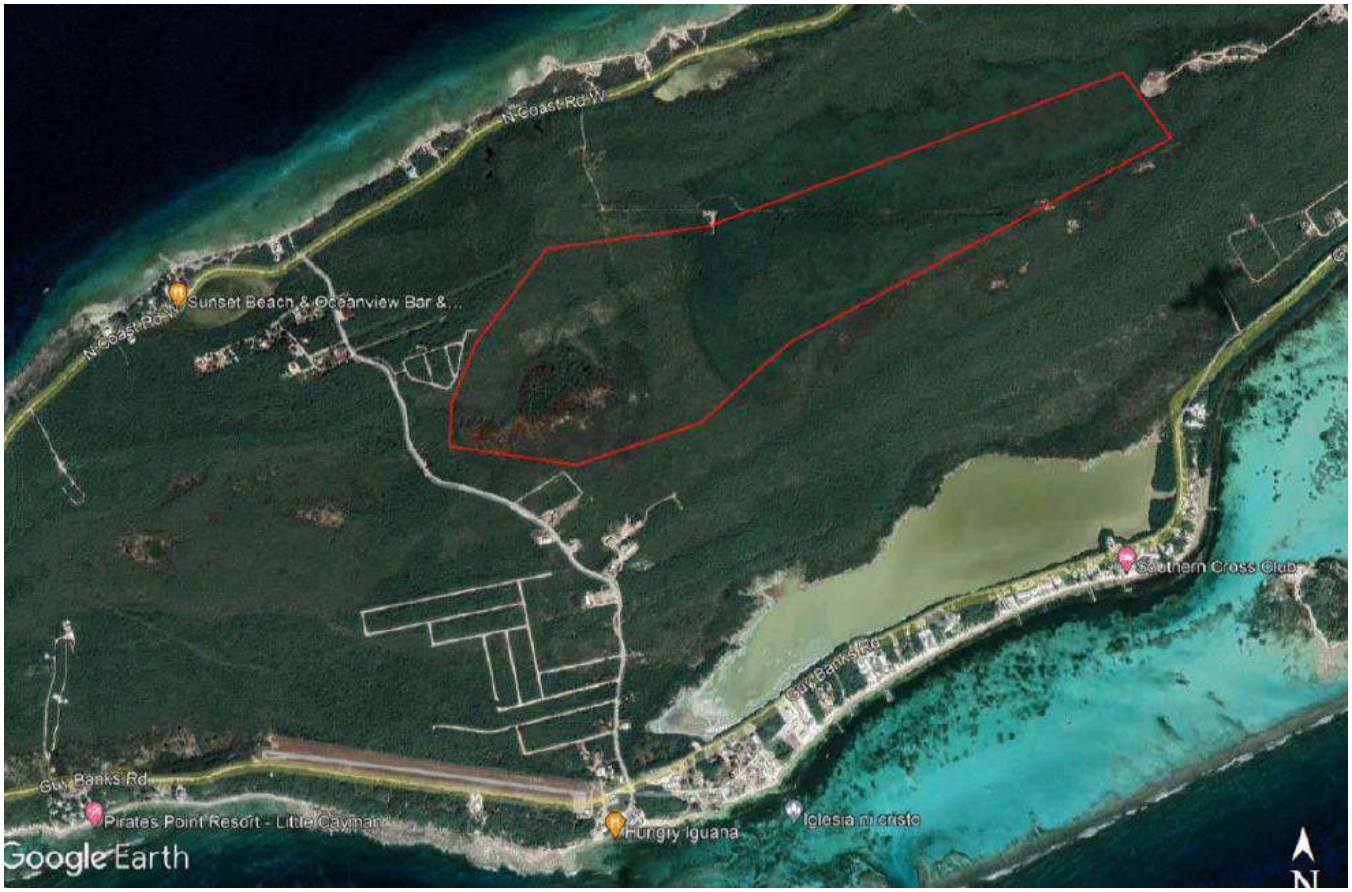

Figure 2. Site of the proposed relocation of the existing aerodrome in relation to the existing Edward Bodden Airfield (CIAA, 2023)

In accordance with the EIA Directive (2016), the following EIA Scoping Opinion outlines the likely significant effects of the project which will need to be assessed as part of the EIA process.

2. Background

2.1 May 2023 – Request for EIA Scoping

The proponent voluntarily decided to carry out an EIA for the proposed relocation of the aerodrome and submitted a request for EIA scoping. At their meeting on 28 August 2023, the NCC determined that the proposed relocation of the aerodrome falls within Schedule 1 of the National Conservation Act and agreed that an Environmental Impact Assessment was needed. At the same meeting, as outlined above, the NCC appointed the EAB to guide the EIA process.

2.2 September 2023 – EIA Scoping of Project Proposal

On 27 September 2023, the EAB met for an initial discussion on the scoping of the EIA. The result of this meeting is the EIA Scoping Report herein.

3. Proposed Project

The Cayman Islands Airports Authority, as project proponent, is proposing the relocation of the Edward Bodden Airfield to land owned by the CIAA in the centre of Little Cayman. Currently, the aerodrome operates under an exemption from the Civil Aviation Authority (CAA), permitting the use of the airfield by any de Havilland DHC-6 (DHC-6-300) operated by Cayman Airways Express. To adhere to International Civil Aviation Organization (ICAO) standards, the proponent has stated that they must relocate or modify the existing aerodrome to meet regulations. Various concepts have been explored in this regard, including modification of the existing aerodrome or introduction of new alternative services. To date, the concepts considered include:

1. Modifying the existing aerodrome to meet ICAO standards,
2. Shutting down the existing aerodrome and introducing a helicopter service,
3. Shutting down the existing aerodrome and introducing a ferry service from neighbouring Cayman Brac,
4. Shutting down the existing aerodrome and introducing a seaplane service, and
5. Relocating the aerodrome to lands owned by the CIAA in the centre of Little Cayman.

It is understood that public input during outreach exercises led to the abandonment of options 2, 3 and 4. Given a number of challenges associated with option 1, the proponent has expressed a preference for the implementation of option 5, entailing the relocation of the aerodrome to lands already owned by the CIAA in centre of Little Cayman (Block 80A Parcel 179).

The proposed relocation of the aerodrome will include the following measures:

- A new 5000 ft long runway / 1500 m runway strip and Obstacle Limitation Surface (OLS) meeting several applicable airport certification standards, with 240 m runway end safety areas (RESAs) on each end. The proposed runway is to have all required visual aids – including paint, signs and apron lighting (with associated field electrical vault and backup generator),
- A new airport terminal to meet requirements for capacity, security and passenger processing,
- A new Aircraft Rescue and Fire Fighting (ARFF) tender shelter to meet requirements and house equipment, and
- A new landside access area and adequate parking.

The proponent has indicated that the existing aerodrome is at high risk of having the exemption and operations certificate revoked if changes are not implemented soon.

4. Consultation

Prior to the EIA process, the CIAA conducted a number of public consultation sessions, which informed and guided the direction of the preferred project proposal.

Under the EIA process, no other government entities outside of the members of the EAB have been consulted on the project to date.

5. Scope of the EIA

5.1 General EIA Methodology

The EIA methodology shall follow the requirements of the NCA and the EIA Directive (2016). Particular reference should be made to Schedule 2 of the EIA Directive which contains the information for inclusion in Environmental Statements (ES). The methodology to be employed to assess the effects for each topic shall be agreed as part of the Terms of Reference.

Generally and briefly, the ES shall:

- Describe and state the need for the project,
- Consider alternatives and justify why it was decided to choose the proposed runway layout/design and relocation of the aerodrome,
- Consider the “Do Nothing” option,
- Identify and assess the baseline conditions for each topic identified below,
- Identify the potential environmental receptors (especially sensitive receptors) which may be impacted by the proposed runway expansion and may need to be considered as part of the assessment,
- Identify mitigation measures for each topic identified below and identify any residual effects,
- Undertake a Demolition and Construction Impact Assessment including a prediction of impacts for each topic identified below,

- Undertake a Completed Development Impact Assessment, including a prediction of impacts for each topic identified below, and
- Undertake a Cumulative Effects Assessment.

As per the EIA Directive (in particular Schedule 3), each ES shall include an Environmental Management Plan which shall include the mitigation measures recommended and present procedures and reporting relationships. A Non-Technical Summary is also required as part of the EIA process. Further detail will be agreed as part of the Terms of Reference.

5.2 Consideration of Reasonable Alternatives

The proponent has identified several alternatives to the proposed relocation of the aerodrome. It is noted that the CIAA Airport Master Plan reviewed alternatives at a high level and without agreed criteria or objectives. It is important that the ES provides further information about these alternatives and the approach used to select or discount them. Although the ES will focus on the proposed relocation of the aerodrome, the proponent must ensure that there is an assessment of reasonable alternatives including consideration of alternative locations and layouts. The proponent must also ensure that the environmental effects of any proposed alternatives have undergone a form of consultation (in this case, public consultation) that may influence their selection, and that any alternatives are adequately considered against each other.

5.3 Topics with Significant Effects

There is the potential for likely significant effects, during both the construction works associated with the proposed runway expansion and once the expanded runway is complete and operational, for the below topic areas:

- Terrestrial Ecology and Wildlife Management including Impacts to Protected Areas,
- Cultural Heritage, Cultural Identity and Socioeconomics.
- Noise and Vibration,
- Hazard Vulnerability and Climate Resiliency,
- Hydrology, Drainage, Water Quality and Natural Resources, and
- The Need for Fill Material.

These topics shall be included as chapters within the ES.

5.4 Terrestrial Ecology and Wildlife Management

Affected Resources

The proposed relocation of the aerodrome has the potential to affect terrestrial ecology. The landcover on the site consists of dry shrubland, as well as seasonally flooded mangrove shrubland in addition to man-modified areas. (Refer to figure 3).

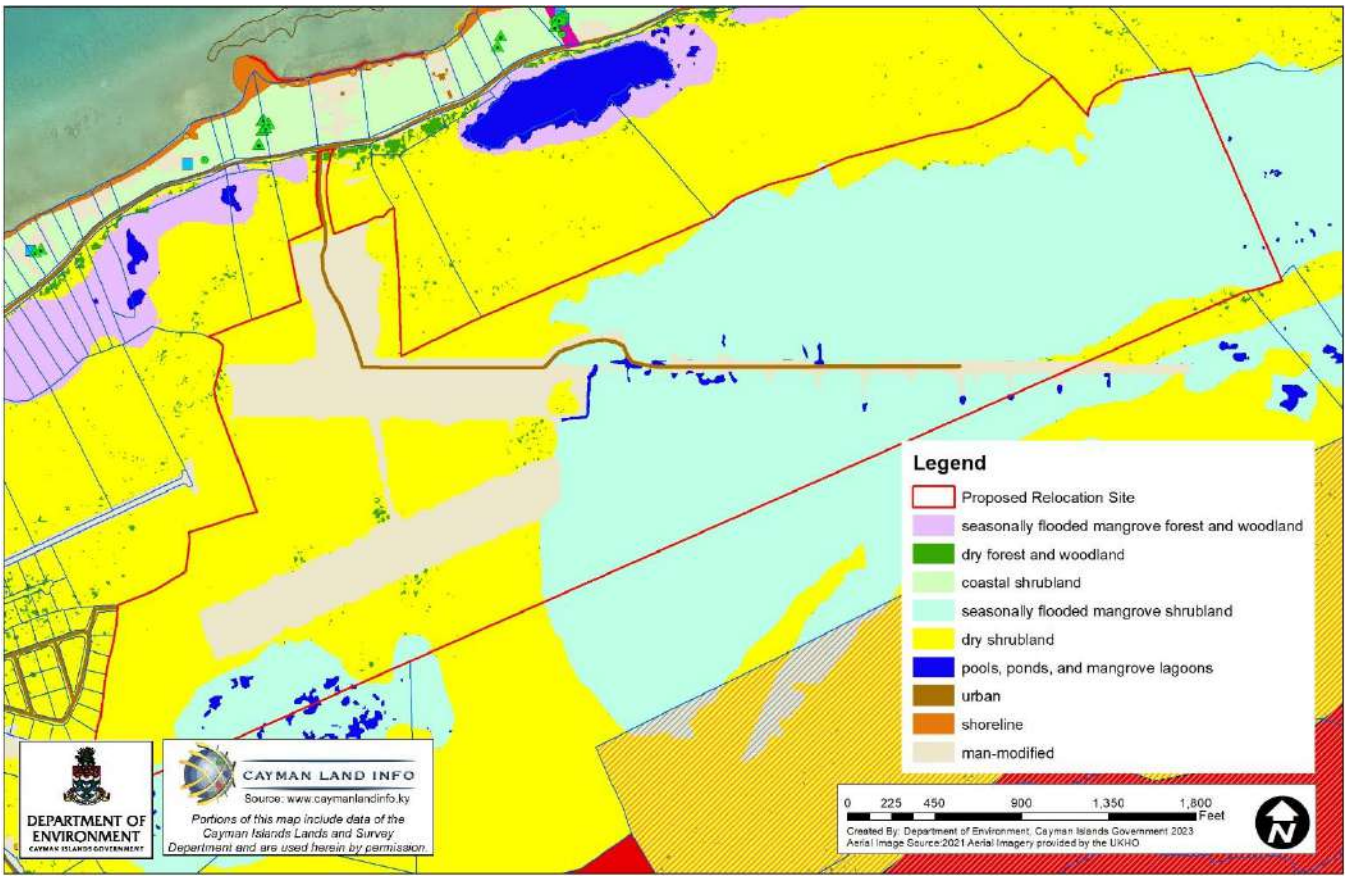

Figure 3. Landcover map of the proposed relocation site, mapped using 2013 aerial imagery (Source: DoE Landcover Mapping, 2013).

Dry shrubland and mangrove shrubland, along with the associated pools and ponds are important habitat for much of the flora and fauna found on Little Cayman. The site is located in close proximity to The Booby Pond Nature Reserve and Rookery, designated as a Wetland of International Importance under the Ramsar Convention. This area is home to one of the largest breeding colony of Red-footed Boobies (*Sula sula*) in the Caribbean region (at least 30% of the total Caribbean population), and the only breeding colony in the Cayman Islands. In addition to this, the pond and surrounding vegetation is home to a growing breeding colony of Magnificent Frigatebirds (*Fregata magnificens*). The dry shrubland surrounding the pond provides habitat for the endemic Sister Islands Rock Iguana (*Cyclura nubila caymanensis*), a Part 1 Schedule 1 Protected Species under the National Conservation Act (2013). These iguanas have a tendency to be attracted to roads and other paved areas for

thermoregulation and social interaction and, as such, may be impacted by the construction and operation of the proposed aerodrome.

The area and proposed access road also includes habitat that is home to Little Cayman's endemic snail, *Cerion nanus*. These snails are critically endangered and are a Part 1 Schedule 1 Protected Species under the National Conservation Act (2013).

Potential Impacts

The proposed relocation of the aerodrome, with the associated clearing and required filling works, will permanently alter important habitat to the flora and fauna of Little Cayman. Impact to this habitat will result from the construction of the aerodrome, and also from the day to day operation of the airport.

The proposed access road is currently depicted as going through part of a Protected Area for *Cerion nanus*, the construction of which would constitute an offence under the National Conservation Act unless it is authorised by the National Conservation Council.

Management of terrestrial ecology during operation of airports is already a concern, with bird control measures (including lethal methods) regularly employed on both Grand Cayman and Cayman Brac. Many bird species rely on ponds and wetlands as stopover points during migration. The area contains a number of wetland ponds and a large area of low lying mangrove shrubland. Eliminating these resting and foraging areas can disrupt migration patterns, leading to exhaustion and decreased survival rates, eventually leading to a decline in biodiversity. The small size of Little Cayman has the potential to amplify these impacts.

Construction of the aerodrome will involve the use of heavy machinery and the paving of large areas of currently untouched habitat. This is likely to disturb ground-nesting iguanas. The associated large scale clearing of vegetation and necessary site preparation has the potential to disrupt existing iguana nests or interfere with nesting behaviours.

The construction of a larger airport has the potential to increase passenger numbers to Little Cayman, and with this comes the potential for accelerated development, particularly in the absence of a Development Plan for the island. As such, the relocation of the aerodrome has the potential for a number of indirect impacts on ecology. This will be explored further under Cultural Heritage, Identity and Socio-economics.

Therefore, the EIA shall include an Ecological Impact Assessment which assesses:

- Direct impacts on ecology during construction and operation,
- Direct impacts to nearby protected areas (refer to Figure 4) resulting from construction and day to day operation of the aerodrome, and
- Indirect impacts on ecology during construction and operation including wildlife hazard management.

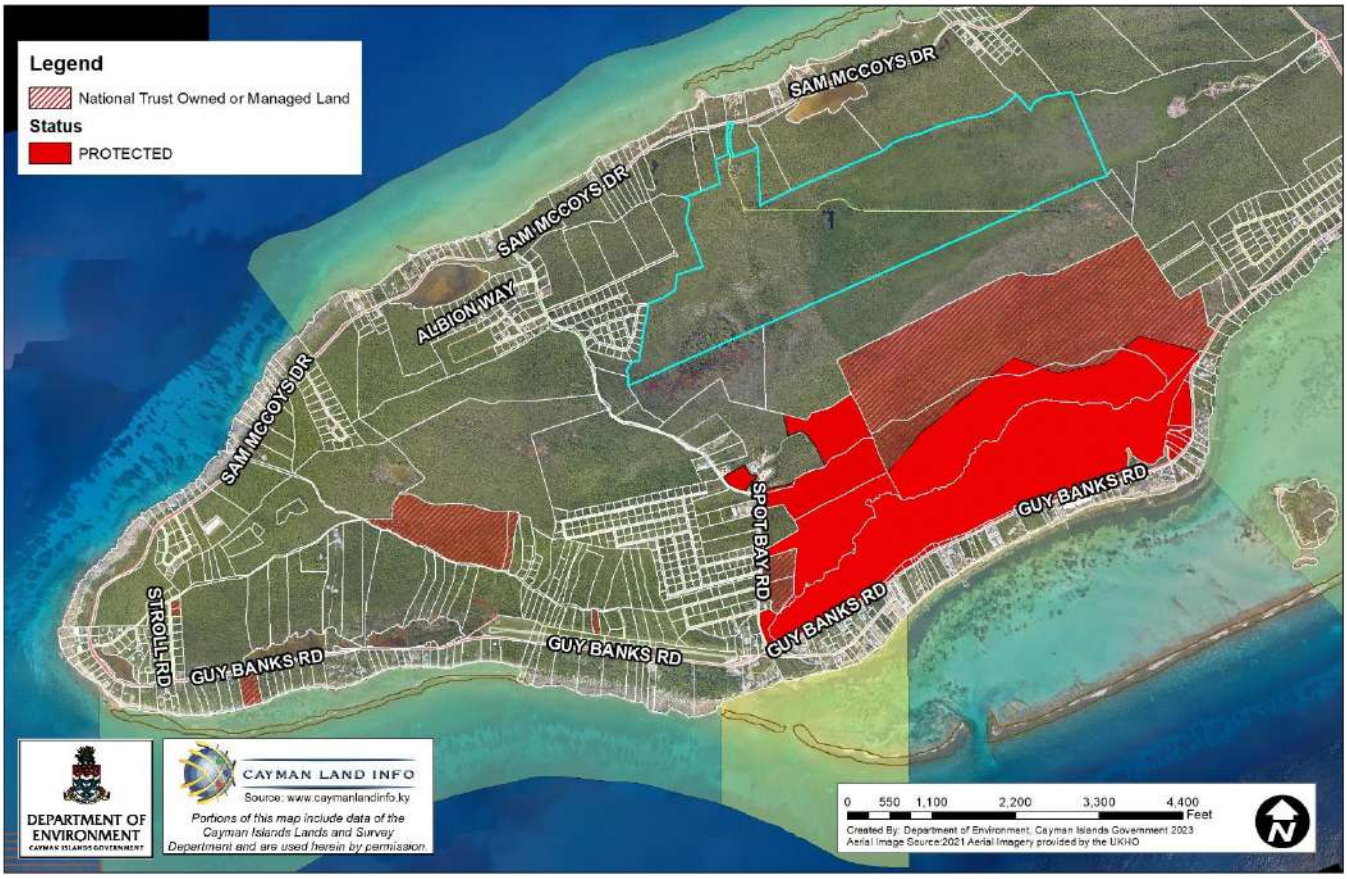

Figure 4. Terrestrial Protected Areas near the site of the proposed aerodrome relocation (Aerial Image Source: UKHO, 2021).

5.5 Cultural Heritage, Identity & Socio-economic

Affected Resources

As the smallest of the Cayman Islands, Little Cayman has a unique cultural identity. The island's cultural identity is rooted in its traditional heritage, tight-knit community and historical connection to seafaring. The smallness of the island, combined with its low population and relative isolation have all contributed to the unique character of Little Cayman. Little Cayman includes several areas that have been shortlisted for UNESCO World Heritage status to recognize places of outstanding natural or cultural value. The island has a small population, and remains largely undeveloped.

Potential Impacts

The small population and relatively undeveloped nature of Little Cayman has remained that way, in part, due to its relative isolation. The construction of a larger aerodrome is likely to have impacts on development of the island and therefore permanent impacts on the cultural identity of Little Cayman.

The potential impacts to cultural heritage and identity resulting from the construction of the aerodrome include:

- Changes in community dynamics – an influx of tourists and potentially new residents facilitated by the improved accessibility can lead to cultural changes to local community dynamics and risks the dilution of the island's unique cultural identity
- Economic changes – the development of the new airport is likely to lead to increased tourism and trade, which can come with economic benefits but is also likely to shift economic activities and livelihoods of local residents to further rely on tourism. There may be changes in local employment structure
- External Influences – with increased connectivity comes increased likelihood of external influences, including foreign investment, potentially overshadowing or eroding the cultural identity of the island
- Environmental changes – the cultural heritage of Little Cayman is closely tied to the Island's natural environment (both on land and at sea). As such, environmental changes caused by the development of the new aerodrome is likely to have a knock on cultural impact. Additionally, the increase in both local residents and visitors that will likely follow the construction of a new aerodrome has the potential to result in increased pressure on island resources, including indirect impacts on environmental resources, as well as an increase in the level and scale of development activity on Little Cayman.

Therefore, the EIA shall consider:

- Impacts during construction, including consideration for housing and infrastructure for construction workers, as well as the impact a large construction project will have on local residents and businesses,
- Long term forecasting of passenger numbers over the lifespan of the project, in particular the impacts to the local community given the seasonal nature of tourism and residency,
- Effects on the quality of life and tranquillity currently enjoyed by the local population as well as tourists on Little Cayman, and
- Indirect effects on environmental resources as a result of increased population/number of visitors.

5.6 Noise and Vibration

Affected Resources

Although sparsely populated, there are a number of properties in close proximity to the proposed aerodrome. The economy of Little Cayman is also highly dependent on tourism and there are a number of nearby tourism sites that may be affected by noise and vibration both during construction and during operation of the airport.

Potential Impacts

Construction of the new airport involves earthwork and grading, both dependant on heavy equipment. Heavy equipment often generates high noise levels, causing disturbances for nearby residents, tourists, and wildlife and potentially impacting quality of live. In addition to noise, vibration resulting from construction activities can impact nearby buildings and homes, potentially to the point of causing structural damage.

In addition to the impacts resulting from construction of the aerodrome, the daily operation of the airport is also likely to result in noise and vibration impacts. A large amount of noise is generated by aircraft activities (take-offs, landings, general operation) and ground operations (aircraft maintenance, fueling, cargo handling). Aircraft take-offs and landings can also generate ground vibrations which may affect nearby residents and buildings in a similar manner to construction activities.

The combination of the above over time can lead to various health and environmental concerns, including annoyance, sleep disturbance and stress among residents living close to the aerodrome. It is also possible that the construction and day to day operation of the aerodrome will reduce property values and reduce the overall quality of life for the surrounding area.

Therefore, the EIA shall consider:

- Noise and vibration impacts on surrounding properties during construction, and
- Noise and vibration impacts on surrounding properties during operation of the proposed aerodrome.

5.7 Hazard Vulnerability and Climate Resiliency

Affected Resources

The proposed relocation of the aerodrome will require the permanent alteration of a large area of seasonally flooded mangrove shrubland. This could significantly affect the resiliency of the surrounding area to accommodate flooding associated with severe storm events.

The site of the proposed relocation also includes areas of low and high elevation which will be required to be filled in or levelled, which may change the area's vulnerability to hazards.

Due to the low elevation of Little Cayman the project will be vulnerable to climate change in general and specifically to sea level rise. In order for the project to be successful it will be necessary to review impacts of climate change and sea level rise.

Potential Impacts

The removal of the seasonally flooded wetland areas, as well as the flattening of the elevation profile across the site has the potential to significantly reduce the resiliency of the immediate area to withstand extreme weather events.

The ES shall identify how risks from major disasters will be mitigated and assess the potentially significant effects of the relocation of the aerodrome on the vulnerability of the island to major disasters. At a minimum, the EIA shall include:

- A Hazard Vulnerability Assessment including hurricanes, storm surge, and earthquakes,
- An assessment of climate resiliency including identification of the options to climate proof the aerodrome in light of anticipated climate change and especially expected sea level rise,
- A Flood Risk Assessment, including in the context of rising sea level forecasts (NOAA estimate of 1 foot in 30 years), and
- Identification of how the proposed aerodrome would be used during post-disaster operations and crisis situations.

5.8 Hydrology, Drainage and Water Quality

Affected Resources

The site of the proposed relocation of the aerodrome contains several ponds that could be affected by changes in quantity and make-up of run-off. Due to the limited elevation of the site, there is also a potential that groundwater may be affected. It is also adjacent to a Ramsar wetland of international importance. There are also a number of residential and commercial properties in the immediate vicinity for which water quality is likely to be a concern. The potential significant volume of fill material that may be required from a quarry outside the project area will impact natural resources outside of the project area.

Potential Impacts

Construction of the aerodrome will require filling and grading along with the installation of drainage systems. These alterations can change the natural drainage patterns of the area. If not properly managed, these changes in drainage patterns have the potential to result in increased stormwater run-off, leading to erosion, flooding and sedimentation of nearby water bodies and impacts on groundwater.

The increase in impervious site surfaces will lead to increased surface water run-off that will also need to be adequately managed. Natural drainage patterns will be impacted in the project area. Inadequate stormwater management can lead to pollutants, such as oil, grease, chemicals and heavy metals being washed into nearby water bodies and groundwater, causing pollution.

If not managed adequately, deterioration of surface and ground water quality has the potential to cause pollution and odour issues for the nearby properties including a Ramsar wetland of international importance.

The volume of aggregate and fill material required from a quarry outside of the project area may impact natural resources outside of the project area, including but not limited to surface water, groundwater, ecology and wildlife.

Therefore, the EIA shall consider:

- Impacts on surface water and groundwater during construction and operation, and
- Impacts on water quality in the ponds during construction and operation.

5.9 The Need for Fill Material

At this preliminary stage of the project, there is no target for the minimum elevation of the runway and associated infrastructure. Having completed a cursory review of the elevation of the project area using the 2013 LIS Digital Terrain Model, about 75% of the runway will be located in an area of 2 – 6 ft elevation above mean sea level (eastern part). Whereas the western part has more elevation and some material from that area may be used to fill in lower areas, it is possible that a significant volume of aggregate and fill will need to be sourced from the quarry in Little Cayman or from somewhere else. The impact of the additional quarrying for aggregate and fill for this project also needs to be assessed.

Therefore, the EIA shall consider:

- The volume of fill required,
- The source of fill, and
- Any direct or indirect impact of additional quarrying for aggregate and fill.

6. Next Steps

The next stage of the process is for the proponent to provide the EAB with details of up to three suitably qualified consultancy firms to carry out the EIA based upon the requirements outlined in the EIA Scoping Opinion. The Consultant's proposals shall provide details of the professional team composition, including Curricula Vitae for all team members who should have at least five years professional experience of similar projects. Consultants should:

(i) Include a qualified and experienced EIA Coordinator with experience of coordinating EIAs for similar aviation projects on small islands,

(ii) Include a qualified (external) terrestrial biologist with experience in wildlife hazard management in aerodromes and in similar habitats,

(iii) Include a qualified water resources engineer or hydrologist/hydrogeologist capable of assessing (and modelling, as necessary) the stormwater drainage patterns and flows, flood risks, and risks to nearby water quality, including in the context of rising sea level forecasts,

(iv) Outline relevant experience in undertaking noise and vibration assessments,

(v) Outline relevant experience undertaking hazard vulnerability assessments including flood risk assessments on small limestone islands, and

(vi) Outline relevant expertise in undertaking geological and hydrogeological reviews of the project area and areas outside of the project area where aggregate and fill material will be sourced.

The Consultant may propose suitable Sub-Consultants in specific areas of expertise as applicable. Credentials of such Sub-Consultants should be submitted as part of the Submission. The EAB will review the submissions from each consultancy team in order to confirm that the teams have the required experience and expertise to address the issues outlined in this EIA Scoping Opinion. Upon completion of the EAB's vetting process, the proponent is free to select consultant(s) from those which have been deemed competent by the EAB.

Upon appointment of the EIA consultants the EAB will make itself available to meet with the proponent and its EIA consultancy team to discuss the development of the draft Terms of Reference for the EIA, based on this EIA Scoping Opinion. Once agreed, the draft Terms of Reference will need to go out for public consultation (including discussion in at least one public meeting) for a period of 21 consecutive days and then finalised, taking into account the public's input all in accordance with the EIA Directive.

We trust that this information is of assistance. Please do not hesitate to get in touch should you have any questions.

Gina Ebanks-Petrie
Director, Department of Environment & EAB Chair