



Environmental Impact Assessment Scoping Opinion - Proposed Design and Construction of the East-West Arterial Extension Road

Prepared by Environmental Assessment Board for the East-West Arterial Road

Sub-committee of the National Conservation Council

5 November 2021

1. Introduction

At its meeting on 2 October 2019, the National Conservation Council (NCC) agreed to appoint an Environmental Assessment Board (EAB) comprising members of the Department of Environment (DoE), Planning Department, National Roads Authority (NRA) and Water Authority Cayman (WAC). On 26 October 2021, the NCC agreed to appoint the Public Works Department's Major Projects Office to the EAB, replacing the representative from the NRA, on the basis that the NRA is the project proponent.

The EAB has been appointed to guide the Environmental Impact Assessment (EIA) for the design and construction of the East-West Arterial Extension Road from Woodland Drive to Frank Sound as shown in Figure 1. In accordance with the EIA Directive (2016), the following Scoping Opinion outlines the likely significant effects of the project which will need to be assessed.



Figure 1. Proposed road alignment, Section 1 is under construction and the EIA development is Section 2 and 3.

2. Background

2.1 October 2016 – Screening Opinion for Hirst Road to Frank Sound Road

A Screening Opinion was issued on 12 October 2016 for a 10-mile extension of the East-West Arterial which extended eastward from the Hirst Road intersection to just beyond the Frank Sound Road intersection at what was proposed to be the Ironwood Village and Golf Club intersection. At its Special General Meeting of 26 October 2016, the NCC considered the proposed East-West Arterial Extension which was submitted for consultation under section 41 of the National Conservation Law. After reviewing the Screening Opinion prepared by the DoE on 12 October 2016, the Council took a decision to require an EIA of the proposed road extension.

The proposed road required an EIA based on the following factors:

1. The proposed road clearly fell within Section 5 (ii) of Schedule 1 of the EIA Directive i.e. transportation infrastructure, including planning or construction of new roads, and of road extensions.
2. The proposed 10-mile road would traverse a substantial area of wetland habitat along the entire length of the southern perimeter of the Central Mangrove Wetland. As the ecological heart of Grand Cayman, the Central Mangrove Wetland is critical to many important natural processes which are vital to the long-term wellbeing of the residents of the Cayman Islands. It is part of a large scale water flow system, filtering and conditioning the surface water and shallow ground water which supports the mangrove communities and flows into North Sound. Other important functions include storm protection and flood mitigation; shoreline stabilization and erosion control; groundwater (freshwater lens) recharge; retention of sediments and pollutants; export of organic matter to the North Sound; stabilization of local climate conditions, particularly rainfall and temperature; carbon storage; provision of nursery grounds and habitat for a variety of marine and terrestrial biodiversity including species on Schedule 1 Part 1 of the National Conservation Act (NCA). The Central Mangrove Wetland has been designated as an Important Bird Area under the criteria established by Birdlife International as it supports at least 1,500 individuals or 83% of the Cayman Islands' population of the globally significant West Indian Whistling-duck, and the endemic Cayman Parrot, *Amazona leucocephala caymanensis*, breeds in outer monospecific black, black/white and black/red mangrove zones (1,145 ha) of the southern Central Mangrove Wetland.
3. The scope and characteristics of the potential significant effects of the proposed road on this nationally important resource would require assessment of the direct and indirect impacts affecting the natural and built environment of the area including but not limited to:
 - a. An assessment of the ecological function and value of the specific natural resources that will be affected by the construction and operation of the road (e.g. direct impacts from the footprint of the road and indirect impacts arising from lighting, noise etc.);
 - b. An assessment of the impacts associated with changes to the hydrology and drainage patterns of the area which could affect the Central Mangrove Wetland basin and the Lower Valley and North Side fresh water lenses as a result of the road construction, and a flood risk assessment for the populated areas south of the road corridor, with identification of any potential measures to avoid, minimise or mitigate impacts;

- c. An assessment of impacts to off-site natural resources due to the excavation and/or mining of the significant quantities of aggregate required for construction of the 10 miles of road and
 - d. An assessment of any on-site and off-site impacts associated with the de-mucking and disposal of significant quantities of peat overburden within the road corridor.
4. Detailed geotechnical investigations would have to be carried out along the entire path of the proposed road in order to identify any potential constraints on the proposed alignment and/or construction methodology.

2.2 October 2019 – No EIA required for ‘Phase 1’ Hirst Rd to Woodland Drive

On 24 September 2019, the Ministry of Commerce, Planning and Infrastructure (Ministry of CPI) submitted information indicating that they were currently proposing only part of the road previously considered in October 2016 and that the Ministry wished to proceed with the construction of the portion of the East-West Arterial Extension from Hirst Road to Lookout Gardens. A meeting was held on 22 October 2019 where the Premier, representatives from the Ministry of CPI, the NRA, and the Director of the DoE were present. It was agreed that Phase 1 from RAB “A” to RAB “B” could be constructed prior to the EIA being completed because it is within a densely developed area with minimal environmental concerns and minimal opportunity for amending the design of the route. This was endorsed by the NCC at its meeting on 30 October 2019.

It was also confirmed on 22 October 2019 that an EIA would be conducted for the route from Woodland Drive to Lookout Gardens.

2.3 November 2019 – Scoping Opinion for Woodland Drive to Lookout Gardens

On 19 November 2019, a Scoping Opinion was issued for the portion of road from Woodland Drive to Lookout Gardens. The Opinion confirmed that there would likely be significant environmental effects in the following key areas:

- Hydrology and drainage, and
- Terrestrial ecology.

The project proponents (the Ministry of CPI and NRA) did not commence an EIA for this portion of the road.

2.4 December 2019 – Request for comments on gazettal of ‘Phase 1’ Hirst Rd to Woodland Drive and proposed Savannah Bypass

As per the Scoping Opinion issued on 19 November 2019 and a letter dated 18 December 2019 from the DoE, on behalf of the NCC, to the NRA, it was re-confirmed that ‘Phase 1’ and the Savannah Bypass did not need to be the subject of an EIA, on the basis that:

- This section of the proposed route and adjacent area was man-modified and of low ecological value;
- There were minimal opportunities for amending the design of the route; and
- The proposed route was aligned as close to the existing development as possible, thereby limiting the expansion of urban area (although it was noted that NRA is aware of development plans for Block 31A Parcels 164 and 16).

However, it was noted that there may be adverse impacts on flooding due to the construction of the Savannah Bypass and it was strongly recommended that the road design should be informed by an appropriate engineering approach which ensured that the road does not flood properties within the existing Frank Hall Homes subdivision immediately west of the proposed road corridor.

2.5 November 2021 – Scoping Opinion for Woodland Drive to Frank Sound Road

On 9 October 2021, the NRA requested a Scoping Opinion for the proposed East-West Arterial Extension from the Woodland Drive area to Frank Sound Road.

3. Proposed Project

The NRA, as project proponent, is proposing the construction of an approximately 10 mile, 160 foot wide, multi-lane highway from Woodland Drive to Frank Sound Road. At its eastern end, the proposed route includes a southern connector road of 80 foot width. The footprint of the proposed road will result in the removal of 174 acres of undisturbed terrestrial habitat.

The objectives of the proposed road is described by the proponent as follows:

- To create a highly disaster resilient “central highway”;
- Serve as an emergency route when coastal roads are compromised;
- Open land for development on the interior of the island;
- Provide a road hierarchy and enhanced access and connectivity;
- Reduce travel times to and from George Town for East End, North Side and Bodden Town residents;
- Facilitate utilities expansion (electricity, fibre, water, central sewerage system);
- Promote public transportation (dedicated bus lanes);
- Serve as a major horizontal conveyance for future stormwater management systems; and
- Enhance the local tourism product by allowing quicker and easier tour-access to outlying tourist attractions.

The proposed method of road construction, the quantity and source of fill required to construct the road, the depth of peat overburden and the disposal method/location for the demucked material and cleared vegetation (174 acres of vegetation) is currently unknown by the EAB. The Terms of Reference for the EIA will need to confirm this information.

4. Consultation

The National Trust was consulted by the EAB given the severance of National Trust lands, including the Mastic Reserve, by the proposed route. A meeting was held on 1 November 2021 with the Director of the National Trust and members of the Trust's Environmental Advisory Committee (EAC). EAC members expressed their concerns regarding the alignment of the eastern end of the route and its likely major significant negative effects on the Mastic Reserve, both in terms of its ecology and visitor experience. The current alignment severs the Trail head from the remainder of the forest, requiring visitors to the Reserve to cross a multi-lane highway.

The National Trust has recommended:

- The road should be moved south in order to ensure it does not traverse Trust-owned properties in the Central Mangrove Wetland; and
- The road should be moved south of the Trust lands and the proposed roundabout repositioned to a more ideal location along the red line on the map, thereby avoiding the Mastic trail and Reserve.

5. Scope of the EIA

5.1 Route Alignment & Assessment of Alternatives

The EIA shall assess the route alignment from Woodland Drive to Frank Sound Road (Sections 2 and 3 of the East-West Arterial).

A key objective of the EIA is to ensure that the road design selected offers the best outcome for the environment as well as for surrounding communities. Therefore, the EIA shall appropriately assess and compare the environmental effects of relevant options for routes, engineering techniques, mitigation, construction management and operational management.

Several options have been considered by the Ministry of Infrastructure and the NRA for the proposed route, although not within a formal options review which included environmental information. The Terms of Reference shall set out what options for the corridor have been considered to date and which one is the preferred option, outlining the reasons the preferred option has been selected. The EIA will also need to present the alternatives considered during the design process, including the 'do nothing' scenario, in accordance with the EIA Directive.



Figure 2: Proposed road with Protected Areas and Central Mangrove Wetland shown.

5.2 Environmental Aspects

There are likely to be significant environmental effects in the following key areas:

- Hydrology and Drainage;
- Terrestrial Ecology (Wetlands);
- Terrestrial Ecology (Mastic Reserve);
- Cultural and Natural Heritage; and
- Greenhouse Gas Emissions.

5.3 Hydrology and Drainage

Affected Resources

When rainwater falls on land to the south of the proposed road, the topography and the limited permeability of the surface rock causes surface water flow to the north during periods of heavy rain, towards the Central Mangrove Wetland. This area, including parts of Northward, Bodden Town and Stepping Stones is at a higher elevation than the Central Mangrove Wetland. The

proposed road could act as a physical barrier between the higher and lower elevations, and could act as a dam resulting in two scenarios:

- The Central Mangrove Wetland could be deprived of water and there may be ecological consequences associated with the fundamental disruption to the hydrological regime which supports this unique mangrove assemblage.
- The water which can no longer flow to the Central Mangrove Wetland could become impounded and flood the populated areas to the south of the proposed road and drown and kill mangrove areas that cannot survive excessive inundation.

By changing the balance and patterns of water movement, there could be significant adverse effects on both residential populations and the Central Mangrove Wetland, and an EIA is required to investigate those effects so that they can be appropriately avoided, minimised or mitigated.

Figure 3, below, shows the topography of the surrounding area and the stark gradient between the land to the south of the proposed road and the Central Mangrove Wetland to the north. There are residential populations surrounding the proposed road including areas such as properties close to Will T Drive, Newlands, Lookout Gardens, Belford Estates, Midland Acres, Savannah and Stepping Stones.

The Central Mangrove Wetland is the ecological heart of Grand Cayman and is critical to many important processes which are vital to the long-term wellbeing of the residents of the Cayman Islands. It also plays a fundamental role in the water flow systems of the Cayman Islands.

Meagre Bay Pond, a Protected Area under the NCA, is located to the south of the proposed road and may be impacted.

The Lower Valley fresh water lens, located to the south of the proposed road corridor may be impacted by changes in water drainage patterns. Similarly, the North Side fresh water lens, located to the north of the proposed road corridor in the Frank Sound area may be impacted by changes in water drainage patterns.

The eastern extent of the proposed road bisects the southern end of the National Trust-owned Mastic Reserve. The Reserve was established in 1992 to protect the largest contiguous area of untouched, old-growth forest in Grand Cayman, with the southern end being characterised by wetland habitat.

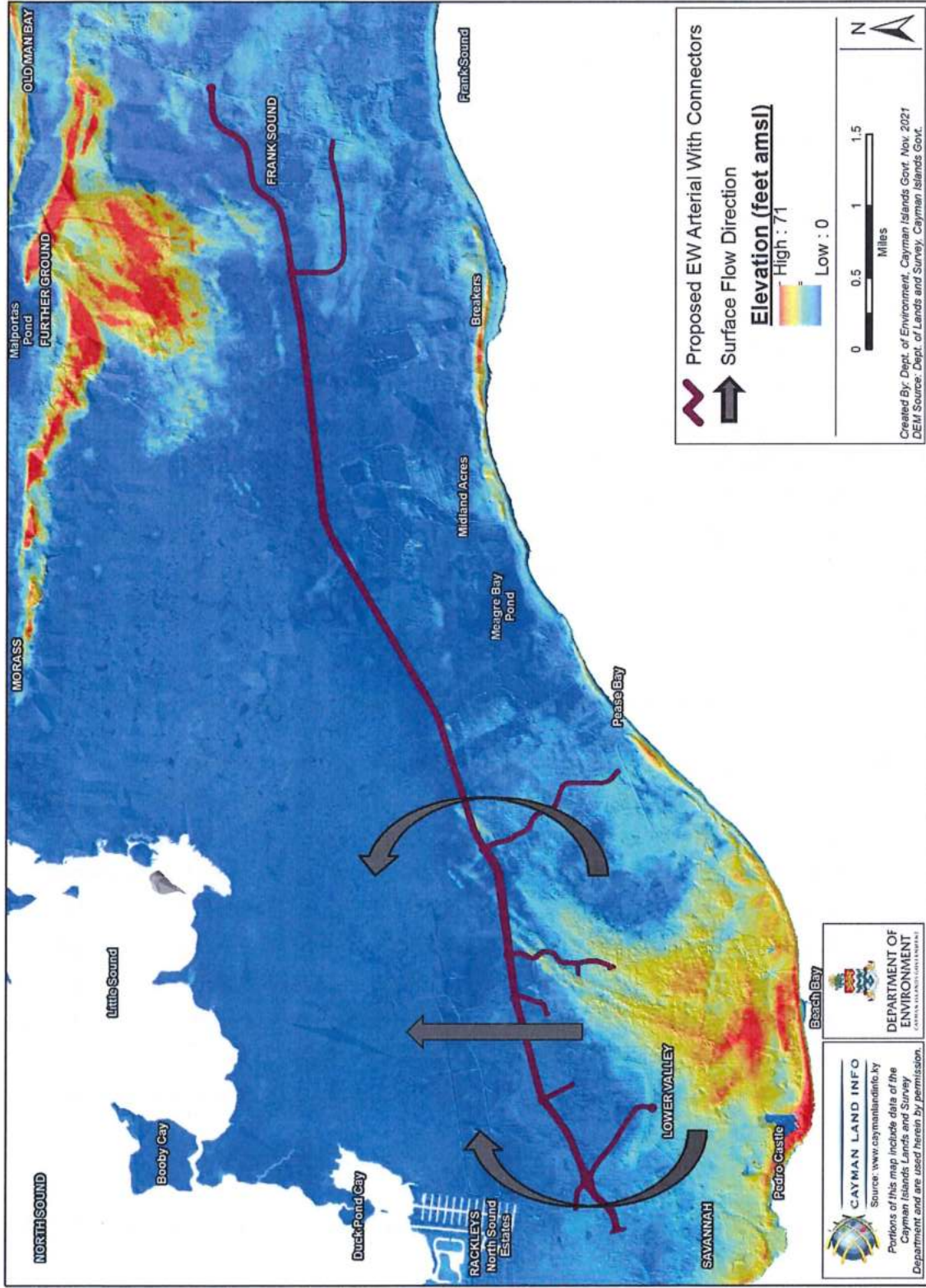


Figure 3. The elevation of the surrounding area, the flow accumulation (the tendency for surface water to move) and the proposed road.

Potential Impacts

The proposed road could:

- Increase the risk of flooding of the neighbouring residential communities by impeding drainage;
- Negatively impact the hydrology and, as a result, the ecology of the Central Mangrove Wetland;
- Negatively impact the hydrology and, as a result, the ecology of the Mastic Reserve;
- Negatively impact the hydrology and, as a result, the ecology of Meagre Bay Pond, and
- Impact the Lower Valley and North Side freshwater lenses if the project requires the construction of vertical stormwater drainage wells, or any other means for the conveyance or drainage of stormwater.

Updated projections for sea level rise as a result of climate change appear to increase when compared to earlier projections. According to the Intergovernmental Panel on Climate Change Sixth Assessment¹, it is virtually certain that global mean sea level will continue to rise over the 21st century. Relative to 1995-2014, the likely global mean sea level rise by 2100 is 0.28-0.55 m under the very low greenhouse gas emissions scenario; 0.32-0.62 m under the low greenhouse gas emissions scenario; 0.44-0.76 m under the intermediate GHG emissions scenario; and 0.63–1.01 m under the very high GHG emissions scenario; and by 2150 is 0.37–0.86 m under the very low scenario; 0.46–0.99 m under the low scenario; 0.66–1.33 m under the intermediate scenario; and 0.98–1.88 m under the very high scenario (medium confidence). Global mean sea level rise above the likely range – approaching 2 m by 2100 and 5 m by 2150 under a very high GHG emissions scenario (low confidence) – cannot be ruled out due to deep uncertainty in ice-sheet processes.

The EIA therefore needs to ensure that climate change resilience is built into the road design.

The impact on the Lower Valley and North Side freshwater lenses will require consideration. There may be impacts from the construction of vertical stormwater drainage wells, or any other infrastructure for the conveyance and drainage of stormwater. The standard NRA design is a 100 ft drilled well with one length of 20 ft casing. The lens is approximately 20 to 30 ft thick and has a brackish zone below that. The installation of multiple standard NRA design disposal wells has the potential to impact the lens. Reliance on deep wells would deprive the Central Mangrove Wetland of surface flow it has adapted to, so this approach may not be appropriate in this situation. The EIA needs to review the options for stormwater management so that there is no impact on the Lower Valley and North Side fresh water lenses, the Meagre Bay Ponds, the Central Mangrove Wetland and Mastic Reserve hydrological regimes are maintained and surface water flow into the Central Mangrove Wetland is allowed to continue.

¹ Intergovernmental Panel on Climate Change. Sixth Assessment Report, Climate Change 2021, The Physical Science Basis, Summary for Policymakers.

Some of the existing low laying residential communities (e.g. Belford Estates and Midland Acres) are already impacted during heavy rainfall events. Future development both north and south of the road will also need adequate stormwater management to address flood risk. Therefore the EIA will need to address the stormwater management and flood risk for existing and future development along the road corridor from a regional perspective. A Flood Risk Assessment is required as part of the EIA.

5.4 Terrestrial Ecology (Wetlands)

Affected Resources

The Central Mangrove Wetland is one of the largest intact contiguous mangrove wetlands in the Caribbean. The entire living system of North Sound is linked to the Central Mangrove Wetland, and all that it supports (e.g. tourism, fisheries, leisure) would be severely impacted if the wetland were destroyed. The ecosystem services of the Central Mangrove Wetland are numerous and critical to the health of Grand Cayman and its residents. There are several Protected Areas under the NCA within the Central Mangrove Wetland including the Environmental Zone and the associated buffer, National Trust Land (30A/9, 46A/2 and 3), and Terrestrial Protected Areas (34A/5, 41A/3 and 50A/2).

Mangroves are a protected species under Schedule 1, Part of the NCA and the Mangrove Conservation Plan (2020). Mangroves are vital for storm protection and they are among the world's most productive ecosystems, producing organic carbon well in excess of ecosystem requirements and contributing significantly to the global carbon cycle. The Central Mangrove Wetland is part of a large scale water flow system by filtering, conditioning and providing a flow of nutrients into North Sound, forming the base of a complex food chain. The clear seas surrounding Grand Cayman are due to the physical and biological filtration of surface water originating from higher land through the mangrove areas. North Sound provides additional area for fish nurseries and clear water for diving, supporting many livelihoods in the Cayman Islands.²

The Central Mangrove Wetland has been designated as an Important Bird Area under the criteria established by Birdlife International as it supports at least 1,500 individuals or 84% of the Cayman Islands' population of the West Indian Whistling-Duck (*Dendrocygna arborea*). The endemic Cayman Parrot, *Amazona leucocephala caymanesis* breeds in outer monospecific black, black/white and black/red mangrove zones of the southern Central Mangrove Wetland. In addition to the hydrological function, the Central Mangrove Wetland also provides nursery grounds and habitat for a variety of marine and terrestrial biodiversity including species on Schedule 1 Part 1 of the NCA.

² Childs, C., MacDonald, M.A., Bradbury, R.B. (2014). Ecosystem services provided by potential protected areas in the Cayman Islands: a rapid assessment. National Trust for the Cayman Islands.

Potential Impacts

The proposed road could affect the ecological function and value of the natural resources in the Central Mangrove Wetland during both construction and operation. In addition to the detailed study of hydrology, the direct and indirect effects of the proposed road on ecology should be assessed. For example, the direct impact from the footprint of the road, and indirect impacts (e.g. lighting, noise etc.) should be considered. A Biodiversity No Net Loss and an Ecological Impact Assessment shall be required to support the EIA.

5.5 Terrestrial Ecology (Mastic Reserve)

Affected Resources

The Mastic Forest is the largest contiguous area of primary dry forest remaining on Grand Cayman. This area is also of international significance as it represents one of the last remaining examples of Caribbean subtropical, semi deciduous dry forest which has otherwise been cleared throughout much of the West Indies. Apart from a moderate degree of selective logging and small scale agriculture in the past, these forests are almost completely undisturbed. The Mastic Forest has been continuously above water for more than two million years, as opposed to the rest of the island which emerged 125,000 years ago, and is thus where the native flora and fauna evolved. It is now home to a variety of animals and plants, including all of Cayman's endemic orchids, trees and birds including the near-threatened Vitelline Warbler, the White-crowned Pigeon and the Grand Cayman Parrot. It is additionally the main habitat for a very rare variety of Black Mastic tree (*Terminalia eriostachya var. margetiae*) which is unique to Grand Cayman.

The National Trust for Cayman Islands set up the Mastic Reserve in 1992 which also includes the Mastic Trail. The trail is a 4-km (2.3 miles) traditional footpath that runs from north to south and is now a popular ecotourism site. The Mastic Forest provides many ecosystem services for the people of Grand Cayman, including biodiversity, rare plants, and habitat for birds and bats. The trees store carbon and the forest contributes to regulating overland water flow. The forest prevents degradation of the North Side fresh water lens over which it sits. It is also an important site for tourism, recreation and cultural identity.

Potential Impacts

The proposed road could affect the ecological function and value of the natural resources in the Mastic Reserve during both construction and operation. A Biodiversity No Net Loss and an Ecological Impact Assessment shall be required to support the EIA.

There will be adverse construction effects including:

- Noise and vibration; and

- Clearing of primary habitat.

There will be adverse effects during operation including:

- Noise and vibration;
- Littering;
- Lighting;
- Introduction of invasive species and free roaming domestic animals;
- Increased level of disturbance via uncontrolled access; and
- Vehicular strikes of birds and other animals.

Appraising potential alignment options will be critical for this section of the proposed road.

5.6 Cultural and Natural Heritage Impact Assessment on National Trust Protected Areas

The National Trust for the Cayman Islands is a body corporate established under the National Trust Law (2010 Revision). As per Section 41(1) of the National Trust Law, the purposes of the Trust include:

- (a) the preservation of the historic, natural and maritime heritage of the Islands through the preservation of areas, sites, buildings, structures and objects of historic or cultural significance;
- (b) the conservation of lands, natural features and submarine areas of beauty, historic or environmental importance which the Trust may have acquired through gift, bequest, purchase, lease or other means; and
- (c) the protection of native flora and fauna.

The proposed road footprint is located through two main areas of National Trust Land.

Affected Resource 1: National Trust Central Mangrove Wetland Parcel (Block 36A Parcel 6)

The proposed road passes through a parcel of National Trust Property within the Central Mangrove Wetland. A cultural and natural heritage impact assessment shall assess the impact to this protected area.

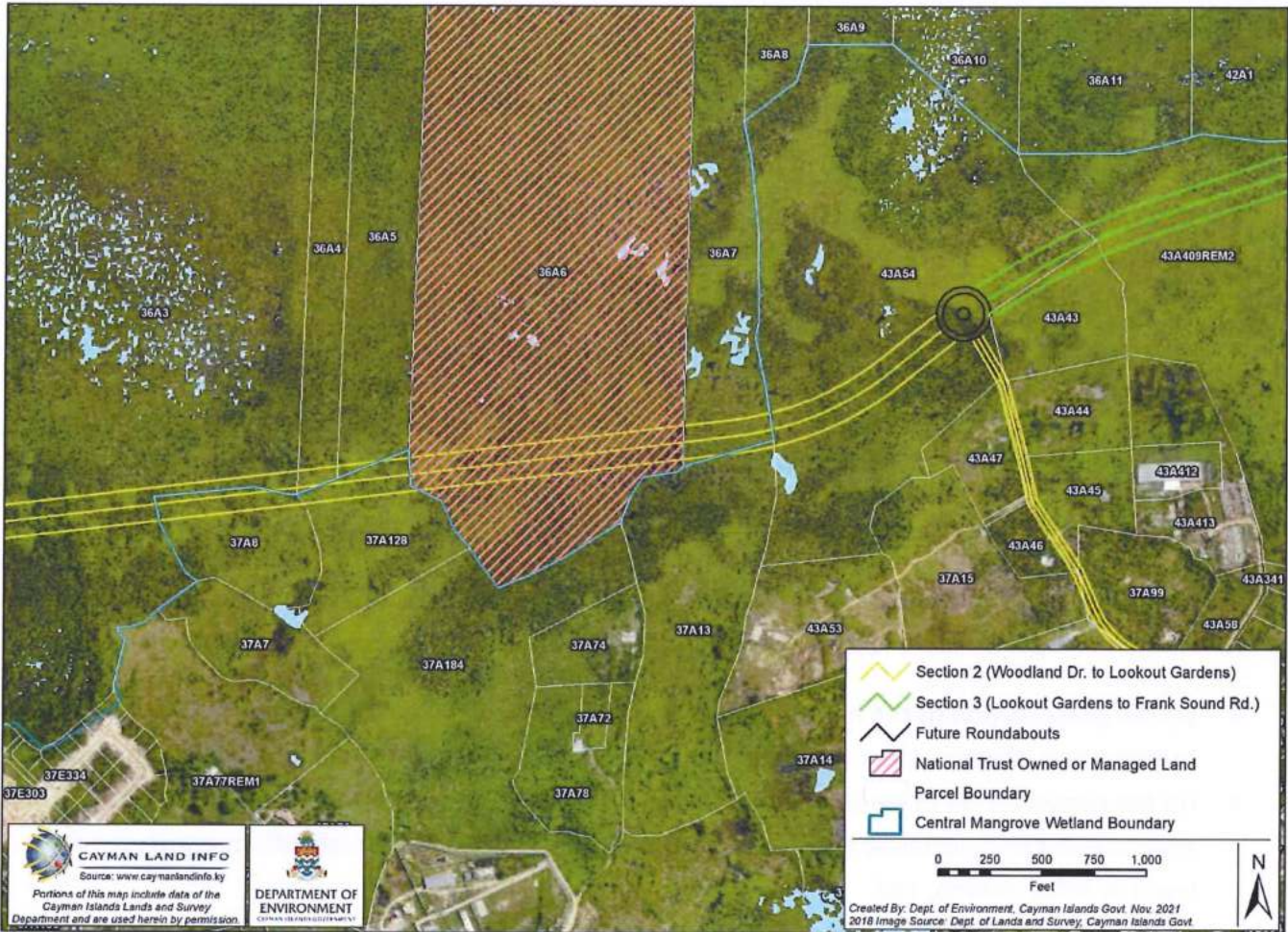


Figure 4: The National Trust land which is bisected by the proposed road.

Affected Resource 2: National Trust Mastic Reserve

The Mastic Reserve is an important cultural and natural heritage asset.

At least 120 years ago, William Steven Watler is commonly credited as the pioneer behind the design and construction of the Mastic Trail. Renowned as the planter of Breadfruit Walk, Watler was an agricultural entrepreneur who sought a more direct route from his home in Lower Valley to his farmland in the Mastic Area. Labourers were hired from Breakers to construct what was described in those days as a bridge. It was a causeway made by laying sections of tree trunks perpendicular to the desired path and filling the intervening spaces with crushed rock. Watler and the other interested landowners continued the trail into elevated, dry areas of the Mastic Forest in order to link it to trails previously developed and in use by residents of North Side.

Though the completed trail was still rather difficult to travel, it was yet much easier than forging through trackless terrain, walking around the district of East End to access the trails into North Side, or sailing via catboat. It is important to note that all the labour performed on the trail was completed by

paid workers; no slaves, heavy machinery, or blasting was employed in its construction. Upon completion the trail saw use well into the 20th century, with agriculturalists commonly hiking the trail to gain access to interior farmlands, often leading draft animals or livestock. The trail also saw use as a thoroughfare between the north and south coasts, and was eventually legally described as a right of way – although it was never, in historic times, described or titled “Mastic Trail.”

In 1994 the National Trust for the Cayman Islands led efforts to restore the Mastic Trail. By 1995 this wilderness thoroughfare had been renamed the “Mastic Trail” and was officially opened to the public. It traverses 4 km (2.3 miles) of recovering agricultural land and pristine natural habitats. The Trust and other private entities conduct nature tours along the trail, including with school field trips.

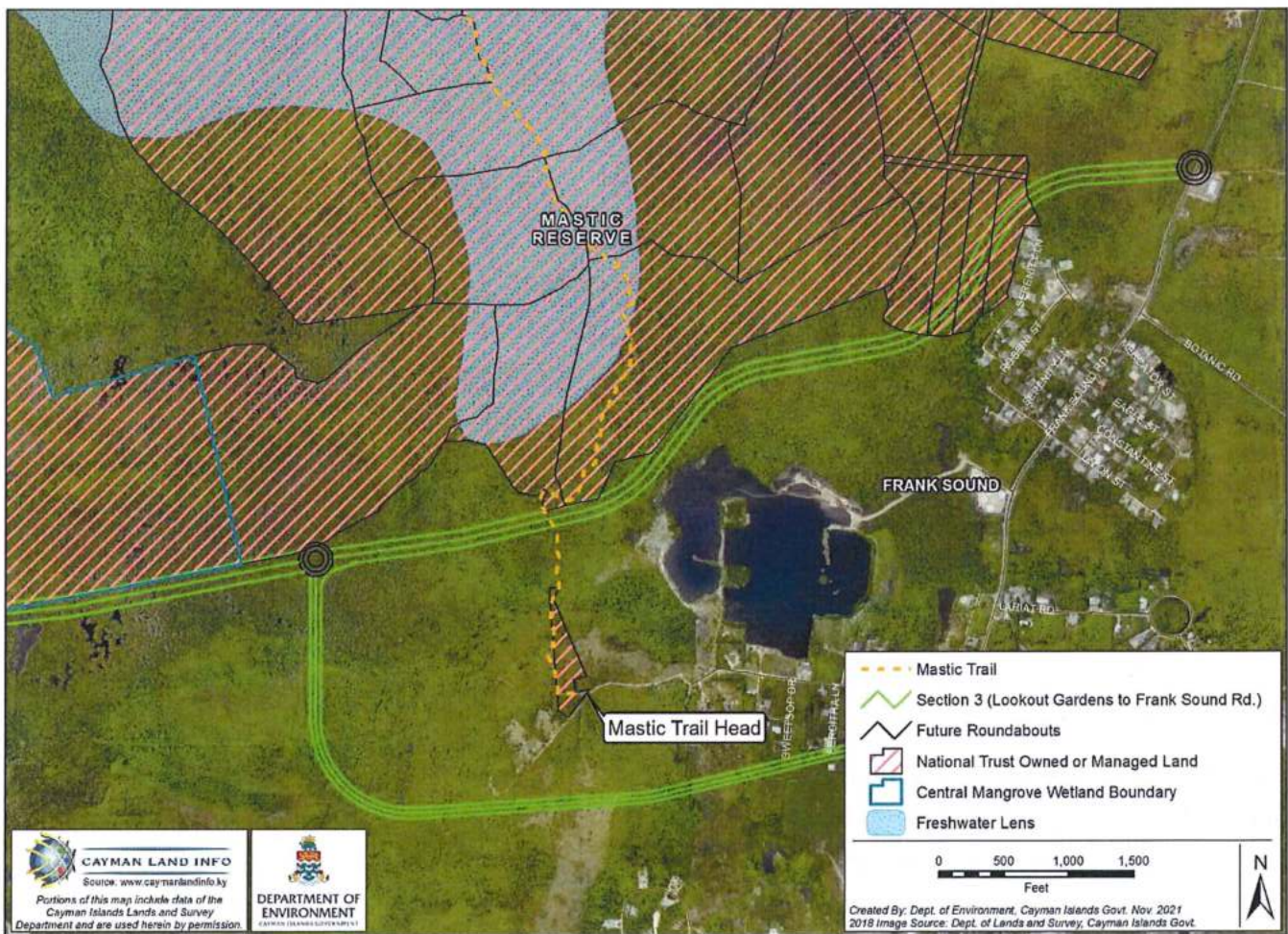


Figure 5. The proposed road will separate the southern trailhead from the remainder of the Mastic Reserve and pass directly through the Mastic Reserve in parts, and cause adverse ‘edge’ effects in other parts.

Potential Impacts

The proposed road cuts off the southern Mastic trailhead from the remaining trail, separating the first 1,800 feet (0.34 miles) from the remaining 2 miles potentially resulting in a loss of over 15% of the Mastic Trail.

There will be adverse construction effects including:

- Noise and vibration;
- Clearing of primary habitat;
- Loss of access; and
- Loss of amenity from construction.

There will be adverse effects during operation including:

- Noise and vibration;
- Littering;
- Lighting;
- Increased level of disturbance via uncontrolled access;
- Loss of access through the trailhead; and
- Loss of amenity due to the proximity of the road to an area which is currently secluded and natural.

A cultural and natural heritage impact assessment shall assess the impact to this protected area. It is likely that mitigation measures will include realigning the road south of the National Trust property to avoid adverse impacts.

5.7 Greenhouse Gas Emissions

Affected Resources

Trial pit information was collected in 2008 within the vicinity of the proposed road between Hirst Road and Lookout Gardens. The trial pit information showed that the majority of the proposed road does not have significant peat depths, although there are areas close to Lookout Gardens with approximately 5 ft depth on average. The peat overburden will be removed and disposed of, releasing greenhouse gases into the atmosphere.

The full length of the road is three times longer than the scheme previously assessed, and the volume of peat is likely to be much higher in the eastern sections of the proposed road given the elevation and the characteristics of the wetland.

Potential Impacts

A greenhouse gas emissions assessment should be included in the EIA for the construction of the proposed road. The main sources of emissions are likely to be:

- Emissions from demucking;
- Removal of carbon sequestration potential;
- Concrete production emissions; and
- Heavy Goods Vehicle movements.

A qualitative review of alternatives and route options must be provided, and a quantitative assessment of the route chosen must be calculated.

No operational assessment of greenhouse gas emissions is required on the basis that climate mitigation measures are best addressed in the form of national policy (e.g. The Development Plan, the National Energy Policy etc.)

5.8 Geo-environmental Considerations

The 2016 EIA Screening Opinion for the full length of the proposed East-West Arterial Road detailed the following topic for consideration:

- An assessment of impacts to off-site natural resources due to the excavation and/or mining of the significant quantities of aggregate required for construction of the 10 miles of road.

The required volume of aggregate to construct the road under the proposed alignment needs to be reviewed for the various construction options, e.g. excavating all peat and unsuitable material and using fill versus a geotextile membrane and fill versus elevating the road and leaving peat reserves in place. In 2018, an objection was made to a planning application for a new commercial quarry on the basis that there was already sufficient reserve of fill in the licenced commercial quarries and therefore a new commercial quarry was not needed. In August 2018, the Water Authority estimated the licensed reserve in commercial quarries to be in the range of 32 million cubic yards.

An initial estimate was provided however this area of the proposed road goes through areas with higher fill requirements due to the greater depth of peat. Updated projections must be provided in the Terms of Reference. The EIA must demonstrate that the fill needs for the preferred option could be met from the currently authorised quarry and not induce demand for a new quarry. Appraising potential design options will be critical for this assessment.

5.9 Socio-economic considerations

Socio-economic considerations, including the “need” and rationale for the road, should have been taken into account by way of a strategic environmental assessment prior to the gazettal of the road corridor. Unfortunately, the utility of an assessment of the “need” for the road extension and its socio-economic impacts will be of limited value now given that the corridor has been gazetted since 2005 and development applications subsequently approved along parts of the route have, to a degree, fixed its alignment.

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 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) Outline relevant experience in assessing Caribbean ecological systems and in particular terrestrial and mangrove environments such as, or similar to those present in the Cayman Islands;
- (ii) Include a qualified hydrologist or hydrogeologist capable of assessing (and modelling, as necessary) the stormwater drainage patterns and flows, and flood risks, between the developed areas south of the proposed road and the Central Mangrove Wetland north of the proposed road;
- (iii) Outline relevant experience undertaking large-scale stormwater drainage assessments and flood risk assessments in similar geological environments (i.e. carbonate and karst geology);
- (iv) Outline relevant experience in undertaking greenhouse gas emission assessments; and
- (v) Include relevant qualification towards the assessment of ecosystem services, cultural and natural heritage and biodiversity no net loss.

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 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 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