



DEPARTMENT OF
ENVIRONMENT
CAYMAN ISLANDS GOVERNMENT

Coastal Works Review

Nadine Brown

Colliers, East End – Reconstruction of a Previously-approved Private Residential Dock

Block: 73A Parcel: 74

Ref: DOE/CWK/377

PREPARED FOR: MINISTRY OF HEALTH, ENVIRONMENT, CULTURE AND HOUSING

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*Authored by: Technical Review Committee - Department of Environment, on behalf of the Director,
Department of Environment*

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Block: 73A Parcel: 74

Project Proposal

The applicant – Nadine Brown is seeking permission to reconstruct a previously approved dock which was destroyed in 2004 during Hurricane Ivan at #1536 Austin Connolly Drive, East End. The dock will be for the private use of the owner and guests of the house for swim access.

The application plans indicate that works will affect approximately 963 square feet of Crown property with a further 42 square feet landward of the mean high water mark (MHWM). However, the submitted plans are simply a duplicate of the originally approved plans dating back to 2000, with the coastal boundary being defined at that time as the Low Water Mark. It is currently defined under the Lands & Survey Regulations as being the Mean High Water Mark. If the applicant simply rebuilds the dock destroyed in Hurricane Ivan, in the footprint of the originally approved dock, the shoreward end of the dock will remain on Crown property. Therefore, **the area of Crown property occupied by the dock is 1,005 square feet** and we have recommended fees accordingly on this basis. Figure 1 illustrates the location of the licensed dock in 2004 (pre-Ivan) and Figure 2 shows the current state of the derelict dock and the position of the shoreward end (shown in red) if constructed in the footprint of the previously approved dock.

The reconstructed T-shaped dock will be 140 feet long and have a 5-foot 3-inch wide walkway. The dock will be supported by 8-inch diameter concrete reinforced PVC piles that will be jetted into the seabed from a 14-foot barge with a draft of 1-foot. The decking will be comprised of 2x6 inch pressure-treated lumber with ½ inch spacing between the boards. The finished height of the dock will be 4 feet above mean sea level.



Figure 1: LIS 2004 Pre-Ivan aerial imagery, showing the location of the previously approved dock and the proposed location of the proposed rebuild.



Figure 2: LIS 2018 aerial imagery, showing the remaining piles from the previously built dock and the shoreward termination point of the dock, seaward of the MHW (shown in red).

Environmental Overview & Impacts

The application site is not located in a Marine Protected Area but is located on a turtle nesting beach.

Loss of Benthic Habitat

The habitat cover in the footprint of the proposed works consists of a mixture of seagrass and sand. Impacts to seagrass are a concern as the previously built dock was destroyed over 15 years ago and there has been some recovery of the sea grass and other benthic habitats in this time. The reconstruction of the dock will re-introduce long-term shading which reduces vital light penetration required for seagrass growth and productivity. Seagrass is an important feature and contributor to the health of the marine ecosystem by providing living habitat, food and oxygen to marine fauna. Seagrass also plays a vital role in maintaining good water quality and providing some coastal buffering to mitigate the erosional effects of wave energy.

Artificial Lighting Impacts – Turtle Nesting

The application site is located on a turtle nesting beach. All marine turtle species are listed in Part 1 of Schedule 1 to the National Conservation Law, 2013, as being ‘protected at all times’. Artificial lighting is a major threat to our already endangered sea turtle nesting populations in the Cayman Islands. These lights can deter female turtles from nesting or disorient them on their way to and from the sea when laying their eggs. Once a nest laid and hatches, artificial lights can also cause baby turtles (hatchlings) to crawl away from the sea, where they die from dehydration or exhaustion or are killed by predators or vehicles. In the ocean, bright lights on docks shining into the water can attract hatchlings, causing them to gather under the source of artificial light and increasing their vulnerability to predators that are also attracted to lights in the water.

We appreciate that the applicant’s submissions do not indicate the use of any lighting on the dock at this time. Should the applicant wish to add lighting in future, we recommend that any lighting proposed for the dock is turtle friendly. Turtle friendly lighting is designed to meet the needs of beachfront property owners and guests without causing the misorientations of sea turtles and has many benefits. The Department encourages the installation of Florida Fish & Wildlife Conservation Commission (FWC) certified turtle friendly lighting fixtures. A list of certified fixtures is available from the FWC website. Guidelines on turtle friendly lighting and guidance on developing a Turtle Friendly Lighting Plan are available from the DoE’s website: <http://doe.ky/marine/turtles/turtle-friendly-lighting/>. Please refer to the DoE’s **Turtle Friendly Lighting: Technical Advice Note**. The key principles of turtle friendly lighting are to keep fixtures low and shielded and to use long-wavelength light (wavelengths of 560 nanometres and above).

Construction Impacts

Direct environmental impacts will result from the construction of the dock, mainly through the placement of piles into the seabed but also from the positioning of a barge to carry out the works.

In addition, after a visit to the site, the DoE notes that many of the existing piles are in a state of disrepair and will likely be unusable in the dock’s reconstruction (see Figures 2-4). For this reason, we

recommend the removal of any existing piles that will not be utilized in the dock's reconstruction and any existing debris remaining from the destruction of the previous dock from the marine environment.



Figures 3 & 4: DoE site visit photos showing the condition of the existing dock piles

In addition to the impacts caused by the dock's construction, the removal of the dock debris and unusable piles will likely cause additional turbidity in the area. Turbidity/siltation caused by the works can impact surrounding seagrass communities and marine organisms that depend on good water quality. Therefore, it is important to limit the impacts of sedimentation during the construction of the dock through the use of silt screens.

The applicant has not proposed a method to mitigate project impacts on the marine environment in their submission. However, we recommend the use of silt screens. It is important that these silt screens are deployed and anchored appropriately and remain in place for the duration of the in-water works to contain any suspended sediment. Furthermore, it will be important to ensure that the depth of the screen is appropriate to the water depth and does not result in the skirt of the screen dragging along the seagrass beds causing damage.

Comments & Recommendations

Notwithstanding the above-mentioned impacts, the Department recommends this application for **approval** subject to the standard Permit conditions and recommended Permit fees (Royalty, Environmental Mitigation and Administration & Monitoring) outlined in Appendix 1. In addition, we recommend the following conditions are attached to any grant of approval:

1. **All existing piles and/or debris from the previously built dock which will not be utilized in the reconstruction of the new dock shall be removed from the marine environment.**

Furthermore, to prevent heavy machinery destroying nests and to minimize the threat of artificial lighting on nesting and hatchling sea turtles, the following conditions are recommended to be attached to any grant of approval:

1. **There shall be no lighting which directly illuminates the water, including underwater lighting.**
2. **If there is to be lighting on the dock, the applicant shall prepare and submit a plan to the Department of Environment for turtle friendly lighting, which minimises the impacts on sea turtles. All lighting shall be installed in accordance with the plan, to be approved by the DoE. Guidance on developing a lighting plan can be found in the DoE's Turtle Friendly Lighting: Technical Advice Note (September 2018) available from <http://doe.ky/marine/turtles/turtle-friendly-lighting/>.**
3. **Prior to the commencement of works, the property owner/contractor shall contact the DoE to check for the presence of turtle nests; written approval shall be obtained from the DoE that no nests will be impacted by the commencement of works.**
4. **Should lighting be installed, the DoE will inspect the installed lighting for compliance with the turtle friendly lighting plan once construction and installation are complete.**

Technical Review Committee – Department of Environment
On behalf of the Director, Department of Environment