



Eco Solutions & Services Ltd.

Service with a will and a vision

Inland & Coastal Hydrology

Weather, Climate, & Natural Disaster Management Services

No. 4 Ninth Street

San Ignacio

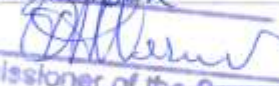
Mobile 501-602-3712, 501-629-1135

rfrutos01@yahoo.com

DATE: OCTOBER 14, 2010

MA13

This is the Letter marked
MA13 referred to in the AFFIDAVIT
of MARTIN ALEGRIA
sworn to at BELMOPAN
day of NOVEMBER This 24th
2010


Commissioner of the Supreme Court
RA BERNARD, C.S.C., J.P.

TO: WHOM IT MAY CONCERN

SUBJECT: Placencia Hotel Marina, Placencia Peninsula, Belize

EcoSolutions and Services Ltd, a private Consulting Group, is managed by Mr. Ramón Frutos, MSc (Applied and Agricultural Meteorology and Hydrology, University of Reading, UK). The Group provides expert services in the area of Inland and Coastal Hydrology; and Weather, Climate and Natural Disaster Management in Belize and regionally. Since May, 2010, EcoSolutions & Services has been subcontracted by Belize Environmental Technologies to conduct coastal environmental monitoring in the vicinity of the proposed Placencia Hotel Marina site, located on the Placencia Peninsula, some 9 miles north of the village of Placencia.

The Valeport Midas 106 Automatic Weather Station and the Valeport Current Meter being used in the coastal environmental monitoring were installed on the east end of the Placencia Hotel pier, which is about 100 meters from the beach, and where the depth of the water is some 3 meters at low tide. Test readings were conducted during the month of June, and systematic recordings of the following parameters are being compiled and archived to date:

- 1) Wind Direction and Wind Speed at 15 feet from normal water level
- 2) Air Temperature in degrees Celsius
- 3) Turbidity (at 1.5 meter depth)
- 4) Tide Height (Low, High and Average water level from datum at 1.5 meters from the sea floor)
- 5) Sea Current Flow (direction and speed at 1.5 meters depth)
- 6) Sea temperature(degrees Celsius at 1.5 meters depth)

In response to the recommendation from National Environmental Appraisal Committee (NEAC) for the need to conduct systematic oceanographic and climatic monitoring of the marine environment in the vicinity of the proposed Marina, the proprietors of the Placencia Hotel Marina are committed to continue with the environmental monitoring and analysis of the data for an extended period after the Marina is

completed and is operational. All the results of the analysis will be forwarded to the NEAC as they become available.

The parameters of interest in order to evaluate any significant impact the Marina might have on the coastal zone of the Placencia peninsula are: the sea current flow and direction; the surface wind speed and direction, turbidity and the tides.

The location of the Placencia Hotel Marina is mid way on the Placencia peninsula coastline, buffered by numerous coral atolls and fringe reef within the Southern Shelf Lagoon (Purdy, 1975), some 2 to 5 miles to the northeast, east and southeast. Within this zone the water depth is shallow, not exceeding 8 fathoms (48 feet) and the prevailing surface winds are from the Northeast and East, with seasonal changes from the Southeast in the dry season (March-May) and Northwest in the cool transition period (November-February). Winds speeds are generally 10-15 knots in the locality, but may become gusty and gale force in tropical disturbances and strong frontal incursions. Normal high tides do not exceed 2 feet and is generally less than 1.5 feet.

The prevailing current flow in the western Caribbean and just within the Belize Barrier Reef is from the Southeast to Northwest, but may change in a North to South trajectory from time to time within the Shelf Lagoon (i.e. the zone between the first line of Cayes and the coast). Anomalous local gyres within the current flow have been detected within the Shelf Lagoon and one is often observed in the Southern Shelf Lagoon off the Placencia peninsula. These localized propagating currents and gyres dictate the coastal sediment flow and ebbs that emanate from the estuary of the South Stann Creek River to the north of the Marina site and from the estuary of the Swasey/Monkey River system to the south. Sediment suspension and flow in the southern coastal zone is dynamic and is directed by the discharge from these two main rivers. Preliminary current meter readings in the vicinity of the Marina site downloaded since mid July to present indicate a localized flow from the South and Southwest at less than 5 knots. This is indicative of a sluggish sediment flow just along the coast, but which may be much more energetic farther offshore where the currents are more brisk.

The Placencia Hotel Marina which is designed to minimize any impediment to the natural current flow and hence to the sediment movement along the local coastal zone both to the north and south of the Marina site, will cause little or no significant effects on the natural sediment accretion within that region of the coast.



Ramón Frutos