



CoastalEdge

Coastal Land Assessment Report



Dear Sir/Madam,

We are pleased to submit the **Coastal Land Assessment Report** for the selected beachfront land parcel. This report has been prepared by CodeRunner Solutions using a combination of satellite imagery, digital elevation models, and field-referenced datasets to provide a comprehensive evaluation of the site.

The analysis covers key coastal parameters including:

- **Beach width variations** under tidal conditions
- **Elevation and flood risk assessment**
- **Sand quality and beach characteristics**
- **Wind conditions and seasonal climate factors**
- **Sea depth profile**

Our findings indicate that the parcel holds strong potential for sustainable development, with favorable natural conditions such as safe elevation, attractive beach quality, natural ventilation from coastal winds, and more.

We trust this report will be a valuable resource in your professional evaluation and decision-making. Should you require further clarifications, detailed data outputs, or additional site-specific modeling, we would be happy to provide continued support.

Thank you for the opportunity to collaborate on this important assessment.

Sincerely,
CoastalEdge Team.

Coastal Land Assessment Report – Dondra Beachfront Parcel

Client Selected Plot: Dondra Coastal Zone, Southern Sri Lanka

Prepared by: CodeRunner Solutions

Date: November 06, 2025

1. Beach Width Analysis

The front section of this property faces a rocky shoreline, which provides natural coastal protection but does not support conventional beach formation. As a result, beach width analysis cannot be performed because there is no measurable sandy stretch between the land and sea.

Interpretation:

- The rocky front offers natural defense against erosion and wave impact.
- However, it also means there is no usable sandy beach area directly in front of the property.

What this means:

This property is ideal for oceanfront living or development with sea views, but not suitable for direct beach recreational activities.

Data Source:

Beach width analysis is done using Google imagery data going back to 2014.

2. Elevation & Flood Risk

A 3D elevation map represents terrain elevation in three dimensions, showing the relative height of land above sea level. It helps assess the flood vulnerability and drainage potential of coastal land.

Using elevation models like DEMs and TINs, one can visualize the slope, ridges and low-lying areas. This is important for safe building placement and understanding how water may accumulate or flow.

High elevation offers natural protection against storm surges, sea-level rise and heavy rainfall events.

3D Terrain Analysis:

- A 3D model shows that the land is **at a safe height**, not in a known flood-risk area.

What this means:



The land is generally **safe from flooding** during normal weather and tides.

 Flood Risk:

The plot is generally safe under normal weather and tidal conditions, but coastal engineering precautions are recommended for any new construction due to proximity to open sea exposure.

Data Source:

Elevation and flood risk is done using the most recent Google Digital Elevation Model (DEM) data available.

3. Sand Quality & Beach Type

Since the shoreline is predominantly rocky, there is no sandy beach segment suitable for sampling or classification.



Implication:

- The coastline here is rocky and rugged, providing scenic beauty and privacy but not walkable sandy terrain.
- This type of coastal setting is common around Dondra Point, where rocky outcrops meet the ocean.



Data Source:

Sand Quality and Beach Type identification is done using the most recent Google Maps imagery and view points.

4. Wind Conditions & Climate

The Dondra coastal area is characterized by strong seasonal wind variations driven by the Southwest and Northeast Monsoons. Due to its headland position, Dondra Point experiences slightly higher wind exposure compared to sheltered inland areas.

General Wind Behavior:

- **Southwest Monsoon (May – September):**
During this period, onshore southwesterly winds dominate, often reaching 40–50 km/h, with occasional gusts up to 60 km/h when the monsoon is active. These winds bring cooler temperatures and occasional sea spray but may also increase coastal wave activity.

- Northeast Monsoon (December – February):
Winds shift direction and become gentle and offshore, typically ranging from 15–25 km/h. This creates calm sea conditions and a more tranquil coastal environment, ideal for outdoor and recreational use.
- Inter-Monsoon Periods (March–April & October–November):
Winds are generally light and variable, with stable weather patterns and minimal disturbances.

What this means:

- The property benefits from excellent natural ventilation and cooling throughout the year.
- Structural design should account for periodic strong winds, especially during the Southwest Monsoon.
- Salt corrosion protection is recommended for metal fittings, roofing, and exterior finishes.

Implication:

The wind and climate profile of Dondra is highly favorable for residential or resort-style developments, providing year-round sea breezes and comfortable temperatures. Proper architectural planning can harness these natural winds for sustainable cooling while maintaining durability against seasonal gusts.

Data Source:

Wind conditions and climate analysis are done using the Sri Lanka Meteorological Department's data.

5. Sea Depth Profile

Due to the rocky coastal boundary, sea depth profiling is not applicable for this property. The uneven seabed and scattered rock formations prevent accurate measurement using standard shallow-water profiling methods.

Implication:

- The immediate nearshore zone is rocky and uneven, not suitable for swimming or marine construction.

Data Source: Data Source: satellite-derived bathymetry data

Conclusion

This land in Dondra is a **great choice for development** due to:

- **Rocky natural coastal protection**
- **uninterrupted ocean views**
- **Elevated and secure terrain**
- **Excellent panoramic sea views**