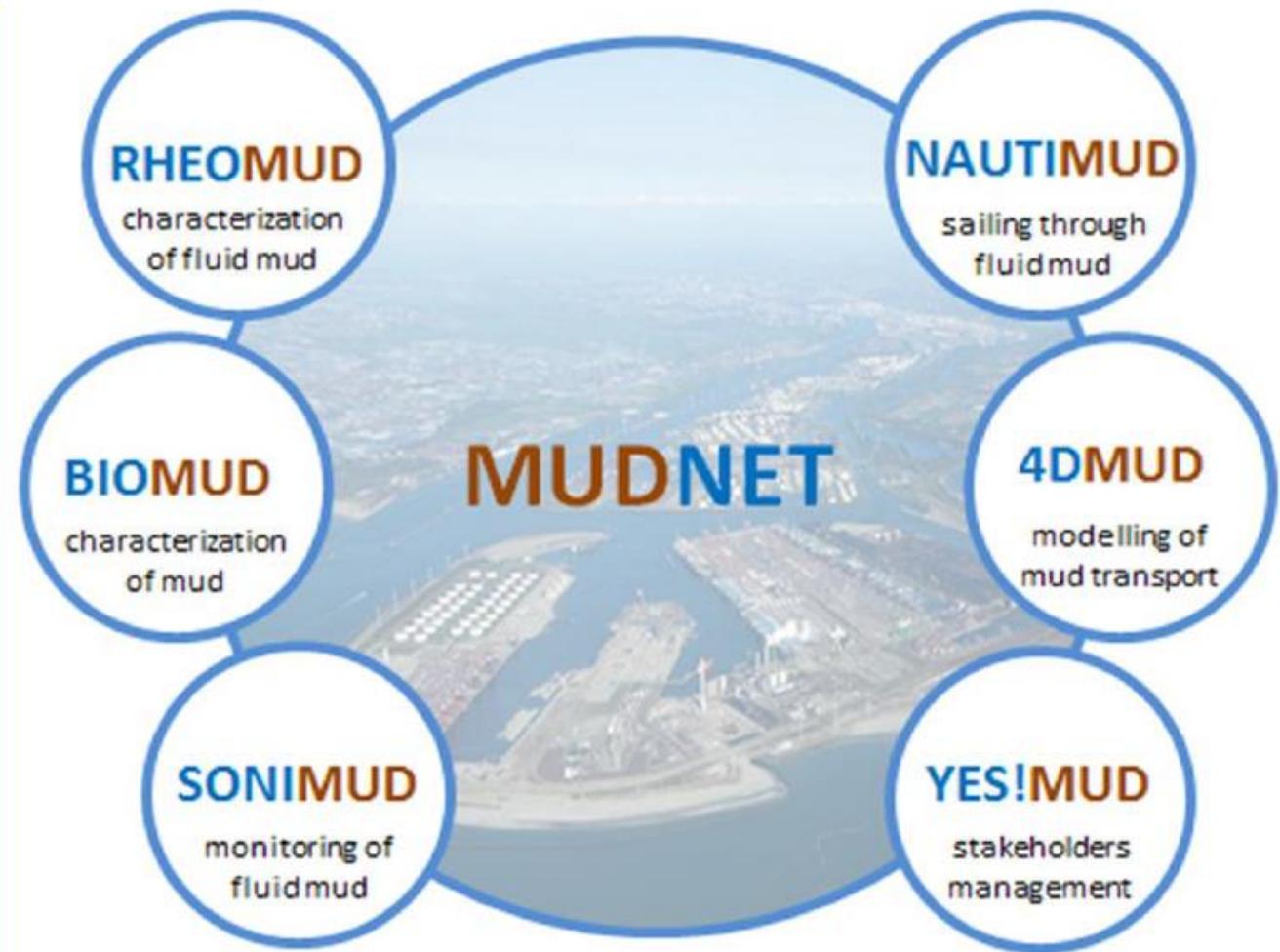


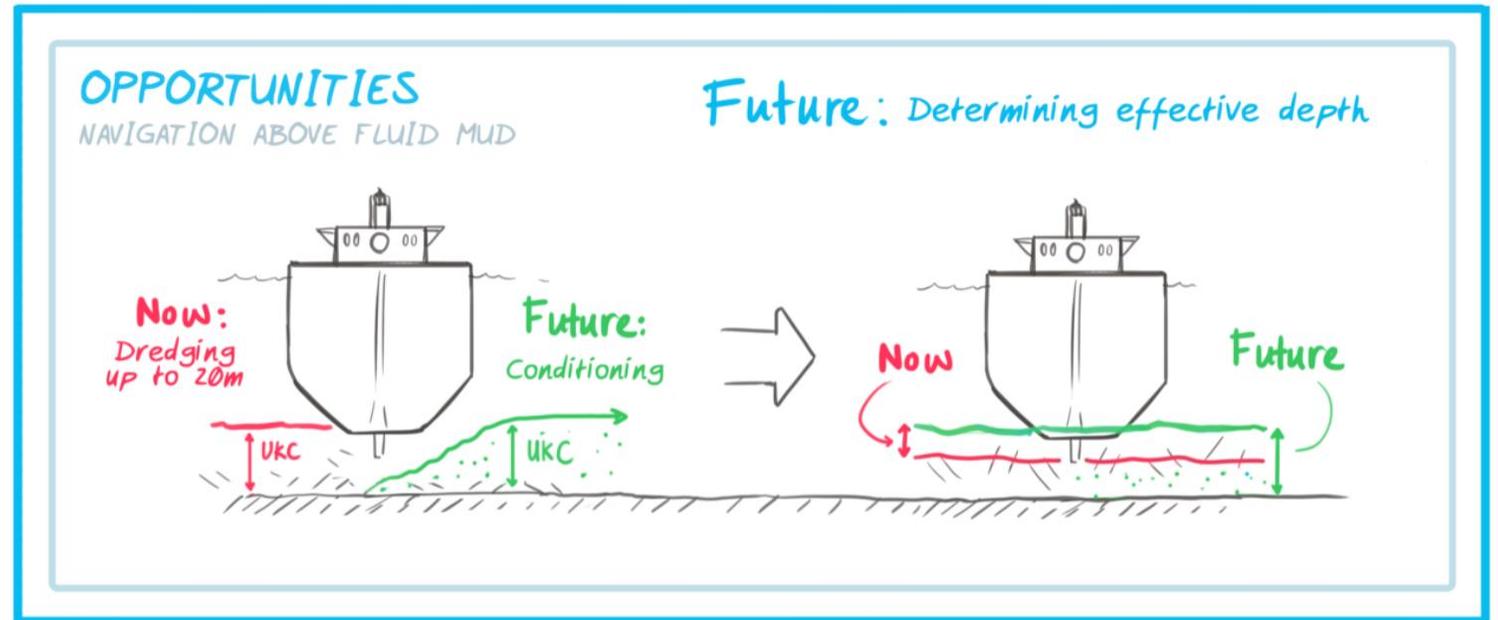
**AGP  
contracting  
dredging  
services vs.  
new  
Concession**



**VNT SFO new  
Concession =>  
MUDNET to  
reduce  
maintenance  
dredging**



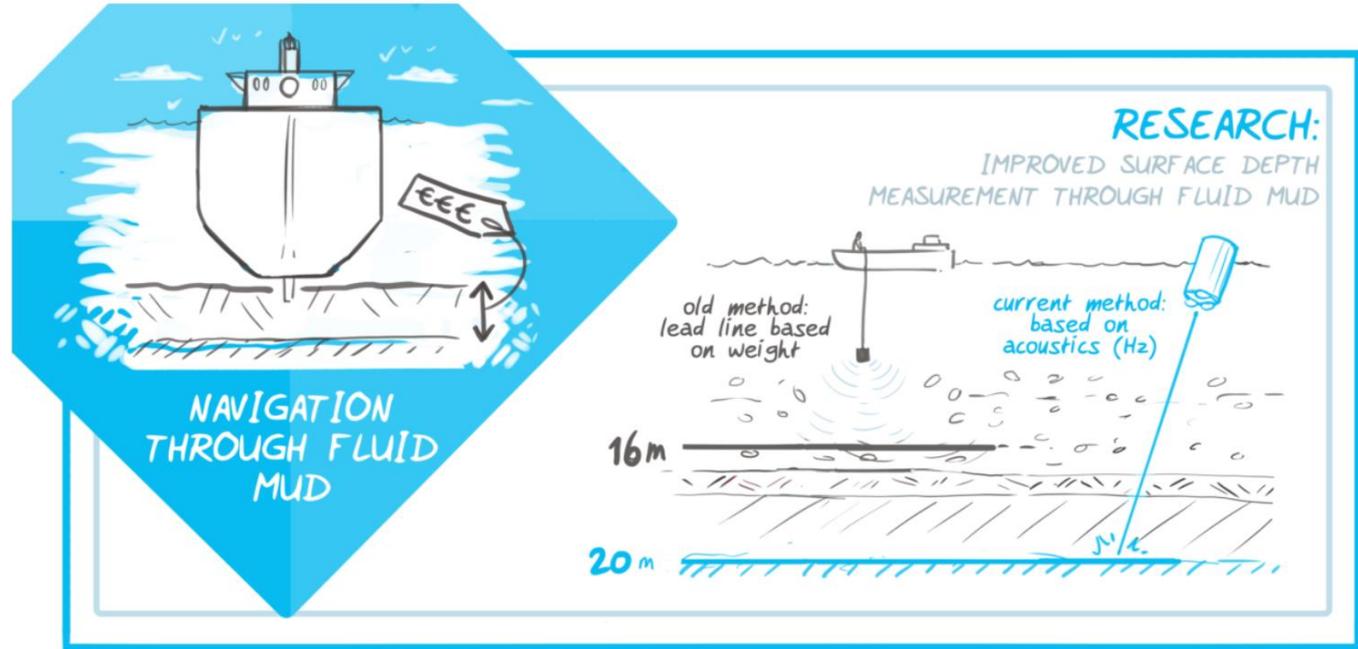
# VNT SFO new Concession => MUDNET to reduce maintenance dredging



## Opportunities

- Less dredging – The distance between the deepest point of a ship, the keel, and the bottom of the waterway must be kept at a minimum, the so-called under keel clearance (UKC). If mud of a certain consistency turns out to be navigable, at the same waterways less dredging is needed to guarantee the desired UKC.

# VNT SFO new Concession => MUDNET to reduce maintenance dredging



## Research

Fluid mud at the bottom of ports and waterways is an important factor in determining the effective depth. So far, the density of the fluid mud has been used as a key parameter to determine the nautical bottom. A completely new method for surface depth has recently been developed which also takes into account the viscosity and yield stresses of the mud, the so-called rheological properties.

The potential of the new method is enormous, since mud of a certain consistency turns out to be navigable. This offers two opportunities: Firstly, an increase in the ships load, which is more efficient and therefore beneficial to the shipping companies. Secondly, less dredging and, consequently, a reduction in dredging costs. Less dredging also has extra advantages: less hindrance for ships and a positive impact on biodiversity in the port area.

**UR  
deepening  
channel  
and/or AR  
Magdalena  
channel**



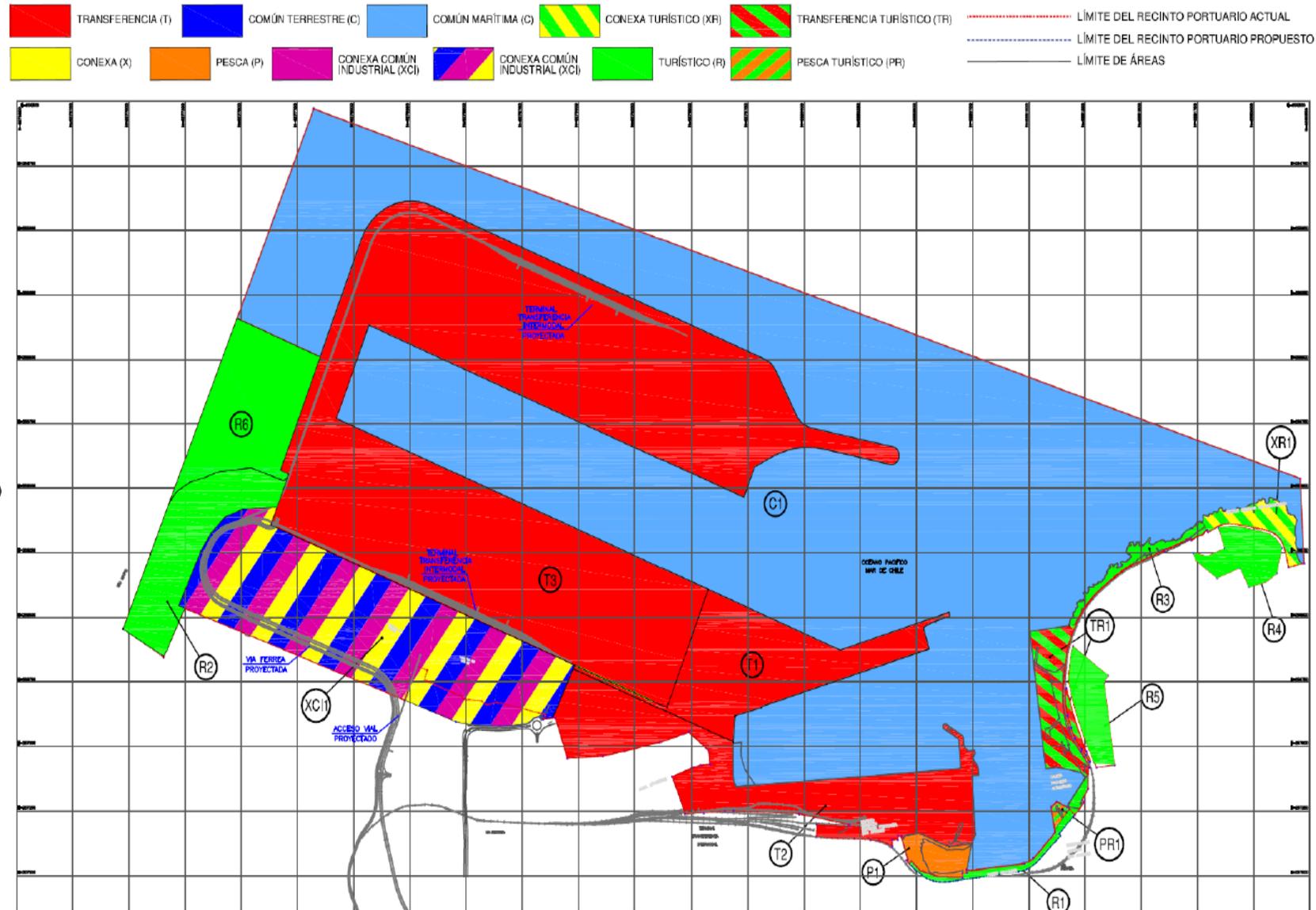
# CARP – Martín García channel maintenance



# San Antonio Mega Port Exterior in JV with Dragados and Bescalco



# San Antonio Mega Port Exterior in JV with Dragados and Bescalco



## San Antonio Mega Port Exterior in JV with Dragados and Bescalco



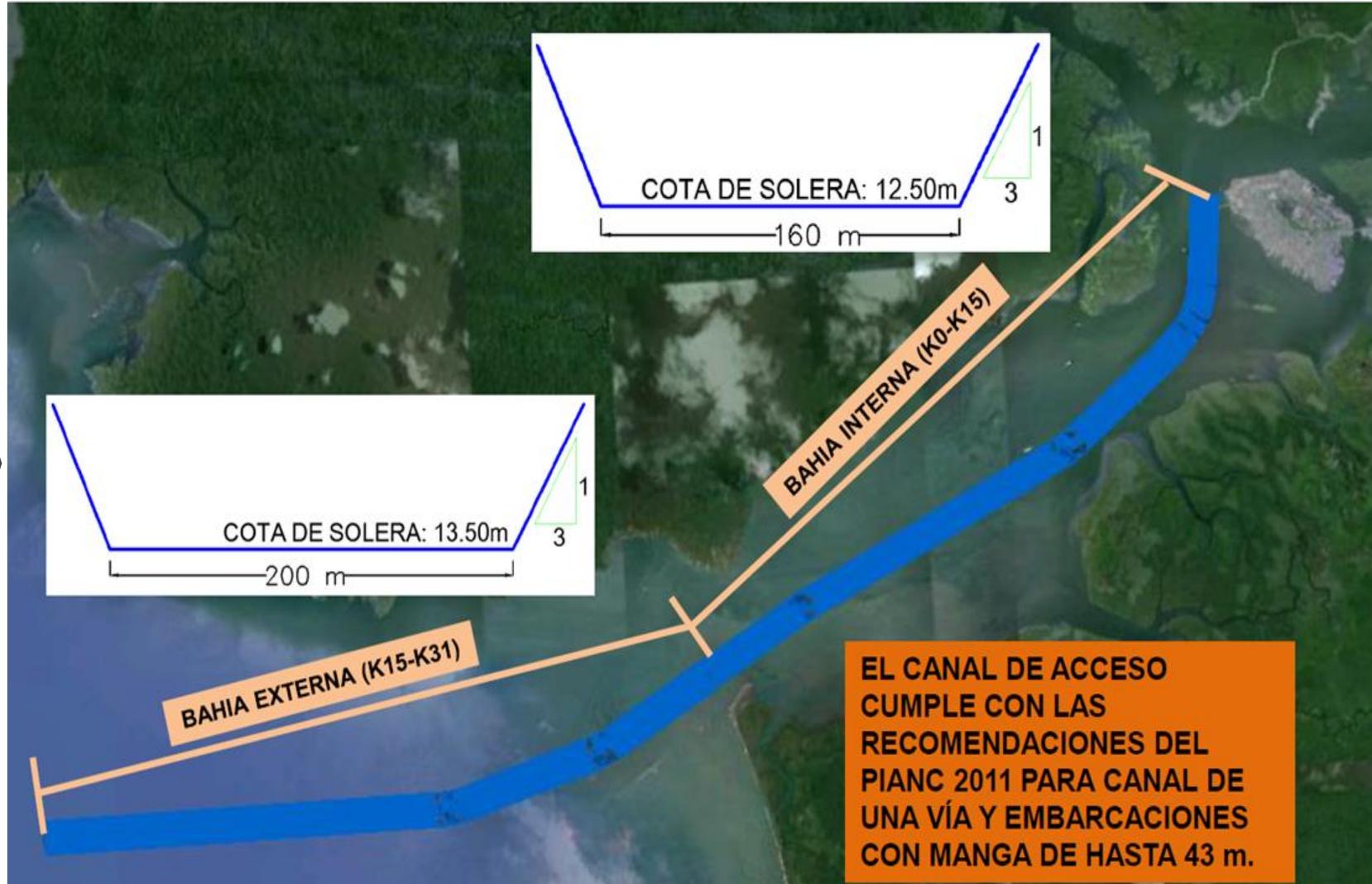
FIGURE 2: AN EXAMPLE OF A BUILDING WITH NATURE ALTERNATIVE APPLIED TO THE EXPANSION OF PORT SAN ANTONIO IN THE REPORT FROM (VAN BATENBURG, VAN HEIJNINGEN, HOOGENDOORN, KLARENBEK, &

## Colombia main prospects:

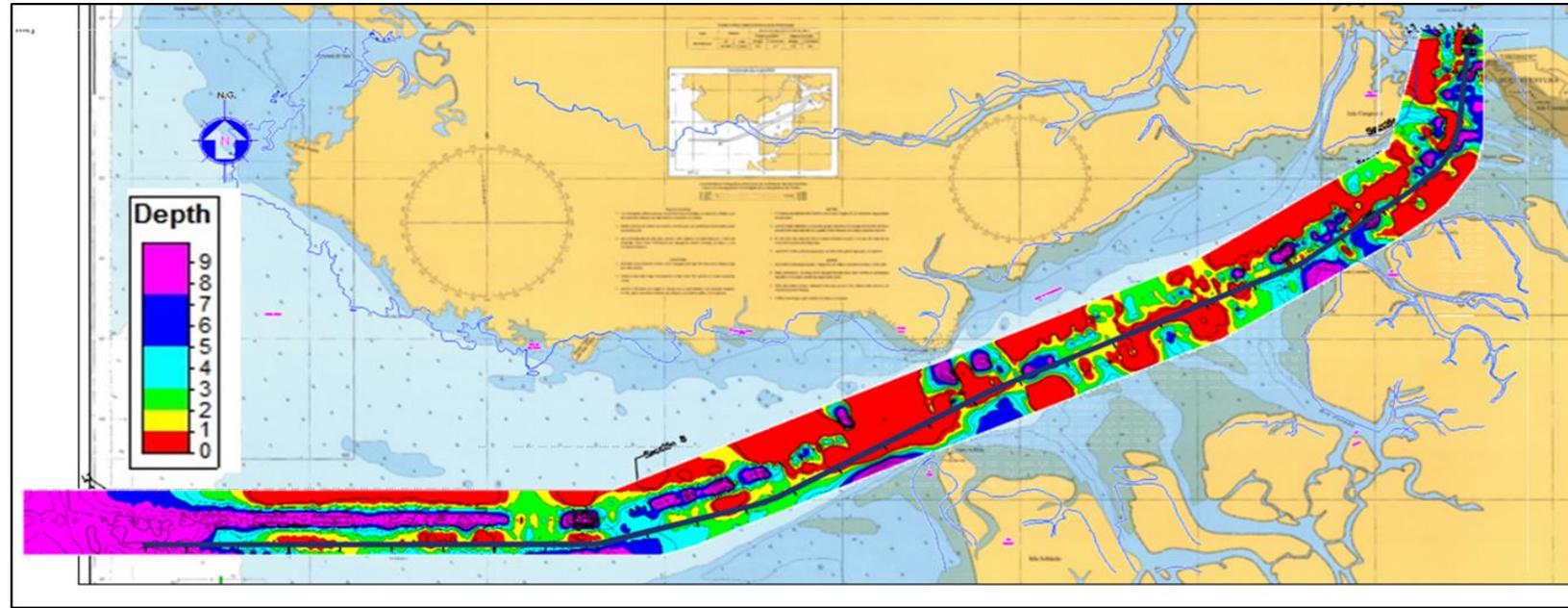
- **PPP Buenaventura deepening & widening => competitor appealing rejection PPP proposal => followed by new PPP process or tender by ANI? => includes major rock dredge quantity till - 16 m depth => local partner and funding.**
- **no PPP bids for access dredging to Barranquilla and Magdalena => Findeter received instruction to buy a dredger => alternatively, advantages of Dragacol**



**Buonaventura  
deepening and  
widening  
access  
channel**



**Buonavontura  
deepening and  
widening  
access  
channel**



**Barranquilla and  
Magdalena  
access  
dredging up to  
km 22**



**Barranquilla and  
Magdalena  
access  
dredging up to  
km 22**

