



# The Importance of Accurate Marine Survey Data for Cable Route Design





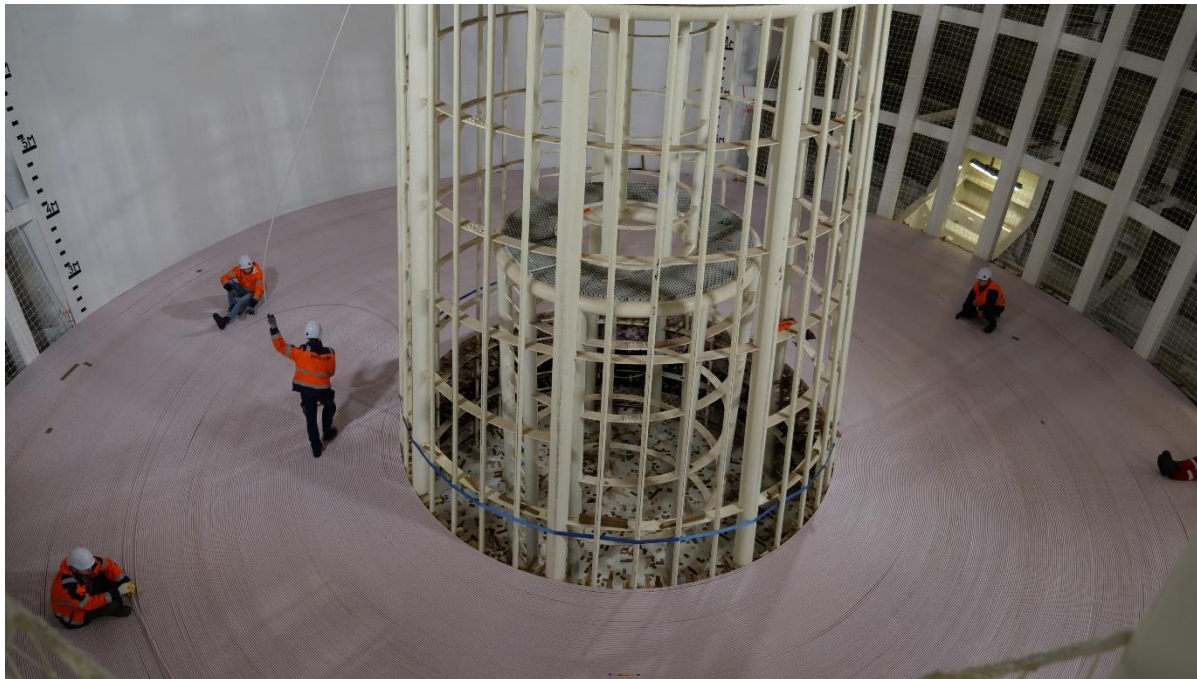
**Senior Cable Route Engineer**



**Alcatel Submarine Network Office, Greenwich  
CS Mercury loading cable, 1965**

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- Cable route engineering process
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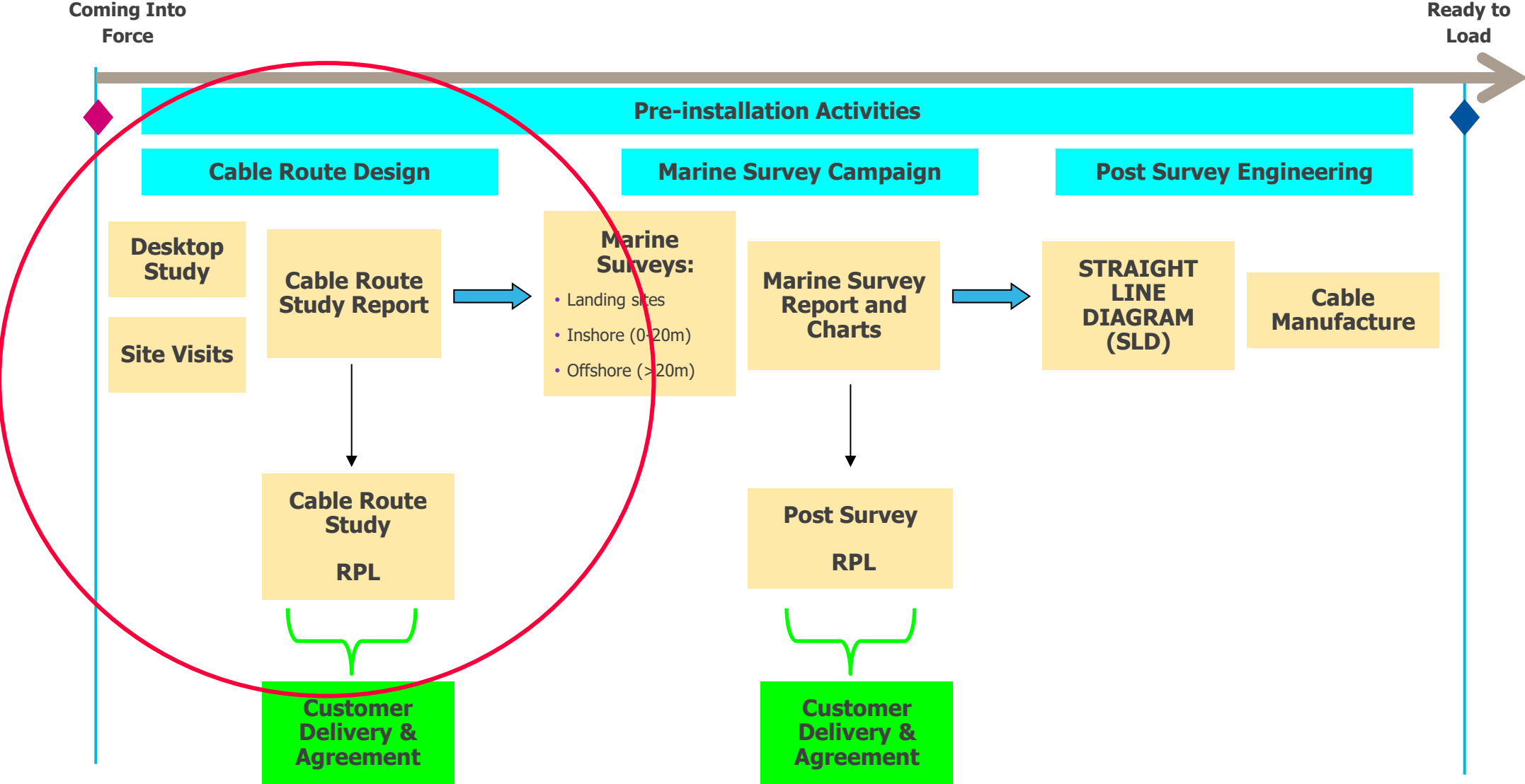


**Cable loading – Ile De Yeu**



**Ile De Sein enjoying some sun**

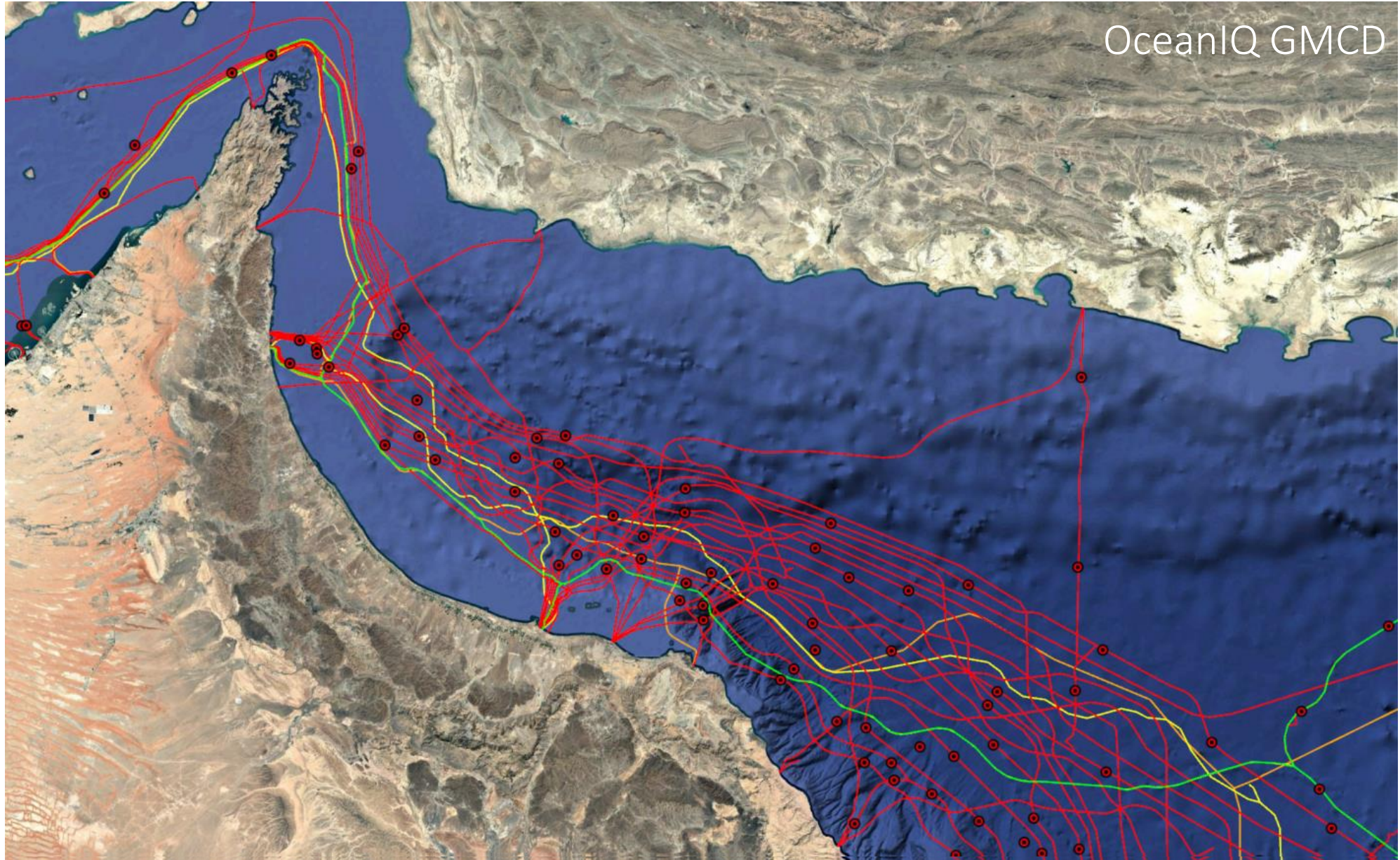
# Route Engineering Timeline



# Desk Top Study - Site Visits



# Route Planning



# Cable route planning – the challenge


1987





Cable recovered to deck by grapnel

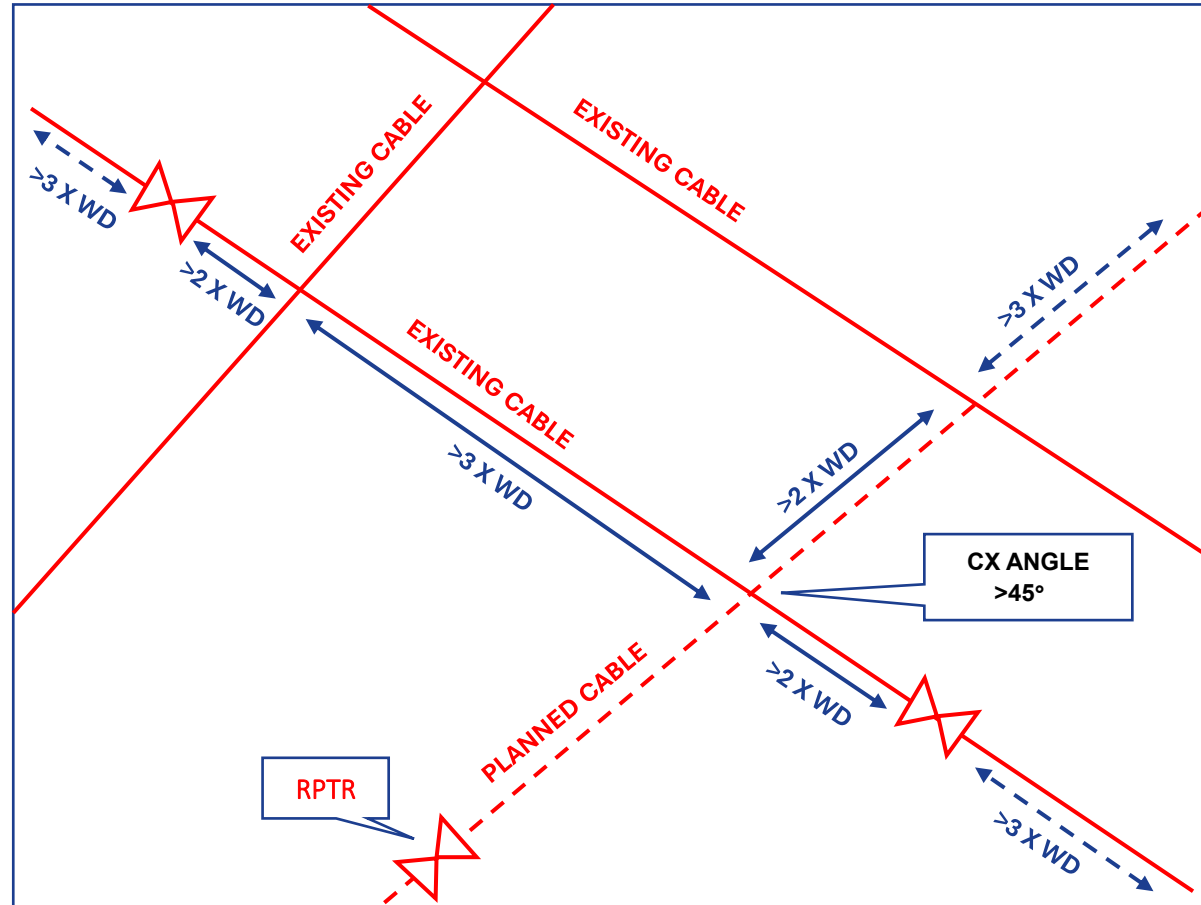
- ROV recovery <900m water depth
- Grapnel recovery >1000m water depth
- ICPC Recommendation No.2 details several rules associated with crossing or routing close to 3<sup>rd</sup> party cables. The most significant of these are:
  - Ensuring good crossing angles
  - Separation from 3<sup>rd</sup> party wet plant
  - Separation from 3<sup>rd</sup> party parallel cables



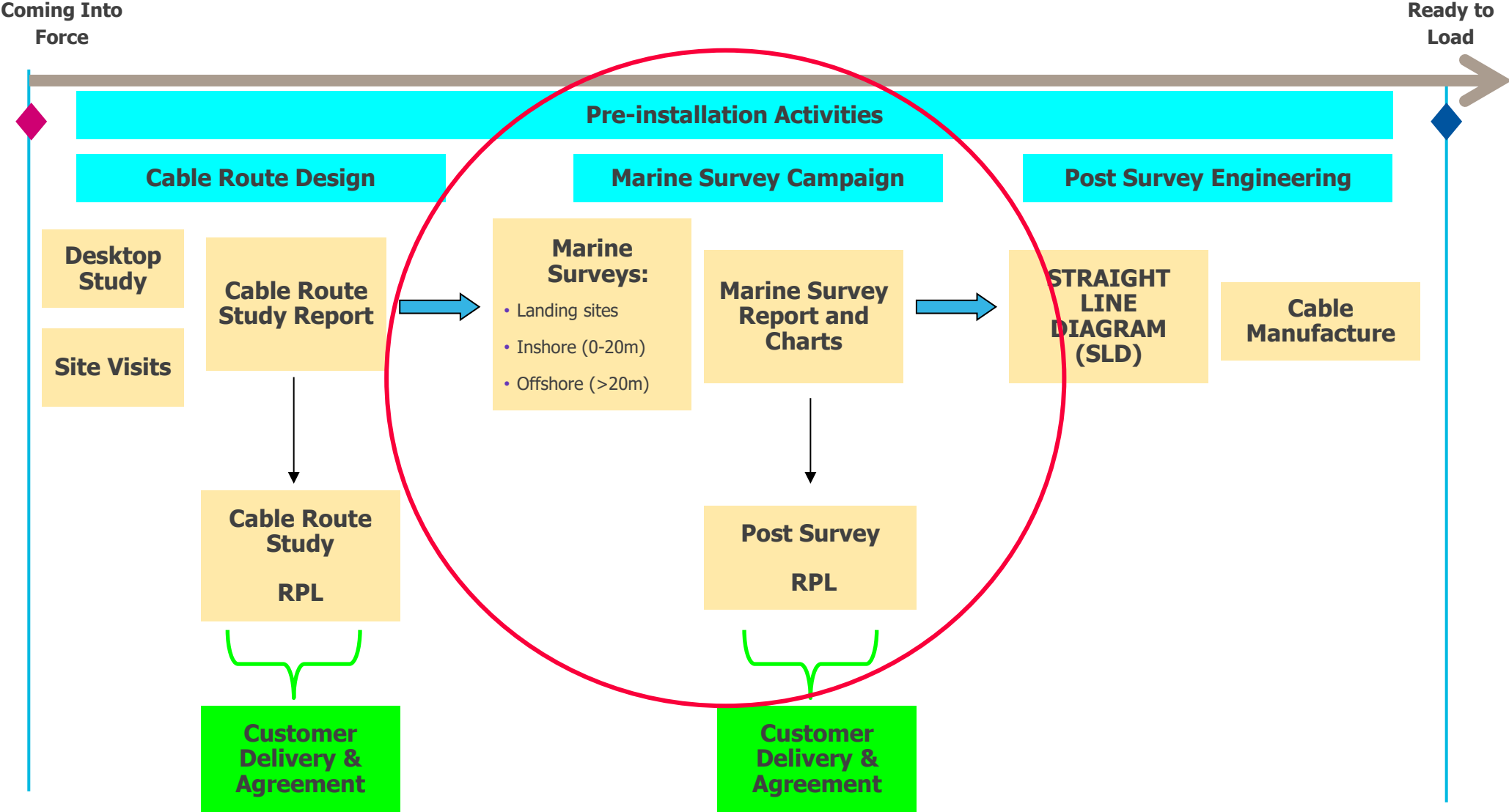
ICPC Recommendation  
Recommendation No. 2  
Recommended Routing and Coordinating  
Criteria for Submarine Telecommunications  
Cables in Proximity to Other Such Cables

Issue Date	Issue Number (Substantive changes)	Suffix letter (Peripheral changes)
31 July 2023	12	C

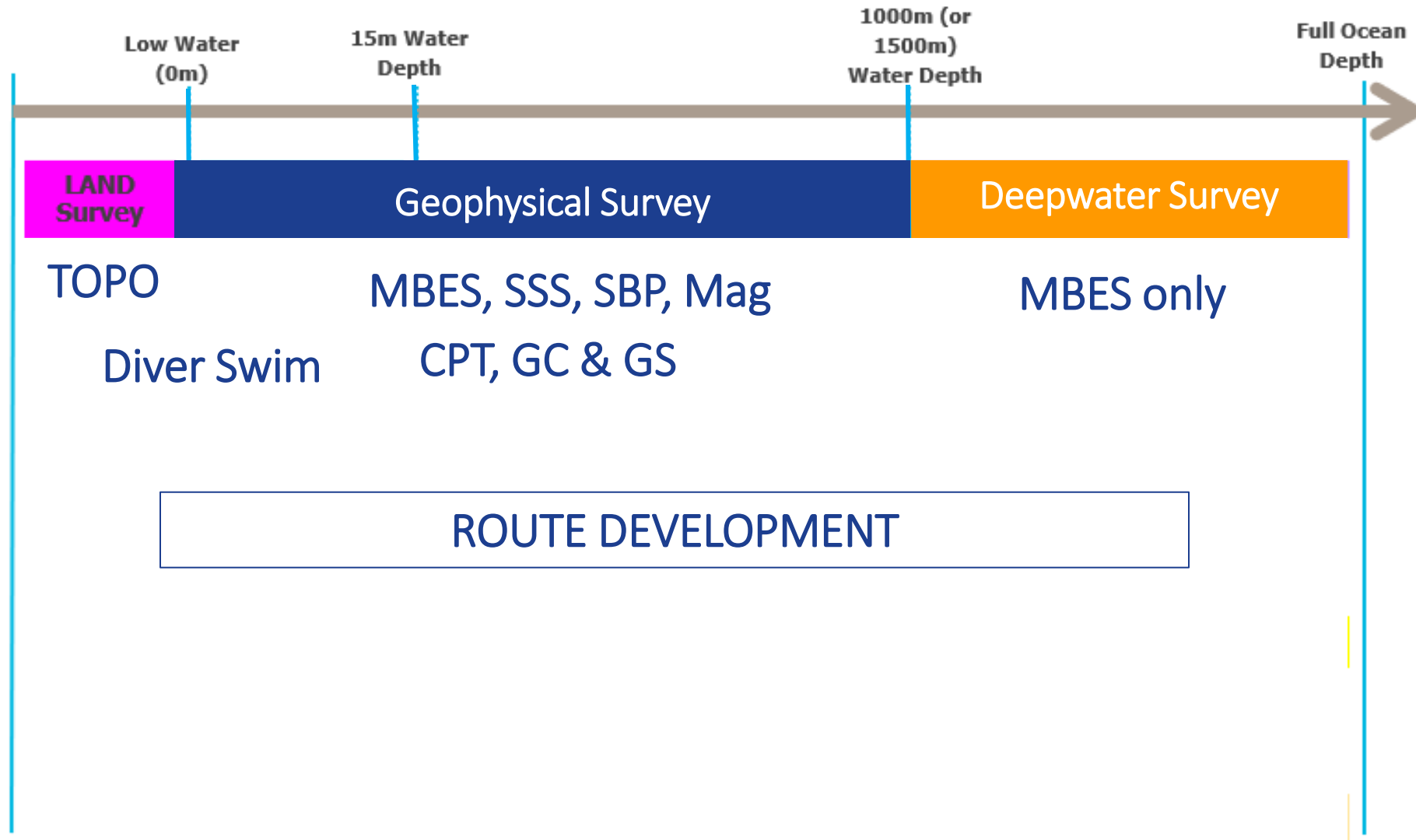
# Applying ICPC recommendations



# Route Engineering Timeline



# Survey requirements



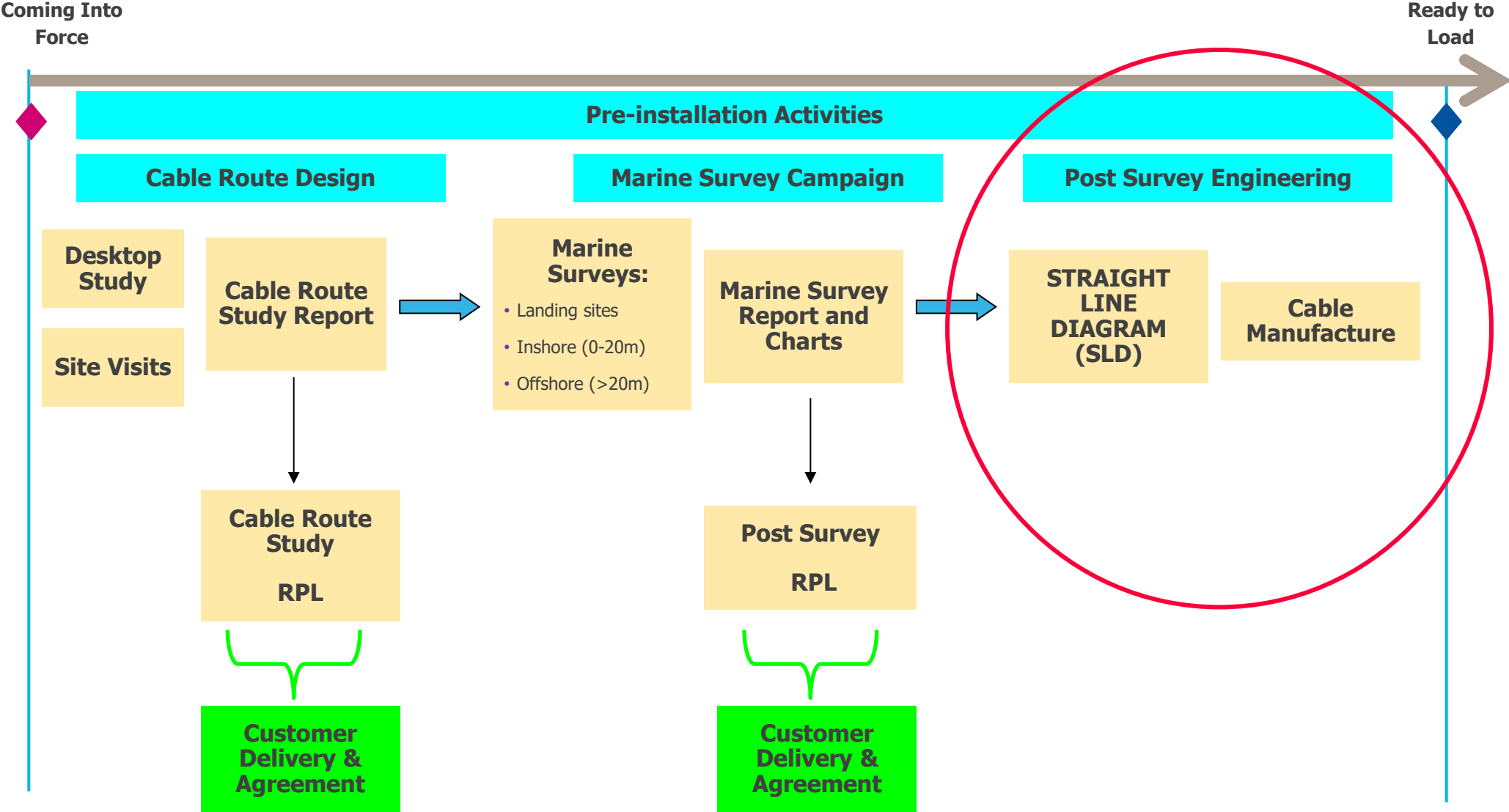
# Marine Survey Operations



# Marine Survey Operations - Vessels of Opportunity

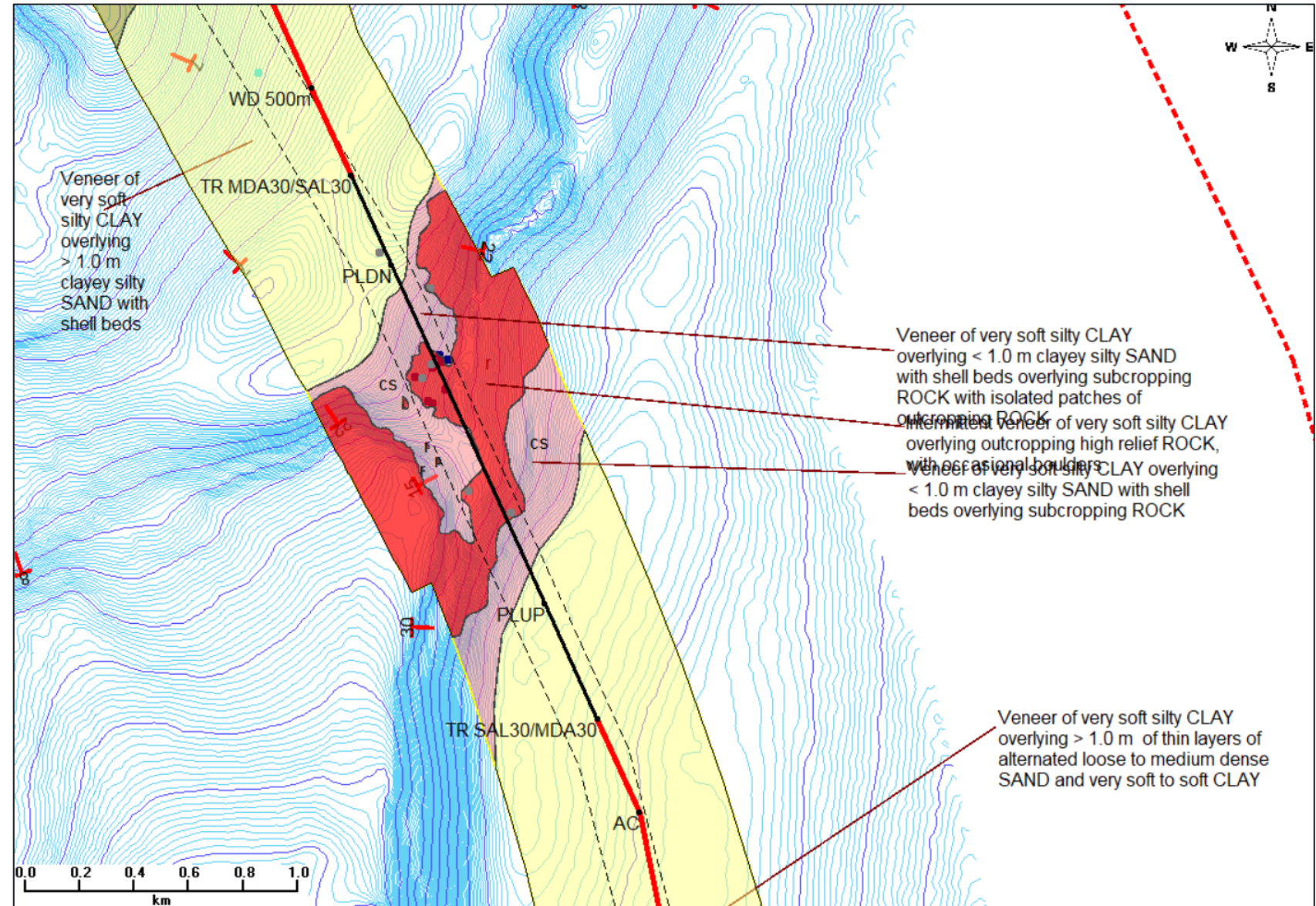


# Route Engineering Timeline



# Post survey route engineering

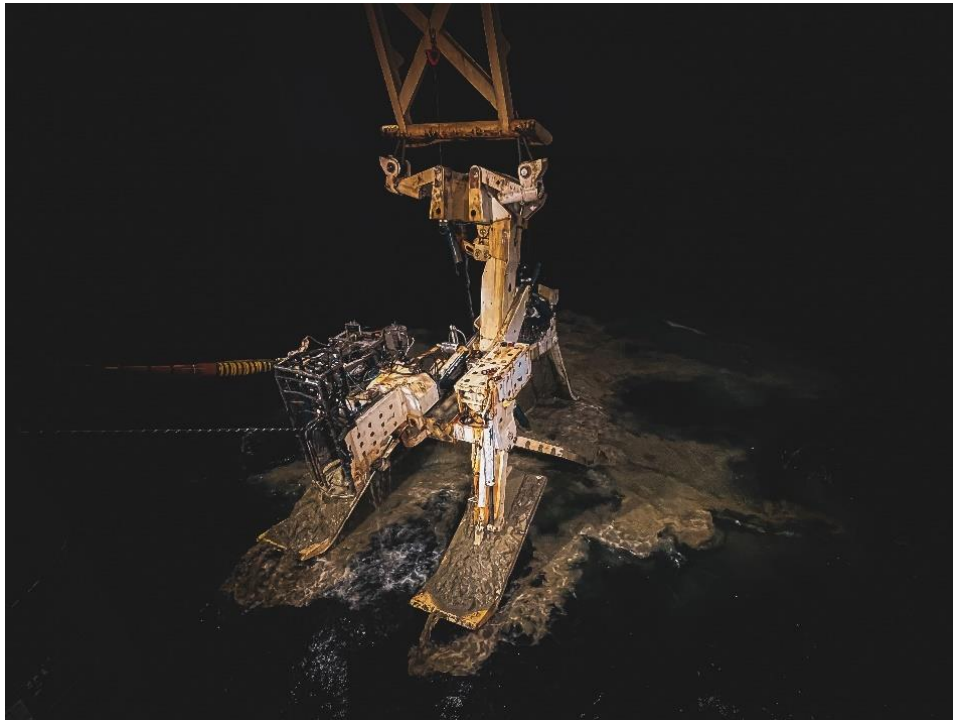
1. Survey results allow us to post engineer the cable route and apply appropriate protection
2. We can determine where burial will be possible, and where additional armouring should be recommended



# Post survey route engineering

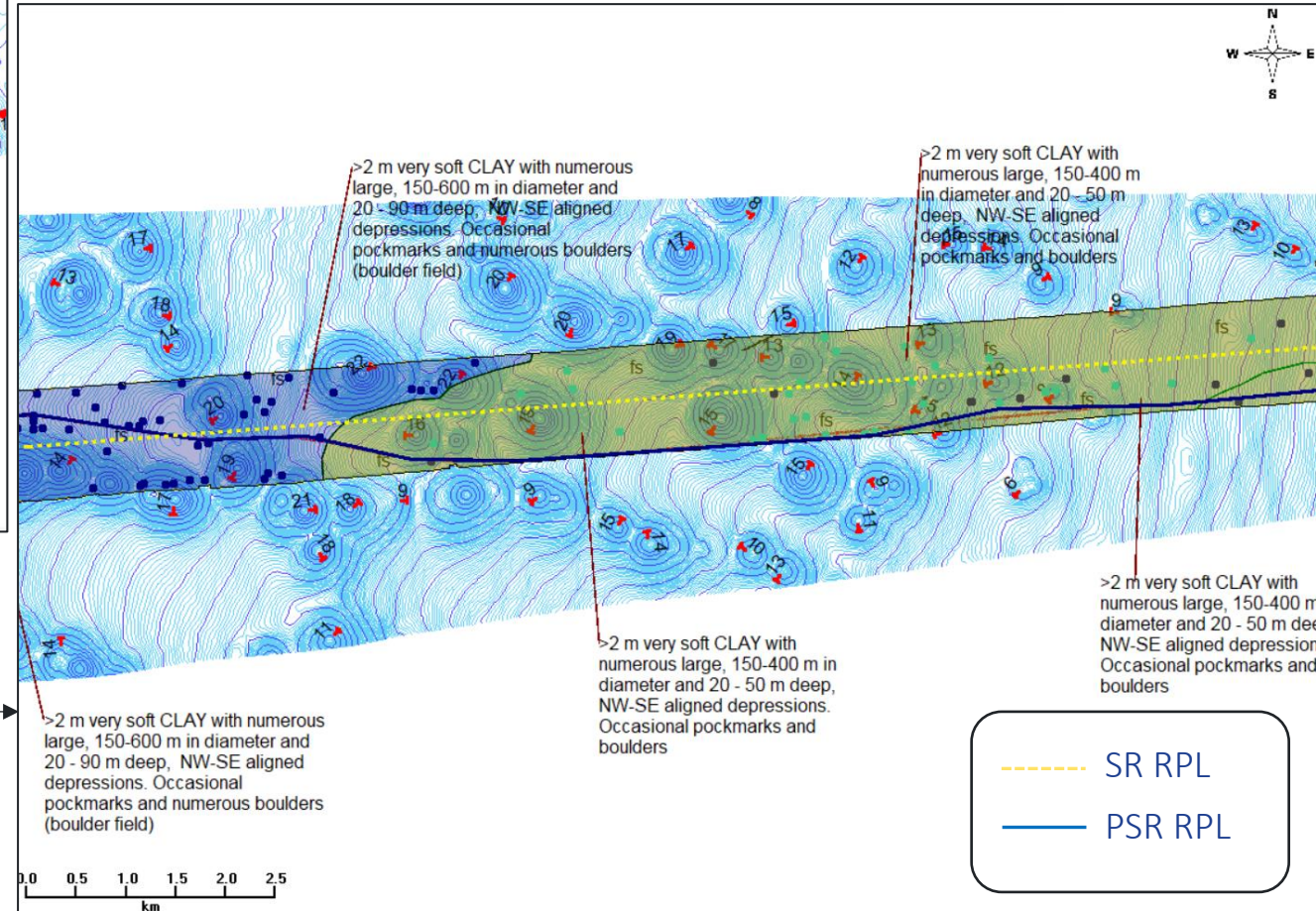
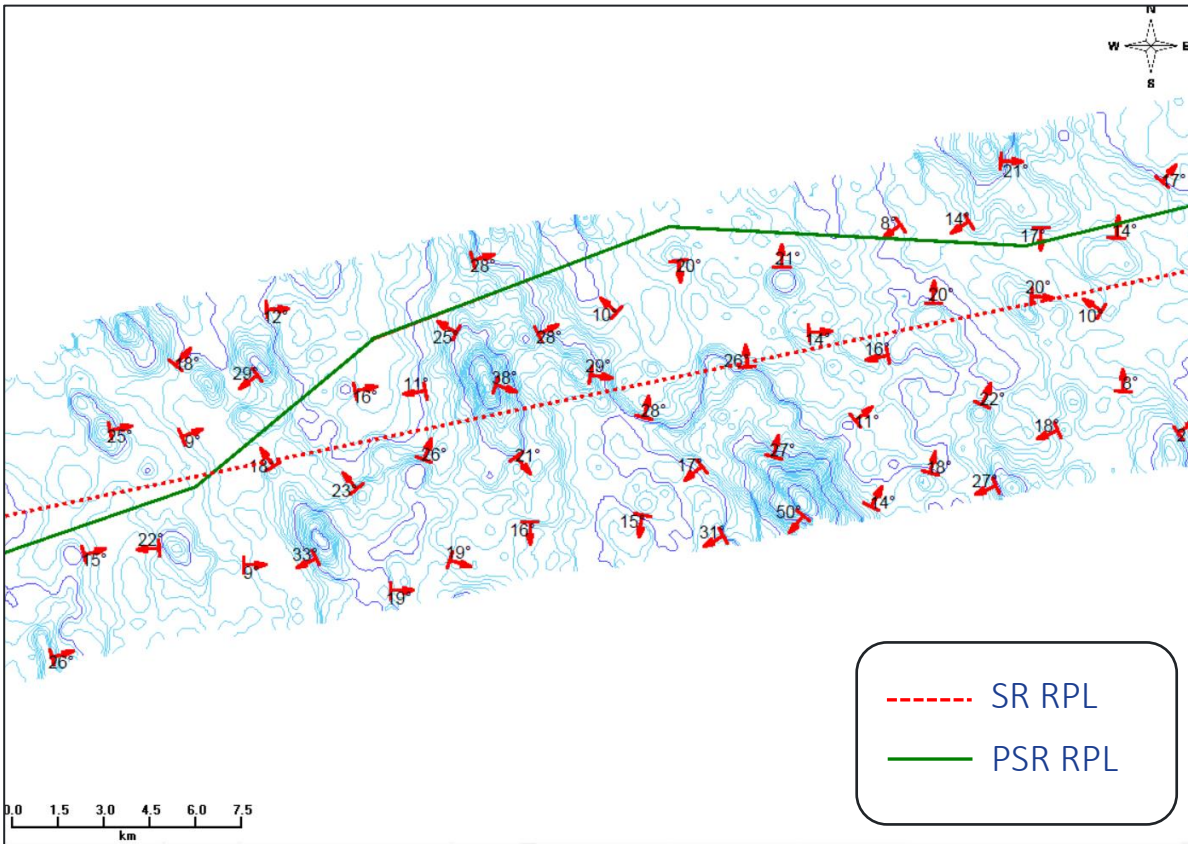


Plough recovery & jet wash



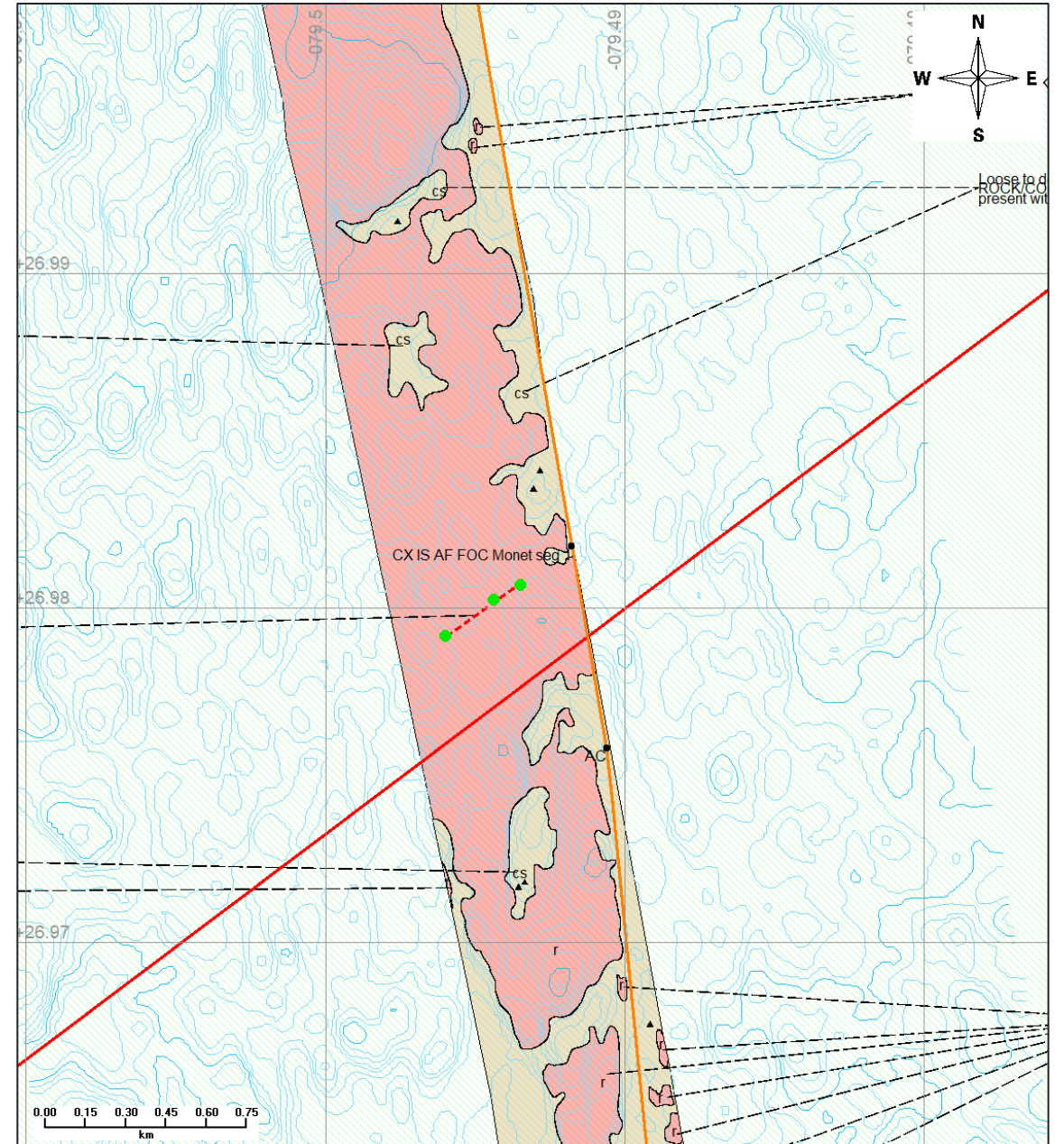
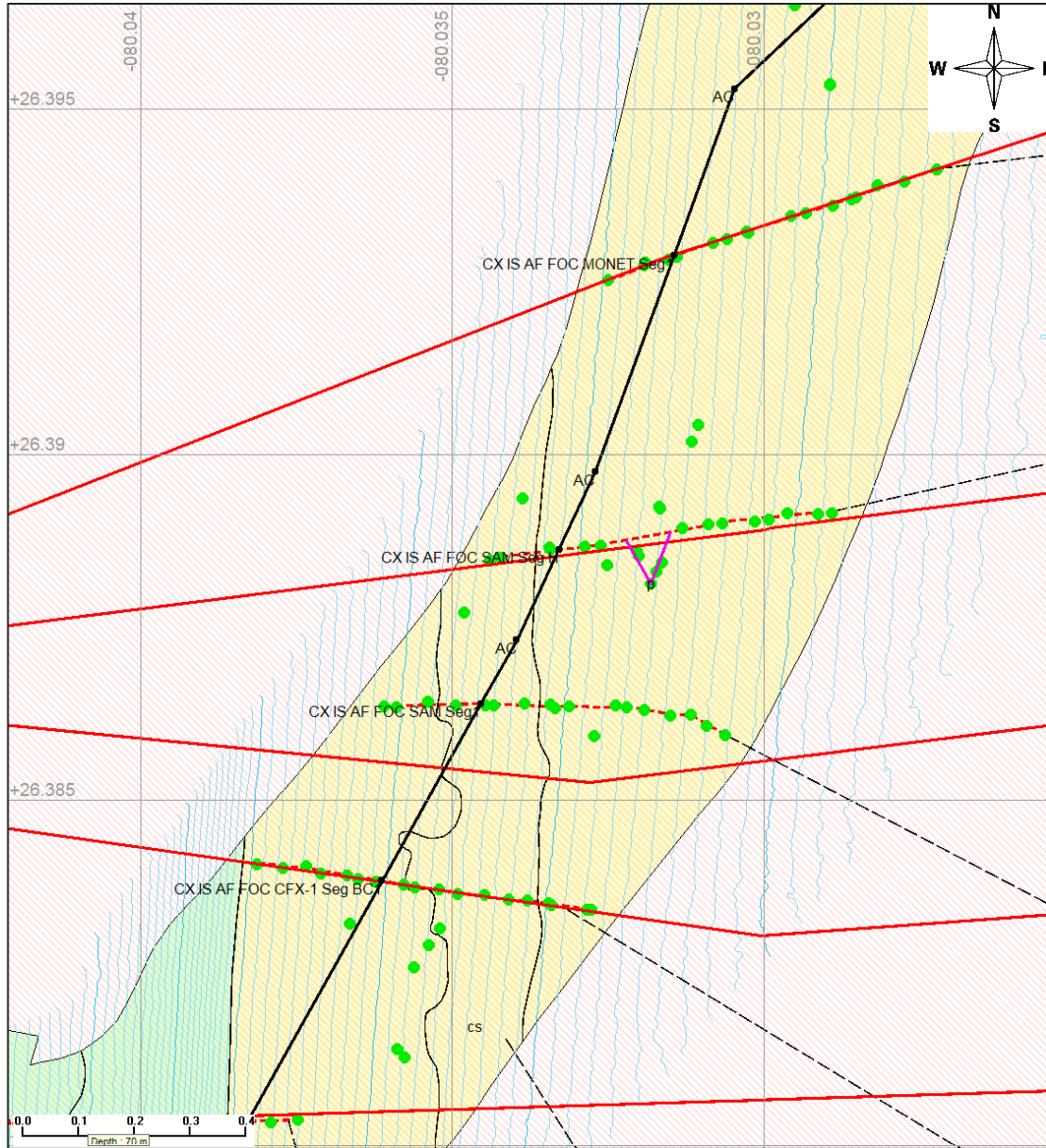
# General Route Engineering Process - PSR

Post survey routing in deep water (Vanuatu)  
(Presence of steep slopes and features)

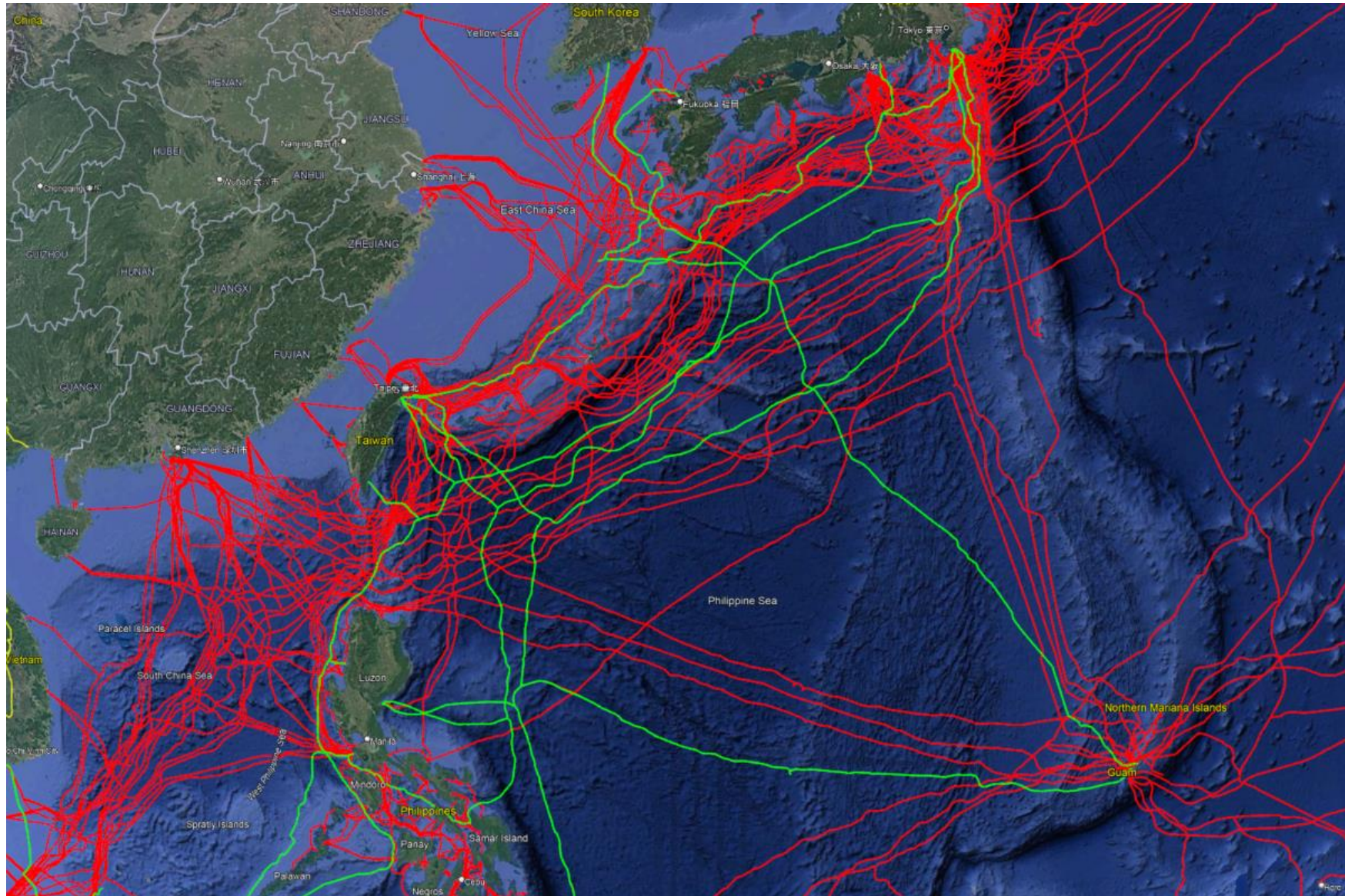


Post survey routing in shallow water (Gabon)  
(Presence of steep slopes and features)

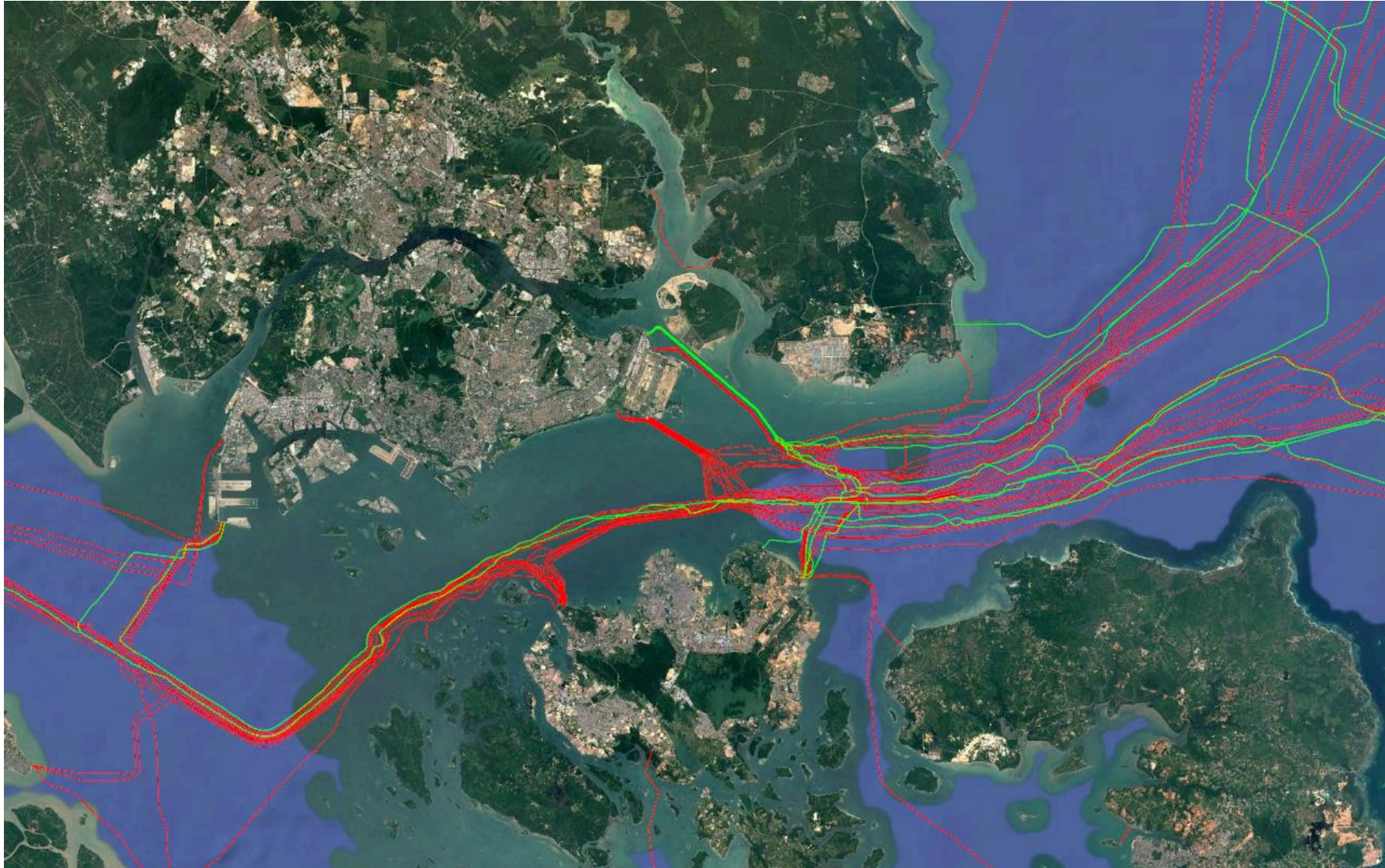
# Post survey route engineering



# Challenges



# Challenges



# Summary

- The cable route survey is key to the long-term survivability of a cable system, it allows accurate burial assessment, and influences the appropriate cable protection strategies
- Due to low confidence in 3<sup>rd</sup> party cable positions, despite a comprehensive desk top study can prove costly, the survey can help establish a better picture of seabed infrastructure
- Ensuring survey contractors are conscious of the end goal – to install a cable – this will encourage a pro-active review of the data, and highlight any anomalies or suspicious observations to the PC/customer rep.
- New survey techniques welcome – the industry is slowly identifying and applying new survey techniques (Drix, continuous BAS using resistivity technique, UAVs etc)



**Thank you.  
Any Questions?**



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