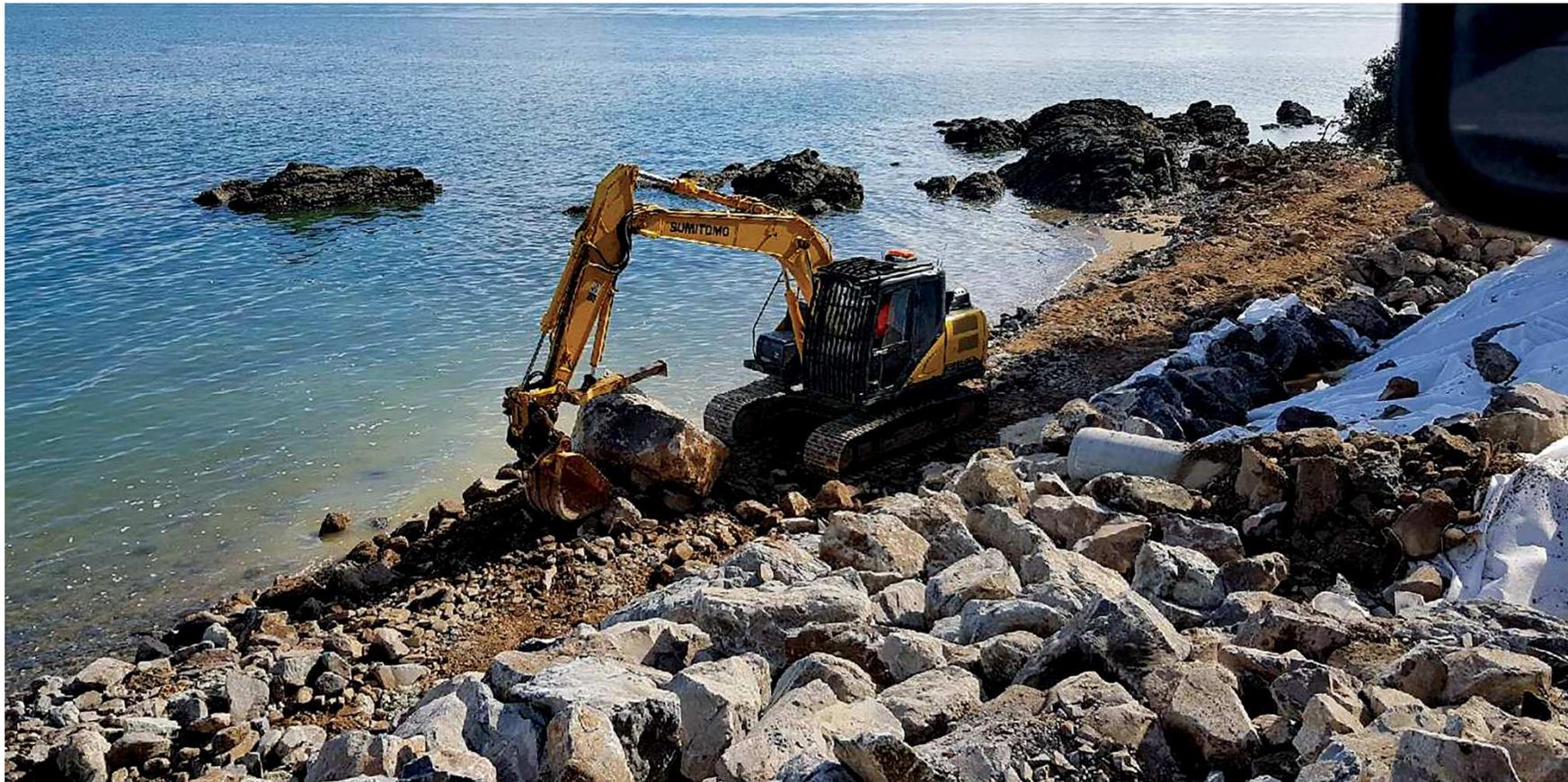
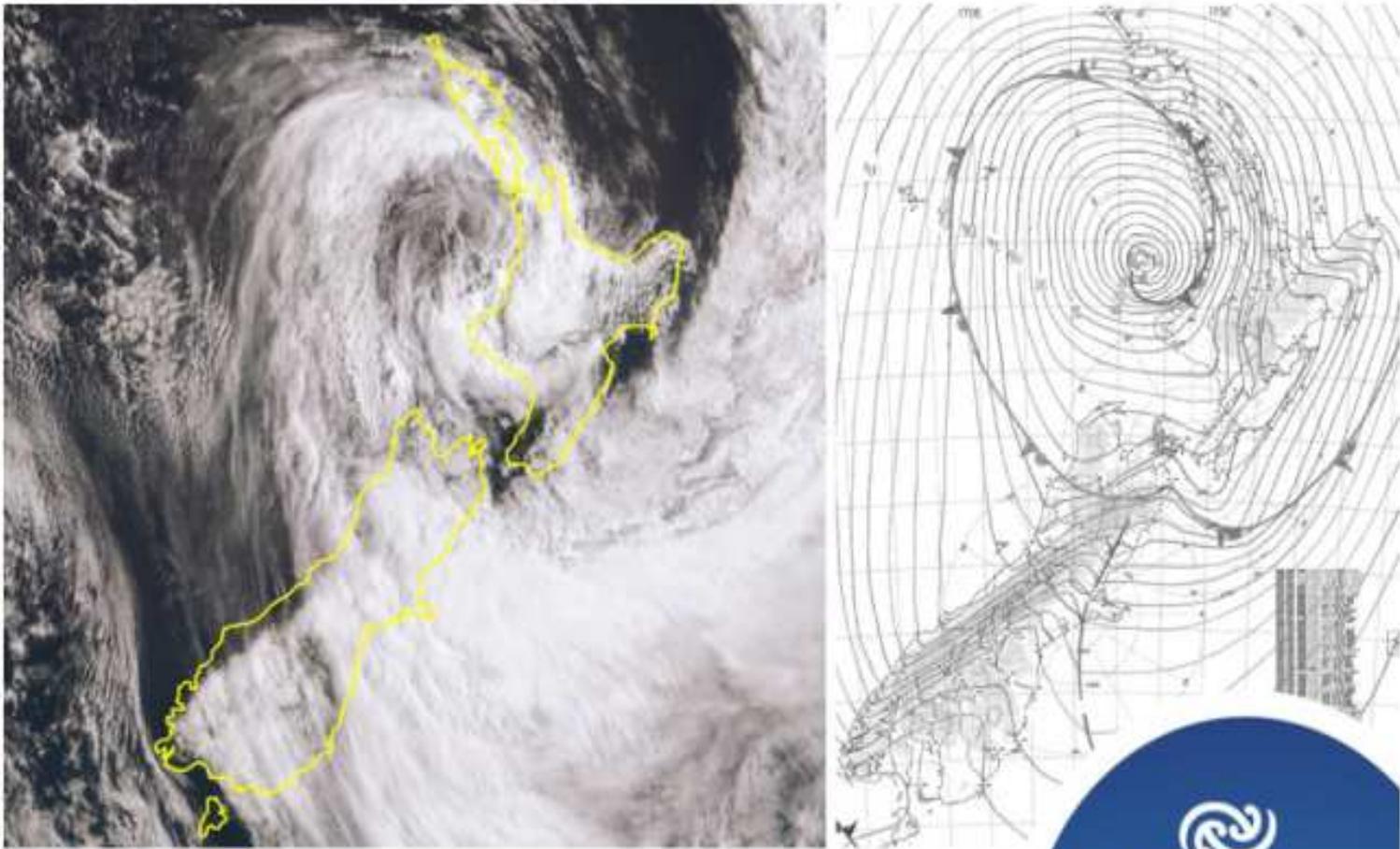


Learning from the storm: Lessons from SH25 in the Coromandel

Mike Manion – Contract Manager, East Waikato NOC



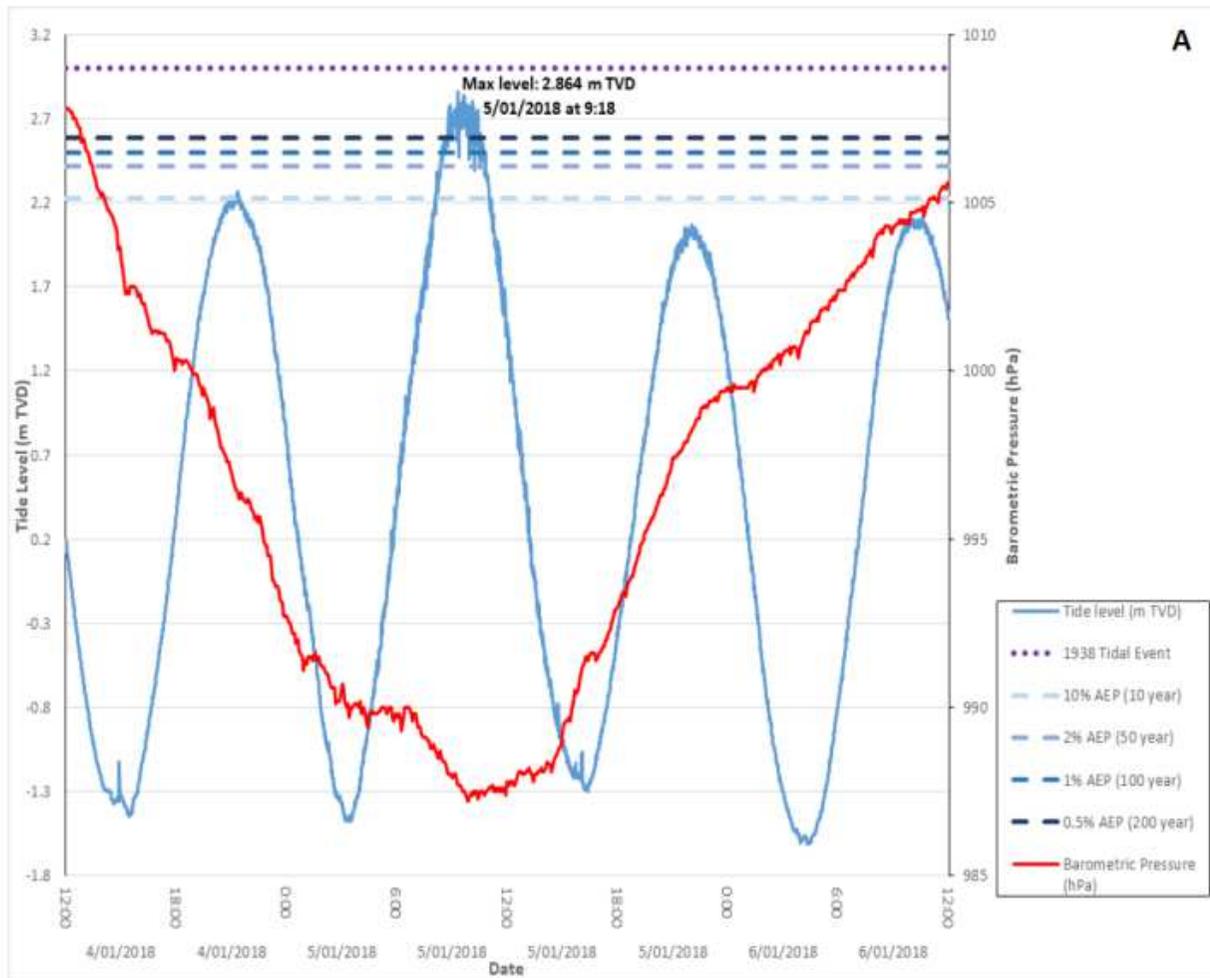


Visible satellite imagery and hand-drawn mean sea level
pressure analysis chart

Satellite imagery courtesy of JMA



MetService
05/01/18
10:00 am



2.0 King tide
+ 0.5 Wind setup
+ 0.3 Barometric rise
= Major issue

SH 25 – January 5th Storm Recovery

HIGGINS®



SH 25 – January 5th Storm Recovery



SH 25 – January 5th Storm Recovery

HIGGINS[®]



SH 25 – January 5th Storm Recovery

HIGGINS®



SH 25 – January 5th Storm Recovery

HIGGINS®



SH 25 – January 5th Storm Recovery

HIGGINS®



SH 25 – January 5th Storm Recovery

HIGGINS®

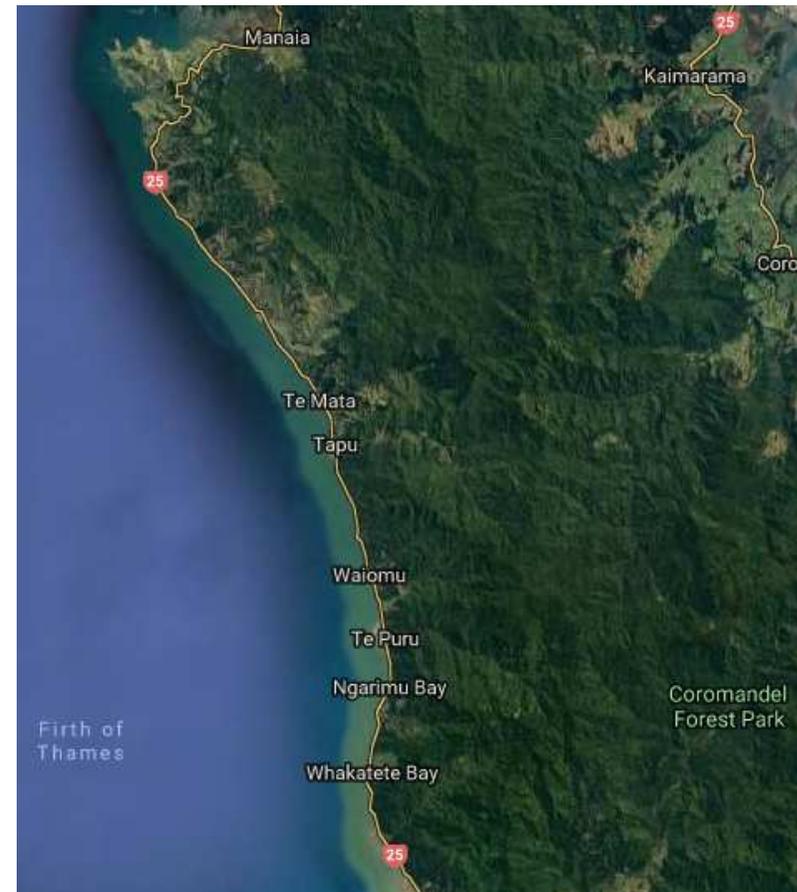


Response Priorities

- Keep everybody safe
- Phase 1 work:
 - Restore through route light traffic connectivity
 - Reopen to truck traffic
 - Complete phase one restoration work to enable unrestricted traffic flows
- Restore community functionality
- Assess ongoing resilience options
- Work with NZ Transport Agency to match work needs to available funding

Keeping People Safe

- 6 settlements in the damaged area
- Numerous isolated dwellings
- Numerous sections where only one vehicle could pass
- Need to operate multiple work sites with heavy equipment
- Numerous trucks hauling armour rock
- Potential risks both at work sites and at untreated wash out sites



Stage 1

- Create a route down the coast
- Get people moving again
- Convoy operations around one lane sections
- Traffic controls- portable traffic lights or Stop Go outside main convoy area



Restore Community Amenity



SH 25 – January 5th Storm Recovery

HIGGINS[®]

Resilience Planning

Identify treatment that could survive this type of event.



SH 25 – January 5th Storm Recovery

HIGGINS[®]

Previous stone wall solution



SH 25 – January 5th Storm Recovery

HIGGINS[®]

Previous Armour rock and geofabric solutions



SH 25 – January 5th Storm Recovery

HIGGINS®

Adopt a winning design

- Geofabric underlay
- Suitable armour rock size and density
- Toe below limit of possible wave action
- 1.5:1 slope angle
- At least 1.5m thick armour
- Lock rock together





SH 25 – January 5th Storm Recovery

HIGGINS[®]

Overall Achievements

In the six months since the storm we completed:

- 70 rock walls completed equating to 7km of new walls using 110,000 tonnes of rock boulders
- 40,000m² of new pavement constructed
- 41 culverts replaced and 4 new crossings installed
- 70,000 man hours
- 0 serious injuries





What worked well

- No injuries during a high pressure project
- Re – opening the road within 48 hours of the event
- Communications with the public – keeping them informed
- Quick decisions on treatment types and project scoping
- Prioritisation and planning
- Separate the recovery from the remainder of the maintenance contract

What did not go well

- Delays to road users during the convoy stage and then with the multiple work sites
- Theft of temporary traffic signals and VMS signs
- Not including improvements into the recovery package
- Resolution of damage away from the immediate carriageway

Who owns the grass berm?

↓ September 2017



↓ January 2018



SH 25 – January 5th Storm Recovery

HIGGINS®

Working together

From the outset the storm response and subsequent recovery consistently demonstrated the benefits of the highest level of collaboration:

- Communications with affected communities
- Emergency reinstatement of the road
- Design of the restoration treatment
- Site scoping
- Consenting of the works



Community Feedback

People in the communities directly affected by the disaster had their lives seriously disrupted and, in many cases became distressed. Consequently they had high expectations of the responding agencies.

The responsiveness, tenacity and customer focus demonstrated by Mike and the whole roading team contributed significantly to achieving the objectives of the emergency response and meeting the high expectations of the communities.

TCDC Civil Defence

MANY locals are loud in their praise and very grateful for the quick, efficient rebuild of the road. You have a very positive team - which means good leadership and a well planned system and are doing good work.

..... When we heard about the state of the road we were convinced that it would take weeks for the contractors to get it open again. We had learned this from previous experience.

Imagine our delight when the next day we were advised that the road was open one way only with escorted convoys. We have used the coast road Three times during the week and found your staff to be friendly and extremely tolerant in the face of, shall we be kind and say, less than acceptable behaviour by some motorists.

What has amazed us even more is the speed at which the road has been repaired to such a state that this morning it was open in both directions with minimal stop/go areas. We think that the work carried out is nothing short of miraculous

thanks for your quick response you guys are doing an amazing job
Cheers Graeme