Environmental Management

PRINCIPLES AND APPLICATION

RAY CHANG

Structure

- RMA Framework
  - What is an EMP?
  - How does the consenting process influence an EMP?
  - Planning realistic goals for environmental monitoring, management and outcomes
- Case study projects
- Applying an EMP on site
  - Who implements these plans?
  - What other constraints are there?
  - Different contract types

What is an Environmental Management Plan?

- Developed under RMA
- Manage environmental effects
- Based on initial understanding of what a site or project's effects might be

RMA Fundamentals

- Purpose
- *The purpose of this Act is to promote the sustainable management of natural and physical resources.*

- How is this administered?

Sections 9 – 15

Permitted activity

District and **Regional** Plans (the AUP?)

Resource consents

RMA Framework

- Where do Management Plans fit in?

Existing
Environment

- Evaluate what is there at the moment

Expected Effects

- Identify effects
- Quantify effects

Affected
Environment

- Check what has changed as a result

Existing Environment

- What's there?

- Evaluate what is there at the moment
- Add in what has been allowed/consented to be there

- "Existing environment"
  - Expert reports
  - Scientific evaluation
  - Summary of findings presented – effects assessed against what exists currently

Identification of effects

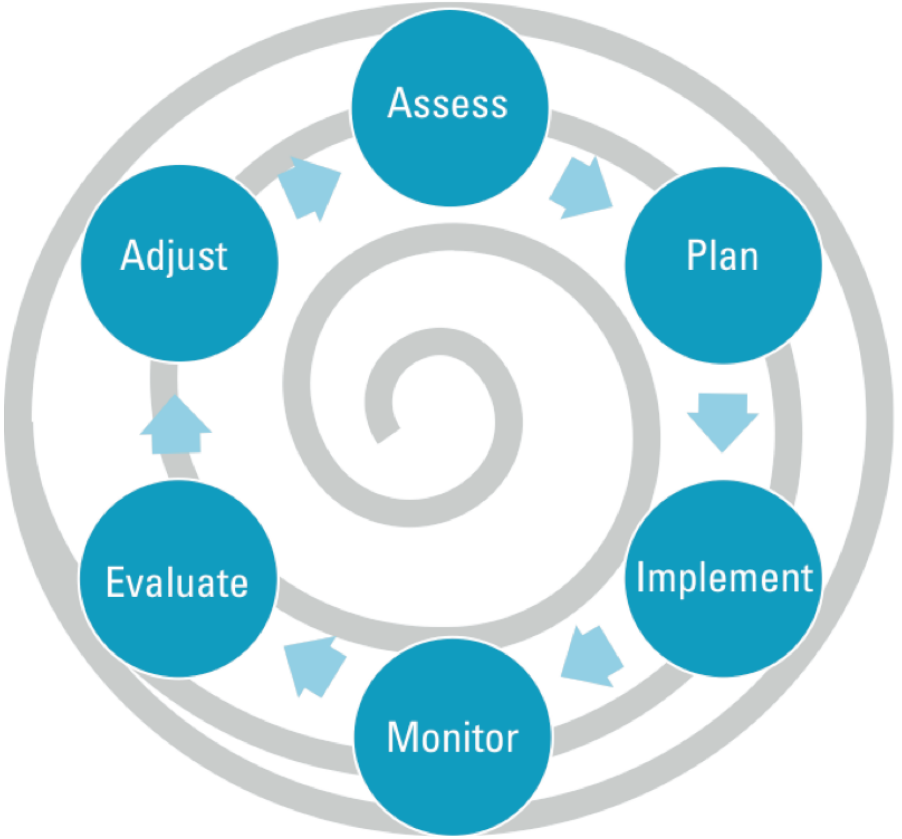
- What's out there that might need looking at?

- Basic activities:
    - Earthworks and stream works (s9 + 13)
    - Takes of water (s14)
    - Discharges to air, land, fresh water, coastal water (s12 + s15)

- Further informed by submissions on the application (if notified)

Apply proposed mitigation

- Effects have previously been identified
- Proposed mitigation or methods to manage effects
- Apply those principles on site



After-works monitoring

- Agreed the principles of how to manage the effect
- Check that the outcomes that were sought have been met
- If not met, could require further action to meet outcome

Why a Management Plan?

1. Outcomes based solution

2. Promise to achieve a certain result (might require time)

3. Allows flexibility in how you achieve compliance with a parameter

4. Can be altered depending on circumstances

Case Study

Western Ring Route – The Waterview Connection

NZ TRANSPORT AGENCY
WAKA KOTAHI

CELEBRATING THE WATERVIEW CONNECTION

June 2017

New Zealand Government

This project

- Part of RoNS network (design standard)
  - Western Ring Route
  - “Waterview Connection” (SH20)

- Optioneering
- Final alignment
- Concept design/assessments
- Board of Inquiry (NOR + Consents)
- Green light June 2012

- Alliance contract


16
18
WESTGATE
ROYAL RD
ROYAL ROAD INTERCHANGE
TE ATATU PENINSULA
LINCOLN RD INTERCHANGE
LINCOLN
TE ATATU RD INTERCHANGE
LINCOLN RD
SWANSON RD
EDMONTON RD
WAITAKERE CITY
HENDERSON
HENDERSON VALLEY RD
PATIKI RD INTERCHANGE
ROSEBANK RD INTERCHANGE
16
ROSEBANK RD
GLENDENE
GREAT NORTH RD
KELSTON
AVONDALE
WATERVIEW
POINT CHEVALIER
WESTMERE
GREAT NORTH RD INTERCHANGE
ST LUKES RD INTERCHANGE
GREAT NORTH RD
BLOCKHOUSE BAY RD
MAIORO ST INTERCHANGE
20
AIRPORT
WAITEMATA HARBOUR
1
N
AUCKLAND CITY
CBD
PONSONBY
NEW NORTH RD
DOMINION RD
MT EDEN
MT ALBERT
BALMORAL RD
SANDRINGHAM
EPSOM
RICHARDSON RD
MT ALBERT RD
THREE KINGS
KEY
= Waterview Connection (SH16)
= Waterview Connection (SH20) New Motorway
= Lincoln Road Interchange
= Lincoln Road to Westgate

RMA Framework

- ‘Calling in’ proposals of *National Significance*
  s141 – 144A

- Assessed by EPA (Council has input)
  - Commissioners Appointed to hear the application
  - Expert witnesses
  - Public notification

Assessments to inform application

- Publications
- Join our mailing list
- Publications archive
- Board of enquiry documents

Board of enquiry documents

Updated: 29 May 2014

These documents were used during the Waterview Connection Board of enquiry hearing.

Note: Some of these documents have a very large file size and may take some time to download.

On this page

http://old.nzta.govt.nz/projects/wrr/publications-archive-enquiry.html

1. Application documents

Assessment of environmental effects

- **Part A, B and C** (PDF, 6.8 MB, 278 pages)
- **Part D** (PDF, 10 MB, 591 pages)

Technical reports

- **G.1 Assessment of Air Quality Effects** (PDF, 7.7 MB)
- **G.2 Assessment of Archaeological Effects** (PDF, 9.6 MB)
- **G.3 Assessment of Avian Ecological Effects** (PDF, 9.4 MB)
- **G.4 Assessment of Coastal Processes** (PDF, 7.3 MB)
- **G.5 Assessment of Construction Noise Effects** (PDF, 2.1 MB)
- **G.6 Assessment of Freshwater Effects** (PDF, 2.4 MB)
- **G.7 Assessment of Groundwater Effects** (PDF, 432 KB)
- **G.8 Assessment of Herpetofauna Effects** (PDF, 1.15 MB)
- **G.9 Assessment of Land and Groundwater Contamination** (PDF, 3.1 MB)
- **G.10 Assessment of Lighting Effects report** (PDF, 404 KB)
- **G.11 Assessment Marine Ecological Effects report** (PDF, 5 MB)

- **G.11 Assessment Marine Ecological Effects report** (PDF, 5 MB)

- **G.12 Assessment of Operational Noise Effects** (PDF, 1.2 MB)
- **G.13 Assessment of Ground Settlement Effects** (PDF, 1 MB)
- **G.14 Assessment of Social Effects** (PDF, 4.3 MB)
- **G.15 Assessment of Stormwater and Streamworks Effects** (PDF, 7.5 MB)
- **G.16 Assessment of Temporary Traffic Effects** (PDF, 6.8 MB)
- **G.17 Assessment of Terrestrial Vegetation Effects** (PDF, 1.2 MB)
- **G.18 Assessment of Transport Effects** (PDF, 7.3 MB)
- **G.19 Assessment of Vibration Effects** (PDF, 544 KB)
- **G.20 Assessment of Landscape and Visual Effects** (PDF, 2.5 MB)
- **G.21 Construction Enviornmental Management Plan** (PDF, 6.1 MB)
- **G.22 Erosion and Sediment Control Plan Report** (PDF, 1.1 MB)
- **G.23 Coastal Works Report** (PDF, 2.2 MB)
- **G.24 Geotechnical Interpretive Report** (PDF, 608 KB)
- **G.25 Traffic Modelling Report** (PDF, 2.7 MB)
- **G.26 Operational Model Validation Report** (PDF, 965 KB)
- **G.27 Stormwater and Streamworks Design Philosophy Statement** (PDF, 500 KB)
- **G.30 Assessment of Associated Sediment Containment Loads** (PDF, 446 KB)
- **G.31 Technical Addendum Report** (PDF, 326 KB)

Quantification of effects

- How can we estimate what effect our project might have?
- Experts provide their opinion on each of the effects considered relevant

- Waterview – 30+ technical reports, one or two experts from applicant and Council presenting evidence to committee
  - District Plan matters
    - Noise
    - Visual amenity
    - Traffic flow
    - Historic heritage
    - Community severance
  - Regional Plan matters
    - Ecology
    - Air Quality (dust)
    - Coastal processes
    - Water quality
    - Settlement of land

Beca

Effects of relevance

- Which effects are controlled by Management Plans?
- Range of effects evaluated
- Construction effects vs. Operational effects

- Still a range of unknowns – detailed design hasn't started!

- Managed by the over-arching Construction Environmental Management Plan and sub plans

Construction Related

- Noise
  - Beeping
  - Conveyor belt operation
  - General site works
- Air Quality
  - Dust
- Water quality
  - Sedimentation
  - pH, nutrients, metals, etc.
- Disturbance of soils
  - Exposure of contaminated soils

Board of Inquiry

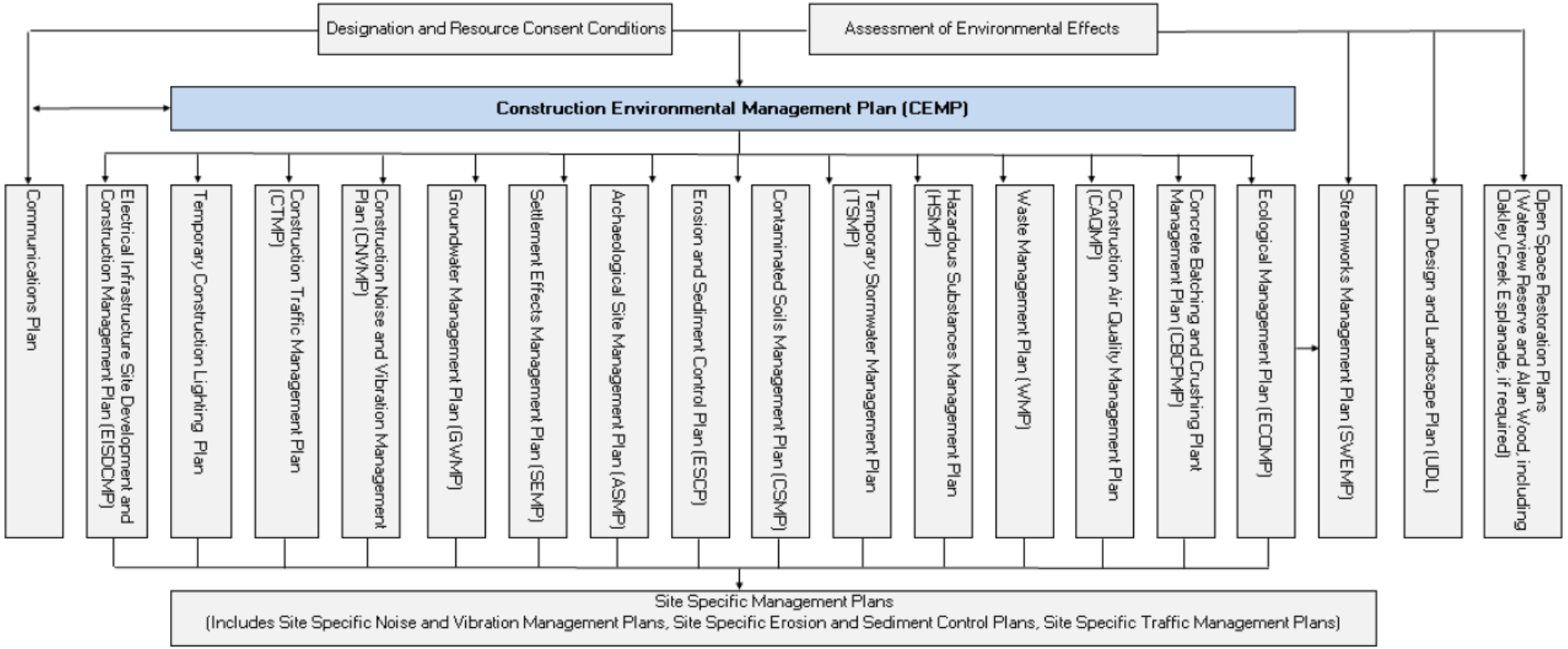
- 360 pages of decision
- Documenting the process of determining whether to *grant* (confirm) or *decline* (cancel) consents and designations
- 190 pages of conditions

- https://www.epa.govt.nz/database-search/rma-applications/view/NSP000012

Framework

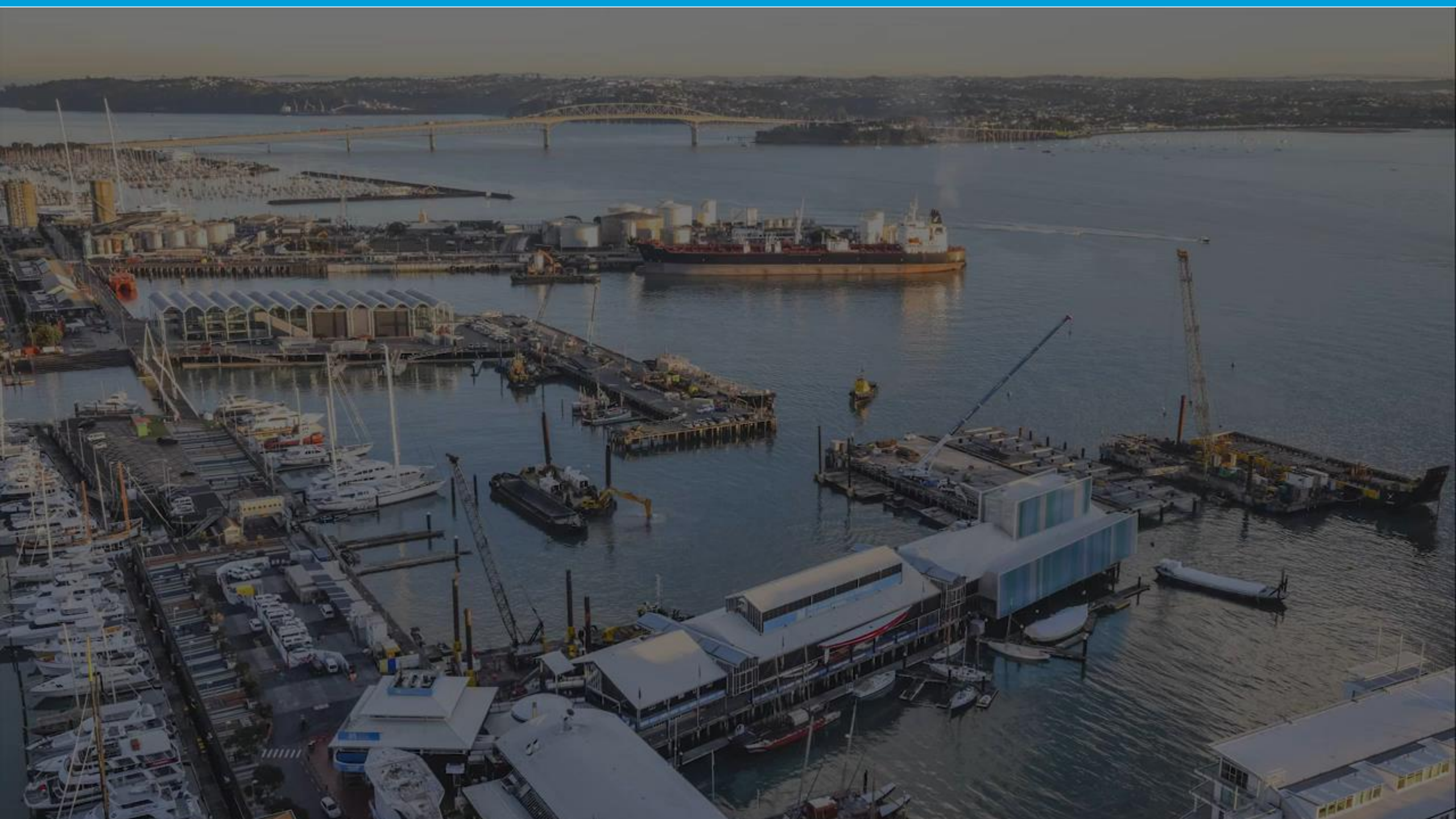
- CEMP overarching document
- Specific effects management plans below that (e.g. Construction Noise and Vibration)
- Certain effects need even more specificity to provide comfort
- Site-Specific Noise Management Plans

Plan Framework



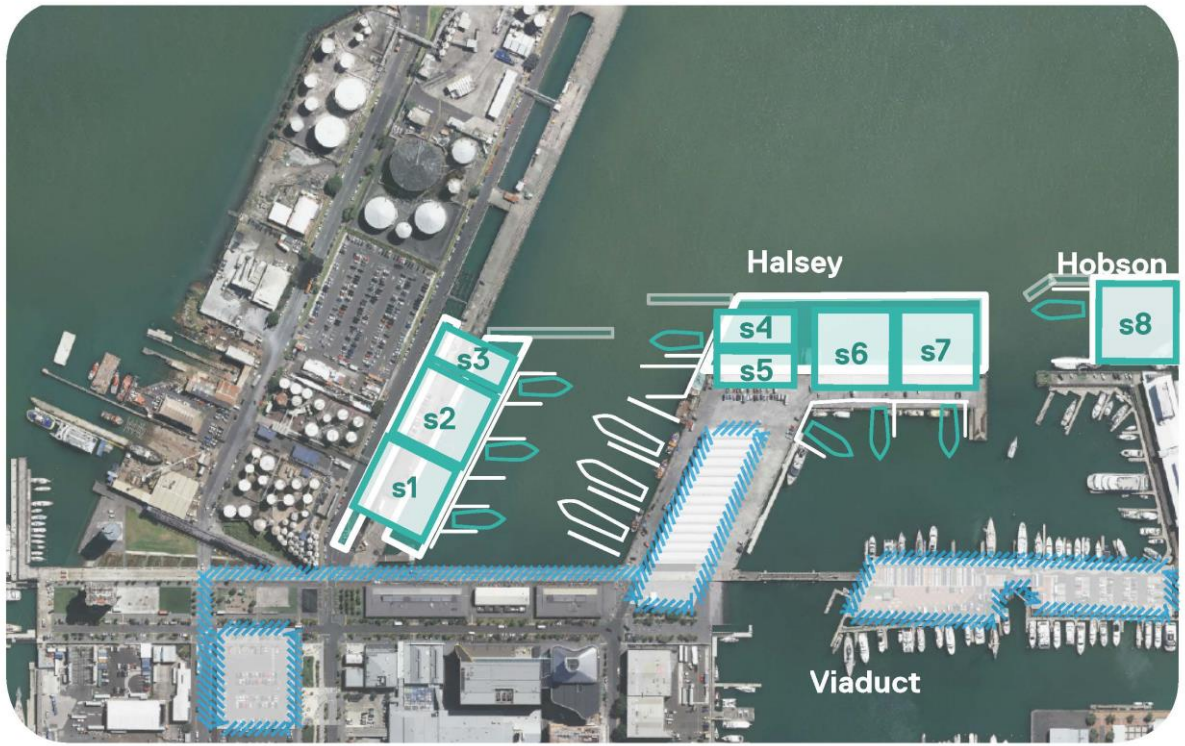
Case Study

The 36th America's Cup



A brief bit of history

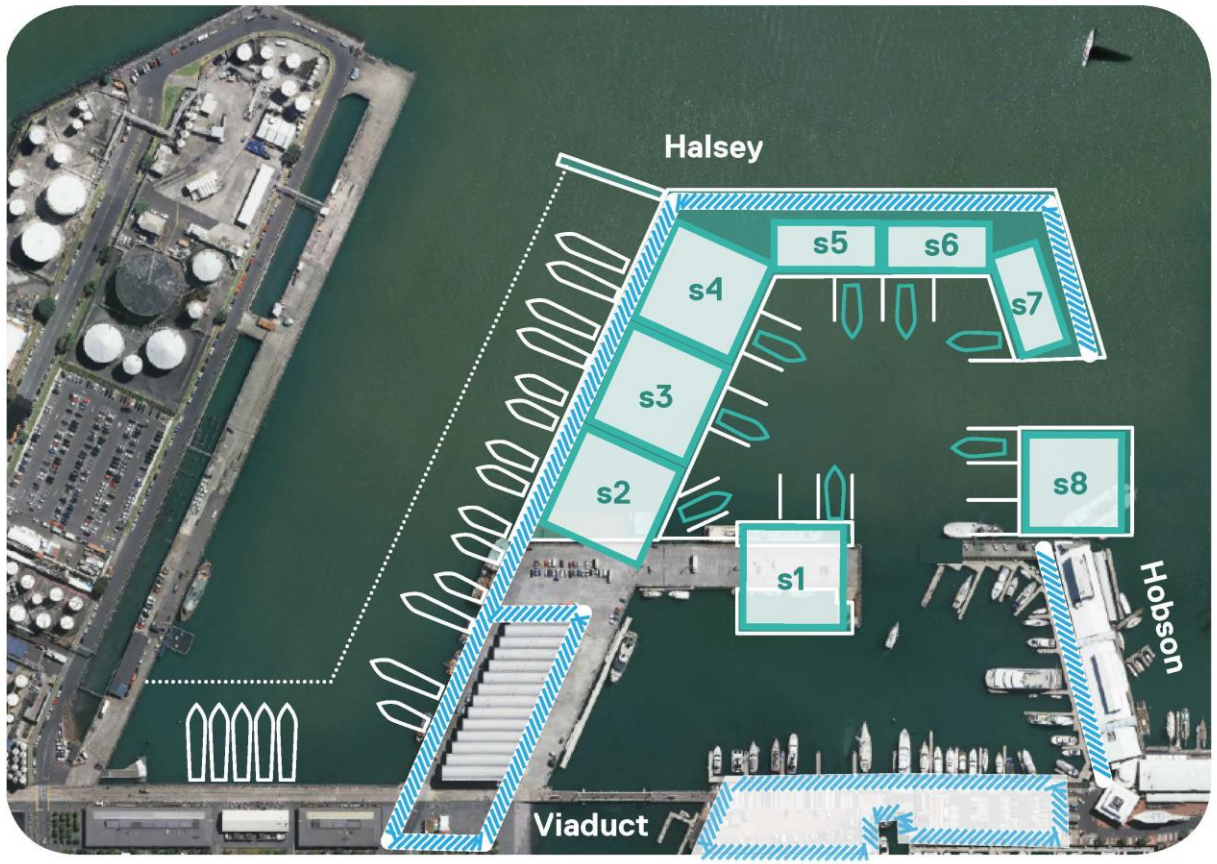
Dispersed clustered – Halsey Wharf extension, Hobson Wharf extension and Wynyard Point east (event mode)



These diagrams show the proposed sites for eight team bases and are used for comparative analysis. Design on the recommended option is still to be undertaken.

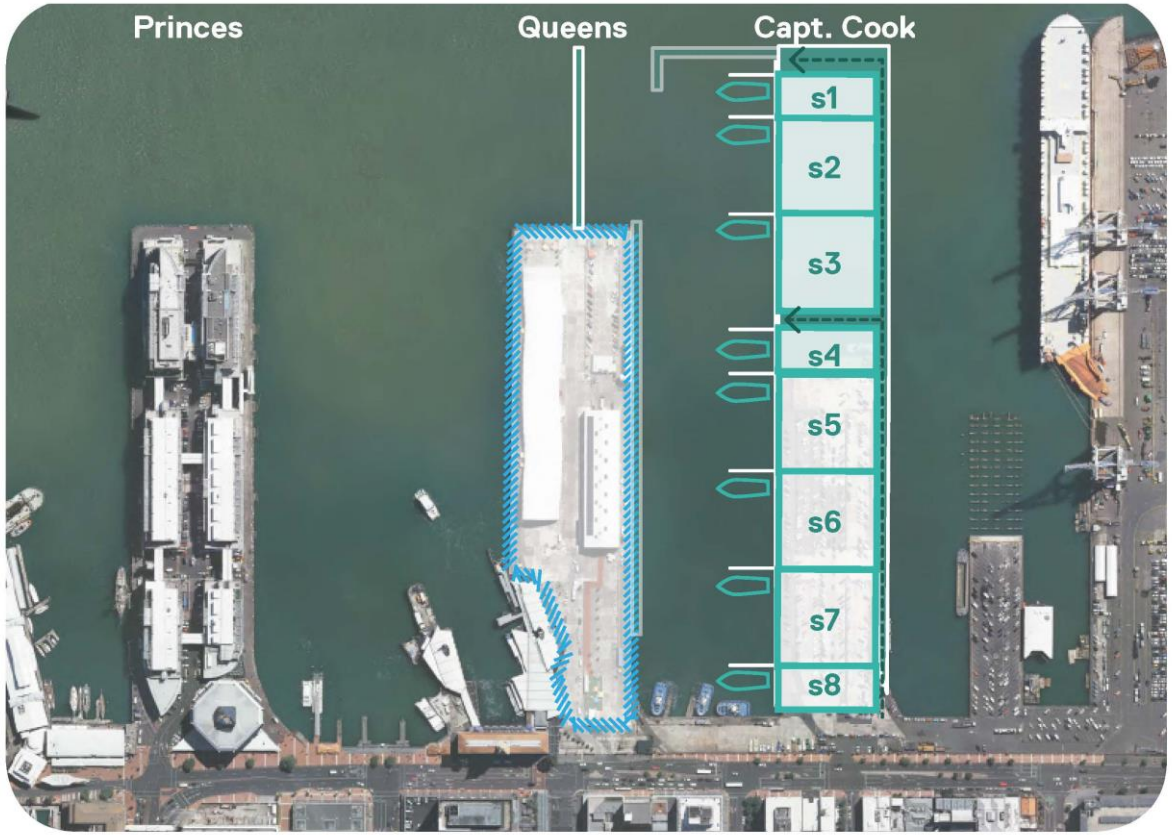
Halsey Wharf extension (event mode)

These diagrams show the proposed sites for eight team bases and are used for comparative analysis. Design on the recommended option is still to be undertaken.

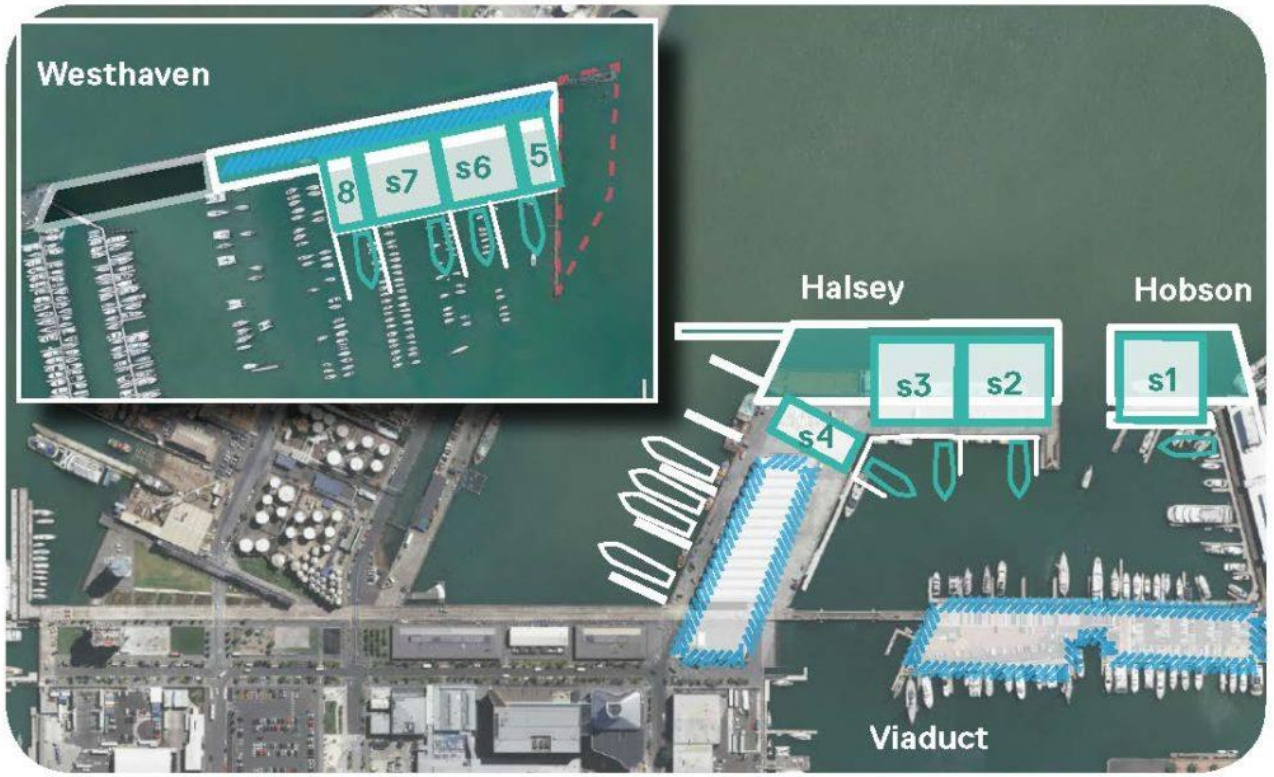


Captain Cook west (event mode)

These diagrams show the proposed sites for eight team bases and are used for comparative analysis. Design on the recommended option is still to be undertaken.



Dispersed central – Halsey Wharf extension, Hobson Wharf extension and Westhaven extension (event mode)

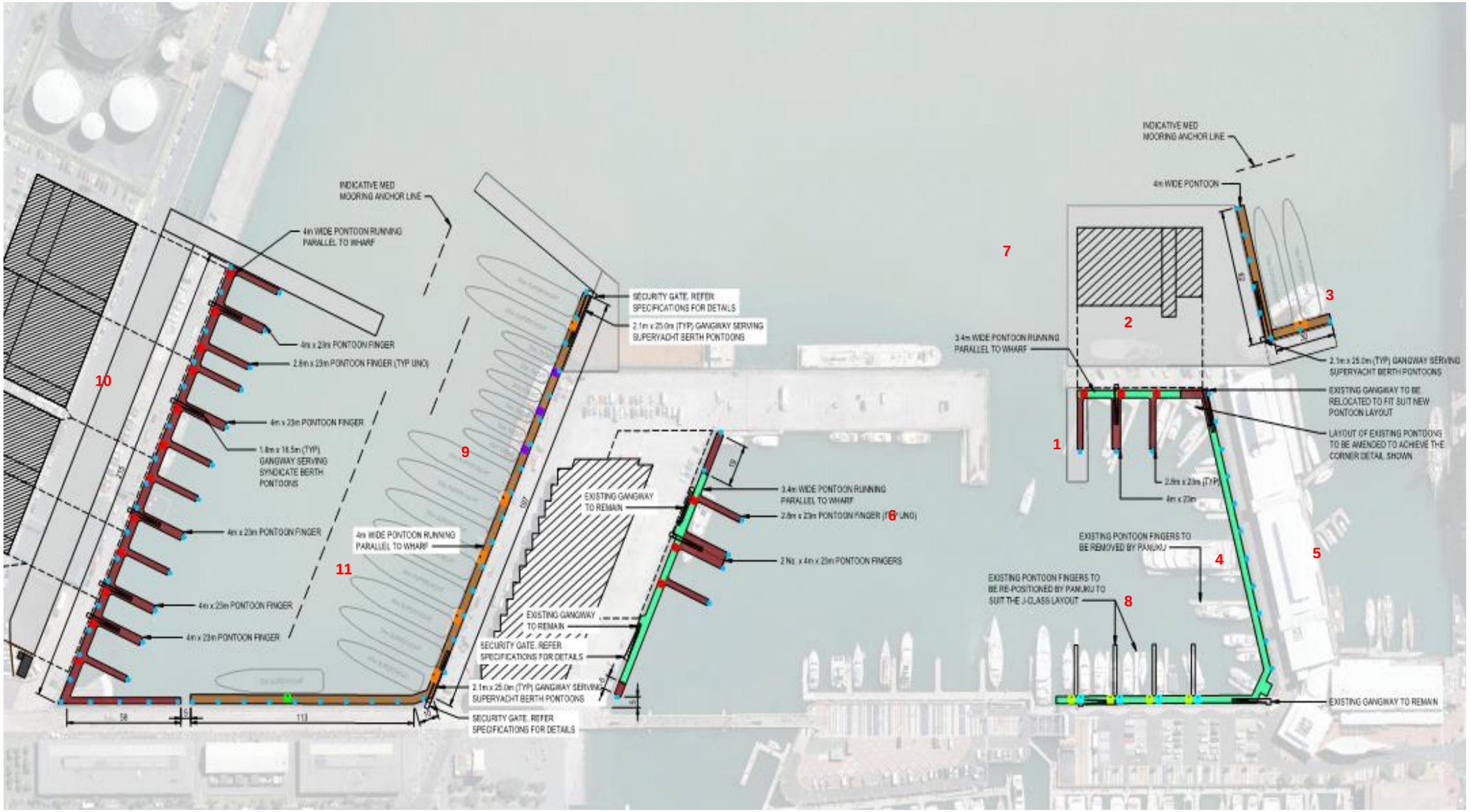


These diagrams show the proposed sites for eight team bases and are used for comparative analysis. Design on the recommended option is still to be undertaken.

Beca

It’s hard to pick an outright winner from these options, all have a lot of pro’s and con’s. What option do you think Councillors should go with and what will they go with? My guess is they’ll pick the last option.

- Greater Auckland (November 2017)


INDICATIVE MED MOORING ANCHOR LINE
4m WIDE PONTOON RUNNING PARALLEL TO WHARF
4m x 23m PONTOON FINGER
2.8m x 23m PONTOON FINGER (TYP UNO)
4m x 23m PONTOON FINGER
1.8m x 18.5m (TYP) GANGWAY SERVING SYNDICATE BERTH PONTOONS
4m x 23m PONTOON FINGER
4m x 23m PONTOON FINGER
4m x 23m PONTOON FINGER
10
11
9
4m WIDE PONTOON RUNNING PARALLEL TO WHARF
SECURITY GATE. REFER SPECIFICATIONS FOR DETAILS
2.1m x 25.0m (TYP) GANGWAY SERVING SUPERYACHT BERTH PONTOONS
EXISTING GANGWAY TO REMAIN
3.4m WIDE PONTOON RUNNING PARALLEL TO WHARF
2.8m x 23m PONTOON FINGER (TYP UNO)
2 No. x 4m x 23m PONTOON FINGERS
6
EXISTING GANGWAY TO REMAIN
SECURITY GATE. REFER SPECIFICATIONS FOR DETAILS
2.1m x 25.0m (TYP) GANGWAY SERVING SUPERYACHT BERTH PONTOONS
SECURITY GATE. REFER SPECIFICATIONS FOR DETAILS
58
5
113
INDICATIVE MED MOORING ANCHOR LINE
4m WIDE PONTOON
7
2
3
3.4m WIDE PONTOON RUNNING PARALLEL TO WHARF
2.1m x 25.0m (TYP) GANGWAY SERVING SUPERYACHT BERTH PONTOONS
EXISTING GANGWAY TO BE RELOCATED TO FIT SUIT NEW PONTOON LAYOUT
LAYOUT OF EXISTING PONTOONS TO BE AMENDED TO ACHIEVE THE CORNER DETAIL SHOWN
1
2.8m x 23m (TYP)
4m x 23m
EXISTING PONTOON FINGERS TO BE REMOVED BY PANUKU
4
5
EXISTING PONTOON FINGERS TO BE RE-POSITIONED BY PANUKU TO SUIT THE J-CLASS LAYOUT
8
EXISTING GANGWAY TO REMAIN

Hobson/Wynyard Option – Direct Referral to Environment Court

- Fast (and public!) optioneering process
- Timeframes drove strategy
- Formation of two separate teams
  - Consenting Team
  - Delivery Team
- Pre-drafting of a lot of management plans identified

- Mana whenua engagement/input

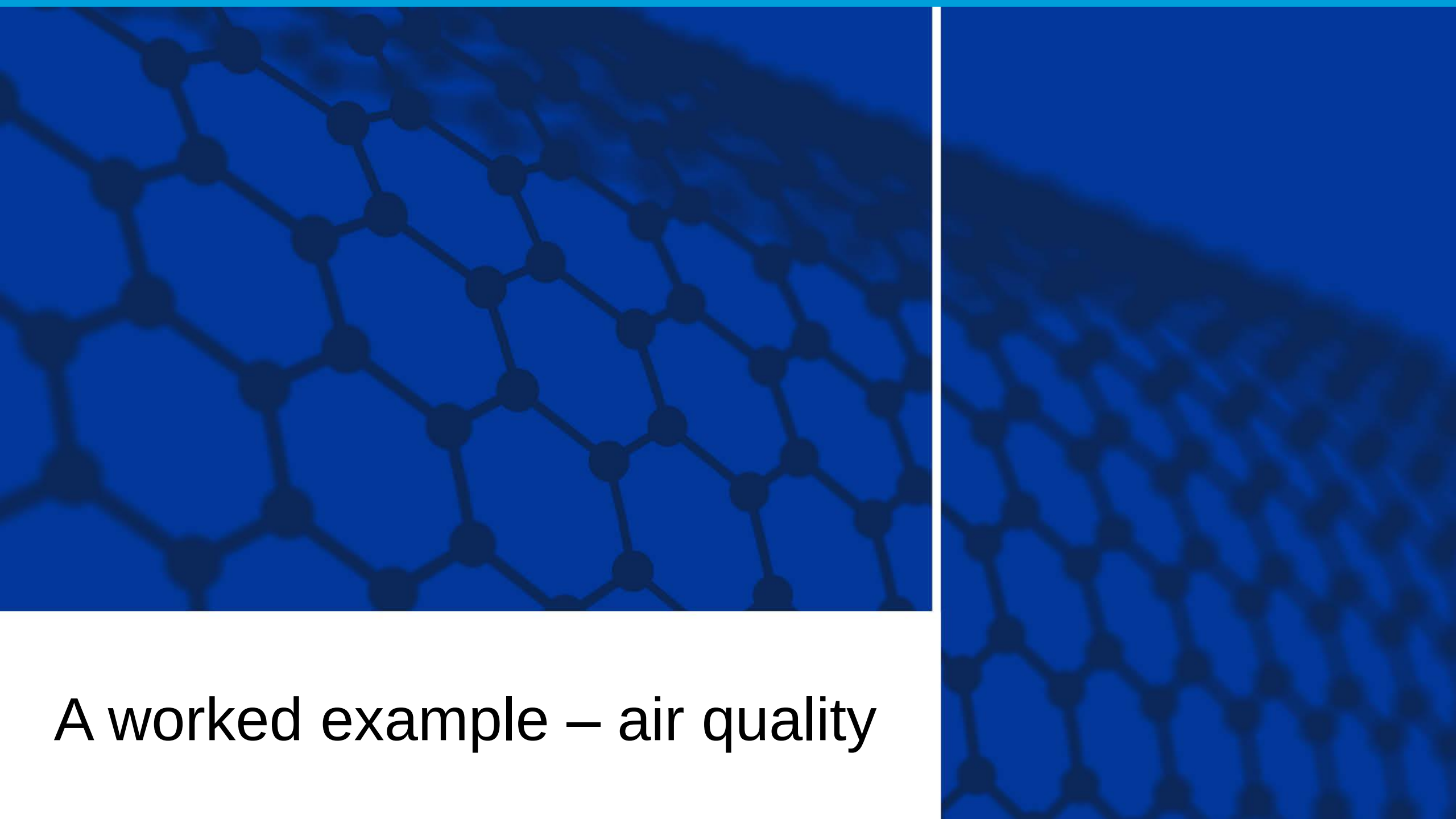
Consent hearing

- With the Environment Court September 2018
- Concluded in 2 days (initially programmed for 2 weeks)

- Decision received within 2 weeks of close of hearing

- Construction pencilled in to commence 20 November 2018

- Ready for first bases in operation from about November 2019



A worked example – air quality

CEMP

1.4.2. CEMP

The CEMP defines details of who, what, where and when environmental management and mitigation measures are to be implemented. The CEMP covers the anticipated construction elements for the stage of work and presents a framework of principles, environmental policy, objectives and performance standards as well as processes for implementing good environmental management.

1.4.3. Environmental Sub Plans

Detailed environmental management plans (sub-plans) required to manage specific effects (e.g. construction air quality, noise, vibration etc.) of the proposed work are provided as appendices to this CEMP. Contained within each of the sub-plans are the associated monitoring and reporting requirements and "site specific" plans (e.g. noise, vibration, traffic and erosion and sediment control). The suite of management plans required by the consent conditions under condition CEMP.3 is shown on Figure 2 and Table 2.

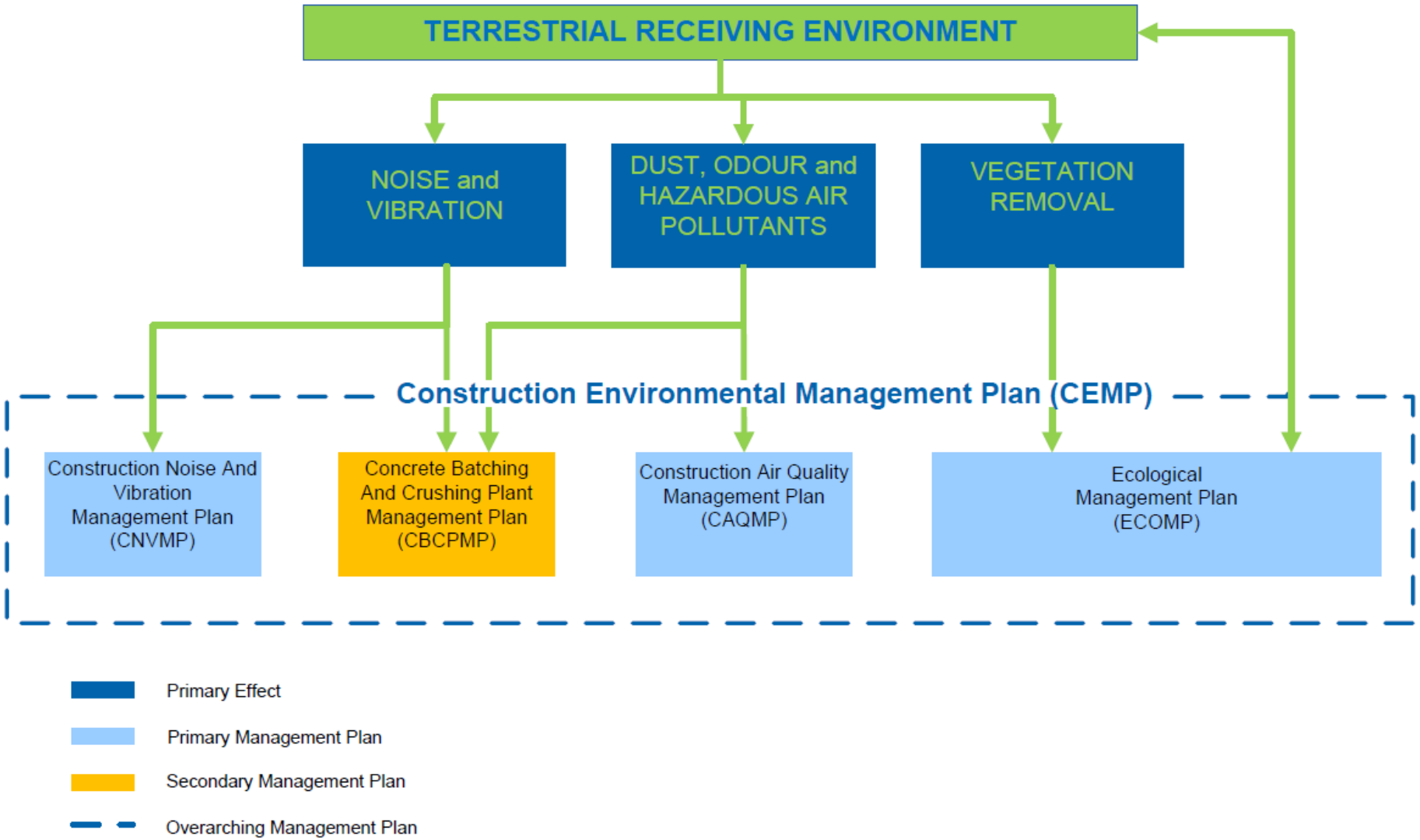
Framework parameters

- Certain performance standards are agreed and ‘certified’

- Construction works or design set about achieving parameters –
- Timing
- Construction methodology
- Ancillary management measures
- Treatment/management prior to going offsite

Sub-Plan	Technical Assessment Report
Construction Noise and Vibration Management Plan	G.5: Assessment of Construction Noise Effects G.19: Assessment of Vibration Effects G 31: Technical Addendum Report
Construction Air Quality Management Plan	G.1: Assessment of Air Quality Effects G 31: Technical Addendum Report
Erosion and Sediment Control Plan	G.22: Erosion and Sediment Control Plan (duplicated) G 30: Assessment of Associated Sediment and Contaminant Loads
Temporary Stormwater Management Plan	G.15: Assessment of Stormwater and Streamworks Effects G 27: Stormwater Design Philosophy Statement
Ecological Management Plan	G.8: Assessment of Herpetofauna Ecological Effects G.3: Assessment of Avian Ecological Effects G.17: Assessment of Terrestrial Vegetation Effects G 31: Technical Addendum Report G.11: Assessment of Marine Ecological Effects G 31: Technical Addendum Report G.6: Assessment of Freshwater Ecological Effects G 31: Technical Addendum Report
Groundwater Management Plan	G.7: Assessment of Groundwater Effects G 31: Technical Addendum Report
Settlement Effects Management Plan	G.13: Assessment of Ground Settlement Effects G 31: Technical Addendum Report
Contaminated Soils Management Plan	G.9: Assessment of Land and Groundwater Contamination G 31: Technical Addendum Report
Archaeological Site Management Plan	G.2: Assessment of Archaeological Effects G 31: Technical Addendum Report
Construction Traffic Management Plan	G.16: Assessment of Temporary Traffic Effects

Identified effects and their management plan



Design standards for management plans

- CAQMP

  - Ministry for the Environment – Good Practice Guide for Assessing and Managing the Environmental Effects of Dust Emissions (2001)
  - AS/NZ 3580.1.1: 2007 Method for sampling and analysis of ambient air – Guide to siting air monitoring equipment
  - National Environmental Standard for Air Quality (AQNES)

How?

- Daily Inspections – Visual
- Continuous instrumental monitoring
- Weather forecasts

- Set trigger levels/alarms
- Cover stockpiles
- Minimise open areas
- Minimise speeds on site
- Locate dust generating activities further away
- Apply water / suppressant

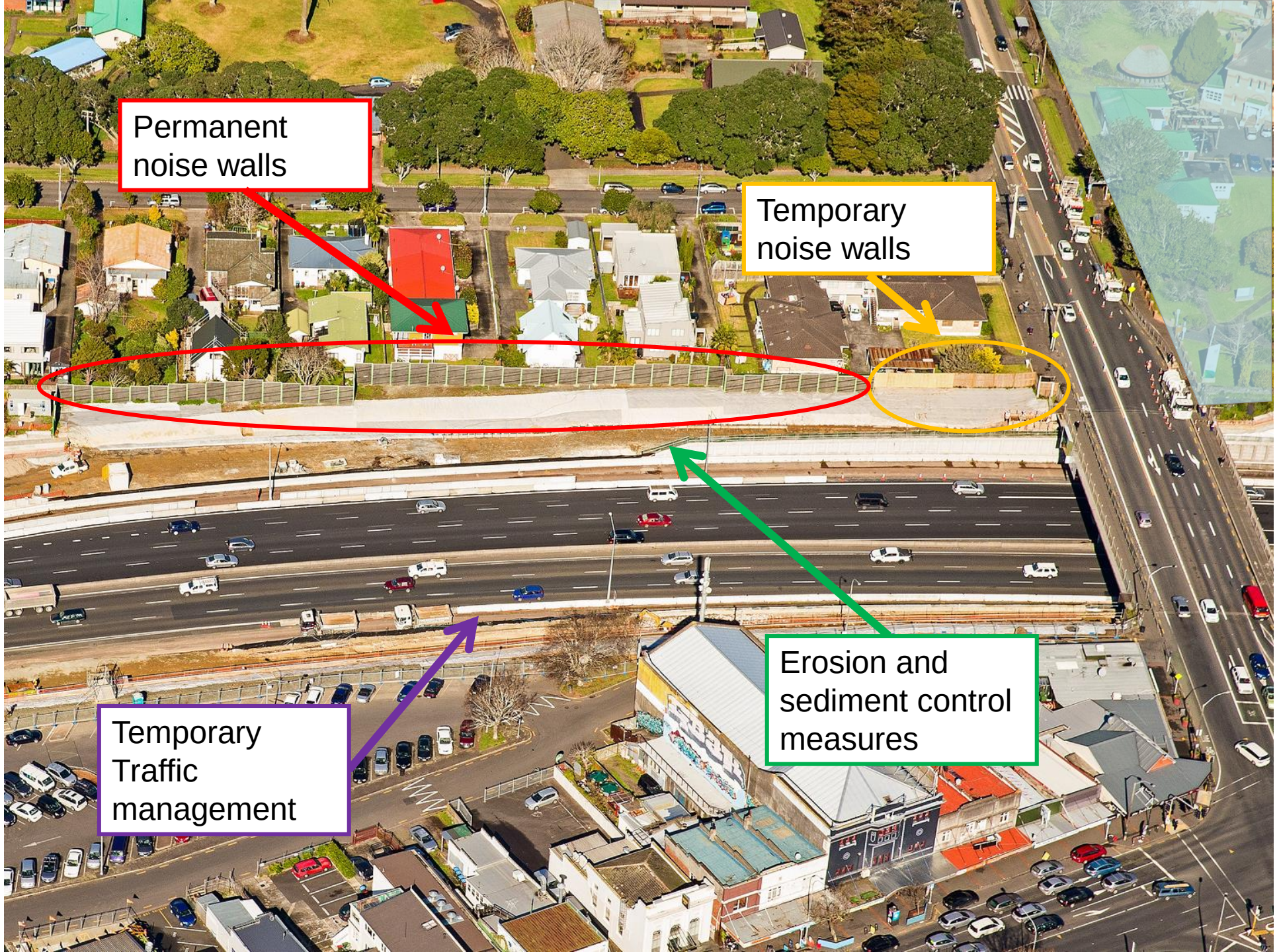
Checking by regulators

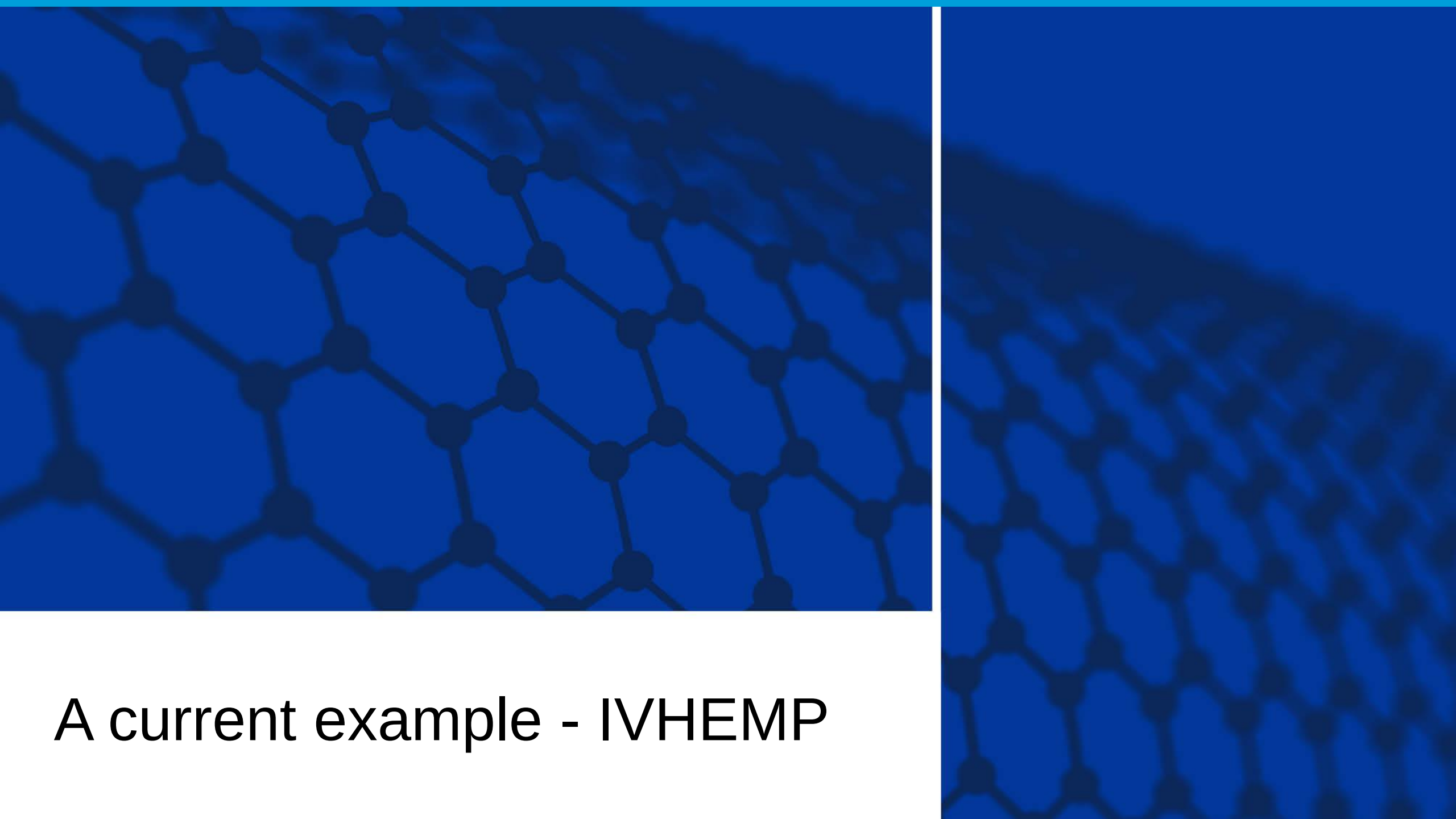
- Seek to make sure the site is compliant with the **outcomes** and **methods** described in the resource consent conditions
- Regular checks / scoring. Feedback process to improve the site.

- Non-compliance enforcement
  - Stern letters! (warnings!)
  - ‘parking ticket’ offences (infringement notices)
  - Very stern letters (abatement notices)
  - Court / prosecution (Up to 2 years in jail, $500,000 fine)

Other Examples

- Construction noise management
- Construction erosion sediment control
- Construction/temporary traffic management


Permanent noise walls
Temporary noise walls
Erosion and sediment control measures
Temporary Traffic management

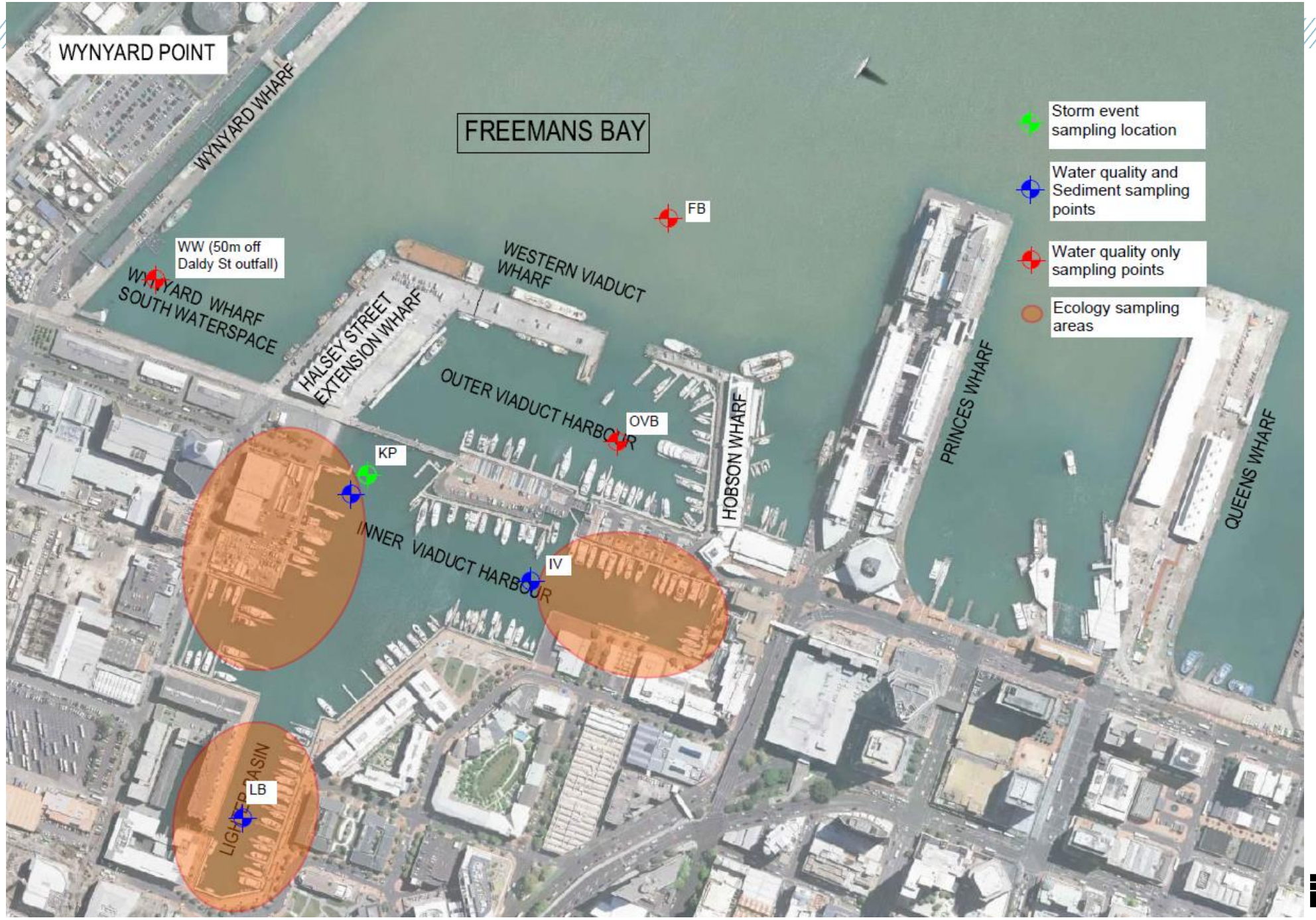


A current example - IVHEMP

AC36 project

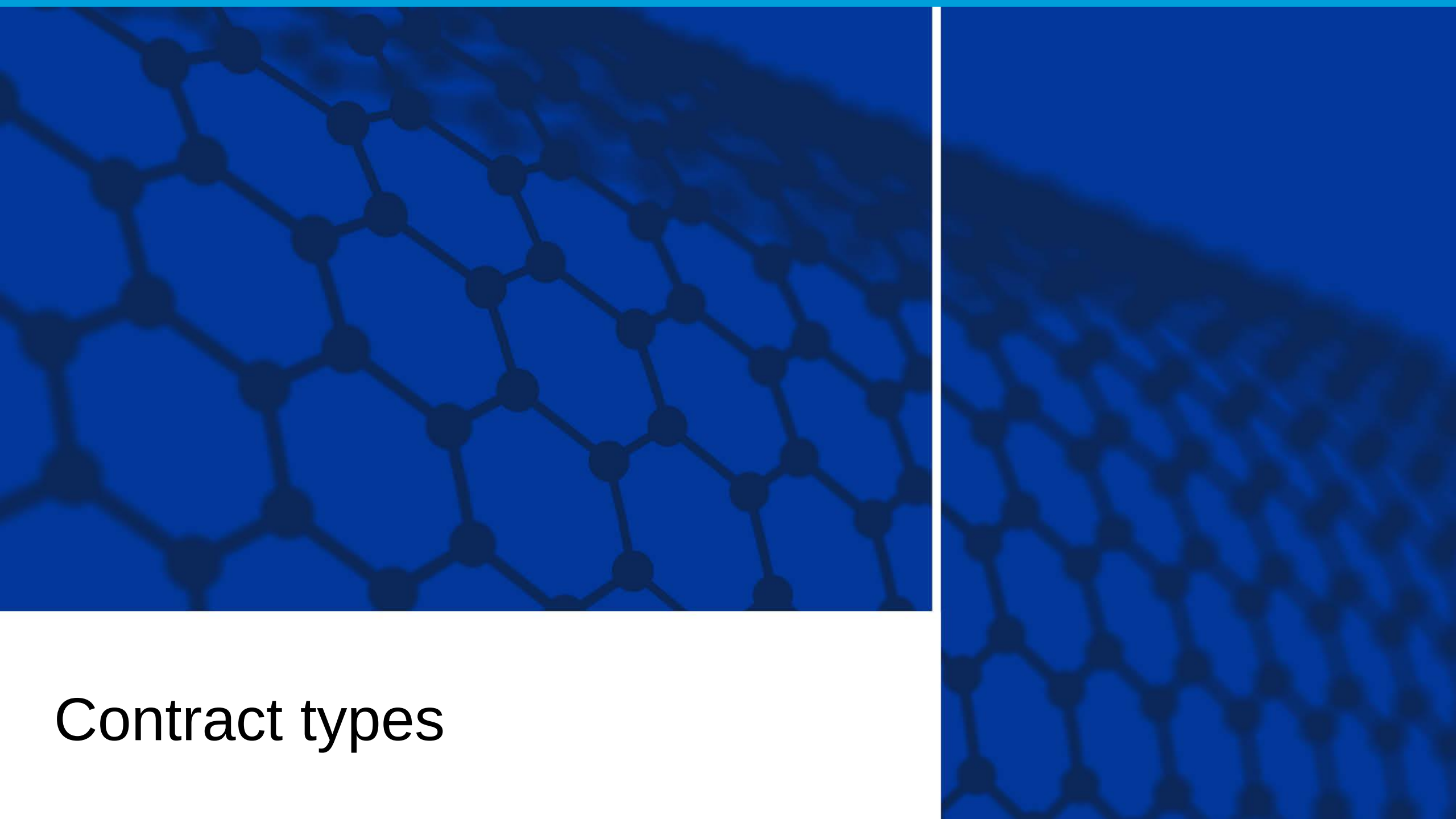
- *The objective of this Plan, in accordance with consent Condition 118, is to provide for monitoring of water quality within the Inner Viaduct Harbour water space to identify any ecological changes to the environment of the Inner Harbour from the proposed works.*

- Monitor potential change in water quality / ecology as a result of new structures in the CMA
- Provide some further monitoring effort to inform contact recreation risk


WYNYARD POINT
WYNYARD WHARF
FREEMANS BAY
Storm event sampling location
Water quality and Sediment sampling points
Water quality only sampling points
Ecology sampling areas
FB
WW (50m off Daldy St outfall)
WYNYARD WHARF SOUTH WATERSPACE
WESTERN VIADUCT WHARF
HALSEY STREET EXTENSION WHARF
OUTER VIADUCT HARBOUR
OVB
KP
HOBSON WHARF
PRINCES WHARF
QUEENS WHARF
INNER VIADUCT HARBOUR
IV
LB

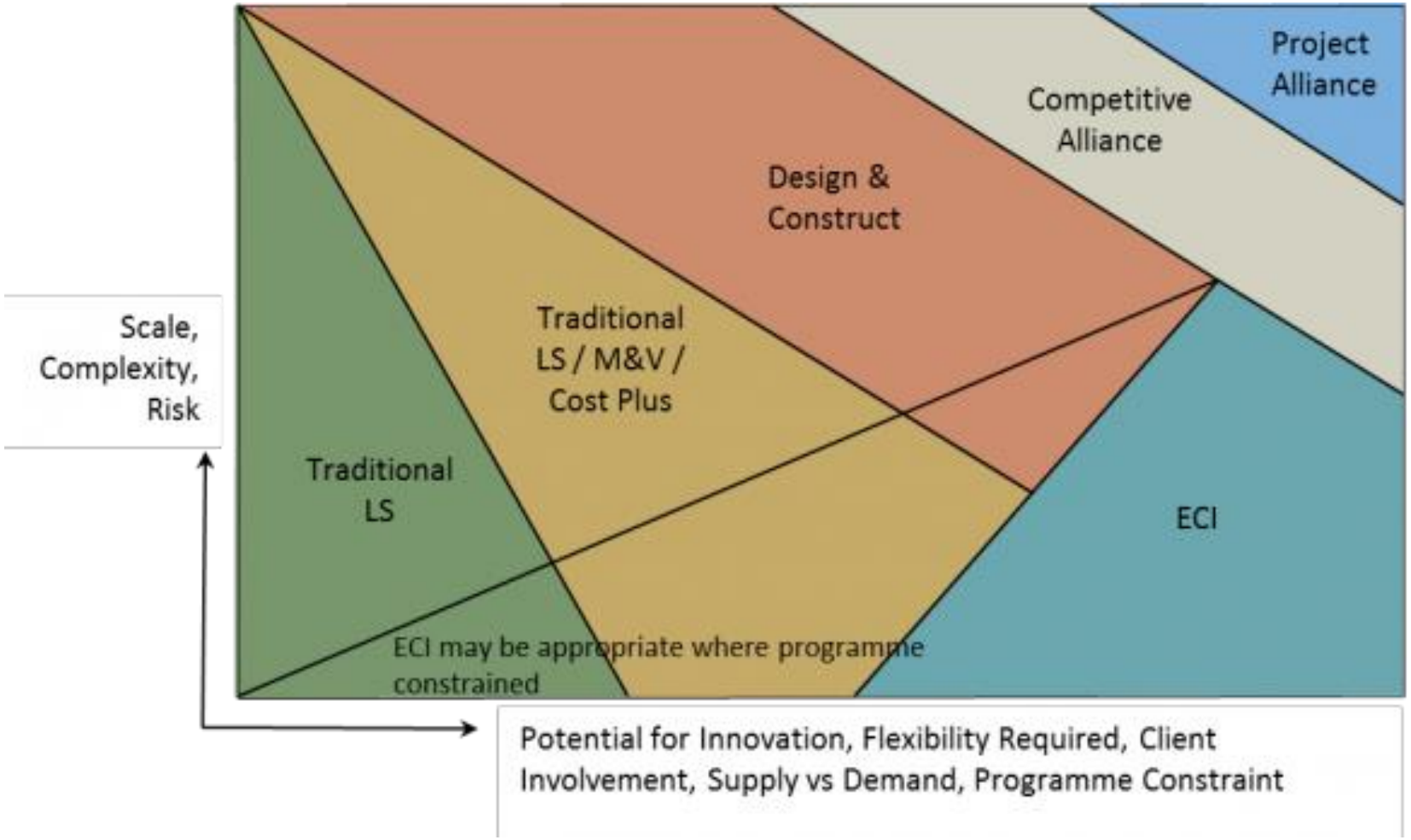
Construction phase requirements

- Monthly monitoring of water quality
- Monitoring of water quality parameters in response to storm events
- Review of ecological assembly within the Inner Viaduct Harbour
- Baseline samples
- Post-construction samples
- Technical report evaluating changes



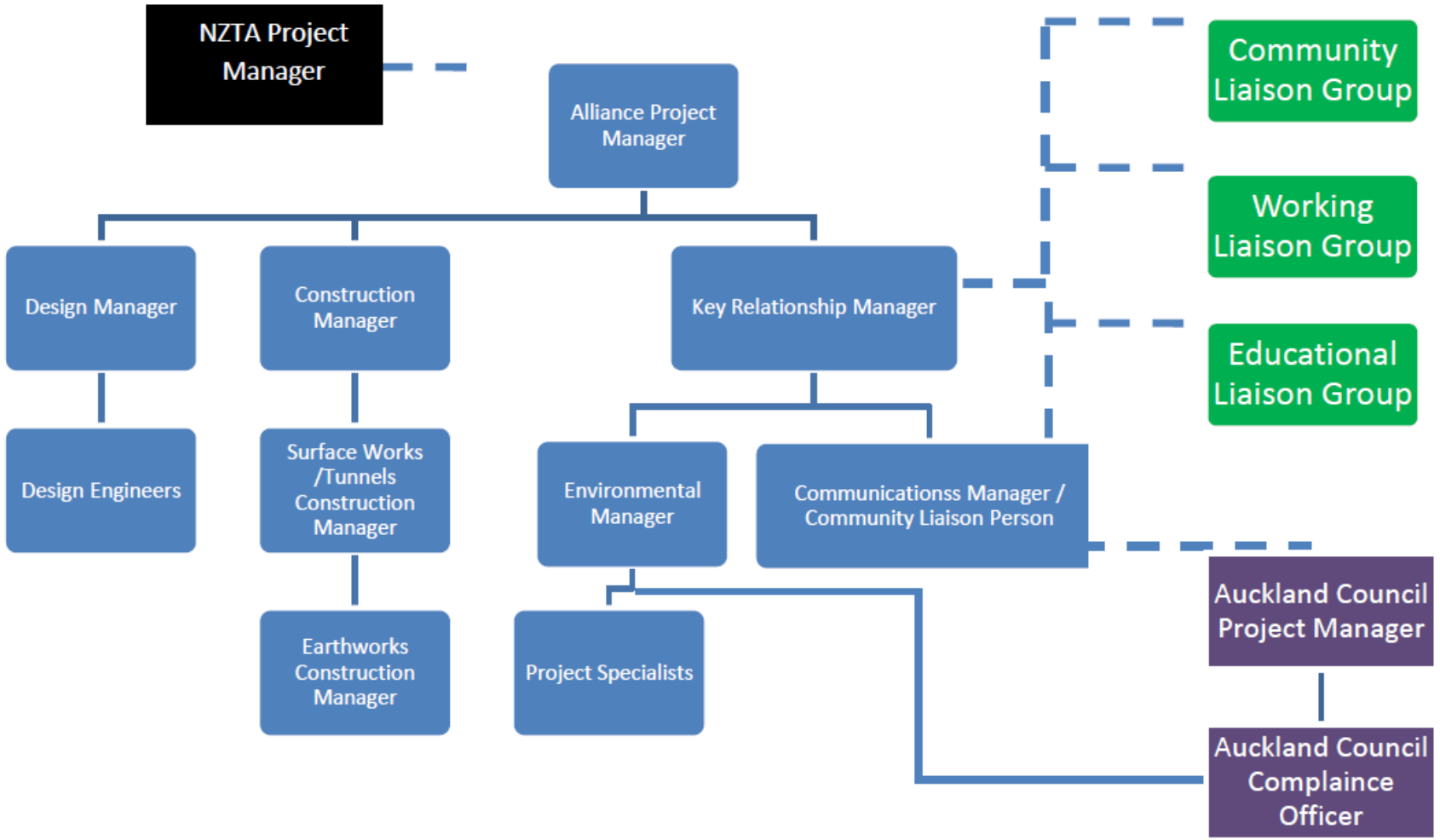
Contract types

Contract types – NZTA's approach



- https://www.nzta.govt.nz/roads-and-rail/highways-information-portal/technical-disciplines/procurement/

Well-Connected Alliance



In Summary

- EMPs are set up to monitor and inform management decisions on site
- Feedback loop to check estimated effects
- Quantum and scale of management plans varies
- Drafted in uncertainty, or to provide more certainty

make
everyday
better.