Keating Channel Pedestrian Bridge

Issues Identification

June 26, 2024

RFP Objectives

Keating Channel Pedestrian Bridge

Proponent: Waterfront Toronto
Design Team: WilkinsonEyre, Zeidler Architecture
Two Row Architect, Arup, PLANT Architect
Review Stage: Issues Identification

Summary

The Keating Channel Pedestrian Bridge project consists of the design and construction of a bridge crossing the Keating Channel between Quayside and Villiers Island.

- The span of the bridge is approximately 100m
- Minimum vertical and horizontal clearances are required to ensure safe navigation for marine vessels and protect for regulatory flood flows
- As an active transportation bridge, the design must be fully accessible and accommodate various modes of non-vehicular use.
- The scope will include structural infrastructure, surface treatments, potential integrated softscaping, lighting, furnishings, signage, and wayfinding.
- The north and south landings of the bridge fall in Quayside and Villiers Island and as both communities are under development, interim uses and connections for both sites will be studied.
- This project is committed to working in collaboration with the MCFN, and with other Indigenous Communities, throughout the design and delivery the bridge.

RFP Objectives: Project Goals

Keating Channel Pedestrian Bridge

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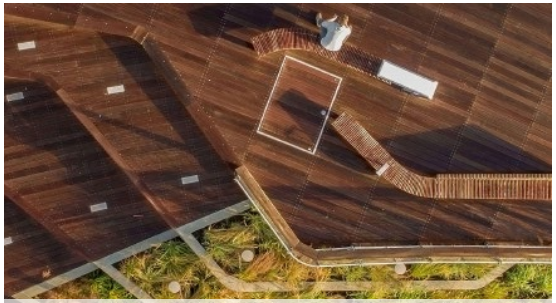
1 Create a Beautiful and Distinctive Gateway to the Waterfront

2 Connect the City and Villiers Island



3 Incorporate a Living Landscape

4 Create with Indigenous Voice and Agency

5 Embody Sustainable Strategies and Innovation

6 Create a Place for All People

Site Context

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Site Context
Existing

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Site Context
Future

Keating Channel Pedestrian Bridge
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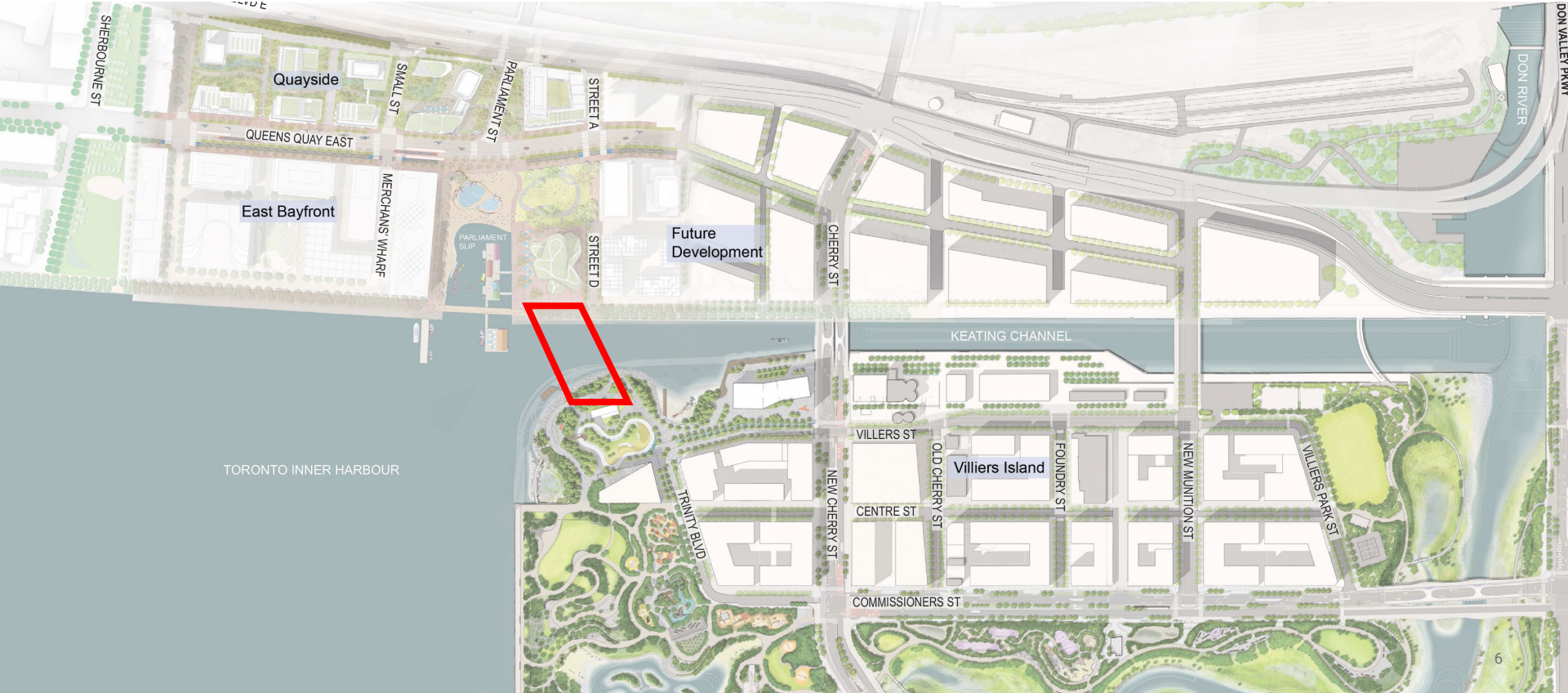

Site Context
Landing Sites

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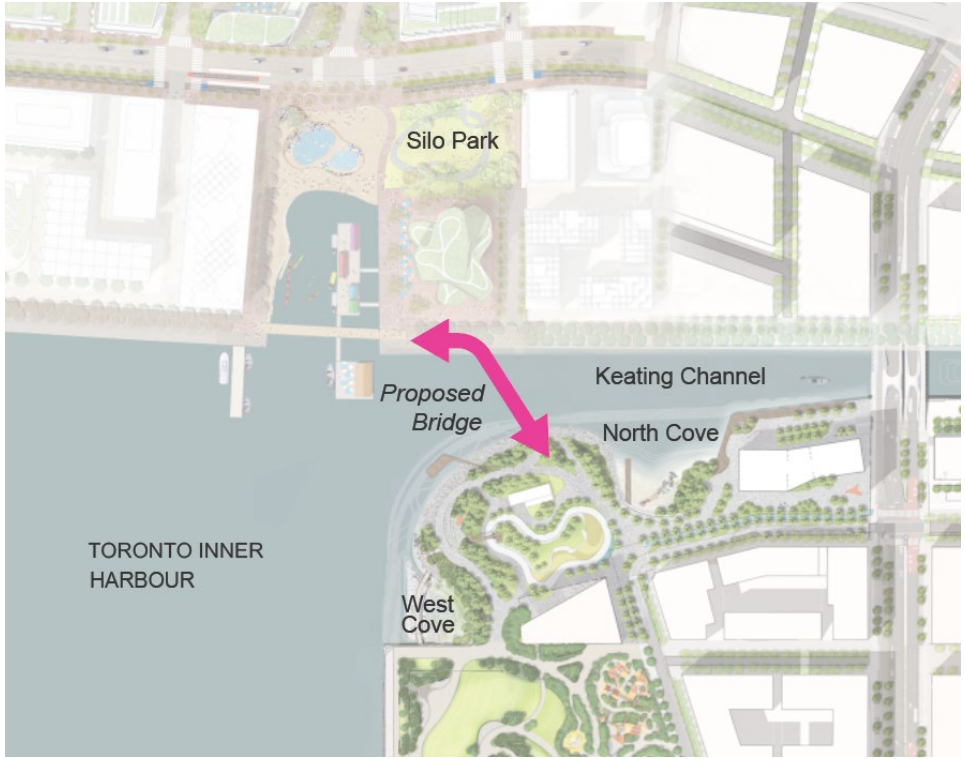

North: Quayside & WEP

South: Villiers Island and PPN

Site Context
North Landing Site - Photos

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Facing southeast towards the corner of the future Promontory Park North site.

Facing southeast towards the corner of the future Promontory Park North site.

Facing west across Parliament Slip towards the nearly completed Bayside Village.

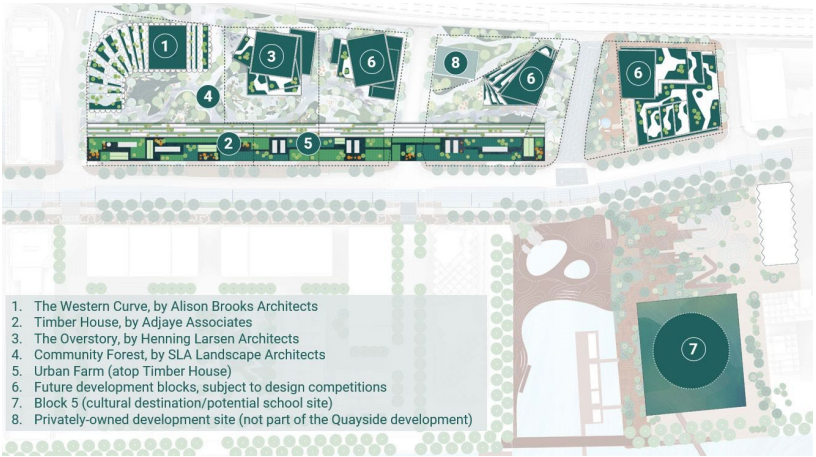
Facing south towards the corner of the future Promontory Park North site.

Facing northeast towards the Victory Soya Mills silos.

Facing south from the gate of the parking lot at 333 Lake Shore Blvd E.

Adjacent Design Context

North Landing Site



Quayside, Water's Edge Promenade, Parliament Slip Activation

Keating Channel Pedestrian Bridge

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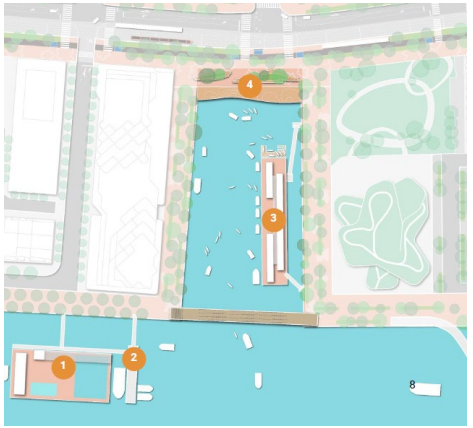
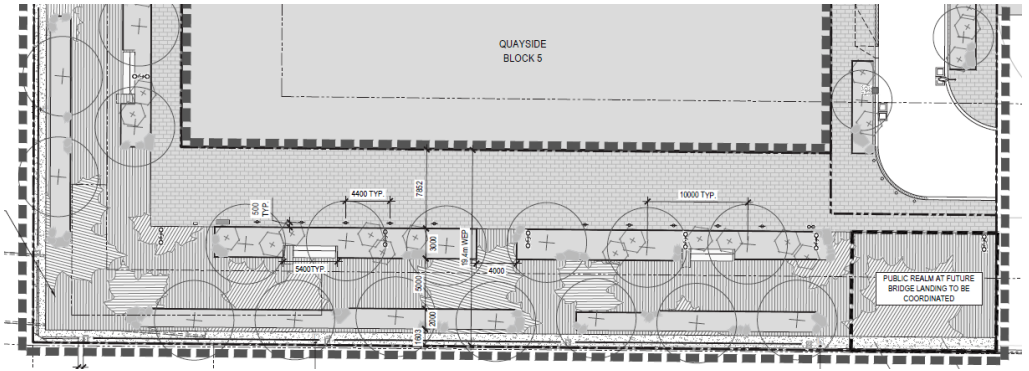
Review Stage: Issues Identification





Site Context
South Landing Site - Photos

Keating Channel Pedestrian Bridge
Proponent: Waterfront Toronto
Design Team: WilkinsonEyre, Zeidler Architecture
Two Row Architect, Arup, PLANT Architect
Review Stage: Issues Identification

Facing west. This dirt road divides the two future site of Promontory Park North and Promontory Park South.

Natural vegetation covering the site

The temporary linear swale

Facing west down the Keating Channel

Tree plantings along sloped stone revetment. Facing north across Keating Channel towards the Victory Soya Mills silos.

Facing east down the Keating Channel

Adjacent Design Context

South Landing Site

Keating Channel Pedestrian Bridge

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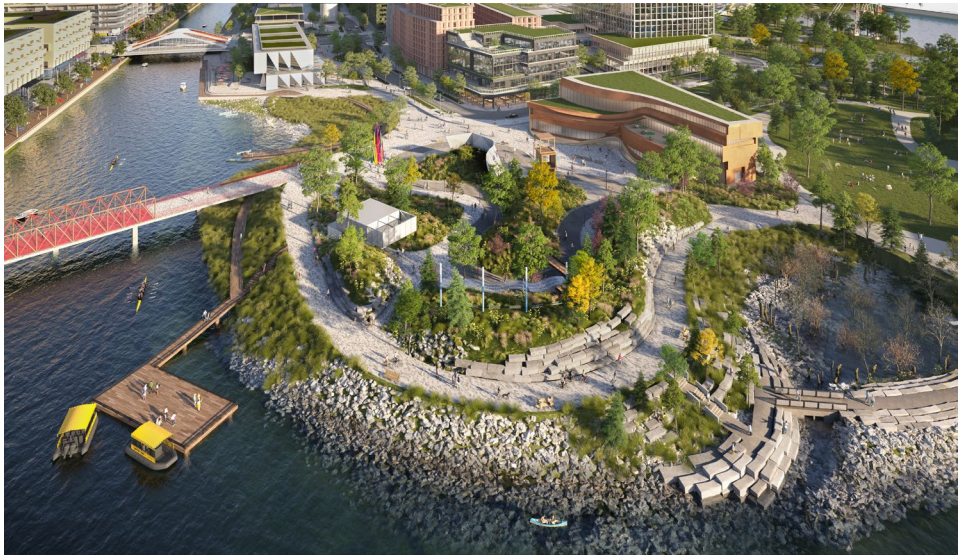
Review Stage: Issues Identification



Promontory Park North, PLFP

Site Context
Cycling Network

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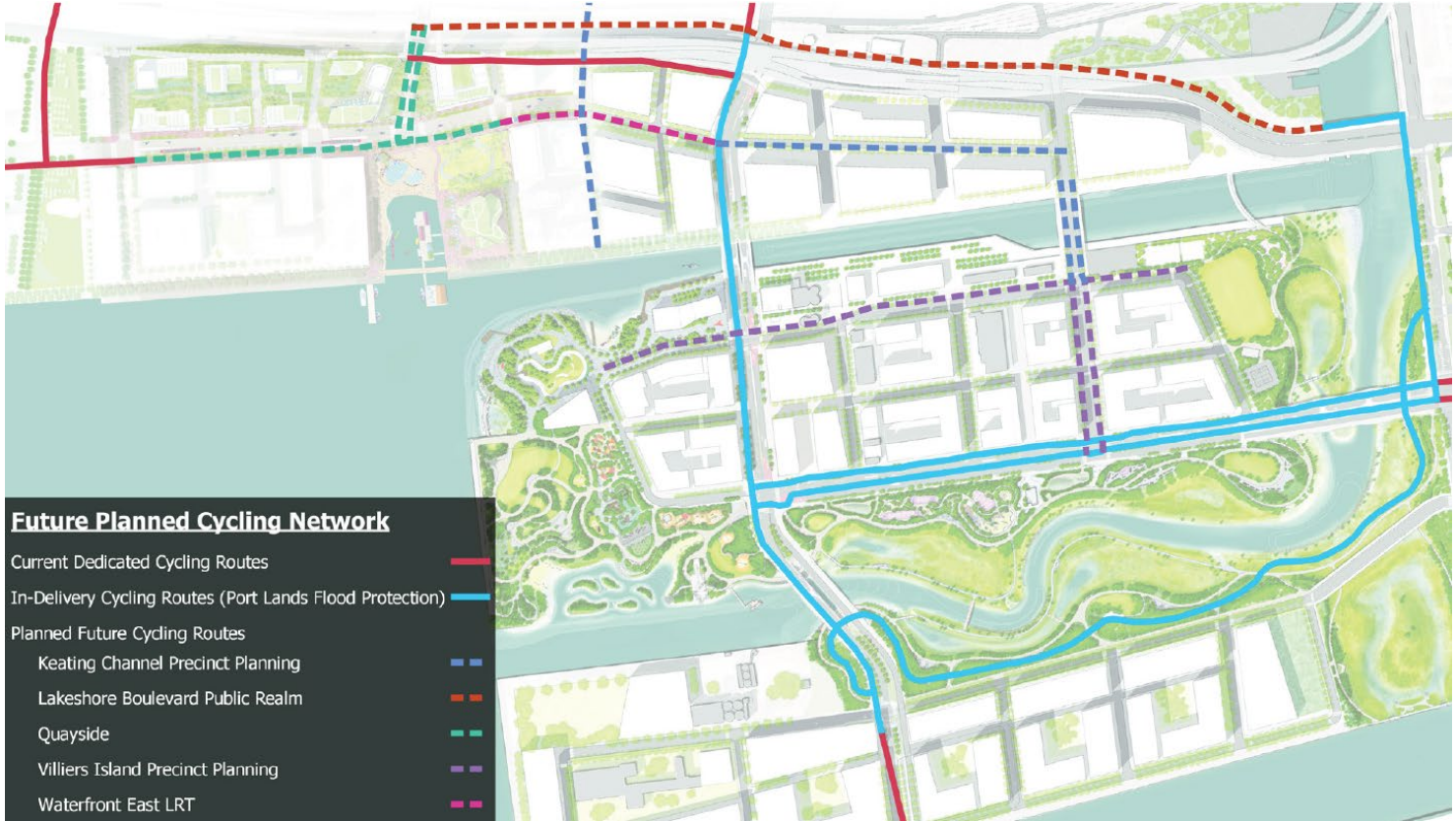
Review Stage: Issues Identification



Competition Results Summary

Keating Channel Pedestrian Bridge

Proponent: Waterfront Toronto
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Two Row Architect, Arup, PLANT Architect
Review Stage: Issues Identification

Features of the selected concept that respond to the Project Goals:

- Utilizing the “S” form as a traffic calming measure to accommodate various active transportation modes of travel. The “S” form also functions to absorb grade changes between landing sites
- Providing accessible places to pause with lowered seating areas so everyone can get closer to the water and enjoy the view.
- Indigenous cultural overlay and design integration which includes architecturally celebrating the solstices and equinoxes, 4 cardinal directions and a lighting design that showcases four (4) different star constellations that are significant to local Indigenous communities (and will be selected with the input of Indigenous knowledge keepers)
- Using sustainability strategies, including low carbon and local materials, green technologies, integrated wind breaks and local plant species

Anticipated Project Timeline

Keating Channel Pedestrian Bridge

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Review Stage: Issues Identification

We are here!

Policy Development & Community Consultation	Procurement (RFQ/RFP)	Design Competition	Schematic Design	Detailed Design	Contract Documents & Tender	Construction*
2010 - 2023	February - July 2023	July 2023 - October 2023	February 2024 - June 2024	July 2024 - November 2024	December 2024 – April 2025	February 2025 – March 2026
(~13 yrs)	*(6 mo)*	*(4 mo)*	*(5 mo)*	*(5 mo)*	*(5-8 mo)*	*(18-24 mo)*

Project Total Time: 3 years

** Assumes sequential tendering*

DRP Process

Stream 2: Public Land

Keating Channel Pedestrian Bridge

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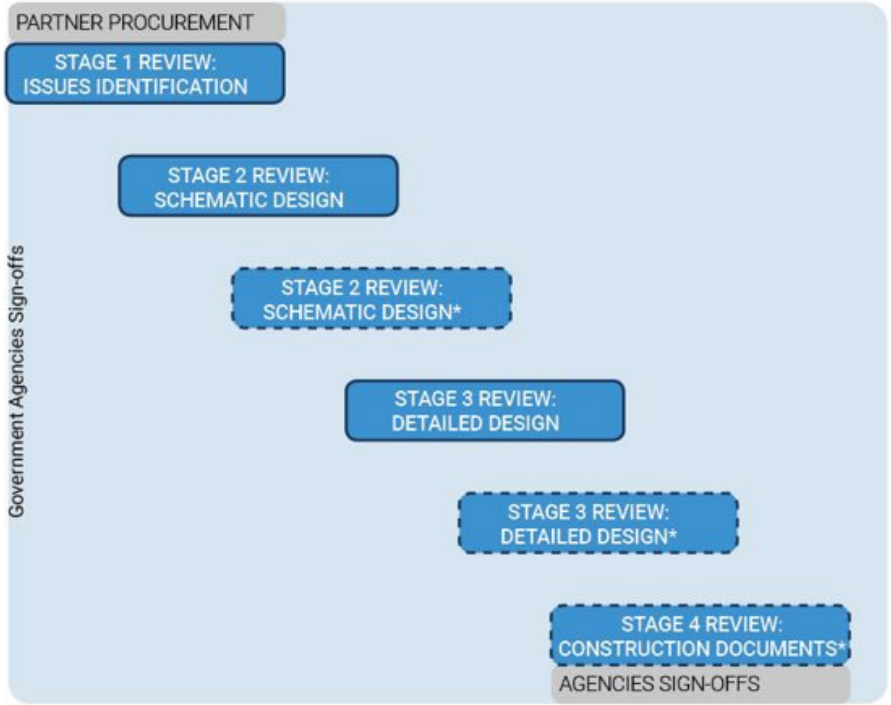
Review Stage: Issues Identification

Feb 2024 Issues Identification 2



Areas for Panel Consideration

Relationship with Context/Integration

- Is the design well integrated with the immediate context and the greater existing and future public realm network?
  - North landing and Water's Edge Promenade
  - South landing and Promontory Park

Design Excellence

- How are accessibility and active transportation challenges being addressed?
- How can the design continue to evolve to meet the objectives of design excellence?
- Is the design aligned with the objectives and character of the other PLFP bridges? Does it help support this unique family of bridges in the district?

Sustainability and Resilience Design

- Are there other strategies to consider for reducing the embodied carbon emissions of the project?

The Equinox Bridge

Keating Channel Pedestrian Bridge

DRP#1 – Issues Identification

June 26, 2024

WATERFRONTToronto

TORONTO

zeidler | WilkinsonEyre | ARUP | PLANT

Team

zeidler ARCHITECTURE	Prime Proponent
WilkinsonEyre	Design Lead
ARUP	Engineering
PLANT	Landscape
TWO ROW ARCHITECT	Indigenous Consultant/architect
BTY	Cost/QS

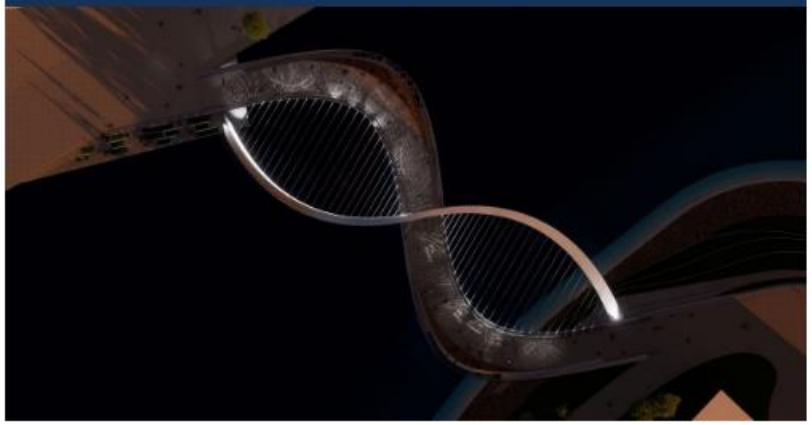
Six Project Goals

Beautiful and Distinctive Gateway to the Waterfront

Connecting the City and Villiers Island

Incorporate a Living Landscape

Create with Indigenous Voice and Agency



Embody Sustainable Strategies and Innovation

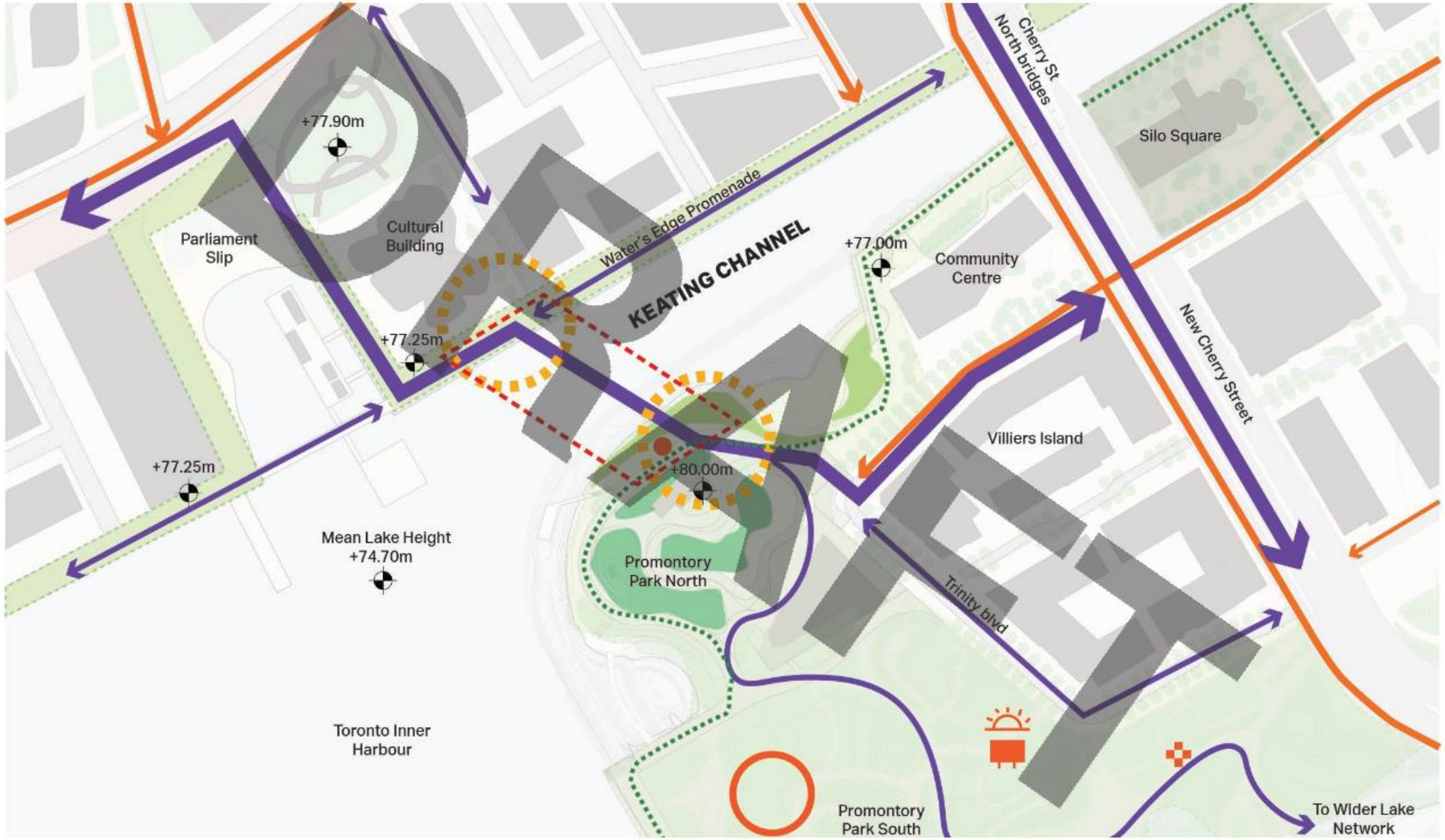
Create a Place for All People

Site Analysis

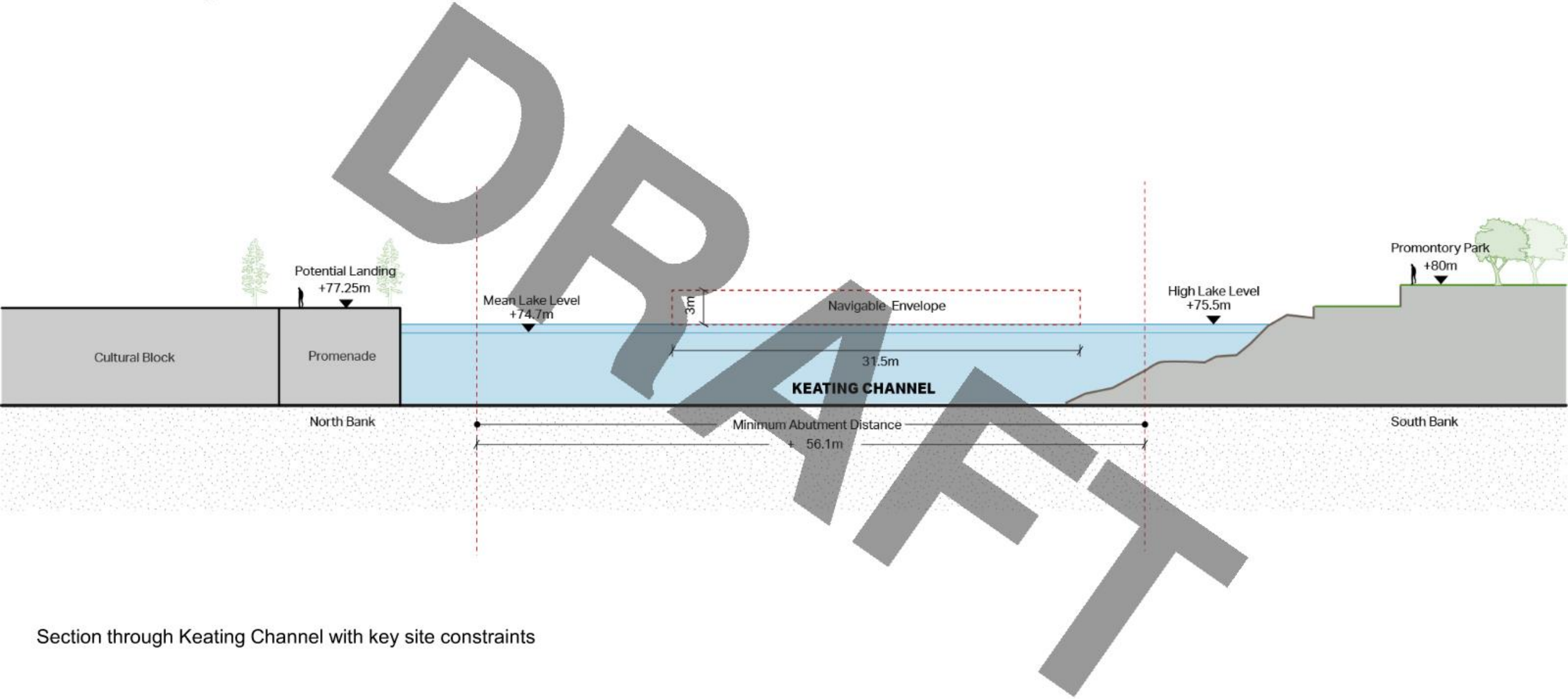
Existing naturalised site condition along the south bank.

Existing site condition along the north bank with concrete slab.

Connectivity

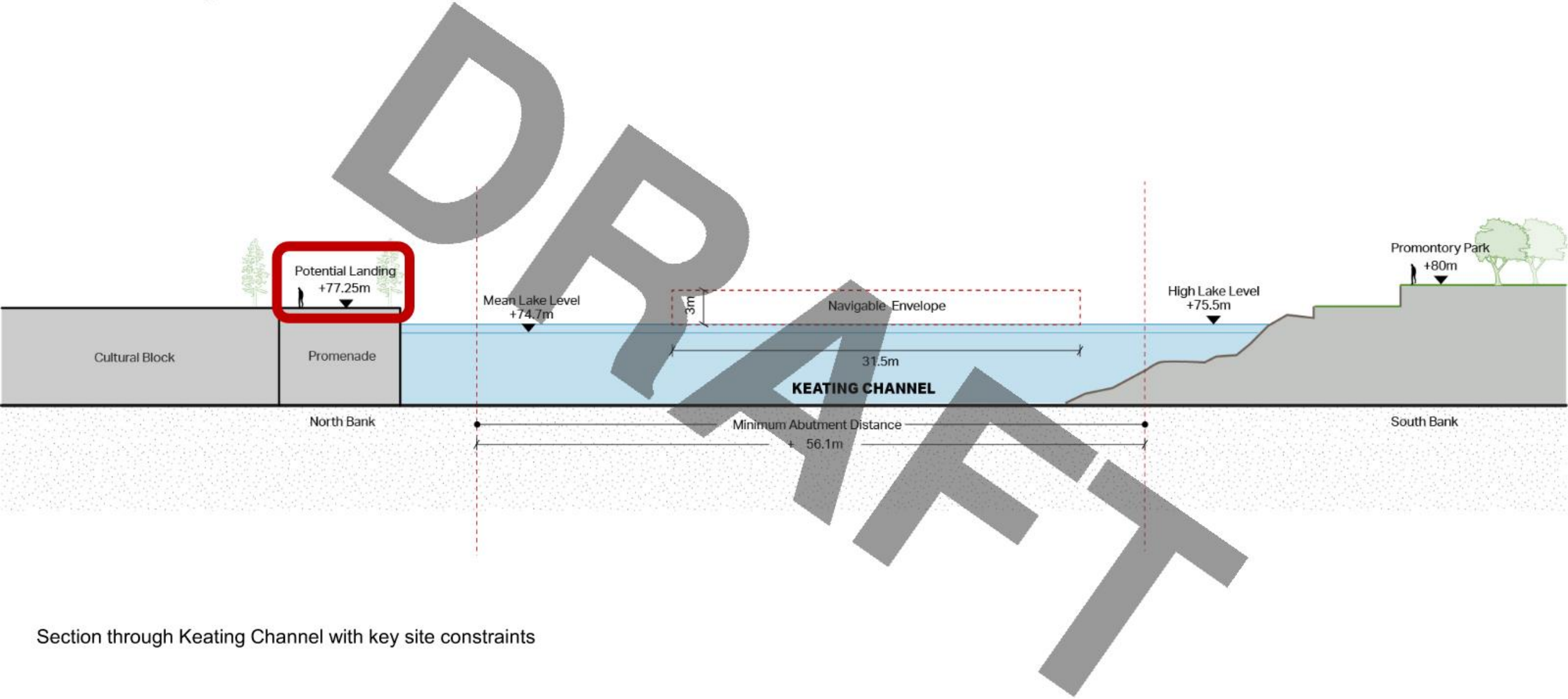


Site Analysis



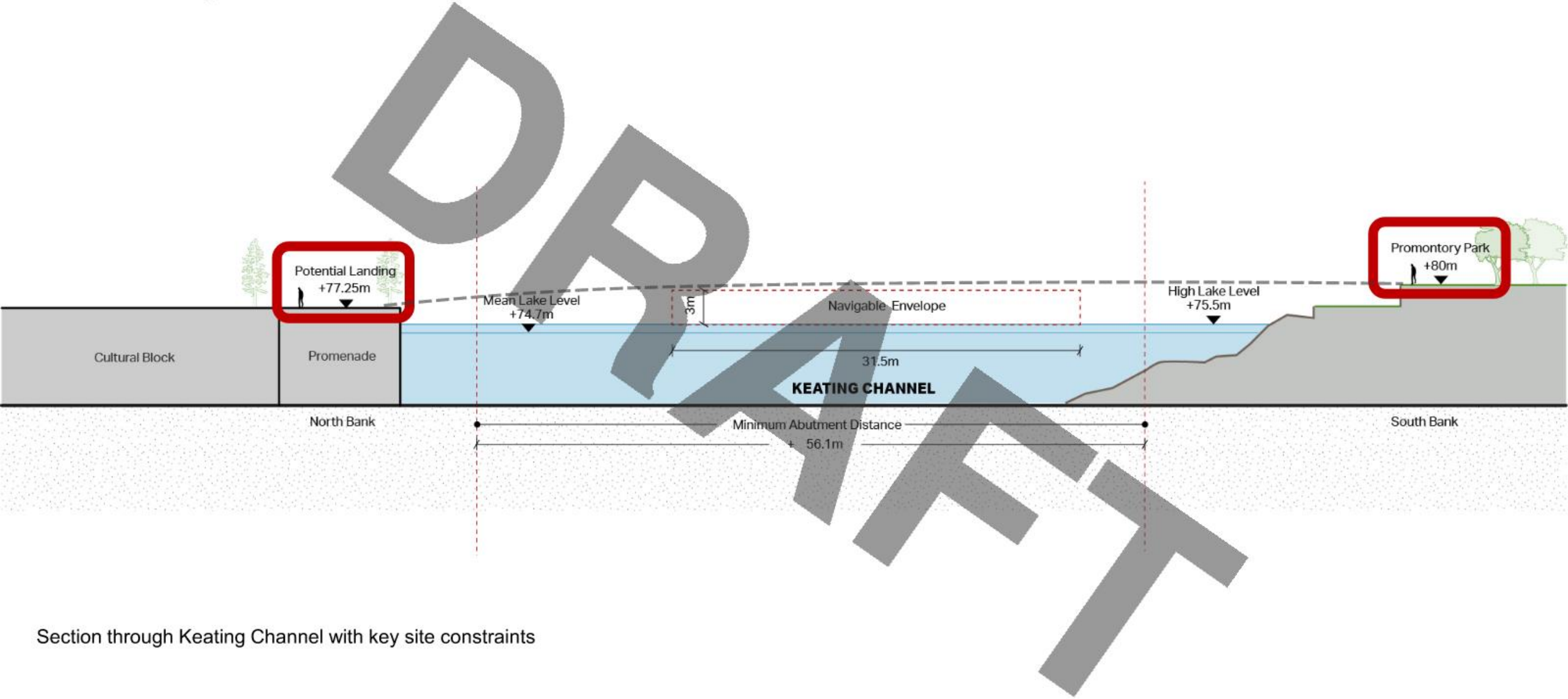
Section through Keating Channel with key site constraints

Site Analysis



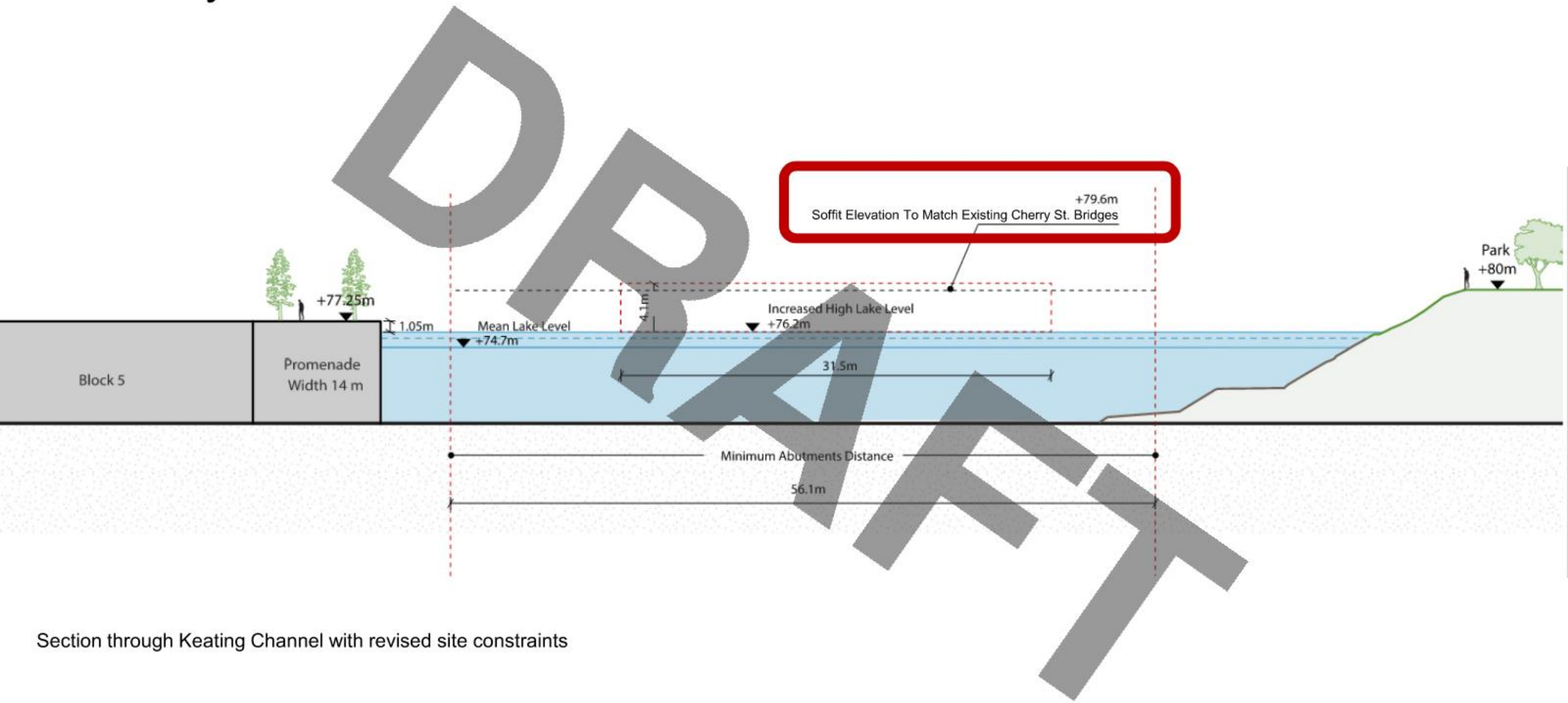
Section through Keating Channel with key site constraints

Site Analysis



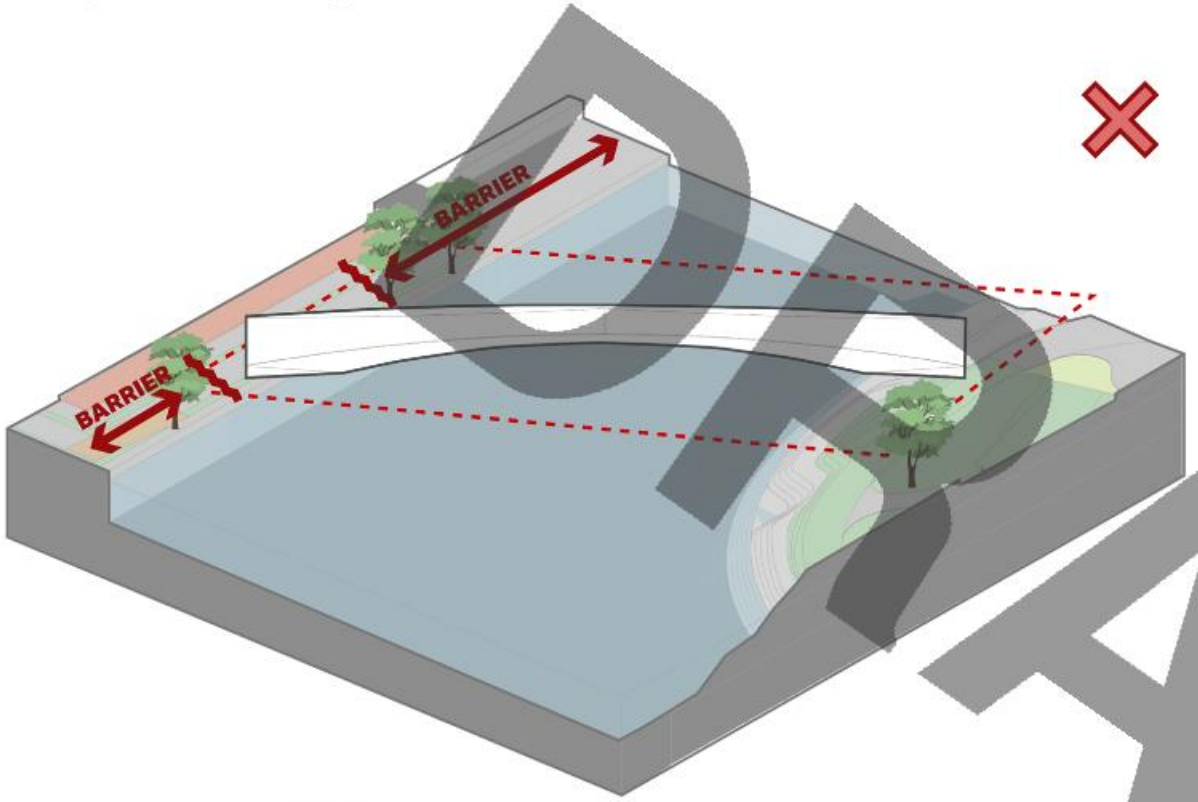
Section through Keating Channel with key site constraints

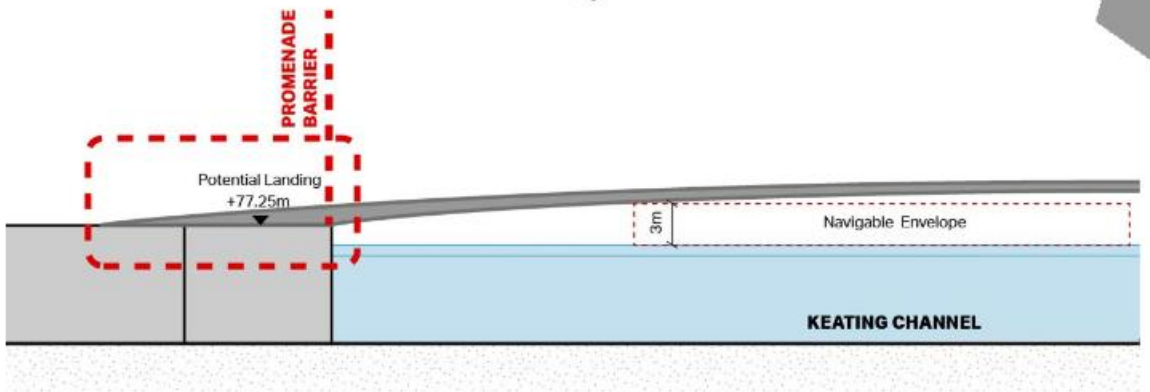
Site Analysis



Section through Keating Channel with revised site constraints

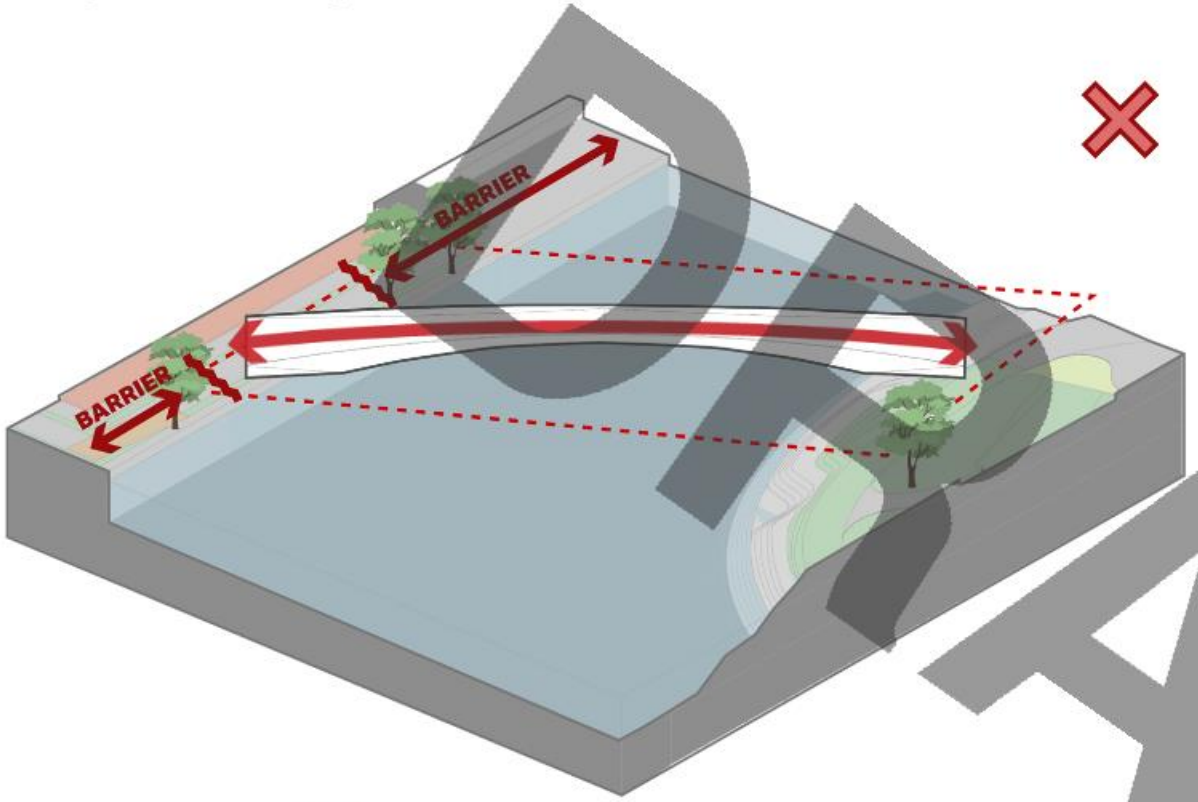
Concept Design Studies





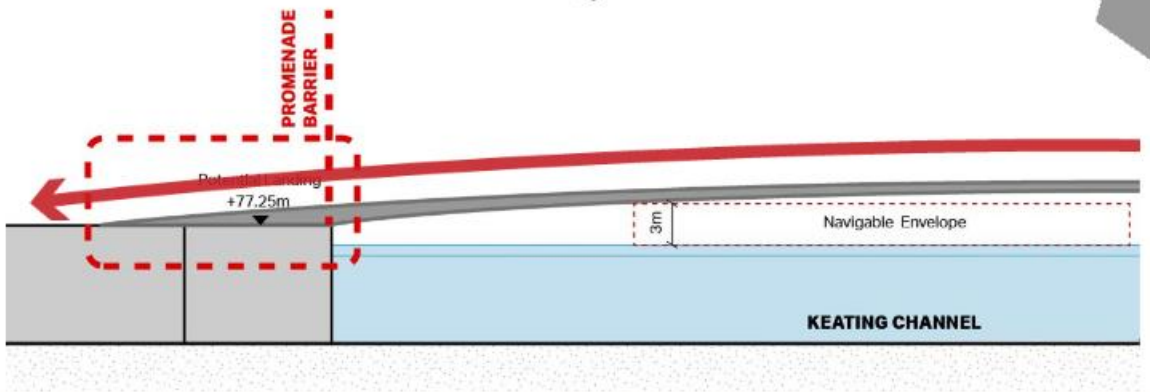
Straight Bridge with Ramped Deck

Concept Design Studies

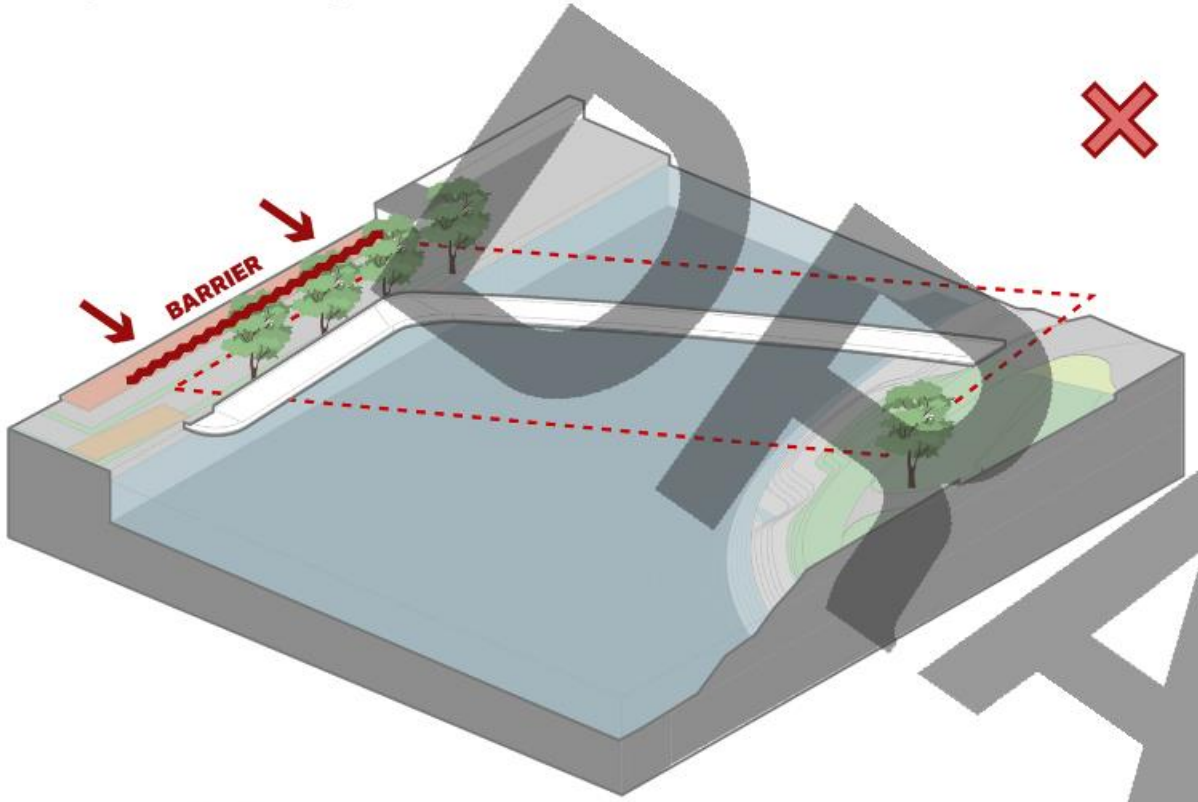


Straight Bridge with Ramped Deck

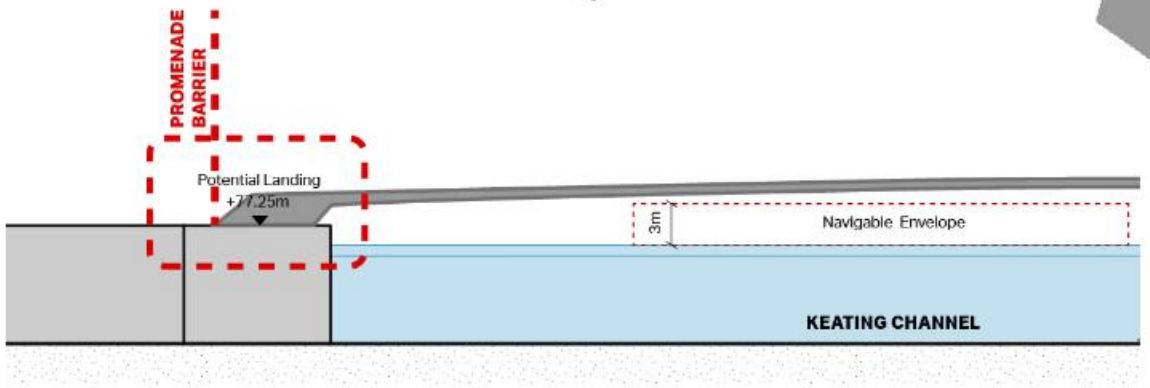
- Diagonal bridge alignment required to minimise impact on quayside
- Creates physical east-west barrier along quayside
- Significant ramp run off on quay edge to resolve levels



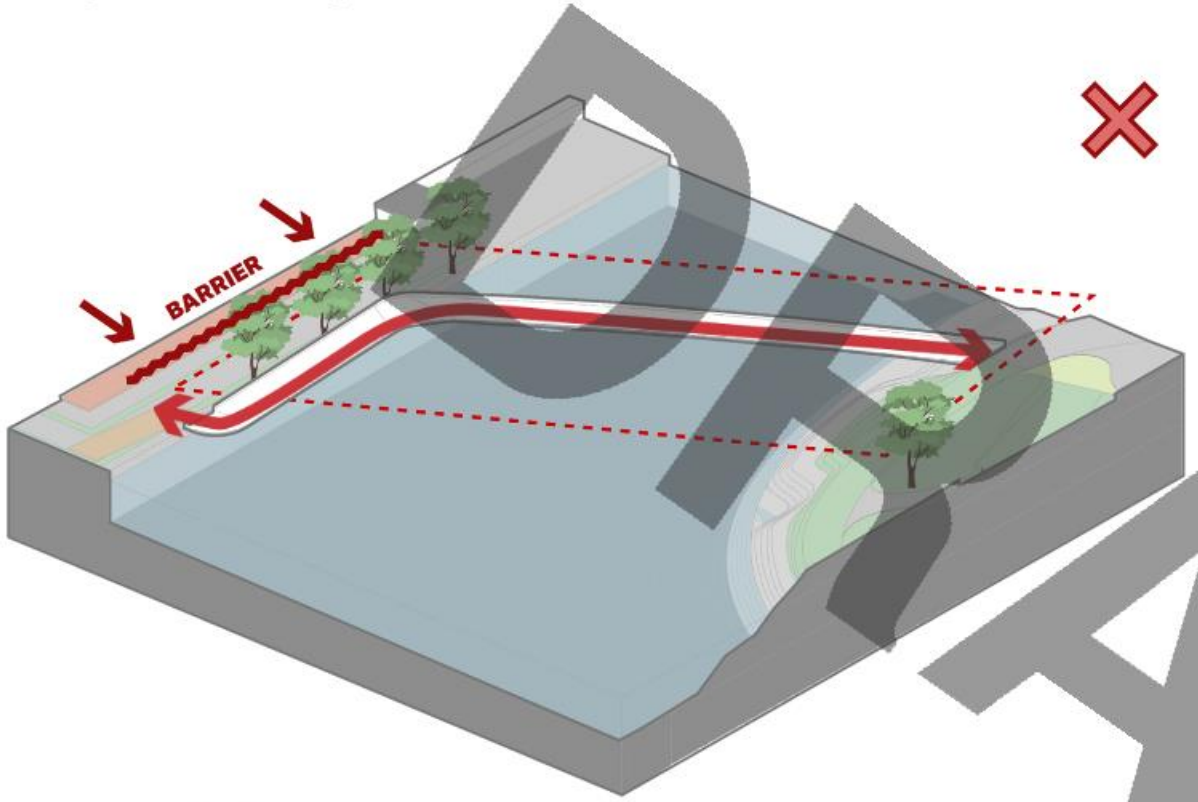
Concept Design Studies



Straight Bridge with Ramping on Quayside



Concept Design Studies



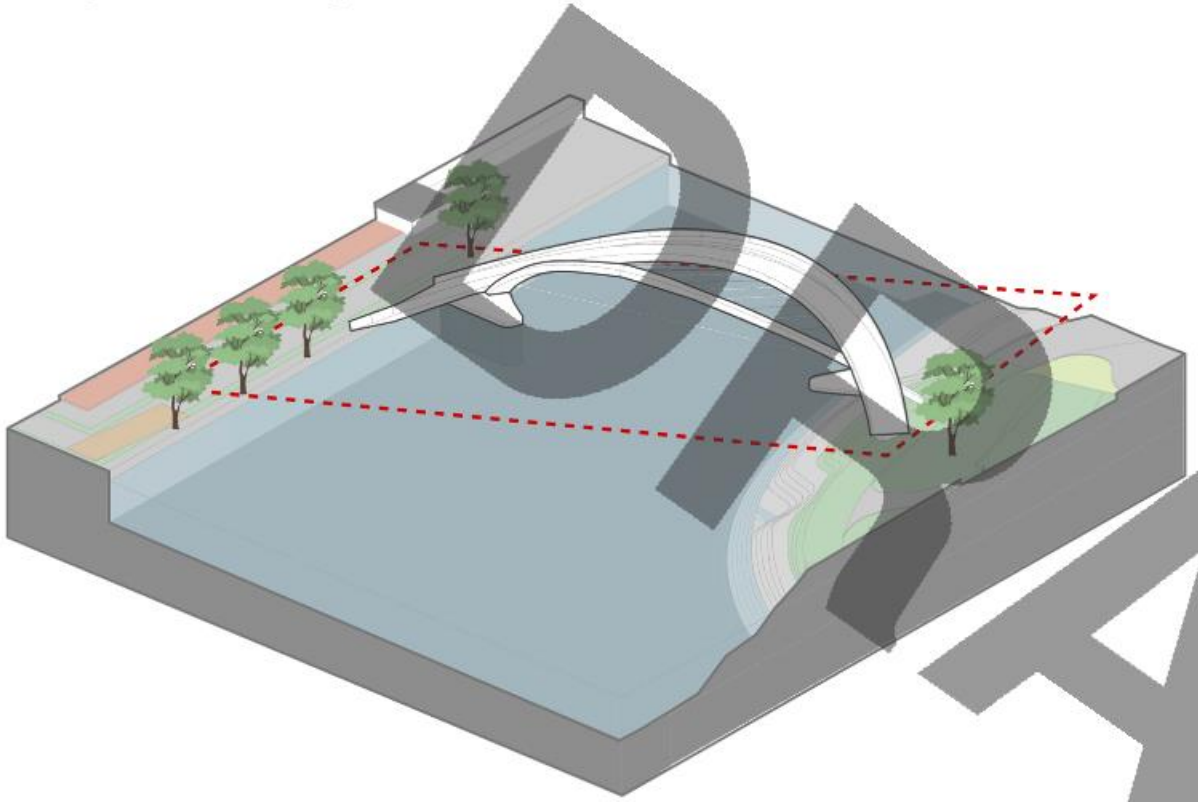
Straight Bridge with Ramping on Quayside

\+ Bridge alignment less critical

\- Creates physical north-south barrier to water along quayside

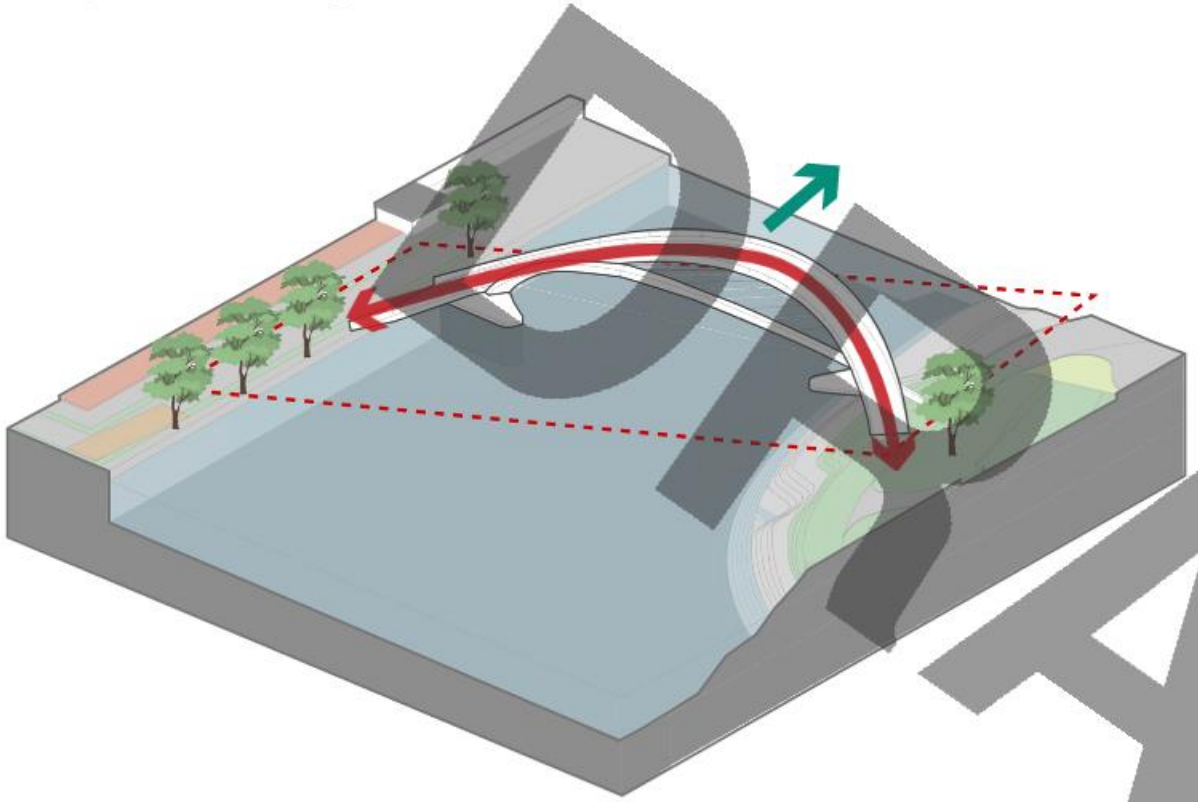
\- Significant ramp run off parallel to quay edge to resolve levels

Concept Design Studies



Curved Deck and Arch

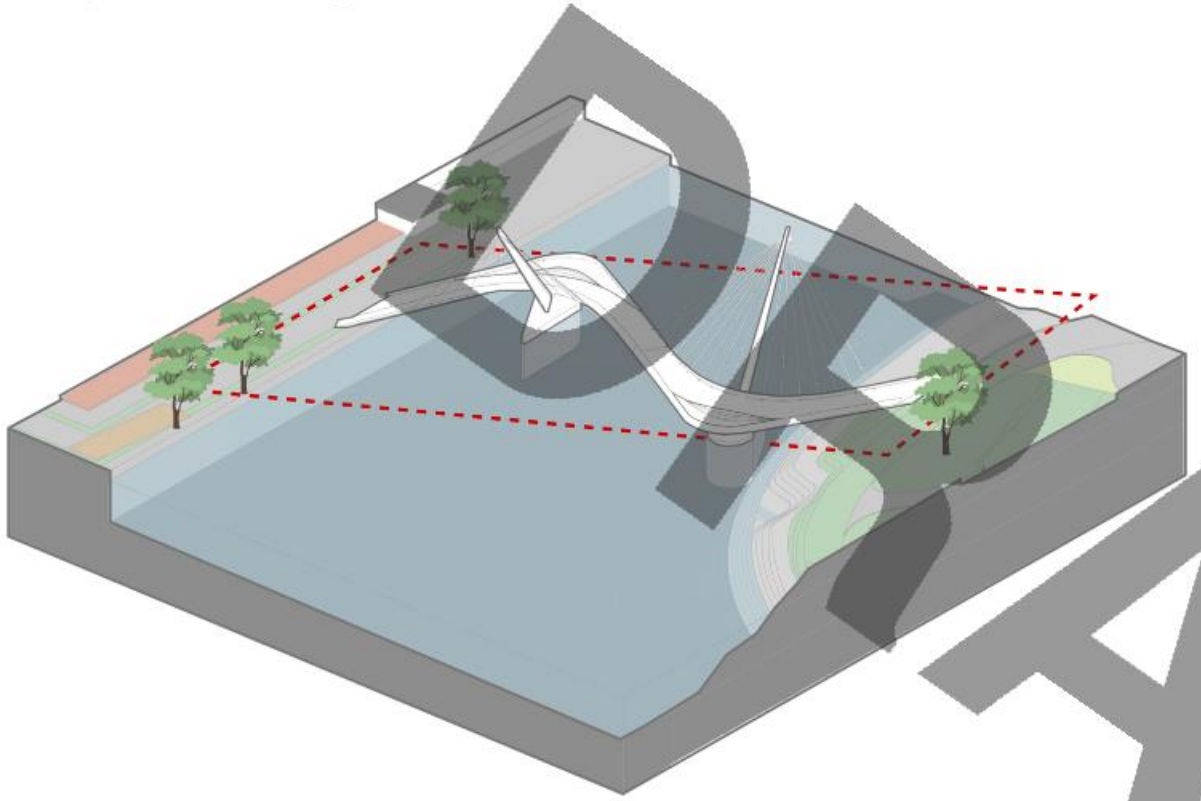
Concept Design Studies



Curved Deck and Arch

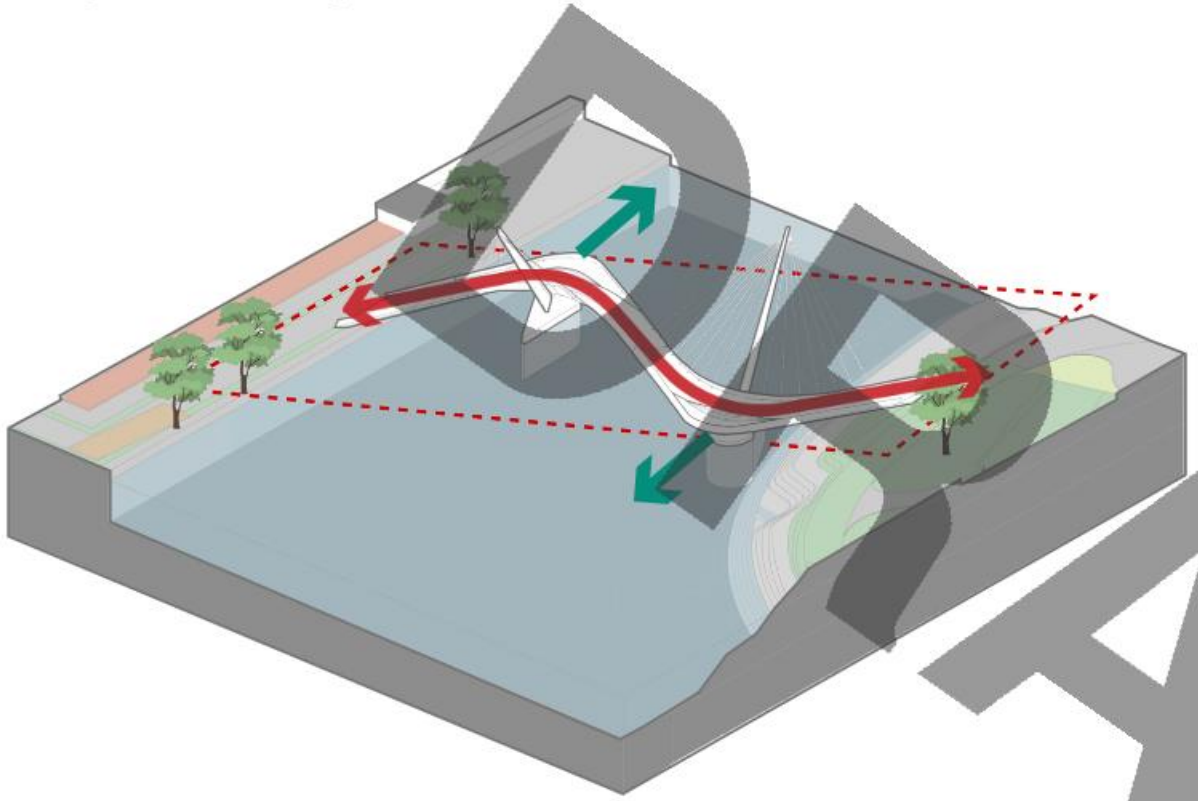
+ No barriers at Quayside promenade
+ Curving deck length resolves levels at Quayside
+ Structurally efficient and cost effective to build
- Deck projects inland, views are not as good

Concept Design Studies



S-Deck and Masts

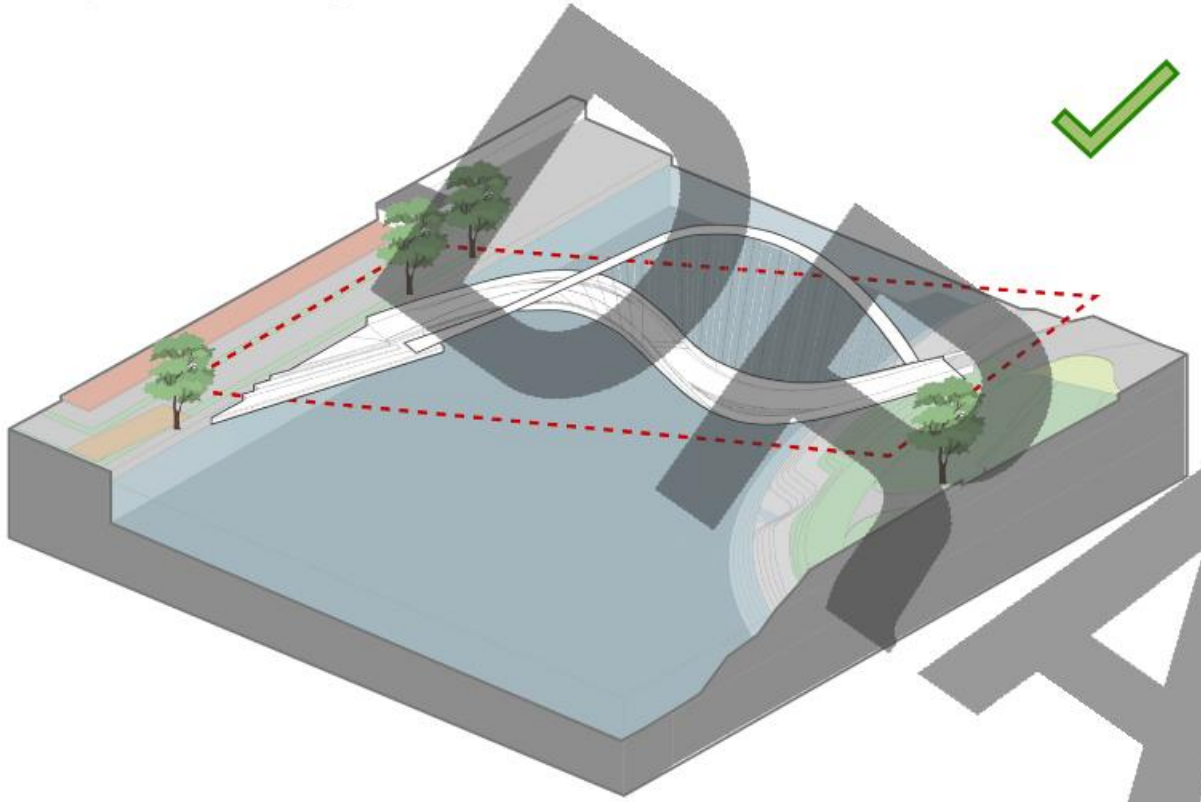
Concept Design Studies



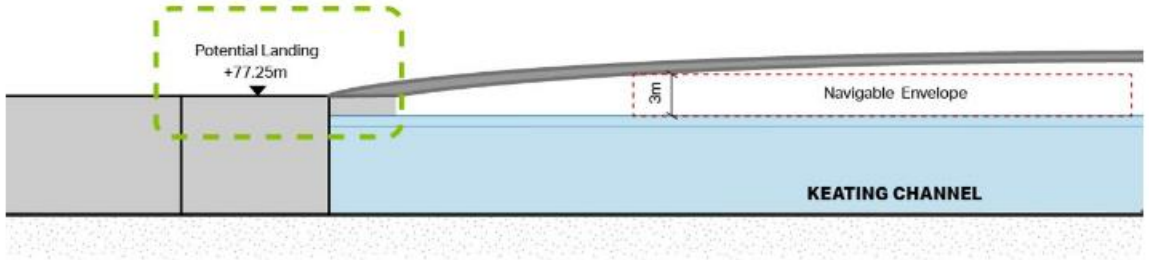
S-Deck and Masts

+ No barriers at Quayside promenade
+ Curving deck length resolves levels at Quayside
+ Natural traffic calming effect to allow pedestrians and cyclists to share bridge safely
+ Equal importance to each side of the bridge, creating a balanced approach and views to both sides
+ Informed by directionality and a connection to place
- Masts are structurally complicated and require piers in the water, more expense
- Doesn't tie in with the family of bridges

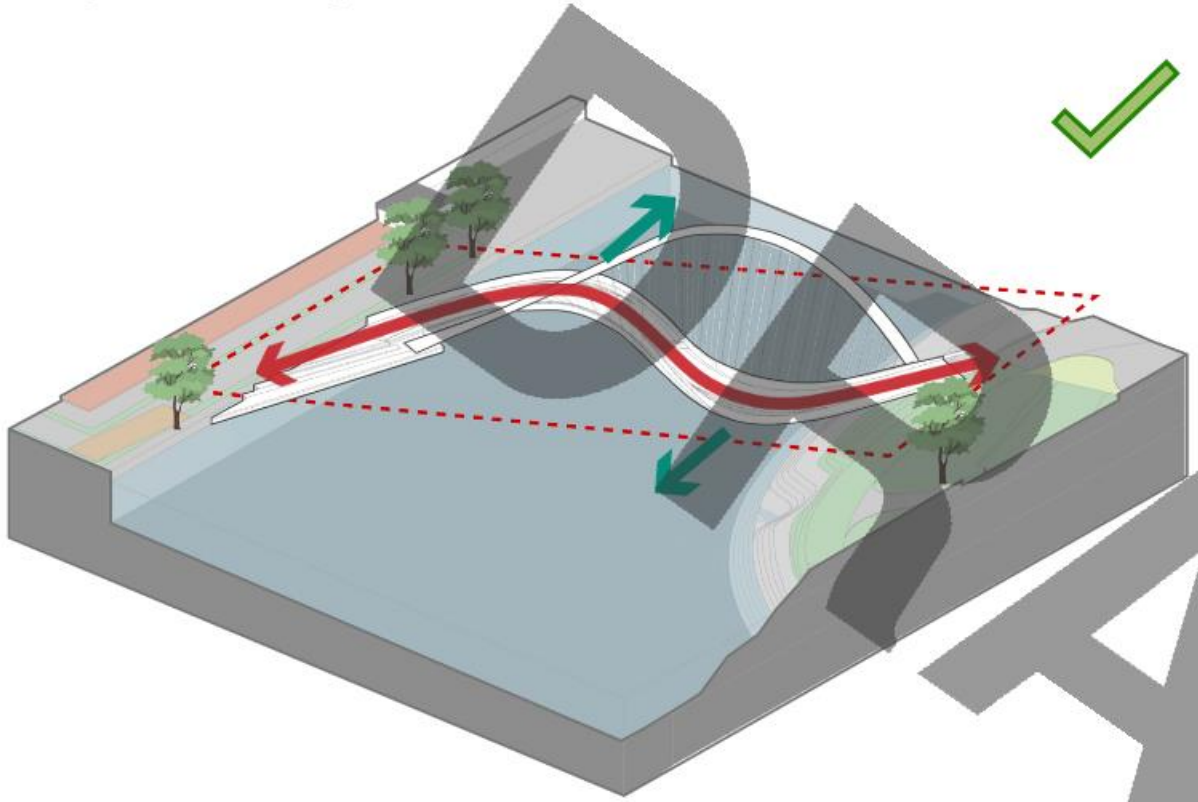
Concept Design Studies

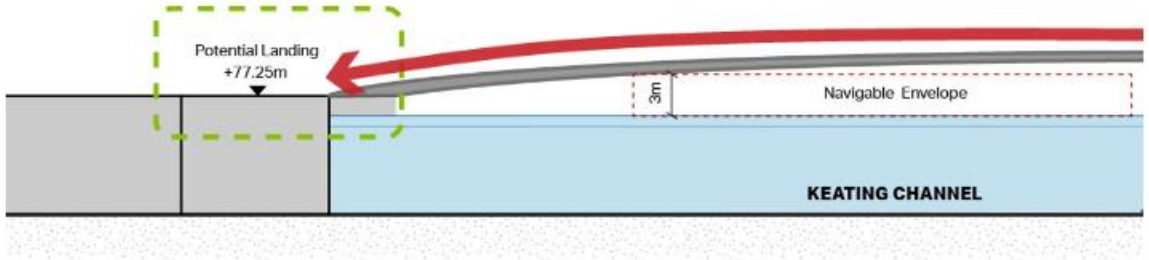


S-Deck and Arch



Concept Design Studies



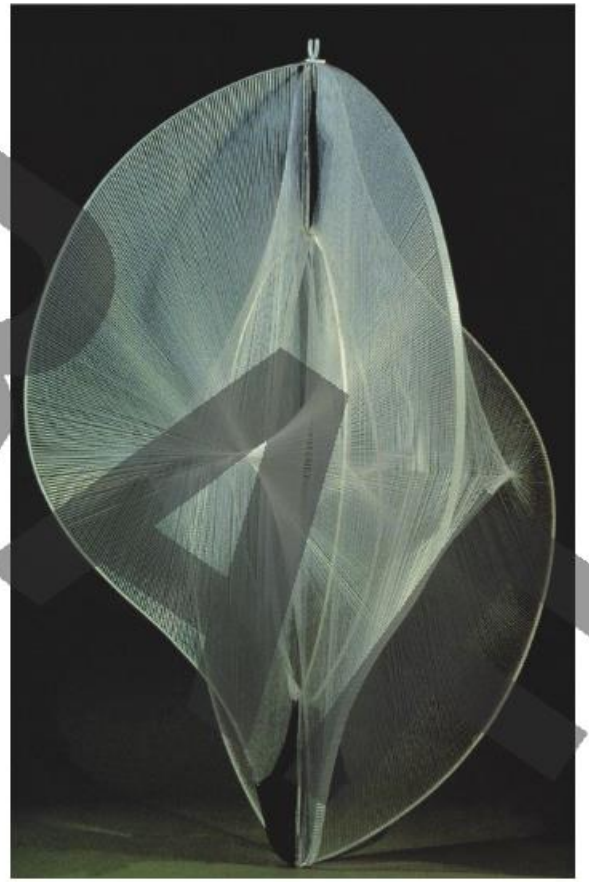


S-Deck and Arch

+ No barriers at Quayside promenade
+ Curving deck length resolves levels at Quayside
+ Natural traffic calming effect to allow pedestrians and cyclists to share bridge safely
+ Equal importance to each side of the bridge, creating a balanced approach and views to both sides
+ Informed by directionality and a connection to place
+ Arch is structurally efficient and requires minimal steel
+ Ties in with the 'family of bridges' approach in elevation, complimenting the Cherry Street North bridges
+ Form aligns with sinuous forms of the deck and natural landscape

Concept Design Studies

Bridge Deck Geometry and Anti-funicular Arch selected for development in final design



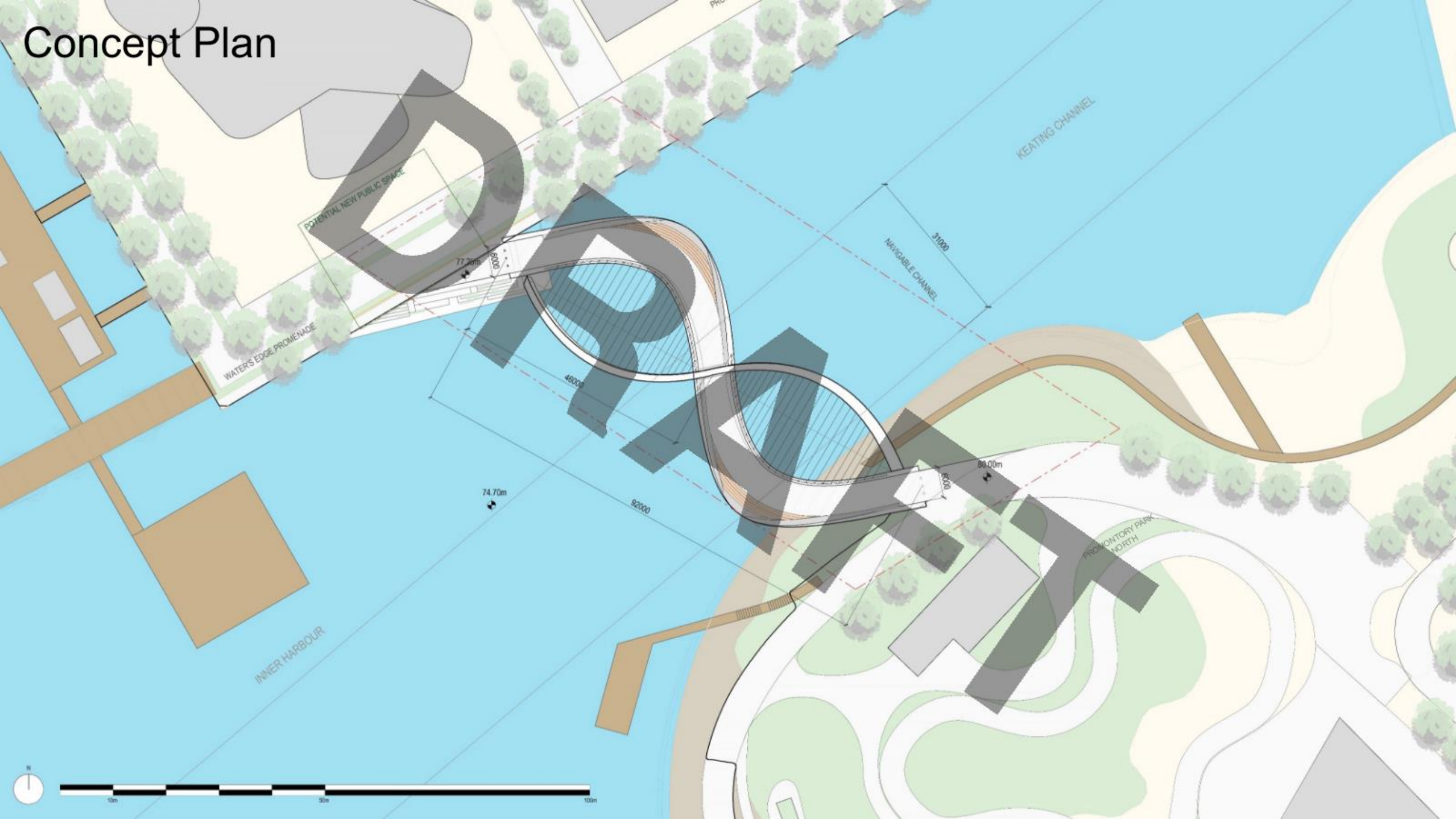
Naum Gabo - Cable Sculpture

Brian Jungen – Sculpture: *My Decoy*

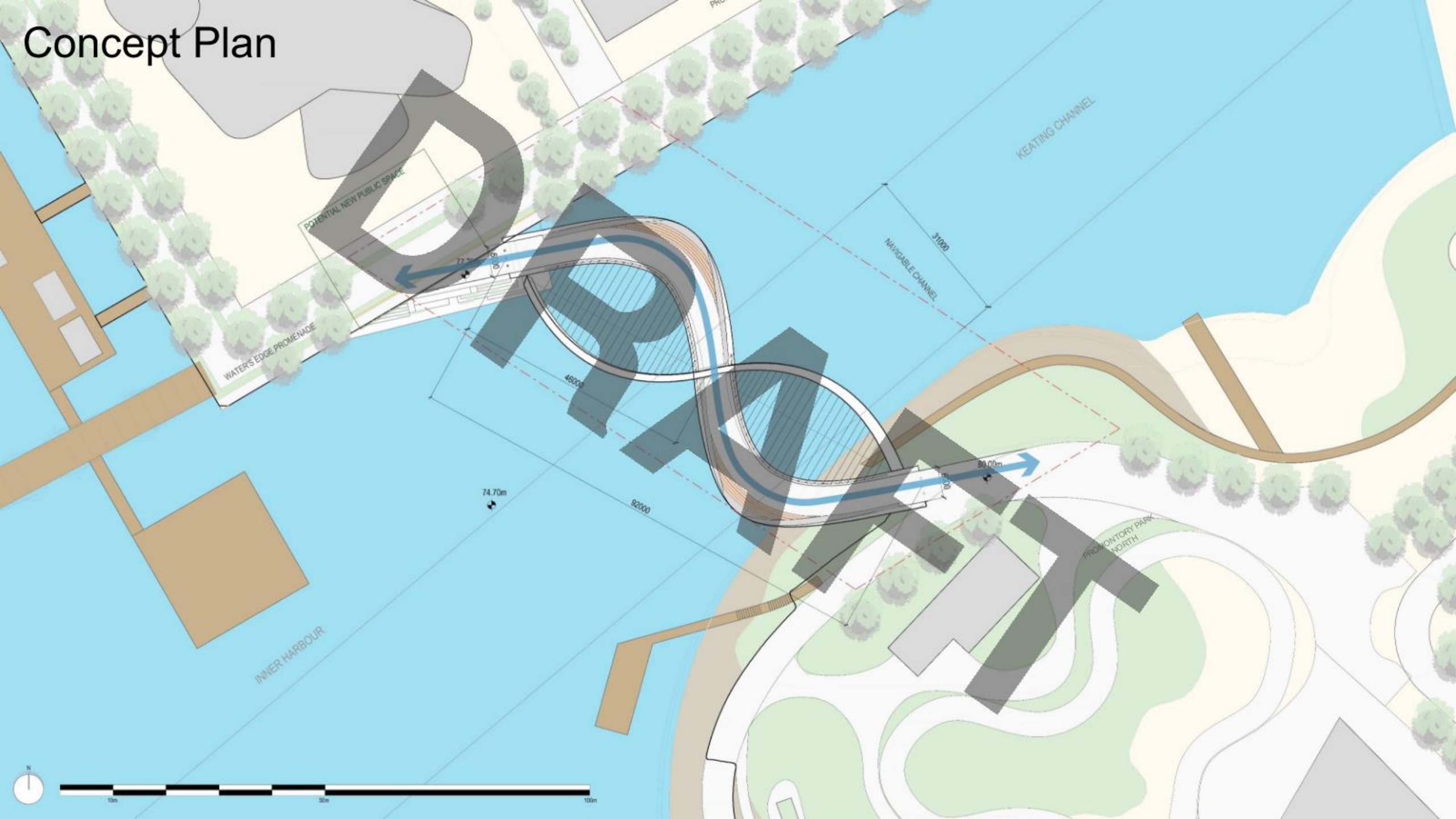
Concept Design

S-shaped bridge aligns with north quay and park finished levels. All ramping is part of bridge geometry

Concept Plan



Concept Plan



Aerial view from North Quay

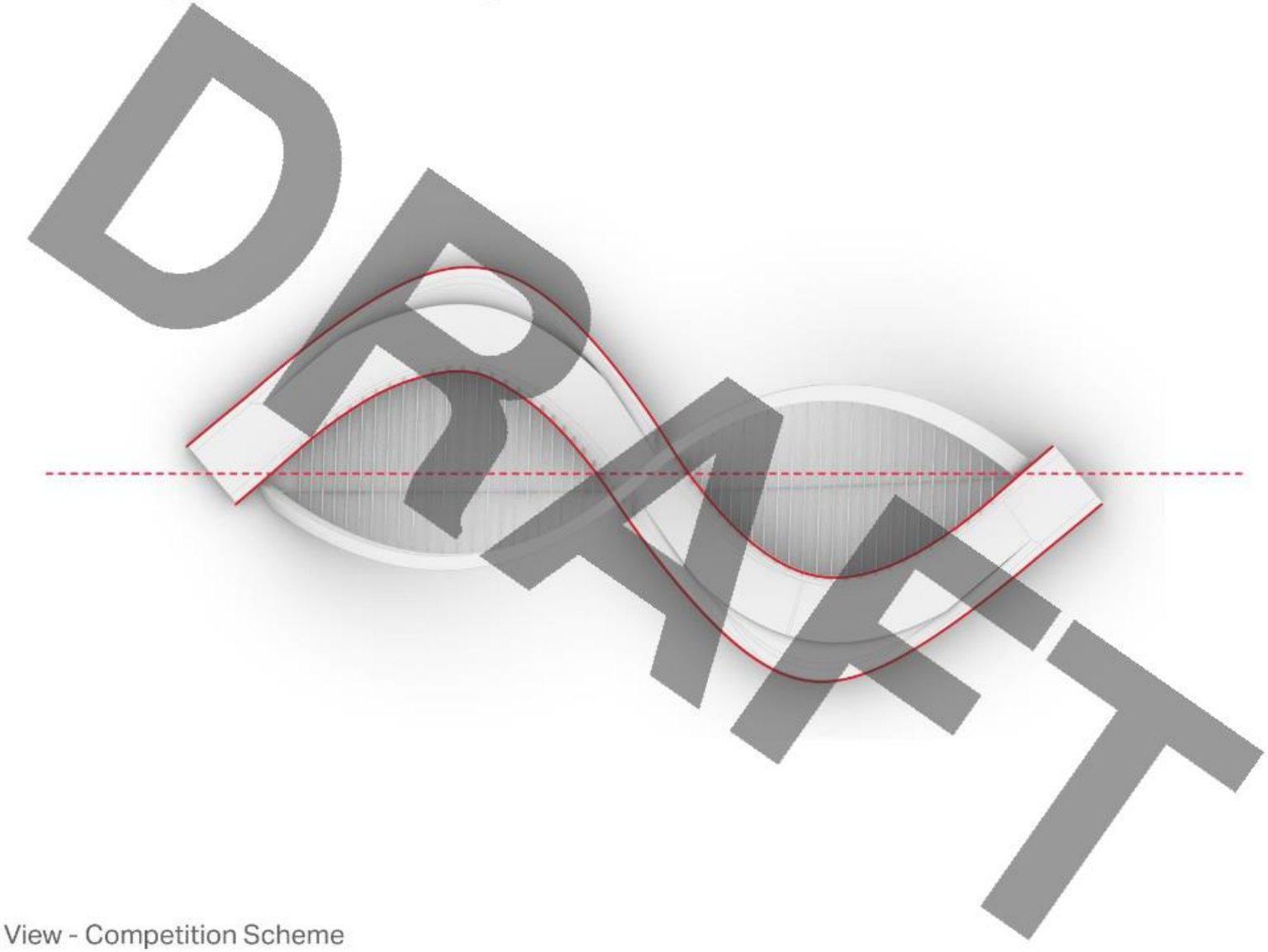
Concept Design

Sinuous bridge deck with integrated perforated wind screens

Inclusive spaces for all to enjoy- timber seating accessed via perimeter ramp and steps

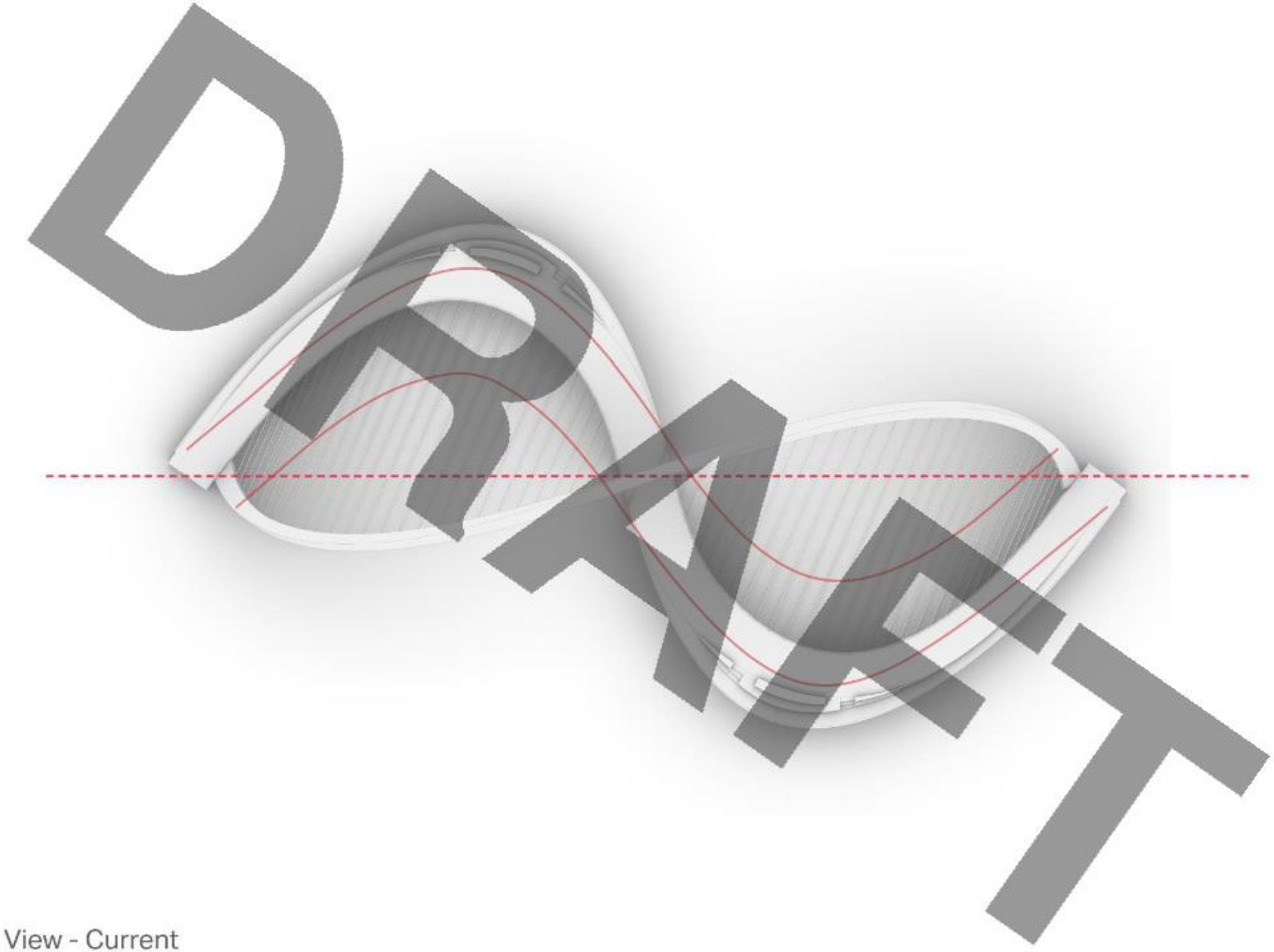
Noses to the deck provide seating and connection to the water

Bridge Width – Competition Stage



Plan View - Competition Scheme

Bridge Width – Current



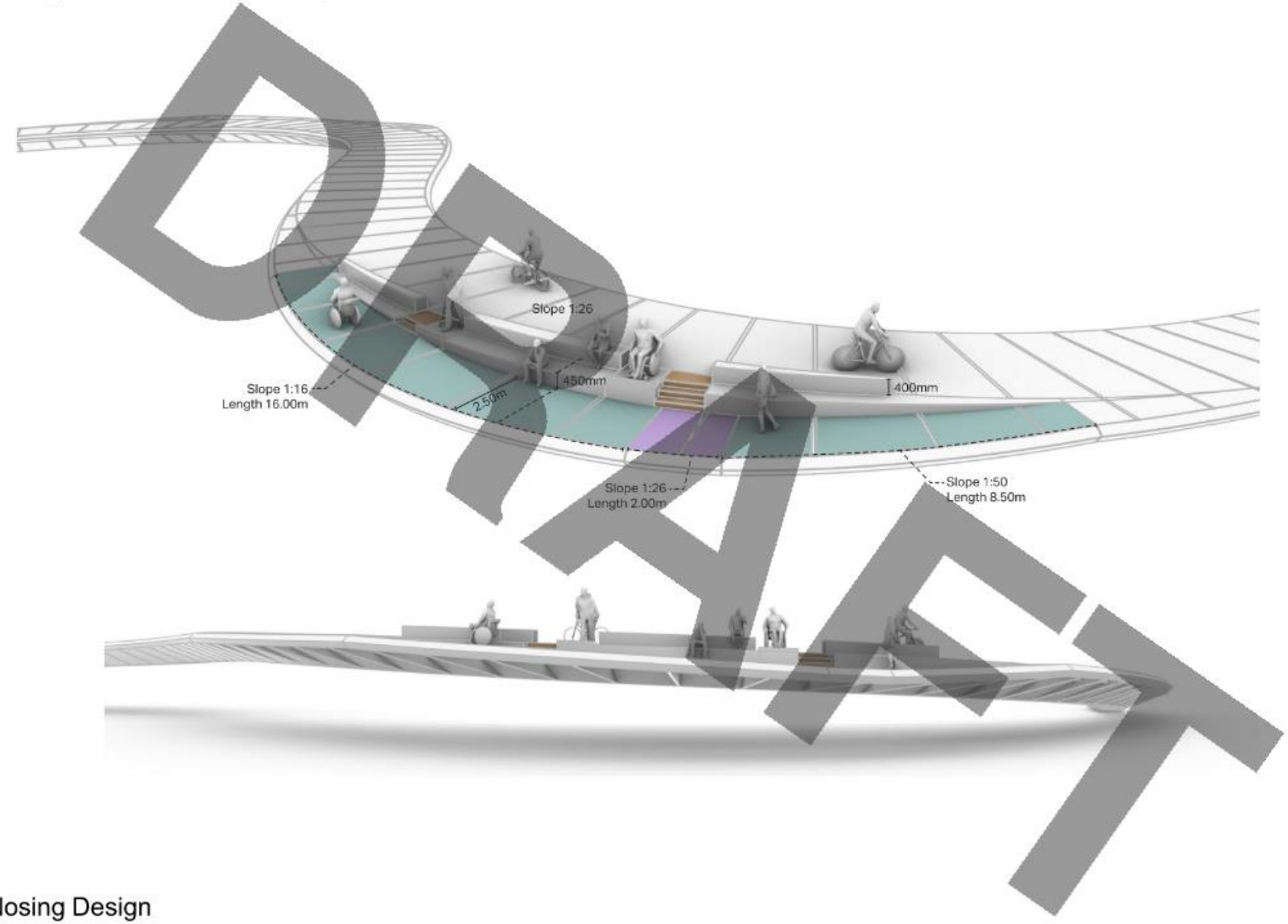
Plan View - Current

Bridge Seating/Noses Updates

Competition Stage – Seating/Nosing Design

Current – Seating/Nosing Design

Bridge Seating/Noses Updates

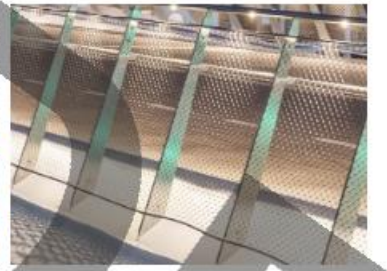


Current – Seating/Nosing Design

Materiality and Sustainability

A – Painted Steel

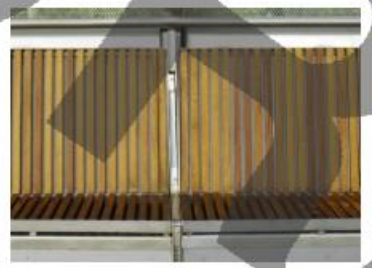
B – Stainless Steel



C – Wire Mesh & Brushed Steel

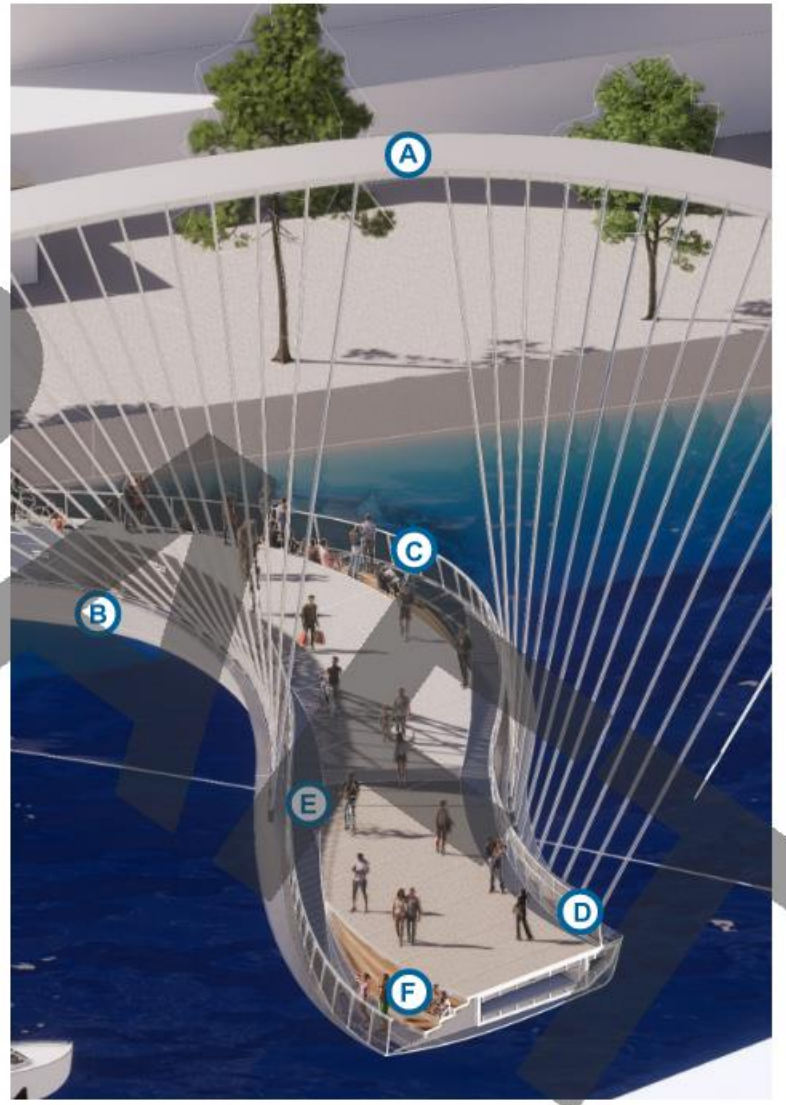
D – Perforated Metal

E – Wedge Wire



F – Timber Slats

Accessible stepped seating areas for views out to the water



Sectional cut through bridge to indicate conceptual construction and materiality

- Highly efficient arch design reducing steel tonnage and carbon intensity
- Landscaping strategy to align with indigenous planting and include rainwater filtration
- Locally sourced materials
- Low maintenance and high durability of chosen materials

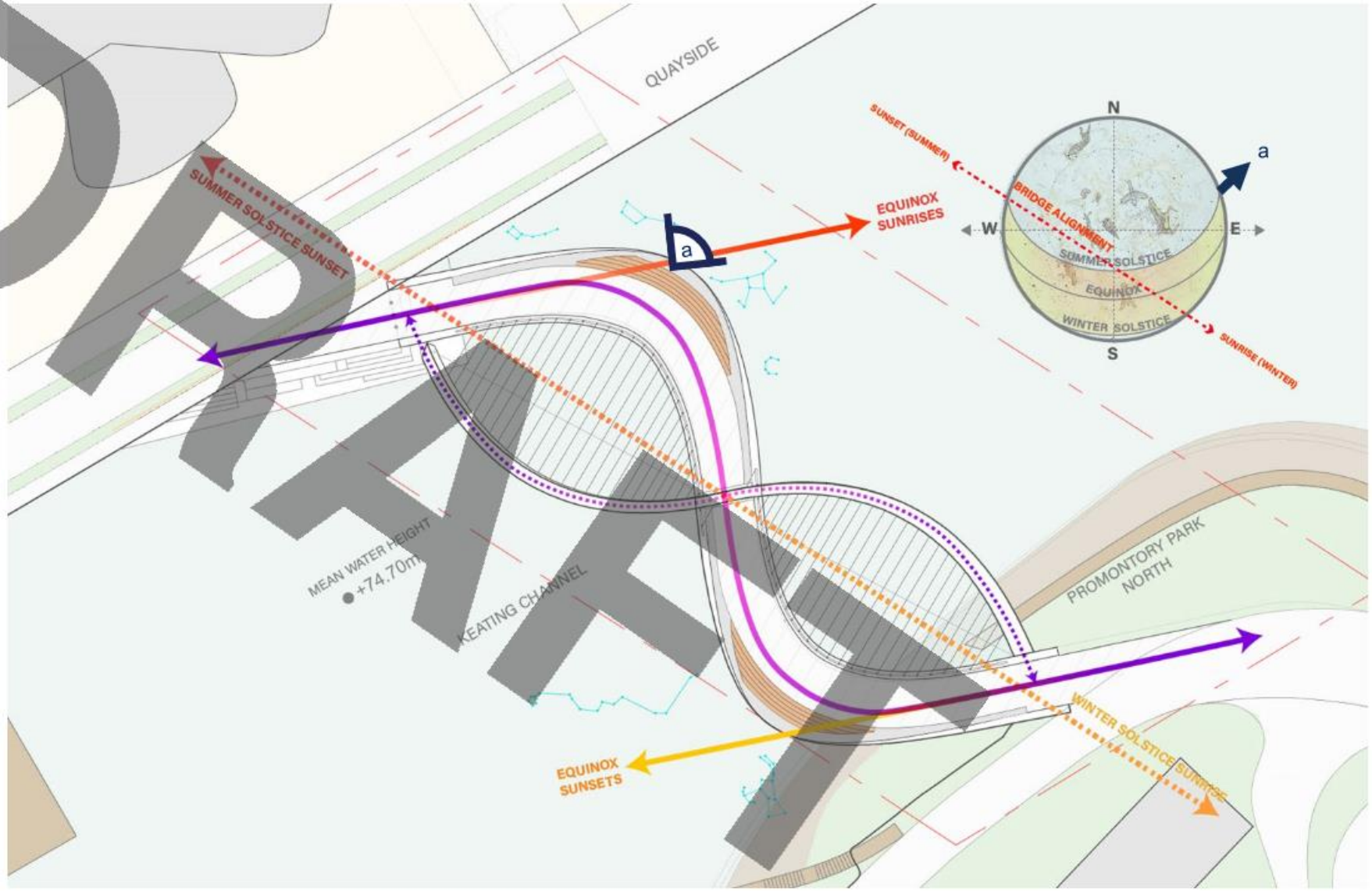
Dusk View of Keating Bridge from South

Indigenous Design Approach

- Design informed by directionality, through connection to the cardinal directions, and to the sky, water, and land
- A form that connects to the summer solstice and winter solstice days.
- Inclusion of native plantings that contribute to soil remediation, water filtration, and the health of the ecosystem
- Connection and acknowledgement to the sacredness of water
- Seating areas that encourage gathering and connection, to each other as well as to All Our Relations
- Work that is done is a good way, driven by consultation with local knowledge keepers and Elders, to listen and learn appropriate way to reflect the unique perspectives, stories, and wisdom of the MCFN in a respectful and contemporary way.

Concept Design

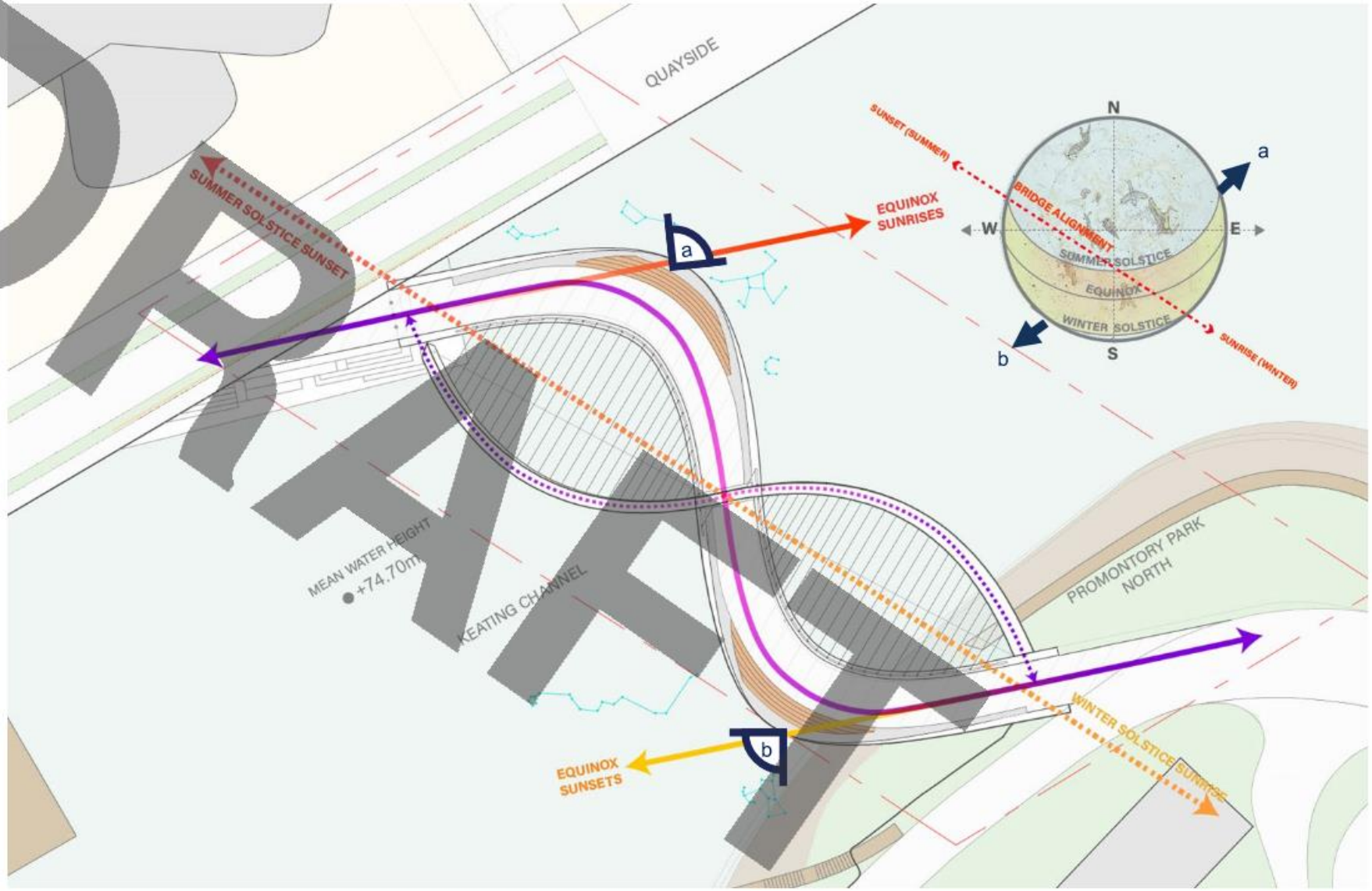
Summer Solstice sunrise from the north-east viewing point



Concept Design

Summer Solstice sunrise from the north-east viewing point

Winter Solstice sunset from the south-west viewing point

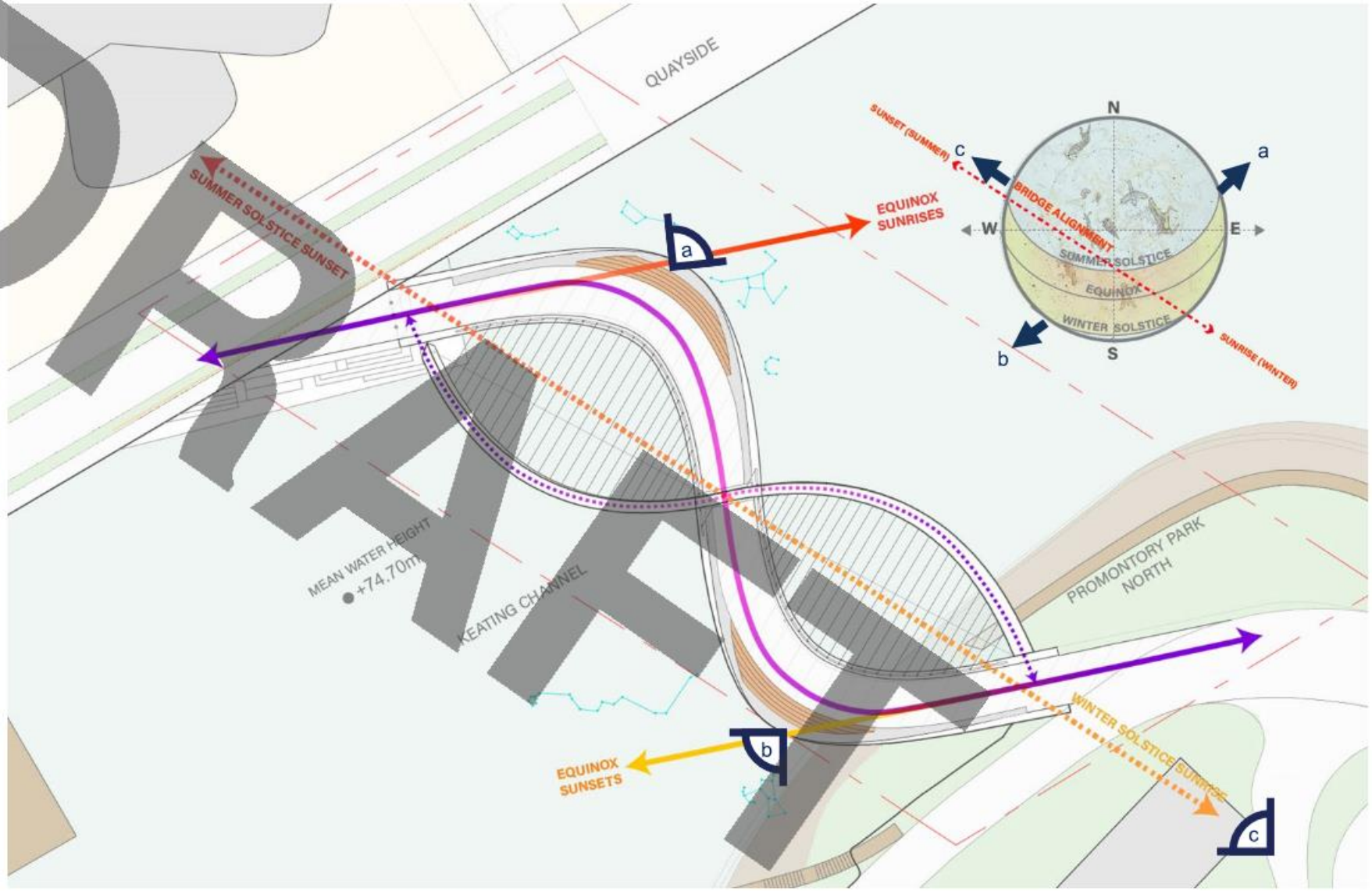


Concept Design

Summer Solstice sunrise from the north-east viewing point

Winter Solstice sunset from the south-west viewing point

Summer Solstice sunset through the arch



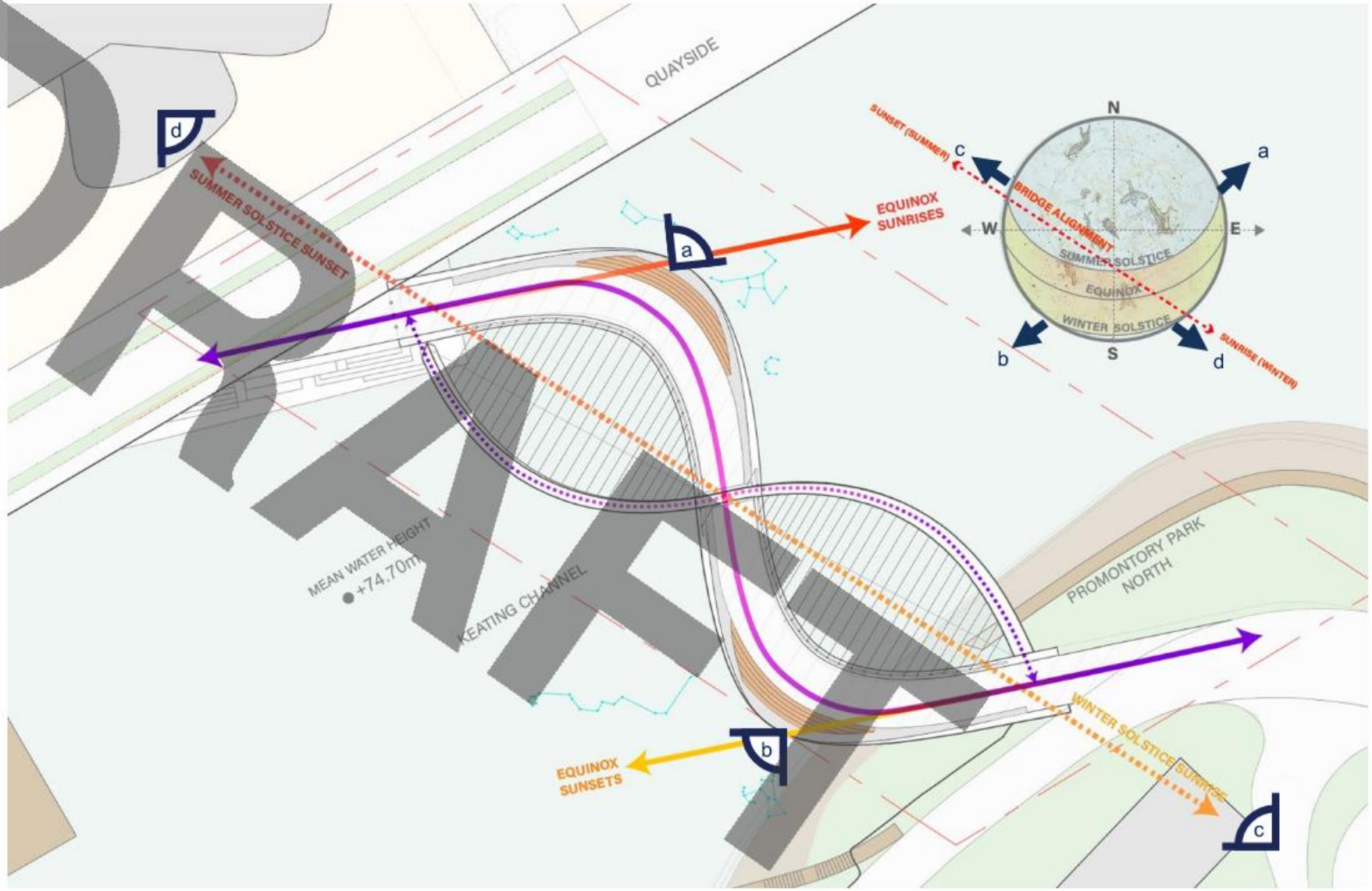
Concept Design

Summer Solstice sunrise from the north-east viewing point

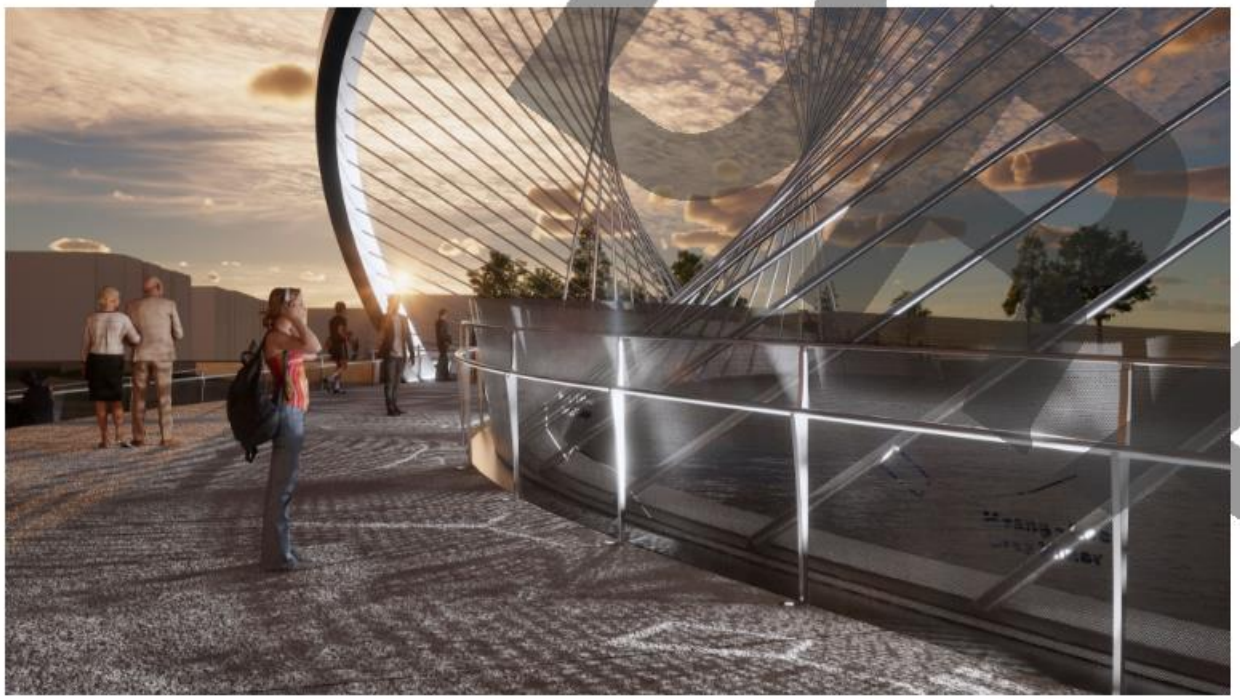
Winter Solstice sunset from the south-west viewing point

Summer Solstice sunset through the arch

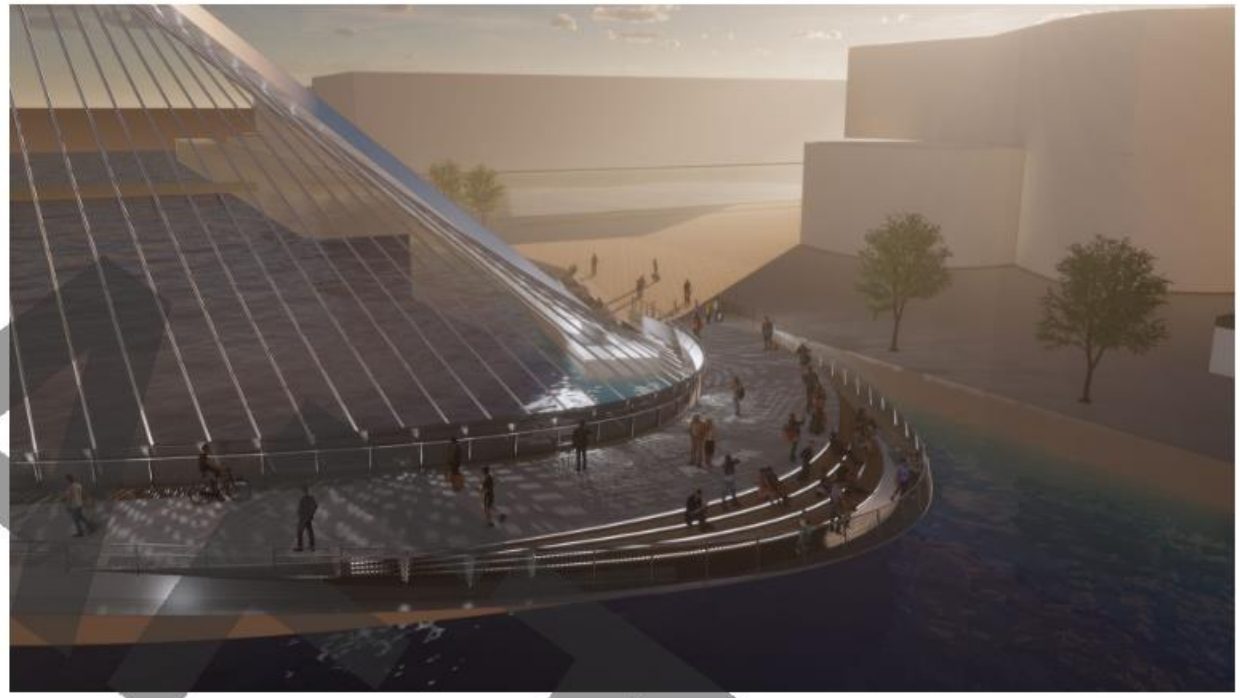
Winter Solstice sunrise through the arch



Lighting Design



Constellations are projected across the deck, glistening in the sunset

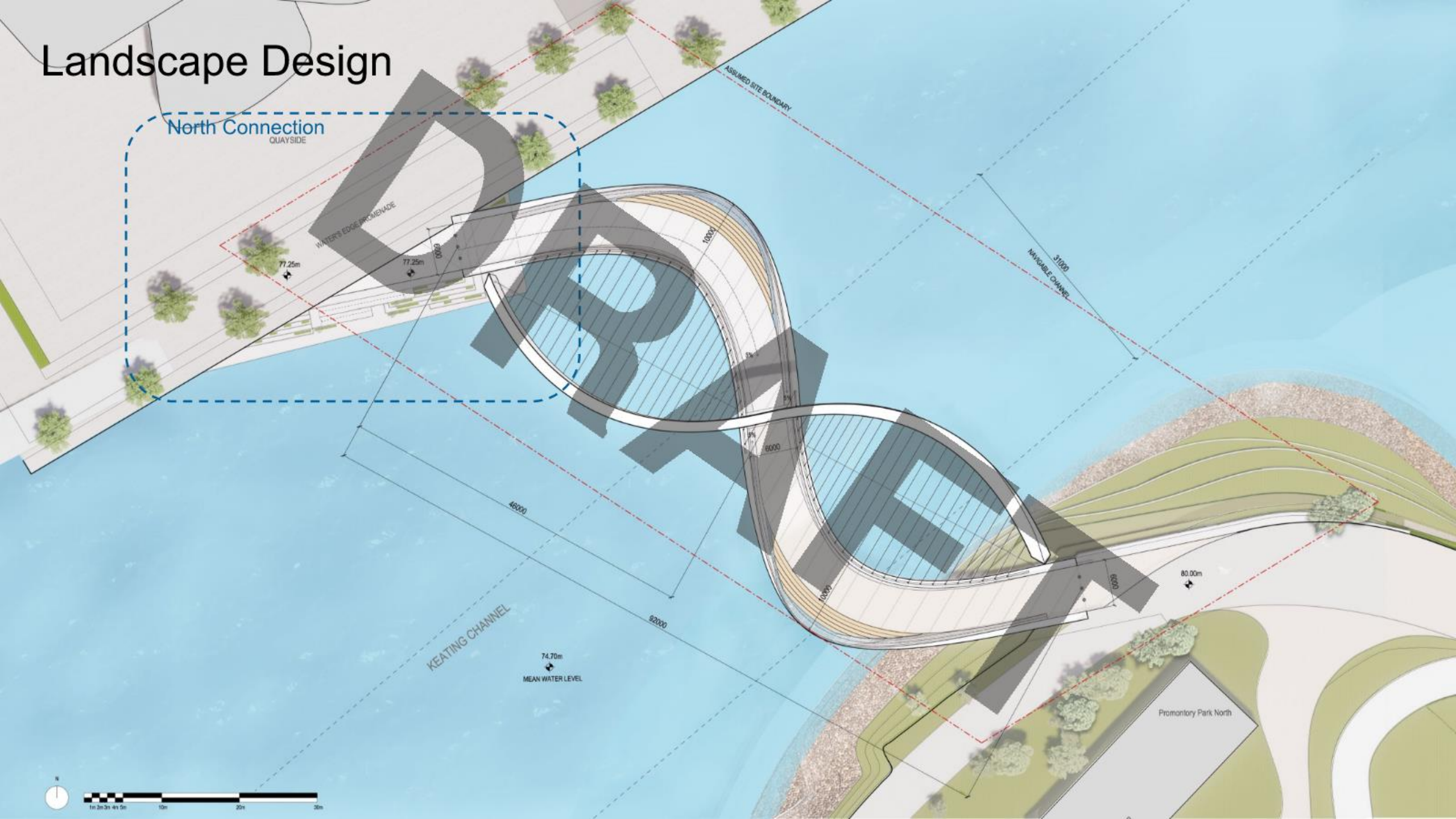


Light dances in the water reflected from the bridge

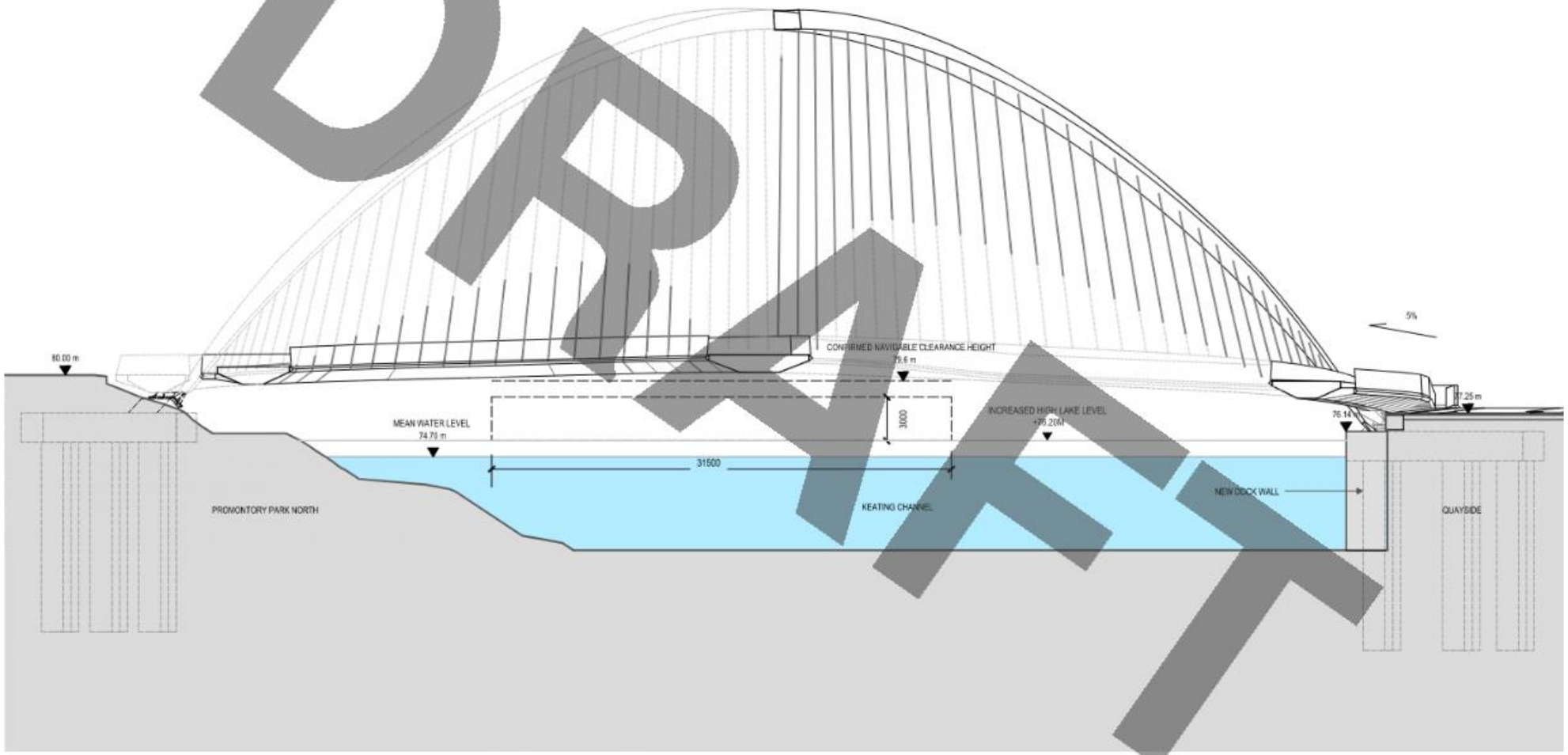
Aerial view of bridge with conceptual lighting to show indigenous lighting overlay including star constellations projected onto deck surface

Night View of Keating Bridge from South
with Feature Lighting Concept

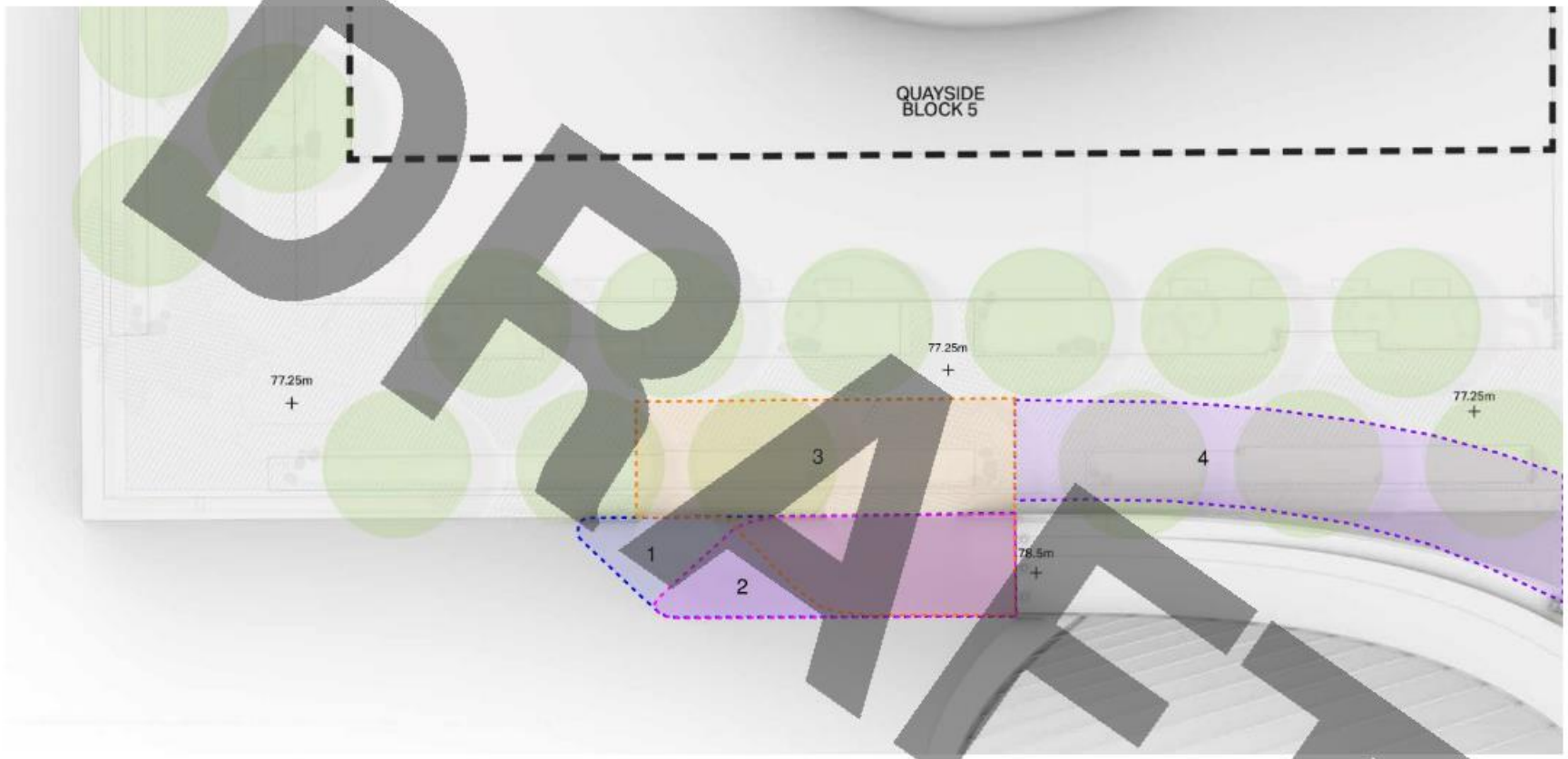
Landscape Design



Bridge Section & Constraints

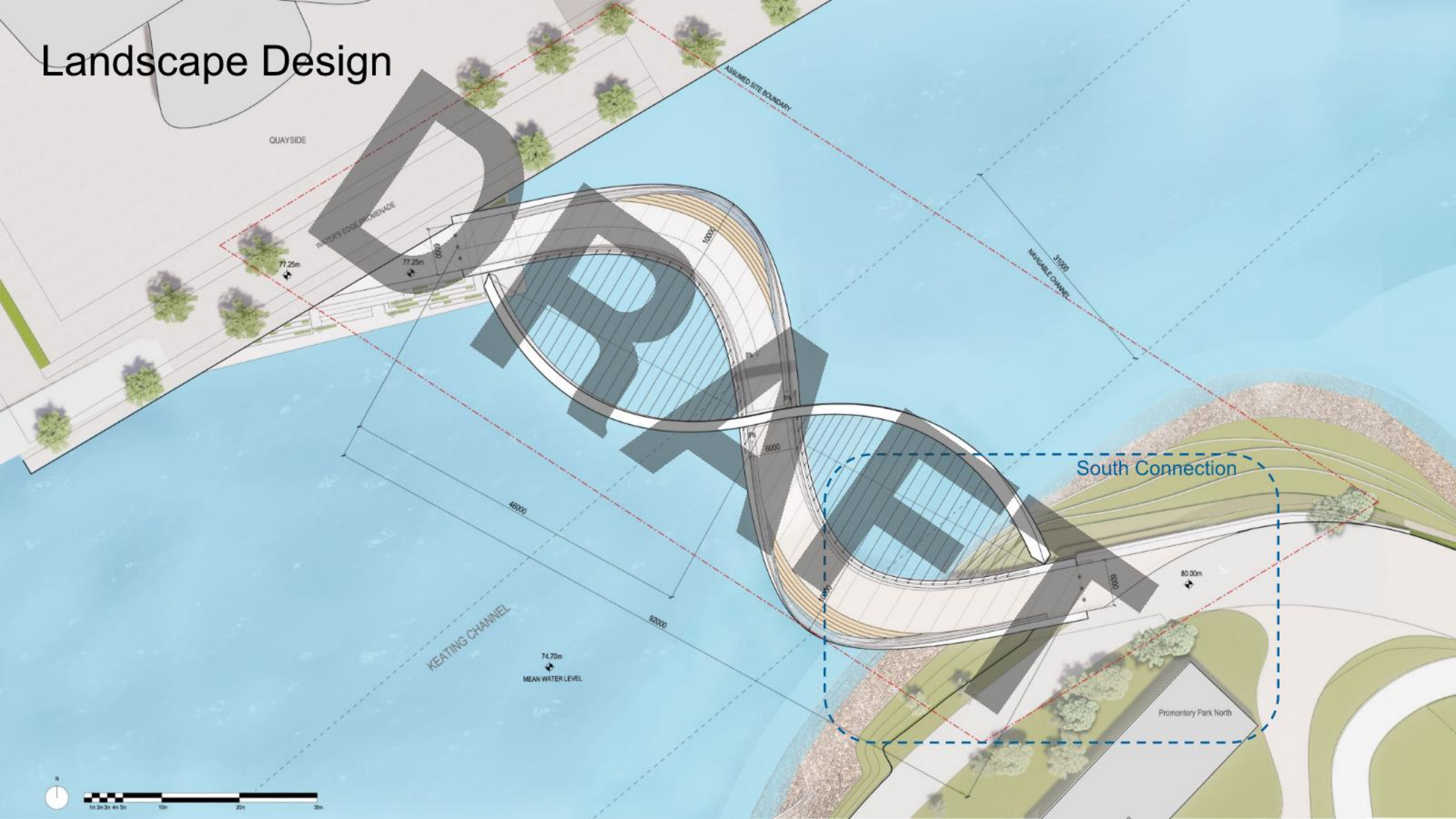


North Landing Integration – Ongoing Studies

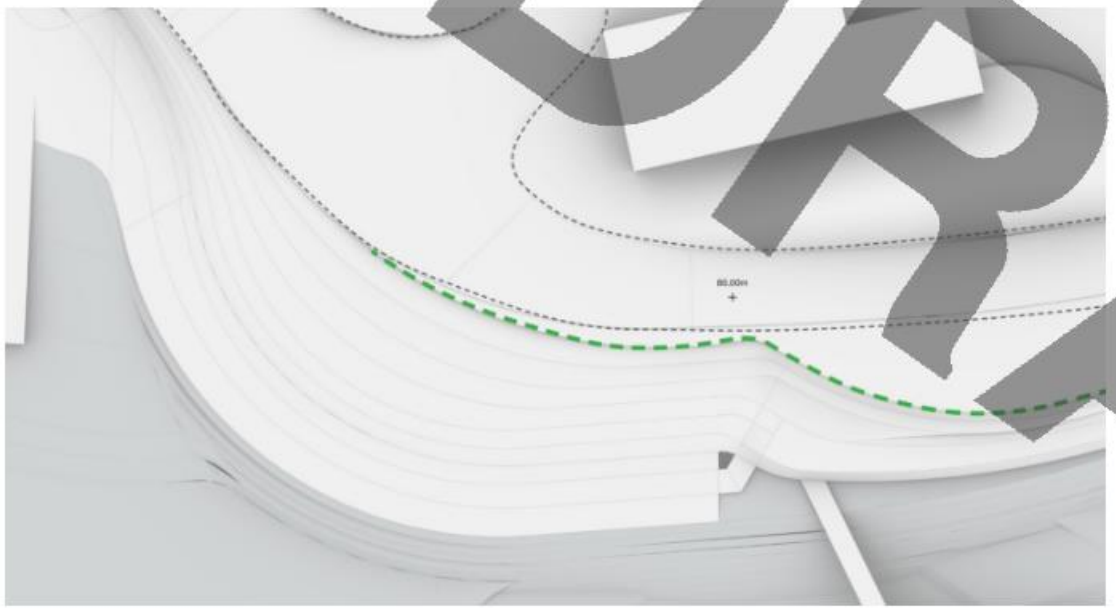


Option 1: WEP Maintained at 77.25m – Ramp + Stair Combination
Option 2: WEP Raised to 77.75m – Shorter Ramp + Stair Combination
Option 3: WEP Maintained at 77.25 – Ramp + Stair Combination entended into the WEP
Option 4: Bridge Lands on the WEP with Ramp + Stair Combination

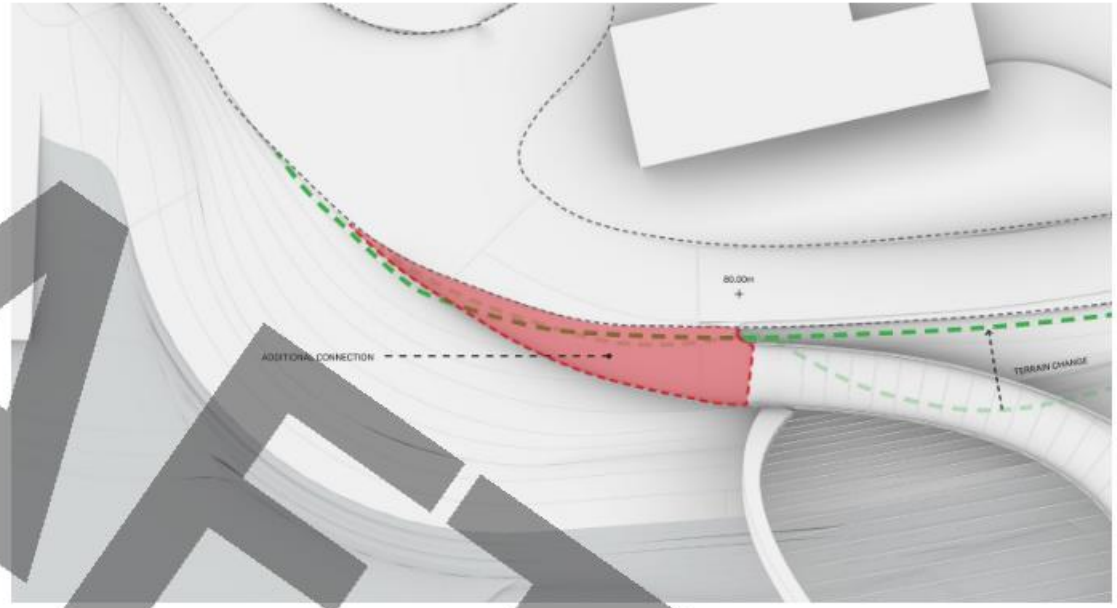
Landscape Design



Landscape Design – South Connection



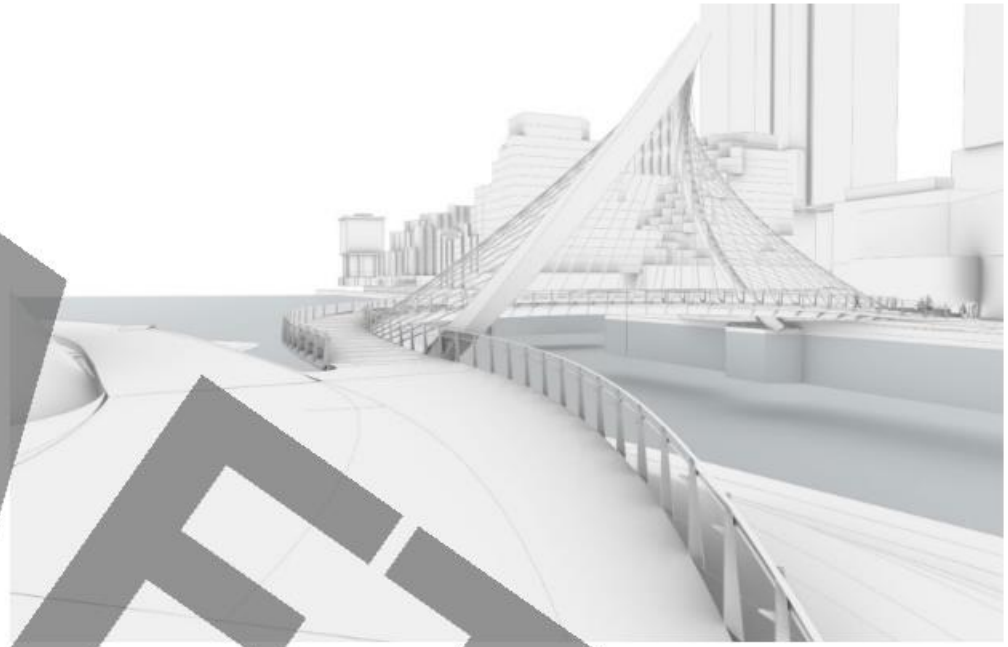
South Landing – Before Bridge



South Landing – Current tie-in

Landscape Design – South Connection

South Landing – Competition



South Landing – Current tie-in

Dusk View of Keating Bridge from South

Proposed bridge from west with view down Keating Channel, complimenting the family of bridges