

Design Review Panel

18th April 2018



DRAFT

— Port Lands.



/Landscape.



/Industry.

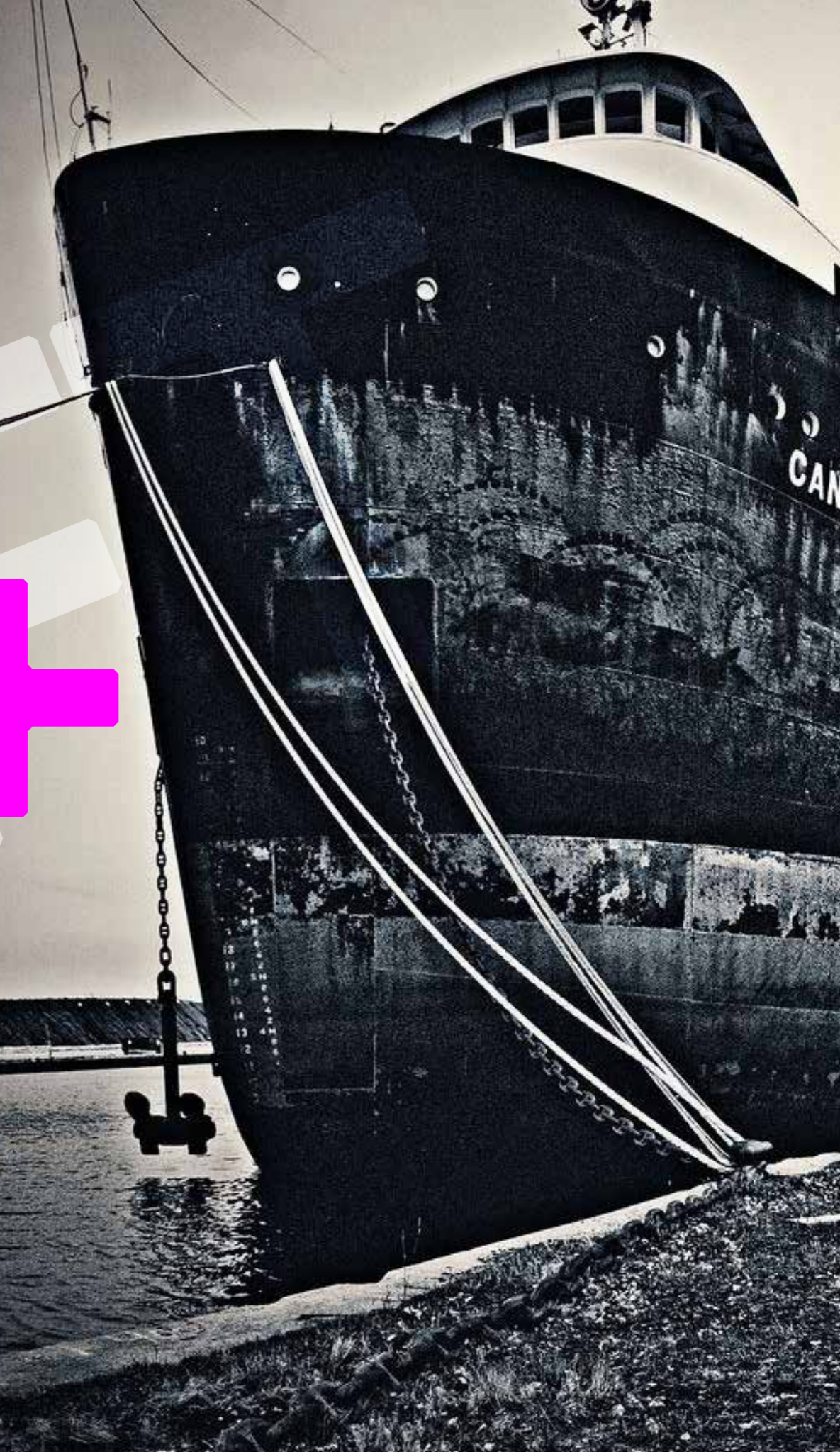
Considerations

Comments from design review:

- Bridges should be simple, elegant and inspire!
- Questions regarding teams approach to sustainability
- Bridges should be represented over time and show phases of construction
- Bridges should be thought of in a spatial sequence (show views from pedestrian & car experience)

Combined Inspiration

Geological, Cultural and
Technological



Inspiration Studies

Precedent



Playful



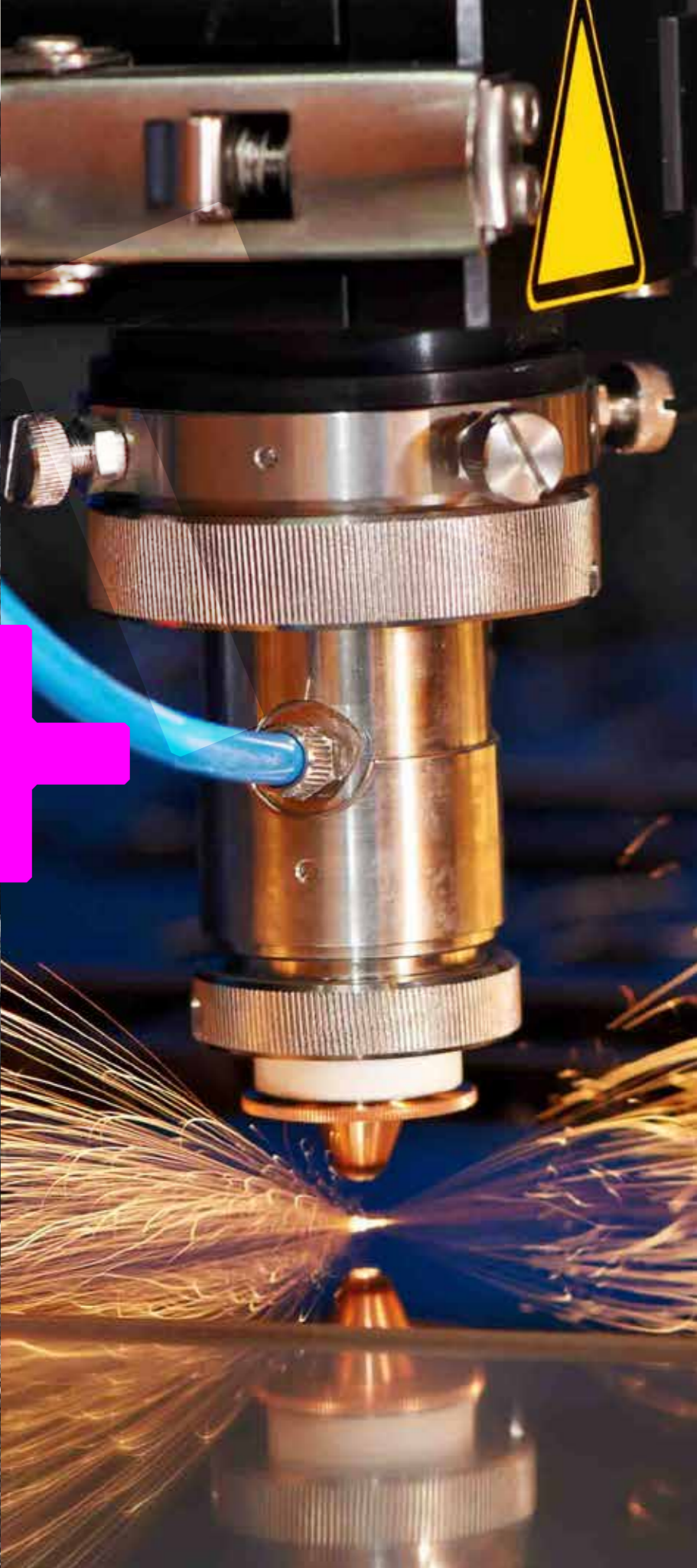
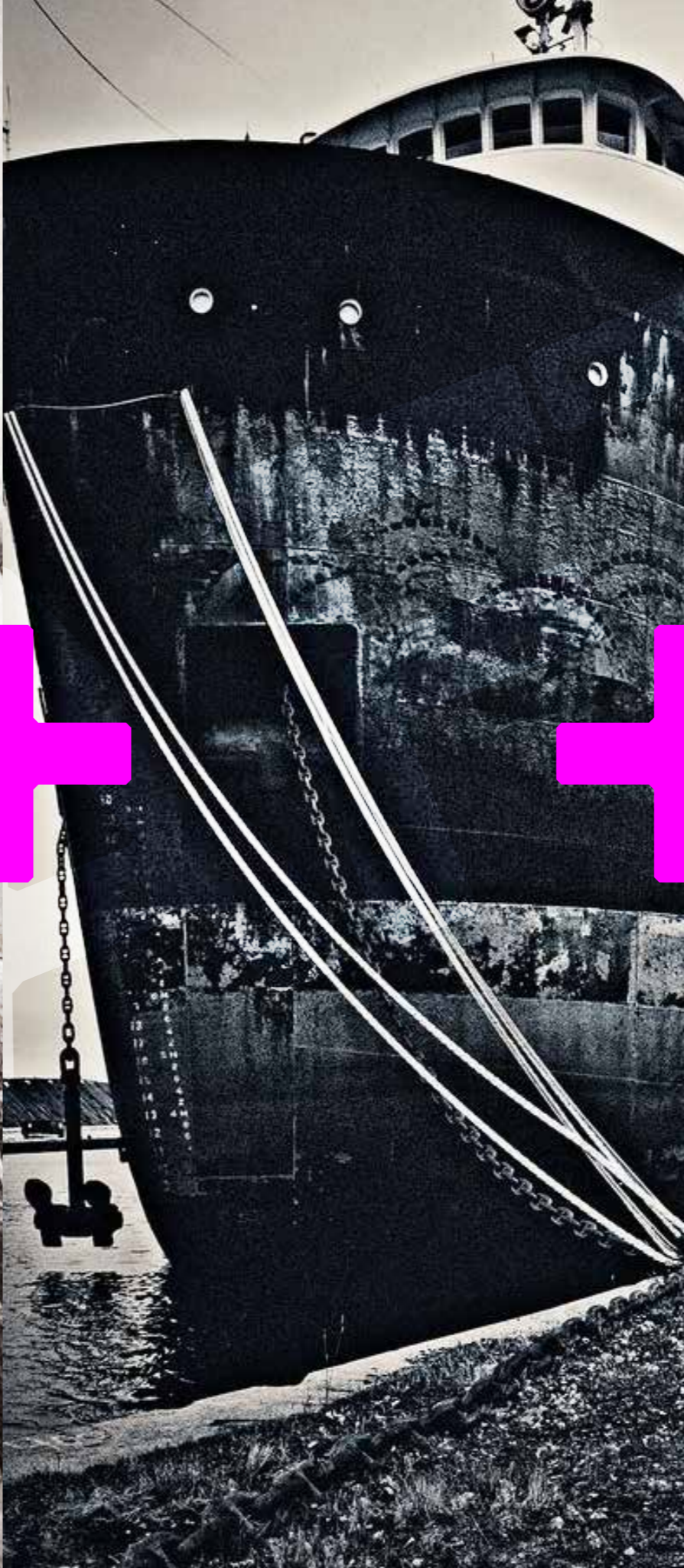
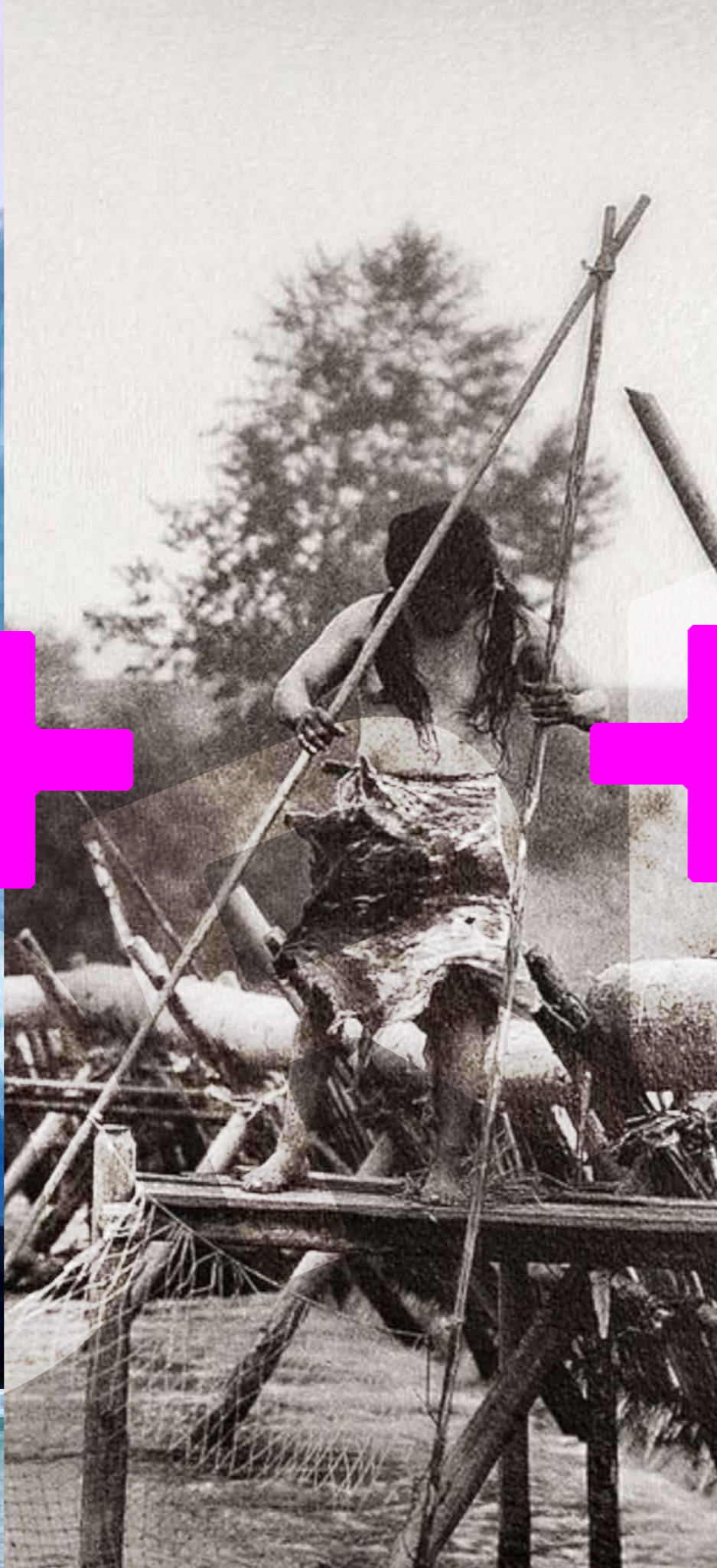
Human Experience



Technological

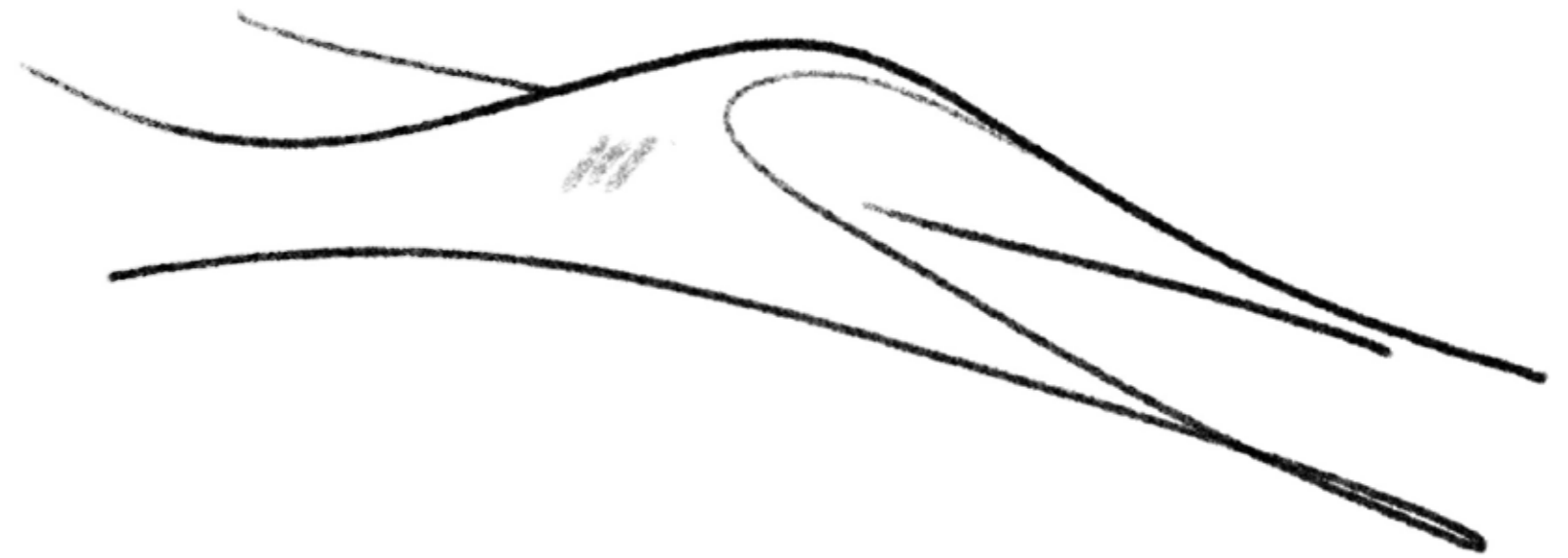


Community



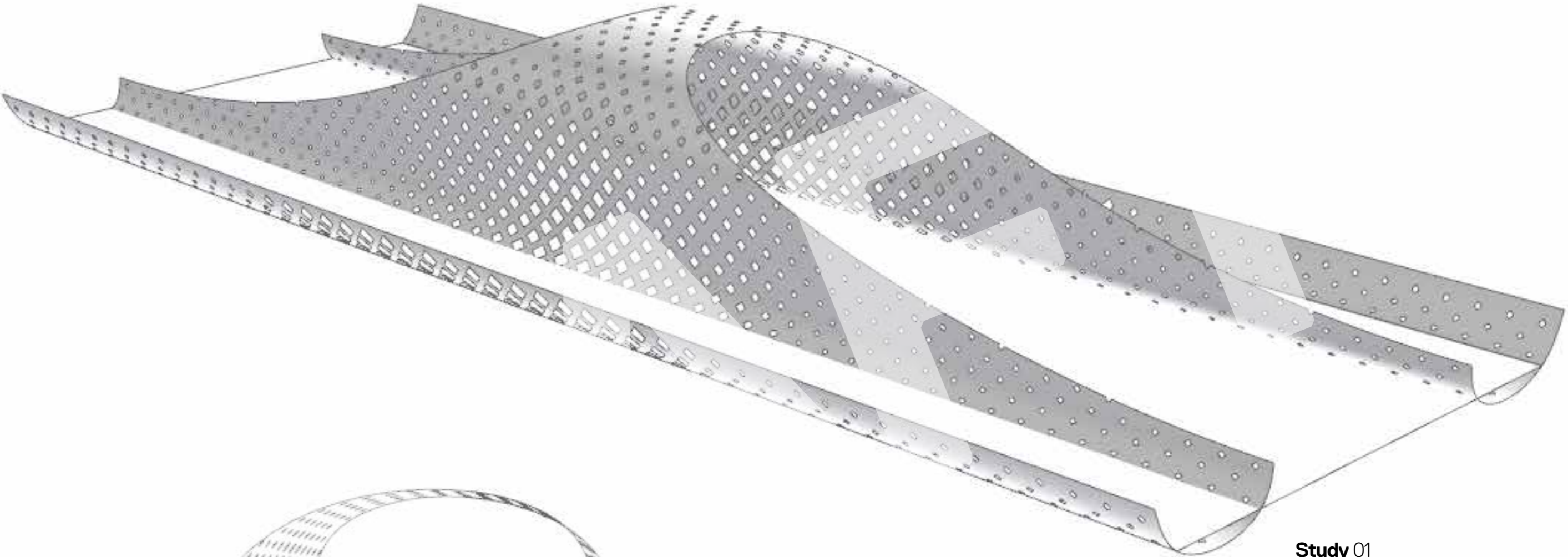
**/Bridge for
the City of
the Future.**

DRAFT

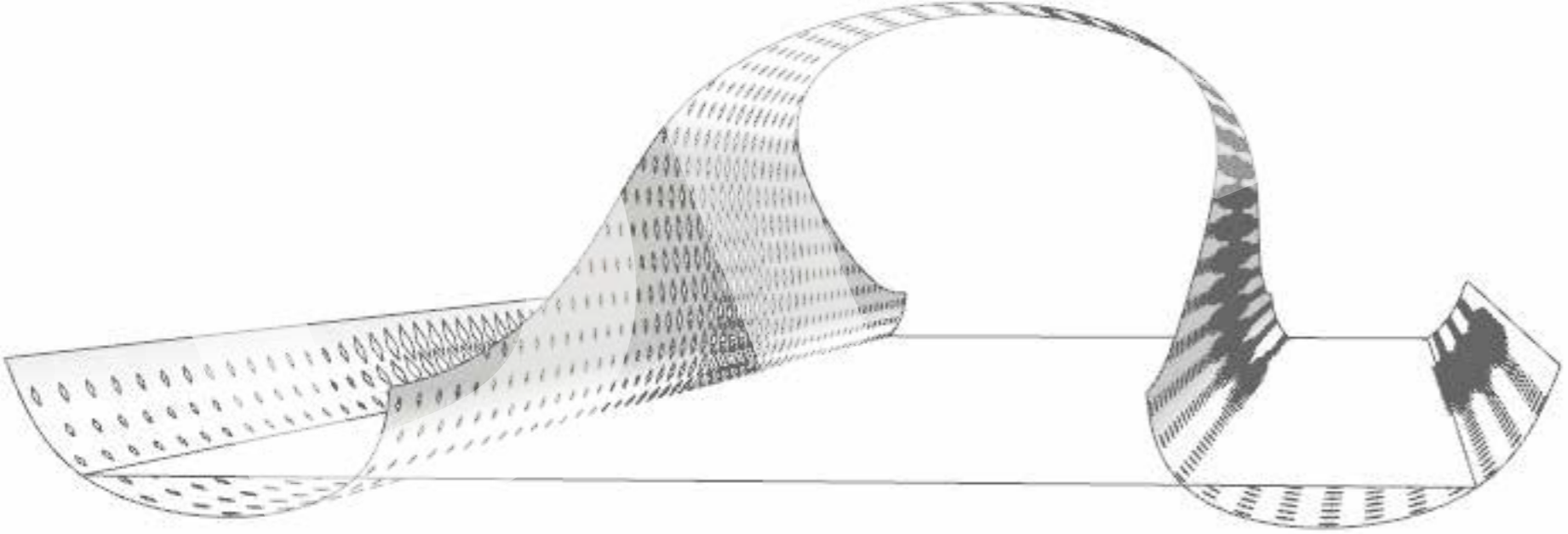


Bridge for the city of the Future

Shell bridge



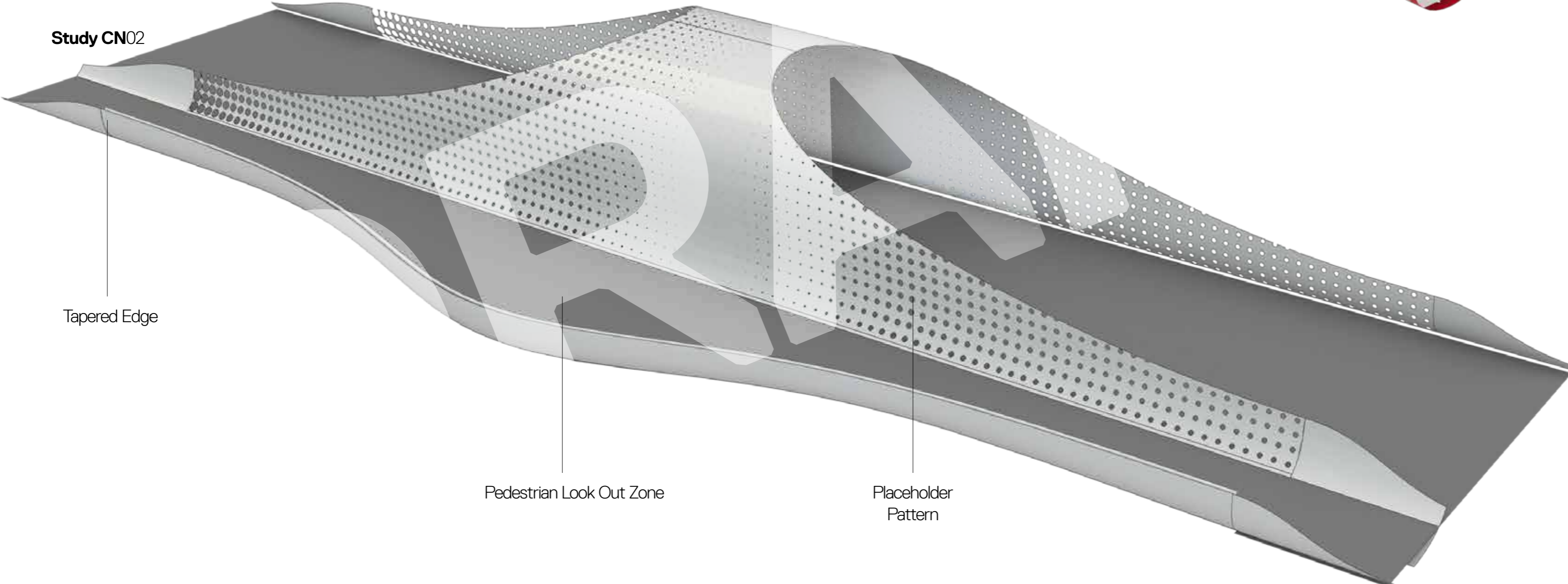
Study 01



Study 01

Cherry North

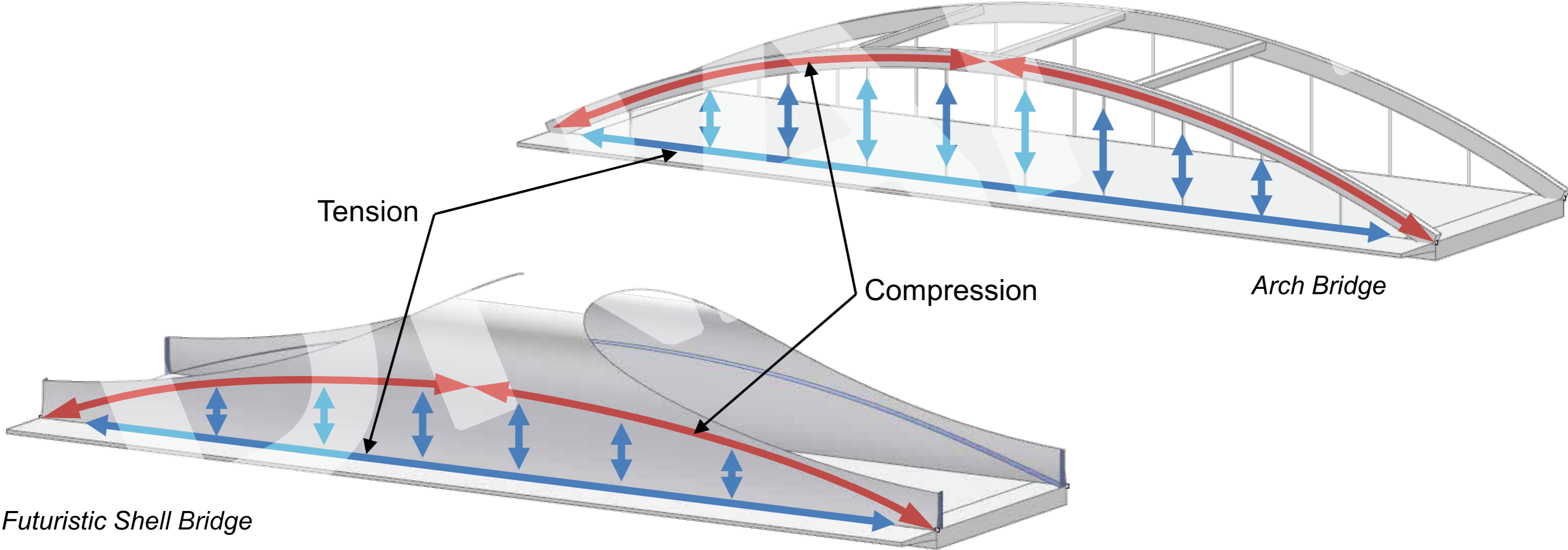
Macro Geometry Test



Cherry North

Force Flow

- The futuristic shell bridge at cherry street north can be compared to an arch bridge with stabilizing cross beams
- The concentrated forces in an arch bridge are distributed over the overall shell area -> shell can be a thin plate



Cherry North

Reference



North Halsted street Arch bridge (Chicago)



Puente de Matadero (Madrid)



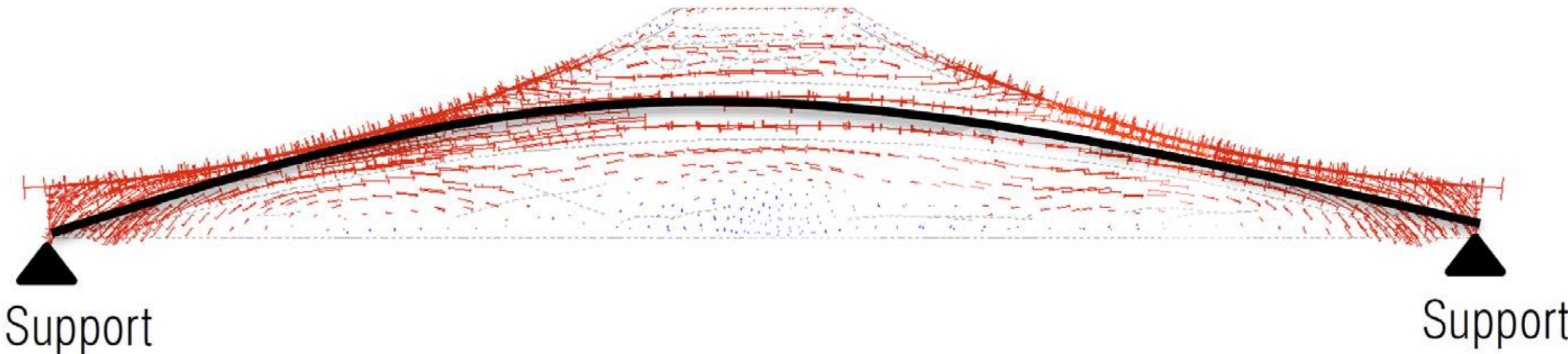
Footbridge L01 (London)



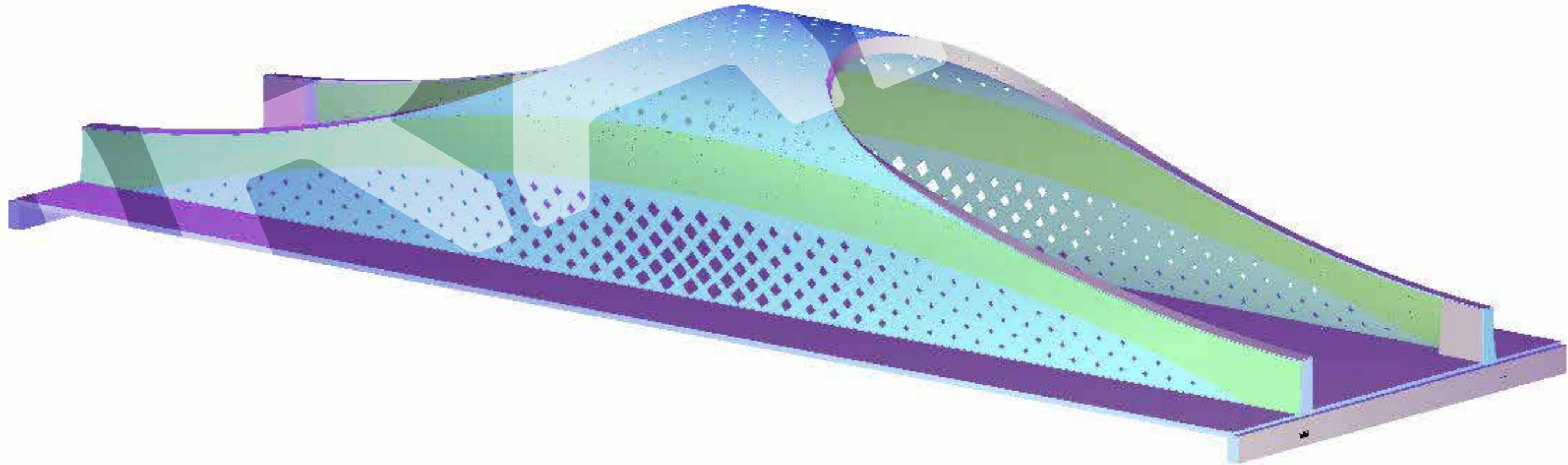
Bridge of Peace (Tiflis)

Cherry North Structure

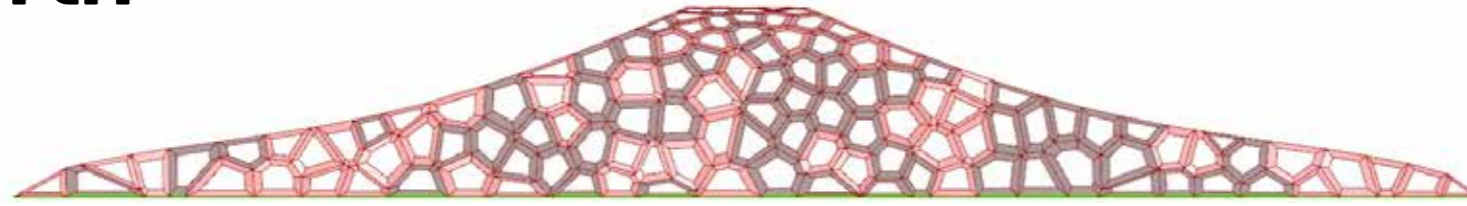
Compression Forces



Perforation Pattern
Follows Force Pattern

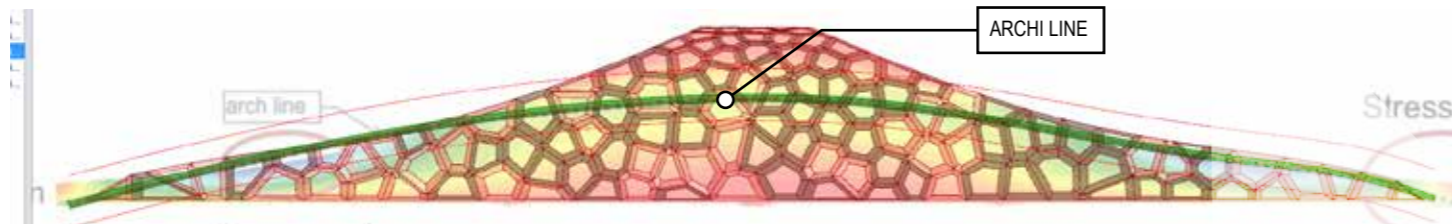


Cherry North Pattern

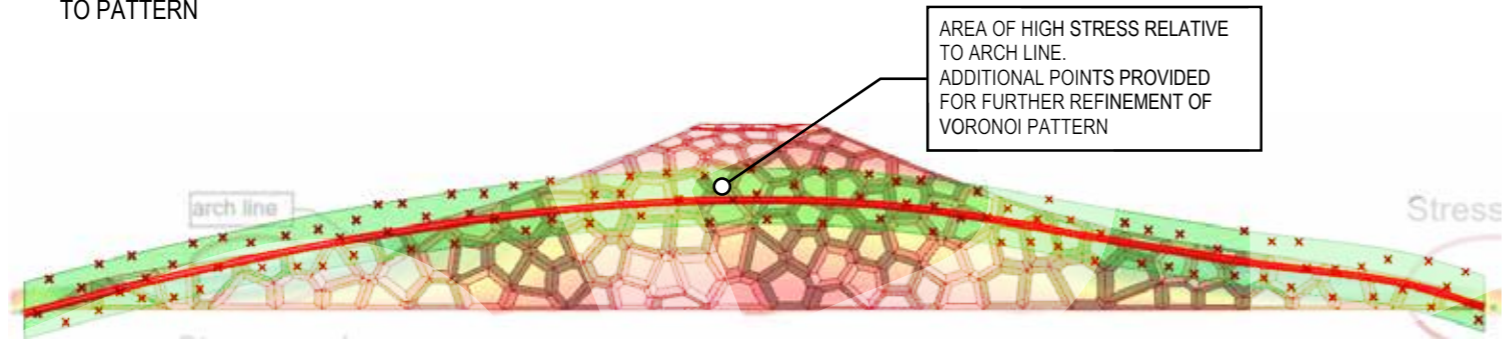


BASE VORONOI PATTERN

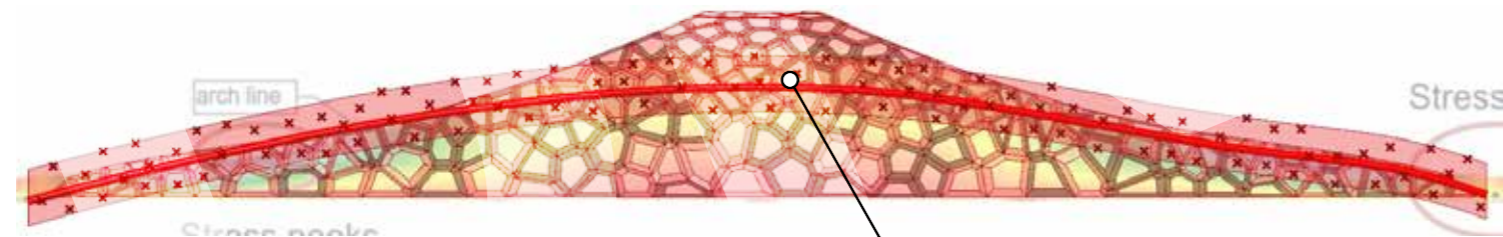
VORONOI PATTERN REFINEMENT IN HIGH STRESS ZONE



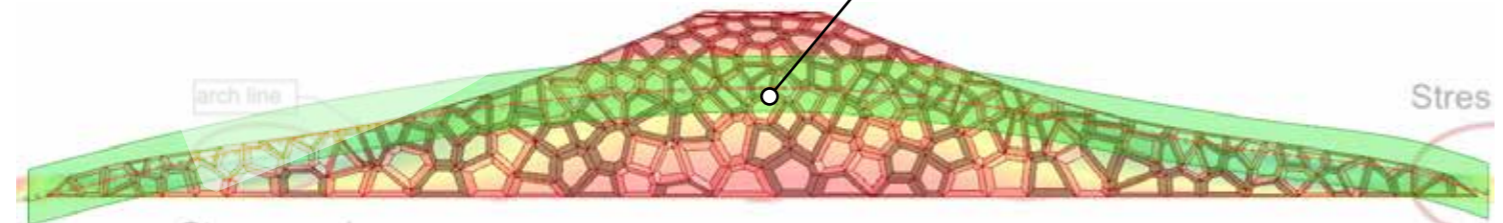
STRESS PATTERN AND ARCH LINE RELATIVE TO PATTERN



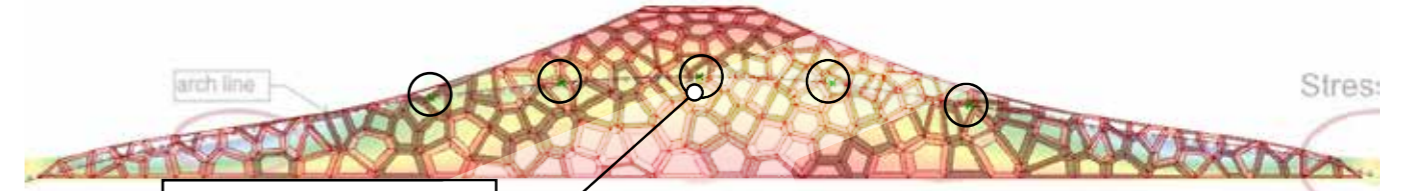
AREA OF HIGH STRESS RELATIVE TO ARCH LINE. ADDITIONAL POINTS PROVIDED FOR FURTHER REFINEMENT OF VORONOI PATTERN



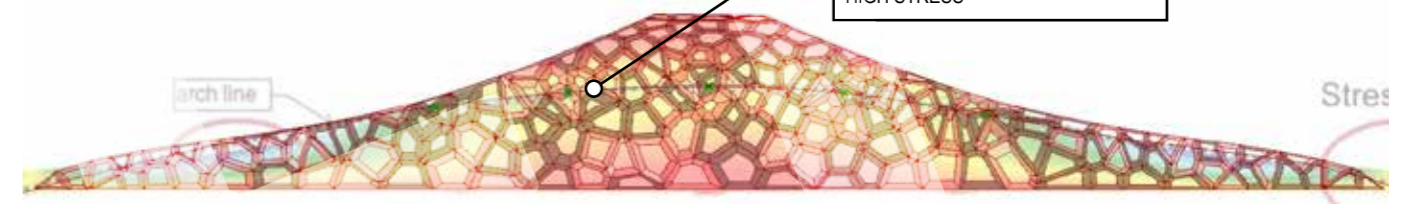
PATTERN IN HIGH STRESS ZONE FURTHER SUBDIVIDED



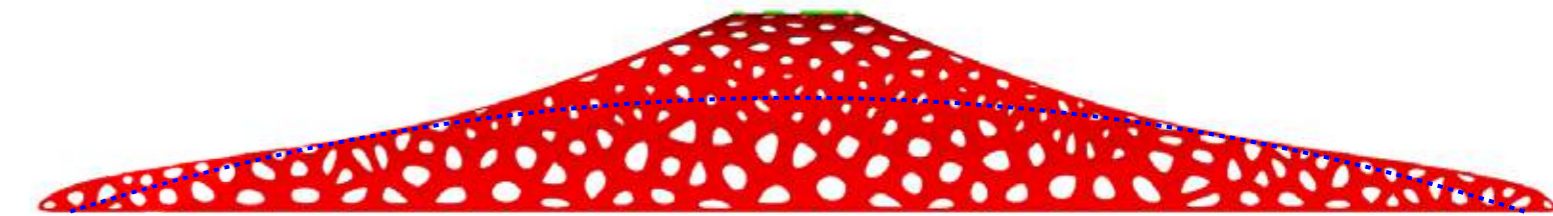
VORONOI APPERTURE REFINEMENT IN HIGH STRESS ZONE



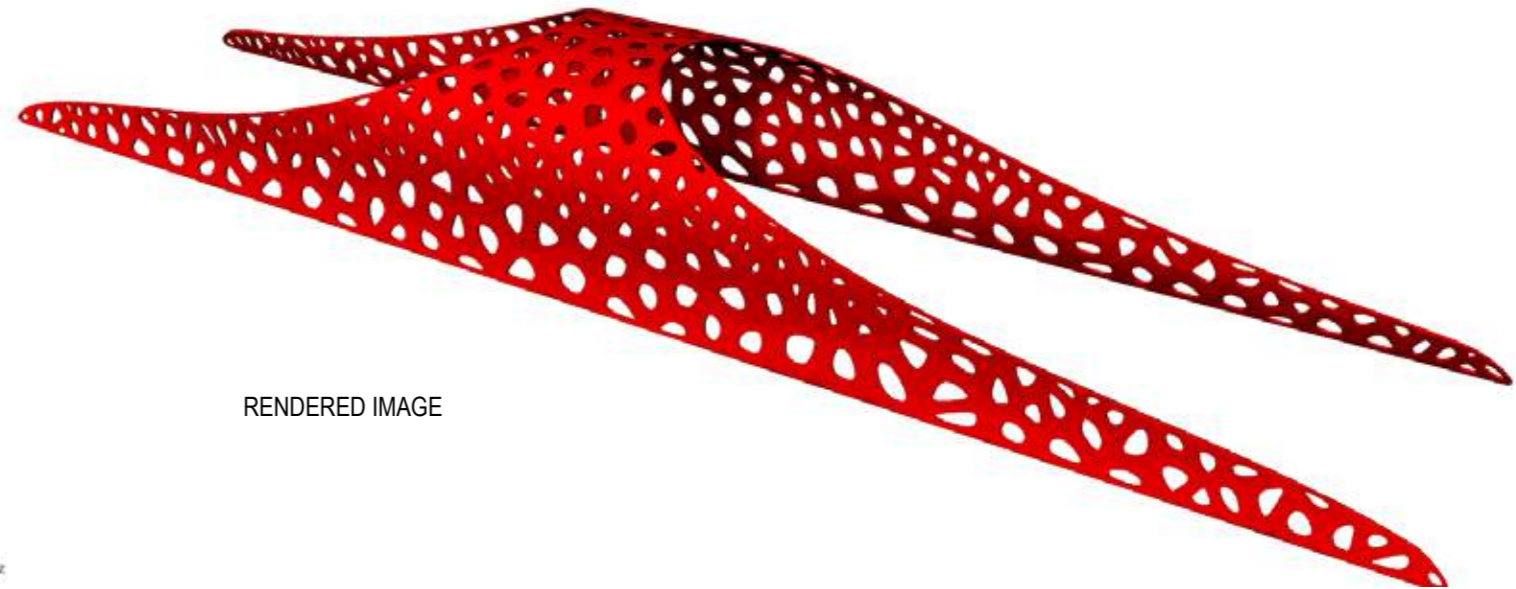
ATTRACTOR POINTS PROVIDED ON STRESS LINE TO ALLOW FOR APPERTURE MANIPULATION



APPERTURE SIZE DECREASED TO PROVIDE MORE CROSS SECTIONAL AREA OF STEEL ALONG ZONE OF HIGH STRESS



FINAL PATTERN



RENDERED IMAGE

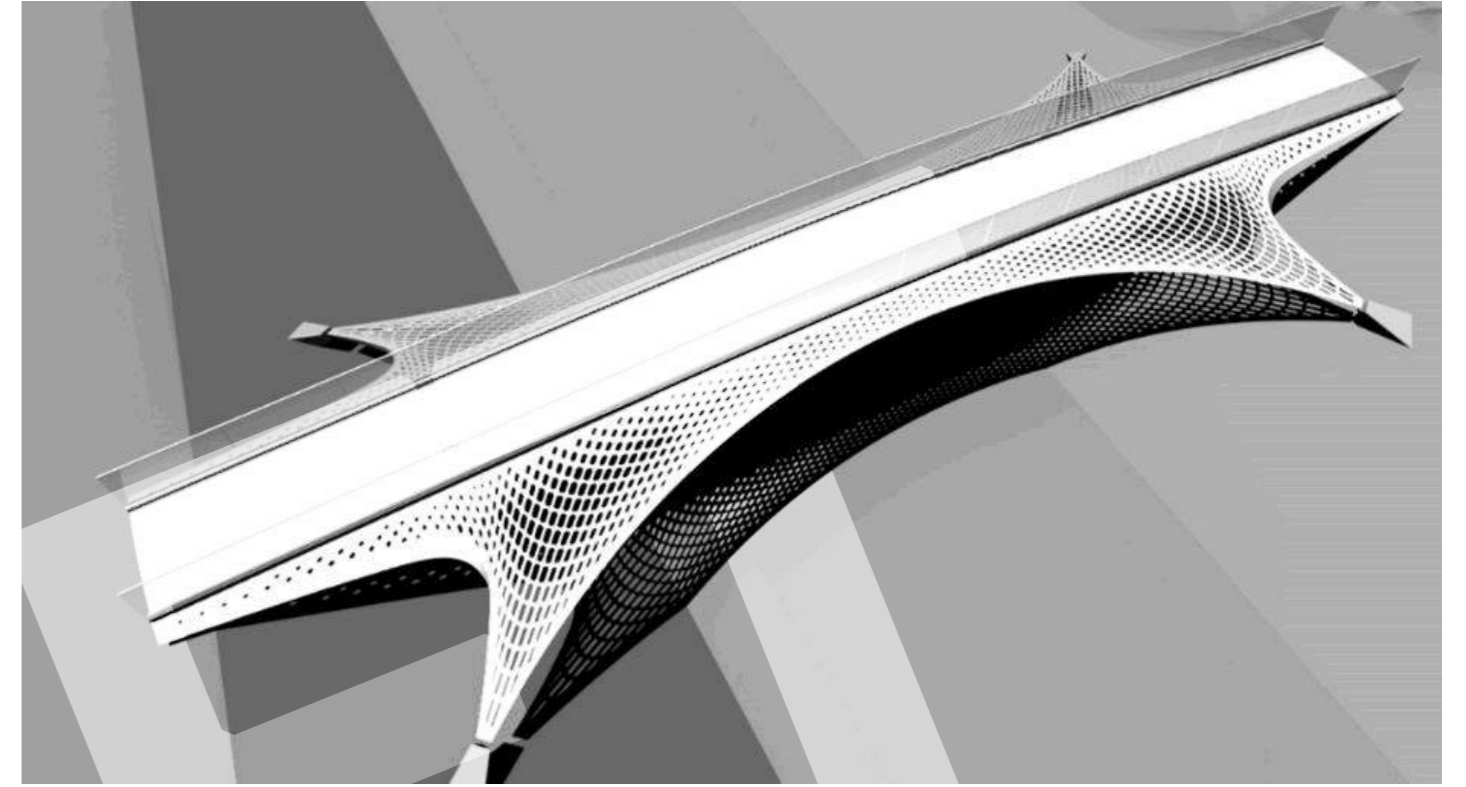
Pattern Studies

Precedent Park Bridge Spoor Noord (Antwerp)



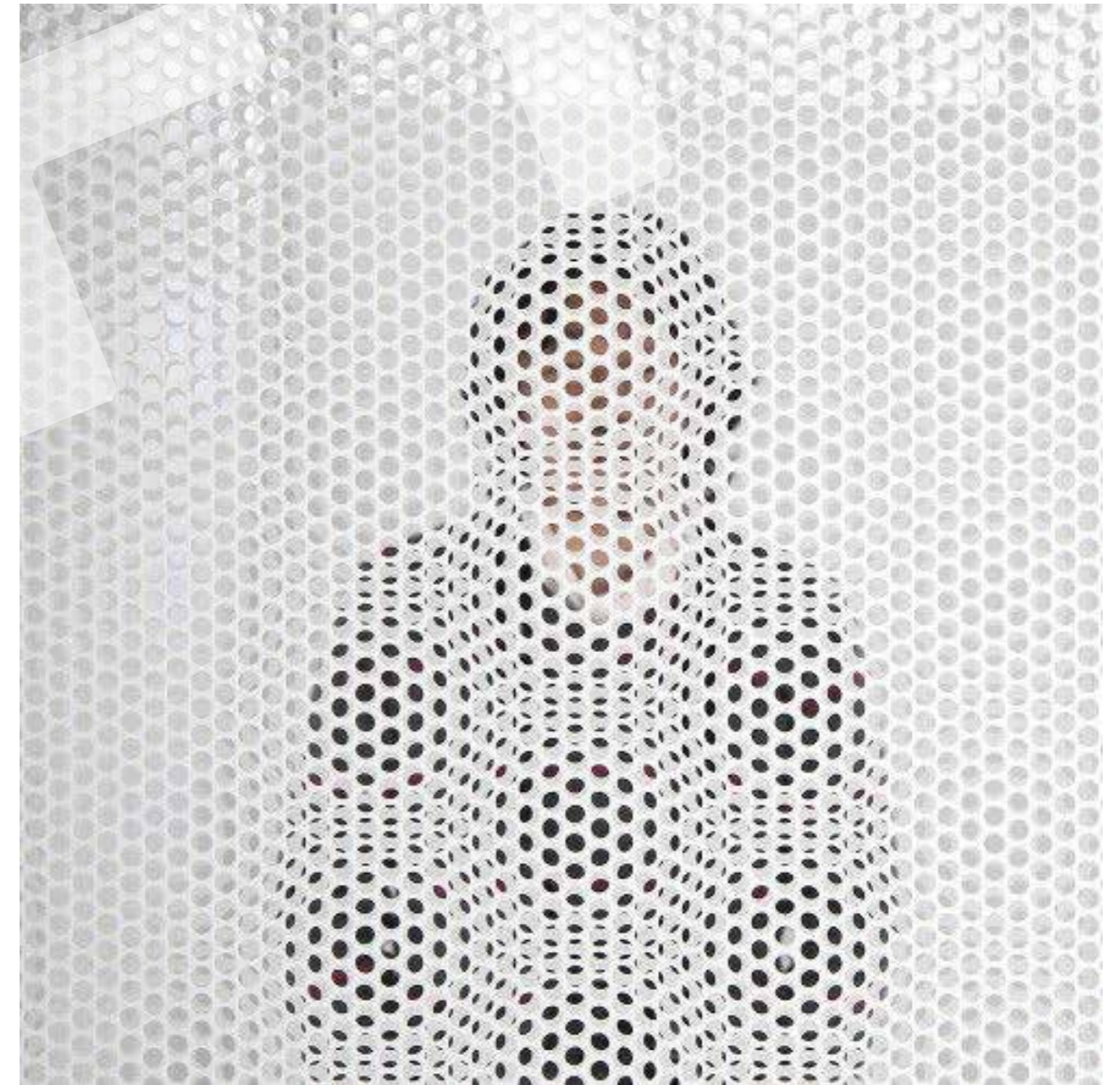
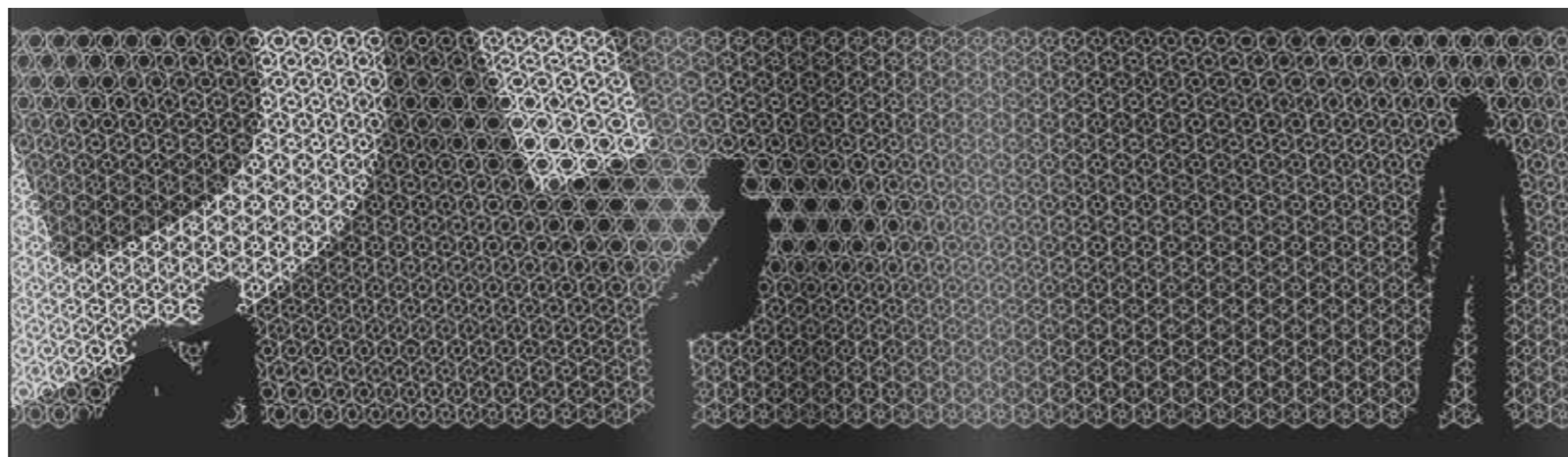
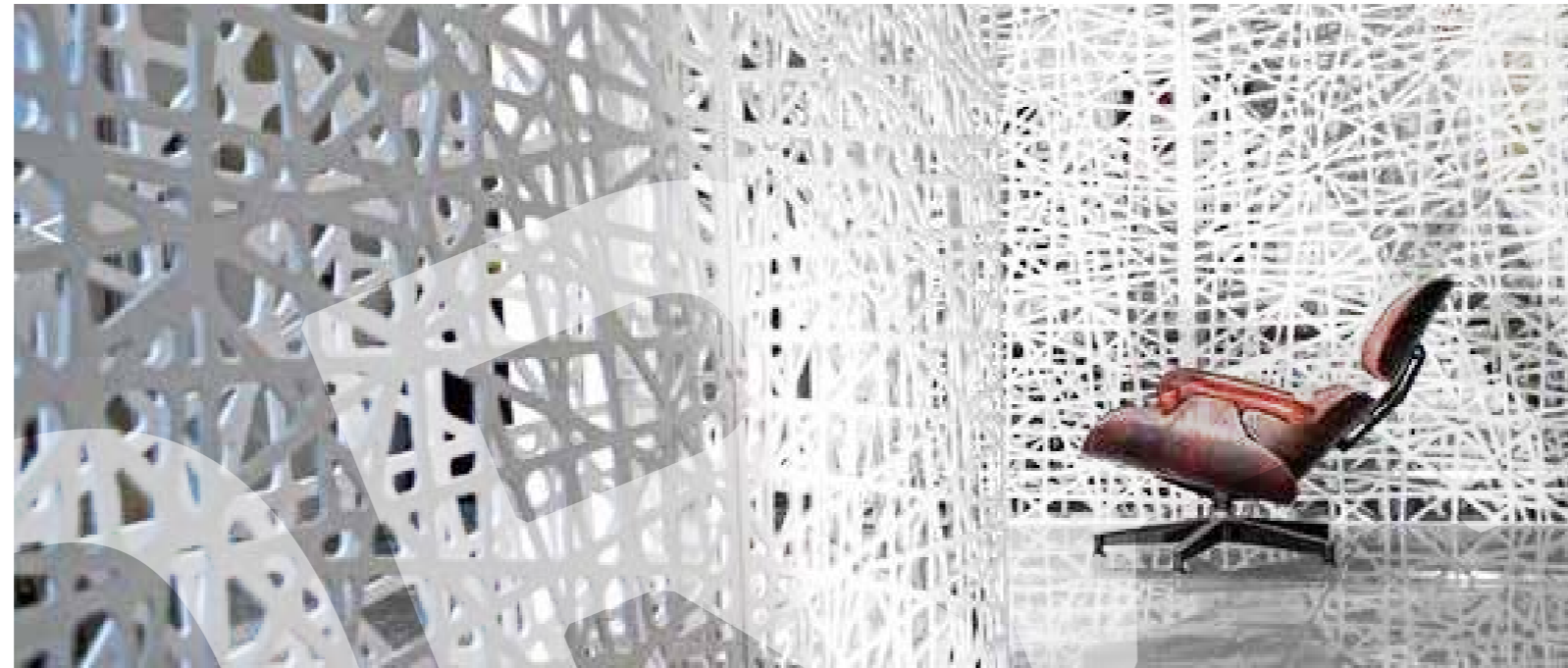
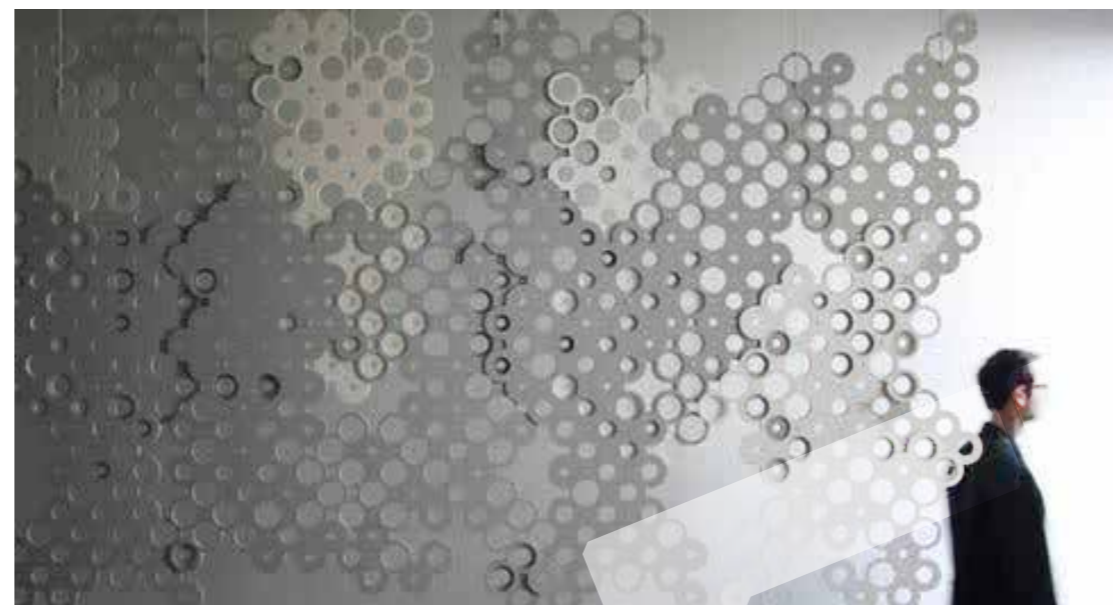
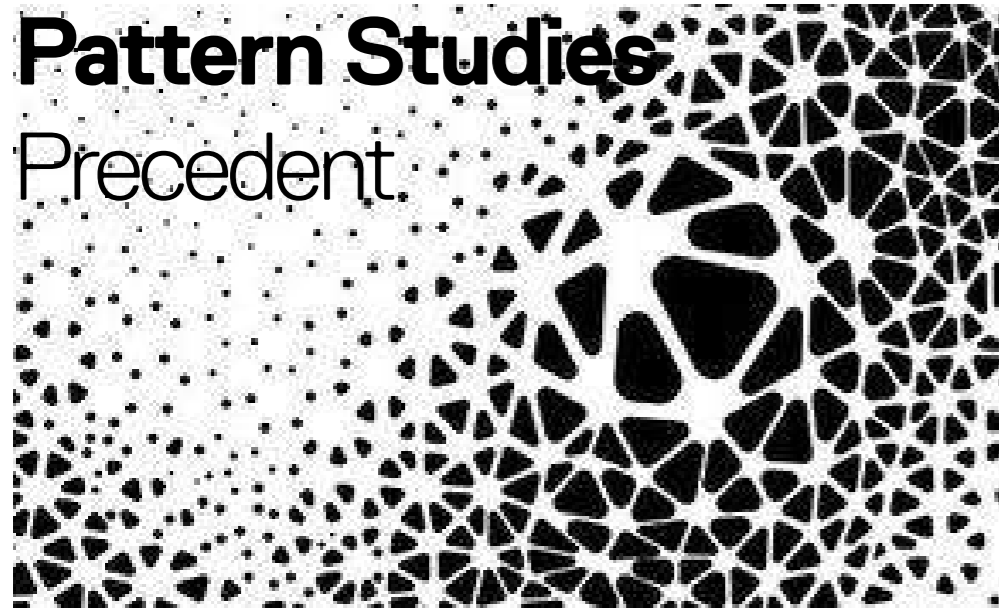
Pattern Studies

Trumpf Bridge (Ditzingen)



Pattern Studies

Precedent.



Cherry North

View from South Bank



Height To be adjusted

Cherry North

Macro Geometry Adjustment

To Align with structural forces



Study Envelope

Study Existing

Study Arch 01

Study Eclipse 01

Study Arch 02

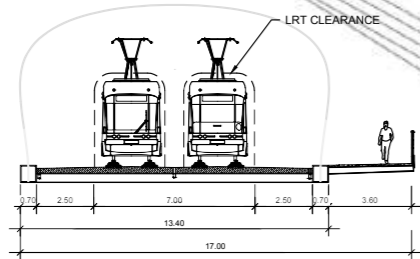
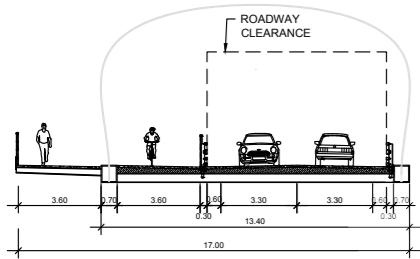
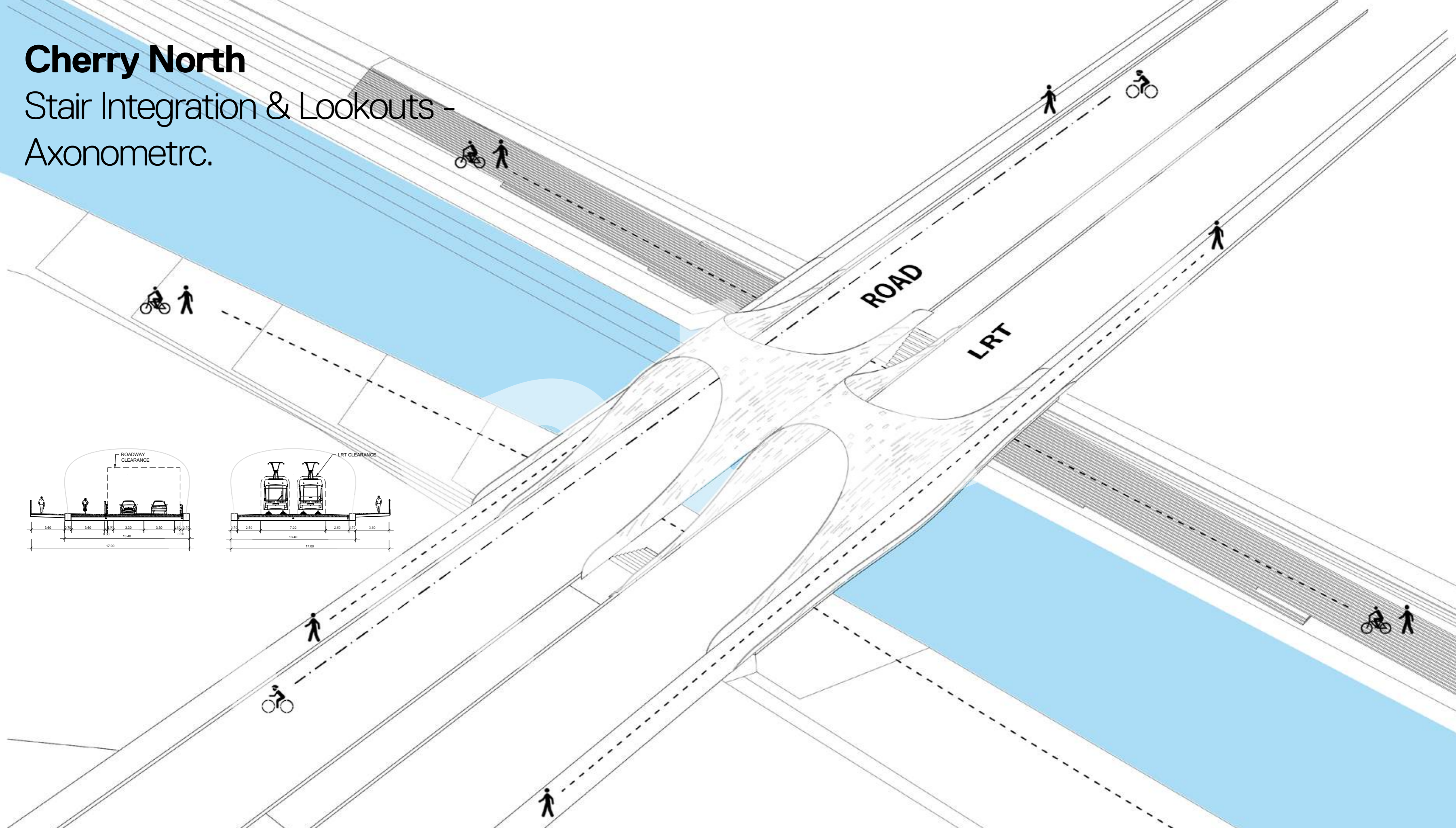
Study Arch 02

Study Arch 03

Study Arch 04

Cherry North

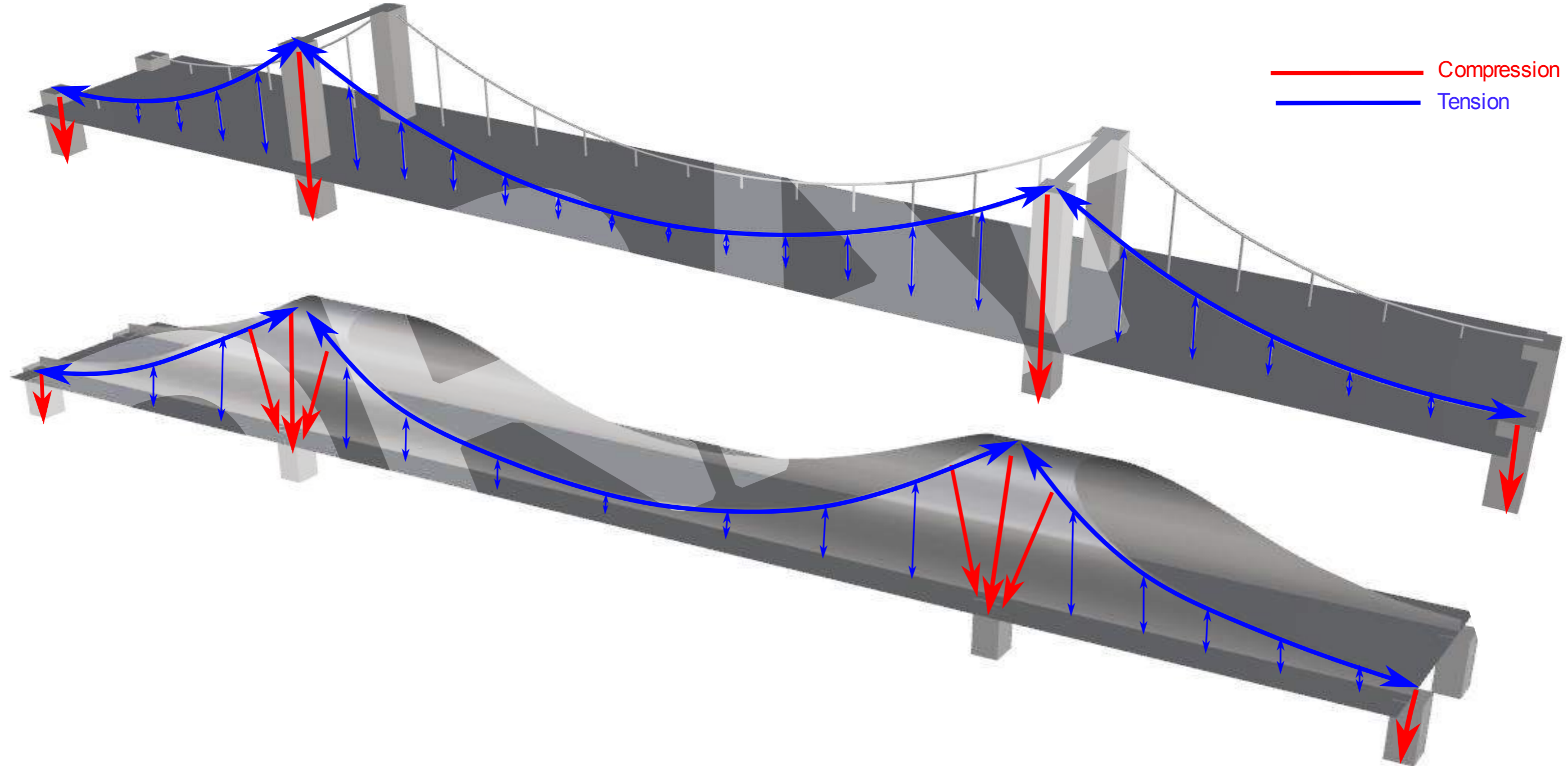
Stair Integration & Lookouts -
Axonometric.



Cherry South

Force Flow

- The futuristic shell bridge can be compared to a suspension bridge.
- The concentrated forces on the intermediate supports are raddially arranged.



Cherry South

Reference Projects

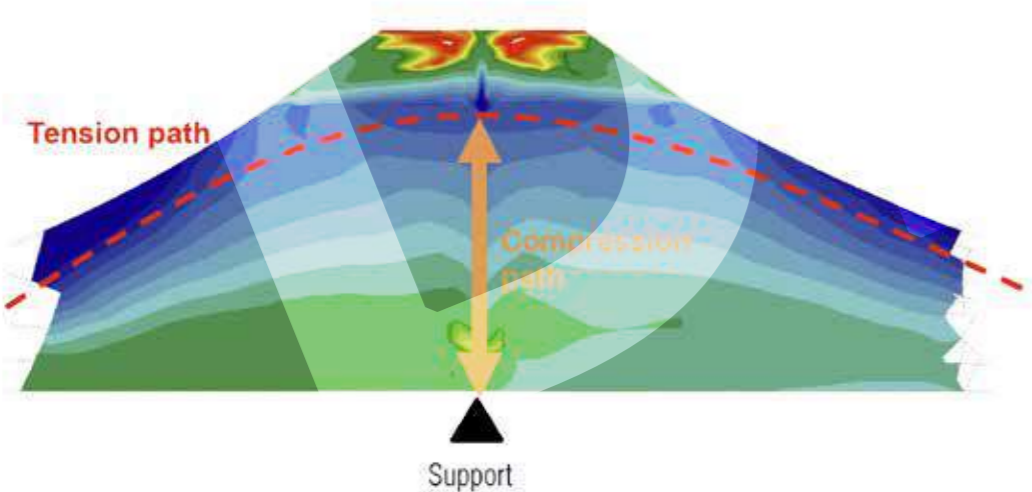
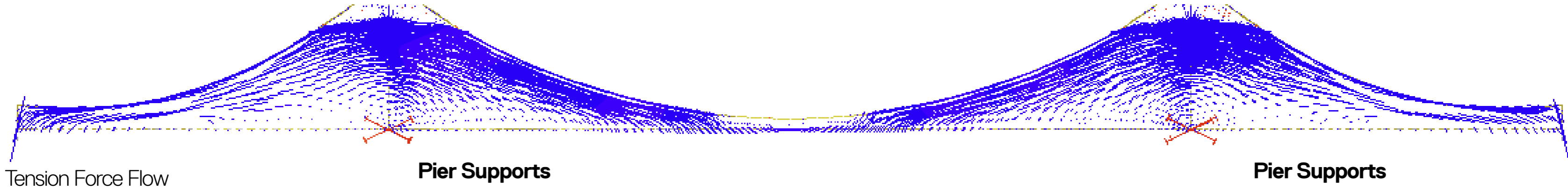
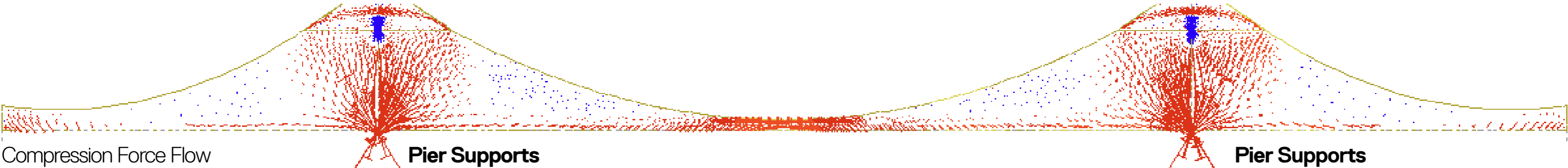


Golden Gate Bridge



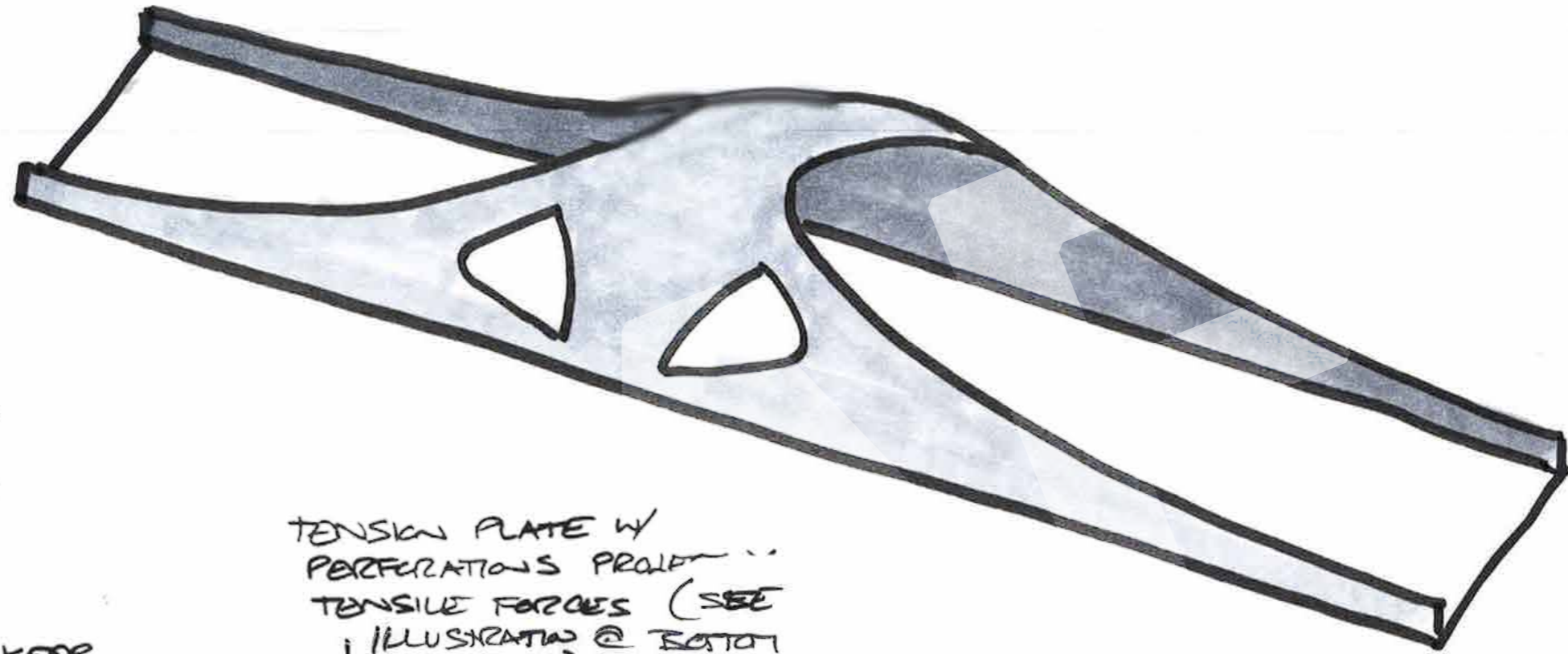
George Washington Bridge

Cherry South Structure



Cherry South

Perforation



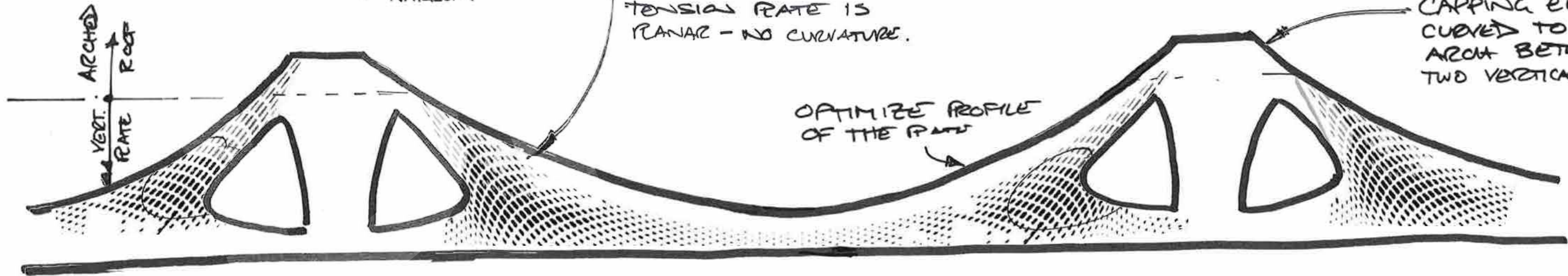
COMPRESSION AREA
- WILL HAVE THICKNESS
IN BUILT UP SECTION
TO SUIT COMPRESSION

KEEP
NARROW.

TENSION PLATE W/
PERFORATIONS PROBLEM ...
TENSILE FORCES (SEE
ILLUSTRATION @ BOTTOM
OF PAGE) NOTE
TENSION PLATE IS
PLANAR - NO CURVATURE.

OPTIMIZE PROFILE
OF THE PLATE

CAPPING ELEMENT
CURVED TO FORM
ARCH BETWEEN THE
TWO VERTICAL SIDES.



Cherry South

View From Parkland.



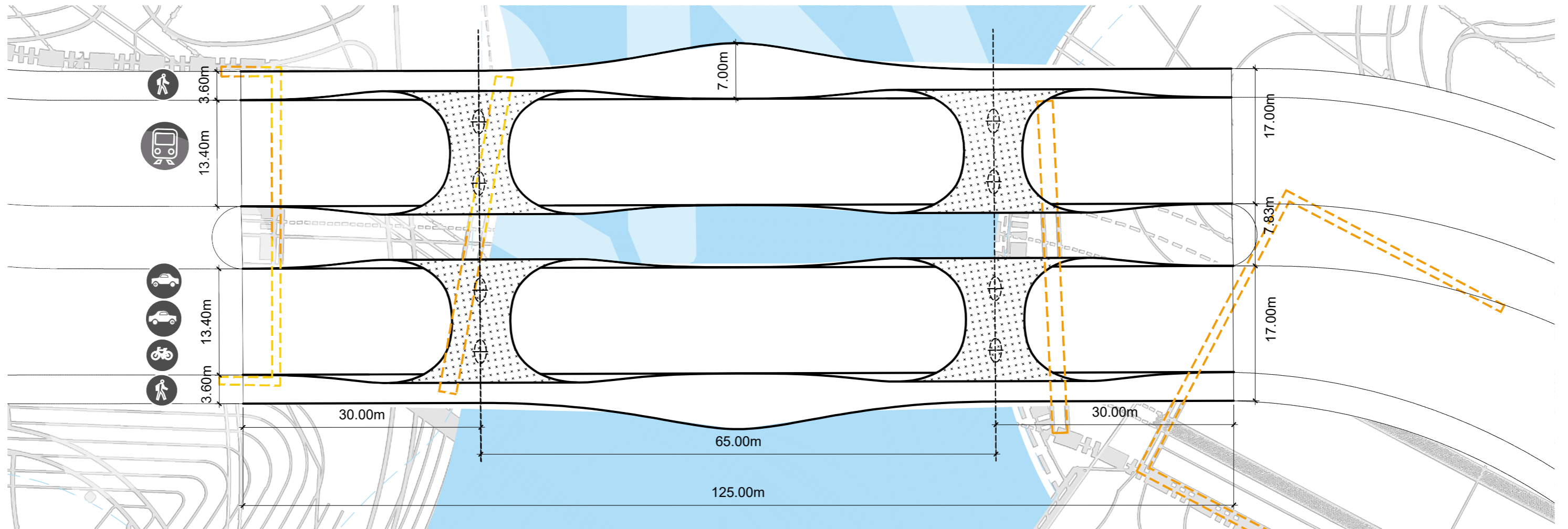
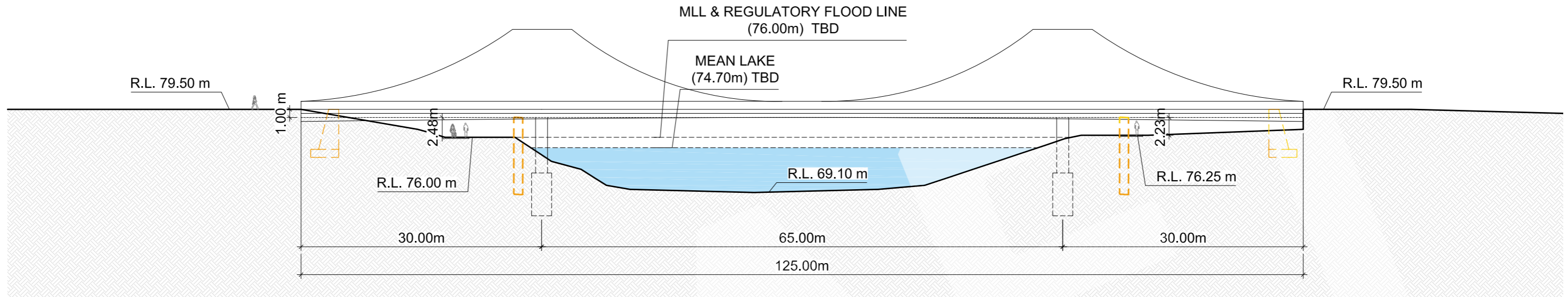
Cherry South

Plan & Elevation

- - - - - DUE DILIGENCE ABUTMENTS / PIERS
- - - - - PROPOSED PIER ALIGNMENT
- — — — — MVVA PROPOSED ALIGNMENT

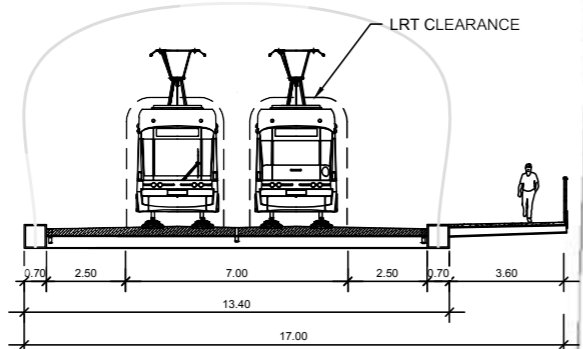
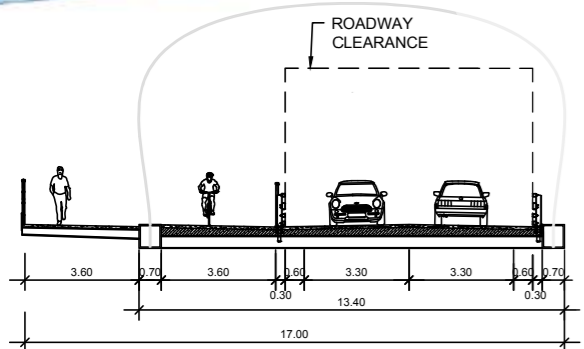
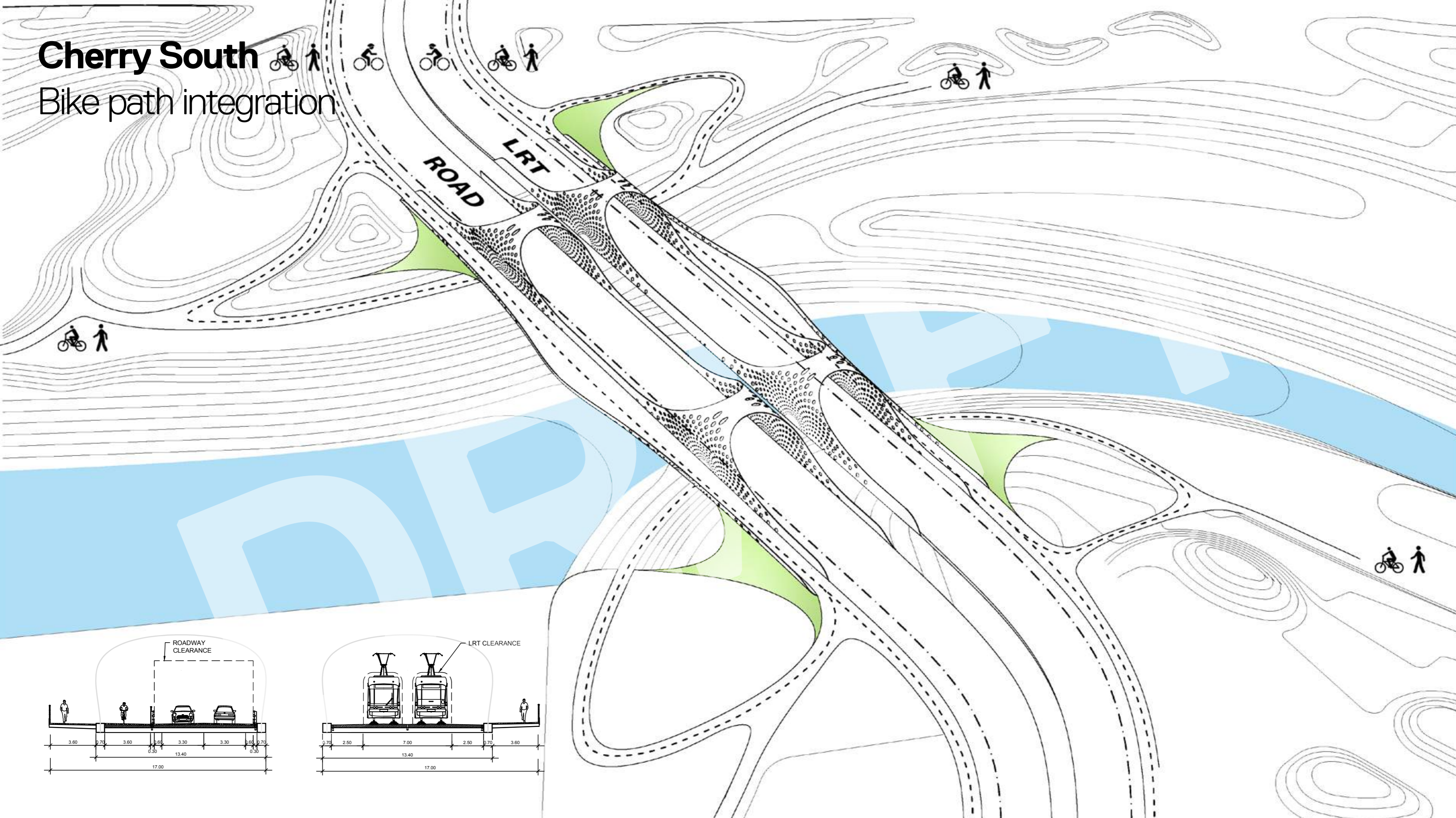


SCALE: 1/500



Cherry South

Bike path integration

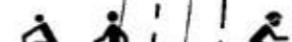
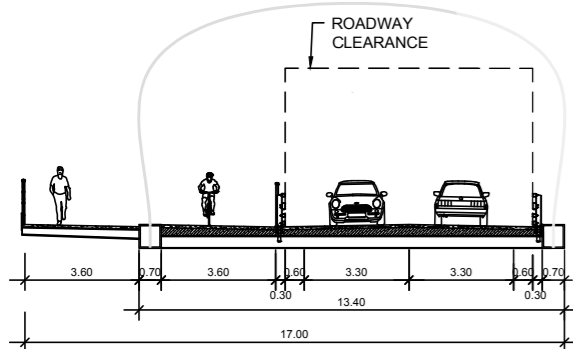


Cherry South

Phase One



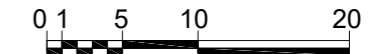
ROAD



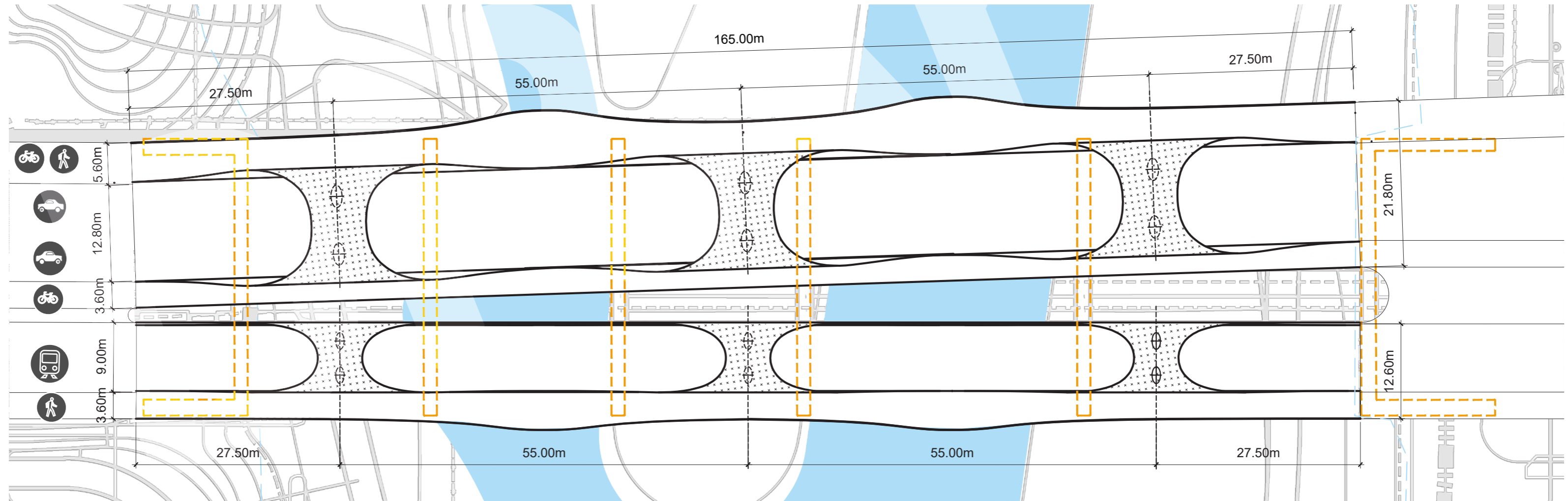
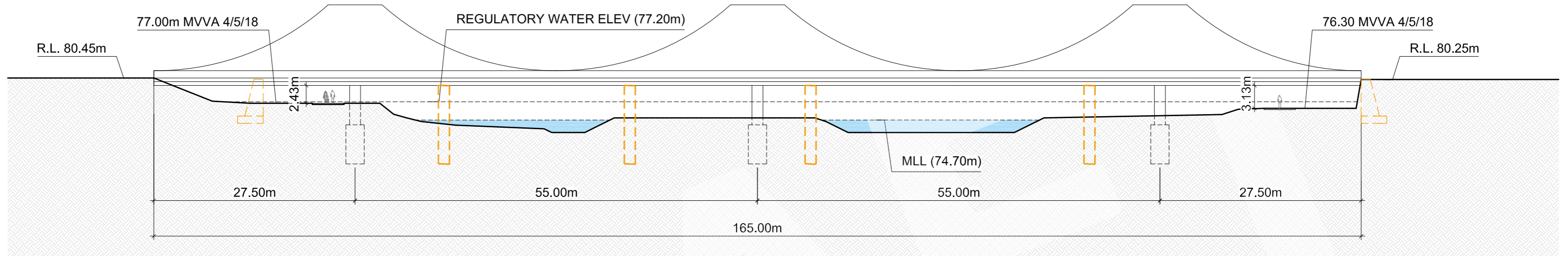
Commissioner

Plan & Elevation

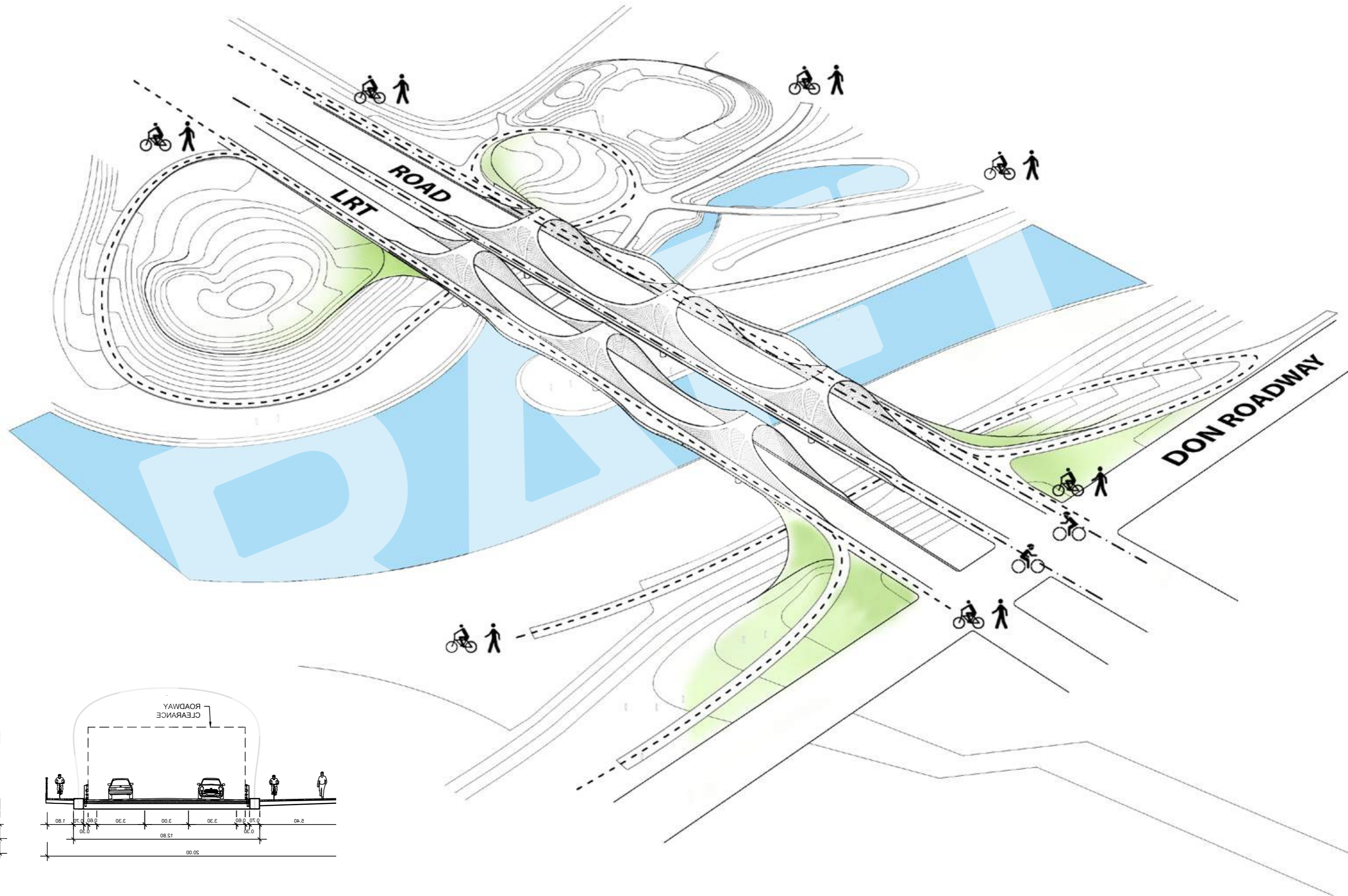
- - - - - DUE DILIGENCE ABUTMENTS / PIERS
- - - - - PROPOSED PIER ALIGNMENT



SCALE: 1/500

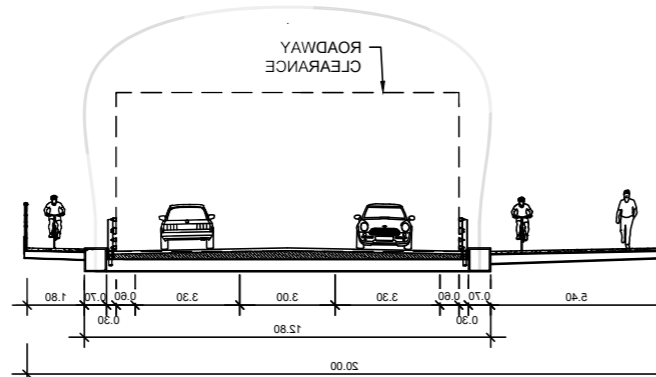
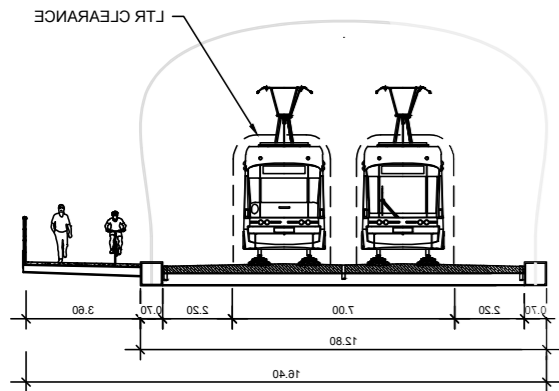


Commissioner Integration



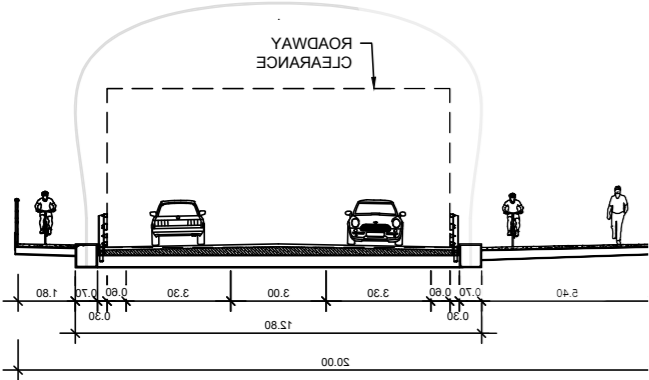
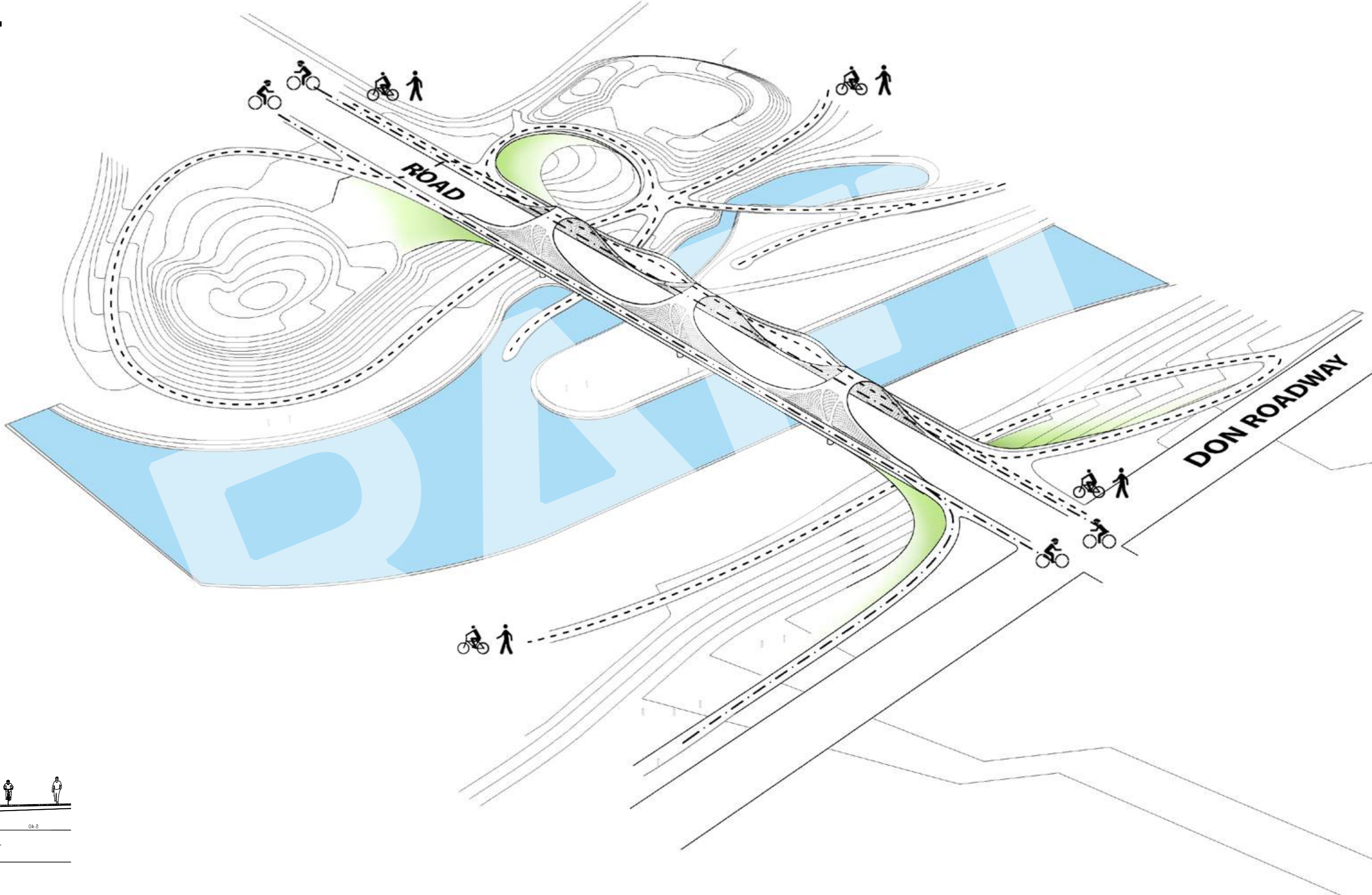
Bike & Landscape

Shared Bike Path and Landscape to be integrated into bridge.



Commissioner

Phase One



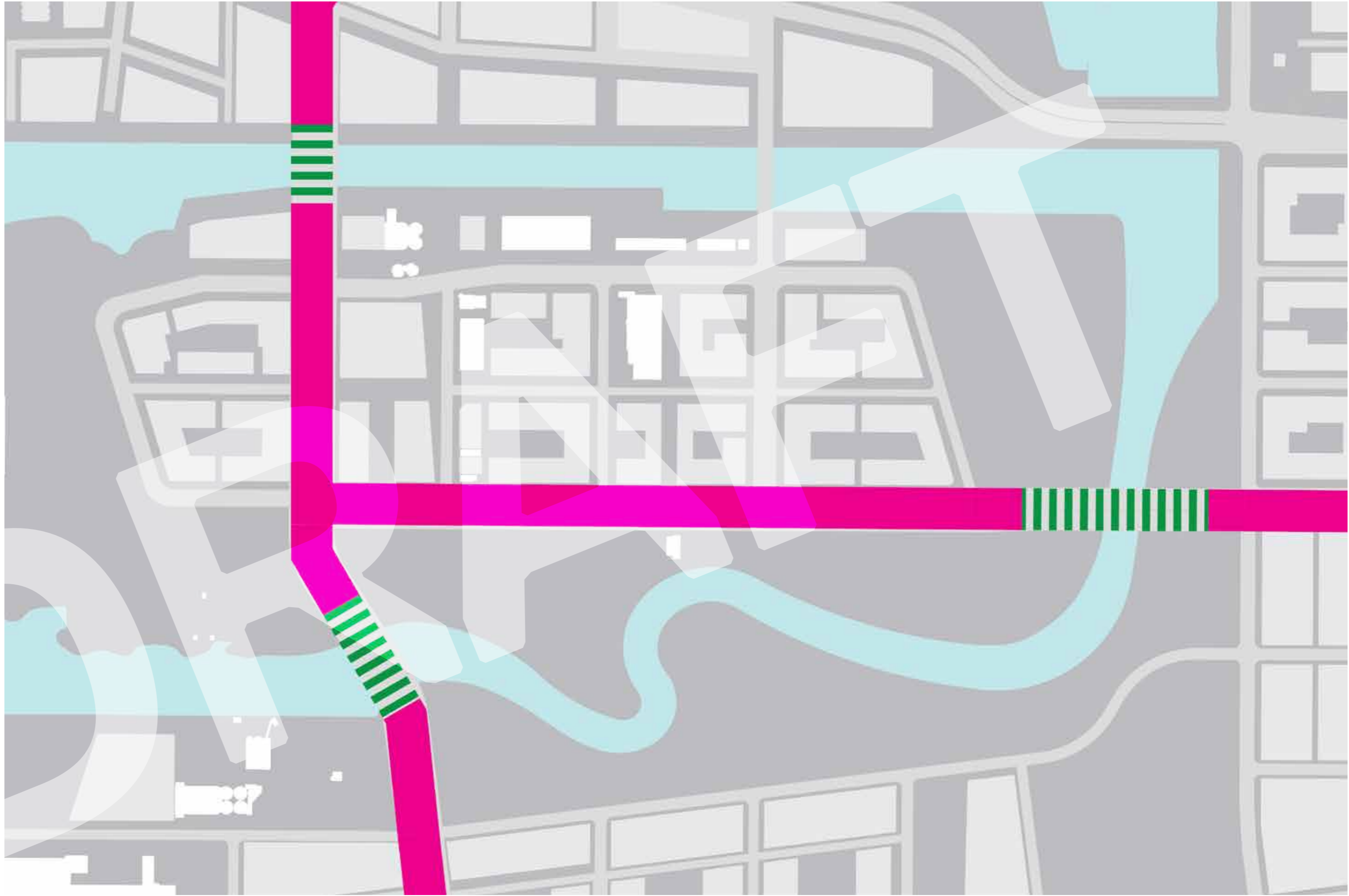
Commissioner

View From South East.



Gateway Bridge

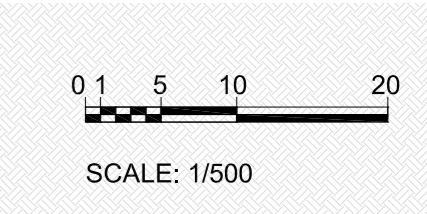
Unifying



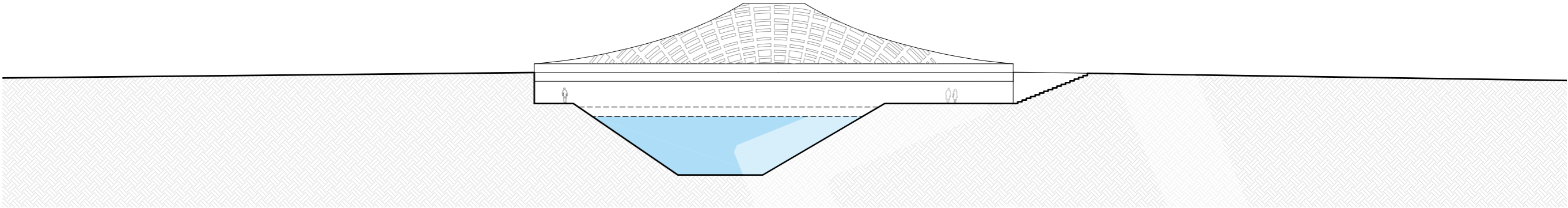
Villiers Island With a unified language

Perforation Patterns

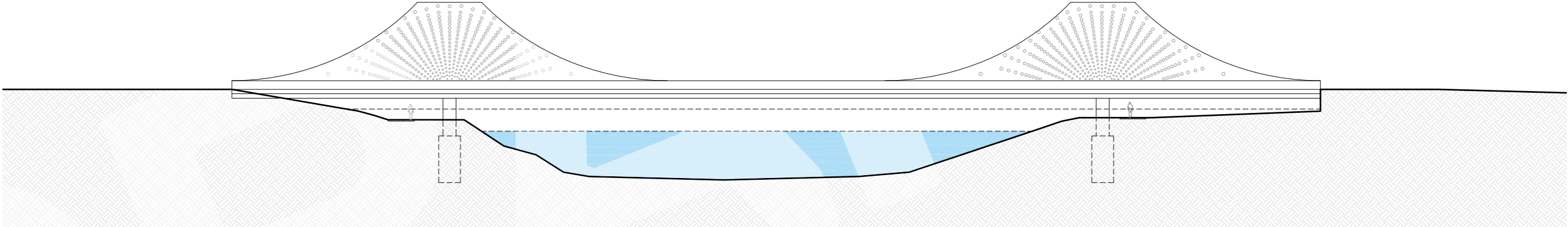
Architectural Studies.



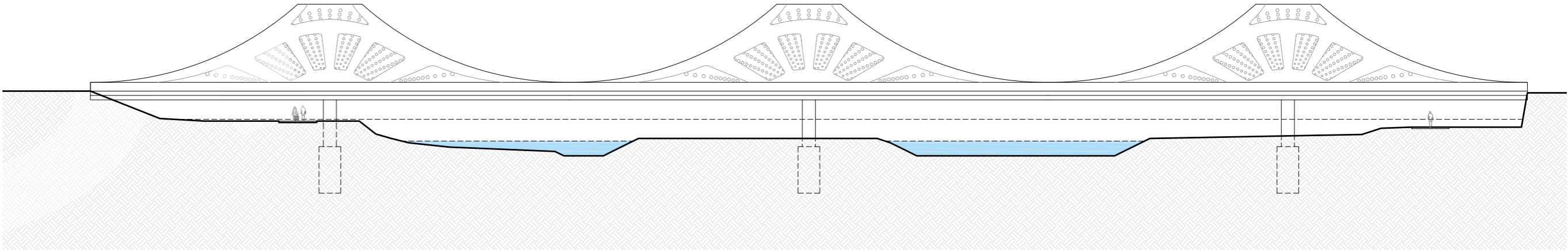
Cherry North Arch Perforation



Cherry South Radial Perforation

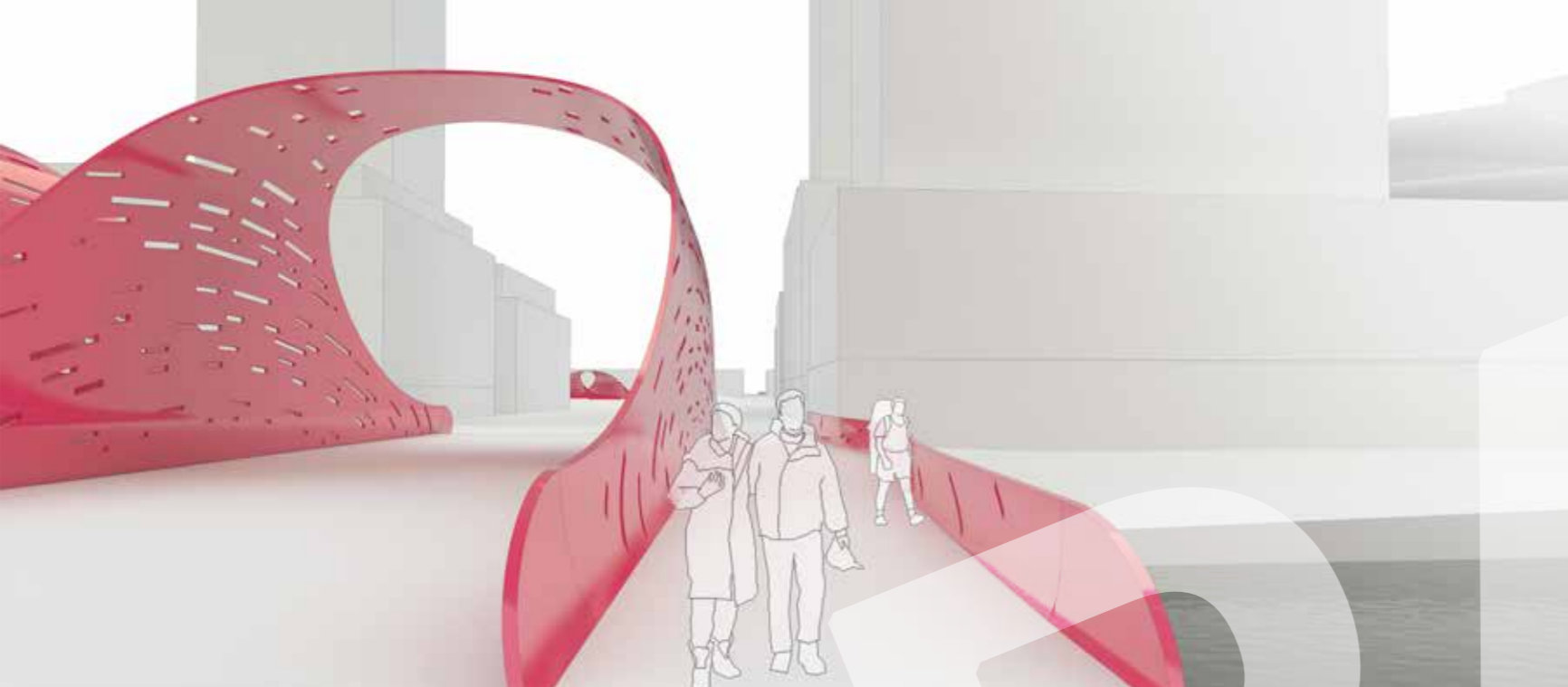


Commissioner Radial Perforation & Exposed Stiffeners

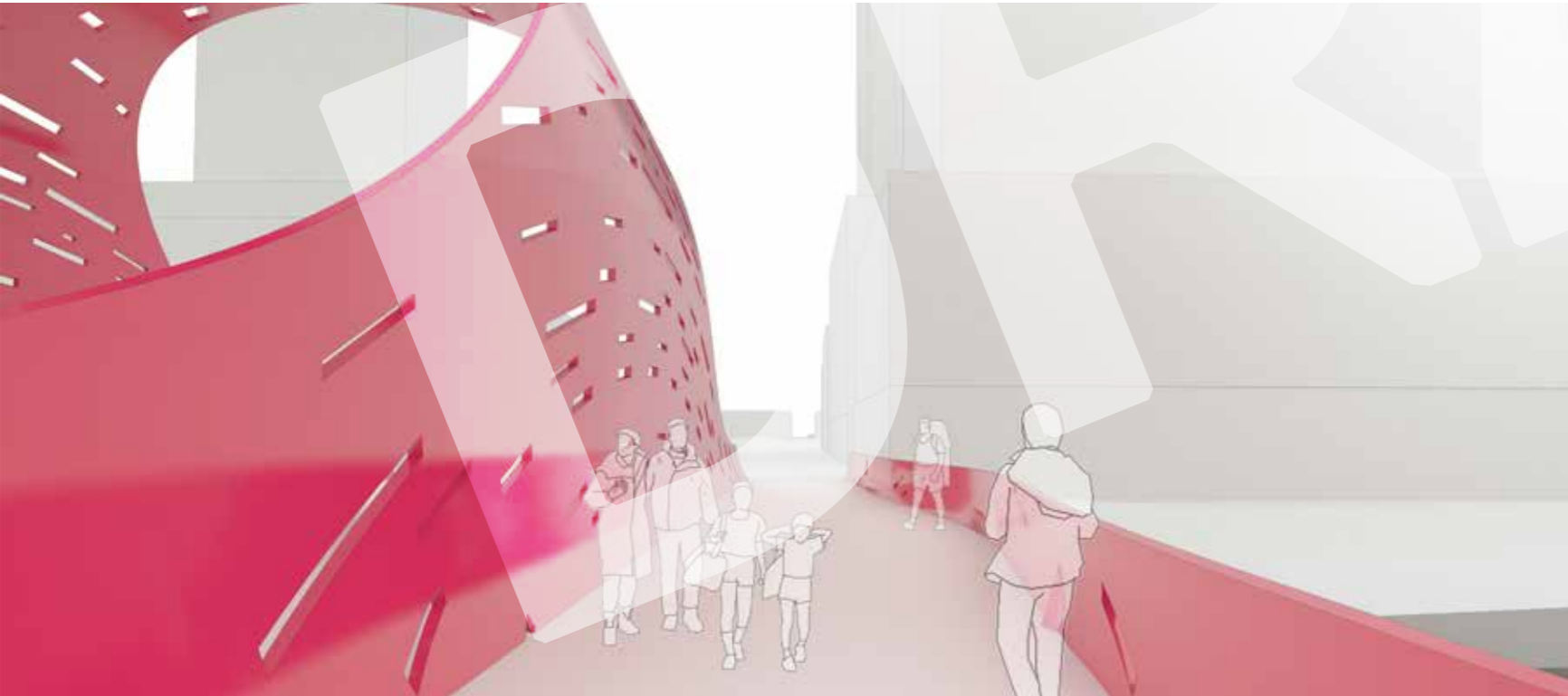


Gateway Bridge

Unifying - View's down Cherry North.



Cherry North View from Road Bridge towards Cherry South Bridge.



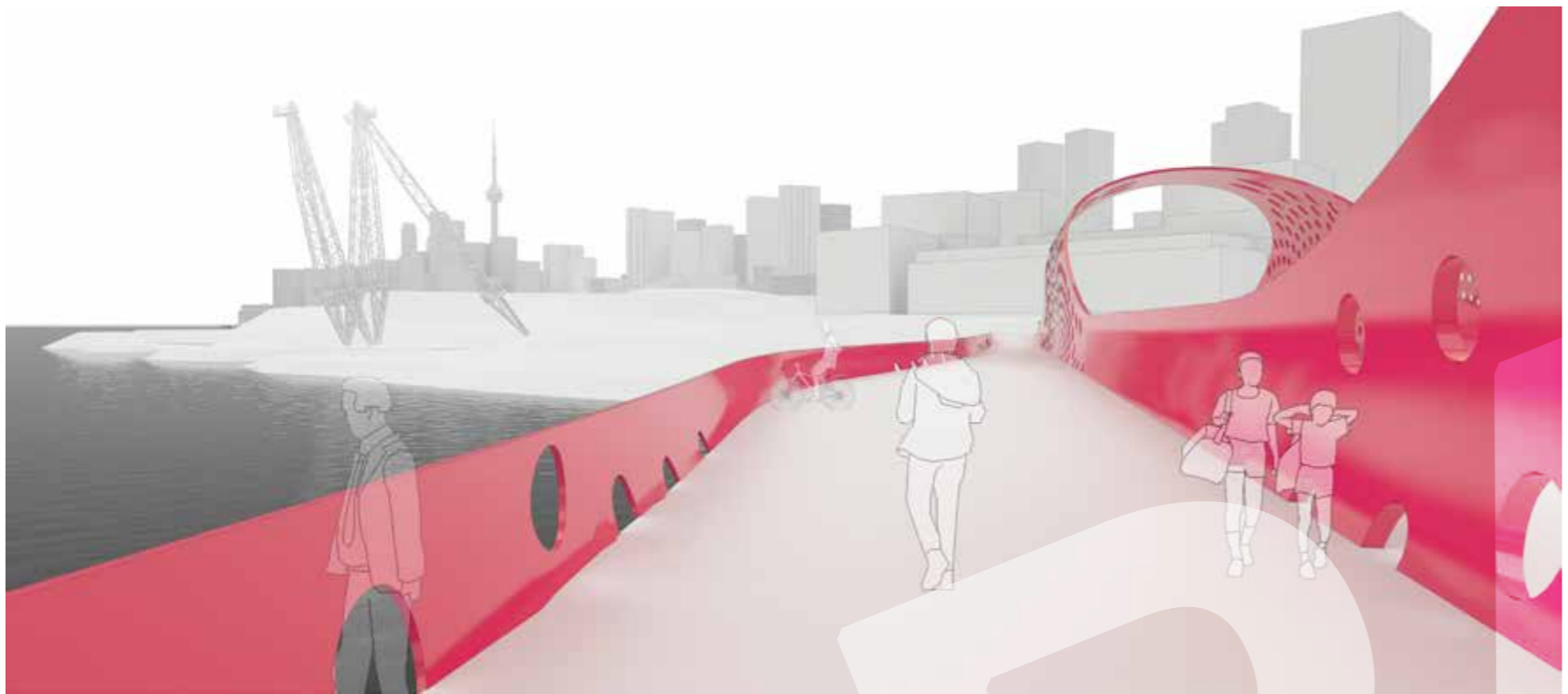
Cherry North View from Road Bridge towards Cherry South Bridge.

Cherry North View from LRT bridge towards city.

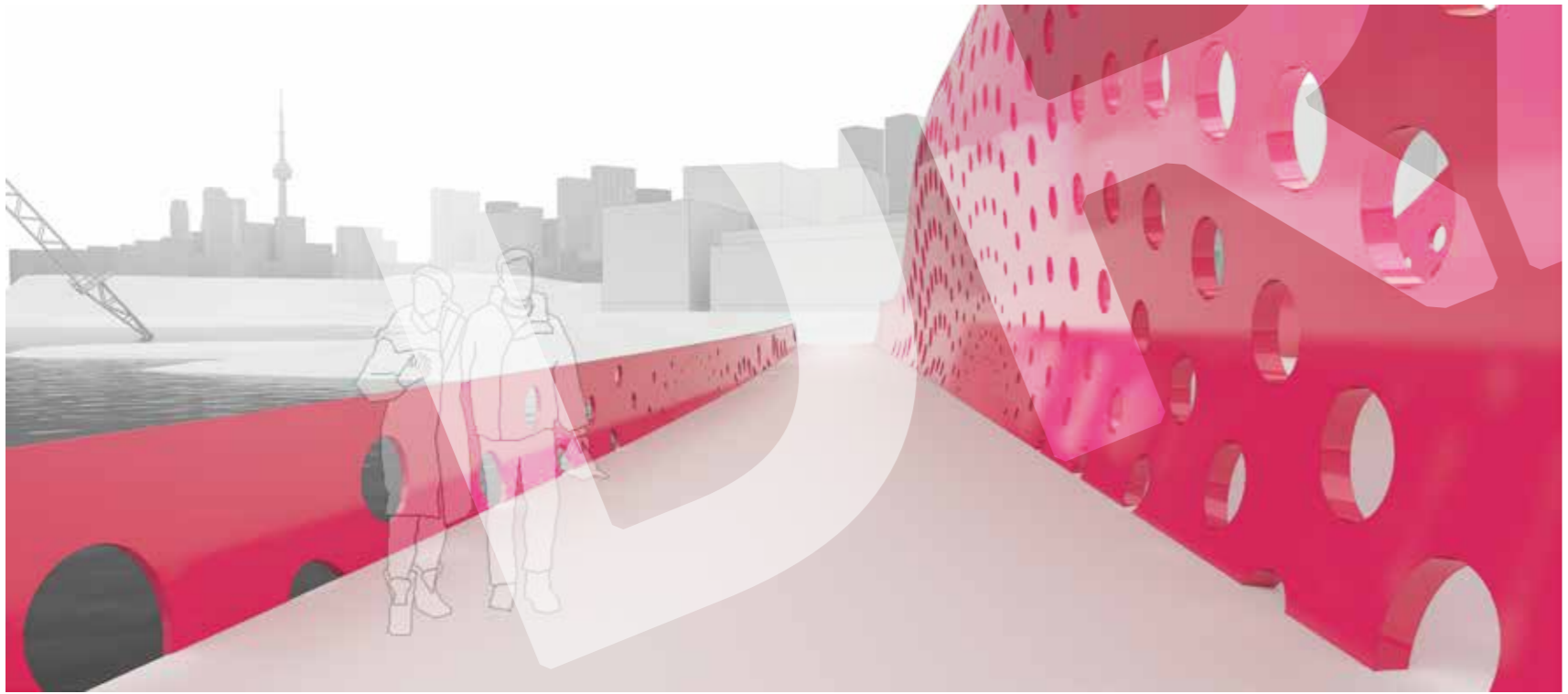


Gateway Bridge

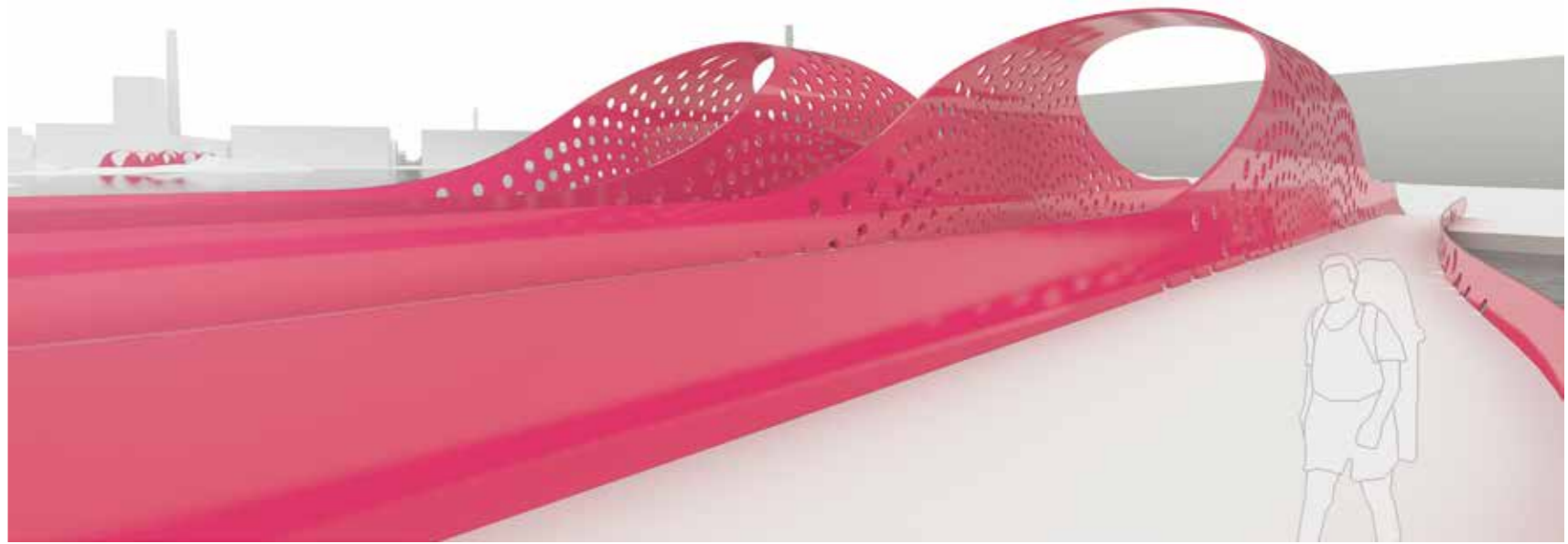
Unifying - View's At Cherry South.



Cherry South View from Road Bridge towards City.



Cherry South View from Road Bridge towards City.



Cherry South View from LRT Bridge towards Commissioner Street Bridge

Gateway Bridge

Midspan Respite.

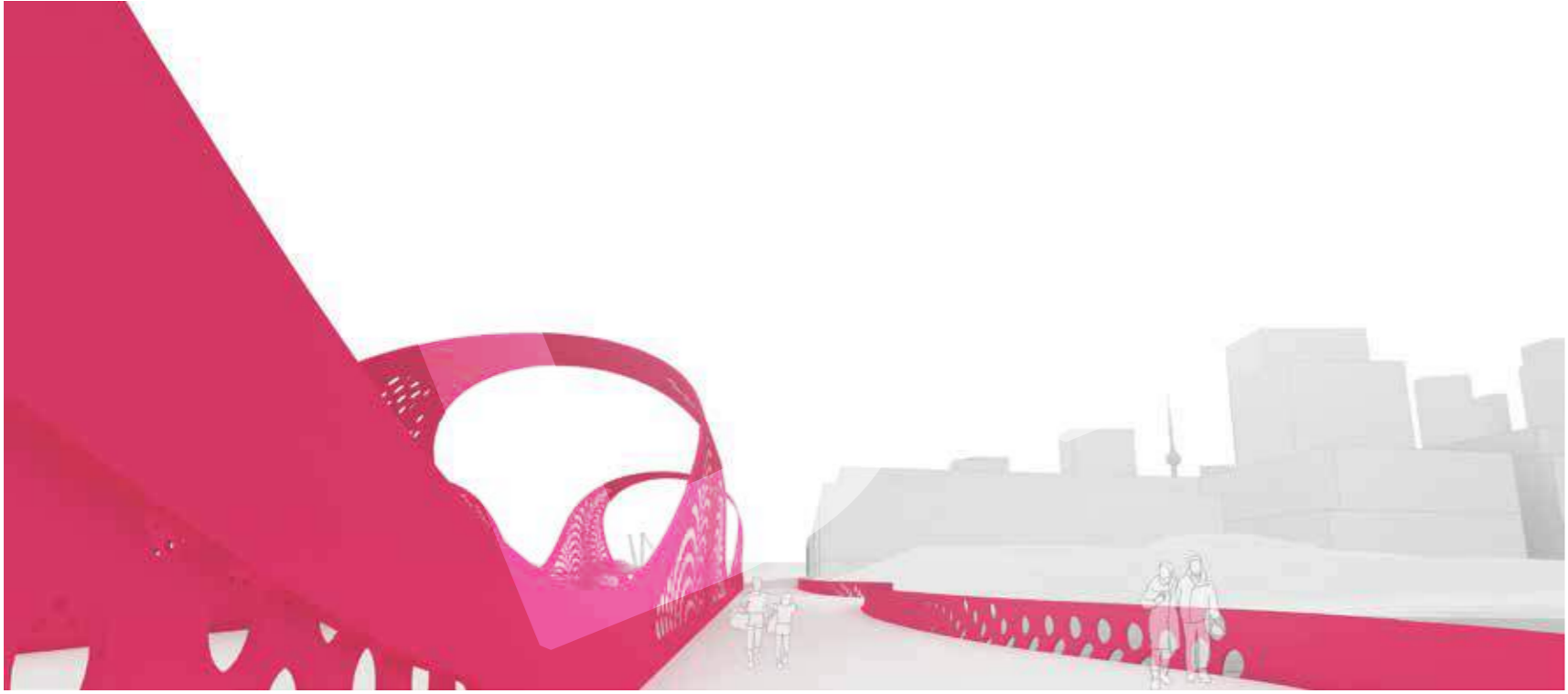


Gateway Bridge

Unifying - View's at Commissioner Bridge.



Commissioner View from LRT Bridge looking east.

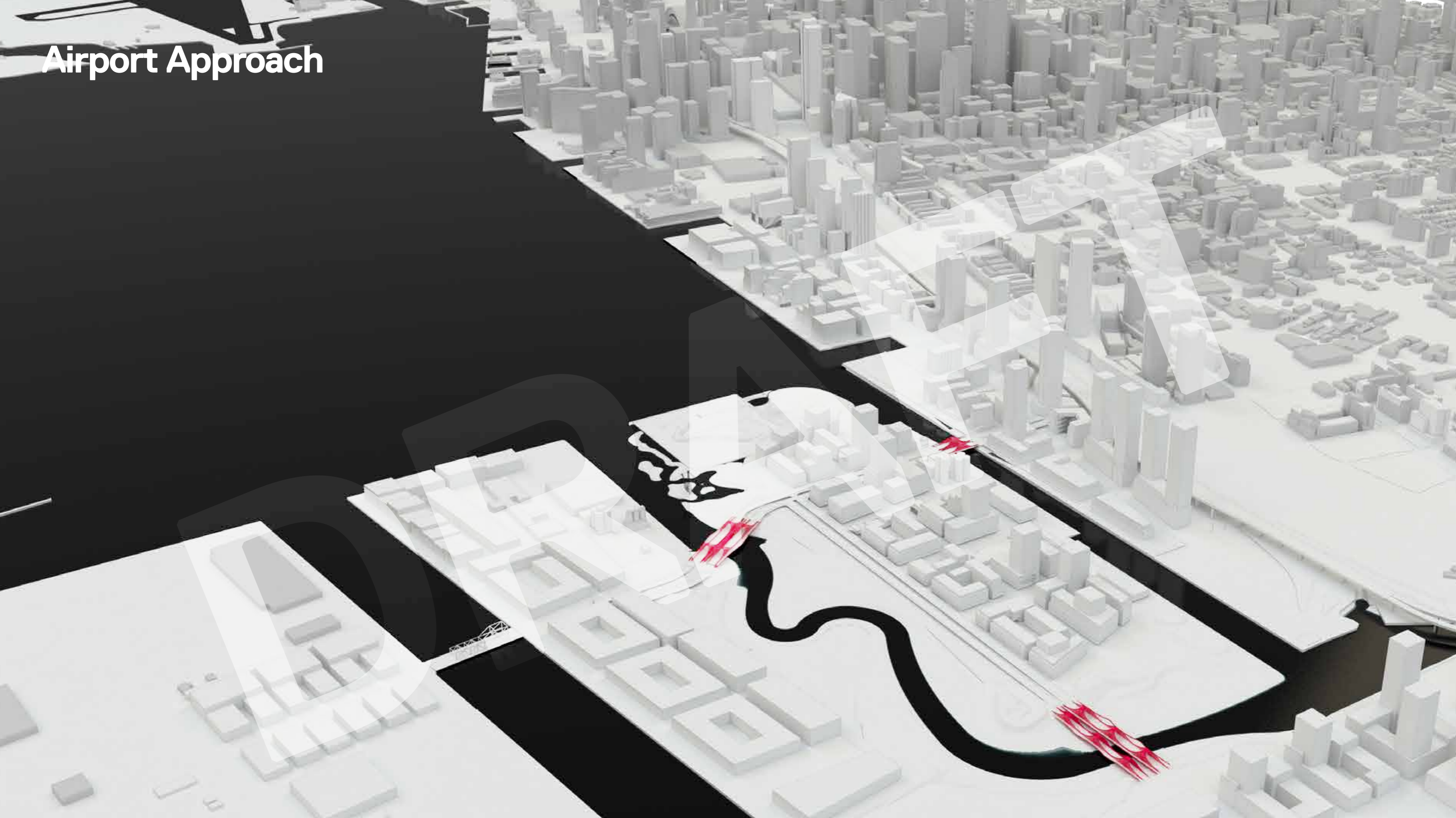


Commissioner View from Road Bridge towards City.

Cherry South View from LRT Bridge towards Cherry Street



Airport Approach



View from Ferry

Cherry North

Commissioner

Cherry South

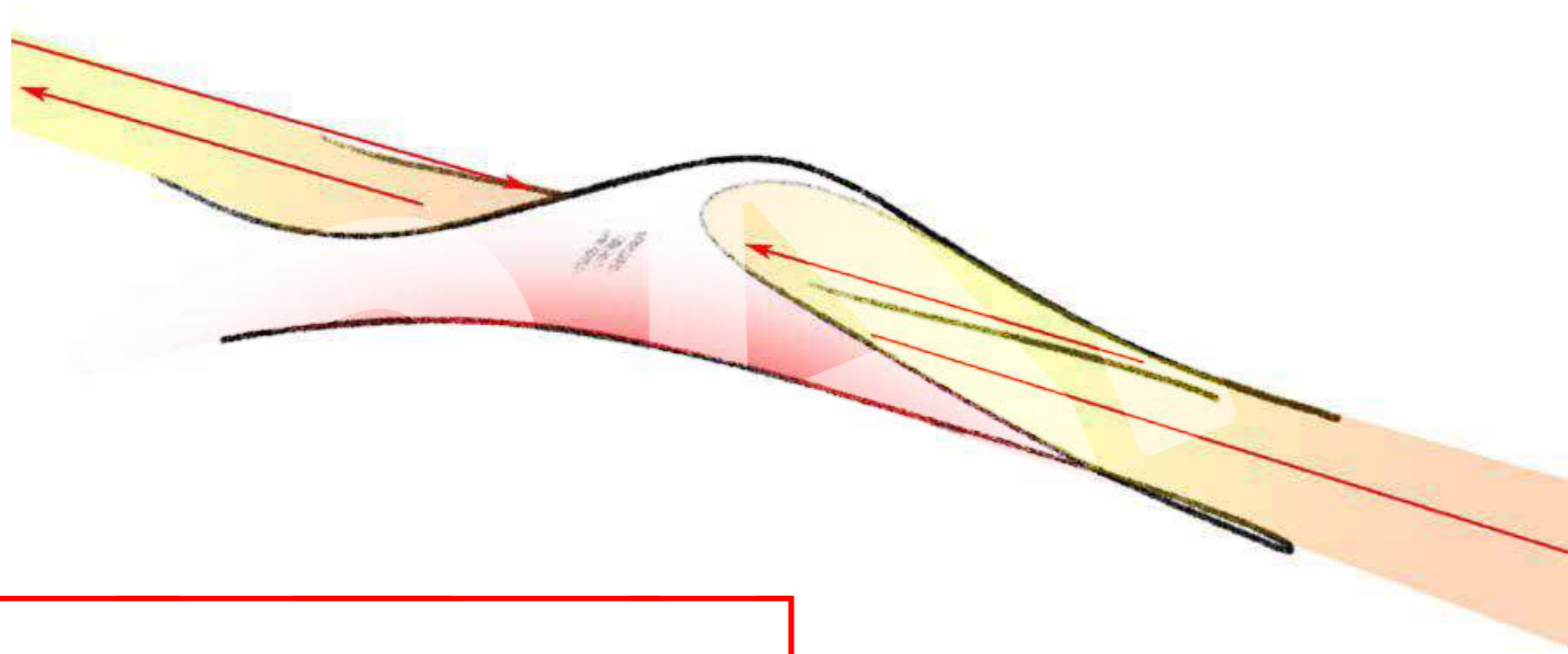


Gateway Bridge

Lighting Strategy

CONNECTED LIGHT

How can the lighting make the bridge experience better? How can lighting connect to the pedestrian in a meaningful way, not only to beautify but also to inform or make the experience more efficient?



Water flow
Vehicular movement
Weather
Preference of the Occupants

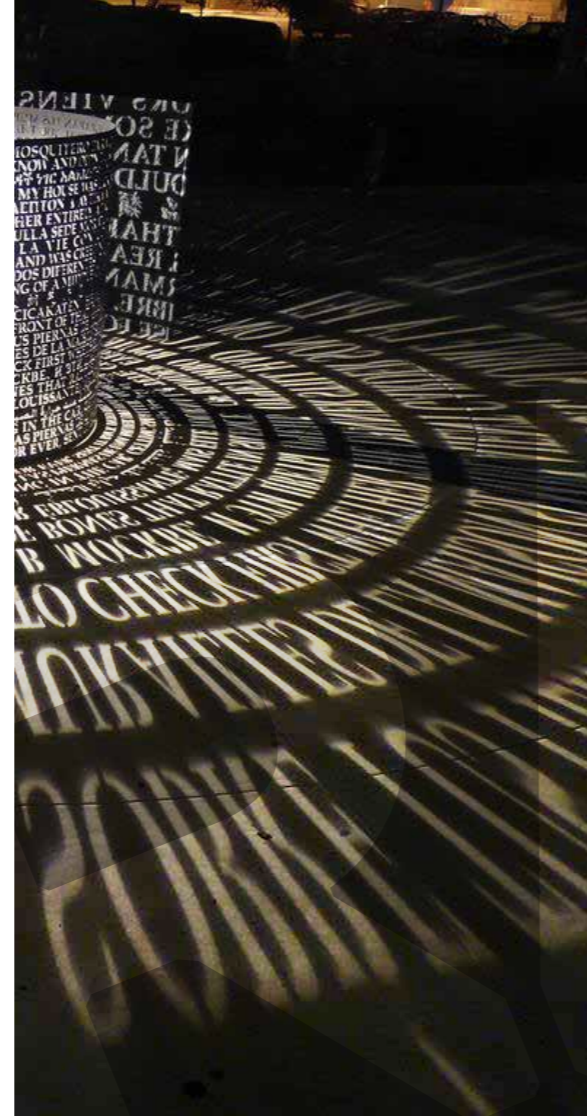
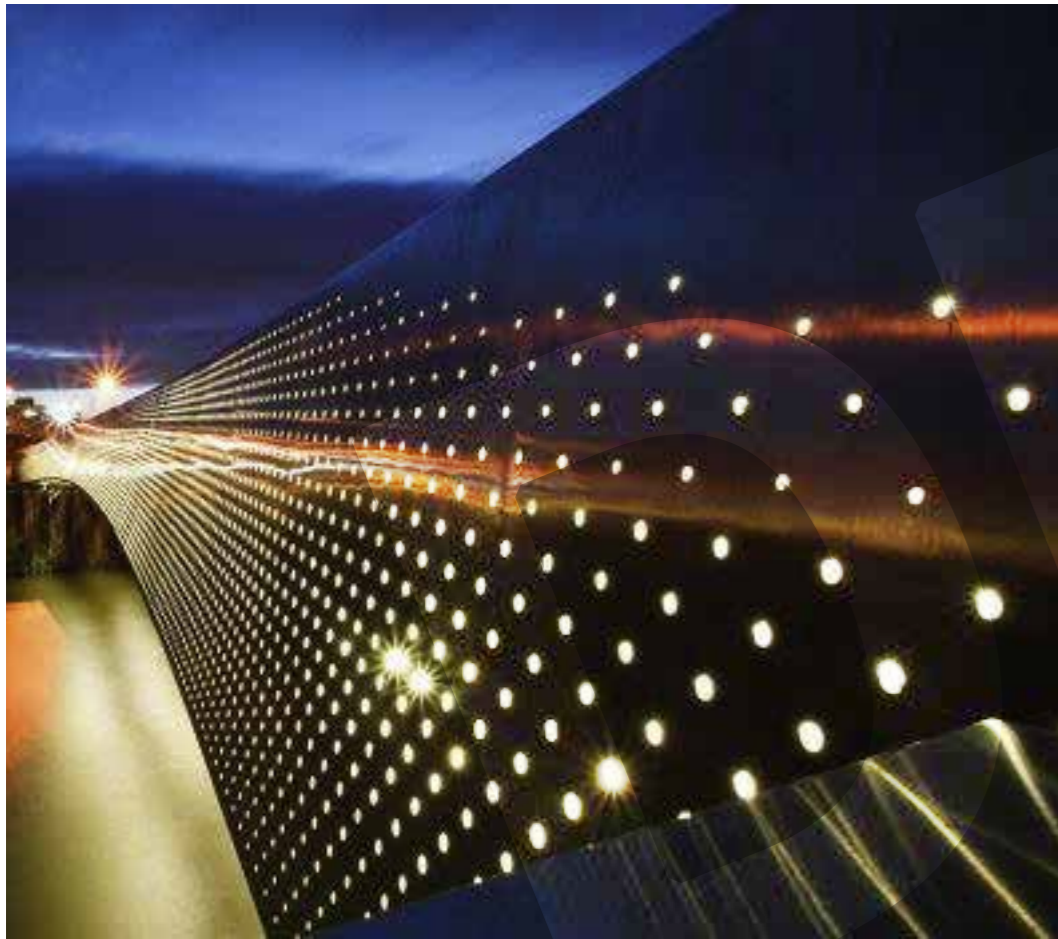
CONNECTIONS

Community Activities
Global Events
Bridge Usage and Activity
Seasons



Lighting Considerations

MBL



Hard Light

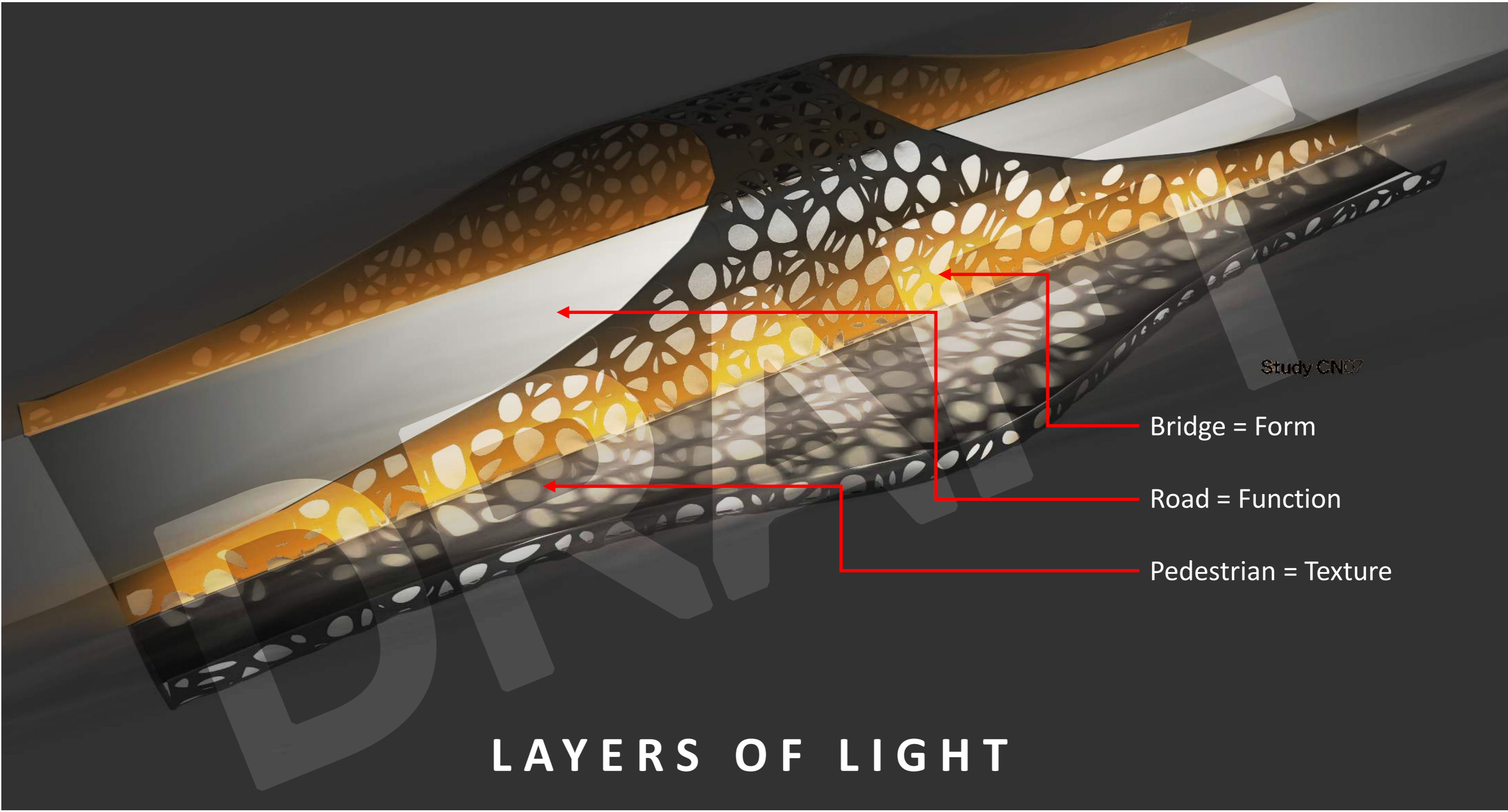
Soft Light



Hard Reflections



Soft Reflections



Study CND7

Bridge = Form

Road = Function

Pedestrian = Texture

LAYERS OF LIGHT



**Thank
You—**