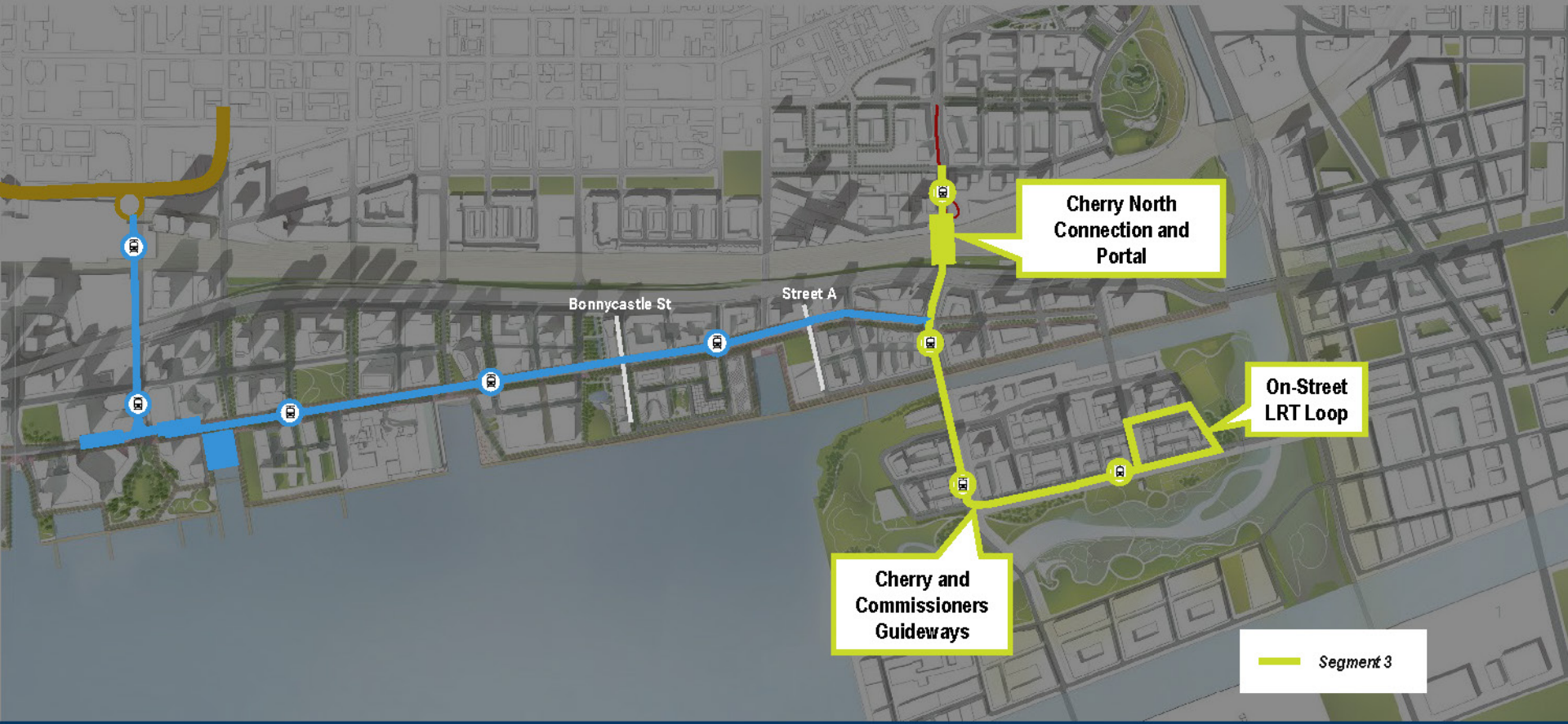


Segment 3 - Waterfront East LRT

Detailed Design | May 2025

Context: Waterfront East LRT

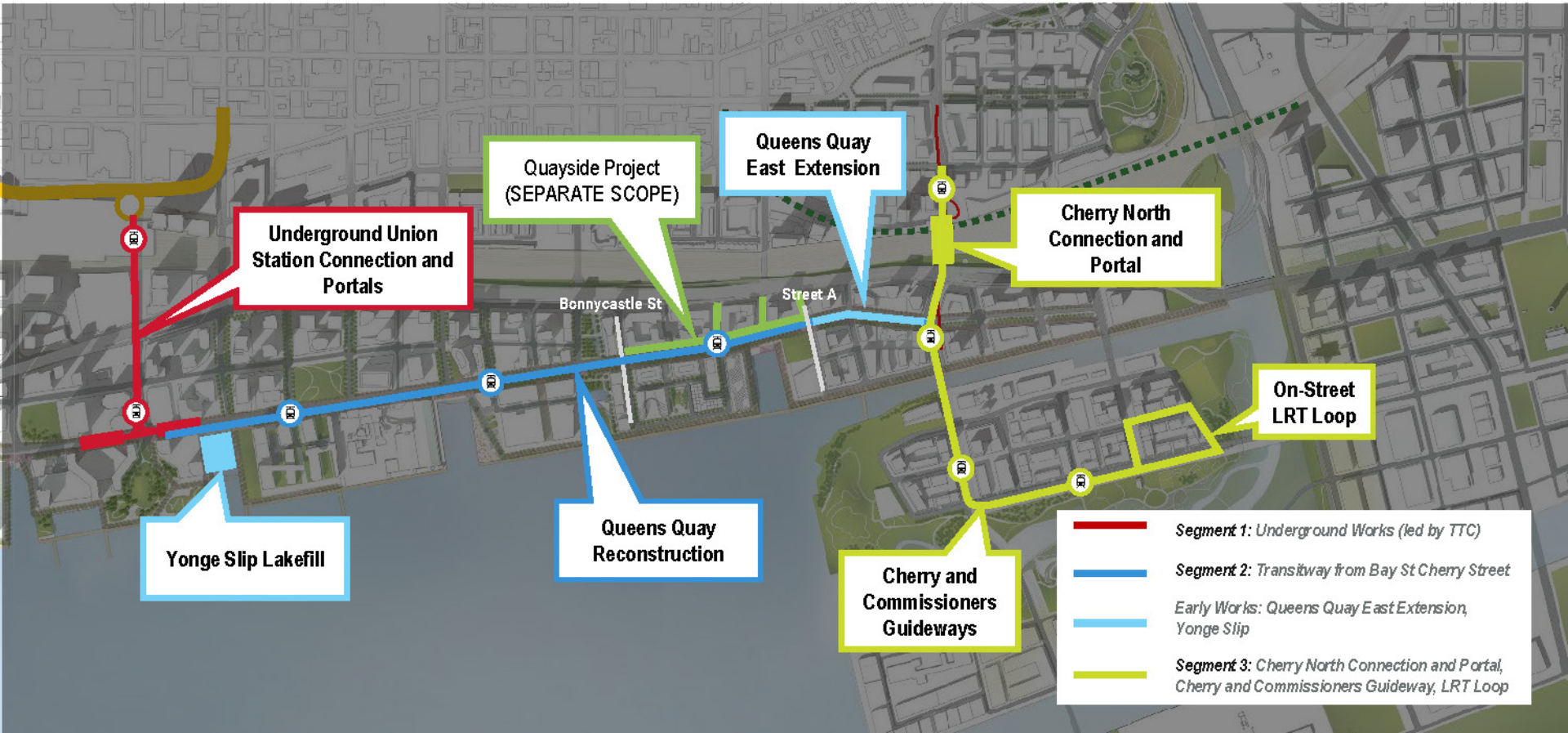
The Waterfront East LRT (WELRT)

- Extends high-order transit service from Union Station to Ookwemin Minising, enhancing connectivity to the eastern waterfront.
  - Connects an estimated 100,000 residents and creates 50,000 jobs in the eastern waterfront, serving a projected daily ridership of 53,000 passengers
  - Would be among the most popular routes in the TTC surface network.
- The project consists of three segments:
  - Segment 1: Underground Union Station and Portals
  - Segment 2: Transitway and related street reconstruction on QQE, including extending the current limits of the street eastward to new Cherry
  - Segment 3: **Cherry Street North Connection and Portal, Cherry and Commissioners Guideways and Ookwemin Minising On-Street LRT Loop**

Waterfront East LRT (WELRT)

Segment 3

Proponent: Waterfront Toronto
Design Team: Stantec/Public Work
Review Stage: Detailed Design



Segment 1 : Underground Union Station and Portal

- As part of this work, **a new portal** will be located along Queens Quay east of Bay St to **bring streetcars from the underground station to Queens Quay**
- The underground components of the WELRT (Segment 1) are **led by the City of Toronto** in collaboration with the **TTC**
- **Designed to 30%**

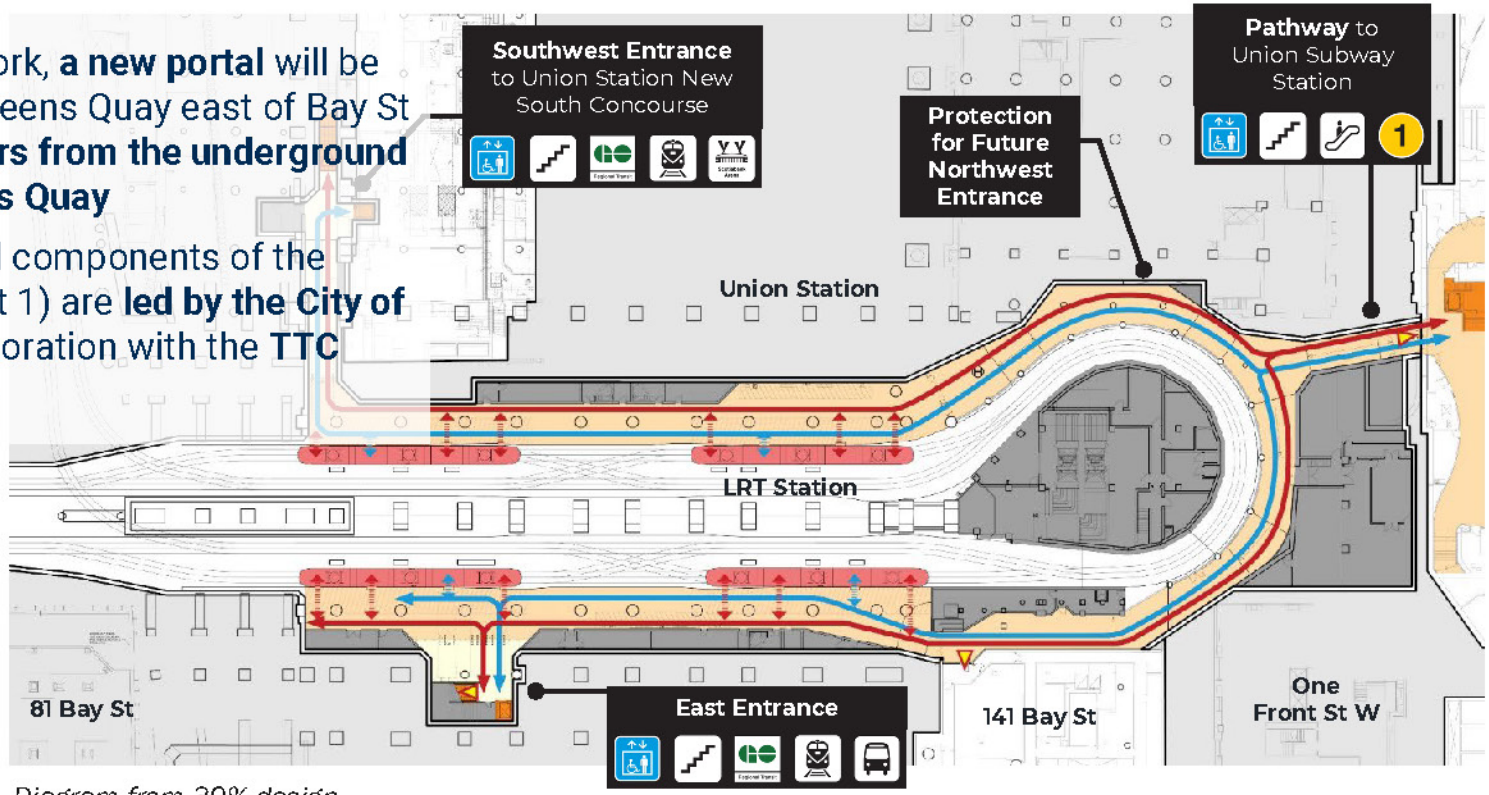


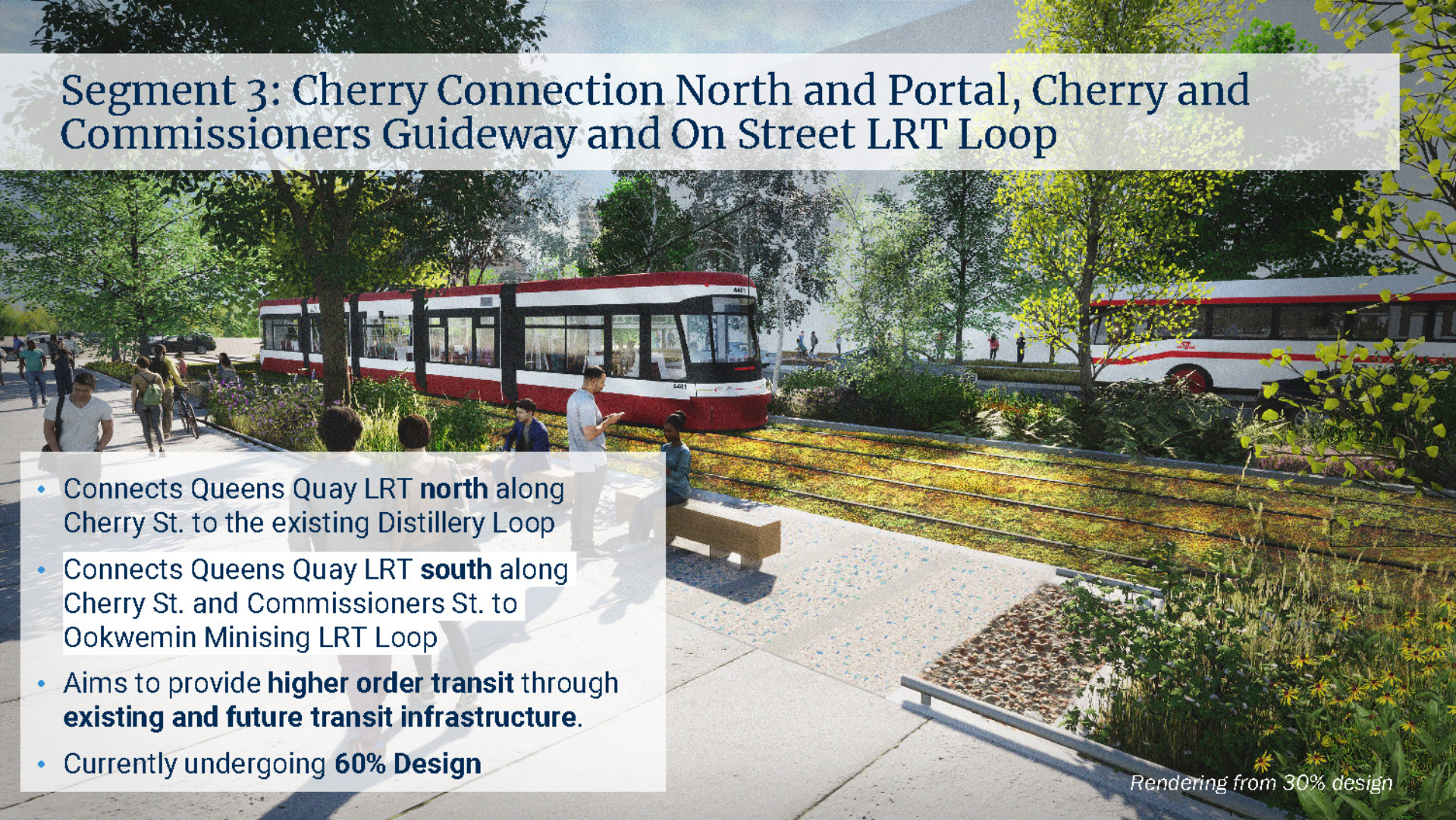
Diagram from 30% design

Segment 2: Queens Quay East Reconstruction and Extension

- Redesign of QQE to **include an LRT guideway**
- **Extends QQE** from Small St to Cherry St
- Enhances **Martin-Goodman Trail**
- Aims to **improve transit, pedestrian, and cyclist experience** and **delineations**
- Integrates **green infrastructure** and prioritizes **pedestrian experience** of streetscape
- Currently undergoing **60% Design**

Rendering from 30% design

Segment 3: Cherry Connection North and Portal, Cherry and Commissioners Guideway and On Street LRT Loop



- Connects Queens Quay LRT **north** along Cherry St. to the existing Distillery Loop
- Connects Queens Quay LRT **south** along Cherry St. and Commissioners St. to Ookwemin Minising LRT Loop
- Aims to provide **higher order transit** through **existing and future transit infrastructure**.
- Currently undergoing **60% Design**

Rendering from 30% design

Project Team

- Led by the City of Toronto (Transit Expansion), in partnership with Waterfront Toronto and the Toronto Transit Commission (TTC)
- Waterfront Toronto is managing the project design for Yonge Slip enabling work, the transitway from Bay Street to the Ookwemin Minising LRT Loop, and the Cherry St North connection.
- TTC is managing the project design for the Underground Union Station Connection and Portals
- The TTC is the planned operator of the future WELRT service

Existing LRT and Public Realm along Queens Quay West

Waterfront East LRT - Segment 3

Adjacent Projects and Context

Location & Context

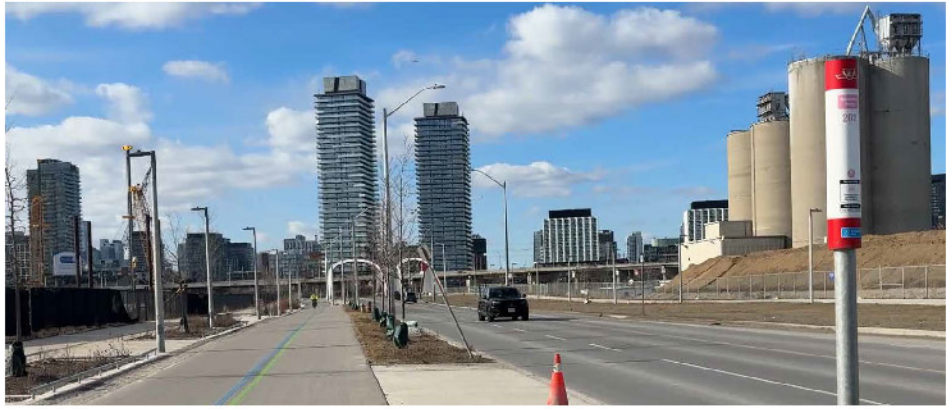
The Segment 3 works are surrounded by various communities, and multiple transit and development projects. Key coordination is essential to advance 60% design.

- Cherry North:
  - Gardiner Re-Alignment Project
  - Metrolinx Projects (USRC)
  - Distillery Loop
- Cherry South and Commissioners Guideway, and LRT Loop:
  - PLFP (existing conditions)
  - Ookwemin Minising development (future neighborhood) and Biidassige Park

Existing Condition – Distillery Loop

Existing Condition – Cherry North Existing Portal

Existing Condition – PLFP (Cherry South)



Existing Condition –PLFP (Commissioners)

Waterfront East LRT - Segment 3

Design Review Panel Process

Previous DRP Consensus Feedback – October 2021

- The project is an excellent example of **leading with landscape**.
- It is an important "hinge" that **connects the city to the waterfront**; WT should ensure the design signifies to visitors that you are **entering the waterfront area**.
- The project is demonstrative of the **importance of transit from the city to the waterfront** - from **urban to nature** - and this should be **emphasized as a priority** for the future.
- The integration of green infrastructure with transit should be studied beyond this corridor, possibly down Cherry St. through Commissioners St. – the city becomes well connected with the waterfront via green transit corridors.
- Ensure the pedestrian crossing under the railway bridge will have an opportunity for improvement - important to address this segment of the public realm now
- Supported the **stormwater capture** strategies.
- Encouraged WT to consider **sustainable material alternatives** to **reduce overall project emissions**.

Goals for 60% Design

- **Lead with landscape**
- Create a **cohesive streetscape across** adjacent existing and future projects (QQE Extension, PLFP Streetscape and Parks, Ookwemin Minising, LSBE)
- Enhance **pedestrian experience**
- Prioritize the connection between **urban and nature;** highlight the **presence of the waterfront**
- Integrate **green infrastructure**
- Consider **sustainable material alternatives** to **reduce overall project emissions.**

Work to Date – Project Schedule

PARTNER PROCUREMENT

STAGE 1 REVIEW: ISSUES IDENTIFICATION — *June 2021*

STAGE 2 REVIEW: SCHEMATIC DESIGN — *October 2021*

Accessibility Advisory Committee - May 23, 2025

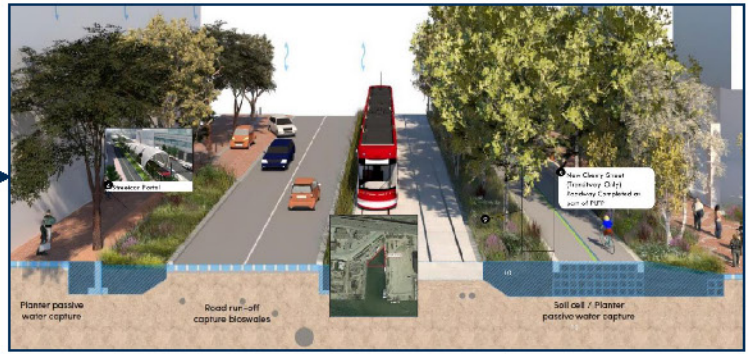
STAGE 3 REVIEW: DETAILED DESIGN

STAGE 3 REVIEW: DETAILED DESIGN*

STAGE 4 REVIEW: CONSTRUCTION DOCUMENTS*

AGENCIES SIGN-OFFS

October 2021 - DRP – 30% Design Cherry South rendering



May 2025 – Accessibility Advisory Committee - 60% Design Cherry + Commissioners St renderings

*This review will only be required if the project has changed significantly since the previous review, or the Panel, Waterfront Toronto, or City staff have significant outstanding concerns

Areas for Panel Consideration

- Do the proposed street designs achieve the right balance between our objectives for enhanced **ecological performance**, **transportation**, and **place-making**?
- Does the proposed streetscape approach successfully **stitch together** the various **adjacent neighborhoods** of today and those planned for the future?
- Do the changes to the **green infrastructure and planting strategy** align with the project's ecological performance goals?
- Does the project **integrate well with the street works completed** as part of PLFP (Cherry St, Commissioners St) and the greater waterfront context?

a waterfront for everyone

WATERFRONToronto

Waterfront East LRT: Cherry and Commissioners

WELRT 2B/2C: Waterfront DRP
2025.05.28

PUBLIC WORK

Stantec

Framing: How the Opportunity Shapes the Approach

DRP Stage 1: Issues Identification, 2021-06-23

Previous

The hinge between the Central Waterfront and the Don River Valley; the gateway between the City and the Port Lands.

Former Lake Iroquois Shoreline

Garrisons Creek

Queens Quay

Cherry St

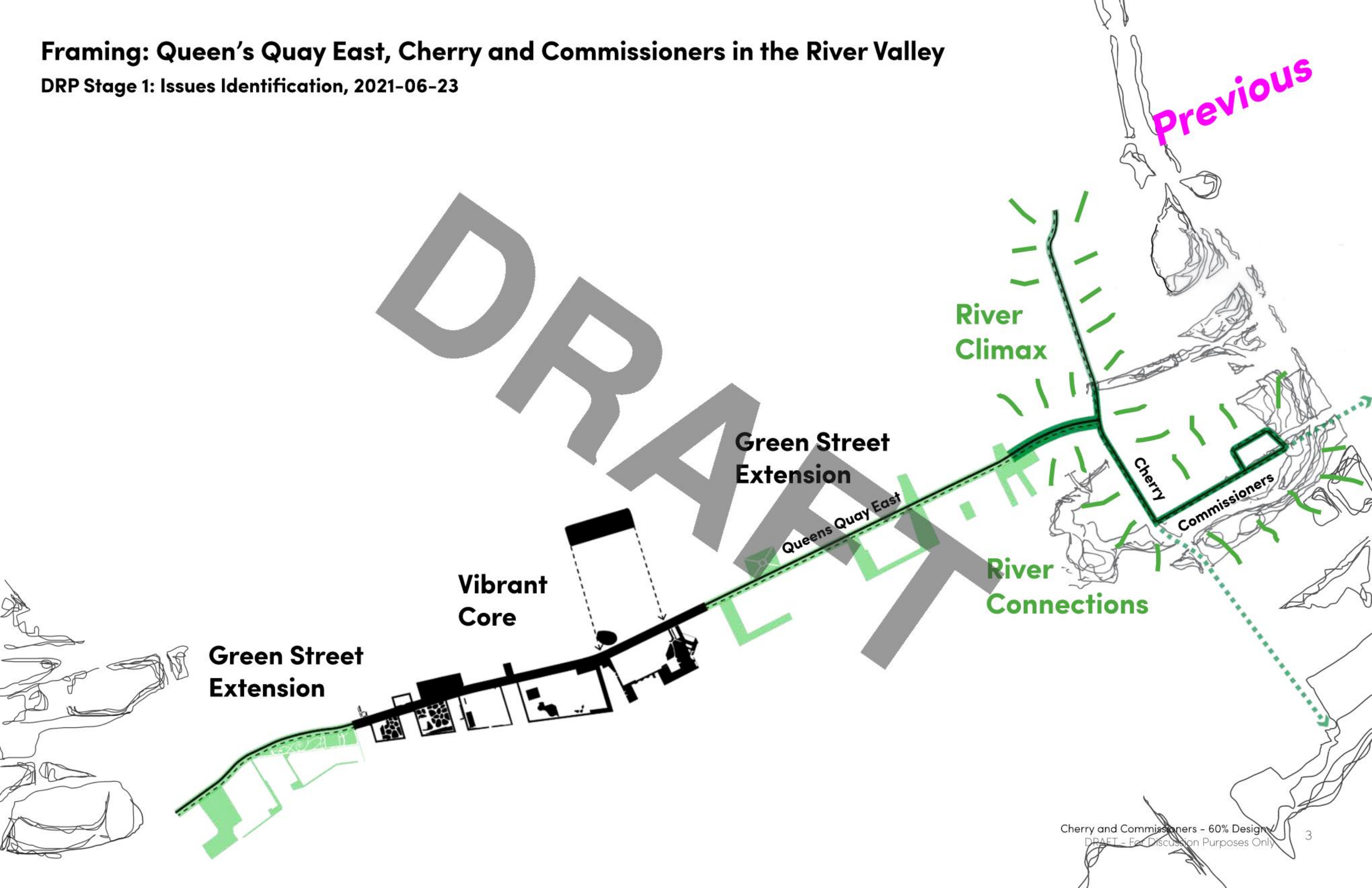
Don River Valley

Toronto Islands

Image from TOcore Parks and Public Realm Plan

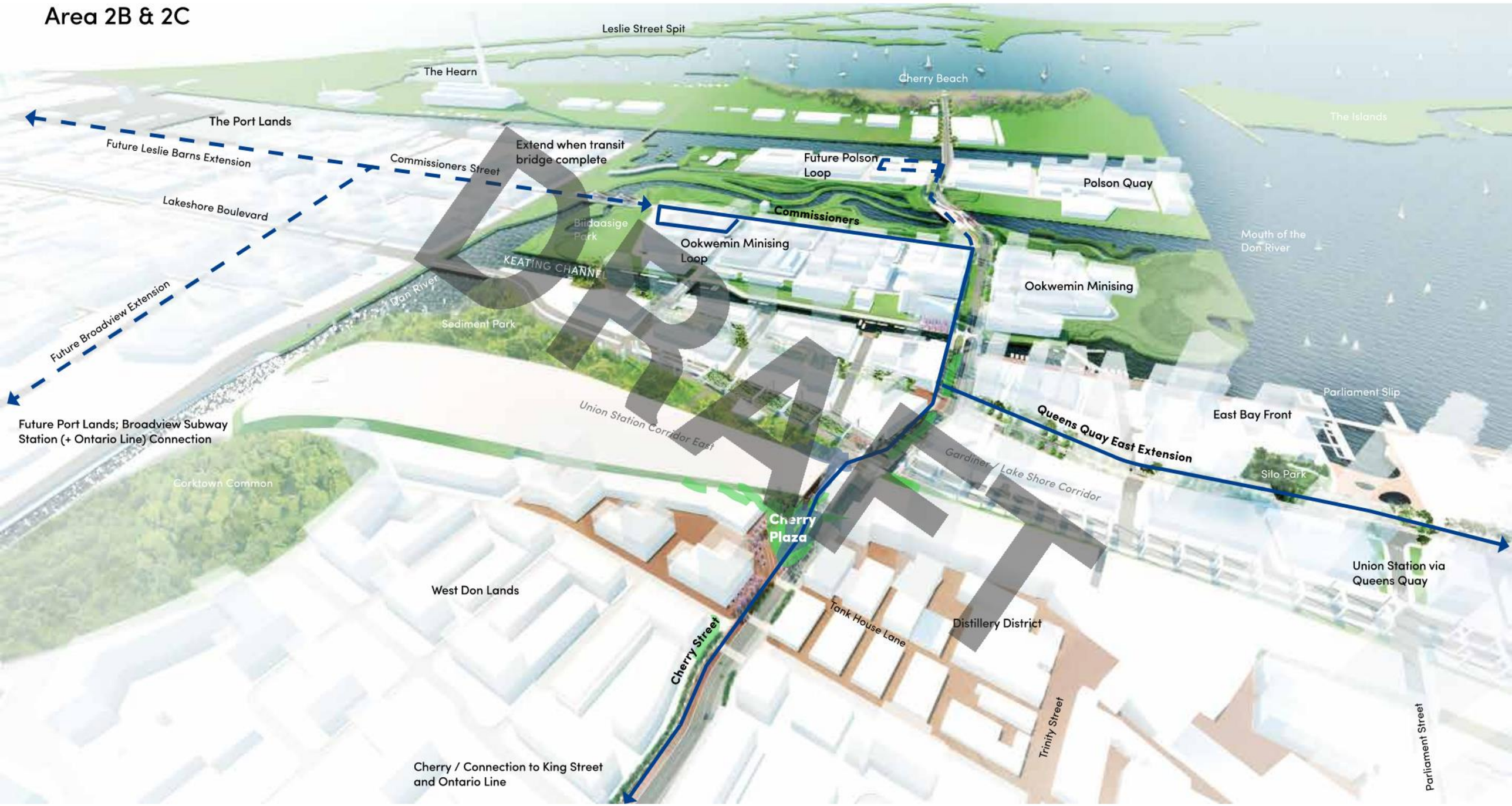
Framing: Queen's Quay East, Cherry and Commissioners in the River Valley

DRP Stage 1: Issues Identification, 2021-06-23



Waterfront East LRT Project Overview: Extending Transit to the Port Lands

Area 2B & 2C



Key Project Components

Cherry North of Rail Berm:
- Extended transit connection from the East Waterfront to the Port Lands
- Enhanced connectivity for pedestrians and cyclists south through the existing rail berm
- Reinstatement of redundant Cherry Transit Loop as a floodable plaza

Cherry South and Commissioners:
- Addition of transit to recently completed Cherry and Commissioners streetscapes
- Public realm improvements associated with transit implementation

Cherry North

Existing District Circulation

One-Way Bike Lane

Distillery Loop

Under Construction

Existing Cherry Street Tower

Existing Underpass

Proposed District Circulation

- Transit Extension South
- More / Wider Sidewalks
- Raised dedicated two-way bike lane
- New pedestrian circulation

One-Way Bike Lane

Raised Two-Way Bike Lane

Existing Underpass

New Portal

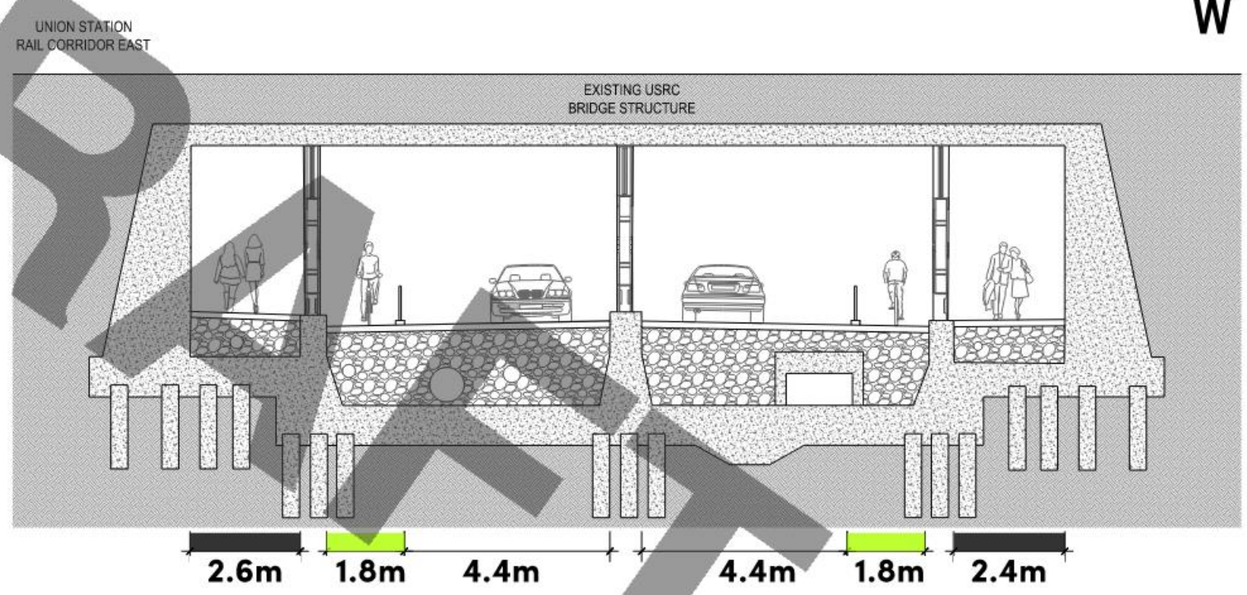
Two-Way Bike Lane

Existing Portal Configuration

Existing Underpass

E

W



Proposed Portal

New Portal

Existing Underpass
Optimized

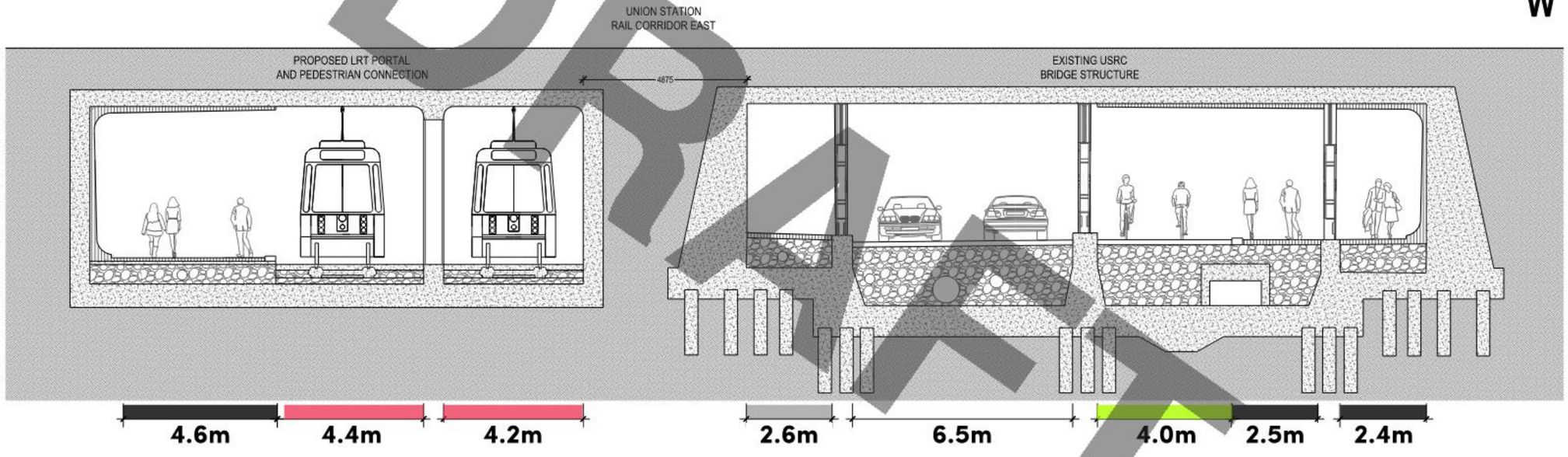
Pedestrians and LRT

Vehicles

Cycling and Pedestrians

E

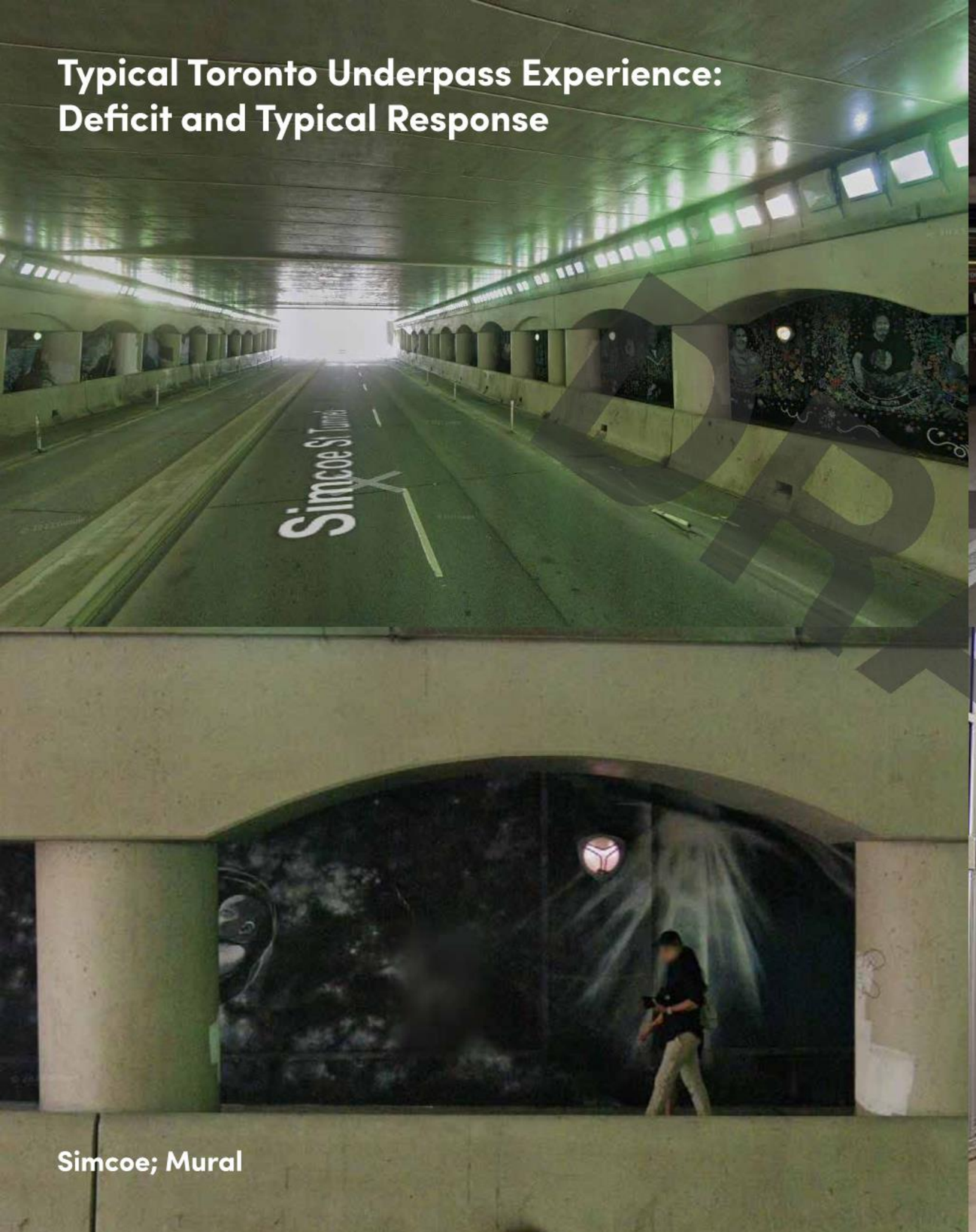
W



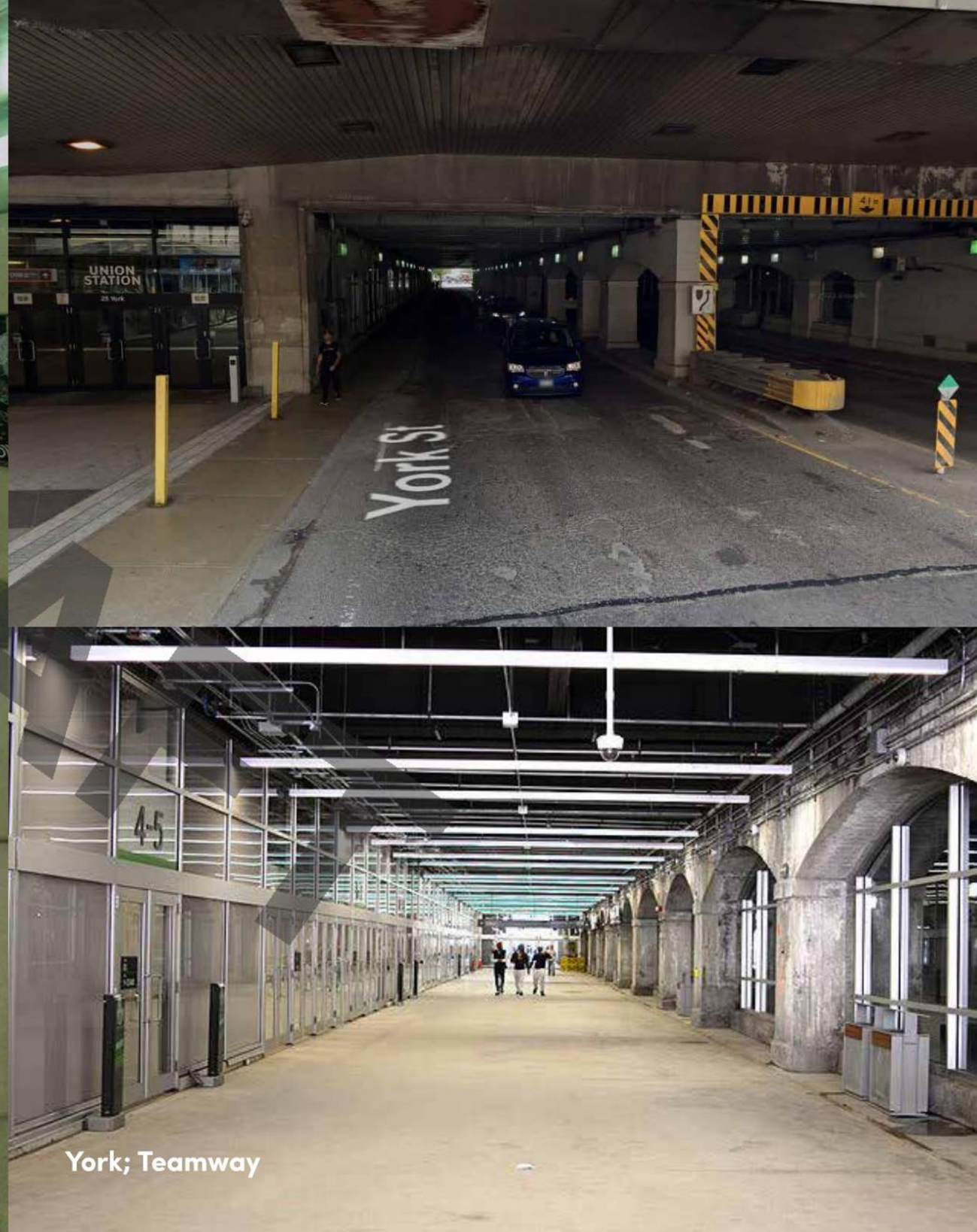
East Side Passage

West Side Passage

Typical Toronto Underpass Experience: Deficit and Typical Response



Simcoe; Mural



York; Teamway

Existing Cherry Street: Underpass Challenges

Acoustics

Safety

Spacial Quality / Flow

Light

Warmth

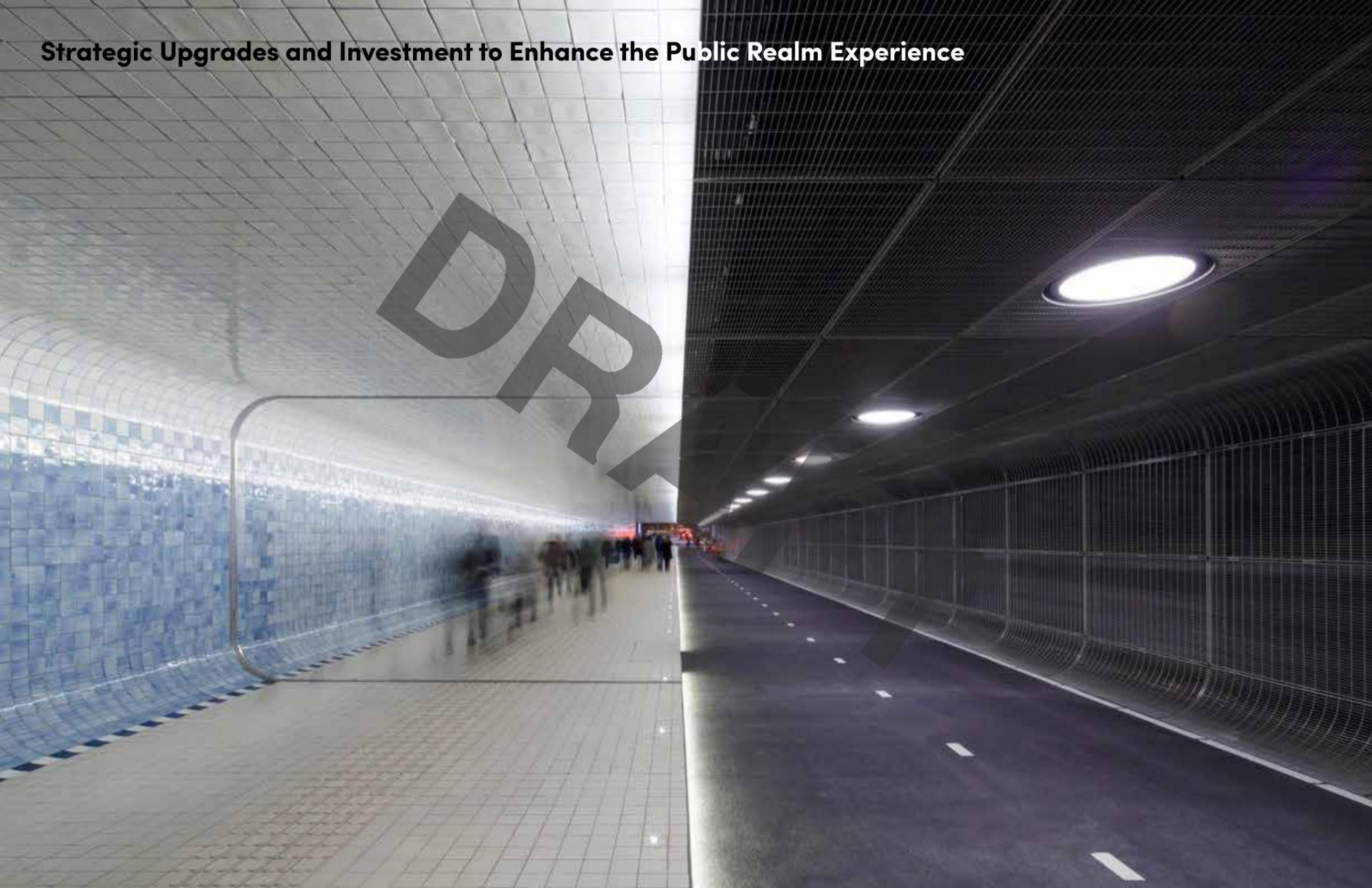
Acoustics, Feel and Warmth of Wood

Aging: the Life of Wood

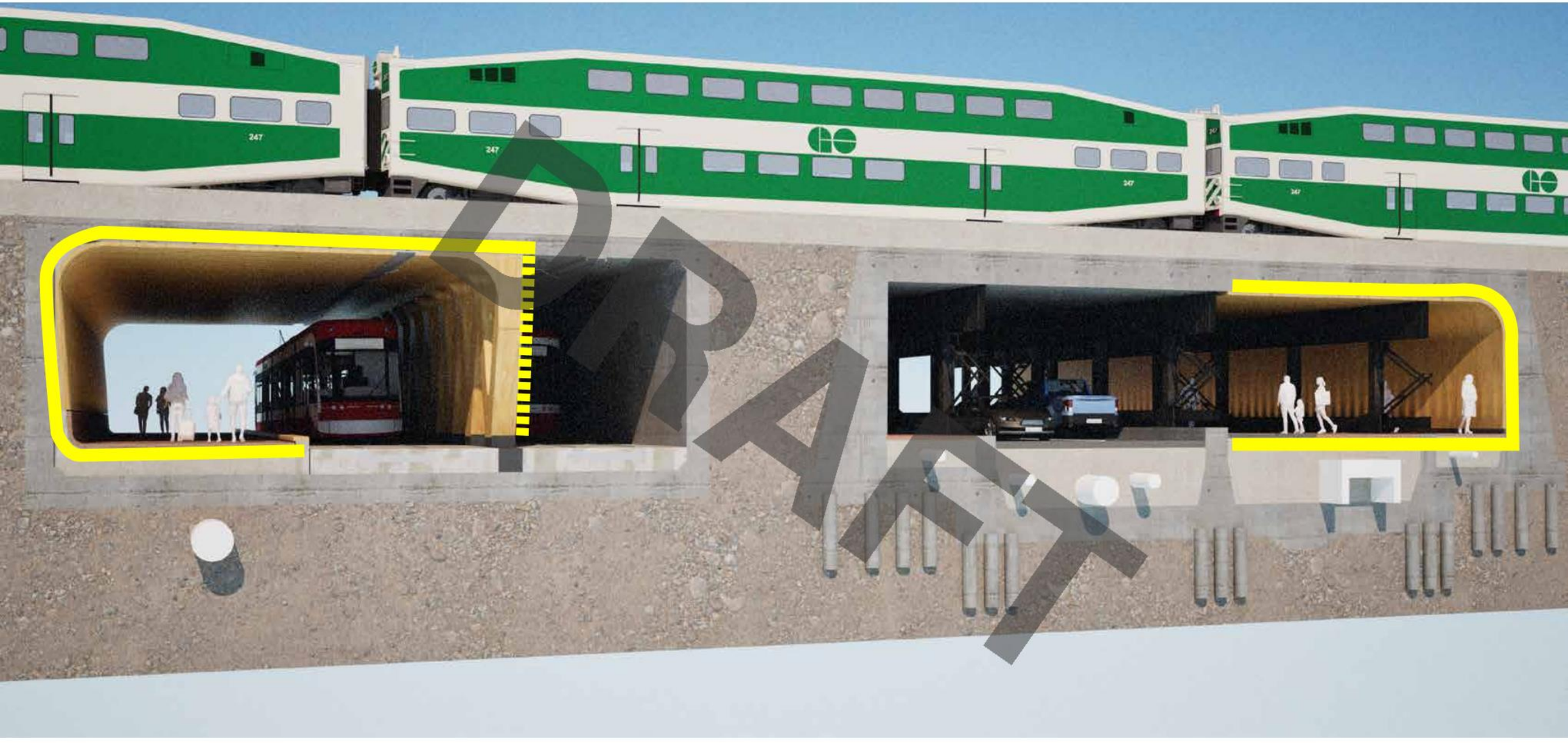
Toronto Waterfront Rail Era, Wood Trestle

1929, Rail trestle overpass near Cherry, being backfilled to form the now familiar rail berm

Strategic Upgrades and Investment to Enhance the Public Realm Experience



Strategic Upgrades and Investment to Enhance the Public Realm Experience



Primary East Side Passage

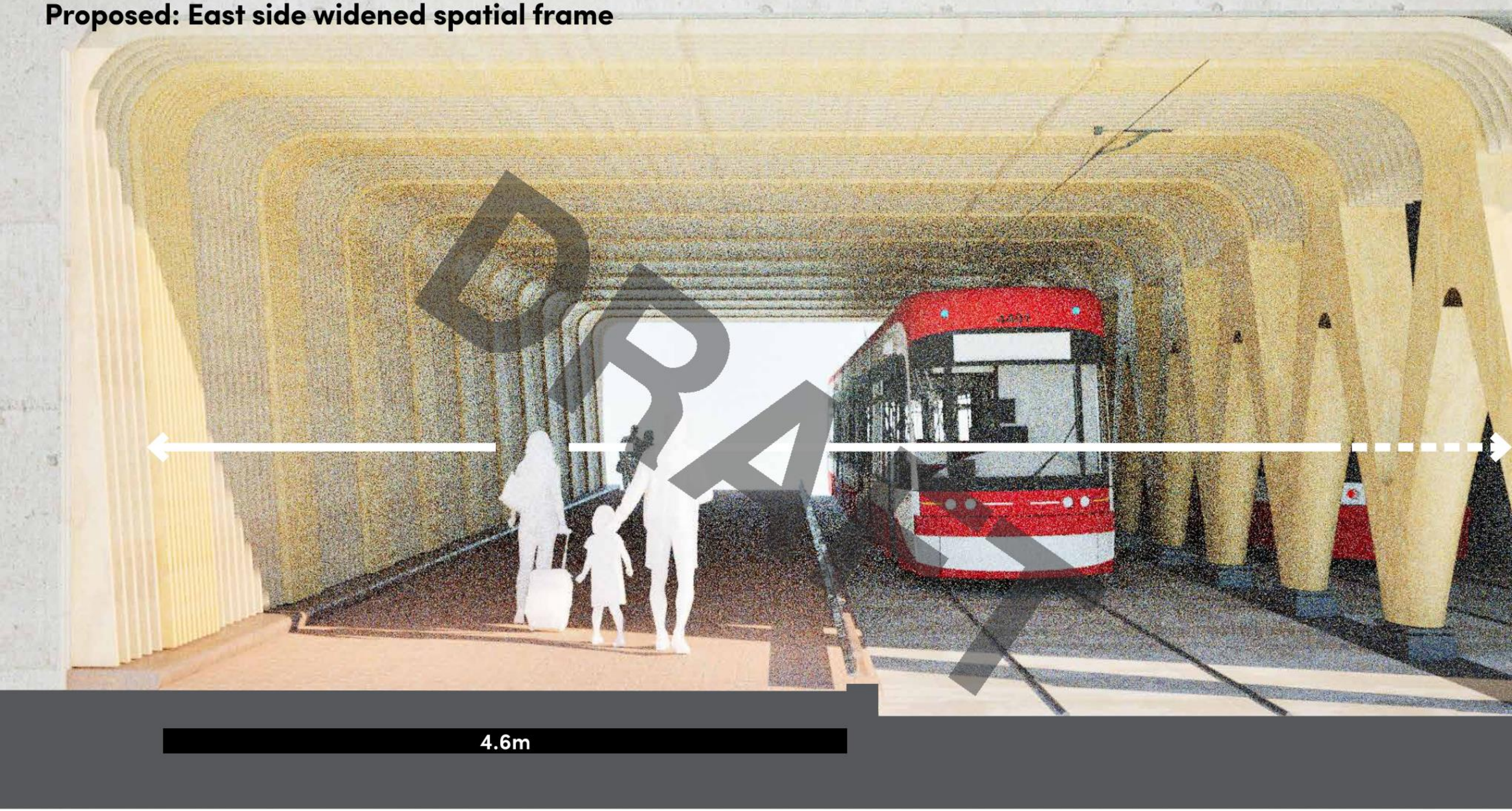
Primary West Side Passage

Existing: West Side

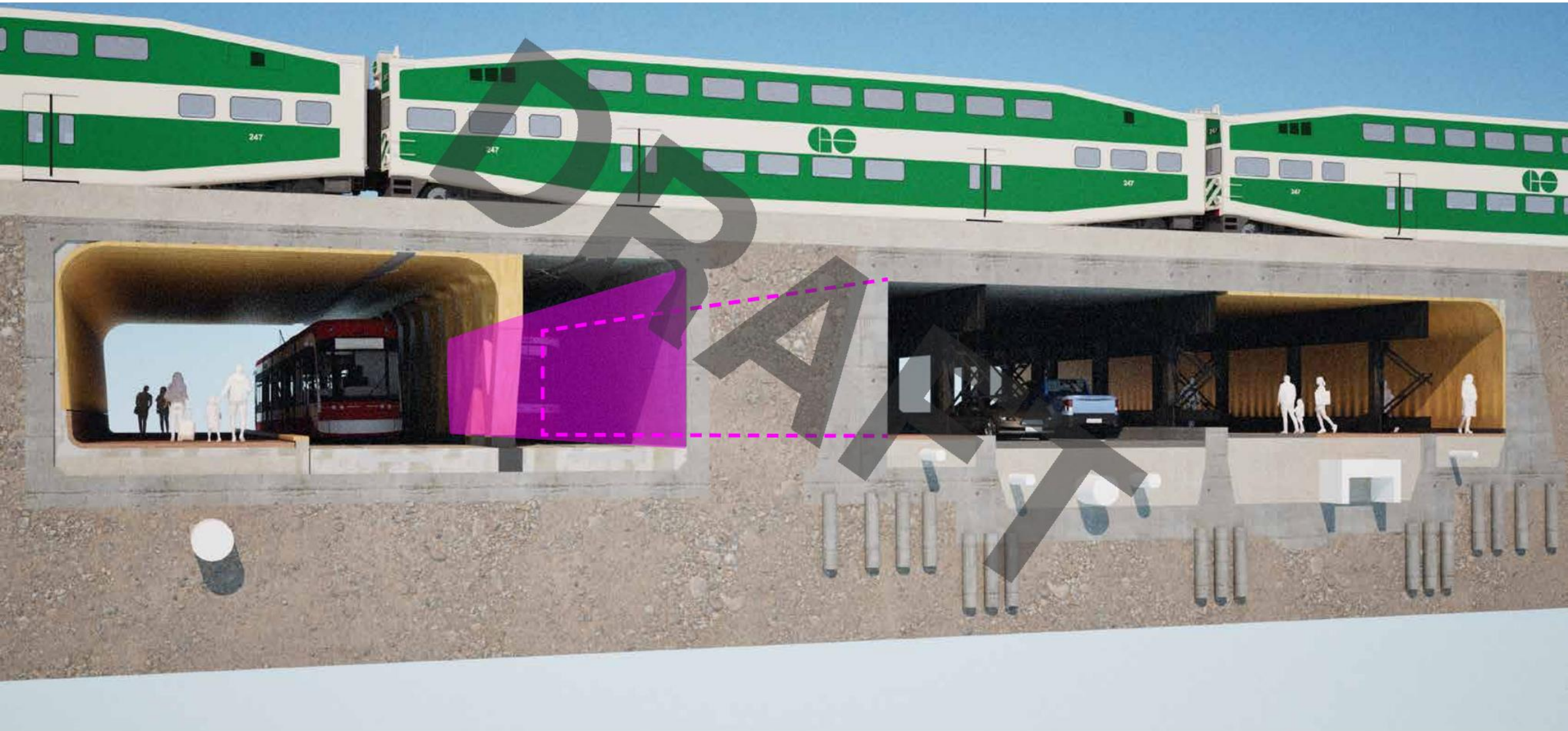
Proposed: West Side

Proposed: East side generous pedestrian connection

Proposed: East side widened spatial frame



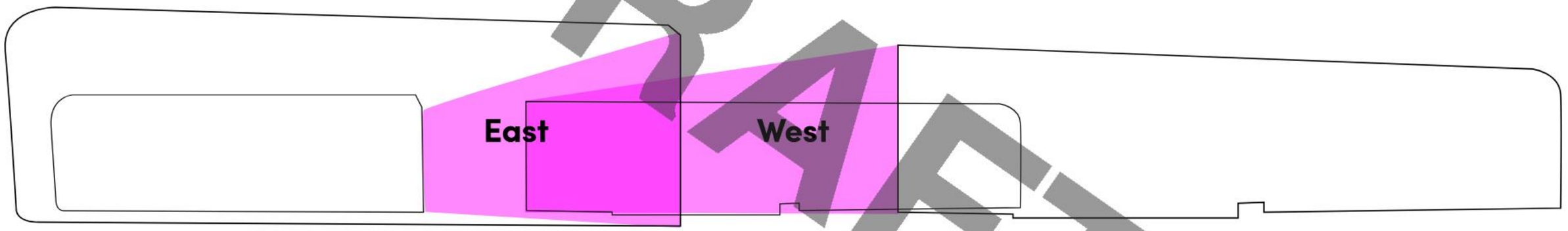
Two Portals; Two Stories



Two Portals; Two Stories; Two Artists Briefs

East Mural: Pre-Civic Evolution of Tkaronto

Marsh Gathering Place → Marsh Settlement → Dredging the Marsh → Rail Era Trestle → Filling the Trestle



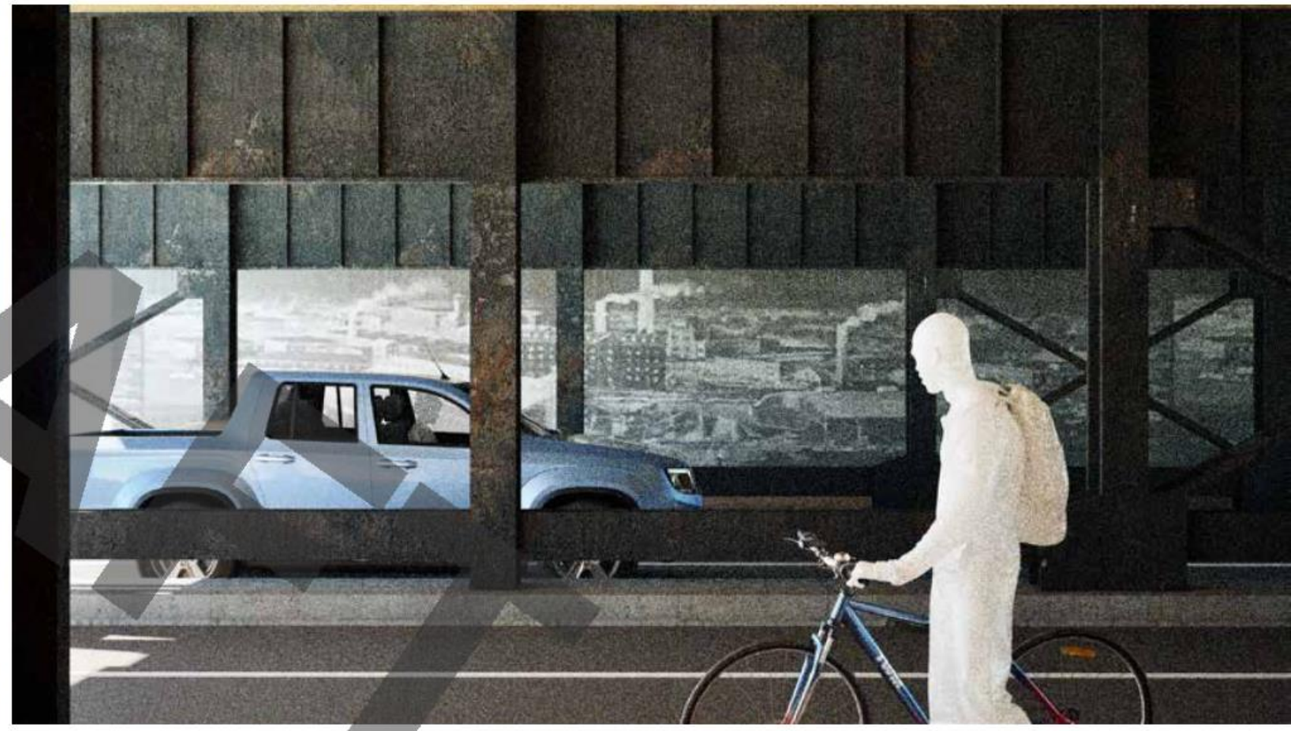
West Mural: Civic Evolution of Toronto

Rebirth of the River ← Port Lands Industry ← High Rise City ← Channelizing the Don ← Muddy York

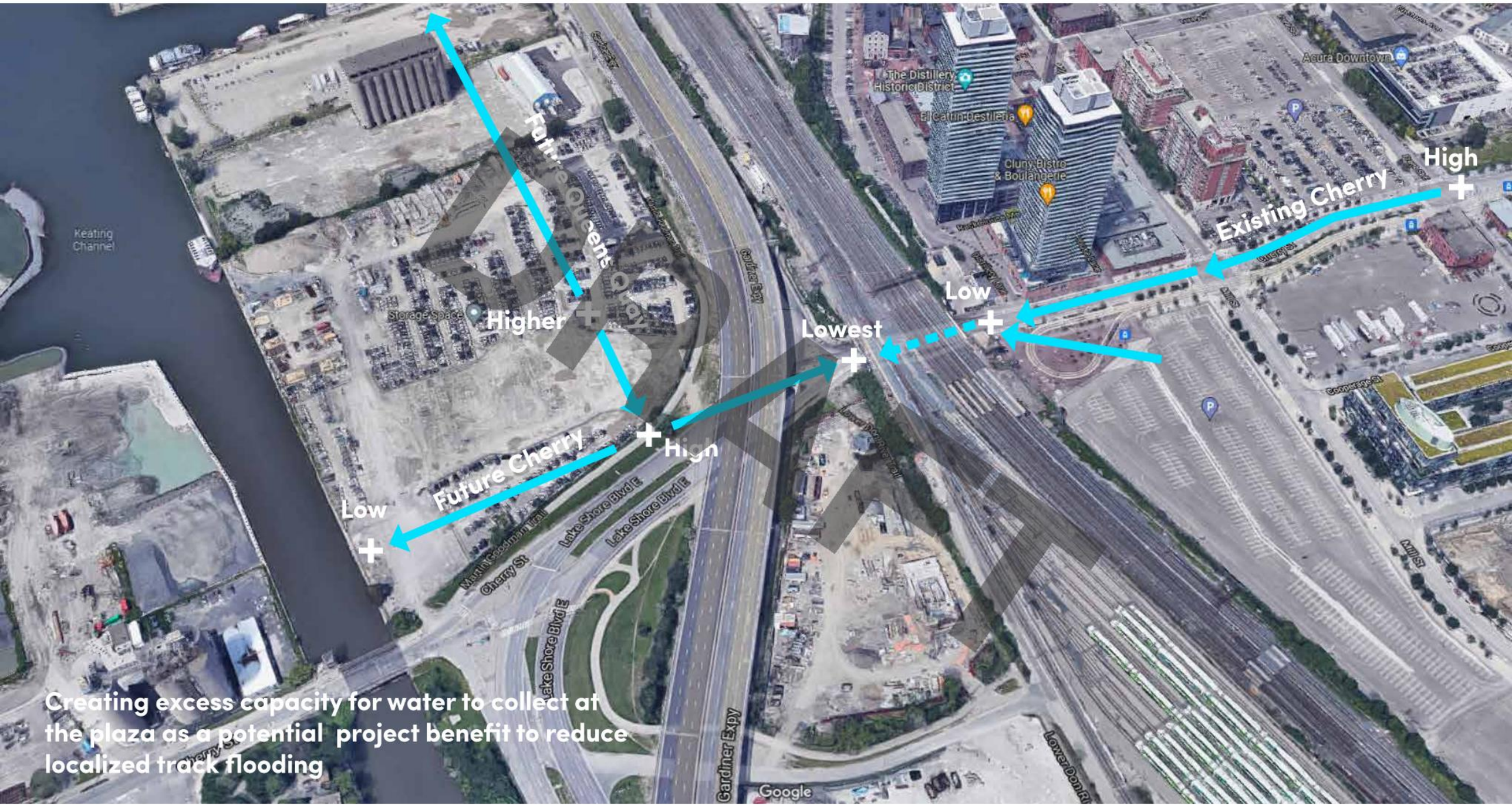
East: River

West: City

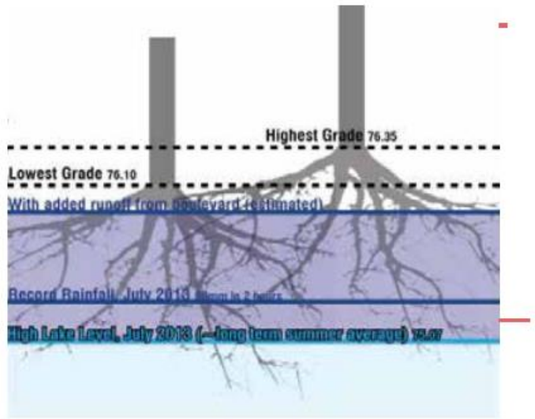
Two Portals; Two Stories; Two Artists Briefs



Project Implications of Topography / Overland Flow



High groundwater level can create anaerobic soil conditions that affect tree health



100% of Trees Drowned

Existing Condition

Overland Flow Can Cause Localized Flooding at Intersection

West Don Lands (WDL) Drainage Area (32 ha)

10.6 ha with **no** controls. 5-year flows will be conveyed in pipe with flows greater than the 5-year being conveyed overland down Cherry Street

N

OVERLAND FLOW

CHERRY ST

RAIL BERM

+76.50

major system inlet

to lake

LAKESHORE BLVD

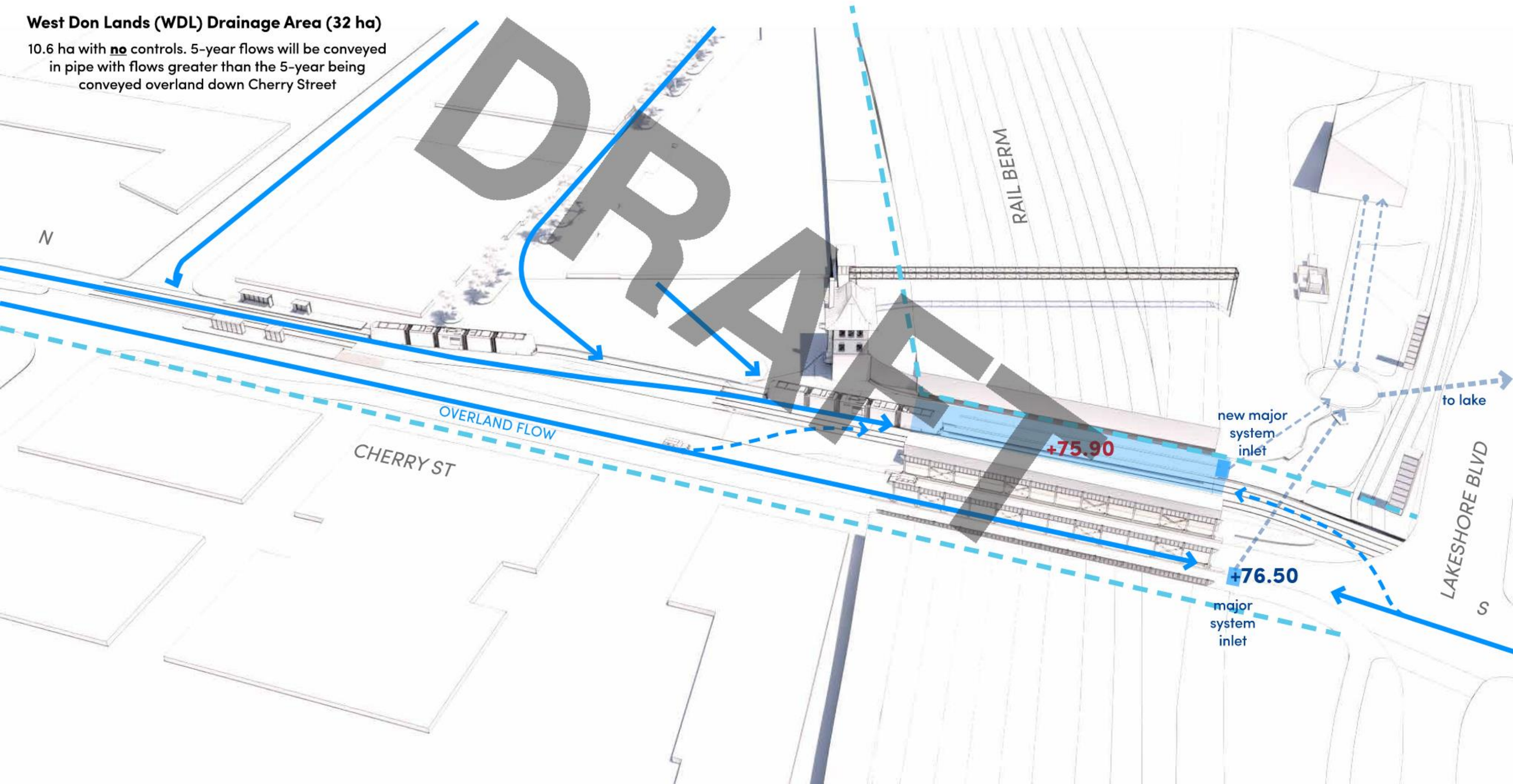
S

New LRT and Pedestrian Portal

Risk of Localized Flooding at New Low Point (75.90m)

West Don Lands (WDL) Drainage Area (32 ha)

10.6 ha with **no** controls. 5-year flows will be conveyed in pipe with flows greater than the 5-year being conveyed overland down Cherry Street

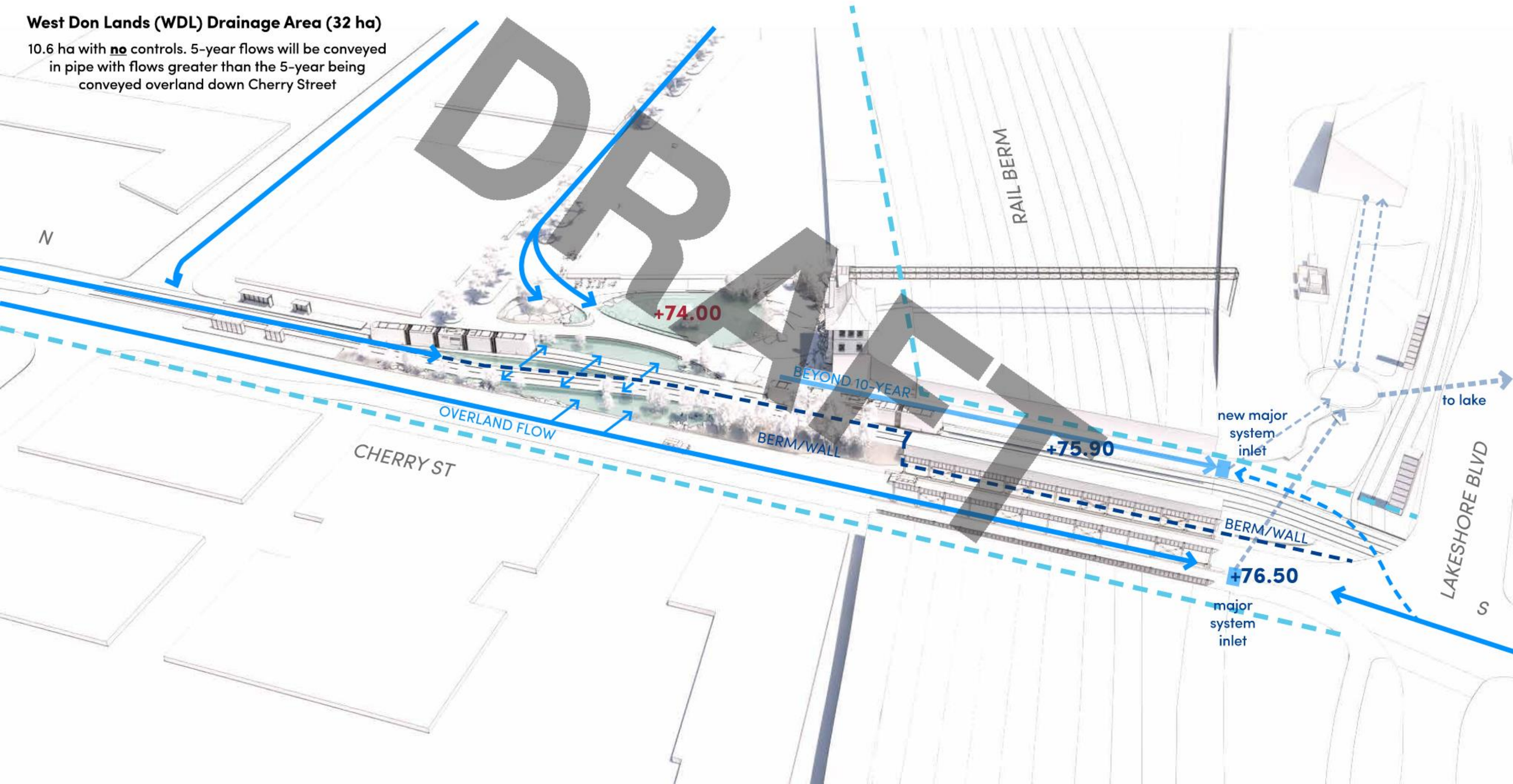


Reducing Periodic Flooding of New LRT Portal

Additional Capacity to Buffer Against Localized Flooding

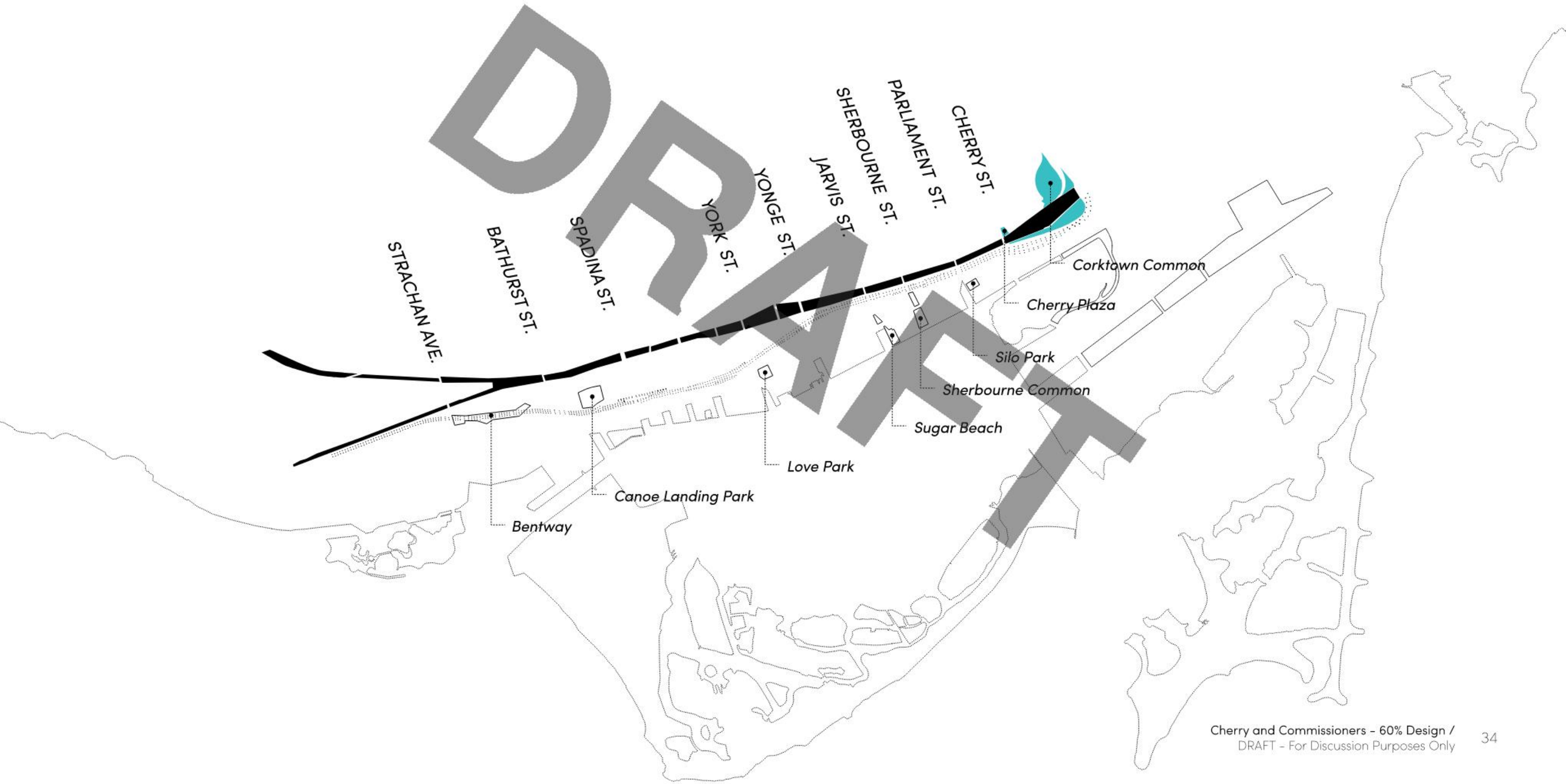
West Don Lands (WDL) Drainage Area (32 ha)

10.6 ha with **no** controls. 5-year flows will be conveyed in pipe with flows greater than the 5-year being conveyed overland down Cherry Street



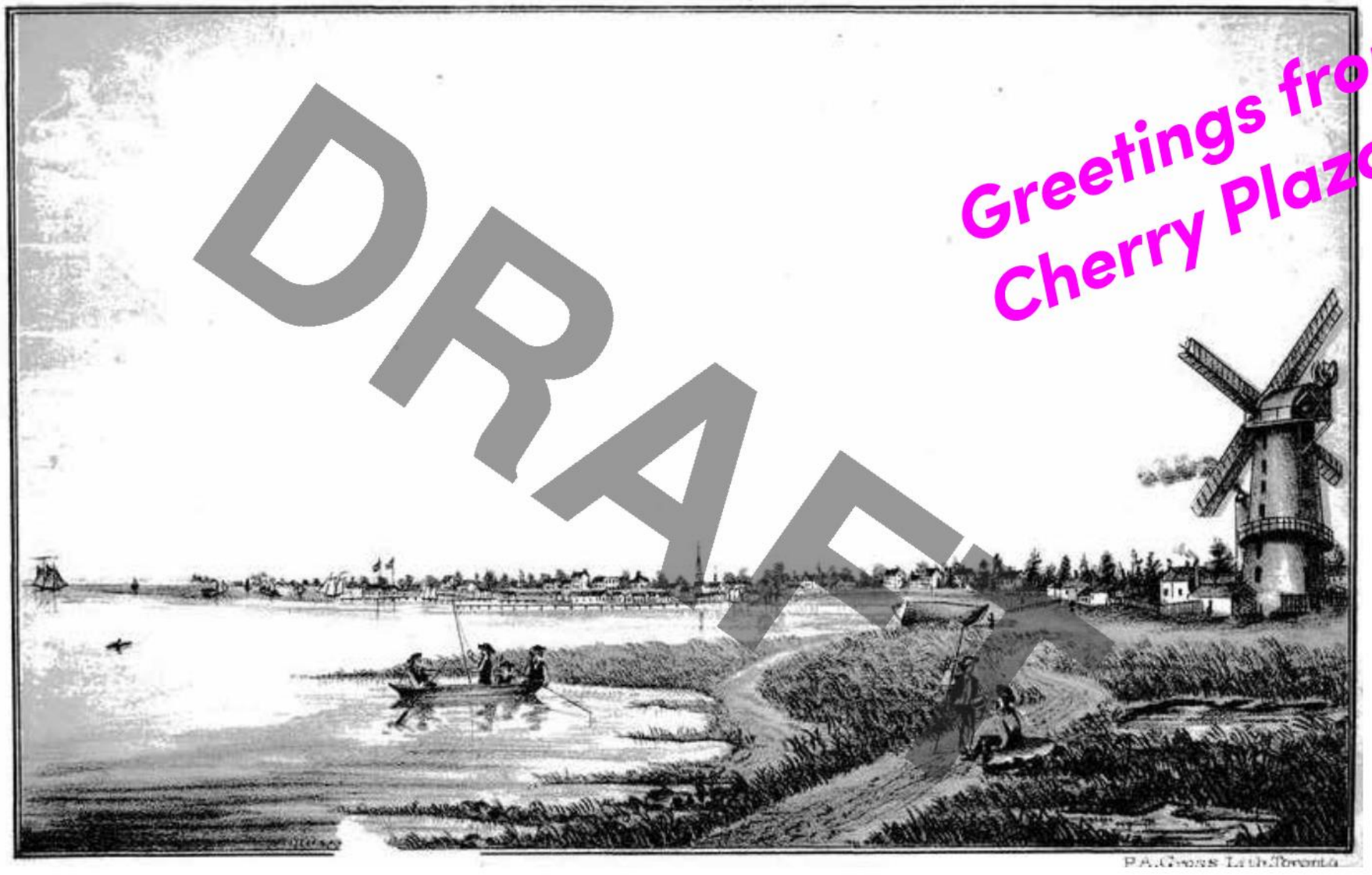
Contextual Framing: A performative landscape as a precursor to the renaturalized river districts

Performative Gateway Landscape to the Port Lands and the River Valley

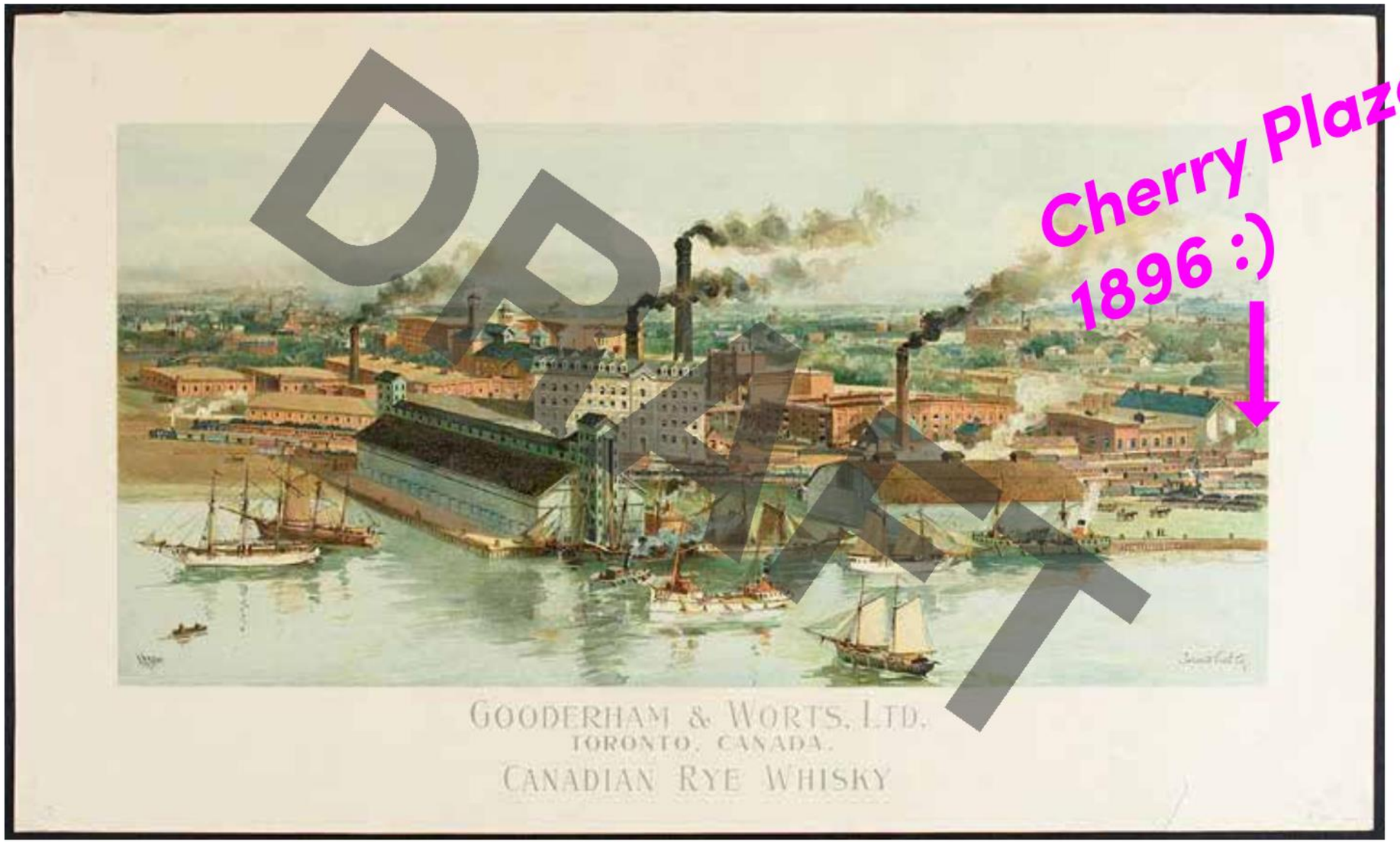


Plan of York Harbour, by A. Aitken, 1793

**Toronto's Migrating Shoreline –
creeks, ravines, and shorelines, circa 1790**

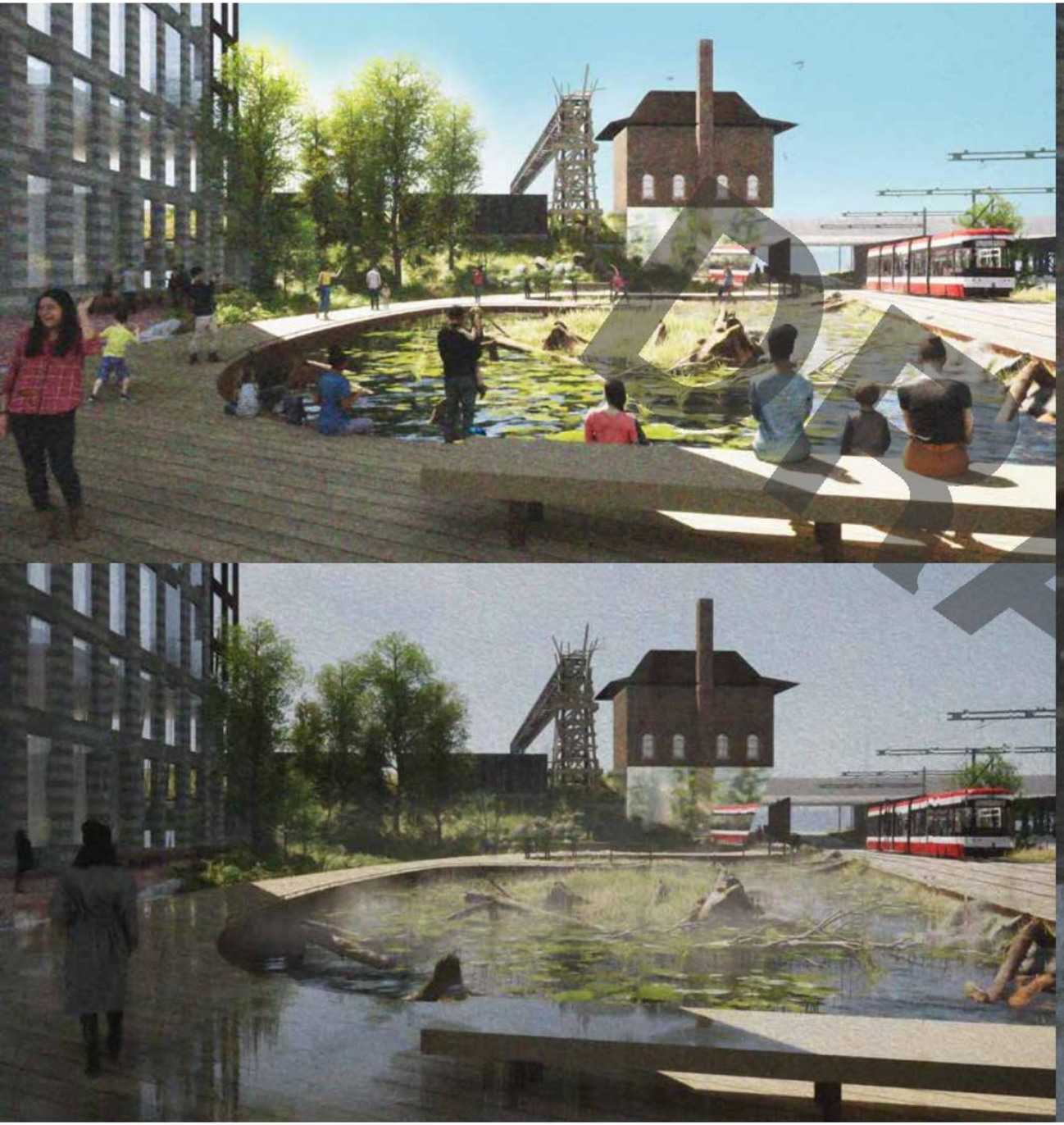


Distillery Mill, 1834

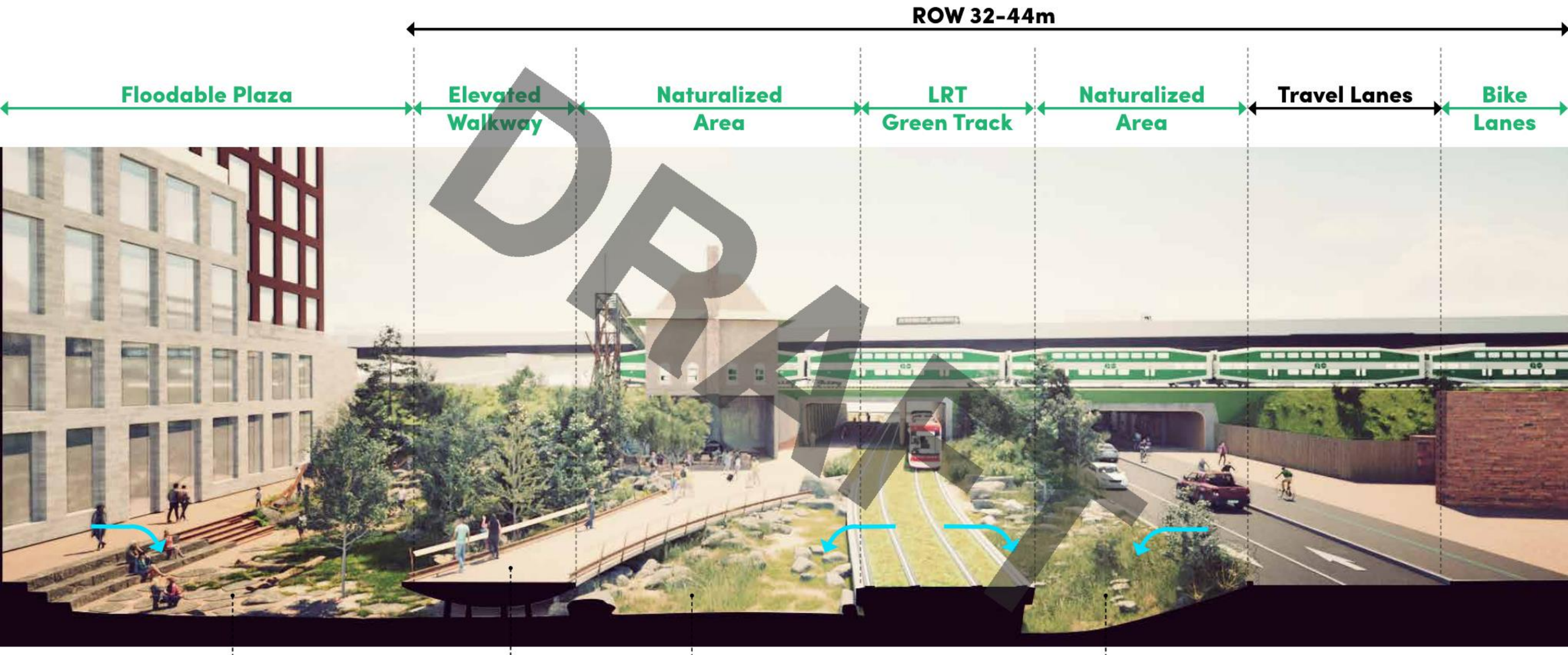


Gooderham & Worts Ltd, 1896

30% Design: Seasonal Fluctuating Water Levels



60% Design: Floodable Plaza Creates Additional Capacity to Buffer Against Localized Flooding

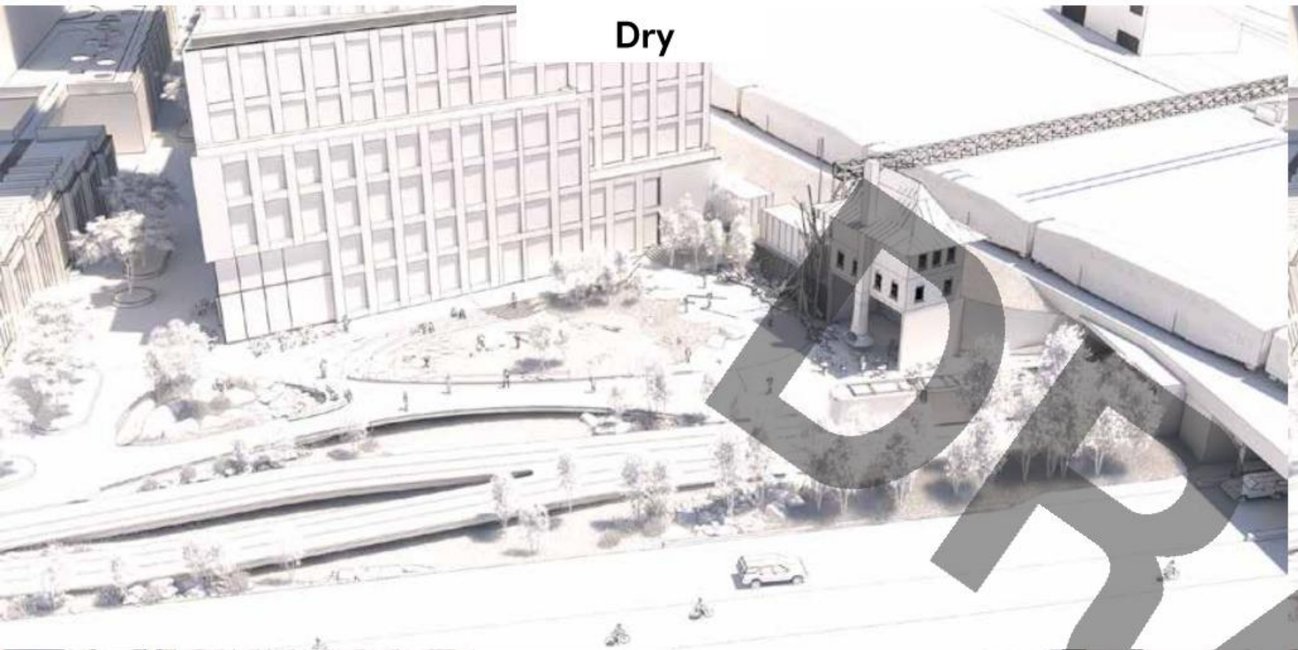


Performance Target: 10-Year Storm (1,036m³)

Total Precipitation **Total Volume**

Storm Event	P Total (mm)	RV > 5-year (mm)	Major System Runoff Volume (m³) Events > 5-year from 10.6ha	Runoff Volume (m³) from Distillery Loop Catchment Area of 0.32ha	TOTAL VOLUME (m³) TO MARSH / PLAZA
2-year	29.57	-	-	95	95
5-year	42.80	0.0	0	137	137
10-year	51.05	8.3	873	163	1036
25-year	59.63	16.8	1781	191	1971
50-year	70.57	27.8	2938	226	3164
100-year	78.76	36.0	3803	252	4055

Floodable Landscape: Capacity Modelling



Floodable Landscape: Capacity Modelling

0 250 500 750 1000 1250 1500 m^3

Dry

Floodable Landscape: Capacity Modelling

0 250 500 750 1000 1250 1500 m^3

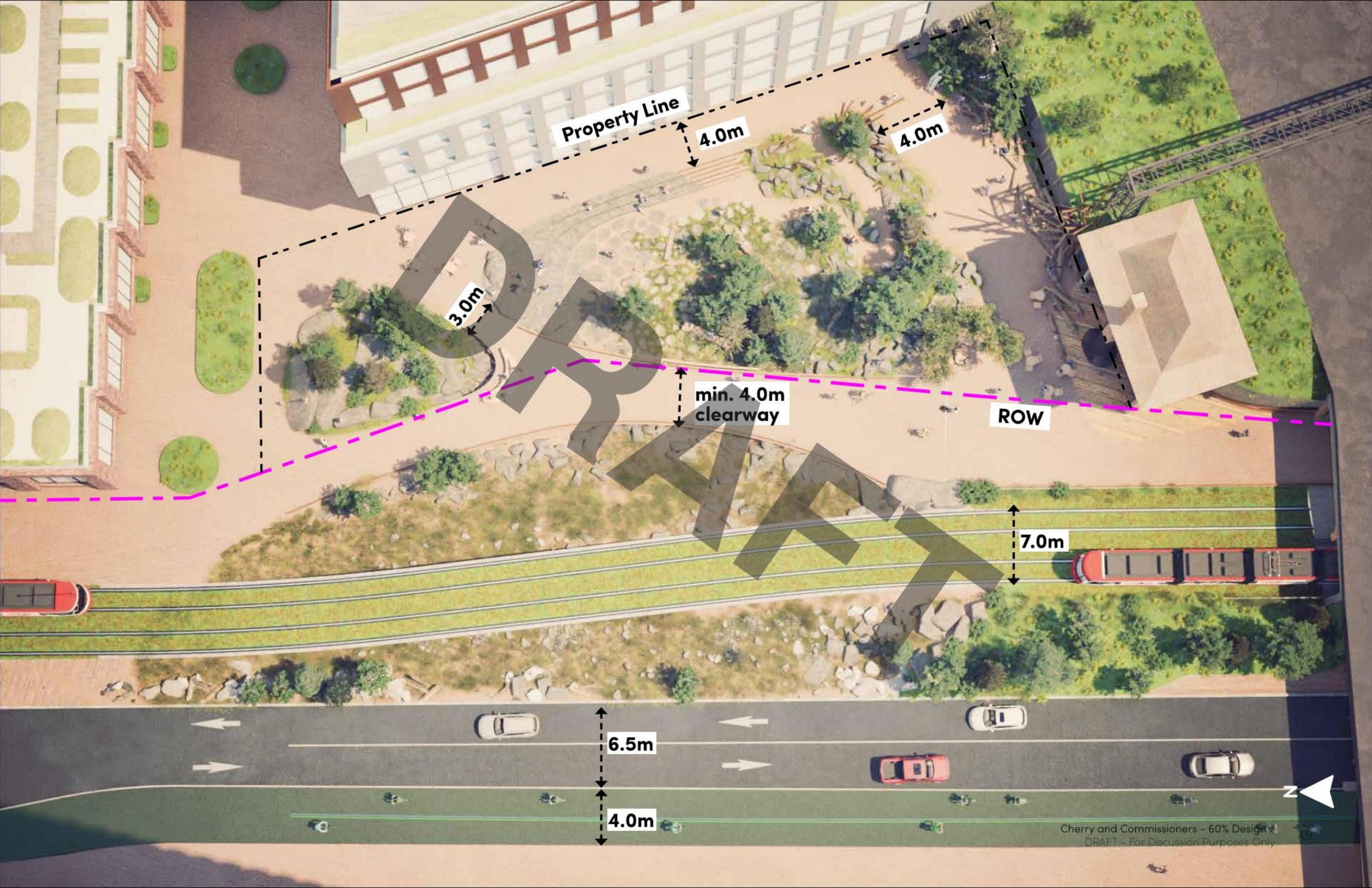
5 Year Storm

Floodable Landscape: Capacity Modelling

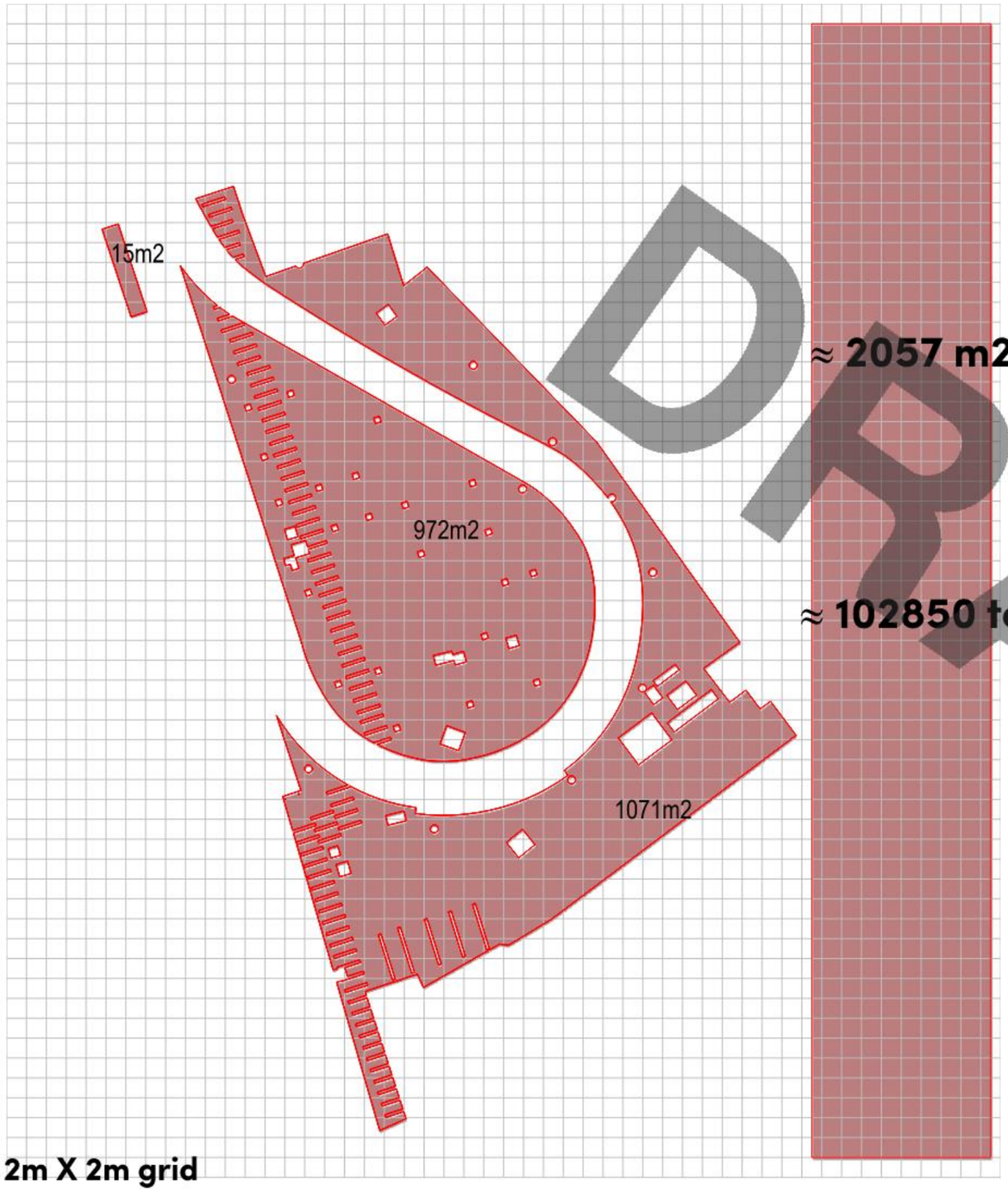
0 250 500 750 1000 1250 1500 m^3

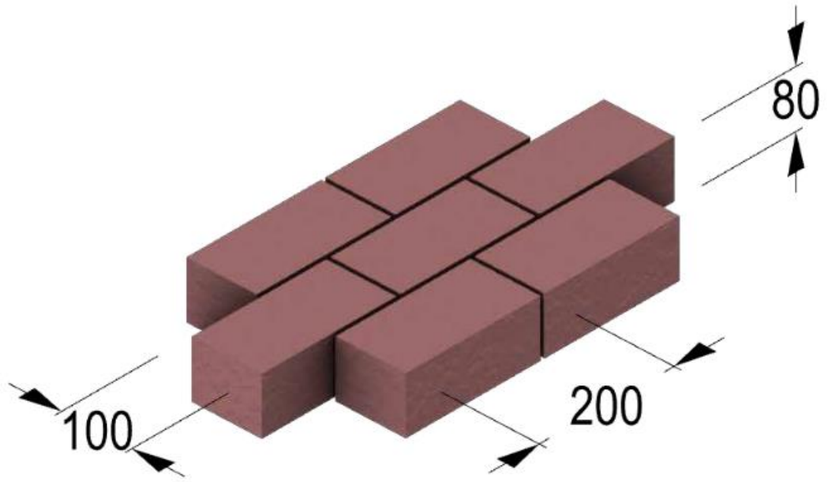
10 Year Storm


DRAFT

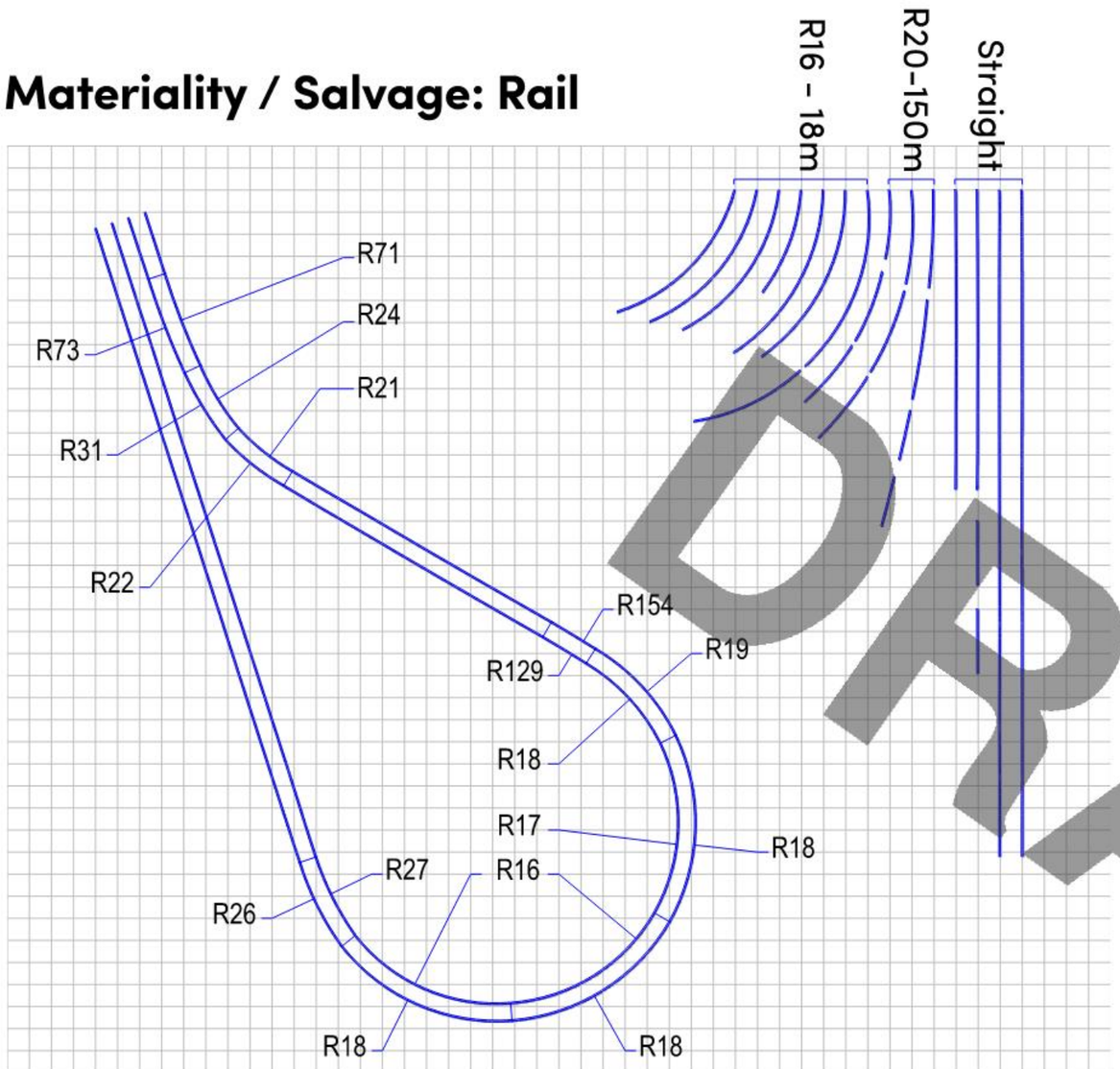

Property Line
4.0m
4.0m
3.0m
min. 4.0m
clearway
ROW
7.0m
6.5m
4.0m
DRAFT
N
Cherry and Commissioners - 60% Design
DRAFT - For Discussion Purposes Only

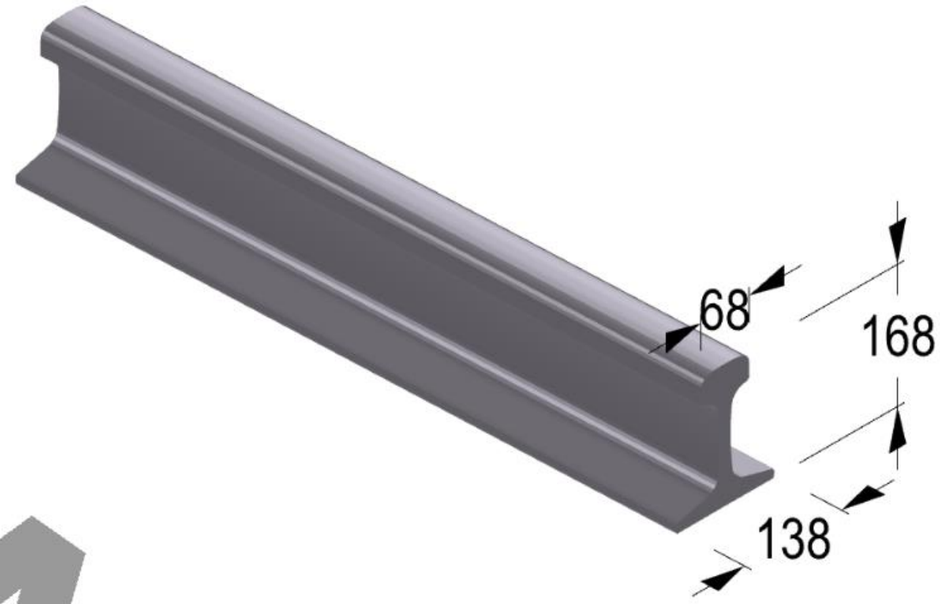
Materiality / Salvage: Brick





Materiality / Salvage: Rail





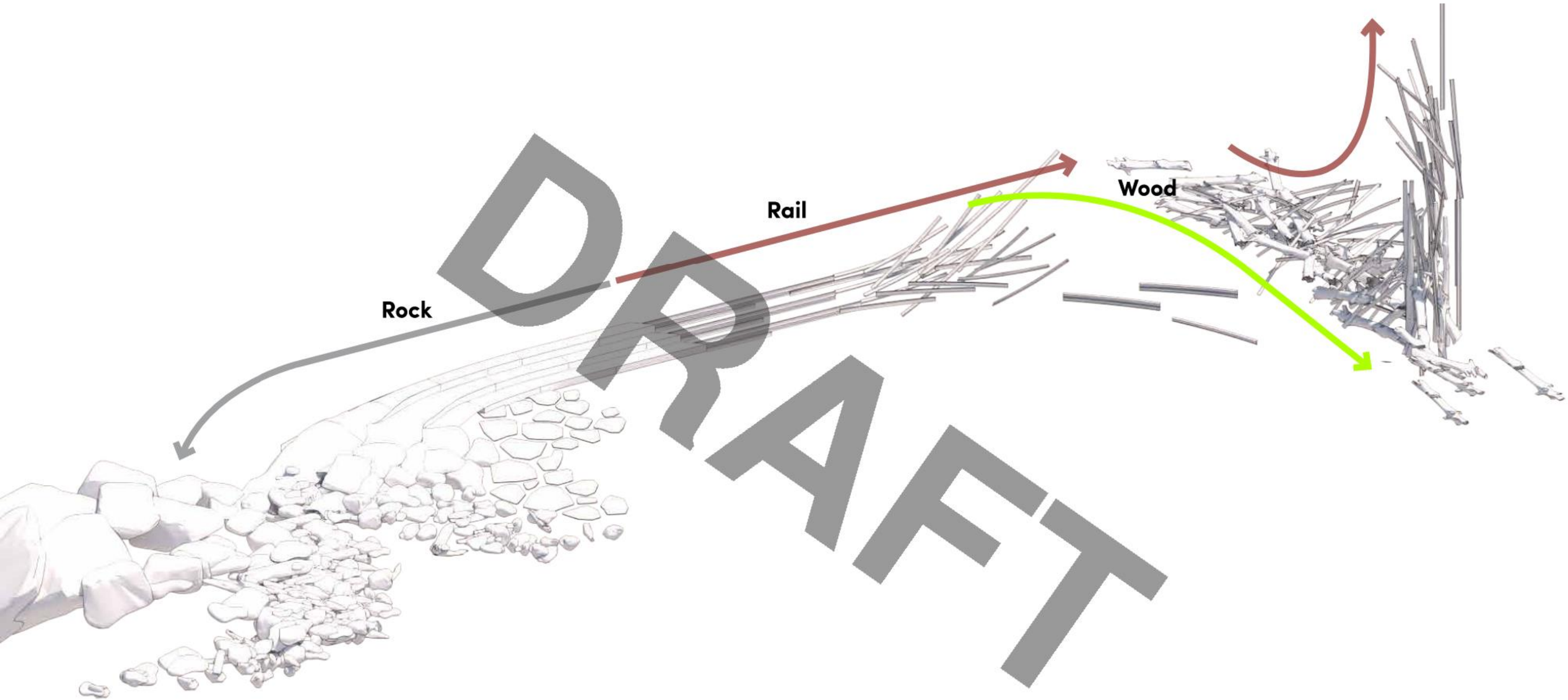
2m X 2m grid

Queen's Quay East, Toronto

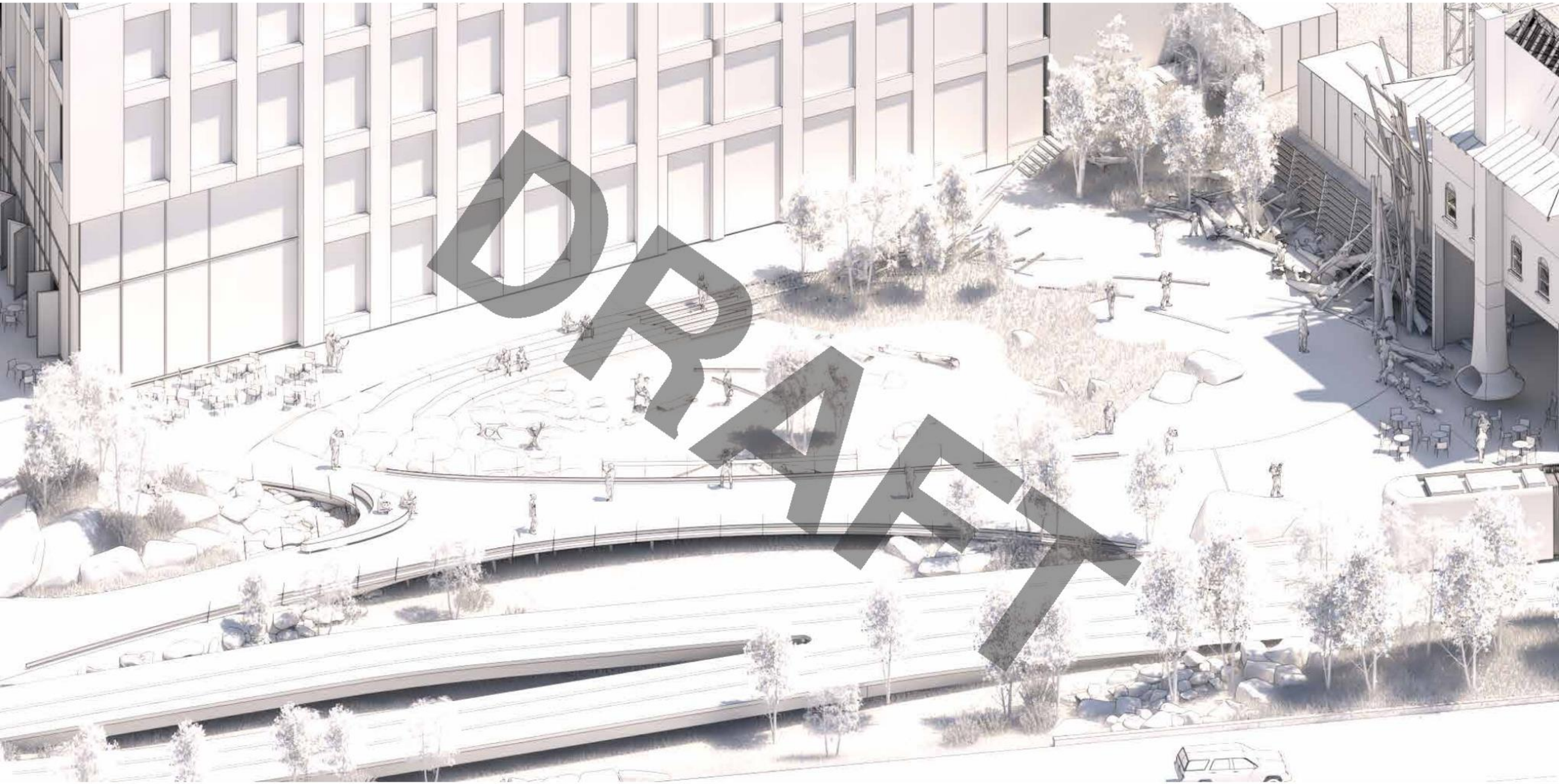
Indigenous Hub on Cherry, Toronto

Sugar Beach, Toronto

Rock and Salvage, Active ‘Linear Park’ Edge



Rock and Salvage, Active 'Linear Park' Edge



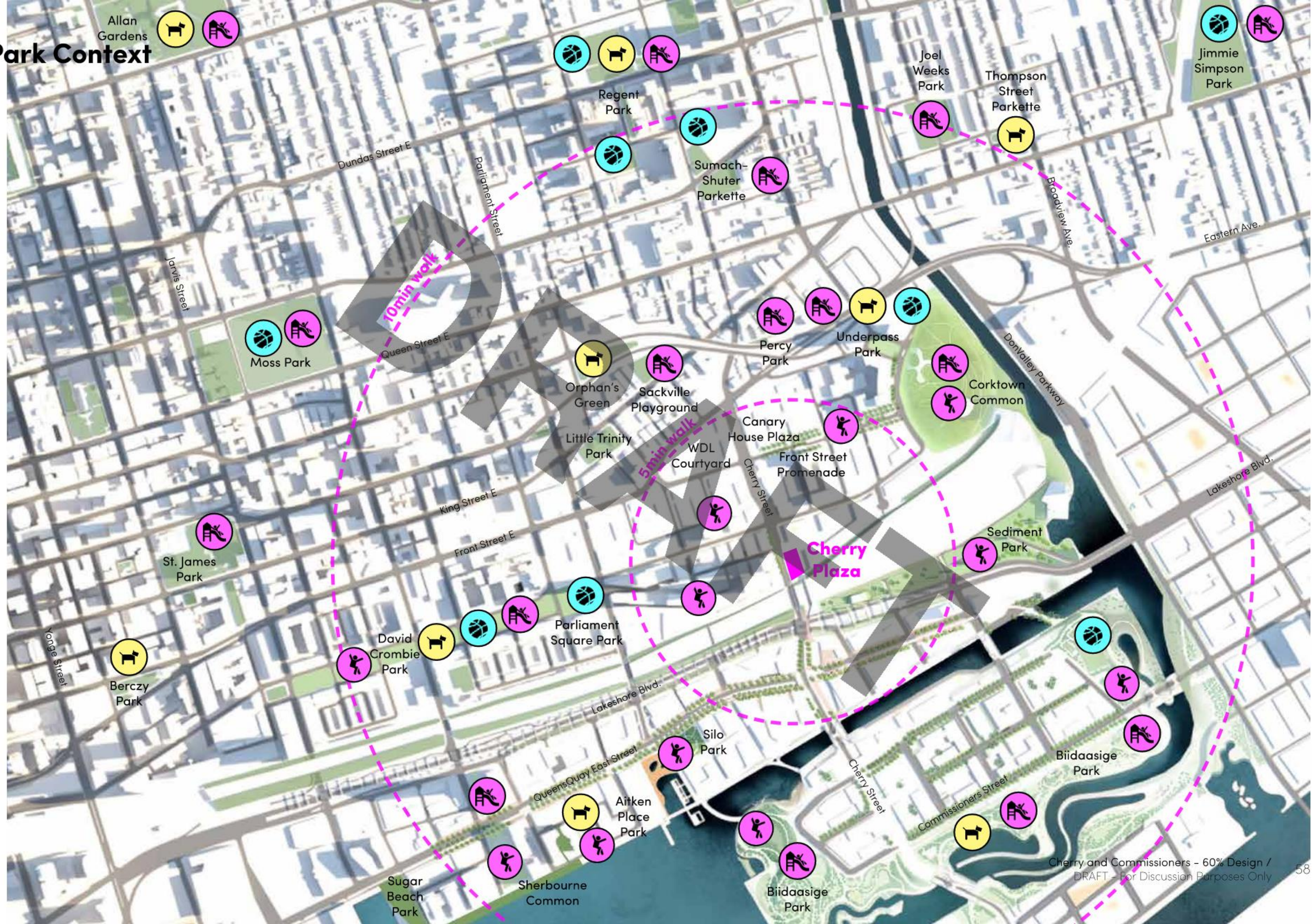
Urban Outfitters HQ, Philadelphia

Park Naturmuseum, St. Gallen, Switzerland

Core City Park, Detroit

Leslie Street Spit, Toronto

Park Context



Cherry Plaza

Area
0.3 Acre

Lawren Harris Square

Area
0.5 Acre

Spaces
- Green areas
- Seating/Gathering area
- Unofficial Dog Run

WestDonLands POPS

Area
0.75 Acre

Spaces
- Green areas
- Seating/Gathering area

Aitken Park

Area
0.85 Acre

Spaces
- Green areas
- Seating/Gathering area
- Dog off Leash area

Sackville Playground

Area
1.0 Acre

Spaces
- Green areas
- Seating area
- Playground
- Splash Pad

Berczy park

Area
1.5 Acre

Spaces
- Green areas
- Seating/Gathering area
- Plaza

Parliament Sq Park

Area
2.3 Acre

Spaces
- Green areas
- Seating/Gathering area
- Sport Field
- Bike Trail

Underpass park

Area
2.5 Acre

Spaces
- Outdoor Basketball Court
- Picnic Site
- Playground
- Skateboard Area
- Dog off Leash area

Trinity Street

Area
2.6 Acre

Spaces
- Seating/Gathering area
- Plaza

Sherbourne Common

Area
3.8 Acre

Spaces
- Green areas
- Seating/Gathering area
- Outdoor Skate Rink
- Playground
- Splash Pad
- Dog off Leash area

David Crombie Park

Area
4.75 Acre

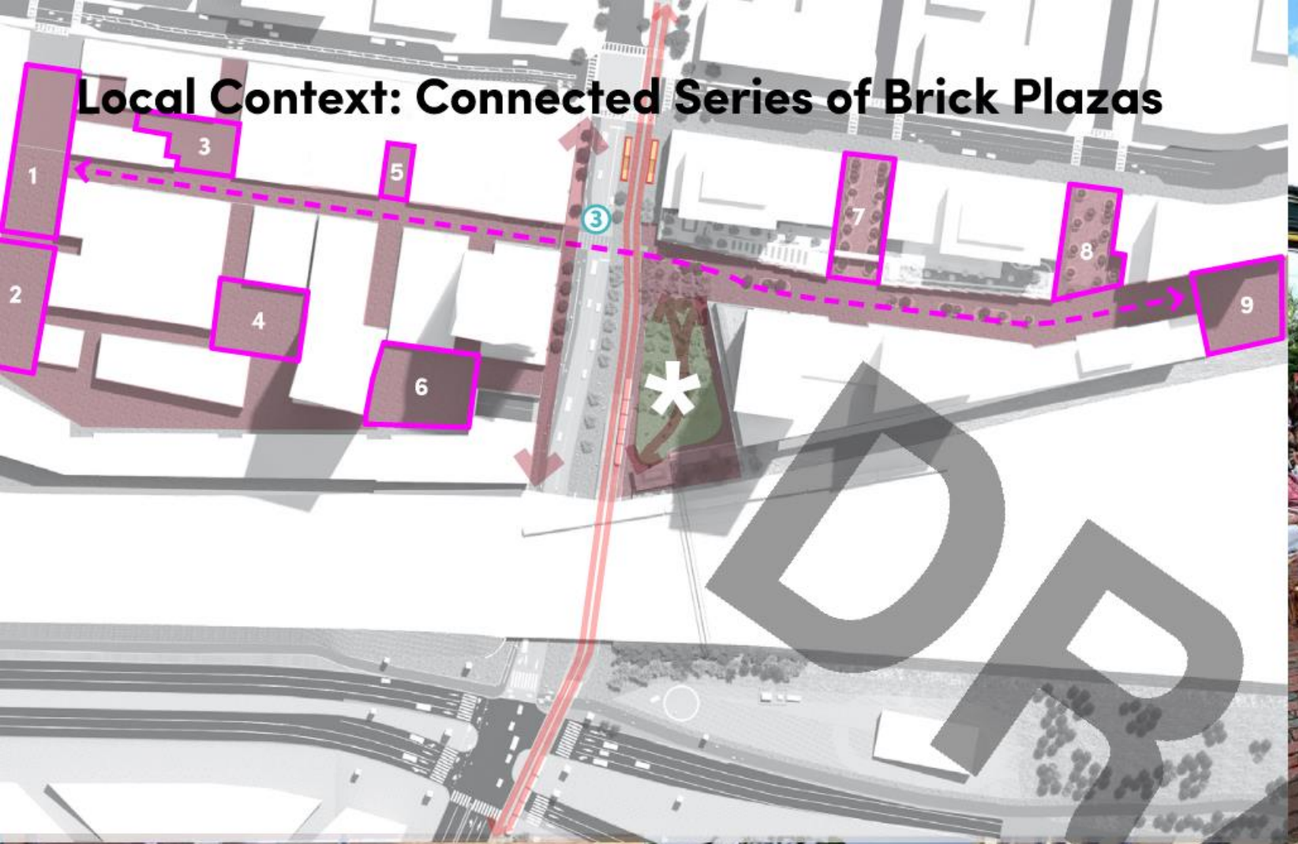
Spaces
- Green areas
- Seating/Gathering area
- Ball Diamond
- Dogs Off-Leash Area
- Drinking Fountain
- Outdoor Basketball Court
- Playground
- Wading Pool

Corktown Common

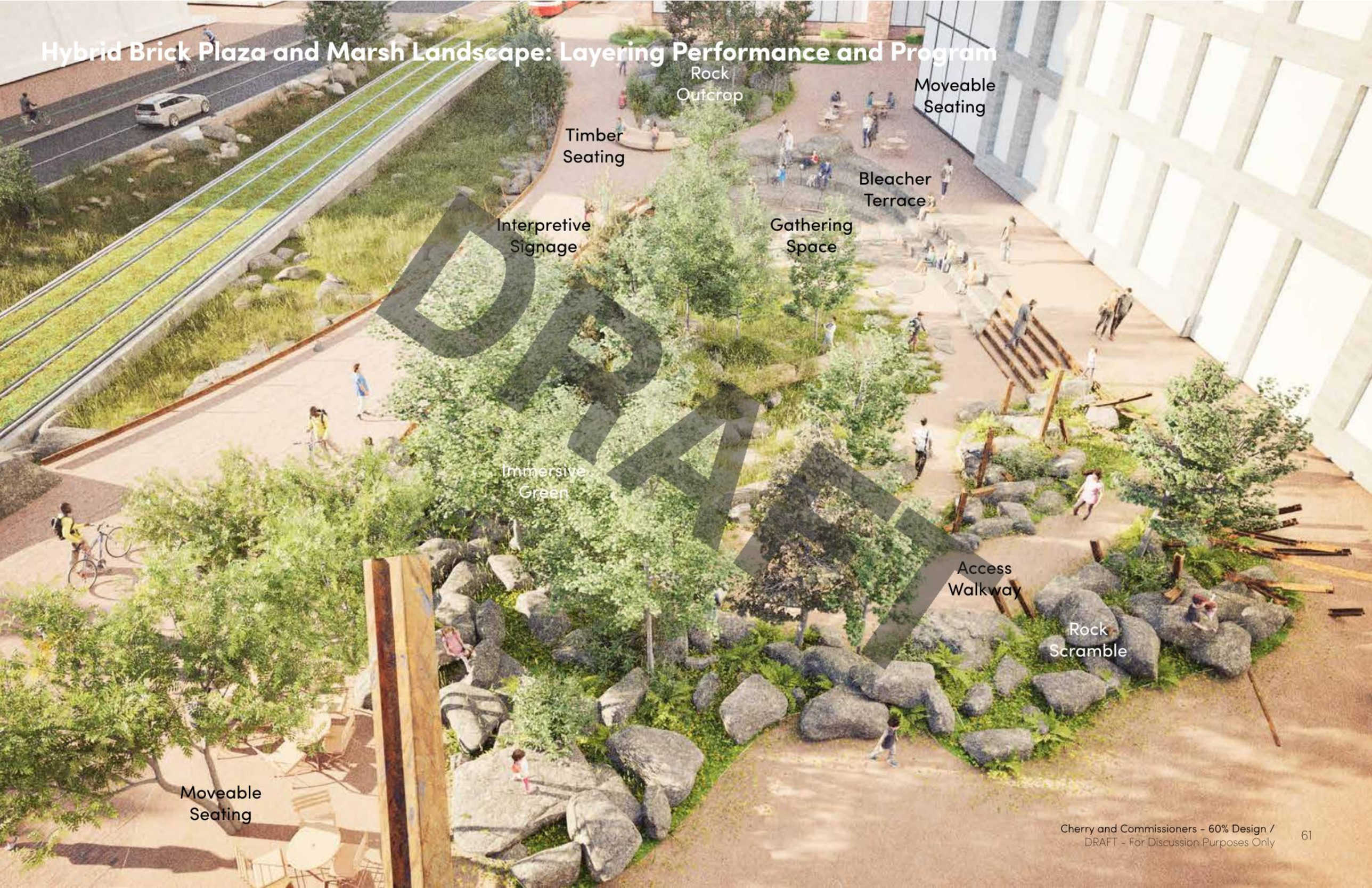
Area
18 Acre

Spaces
- Green areas
- Seating/Gathering area
- Kitchen
- Lounge
- Multipurpose Field
- Playground
- Splash Pad

Local Context: Connected Series of Brick Plazas

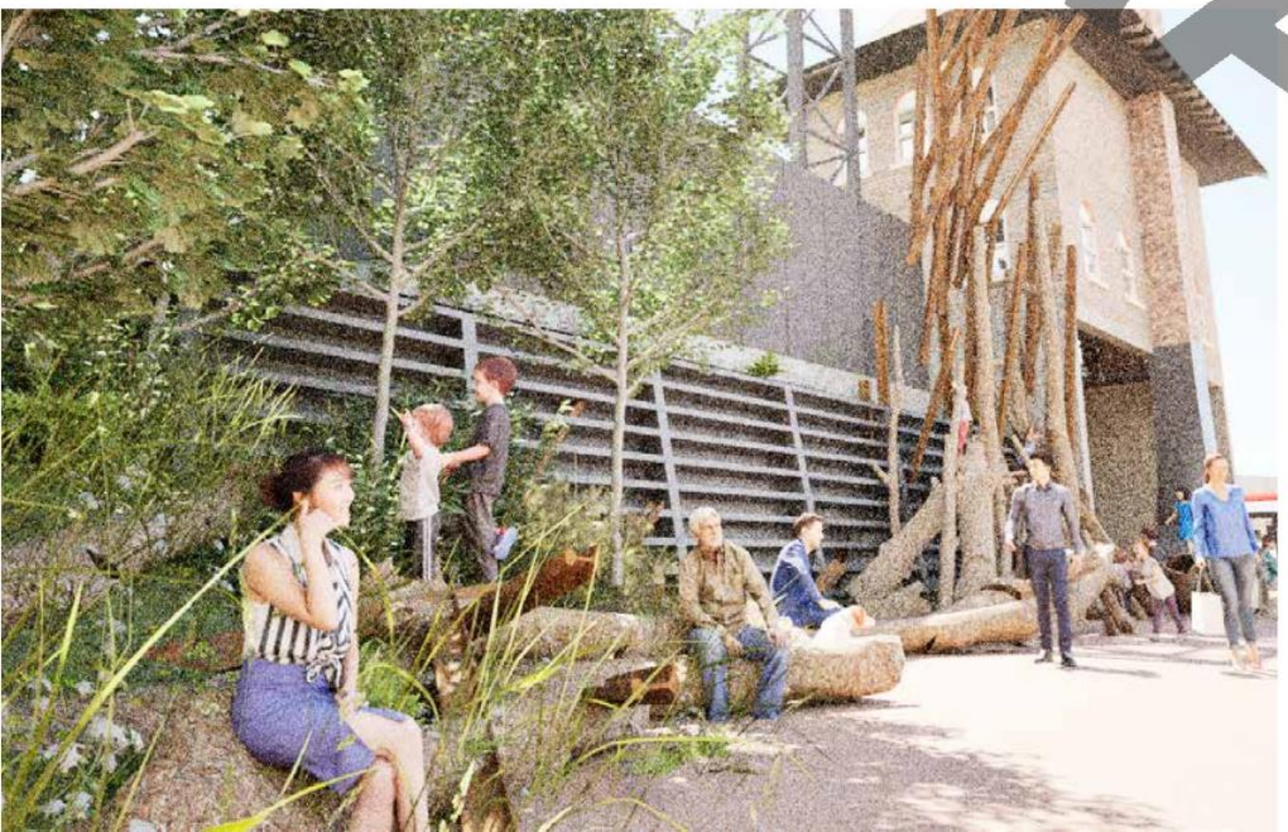


Hybrid Brick Plaza and Marsh Landscape: Layering Performance and Program

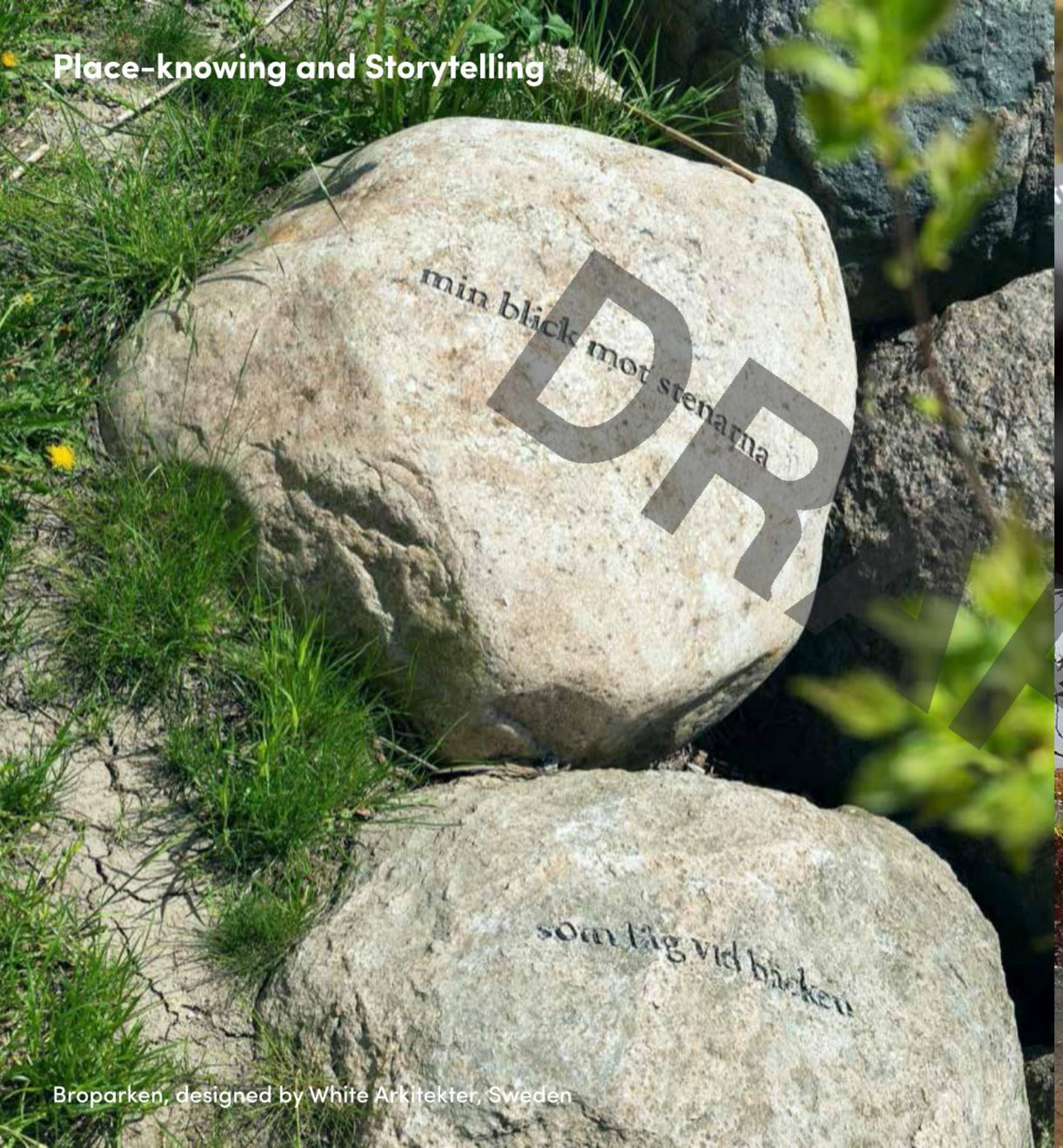


Exploring and Playing

Sitting and Gathering



Place-knowing and Storytelling



Broparken, designed by White Arkitekter, Sweden

Natur-Park Schöneberger, Tactile Education

Prince Arthur's Landing Spirit Garden, Thunder Bay

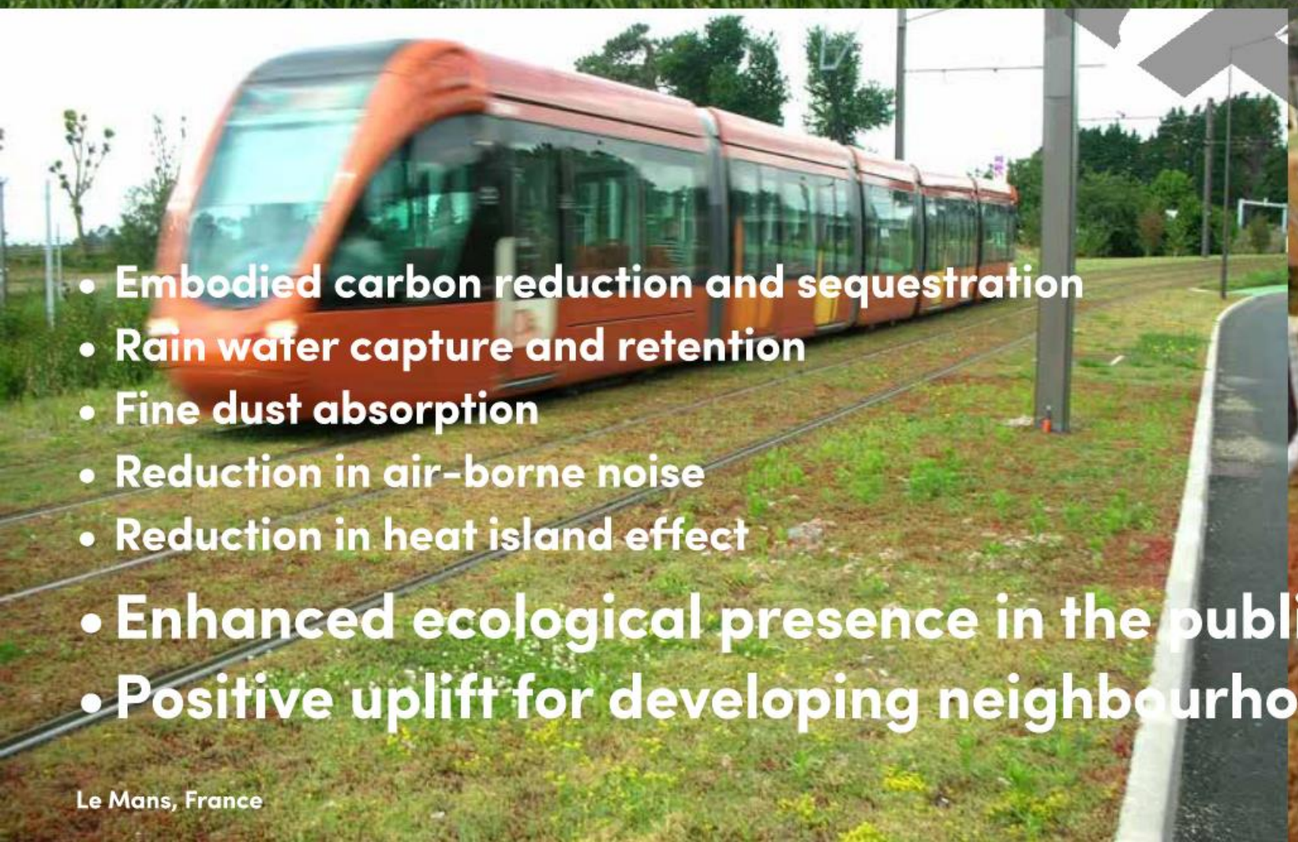

This Plaza is Floodable!
It receives water from the
surrounding roadways, and
prevents pooling on the TTC tracks


This Plaza is Floodable!
It receives water from the surrounding roadways, and prevents pooling on the TTC tracks

Cherry and Commissioners:
Green Track

Eglinton Crosstown LRT

Berlin, Germany

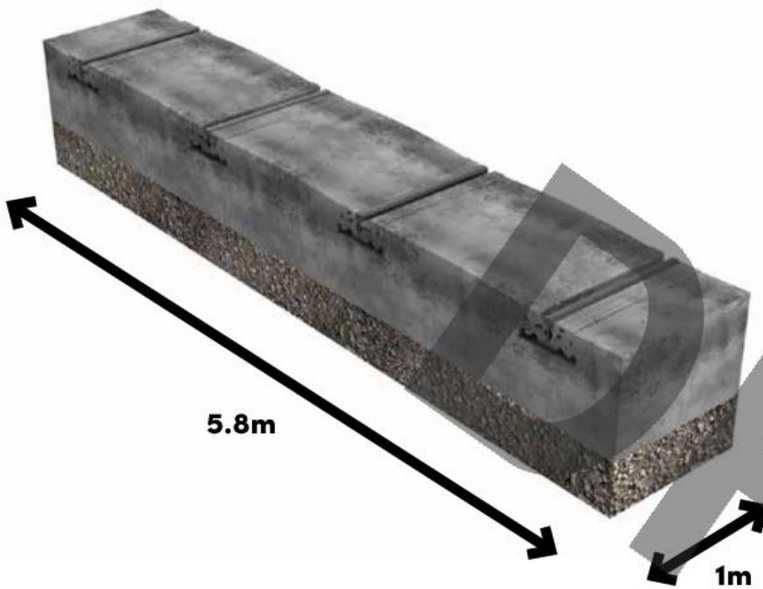


- Embodied carbon reduction and sequestration
- Rain water capture and retention
- Fine dust absorption
- Reduction in air-borne noise
- Reduction in heat island effect
- Enhanced ecological presence in the public realm
- Positive uplift for developing neighbourhoods

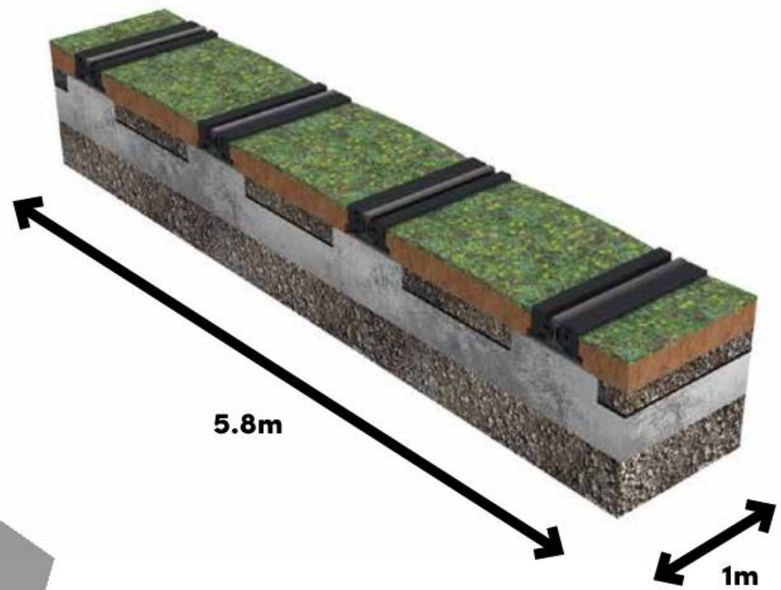
Le Mans, France

Le Mans, France

Embodied Carbon Metrics



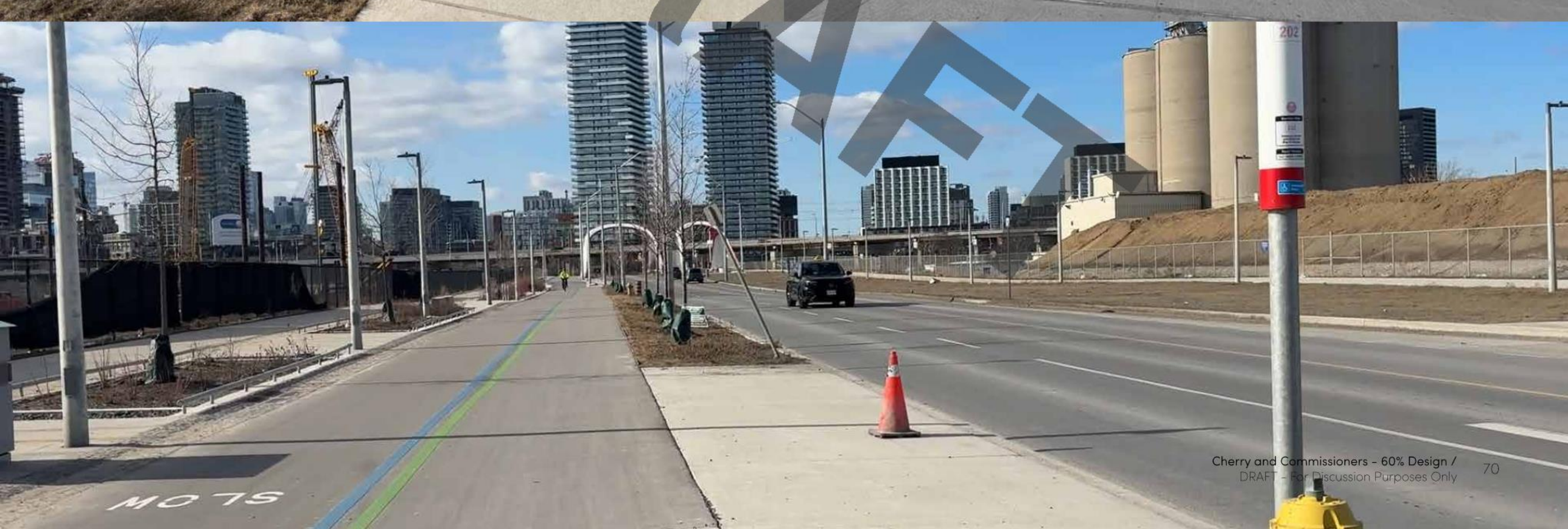
2,442kg CO2
per metre



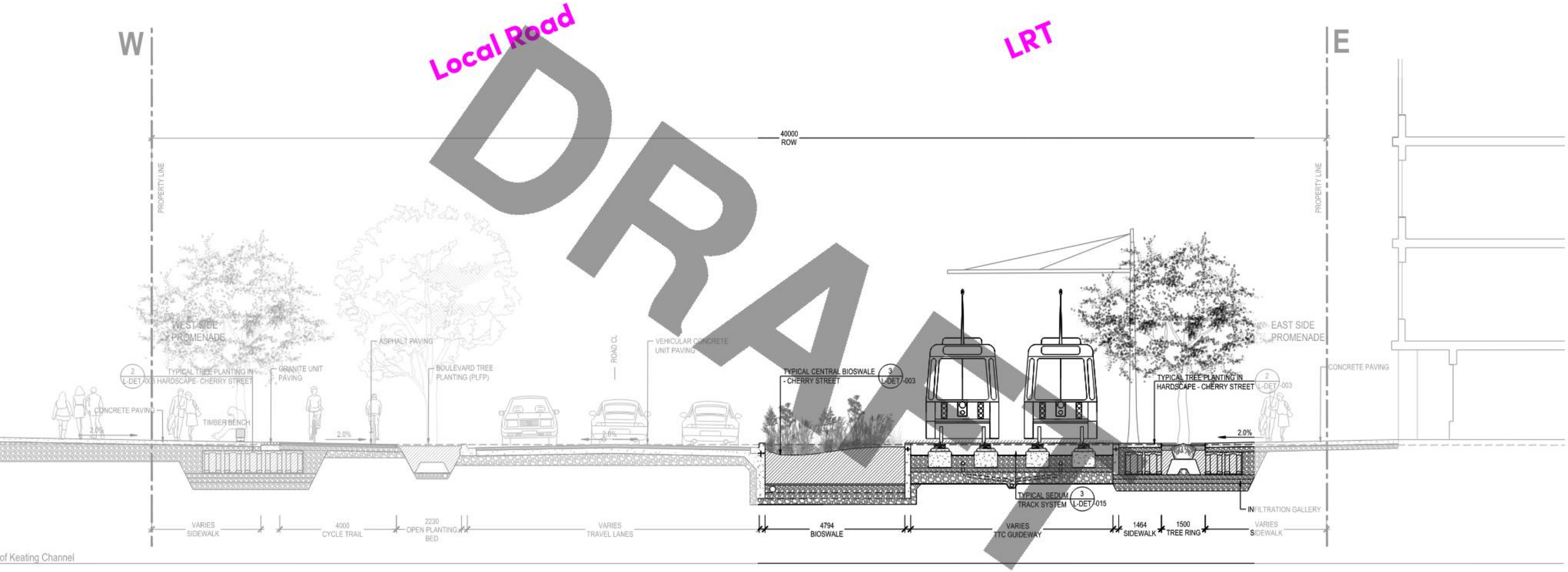
1,662kg CO2
per metre

32%
embodied carbon savings versus typical concrete track

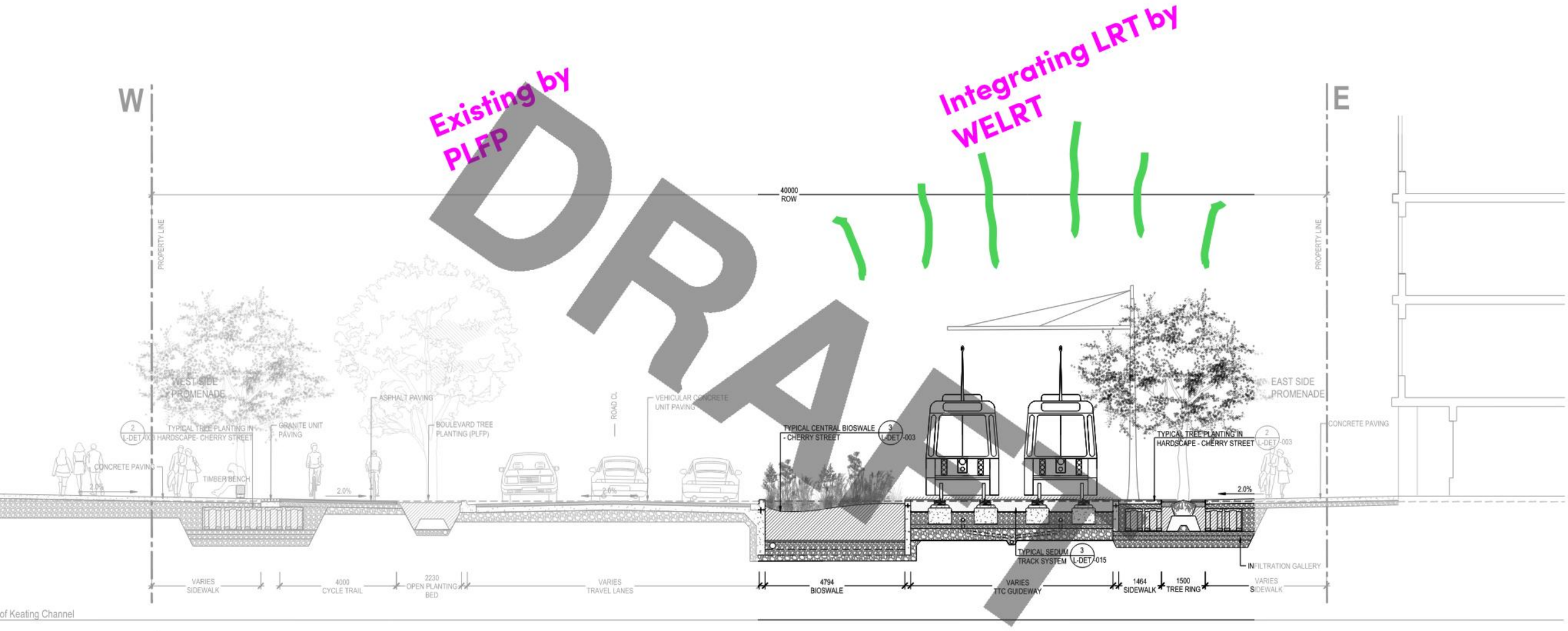
Cherry South



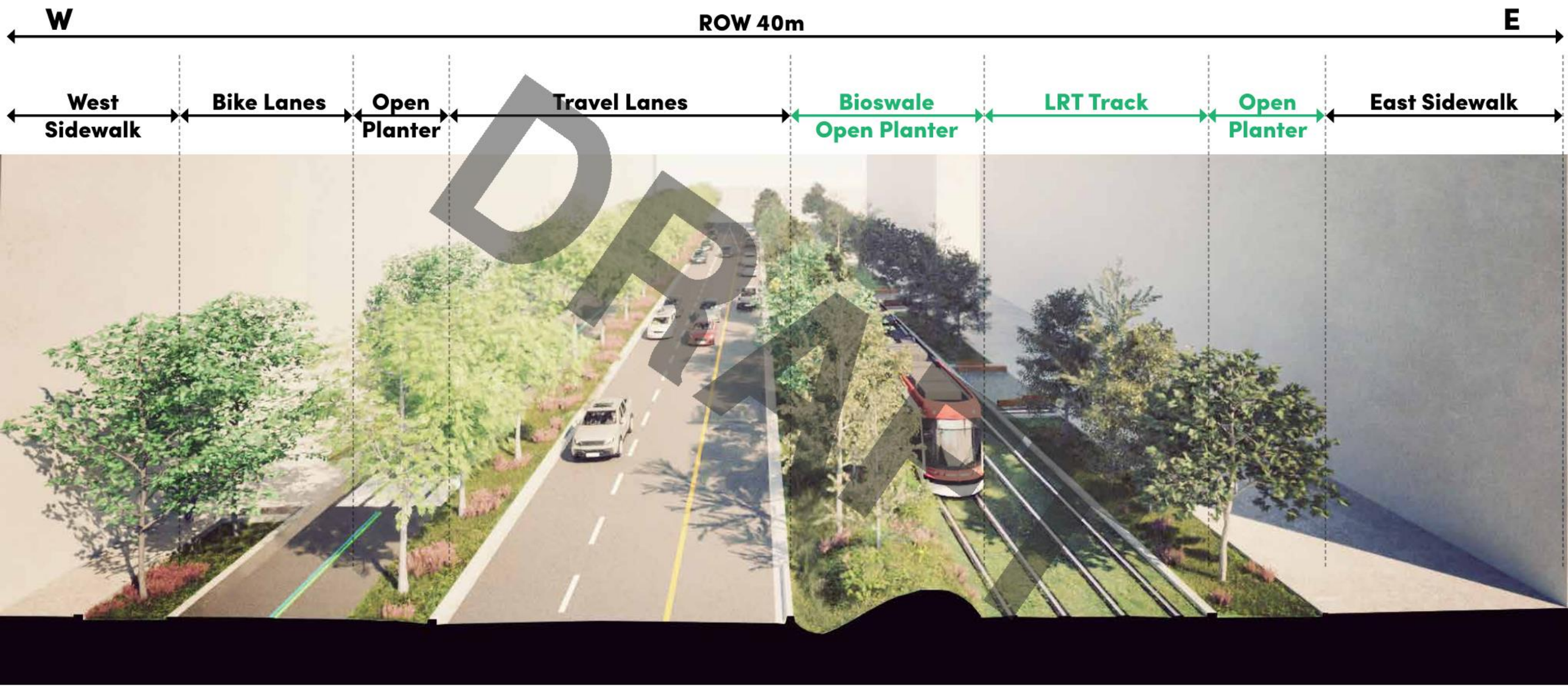
Cherry South: 'Double' Street



Cherry Integrating LRT: 30% Design

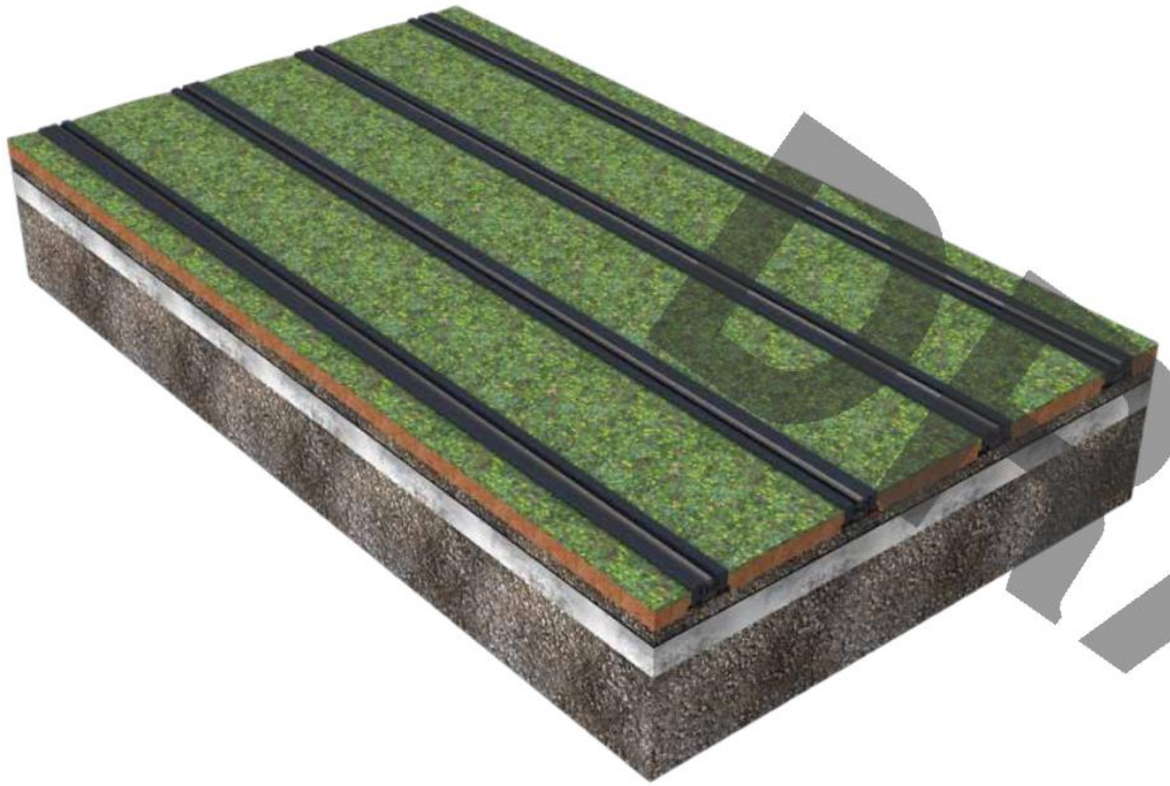


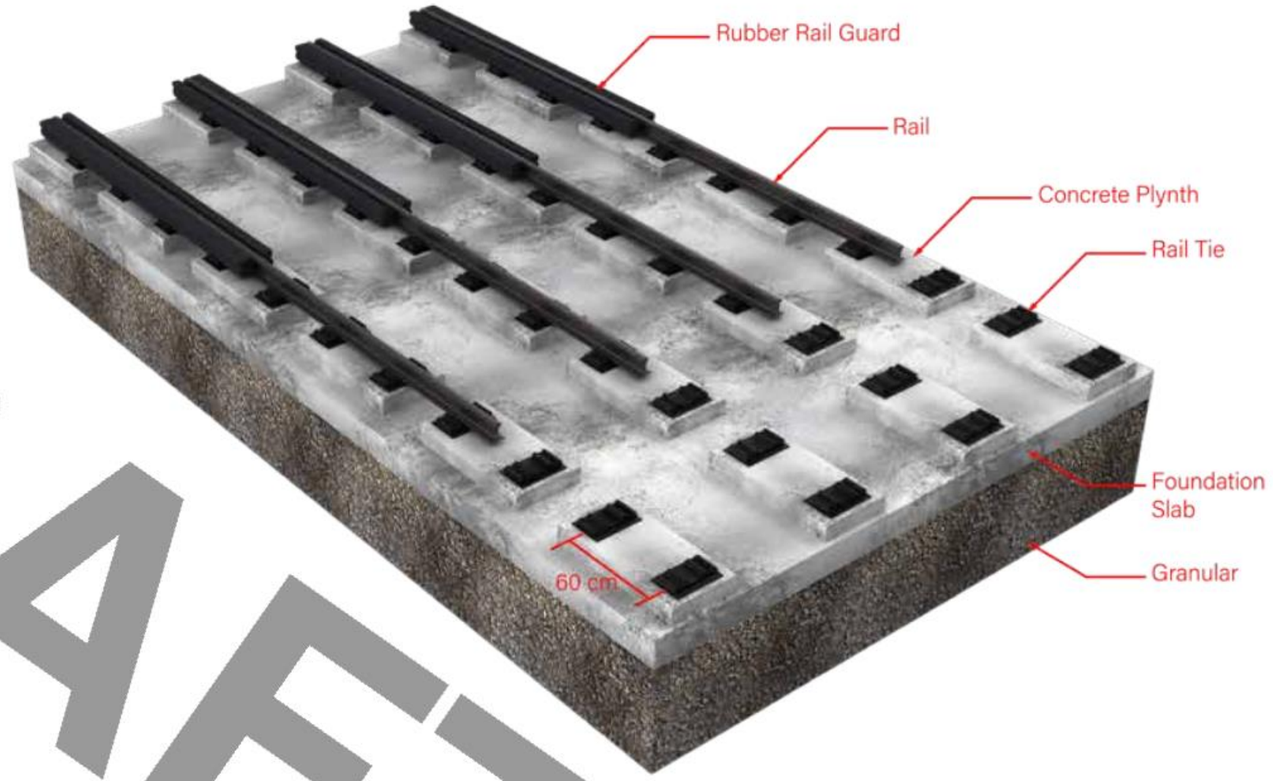
Cherry Integrating LRT: 60% Design

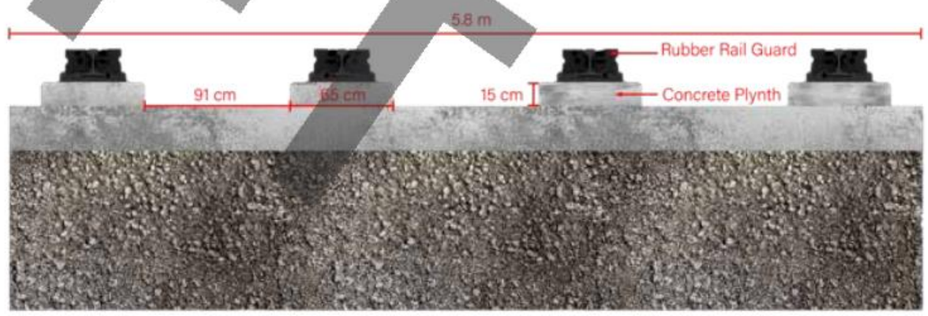


Cherry Green Track Detail Model

How It Works







Ensuring Green Track Living Systems Performance:

Learning From 10 Years of Research at U of T Green Roof Lab

J. Scott MacIvor, Madison Appleby, Samantha Miotto, Howard Rosenblat, Liat Margolis,
Plant cover and biomass change on extensive green roofs over a decade and ten lessons learned, Journal of Environmental Management,
Volume 360, 2024, 121047, ISSN 0301-4797, https://doi.org/10.1016/j.jenvman.2024.121047.

(https://www.sciencedirect.com/science/article/pii/S0301479724010338)

Three Key Takaways

From research into these analougous planting systems

1. Sedum performed the best across the board.

Maintaining high surface area coverage and plant biomass over 10 years, vs. diverse, perrenials, and grasses.

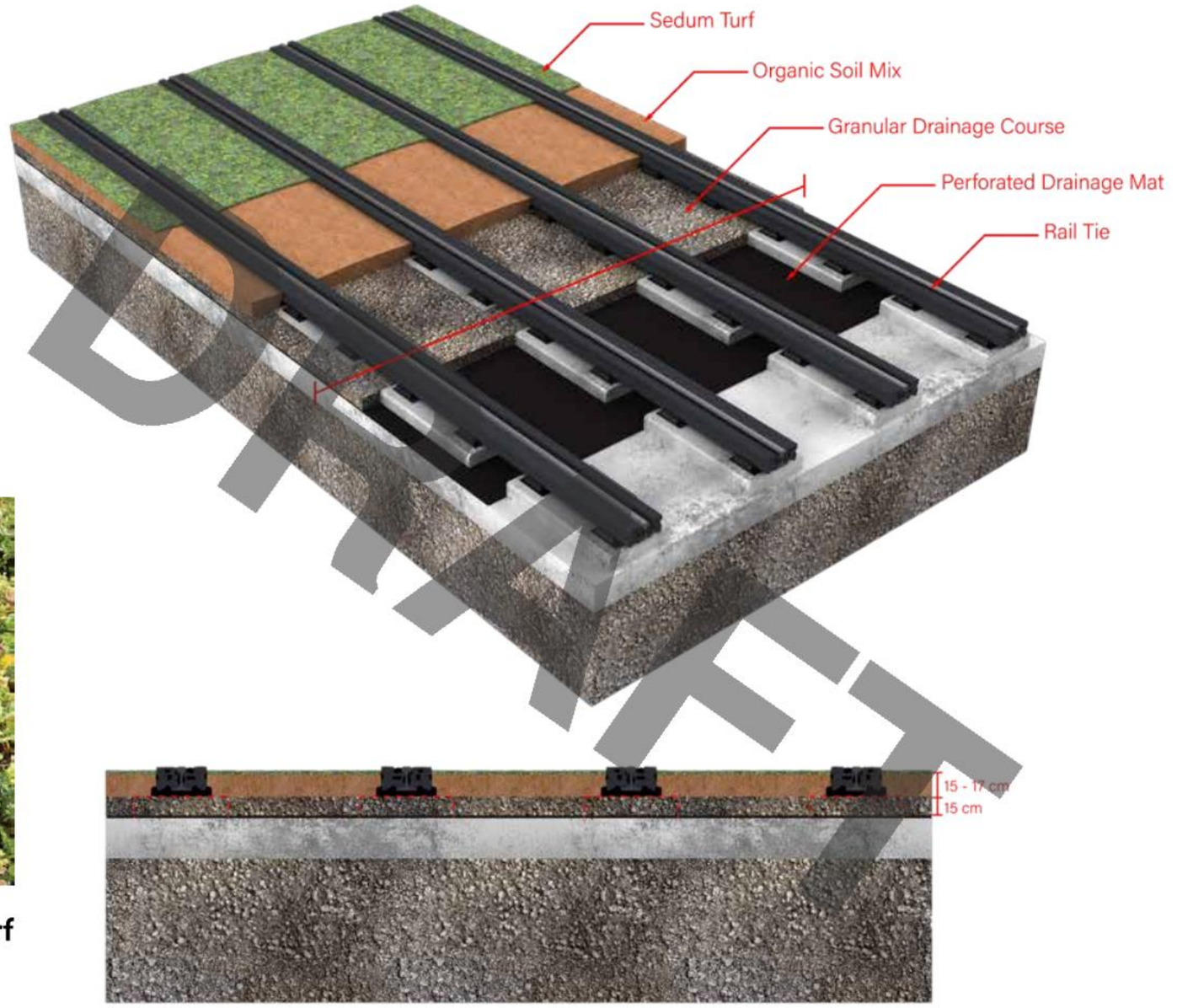
2. Sedum Planted in Organic Soil Performed Better Than in Shallow Growing Media.

150mm + organic soil depth maintained plant heath over time.

3. Sedum with no irrigation performed nearly as well as with irrigation.

Track Vegetation Layers

How It Works

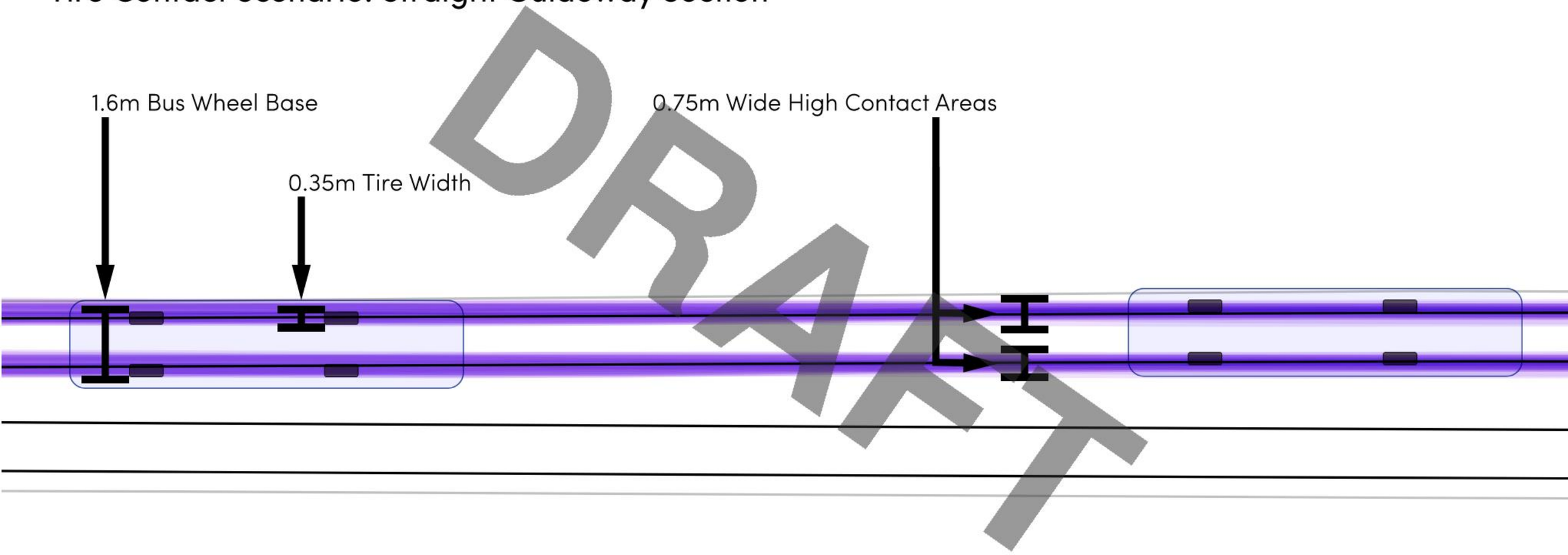


Recommended Product: Sedum Turf on Organic Soil Mix

Understanding Bus Behavior in The Guideway

A Basis for Hybrid Green Track Design

Tire Contact Scenario: Straight Guideway Section



Bus Tire Contact with Guideway

High Frequency - ► Low Frequency

Binary Green Track Options

Reinforced Full Green Track

Full Concrete Track

LRT Only

Fully, Constantly Drivable

Green Track ‘Spectrum’

Reinforced Full Green Track

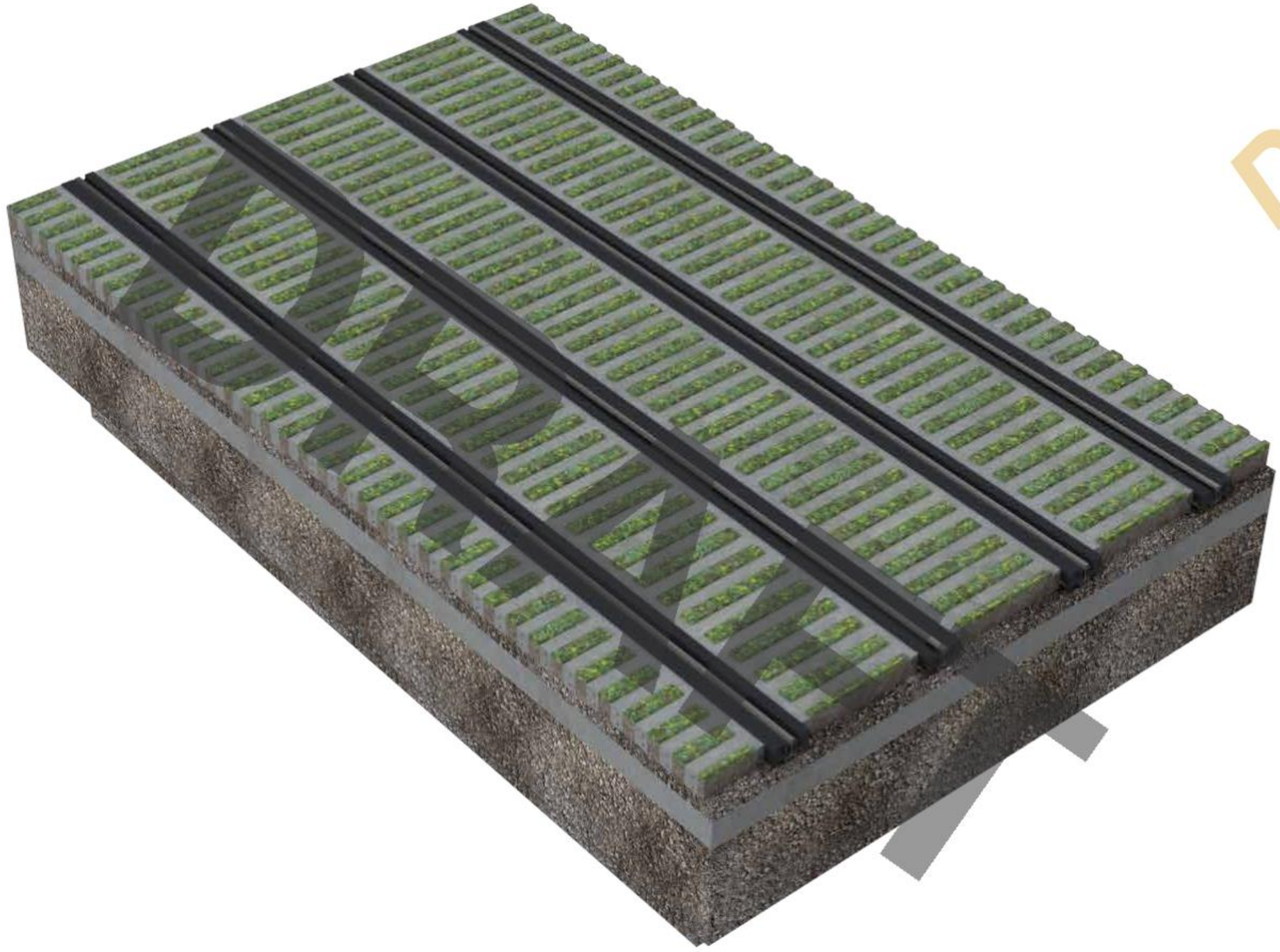
Hybrid Green Track - with Paving Integrated

Full Concrete Track

LRT Only ***Replacement Bus Access*** ***Fully, Constantly Drivable***

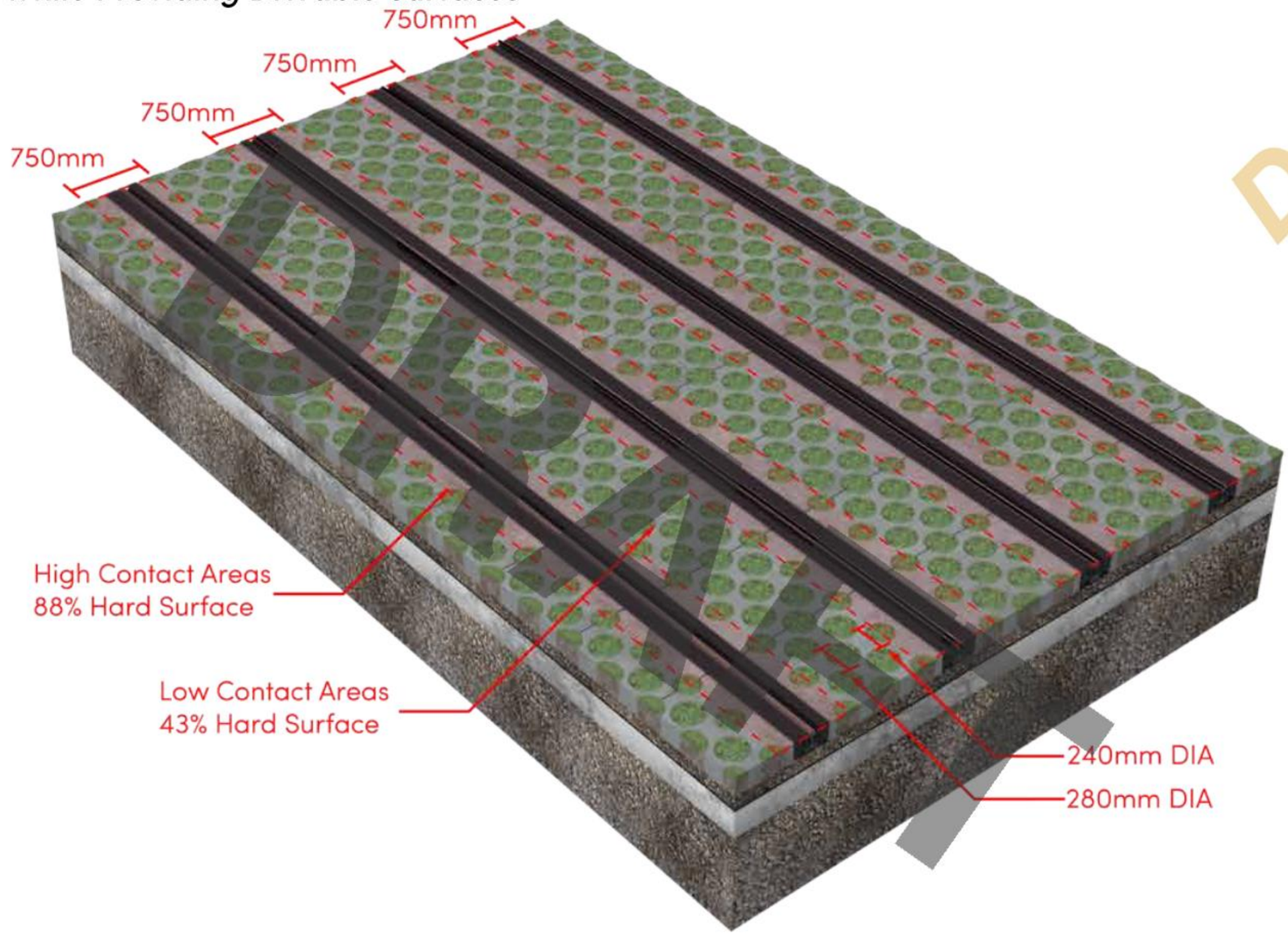
Hybrid Green Track

Maximizing Vegetation While Providing Drivable Surfaces



Hybrid Green Track

Maximizing Vegetation While Providing Drivable Surfaces

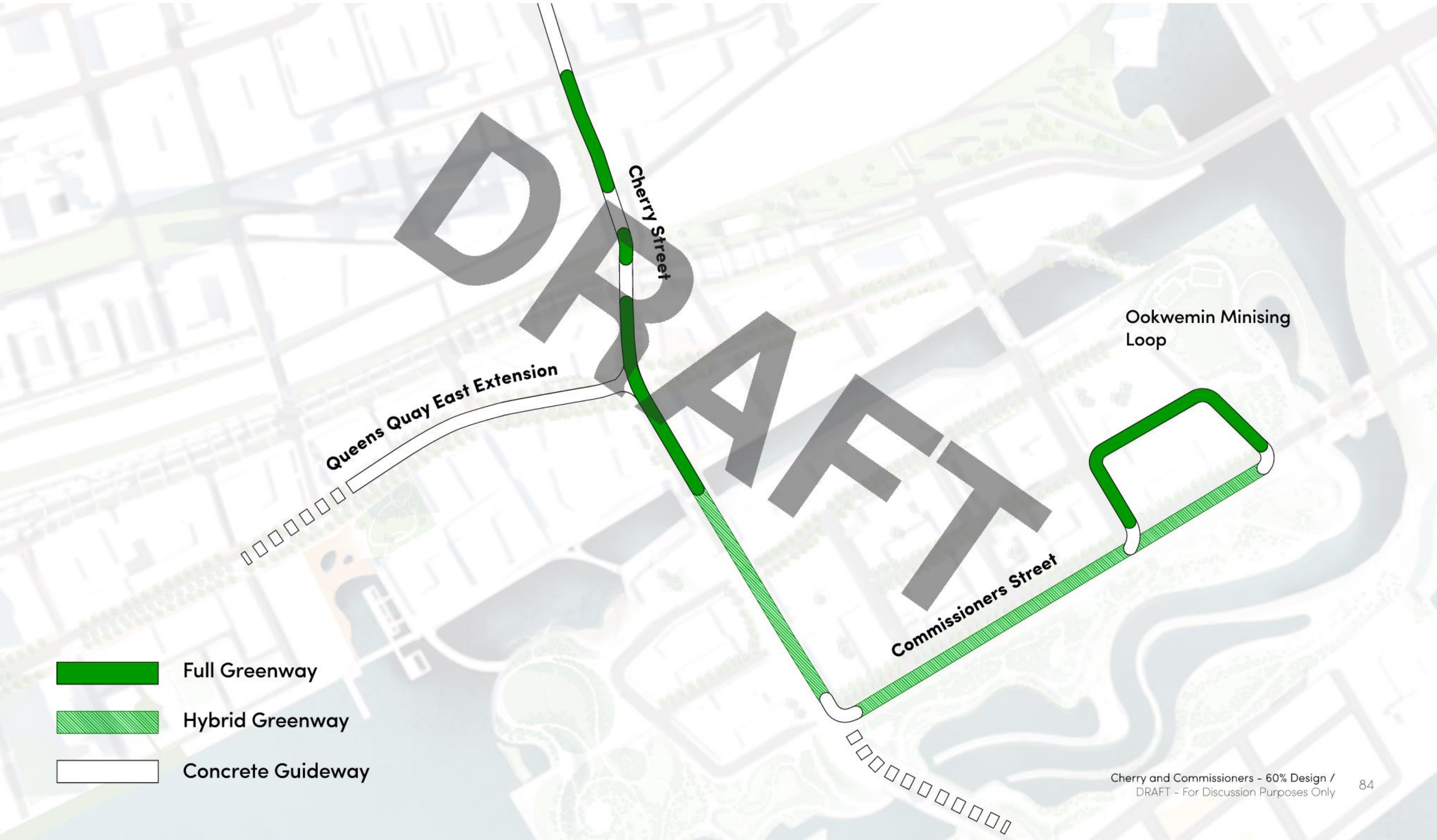


Tire Contact Area

Modified Hybrid Track Design

Construction Concept Diagram

LRT Guideway Overview: Connecting the Green



Cherry South and Commissioners Streetscape

Cherry South

W — ROW 40m — E

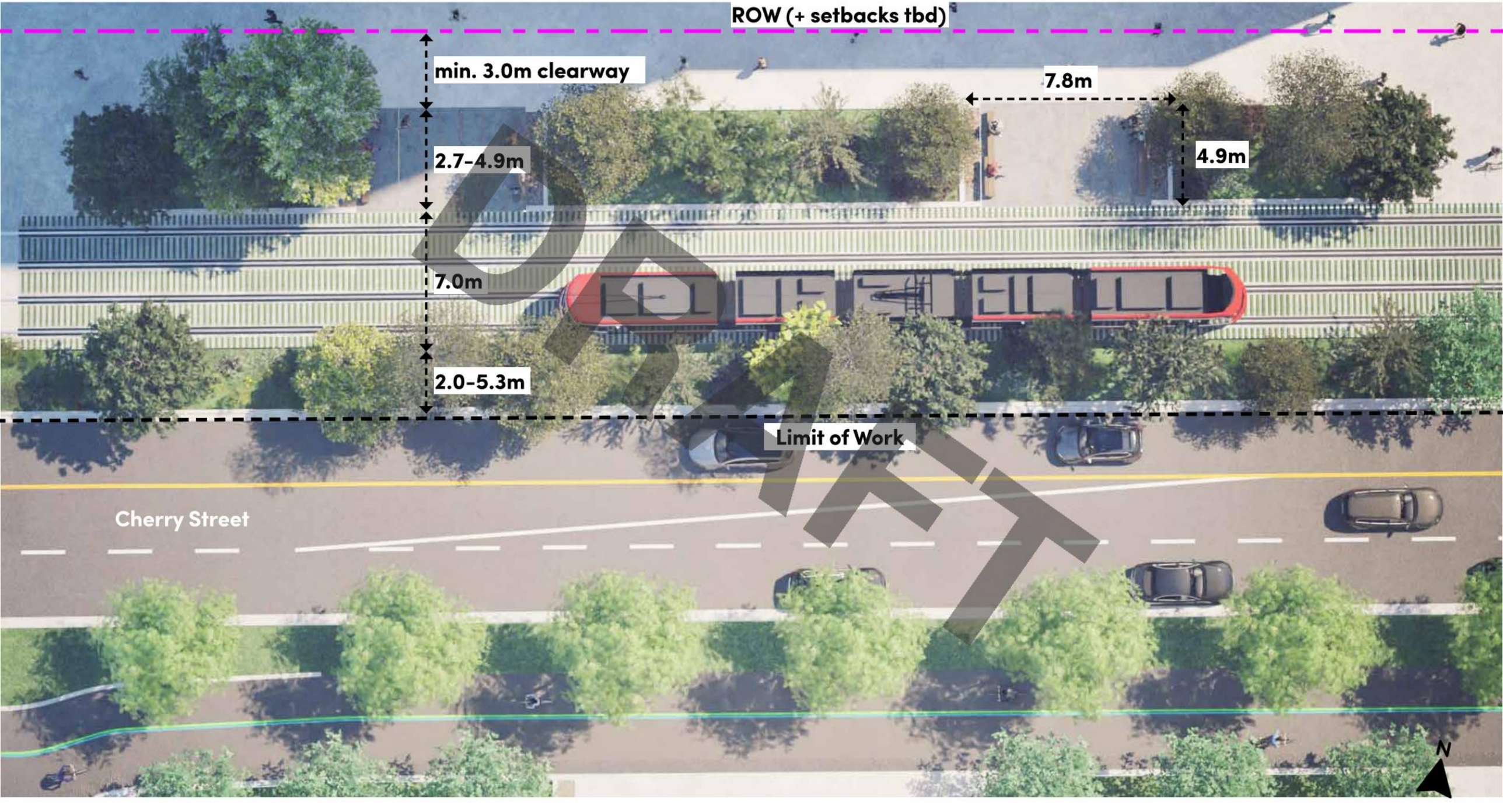
West Sidewalk | Bike Lanes | Open Planter | Travel Lanes | Bioswale Open Planter | LRT Green Track | Open Planter | East Sidewalk

Retrofit PLFP Timber Bench Seating

Immersive Planting & Undulating Topography

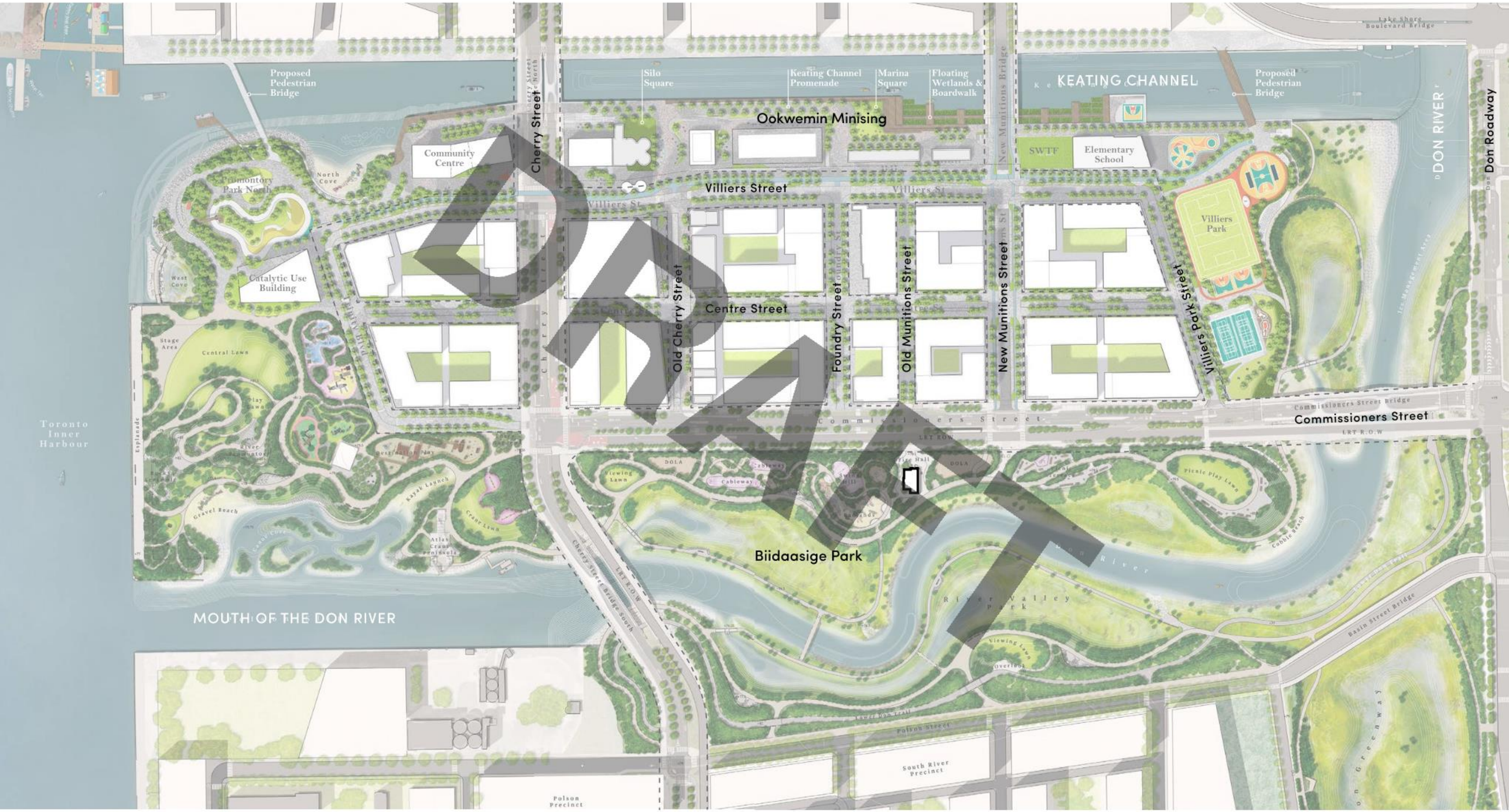
Planted Bioswale

Cherry South

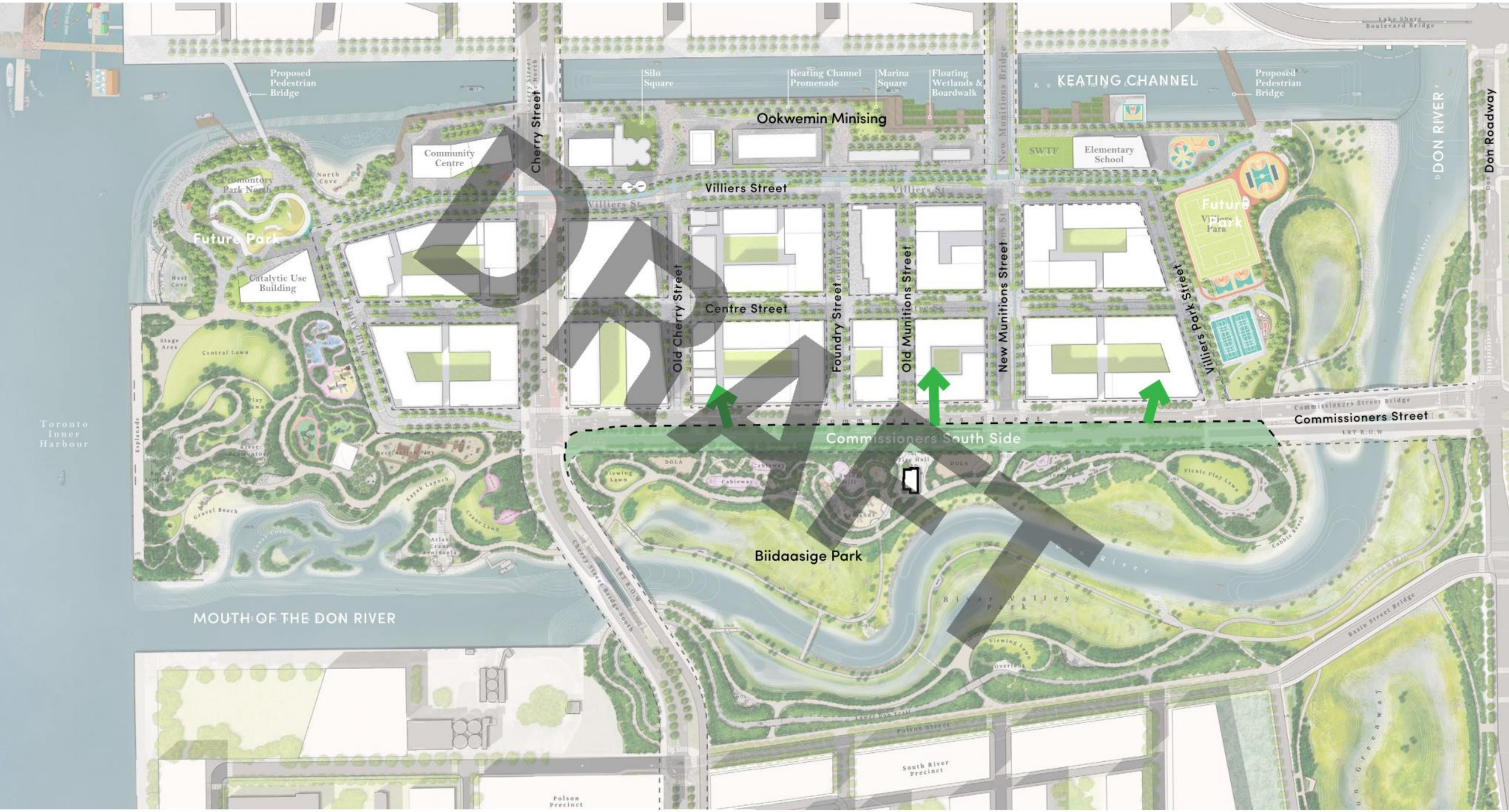


East Side: Timber Bench Retrofit and Immersive Planting

Commissioners



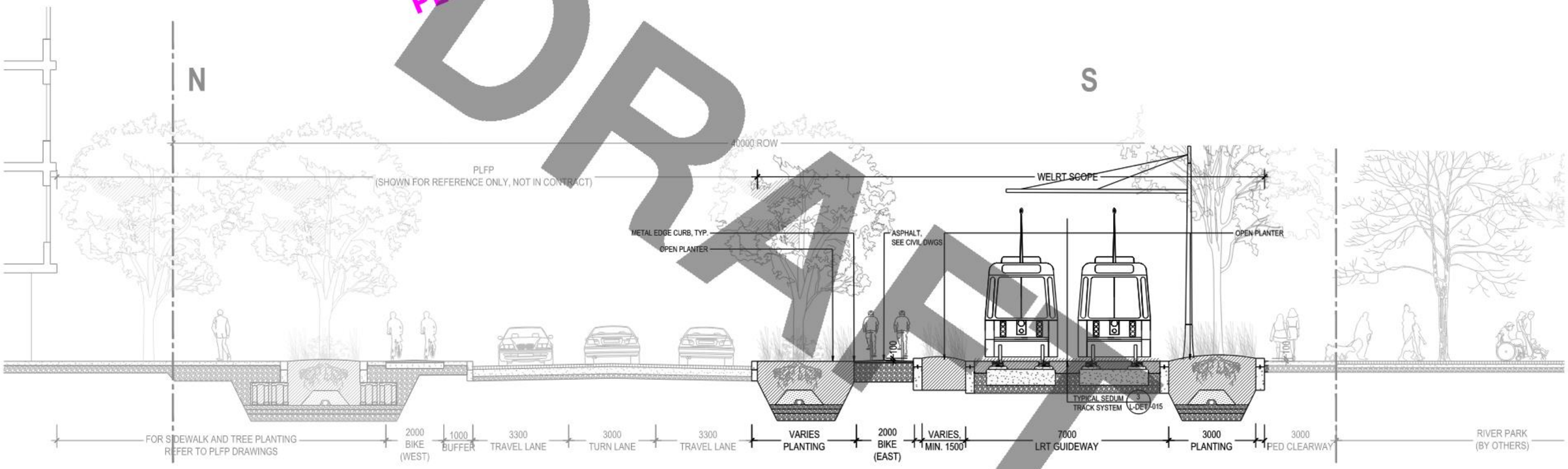
Commissioners South Side as an Extension of the Park Experience



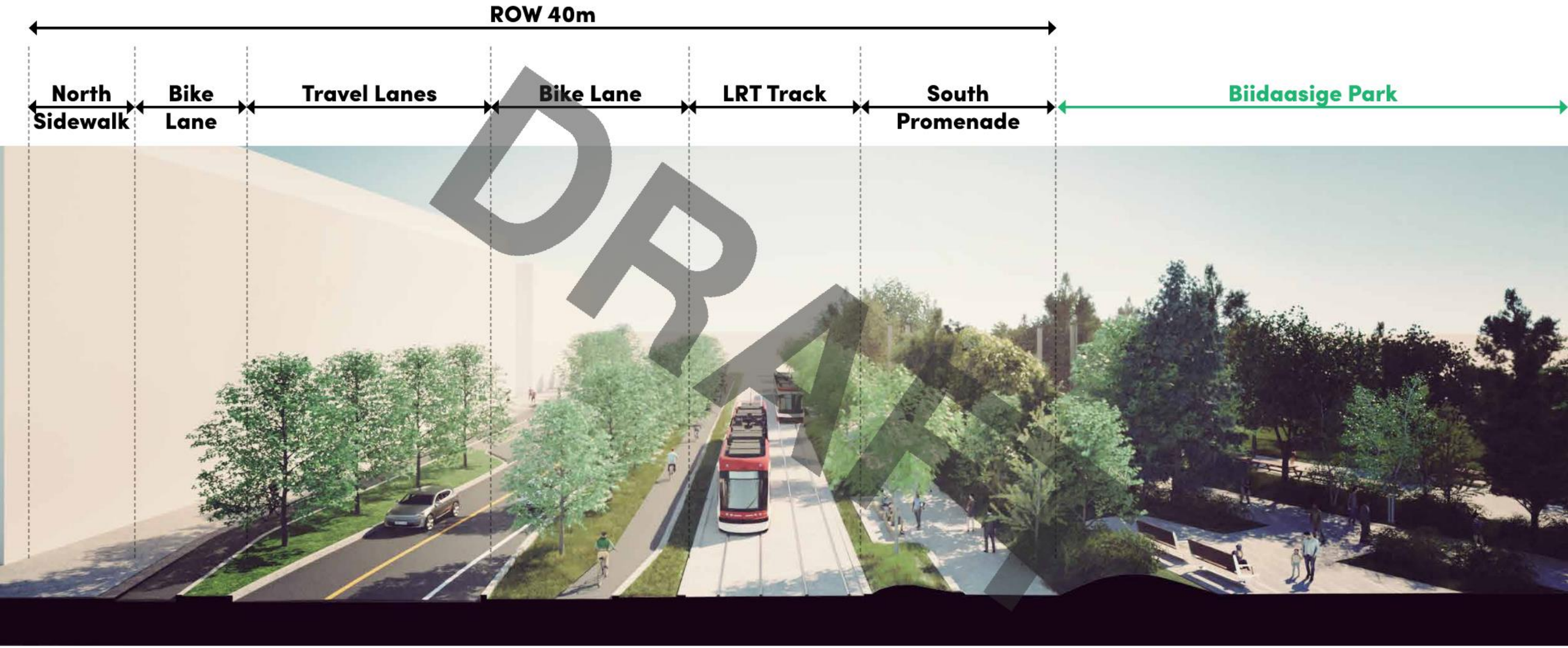
Transit Phasing

Expanding the Park Experience on Cherry and Commissioners

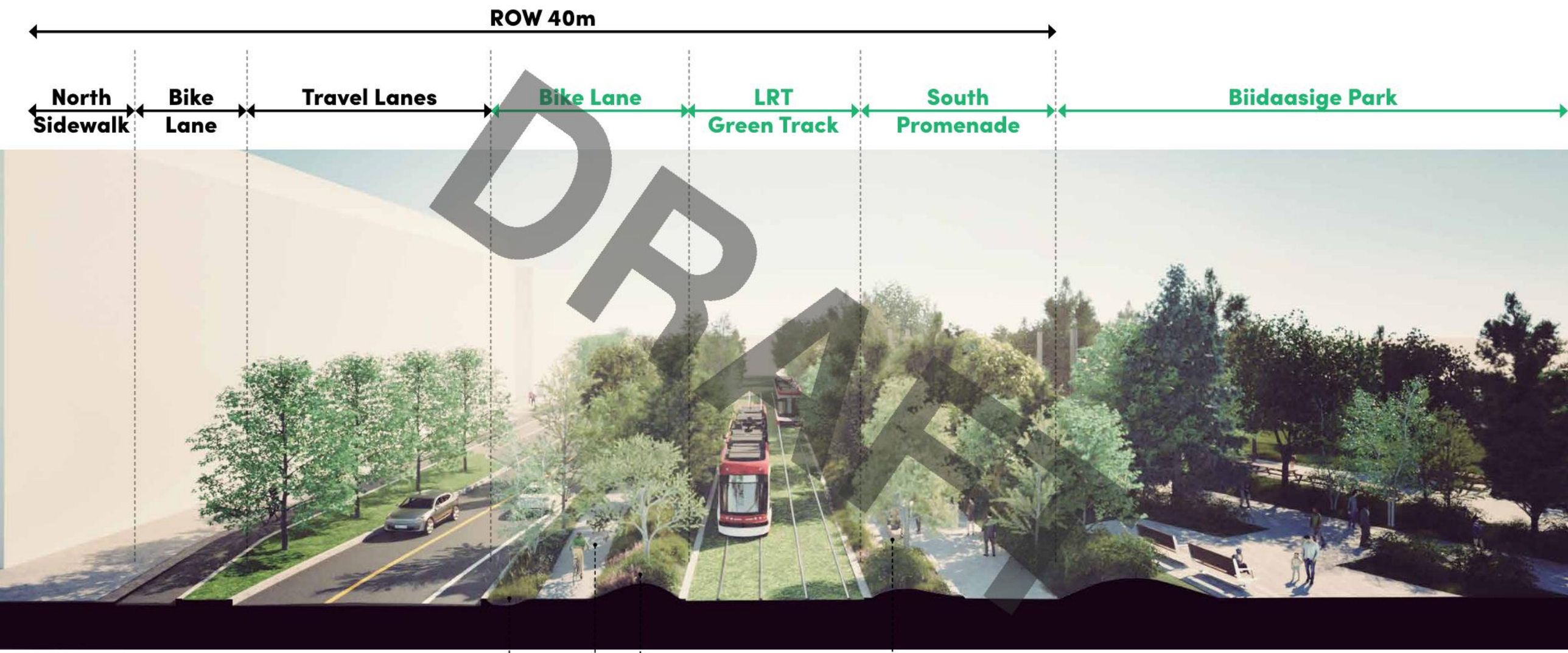
Commissioners Integrating LRT: 30% Design



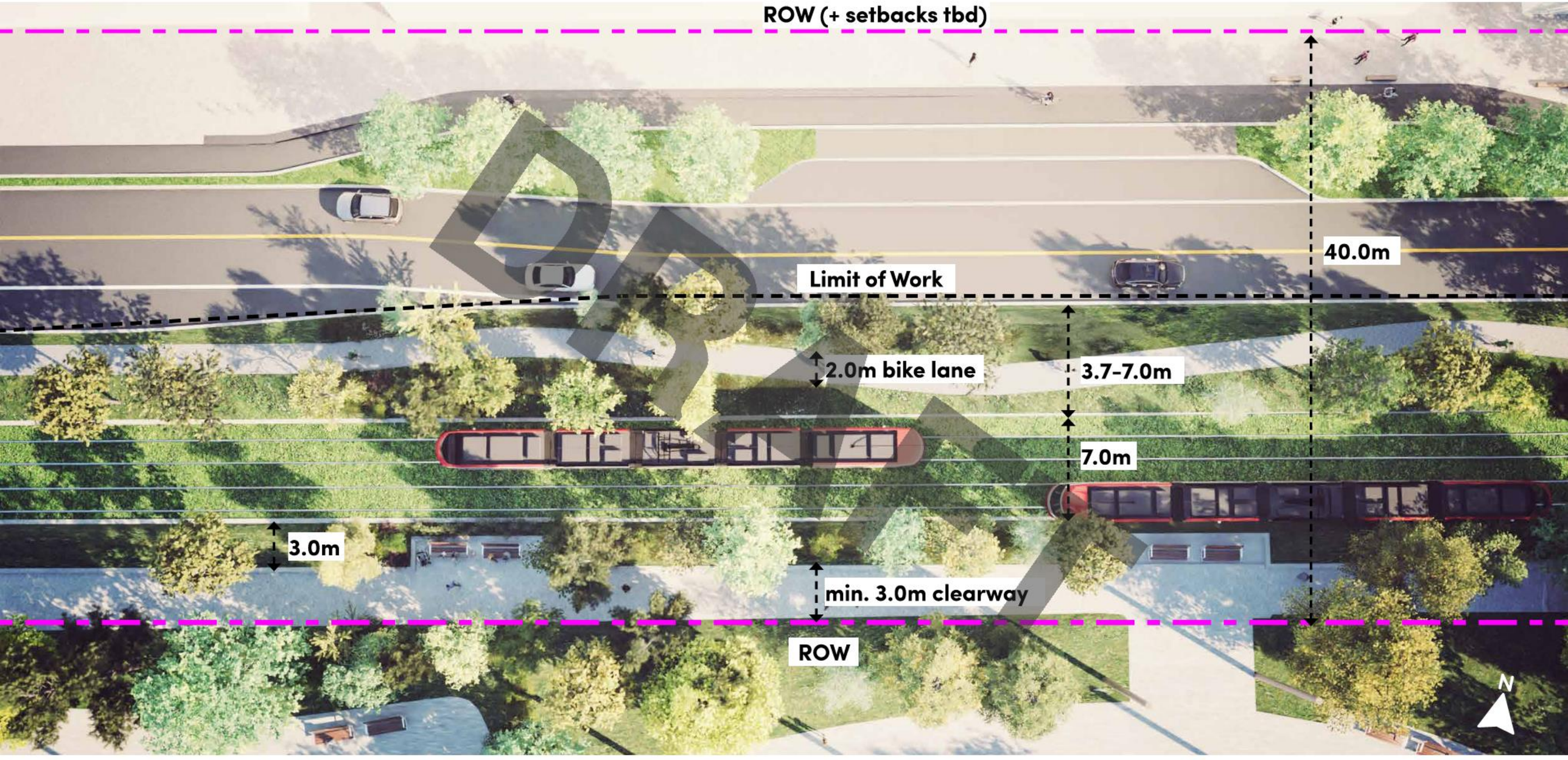
Expanding the Park Experience on Commissioners



Expanding the Park Experience on Commissioners

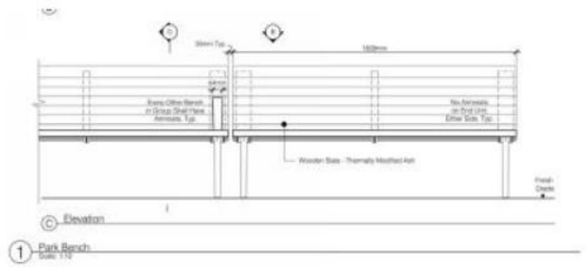


Expanding the Park Experience on Commissioners



Expanding the Park Experience on Commissioners

South side: Biidaasige Park benches



Generation 50 Park Bench

North side: Existing timber benches, Retrofit to add backrest and armrests

South Side: Biidaasige Park Benches and Immersive Planting

South Side: Trail Experience

Higher Salt Zone Planting Palette Samples

Brackenish Grasses

Andropogon gerardii

Panicum virgatum

Calamagrostis acuti-flora 'Karl Foerster'

Spartina pectinata

Calamagrostis canadensis

Carex pensylvanica

Self-seeding Perennials

Rudbeckia hirta

Verbena hastata

Echinacea purpurea

Ground Cover

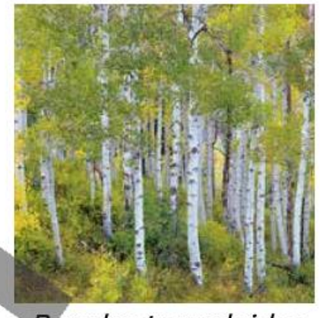
Waldsteinia fragarioides

Anemone canadensis

Canopy Trees

Nyssa sylvatica

Liquidambar Styraciflua



Populus tremuloides

Ulmus americana

Quercus macrocarpa

Acer x freemani

Lower Salt Zone Planting Palette Samples

Balancing Salt Tolerance + Species Diversity

Grasses, and Self-seeding Perennials and Shrubs

Achilliea milefolium

Symphotrichum ericoides

Deschampsia cepitosa

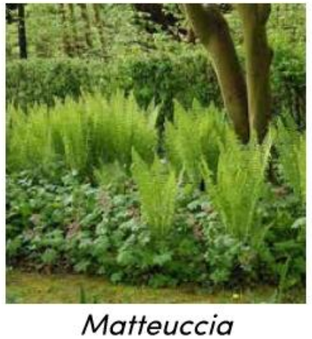
Rudbeckia hirta

Aquilegia canadensis

Schizachyrium scoparium

Zizia aurea

Echinacea purpurea



Matteuccia struthiopteris

Geum triflorum

Pteridium aquilinum

Ceanothus americanus

Ground Cover

Asarum canadense

Packera obovata

Geranium maculatum

Understorey / Successional Trees

Amelanchier canadensis

Populus tremuloides

Hamamelis virginiana

end