

KOEBERG INTERCHANGE EMPOWERMENT



The Challenge

- **Can we (DTPW) intervene in poverty – how, when & what do we do practically that is within our mandate & resource base to bridge wealth & poverty?**
- **How do we contribute to growth and broaden economic participation?**
- **How do we need to organize ourselves to do this?**

Problem

- **Increase impact on poverty alleviation?**
- **Develop 2nd Economy through 1st Economy initiatives?**
- **Align service providers with developmental and empowerment approach?**

Affirmative Procurement

- **Unbundling of Koeberg into 4 contracts for empowerment access and opening for smaller/ black contractors**
- **Empowerment Impact Assessment was developed to set targets**
- **Targets are focused on local economic opportunities to benefit black communities**

Unbundling Project

Unbundling of Koeberg into 4 contracts

- **Interchange Construction** **R591m**
 - Canal alignment (R17.5m)
- **Table Bay Boulevard** **R133m**
- **Street Lighting** **R25m**
- **Landscaping** **R15.5m**

Empowerment Targets

- **HDI Targets set in Tender Contract:**

- Local Sub-Contractors 20%
- Local Women Sub-Contractors 10%
- Local labour - from targeted areas 10%

- **Procurement**

- Raw Materials from Suppliers on Levels 1 to 4.
- All other procurement: suppliers, manufacturers, service providers from HDI Suppliers (50%).

Empowerment Deliverables

- **Job Creation**
- **Skills Training**
- **Enterprise Development**
- **Community Empowerment**
- **Maximum financial benefits to the Communities**

Monitoring and Evaluation

- **Contractor must report monthly on empowerment targets, job creation and skills development**
- **A unit will be set up to monitor the contract by the departmental empowerment unit**
- **The EPWP monitoring framework will be used**

Koeberg Interchange Tender

- **3 offers were received**
- **Lowest offer, accepted R591m**
- **Difference between three offers about 7%**
- **Lowest Offer only 5% above Estimate**
- **Successful company: Paardeneiland JV**
 - **Group 5 and Power Construction**

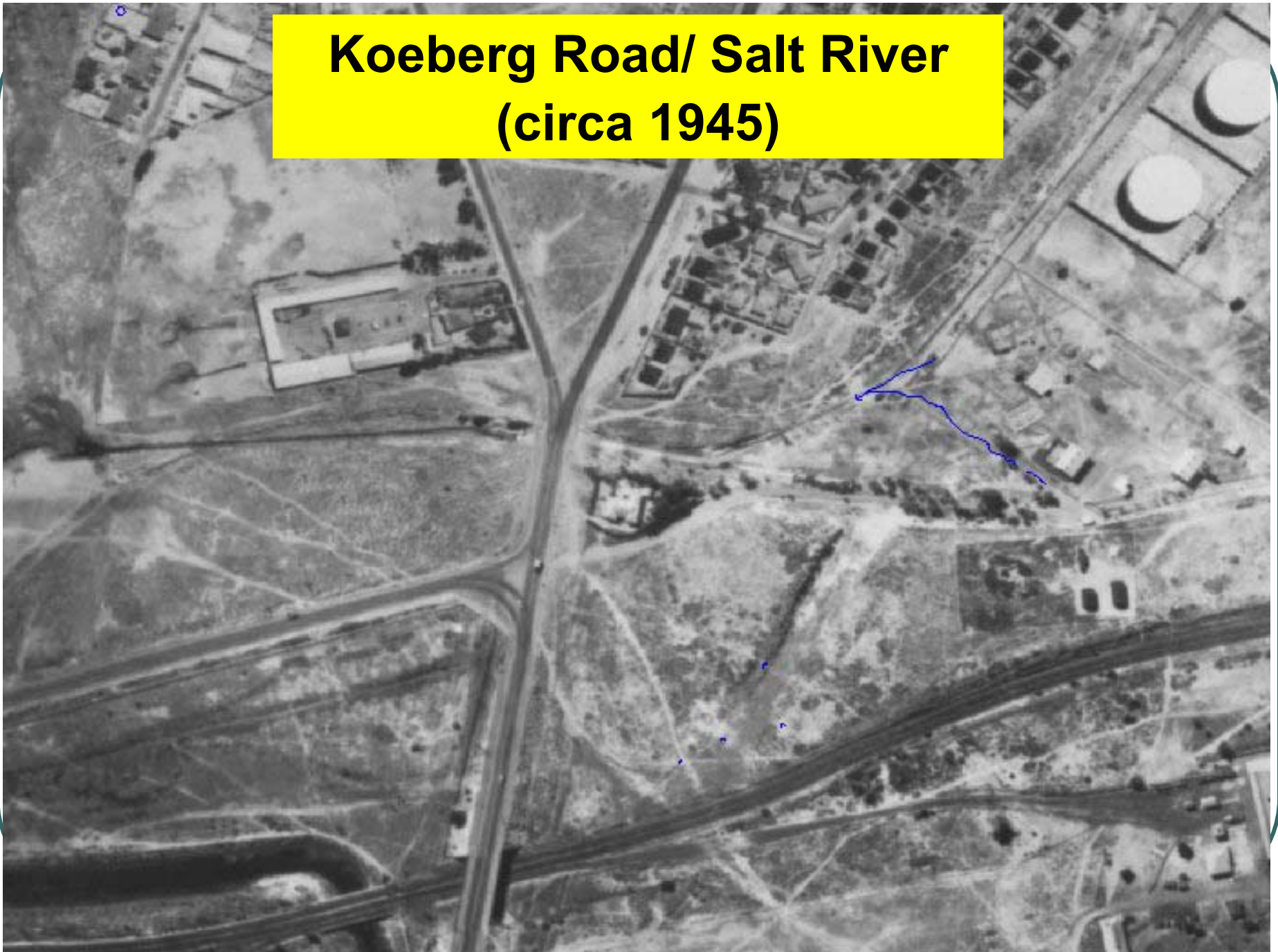
STRUCTURE OF PRESENTATION

- Context of the Upgrading
- Describe Scope of Works
- Fast-track Nature of Project
- Clustering of major projects
- SWC 2010 Components

CONTEXT OF THE UPGRADING

- Some historical photographs
 - Circa 1945
 - Circa 1951
- Multi-Modal Transport Plan
 - 2010 & beyond

**Koeberg Road/ Salt River
(circa 1945)**



**Koeberg Road/ N1/ Salt River
(circa 1951)**



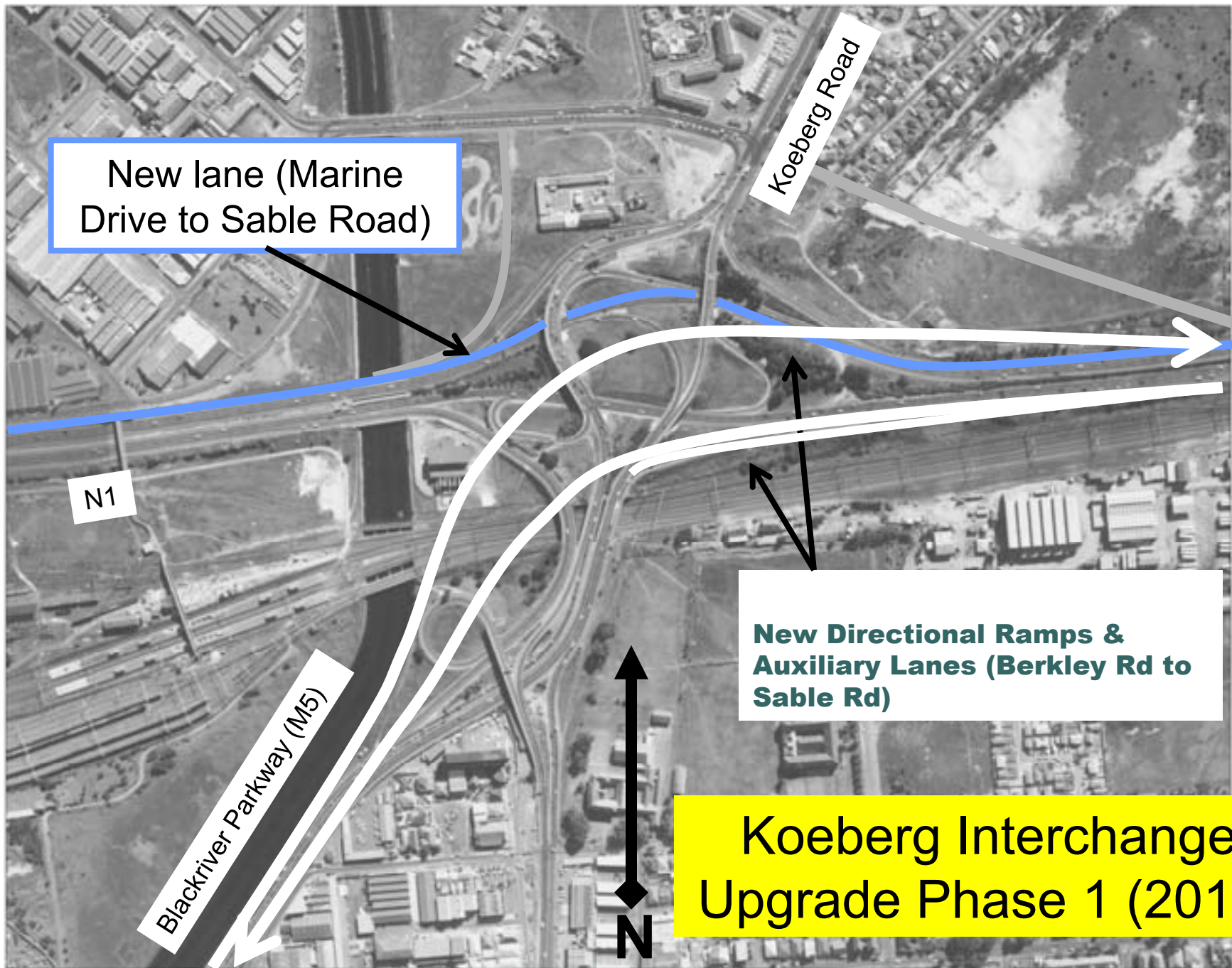
DESCRIPTION OF N1 CORRIDOR / KOEBERG INTERCHANGE IMPROVEMENTS

- Integrated Multimodal Transport Plan for N1 Corridor
- Koeberg Interchange & Environs Improvements in 3 Phases
 - Phase 1 : This contract
 - Phase 2 : BRT Busway
 - Phase 3 : Completion of other road infrastructure improvements

N1 CORRIDOR

BRT BUSWAY





New lane (Marine Drive to Sable Road)

Koeberg Road

N1

Blackriver Parkway (M5)

New Directional Ramps & Auxiliary Lanes (Berkley Rd to Sable Rd)

Koeberg Interchange Upgrade Phase 1 (2010)



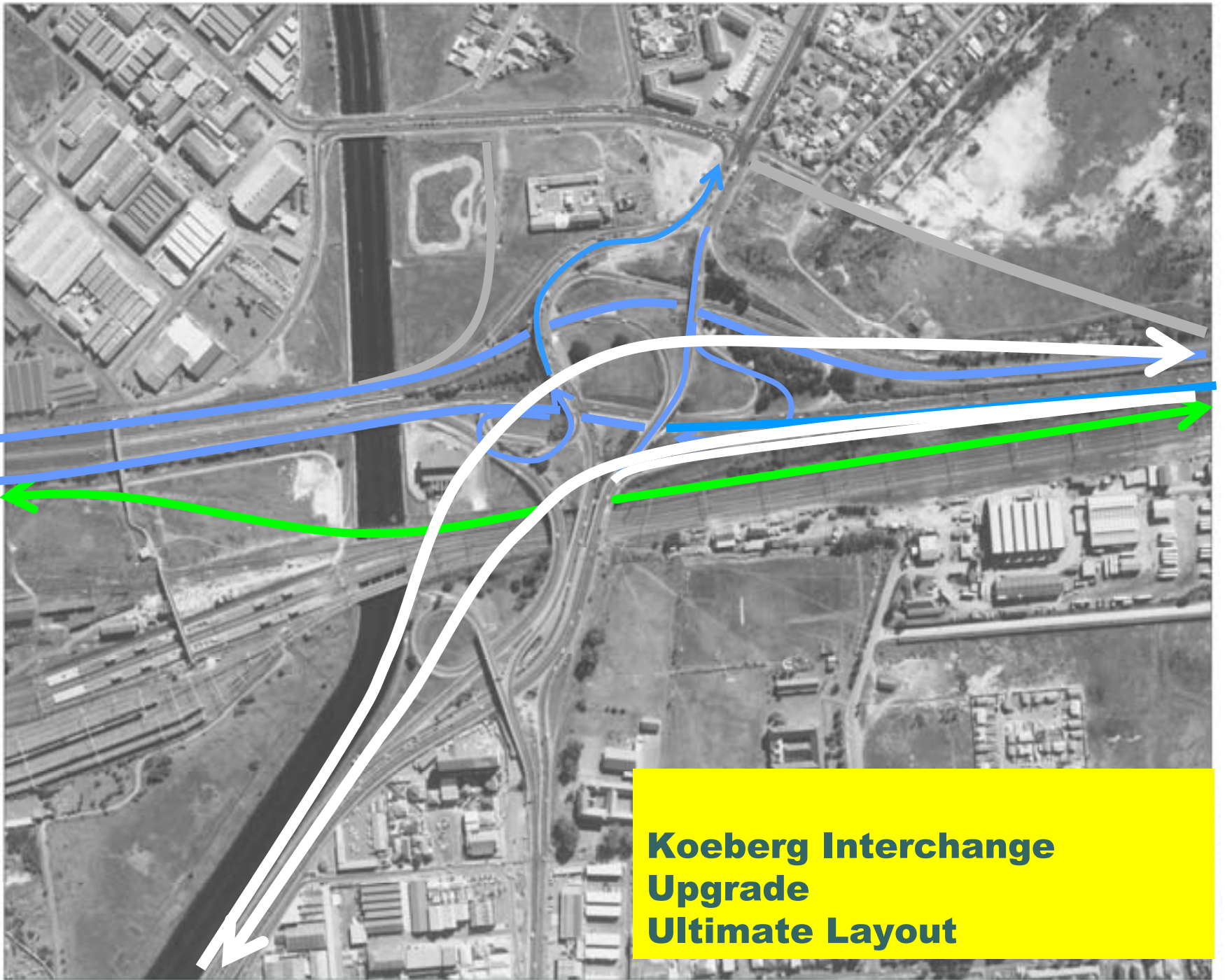
Koeberg Interchange Upgrade Phase 1 (2010)



Koeberg Interchange Upgrade Phase 1 (2010)



Ramps A & B



**Koeberg Interchange
Upgrade
Ultimate Layout**

DESCRIPTION OF SCOPE OF WORKS

- **Structures**
 - Viaducts A & B
 - Widening of M5 Viaduct
 - Widening of various minor structures
- **Roads**
 - Additional lanes on N1 & M5 carriageways
 - Rehabilitation : Table Bay Boulevard (2km section)
 - Rehabilitation : ramps within Koeberg Interchange
- **Ancillary Works**
 - Salt River Canal Realignment
 - Services Relocation
 - Traffic Accommodation
 - Street Lighting
 - Landscaping

DIRECTIONAL RAMPS A AND B

- Column spacing
- Precast U beams
- Transnet/SARCC Approval
- In-situ box sections over railway, M5 & N1
- Interchange aesthetics

Koeberg Interchange Upgrade Phase 1 (2010)

Viaduct Widening
375m, 7.4m wide
Prestressed T
beams 7.3m to
21.3m long

Ramp B
690m long
10.7m wide

Ramp A
640m long
10.7m wide

*Precast prestressed U-
beams:*

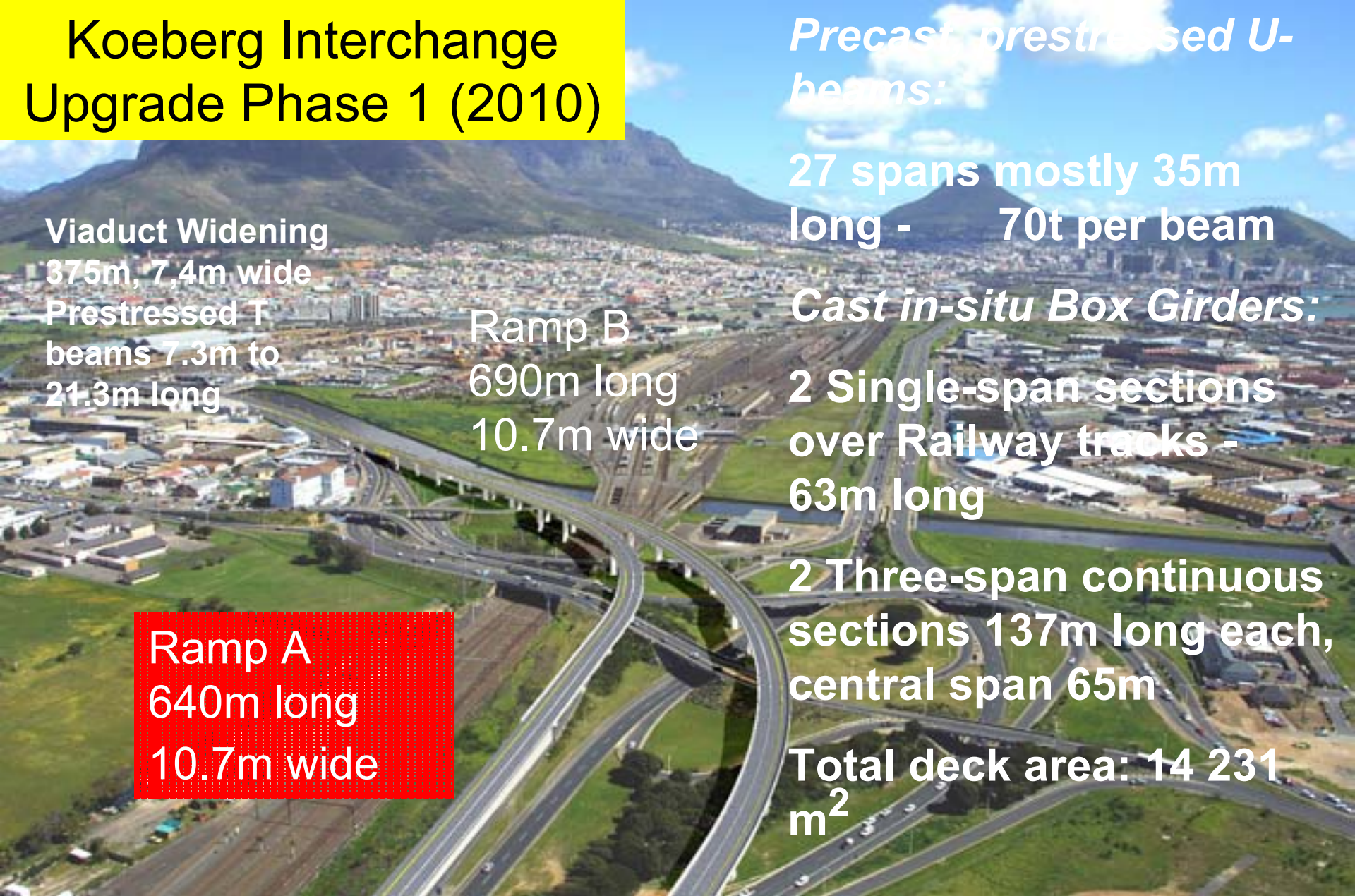
27 spans mostly 35m
long - 70t per beam

Cast in-situ Box Girders:

2 Single-span sections
over Railway tracks -
63m long

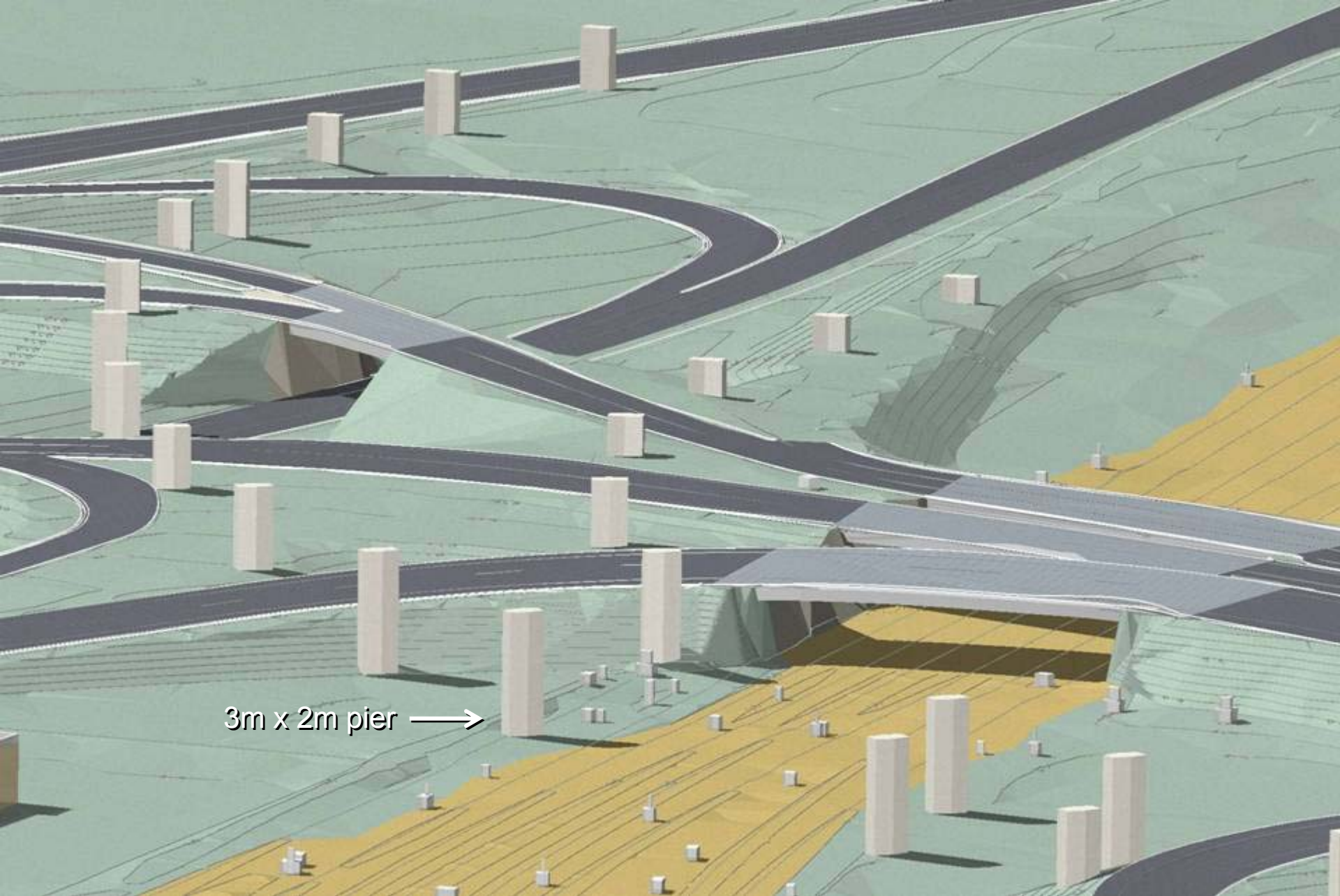
2 Three-span continuous
sections 137m long each,
central span 65m

Total deck area: 14 231
m²

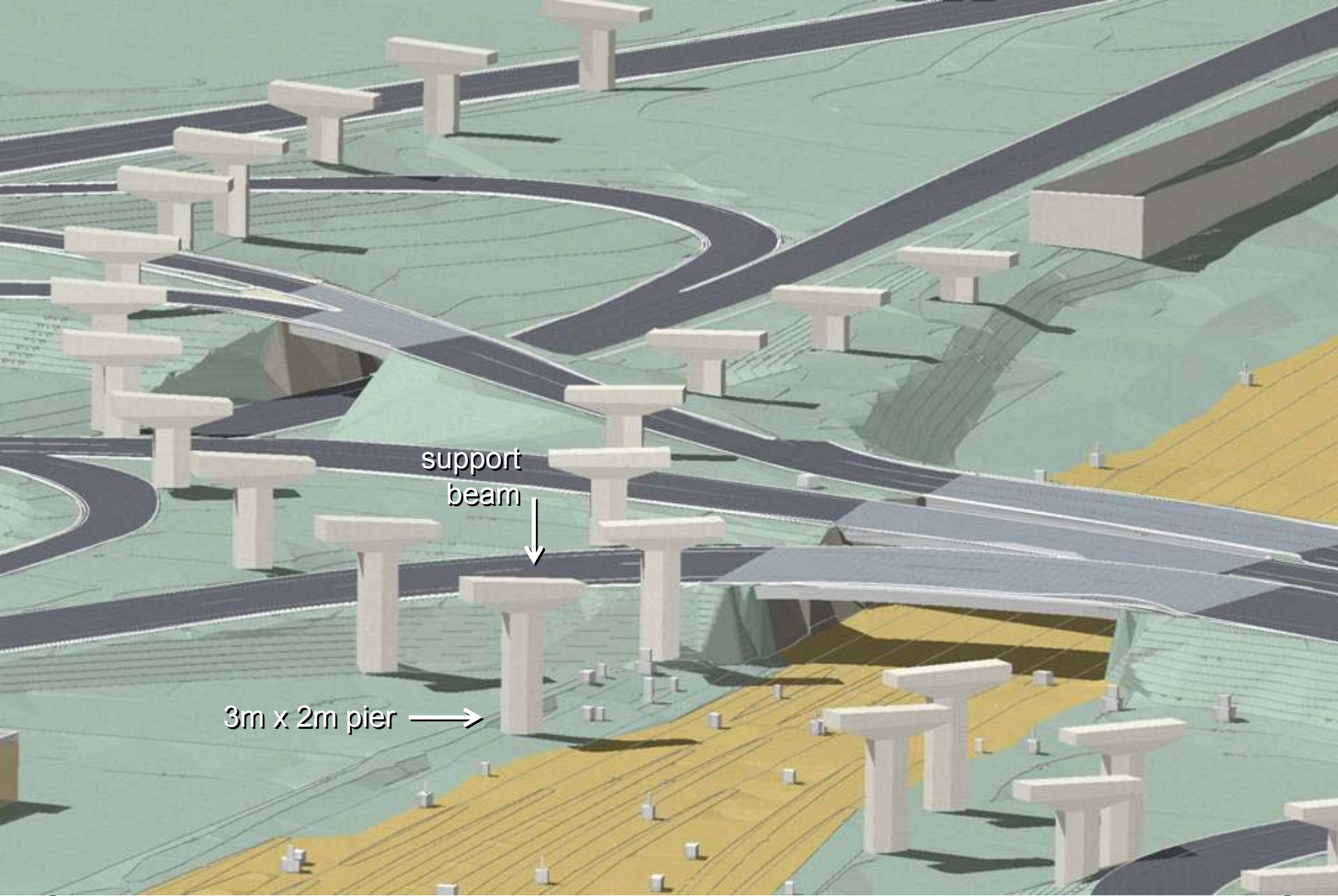


Existing Conditions





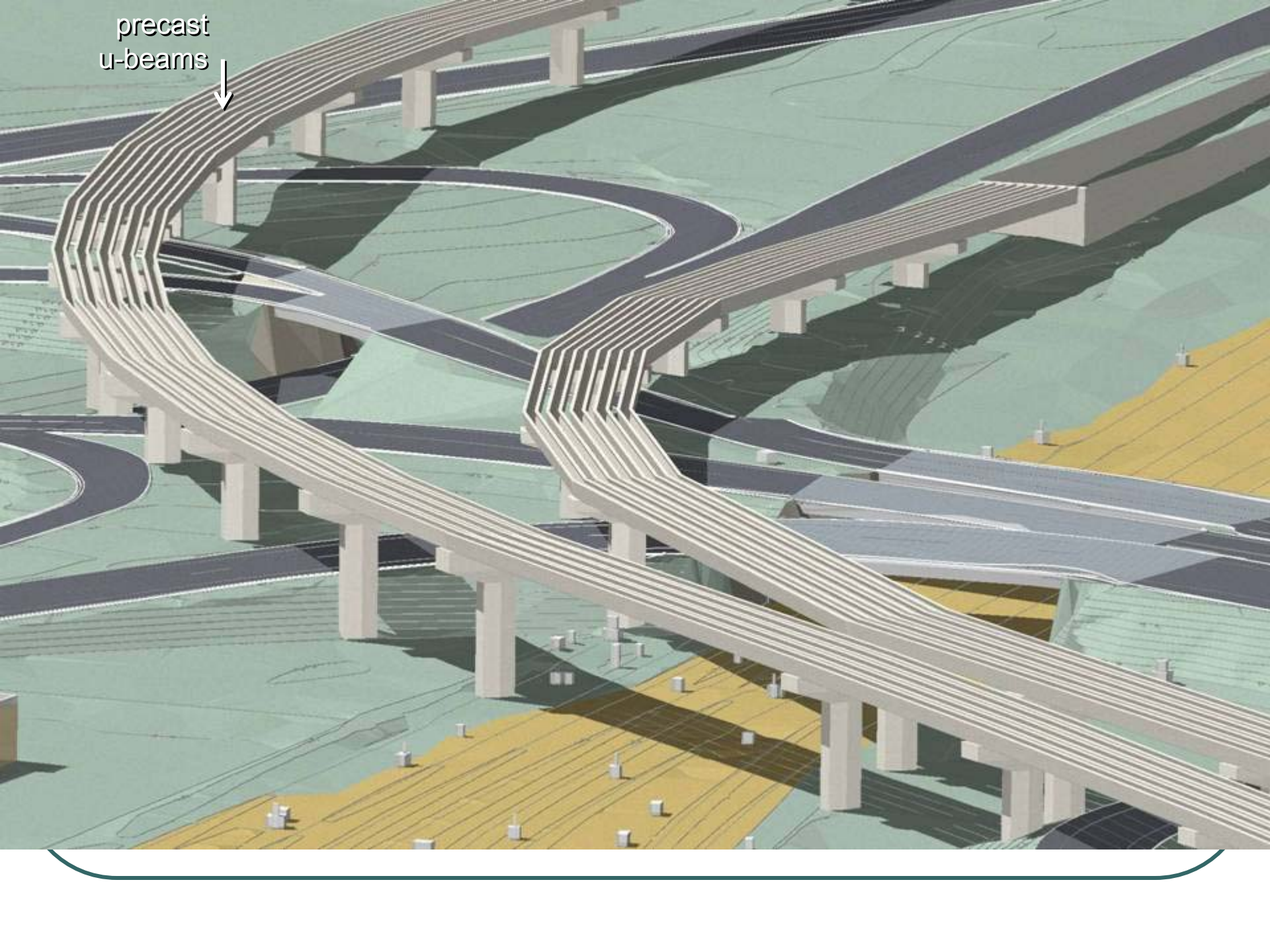
3m x 2m pier →



support
beam

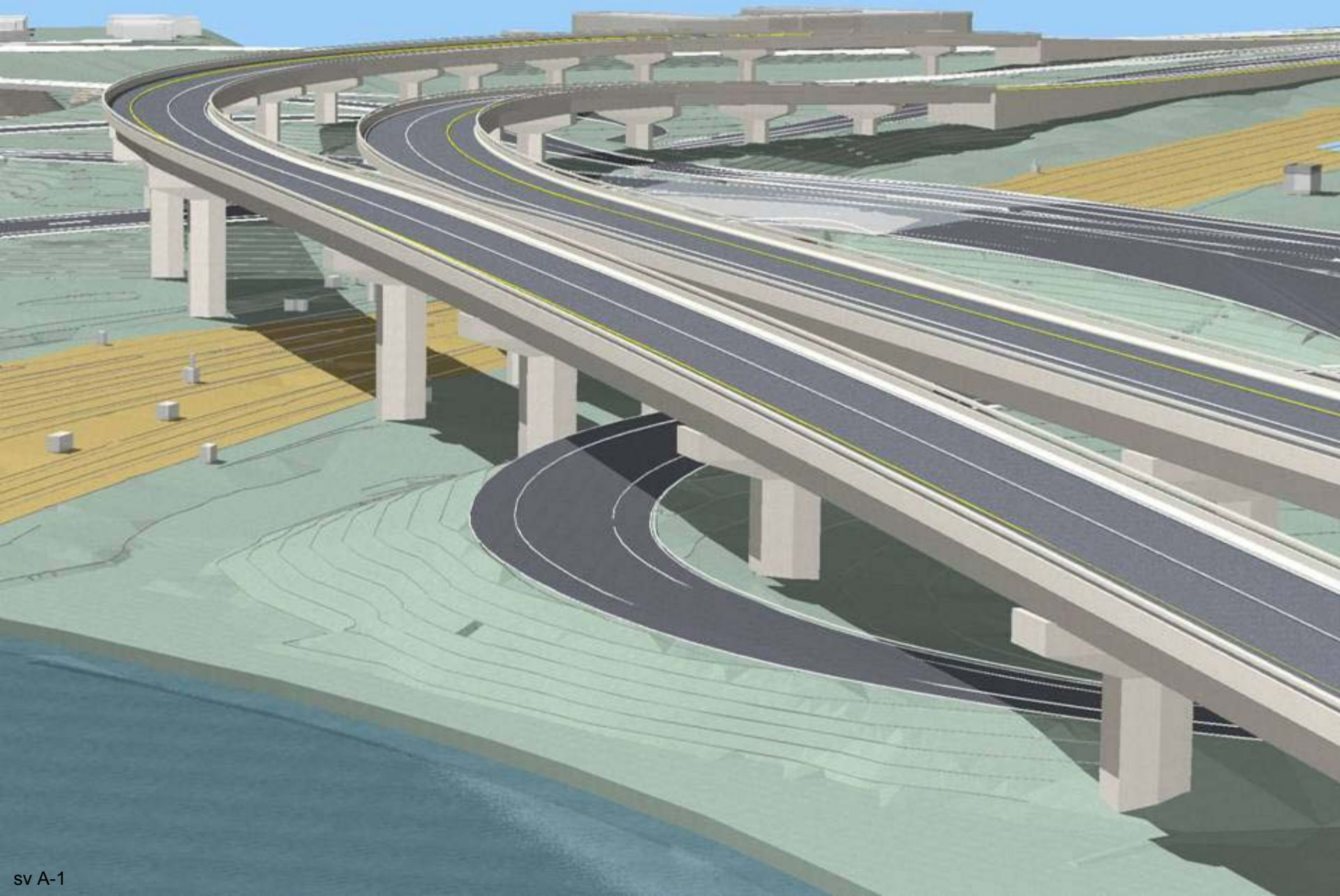
3m x 2m pier

precast
u-beams

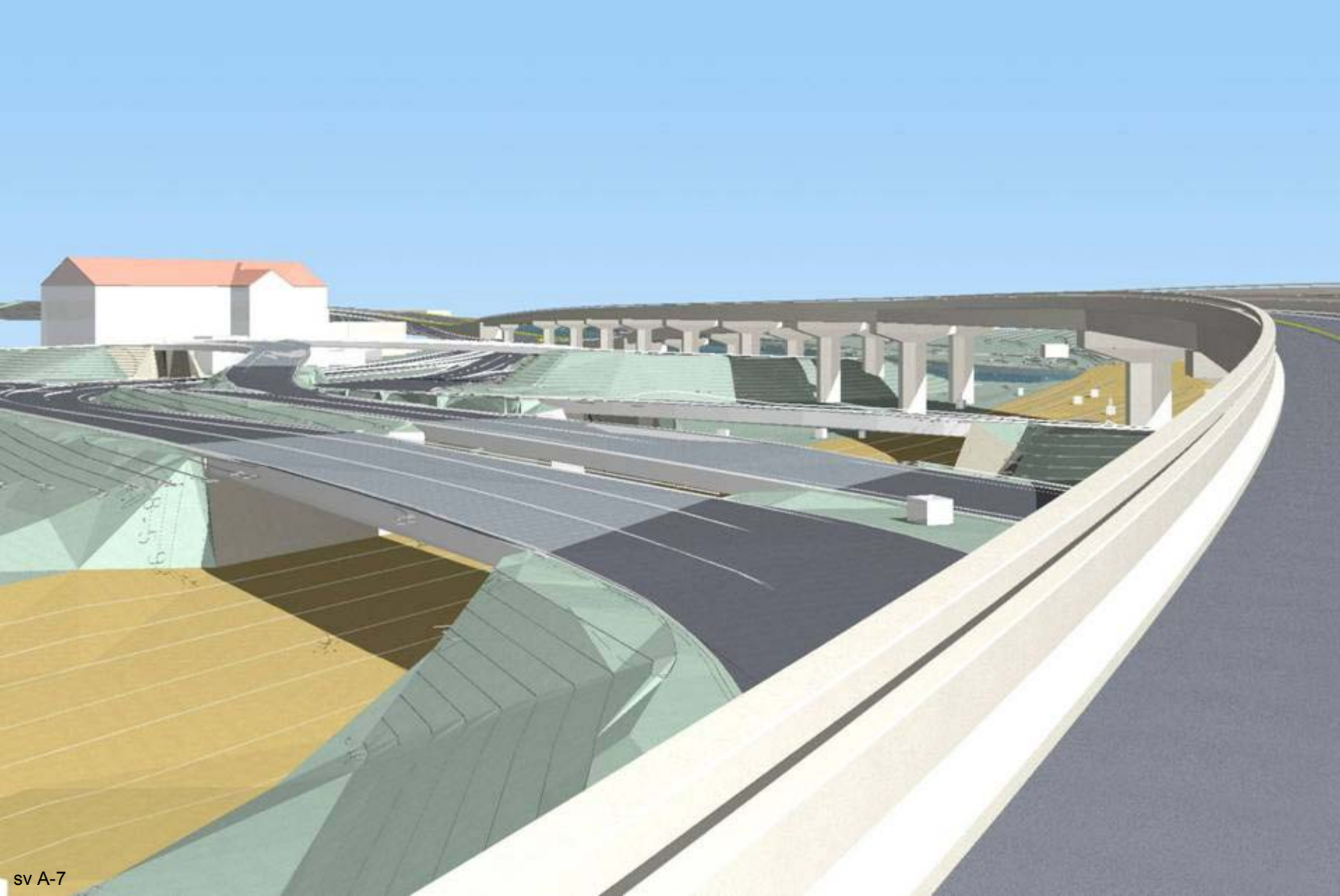


WCPA
parapet





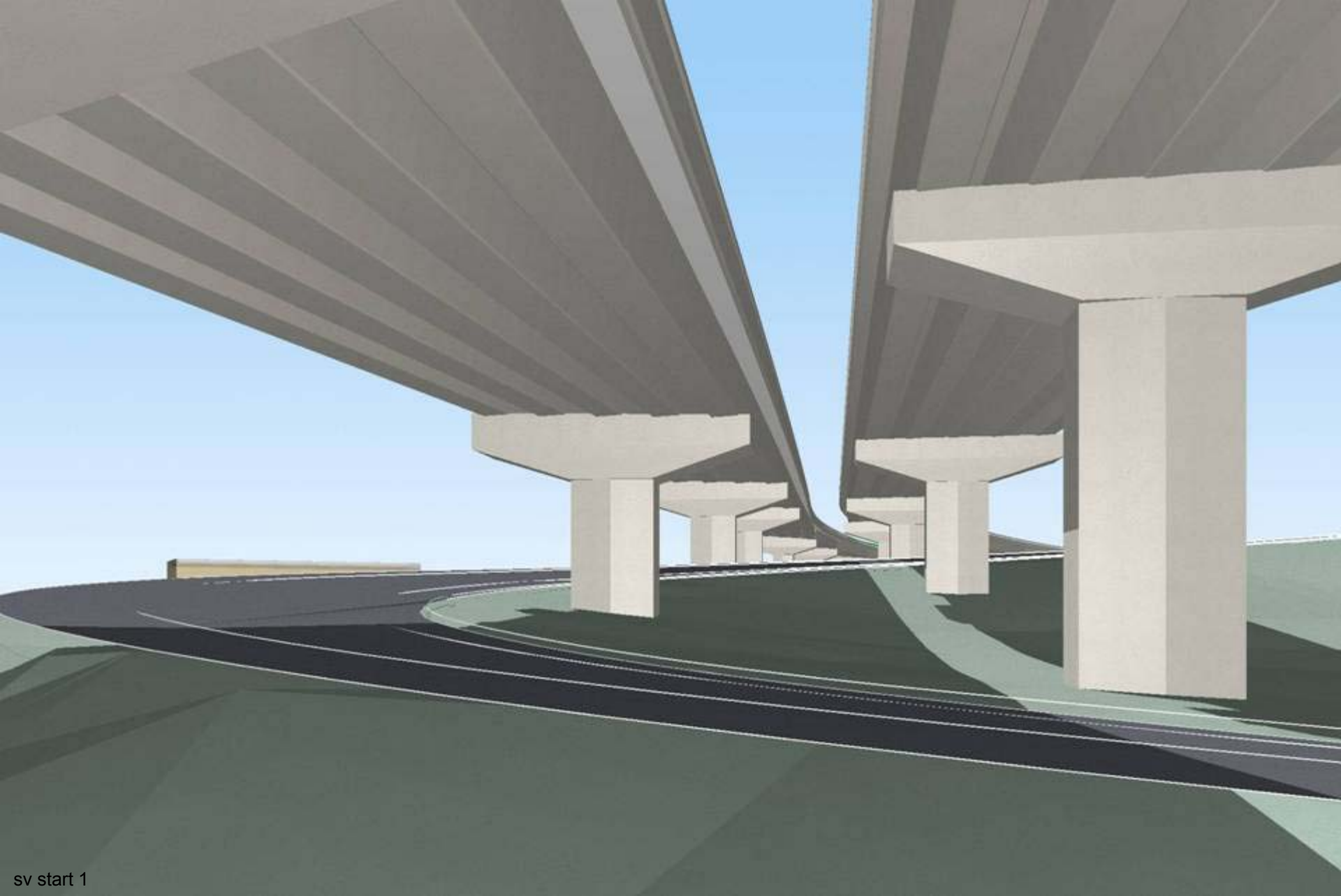
sv A-1



sv A-7



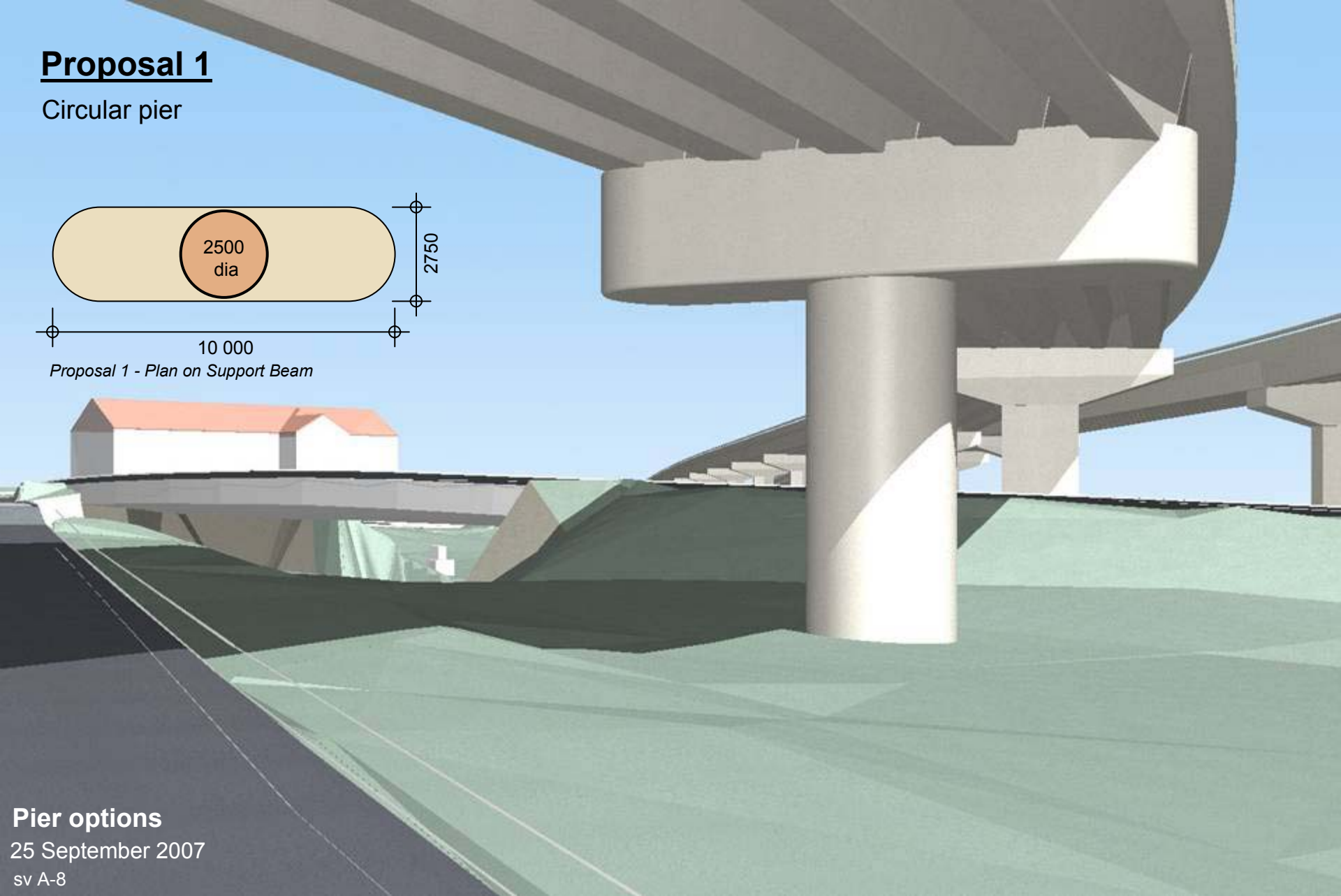
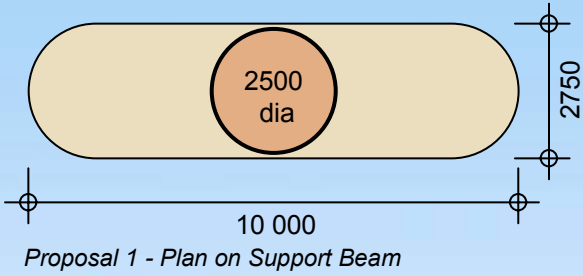
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sv start 1

Proposal 1

Circular pier



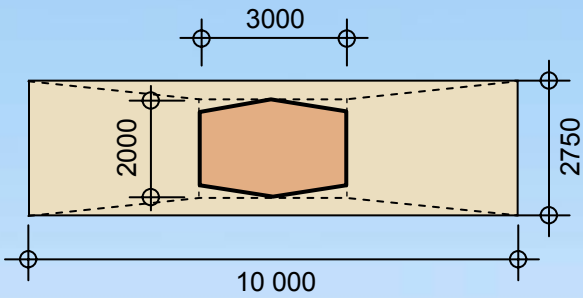
Pier options

25 September 2007

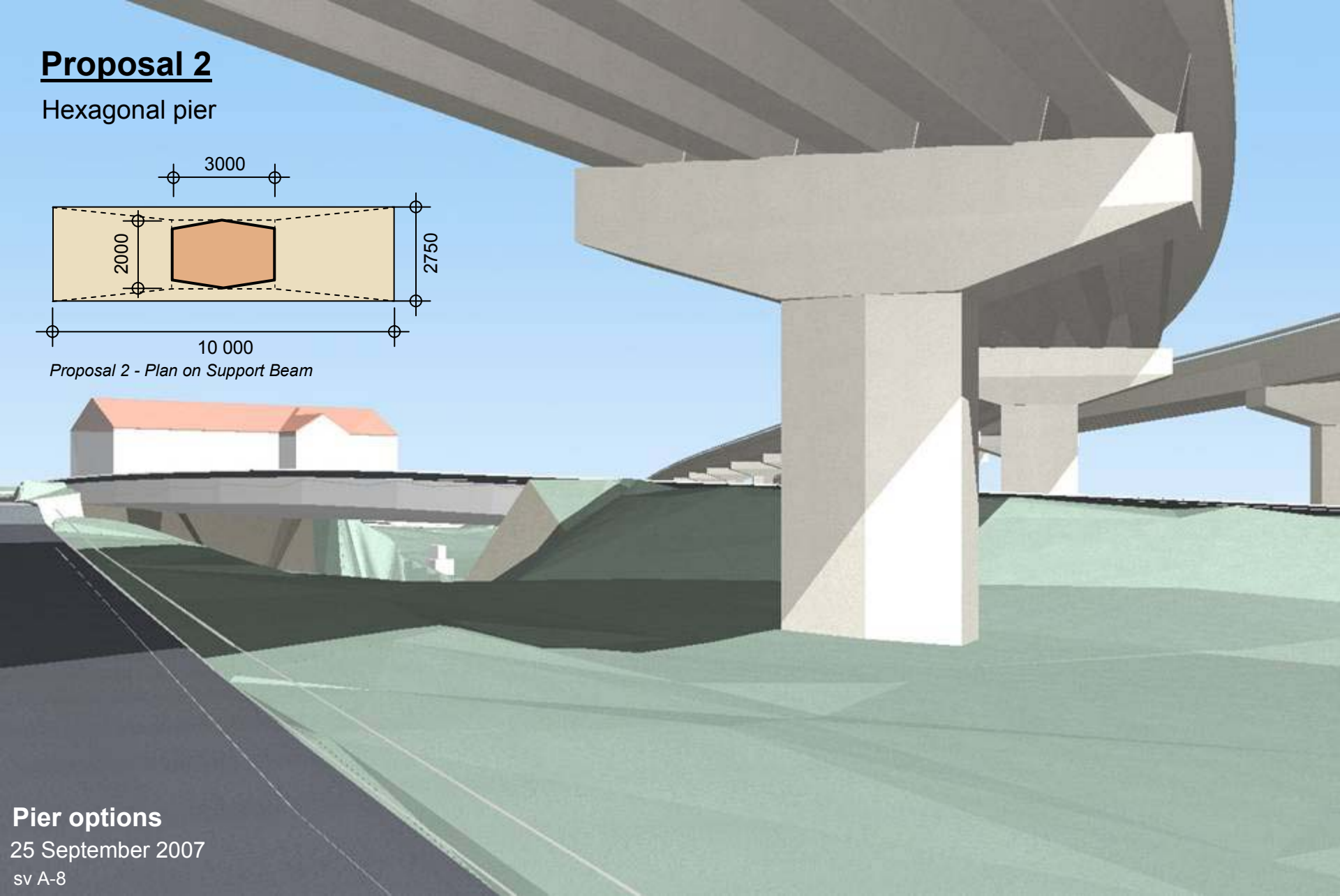
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Proposal 2

Hexagonal pier



Proposal 2 - Plan on Support Beam



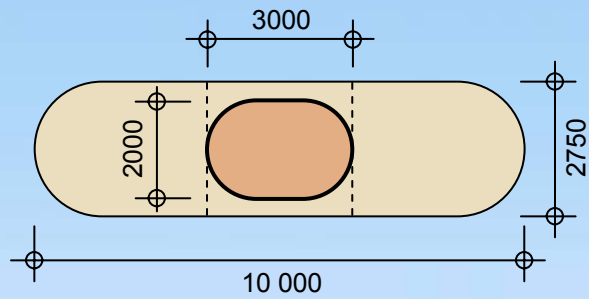
Pier options

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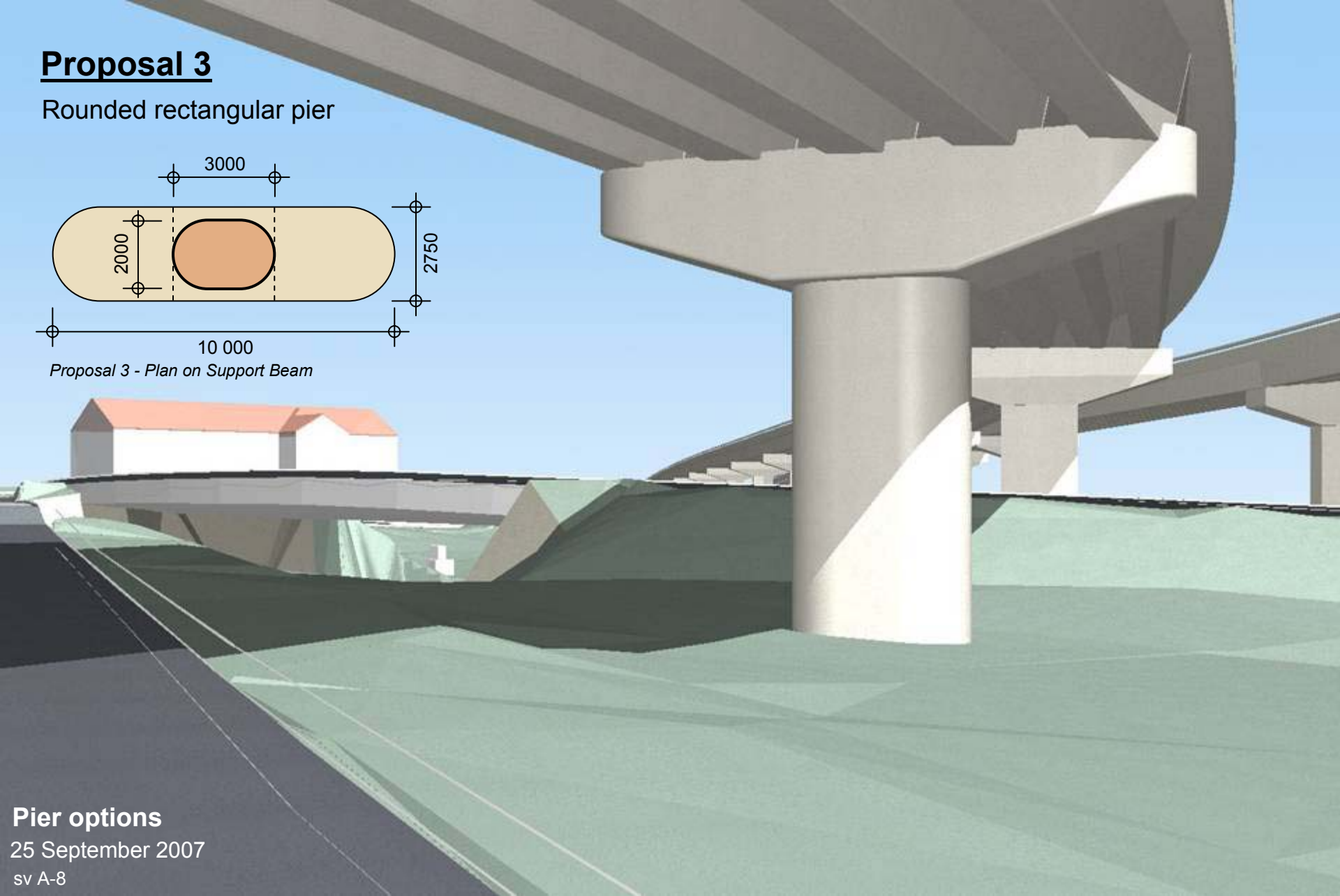
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Proposal 3

Rounded rectangular pier



Proposal 3 - Plan on Support Beam

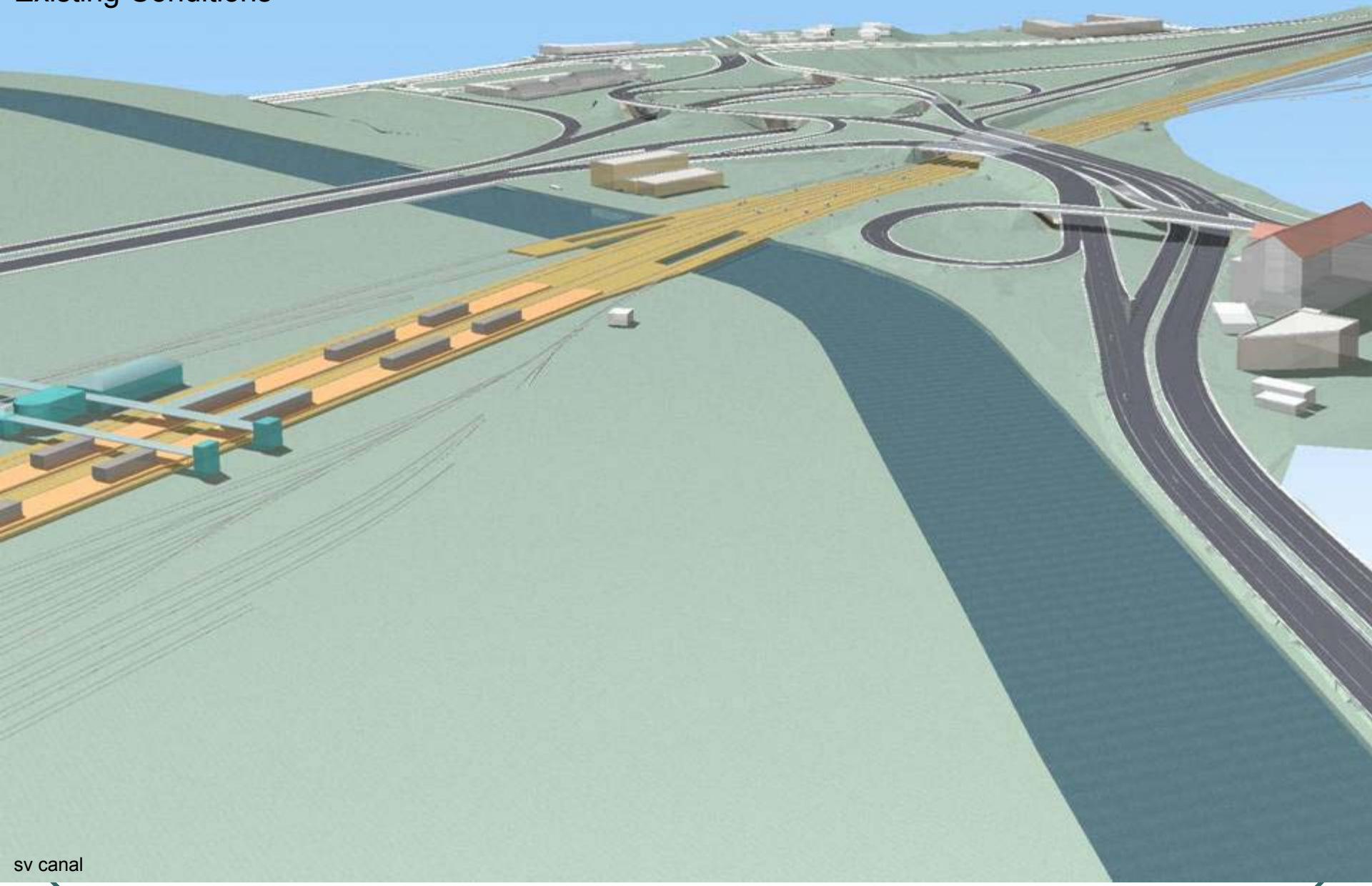


Pier options

25 September 2007

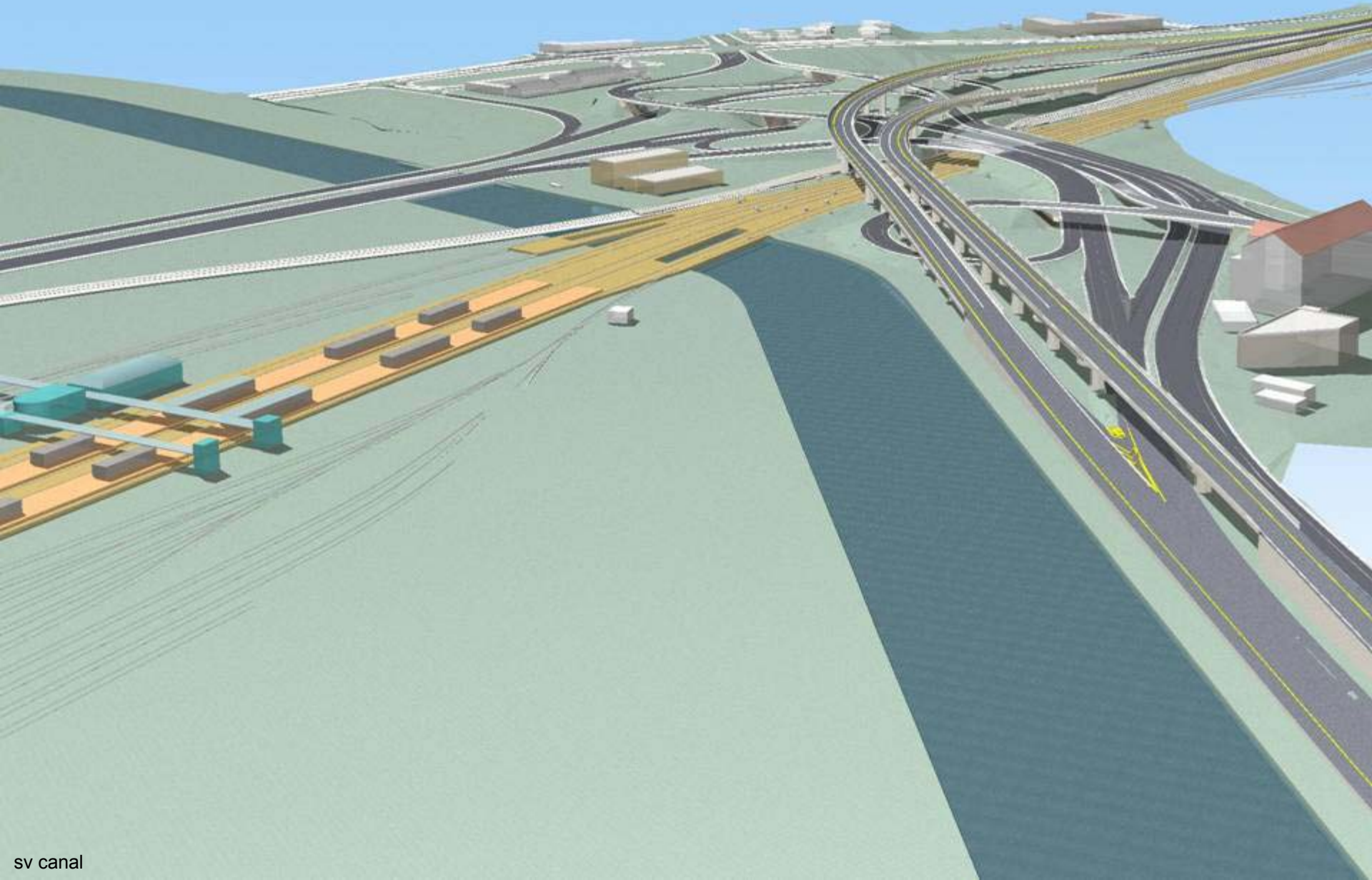
sv A-8

Existing Conditions



sv canal

Phase 2



sv canal

OTHER STRUCTURAL ELEMENTS

- M5 Viaduct Widening
- Table Bay Boulevard- Railway Bridge Widening
- Table Bay Boulevard- Canal Bridge Widening
- Table Bay Boulevard – New Pedestrian Bridge
- New Services Pedestrian Bridge (Salt River)
- N1/M5 Jack Span Retaining Wall

EXISTING M5 VIADUCT



PARAPETS AND MEDIAN BARRIER

- Precast & Profile

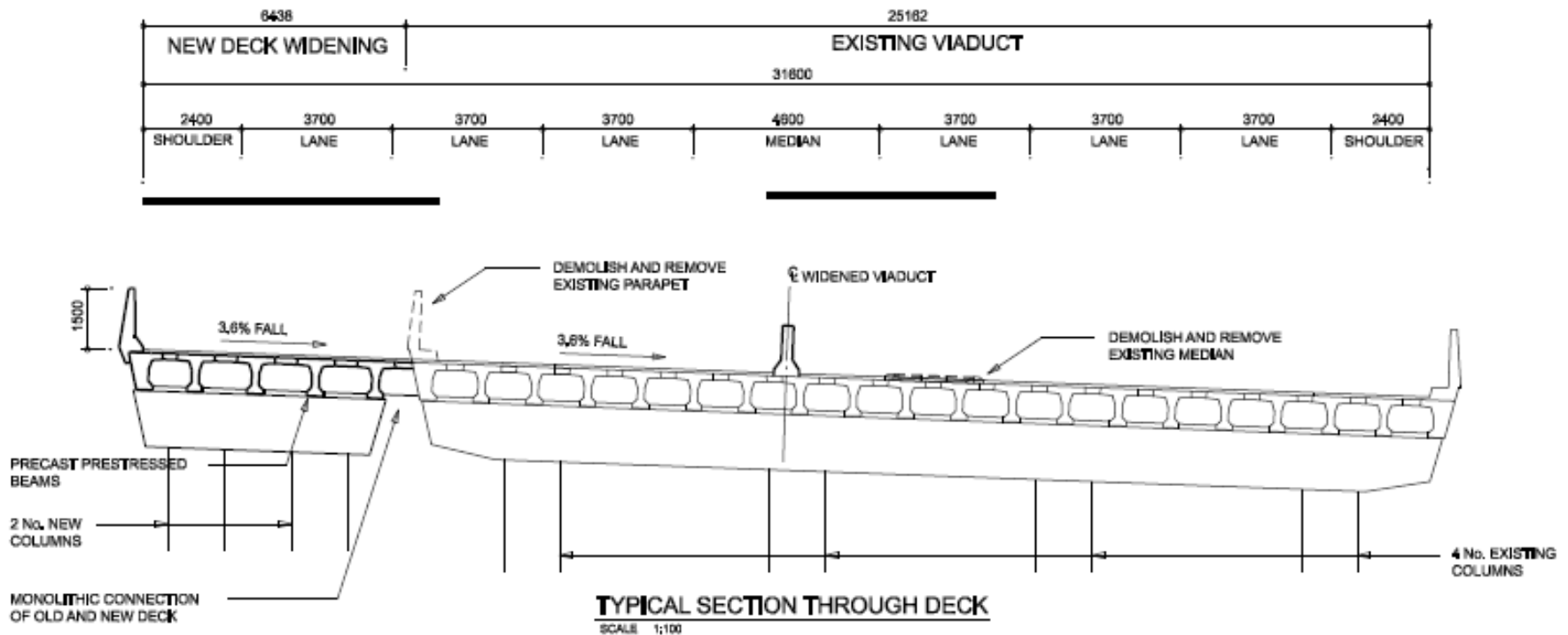


TABLE BAY BOULEVARD/RAIL BRIDGE WIDENING

- Bridge widening
- 10,4m wide span
- Piles/spread footings
- Reconstruct portion of deck



TABLE BAY BOULEVARD/CANAL BRIDGE WIDENING



SERVICES PEDESTRIAN BRIDGE



N1/M5 JACK SPAN RETAINING WALL



SALT RIVER CANAL RELOCATION

- Agreement to realignment (CCT/Intersite)
- Environmental Authorisation (DWAF / DEADP)
- Critical path construction activity
- Alt canal walls : gabions selected





ROADWORKS

- **New Roadworks**

- Additional lanes on N1/M5 carriageway
 - N1 outbound lane (4 500m)
 - N1 inbound lane (2 800m)
 - M5 both carriageways (360m)

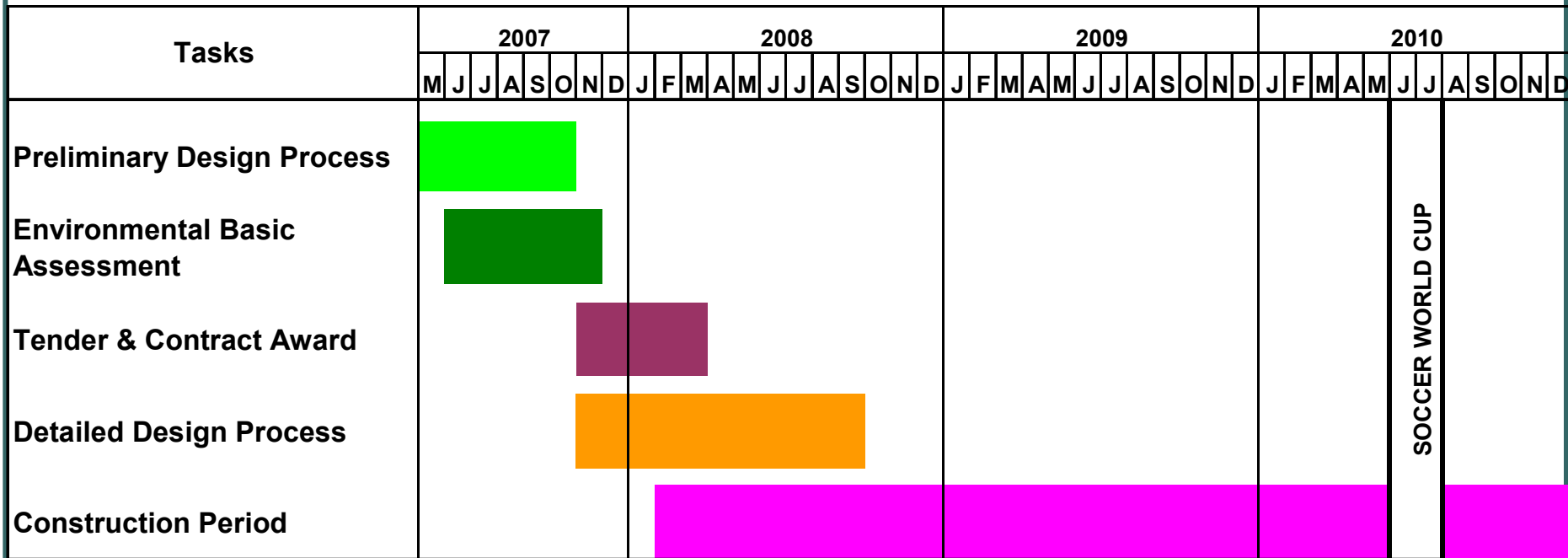
- **Rehabilitation**

- Rehabilitation / Reconstruction of Table Bay Boulevard
 - Both carriageways (2 000m)
- Rehabilitation of Ramp in Koeberg Interchange
 - Selected sections of ramps
 - Approaches to directional ramps (520m)
 - New ramp 1 (300m)
 - Modified ramp 6 (200m)

ACCOMMODATION OF TRAFFIC

- N1 & M5 / Koeberg Interchange operate at close to capacity 05h30 – 19h30 all weekdays. Weekend not much better !
- Accommodation of traffic major constraint
- No lane reductions during peak/busy traffic periods
- Ramp closures for beam placing only at night and on Sundays
- Local deviations for construction

2010 “Fast Track” Project Implementation Programme Koeberg Interchange Phase 1



SOCCER WORLD CUP

Soccer World Cup

DESIGN TEAM

- Lead Consultant : HHO Africa
- Directional Ramps : HHO Africa
- M5 Viaduct Widening Canal Realignment : Asch/Bergstan
- Roadworks : HHO Africa
- Streetlighting : Goba
- Signs & Overhead Gantries : Jeffares & Green

Specialist Consultants

- Bridge Architects : GAPP Architects
- Landscaping Architects : OvP & Associates
- Environmental Consultants : De Villiers & Brownlie

CONSTRUCTION TEAM

Main Contractor

- Group 5 and Power Construction

Sub-Contractors

- Piling : Frankipile
- Pre-stressing : Freyssinet
- Canal Diversion : Darson Civils
- Services / civil works : Darius Civils
- Signage : Otto Signs
- Variety other sub-contractors : bridge joints, reinforcement, accommodation of traffic, pipe laying, kerbing, fencing, transport, training etc

CONTRACT VALUE

(exc VAT / Contingencies / CPA)

- Koeberg Interchange: R471,3m
- Table Bay Boulevard Reconstruction R104,4m
- Street-lighting :
R22,0m
- Landscaping :
R13,0m
- Pioneer Services Relocation Contract :
R2,5m



↑
Ramp B to N1 Paarl

←
to N1 Cape Town
& M5 Milnerton

M5 heading North from Muizenberg



↑
Ramp B to N1 Paarl

←
to N1 Cape Town
& M5 Milnerton

M5 heading North from Muizenberg



V3

M5 heading East from Milnerton



V3

M5 heading East from Milnerton



V4

N1 heading West to Cape Town



V4

N1 heading West to Cape Town



V5

N1 heading East to Paarl





LIGHT_A-6

Aerial View (day)

MAJOR BENEFITS FOR UPGRADING

- Directional ramps linking N1 & M5 (Removal of conflicting weave movements)
- Additional N1 outbound lane (Additional road capacity (outbound only) through Koeberg Interchange)
- Certain safety improvements (Ramp M5 to N1)



DEPARTMENT OF TRANSPORT & PUBLIC WORKS

**C880 : KOEBERG
INTERCHANGE
UPGRADING (PHASE 1)**

THANK YOU