
EDGARS CREEK - RONALD STREET FOOTBRIDGE

INFORMATION EVENING

D18/420644

Tonight's Agenda

- Location and brief history
- Feasibility study outcomes and adopted alignment by Council
- Structural form design options
- Interactive discussion
- Project Timelines
- Further questions

Location



The old bridge

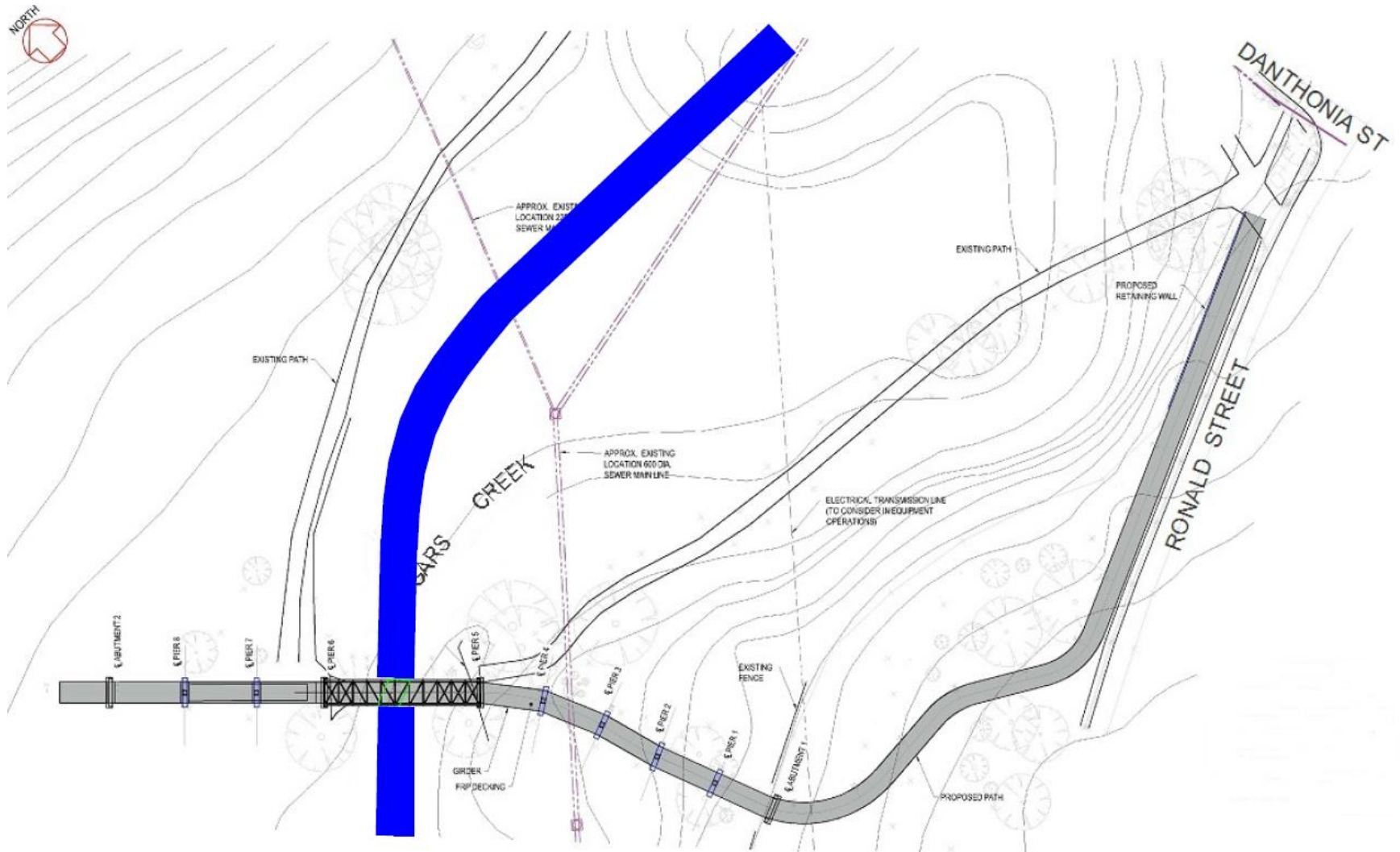


The original bridge built well below frequent flood levels, requiring regular repair until destroyed by flooding in late December 2016

Feasibility Study

- Feasibility study to investigate options for a replacement bridge and/or formalised path was completed and considered by Council at its meeting on 11 April 2018.
- Council endorsed to proceed with Option 1B of the Feasibility Study Report, which is to construct a new bridge just south of the original location with a path to Ronald Street.

Adopted Alignment



Adopted Alignment



Concrete Path along Ronald Street

Adopted Alignment



Concrete Path through parkland

Adopted Alignment



Concrete Path through parkland

Adopted Alignment



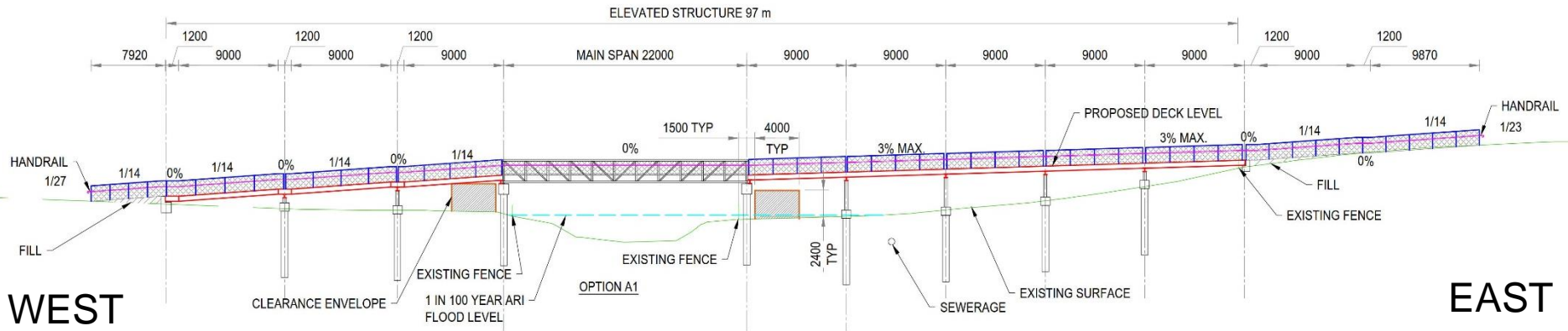
Concrete Path leading onto raised boardwalk

Adopted Alignment



Bridge crossing from east to west

Vertical Alignments



OPTION 1

ADVANTAGES

Main Span 0% gradient for flat level

- comfortable to all users

Clearance below Approaches

- Maintain access under the approach spans (on both sides)

DISADVANTAGES

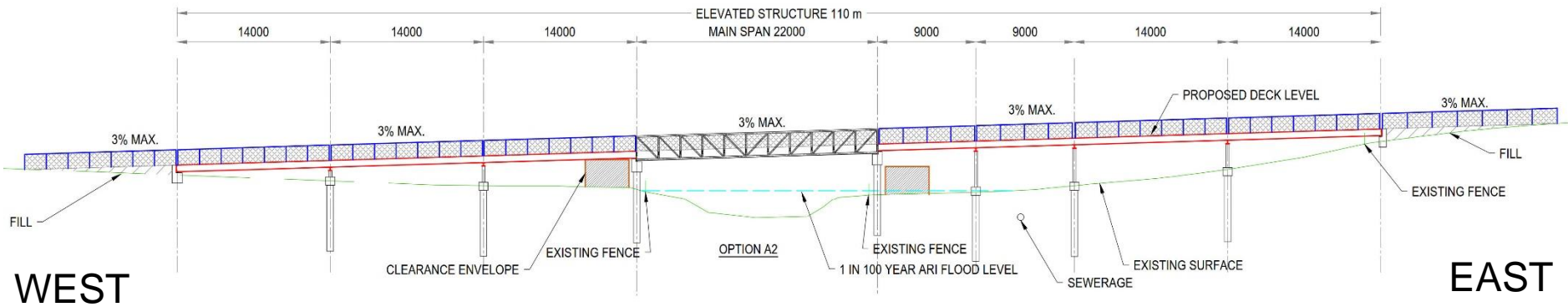
1/14 gradient on approaches

- may be unpleasant for cyclists
- require safety handrails, thus increase the overall structure width

Clearance below Approaches

- increase overall length of elevated structure (97m)
- visual impact to the environment

Vertical Alignments



OPTION 2

ADVANTAGES

Structure 3% gradient

- acceptable to all users
- safety rails are not required, thus no additional width of structure
- smooth appearance

Clearance below Approaches

- Maintain access under the approach spans (on both sides)

DISADVANTAGES

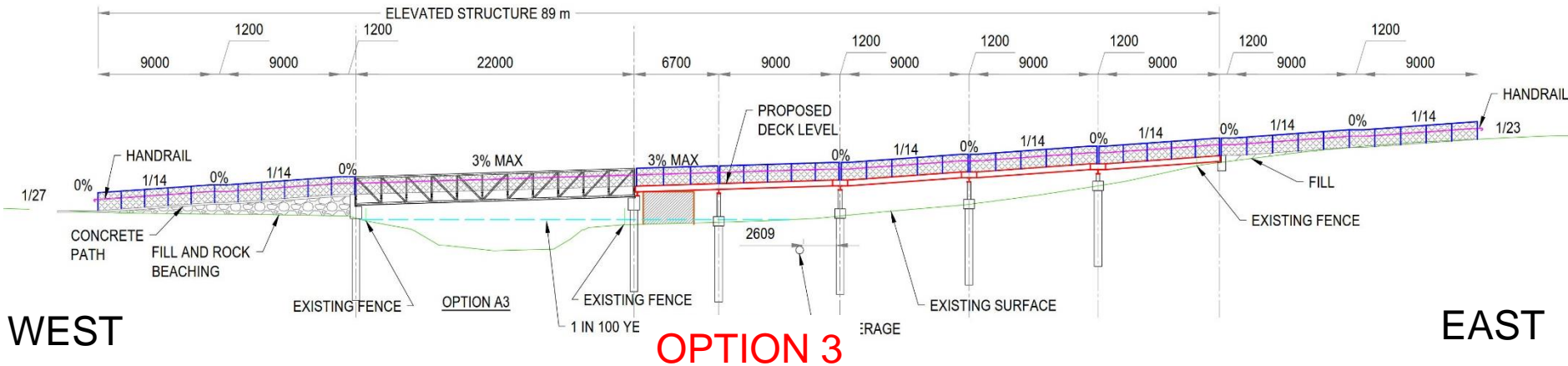
Structure 3% gradient

- Increase overall length of elevated structure (110m)

Clearance below Approaches

- Increase overall length of elevated structure (110m)
- Visual impact to the environment

Vertical Alignments



ADVANTAGES

Structure 1/14 gradient

- Reduce overall length of elevated structure (89 m)

No clearance below West approach

- Lower the height of structure, thus less visual impact while maintaining linkage to existing north/south path on west side of creek

DISADVANTAGES

Structure 1/14 gradient

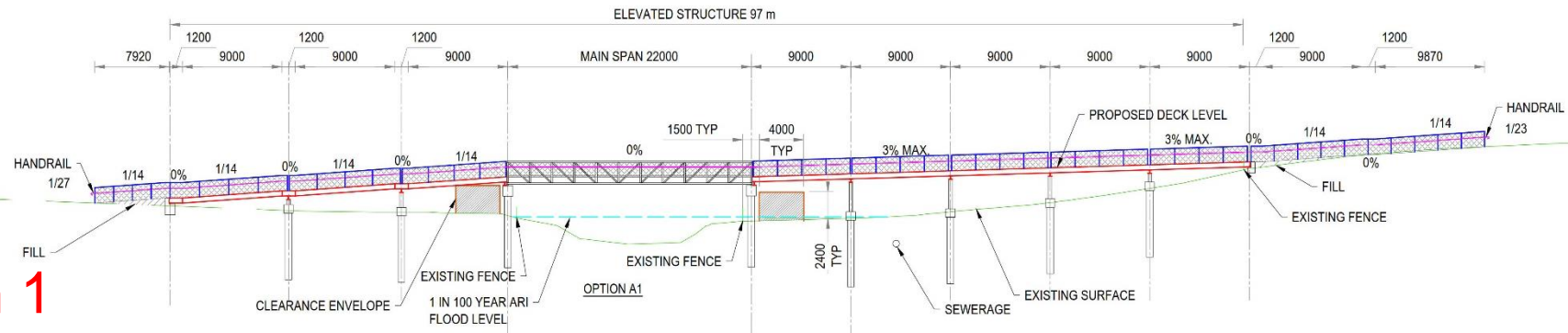
- may be unpleasant for cyclists
- require safety handrails, thus increase the structure width

No clearance directly below West approach

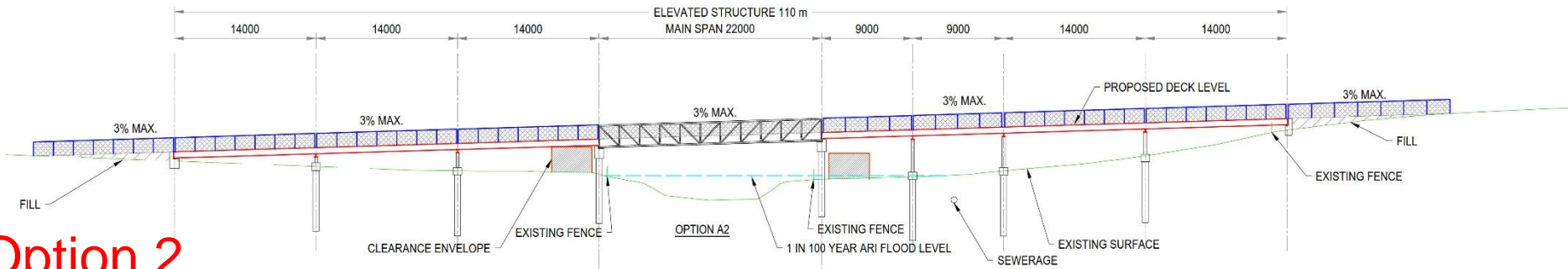
- Block access along south bank of creek but still maintain linkage to existing north/south path on West side of creek.

Vertical Alignments

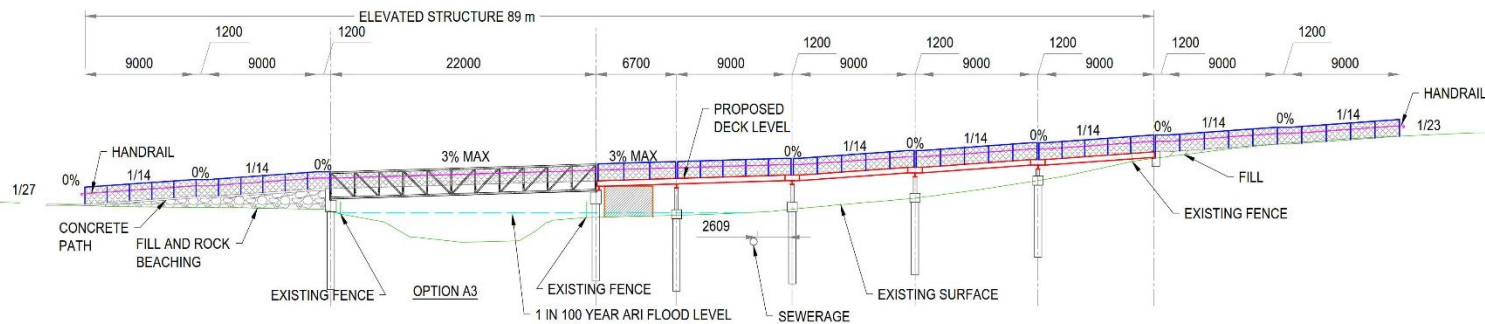
Option 1



Option 2



Option 3



Structural Form Design Options

Option 3 – Project Costs

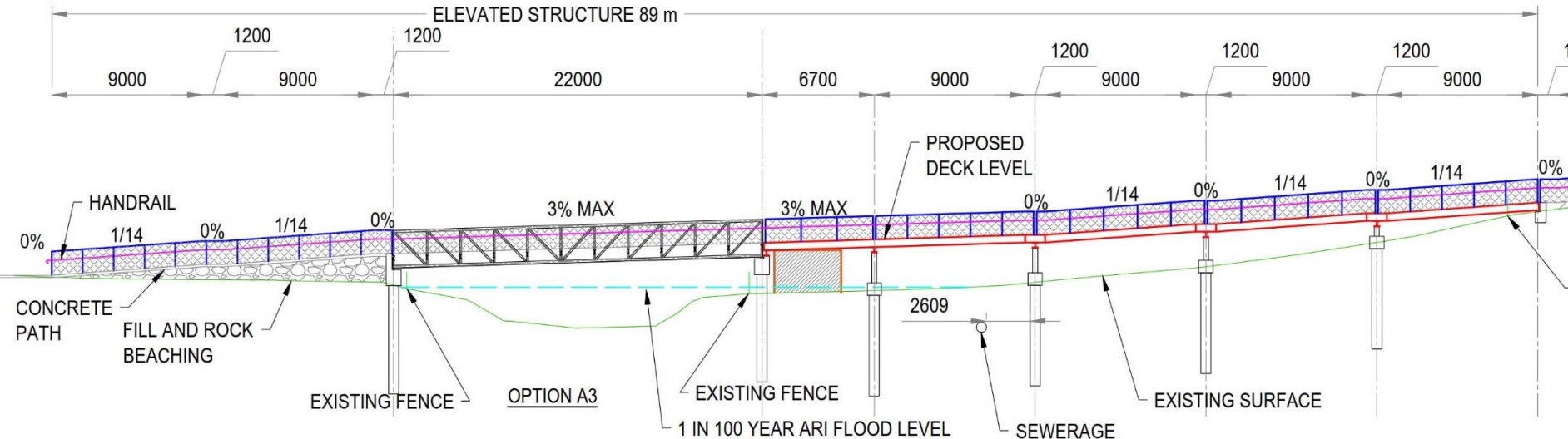
- Steel Bridge (~\$1.38M)
- Concrete Bridge (~\$1.54M)
- Timber Bridge (~\$1.16M)

Structural Form Design Options



Example of Steel Bridge

Structural Form Design Options



Steel Bridge (Cost Estimate \$1.38M)

ADVANTAGES

FRP decking

- 75 years design life
- free draining
- low maintenance

Steel members

- 100 years design life
- fast erection and installation

DISADVANTAGES

FRP decking

- can be seen through
- susceptible to damage (vandalism, fire)

Steel members

- maintain protective coating every 25 years
- Access required over water for maintenance

Structural Form Design Options



Steel Bridge Crossing Edgars Creek

Structural Form Design Options



Example of Concrete Bridge

[illegible]

ADVANTAGES	DISADVANTAGES
<p>Concrete decking</p> <ul style="list-style-type: none"> • 100 years design life • low maintenance • opaque for privacy 	<p>Concrete decking</p> <ul style="list-style-type: none"> • crossfall required for drainage • longer construction time
<p>Steel members (approach)</p> <ul style="list-style-type: none"> • 100 years design life • fast erection and installation 	<p>Steel members (approach)</p> <ul style="list-style-type: none"> • maintain protective coating every 25 years

Structural Form Design Options



Concrete Bridge Crossing Edgars Creek

Structural Form Design Options



Example of Timber Boardwalk

ELEVATED STRUCTURE 82 m

MAIN SPAN 22000

1200 8000 1200 9000 1200 5000 5000 5000 1200 5000 1200 5000 1200 5000 1200 9000

HANDRAIL

0% 1/14 0% 1/14 0% 3% MAX. 3% MAX. 0% 1/14 0% 1/14 0% 1/14 0% 1/14 0% 1/14

PROPOSED DECK LEVEL

CONCRETE PATH

FILL AND ROCK BEACHING

EXISTING FENCE

OPTION C3

EXISTING FENCE

1 IN 100 YEAR ARI FLOOD LEVEL

SEWERAGE

EXISTING SURFACE

EXIST. FILL

CONCRETE PATH

Timber Boardwalk and Steel Main Span (Cost Estimate \$1.16M)

ADVANTAGES	DISADVANTAGES
<p>FRP decking</p> <ul style="list-style-type: none"> • 75 years design life • free draining • low maintenance 	<p>FRP decking</p> <ul style="list-style-type: none"> • can be seen through • susceptible to damage (vandalism, fire)
<p>Timber members</p> <ul style="list-style-type: none"> • natural aesthetics • fast erection and installation • more favorable to curved horizontal alignment 	<p>Timber members</p> <ul style="list-style-type: none"> • 40 years design life • More frequent maintenance • short span with more piers (maintain bracing) • susceptible to damage (vandalism, fire)

Decking



Barrier/Railing



Piers



Structural Form Design Options

Bridge	Steel	Concrete	Timber
Cost	~\$1.38M	~\$1.54M	~\$1.16M
Design Life	100 years	100 years	40 years
Construction Time	Fast	Long	Fast
Maintenance	Coating every 25 years with access required over water	Low	High, maintain bracing, timber members and capping
Damage	Durable	Durable	Susceptible
Aesthetic	Low/Moderate	Moderate	Low/Moderate
Span Length	10 – 14m (approaches)	10 – 14m (approaches)	4 – 6m (approaches)
Decking	FRP or Concrete	Concrete	FRP
Piers	Concrete and/or Steel	Concrete and/or Steel	Timber

Project Costs

PROJECT COST	
OPTION	COST
Steel Bridge & Steel Boardwalk – Vertical Alignment 1	\$ 1,468,010
Steel Bridge & Steel Boardwalk – Vertical Alignment 2	\$ 1,500,680
Steel Bridge & Steel Boardwalk – Vertical Alignment 3	\$ 1,380,890
Concrete Bridge & Concrete Boardwalk – Vertical Alignment 1	\$ 1,631,360
Concrete Bridge & Concrete Boardwalk – Vertical Alignment 2	\$ 1,682,180
Concrete Bridge & Concrete Boardwalk – Vertical Alignment 3	\$ 1,542,425
Steel Bridge & Timber Boardwalk – Vertical Alignment 1	\$ 1,263,440
Steel Bridge & Timber Boardwalk – Vertical Alignment 2	\$ 1,294,430
Steel Bridge & Timber Boardwalk – Vertical Alignment 3	\$ 1,155,830

Project Timelines

ACTIVITY	TIMELINE
Complete Design Phase and Apply for Melbourne Water Approval	November 2018 to February 2019
Planning Permit	March 2019 to May 2019
Construction Tender and Award Contract	May 2019 to July 2019
Construction Phase	September 2019 to May 2020