A Tale of Two Galloping Goose Trail Pedestrian Bridges

Keith Kirkwood, P.Eng.
Senior Associate, Transportation – Bridges
Stantec Consulting Ltd.
Vancouver, BC
Keith.Kirkwood@stantec.com

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Abstract

The Galloping Goose Trail is a popular 55 km long Active Transportation path running along a re-purposed former railway right-of-way from Victoria to Sooke, BC. Its beautiful, picturesque route crosses urban infrastructure at various locations. Stantec is currently working on two separate projects to safely allow users to cross busy streets via grade-separated pedestrian bridges. Stantec designed both structures for optimal user enjoyment and safety, while minimizing capital construction costs, ongoing maintenance costs and inconvenience to road users during construction.

The pedestrian bridge in Colwood is being delivered via a Design-Build (D/B) project delivery model and will be a three-span continuous bridge comprising an aesthetically pleasing variable depth box girder with a precast concrete deck and bespoke safety railings with a “reeds and branches” motif. Approaches to the bridge will be Mechanically Stabilized Earth (MSE) ramps with greenwalls to complement the natural surroundings of the bridge. Mid-ramps will allow users to access Sooke Road. The bridge and ramps will have low-energy-consuming LED safety pathway lighting and variable-colour structure highlighting. Stantec accommodated existing civil infrastructure and variable sub-surface geotechnical conditions during the design phase in 2023-204 and construction by Surespan Group of Companies is ongoing in 2025.

The pedestrian bridge in Saanich at Tillicum Road is being delivered via a Design-Bid-Build (DBB) project delivery model and will also be three spans with the center span comprising a tubular steel truss supporting a composite precast concrete deck. Sidespans will comprise precast concrete deck panels supported from below by concrete girders. Grade separating approaches to the bridge will be MSE walls with mid ramps to allow access to Tillicum Road. Construction is expected to take place in 2026.

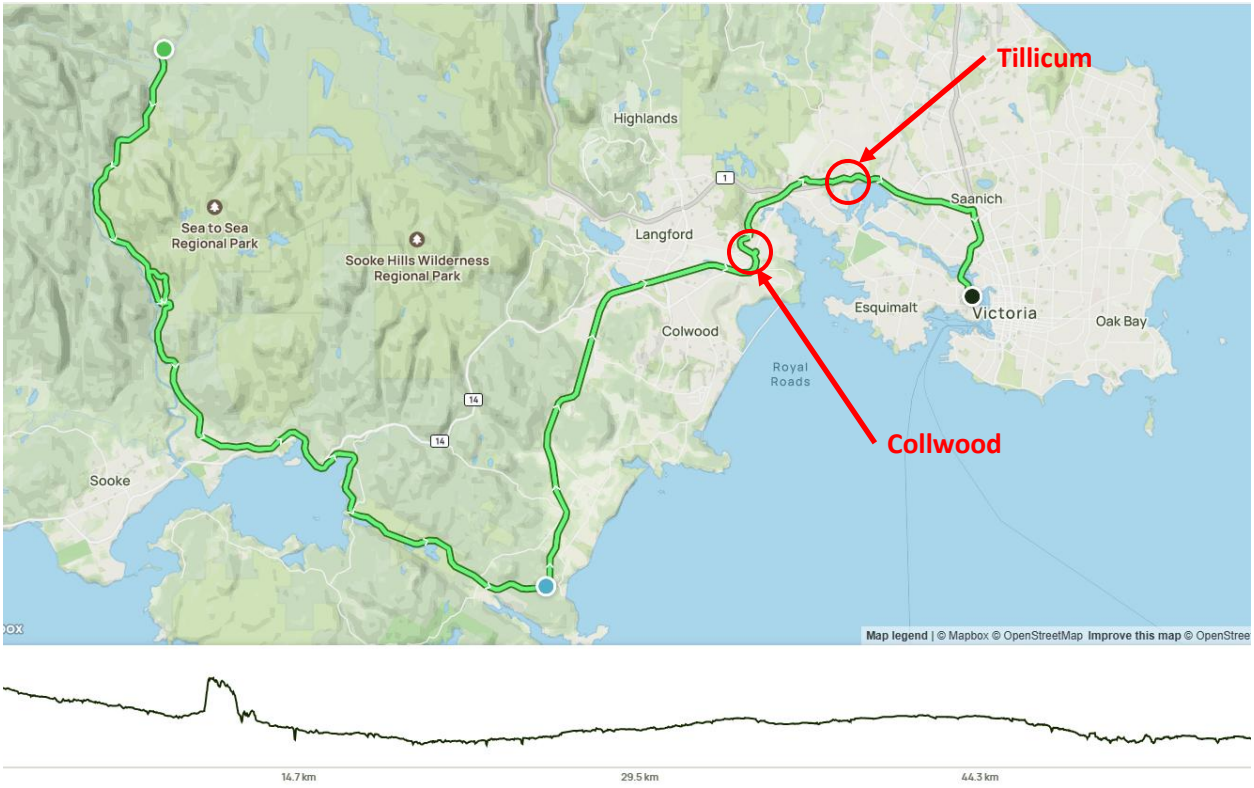
This presentation will illustrate the key design features of both structures, and the challenges and opportunities faced during their construction, with emphasis on design efforts undertaken to minimize

capital construction costs, maintenance costs and user comfort, safety and enjoyment of AT users while minimizing disruption of traffic during construction. We discuss key methodologies used and challenges expected to be encountered during construction.

Introduction

The Galloping Goose Trail is a popular 55 km long Active Transportation path running along a re-purposed former railway right-of-way from Victoria to Sooke, BC, as shown in Figure 1. Its beautiful, picturesque route crosses urban infrastructure at various locations. Stantec is currently working on two separate projects, one in Colwood and one in Saanich at Tillicum Road, to safely allow users to cross busy streets via grade-separated pedestrian bridges. Stantec designed both structures for optimal user enjoyment and safety, while minimizing capital construction costs, ongoing maintenance costs and inconvenience to road users during construction.

Figure 1. Galloping Goose Trail Extents



Project Descriptions

Colwood

The pedestrian bridge and its approaches in Colwood are under active construction and will be completed in the fall of 2025. The project is being delivered via a Design-Build (DB) delivery model with Stantec partnering with Surespan Group of Companies. As shown in the architectural rendering in Figure 2, it will be a three-span continuous bridge comprising an aesthetically pleasing variable depth box girder with precast concrete deck and bespoke safety railing with a “reeds and branches” motif. Approaches to the bridge will be Mechanically Stabilized Earth (MSE) ramps with greenwalls to complement the natural surroundings of the bridge. Mid-ramps will allow users to access Sooke Road.

The bridge and ramps will have low-energy-consuming LED safety pathway lighting and variable-colour structure highlighting. Stantec accommodated existing civil infrastructure and variable sub-surface geotechnical conditions during the design phase in 2023-204 and construction by Surespan Group of Companies is ongoing in 2025. The bridge was designed to CSA S7:23 Pedestrian, cycling and multiuse bridge design guideline and its complementary design Code CSA S6:19 Canadian Highway Bridge Design Code, CHBDC.

Figure 2. Architectural Rendering of Colwood Bridge and MSE Walls

Figures 3 and 4 show, respectively, an elevation and cross-section of the bridge structure. The bridge main span crosses the 4 lanes of Sooke Road and the sidespans accommodate the sidewalks on either side, and provide pleasing visual setbacks of the abutment walls from the roadway.

Figure 3. Bridge Elevation

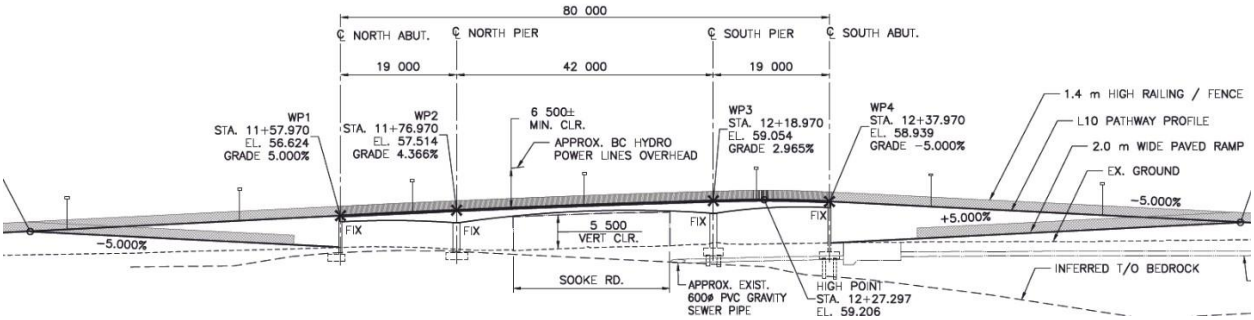


Figure 4. Bridge Cross-section

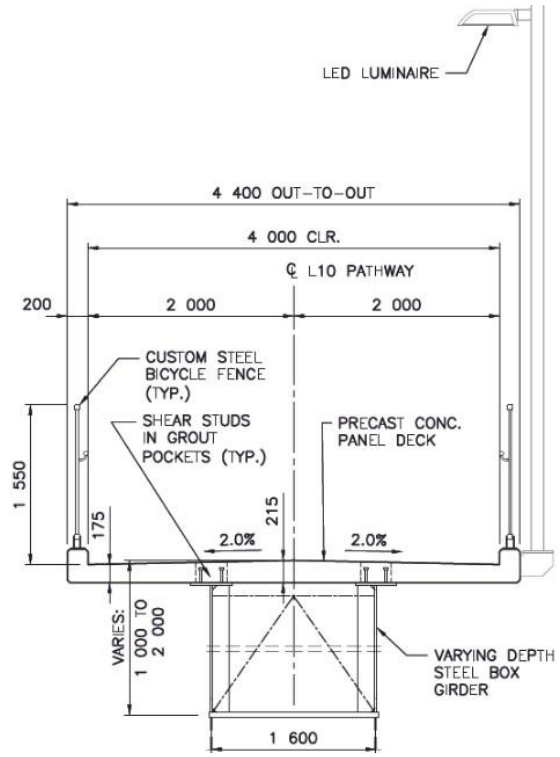


Figure 5 shows a cross section of the bridge approach structures, including access ramps to Sooke Road. The Reinforced Soil Slopes (RSSs) will be vegetation-covered for maximum environmental benefit.

Figure 5. Approach Cross-section

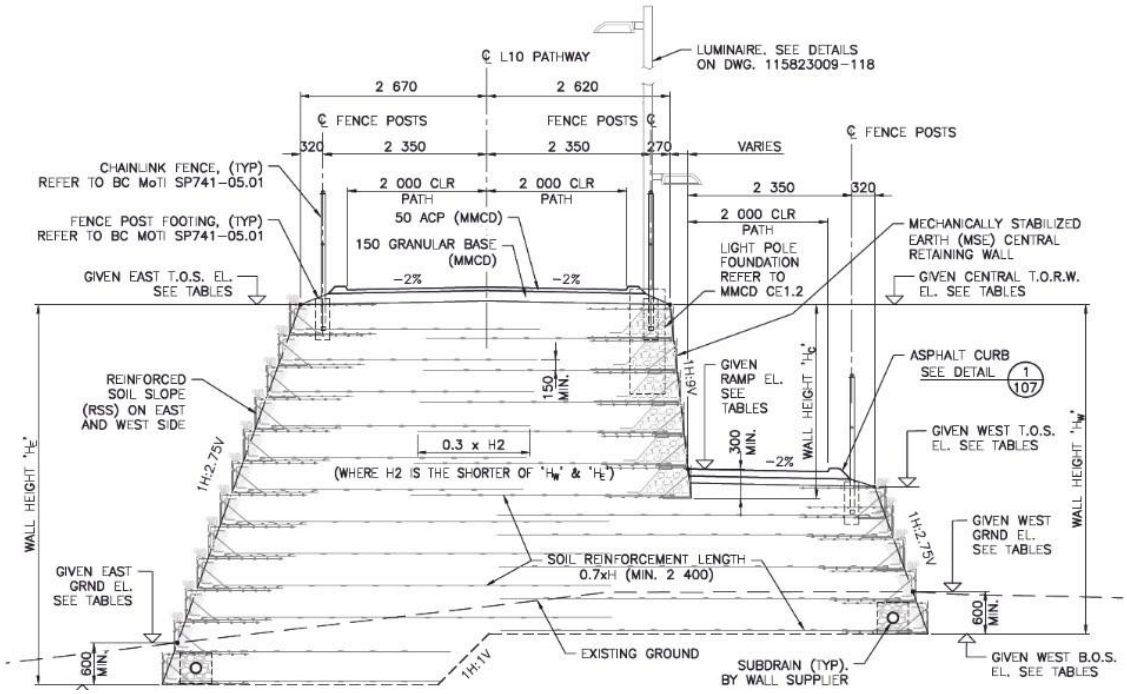
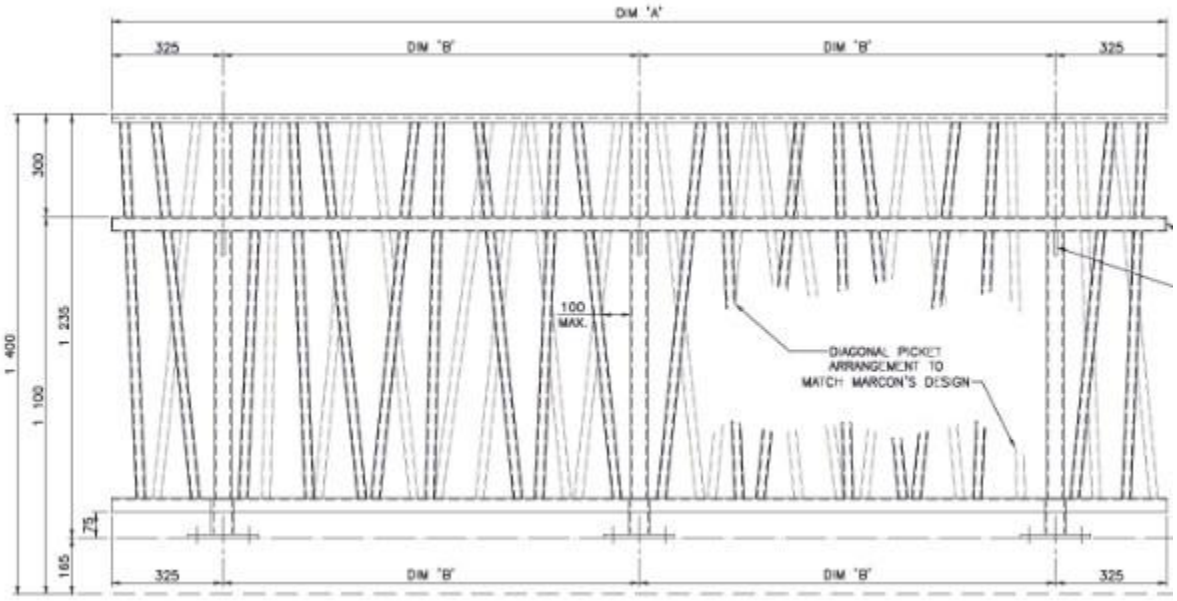


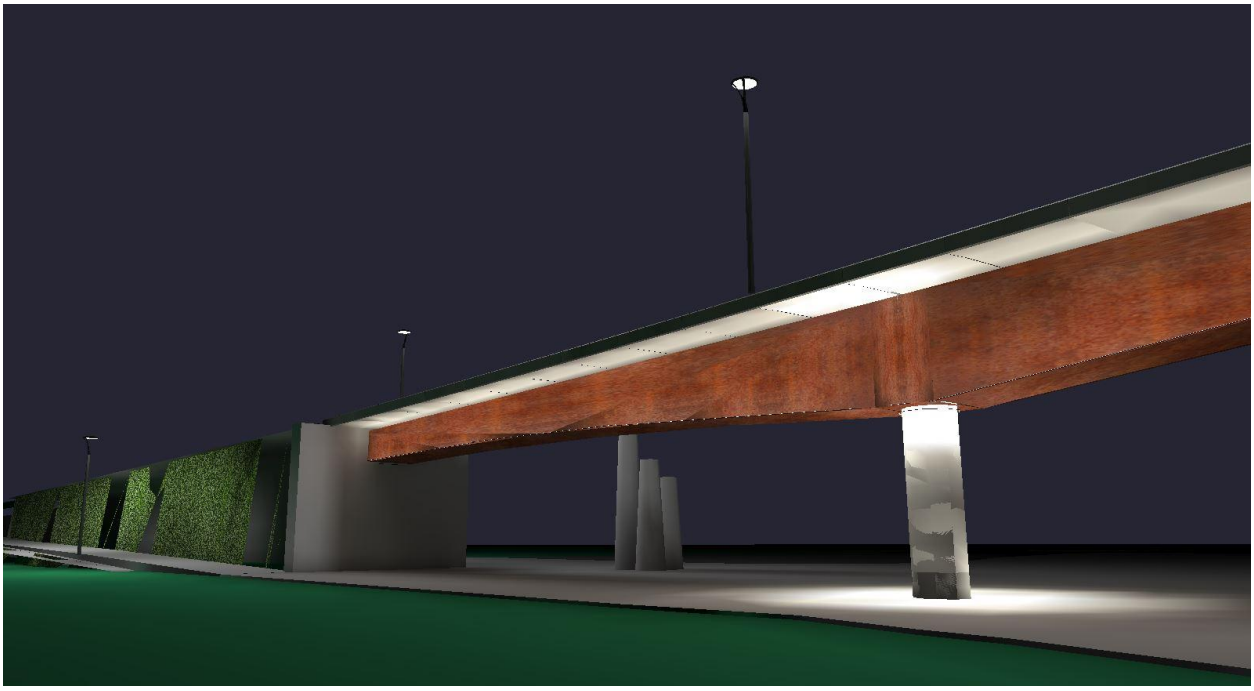
Figure 6 shows an interesting architectural feature adopted by the owner to add visual appeal to the bridge structure: a bespoke bicycle railing with a “reeds and branches” motif.

Figure 6. Approach Cross-section



Another interesting addition to the project will be aesthetic lighting, carefully chosen to provide attractive highlighting of the structure, while being careful not to cause unsafe distraction to drivers passing under the structure. A rendering of one of many possible lighting options submitted to the owner for their review and approval is shown in Figure 7.

Figure 7. Architectural Rendering of Aesthetic Lighting



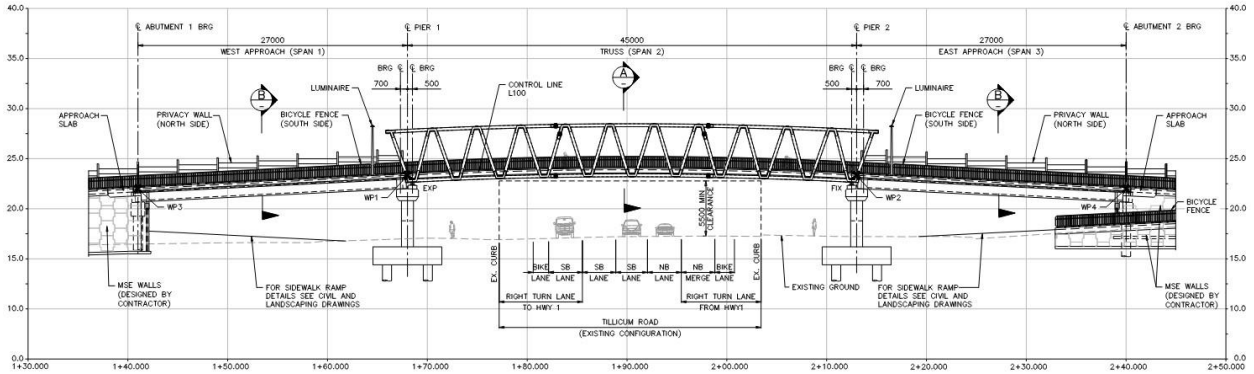
Tillicum

The second pedestrian bridge that Stantec is designing crosses Tillicum Road, as shown in Figure 8. In this aerial photo, Tillicum Road runs up and down the photo and the Trans Canada Highway No. 1 runs across it.

Figure 8. Tillicum Road Pedestrian Bridge

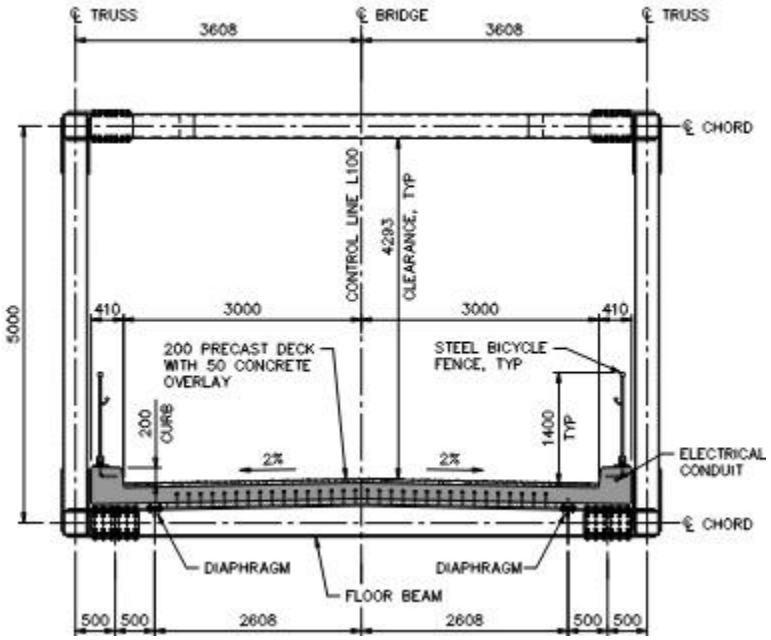
This bridge is being delivered via a Design-Bid-Build (D-B-B) project delivery model. As shown in Figure 9, the bridge will have three spans with the center span that will comprise a tubular steel truss supporting a composite precast concrete deck. Sidespans will comprise concrete box girders supporting precast concrete deck panels. The grade separating approaches to the bridge will be MSE walls with mid ramps to allow access to the Tillicum Road-Highway 1 intersection, similar to the Colwood project. The project is currently in final design and checking stages with tendering expected to occur in late fall 2026 / early spring of 2026 with construction slated for 2026-2027.

Figure 9. Bridge Elevation



Figures 10 and 11, respectively, show cross-sections of the centre-span truss structure and the precast concrete approach side spans.

Figure 10. Truss Cross-Section



The purpose of the privacy wall in Figure 11 is to shield occupants of a community development building planned for immediately adjacent to the bridge from trail users. Resisting the potential wind loads generated by this wall are the reason for the topping slab on the precast box girders.

Figure 11. Side Span Cross-section

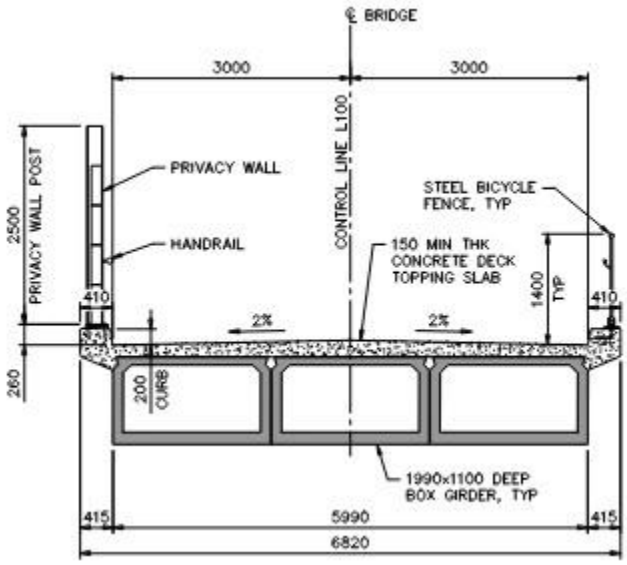
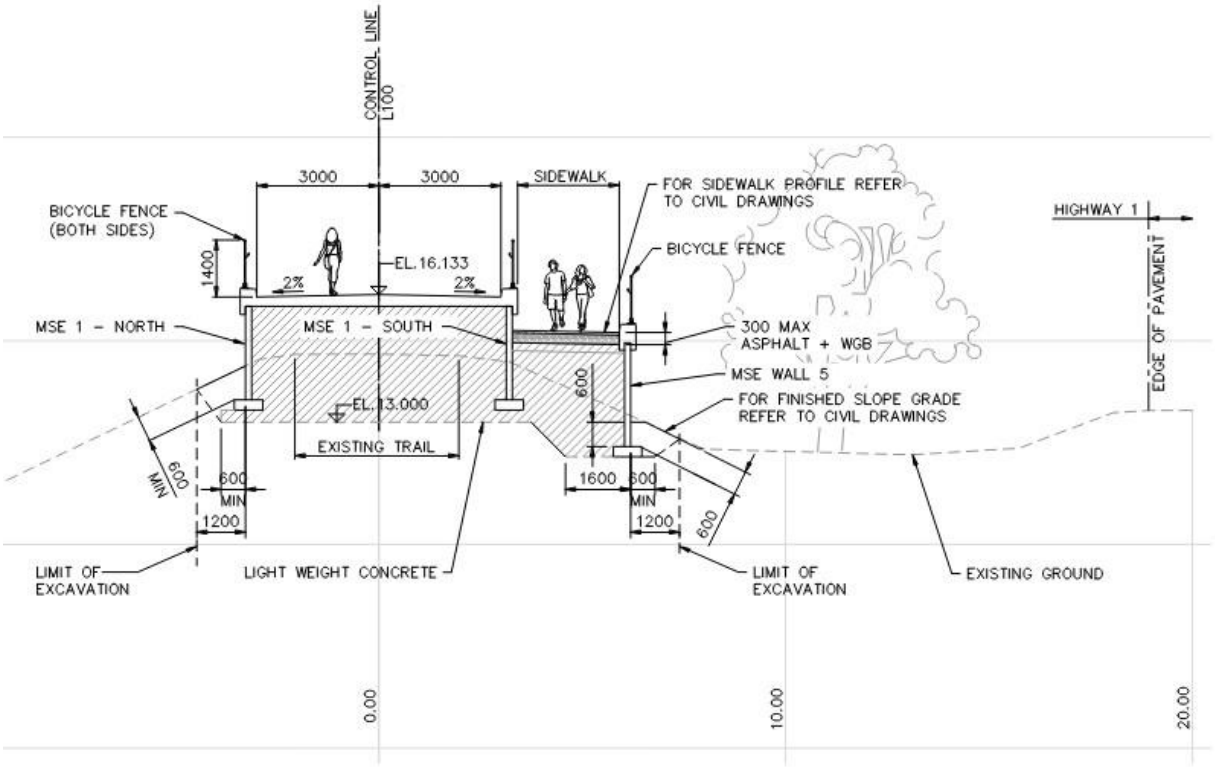


Figure 12 shows a typical cross-section of the approach ramps, comprising MSE walls supporting a concrete slab:

Figure 12. Approach Ramps Cross-Section



Challenges and Innovations

Both projects have provided challenges and the opportunities for the implementation of innovative solutions.

Colwood

For the Colwood project, the following challenges have been addressed:

- Existing utility coordination
  - BC Hydro overhead power lines, and
  - Existing Capital Regional District gravity sewer pipe running directly under the south approach.
- Coordinating the concerns of multiple stakeholders, including:
  - City of Colwood,
  - Capital Regional District,
  - Indigenous groups, and
  - Trail users.
- Traffic on Sooke Road (minimizing disruptions during construction)
- Detour of trail users during construction
- Constrained urban construction

Tillicum

For the Tillicum project, the following challenges have been addressed

- Coordinating the concerns of multiple stakeholders, including:
    - Ministry of Transportation and Transit (MOTT),
    - BC Transit,
    - District Municipality of Saanich,
    - Capital Regional District,
    - Indigenous groups, and
    - Trail users.
- Traffic on Tillicum Road and Trans Canada Highway 1 (minimizing disruptions during construction),
- Detour of trail users during construction, and
- Very constrained urban construction with limited available construction lay-down area.

Critical Success Factors

Both projects have common critical success factors:

- Efficient project delivery with budget, schedule and technical delivery positive outcomes,
- Minimizing closures/negative impacts to trail users (busy commuter routes), and
- Minimizing original capital costs and ongoing maintenance costs.

Conclusions

Both projects are challenging due to urban nature of construction (limited access and lay-down areas) and require accommodating trail users during construction.
Both projects will add significant benefits to trail users with increased trail usage efficiency and vastly increase safety since pedestrians and cyclists will be separated from vehicle traffic.