

**Bowker Creek Daylighting Feasibility
Study:**
Summary of Findings for City of Victoria

January 2021

Introduction

The Bowker Creek Daylighting Feasibility Study (DFS) was completed by the Bowker Creek Initiative (BCI) to determine the route alignment options to restore the Bowker Creek to a naturalized, daylighted state over a range of timelines.

The study was informed by City policies and plans, and guided by City Engineering, Parks and Planning staff.

The following is a summary of the findings of the DFS specific to the City of Victoria, including existing conditions, daylighting opportunities and constraints, and daylighting concepts and corridors.

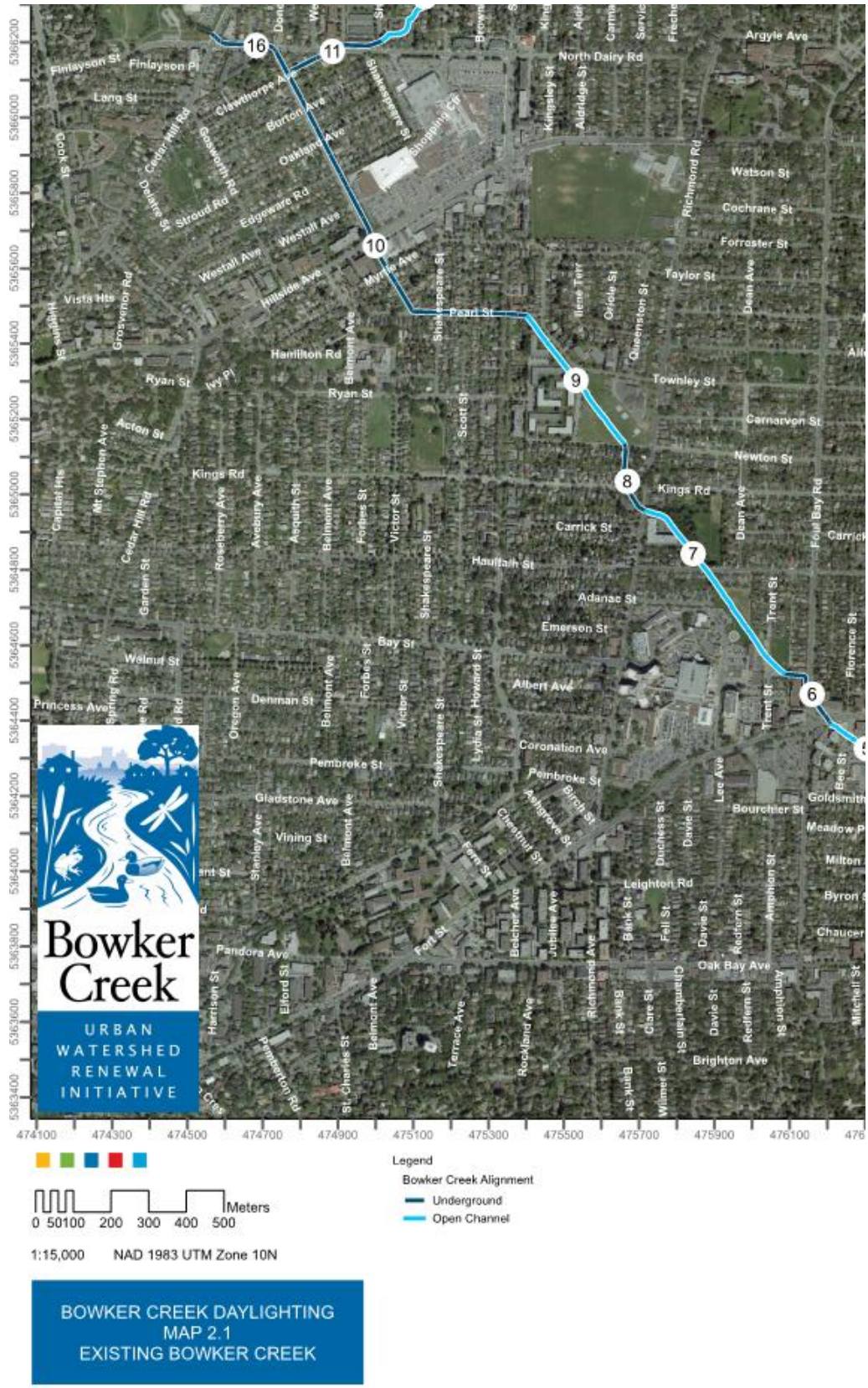
The over-arching goal of the BCI is to achieve a fully daylighted creek; the DFS recognizes that achieving the goal may take decades. The DFS presents a range of concepts, such as partial daylighting, that provide watershed health benefits naturalized creek, but are achievable in a shorter time-frame, and can be adapted as opportunities to further daylight the creek become available.

Existing Conditions

The entirety of Bowker Creek within the City of Victoria is piped underground. The report identifies creek sections, where similar conditions exist, as a “reach”. The reaches specific to Victoria are shown on Map 2: Existing Bowker Creek Reaches in Victoria and include:

- Reach 6 – Trent Street to Cadboro Bay Road
- Reach 8 – Newton Street to Richmond Road
- Reach 10: Clawthorpe Avenue to Pearl Street
- Reach 11: North Dairy Road along Clawthorpe Avenue to Doncaster Drive
- Reach 16: North Dairy Road to Clawthorpe Avenue along Doncaster Drive

The creek is primarily within residential areas but passes adjacent to commercial areas at Hillside Centre. The creek runs through two areas designated as park/greenway in the City, Spirit Garden (Reach 8) and Doncaster Green (Reach 10), and it runs adjacent to Clawthorpe Park (Reach 11).



Map 2: Existing Bowker Creek Reaches in Victoria

Daylighting Opportunities

The following opportunities were used to select possible corridor alignments for daylighting:

- Topography – low lying areas minimize the depth to daylight the creek and the needed land
- Municipally owned land – use parks/greenways, rights of way and vacant lots where possible
- Proximity to existing sections of the creek that are already open channel
- Proximity to existing or planned trails and greenways to create an integrated greenway where feasible
- Under-developed land that can be acquired by the municipality at a relatively low price
- Under-developed land that has a high potential for re-development, where a portion of a property could be acquired by the municipality as part of the development process

Daylighting Constraints

The following items are constraints to daylighting the reaches of Bowker Creek in Victoria:

- Land acquisition – Bowker Creek was filled in and replaced with a pipe or culvert to facilitate land development; reversing this condition will require a significant land acquisition process.
- Land acquisition costs – the value of lots in the daylighting study area are high.
- Depth of pipe – the locations where the storm drain is deeper will result in higher costs for land and excavation.
- Existing utilities – the daylighting study area is completely developed with an extensive utility network above and below ground.
- Construction cost – the required construction includes excavation, relocation of utilities, retaining walls, vertical creek walls, trail construction, landscaping and instream works.
- Staging timelines – daylighting and upgrading of the creek/storm drain generally needs to start downstream and work upstream to avoid exacerbating downstream flooding area. This will require coordination with other municipalities.

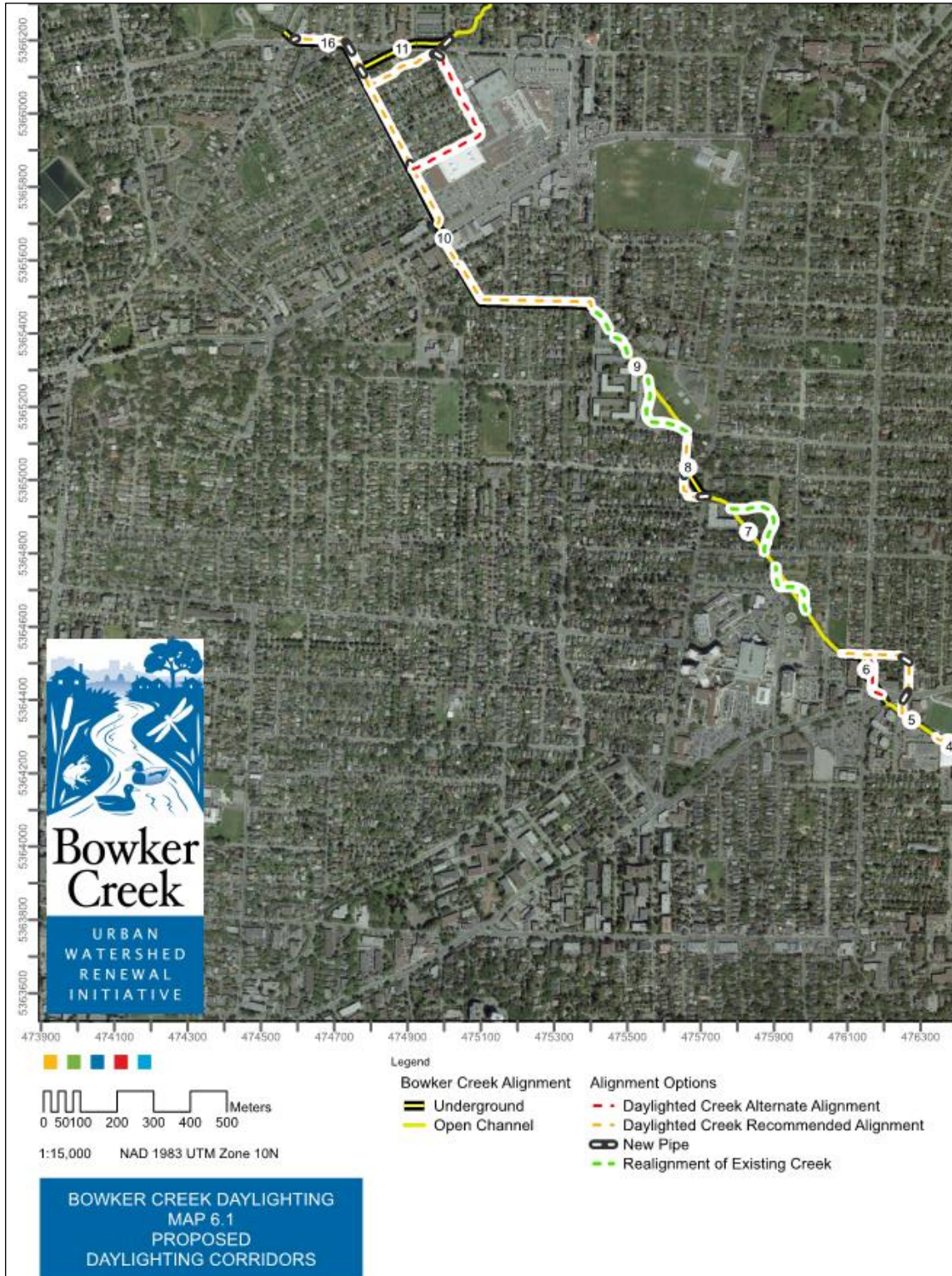
Daylighting Concepts and Corridors for Victoria

The daylighting concepts and corridors within the City were developed based on Bowker Creek Initiative objectives, City policies and planning documents, and staff input. Land acquisition strategies, redevelopment potential, partial daylighting and alternate alignments were considered. A range of strategies are proposed for land acquisition, recognizing varying timelines for redevelopment within the study area. These include options such as identifying lots for acquisition, exchanging of height for daylighting ROW in redevelopment, and requiring developers to provide land for daylighting (similar to road dedication). The expectation is that it may take years, if not decades to assemble lots for daylighting. The alignments presented include options that could be achieved in the short- to medium-term with minimal property acquisition needed, but could be

adapted and expanded to achieve the vision of a fully daylighted, naturalized creek if properties were to be acquired.

Proposed Daylighting Corridor Concepts

The daylighting corridors proposed include a recommended and alternate alignment, shown in Map 3. The alignment mostly follows the existing Bowker Creek storm drain, except for the alternate alignment in reach 10, which would capitalize on redevelopment of Hillside Centre in the long-term. Details of the daylighting proposed alignments and considerations can be found in the DFS (Appendix C)



Map 3: Proposed and Alternate Daylighting Alignment for Bowker Creek in Victoria

Partial Daylighting

The concept of partial daylighting of the creek was considered for sections that may not be practical to daylight in the short- to medium- term. This approach would intercept the main creek/storm drain pipe and divert to a shallower open channel or bioswale. The original pipe would remain for high flow events. Advantages of this option include less depth needed, and thus less land needed to daylight, and flexibility to include natural or retained sides. This approach is considered for Reach 10 (Clawthorpe Avenue to Pearl Street), and Figure 1 visualises the approach.

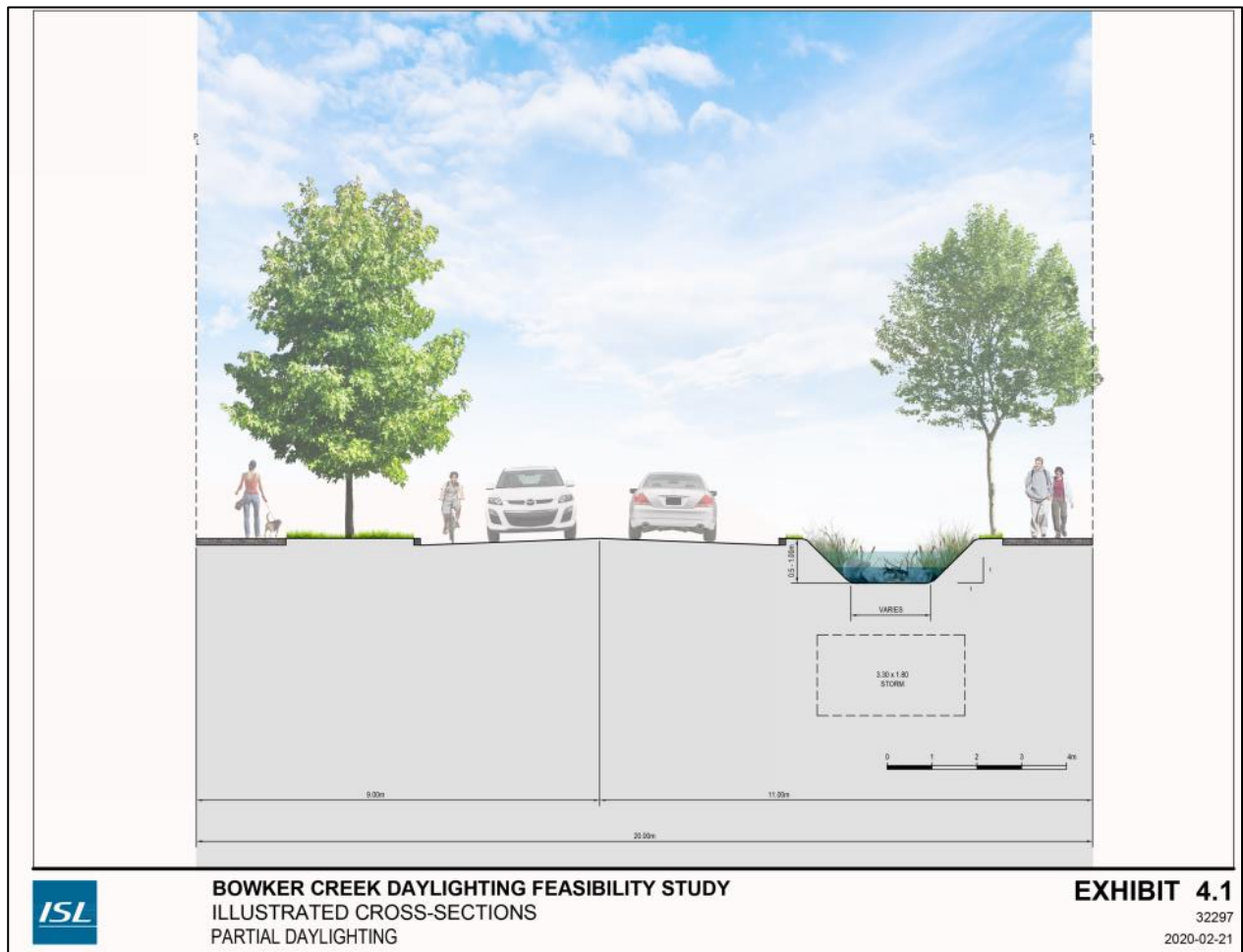


Figure 1: Partial Daylighting Creek Cross Section Concept

Creek Cross Sections

The following creek cross sections reflect proposed full daylighting designs that could be feasible in Doncaster Green, located between Hillside and Myrtle Avenue (Figure 2,) and the Spirit

Garden, located between Newton Street and Kings Road (Figure 3.) These designs would allow for a pedestrian walkway adjacent to the creek, while also allowing for the multi-use path in the case of Doncaster Green.

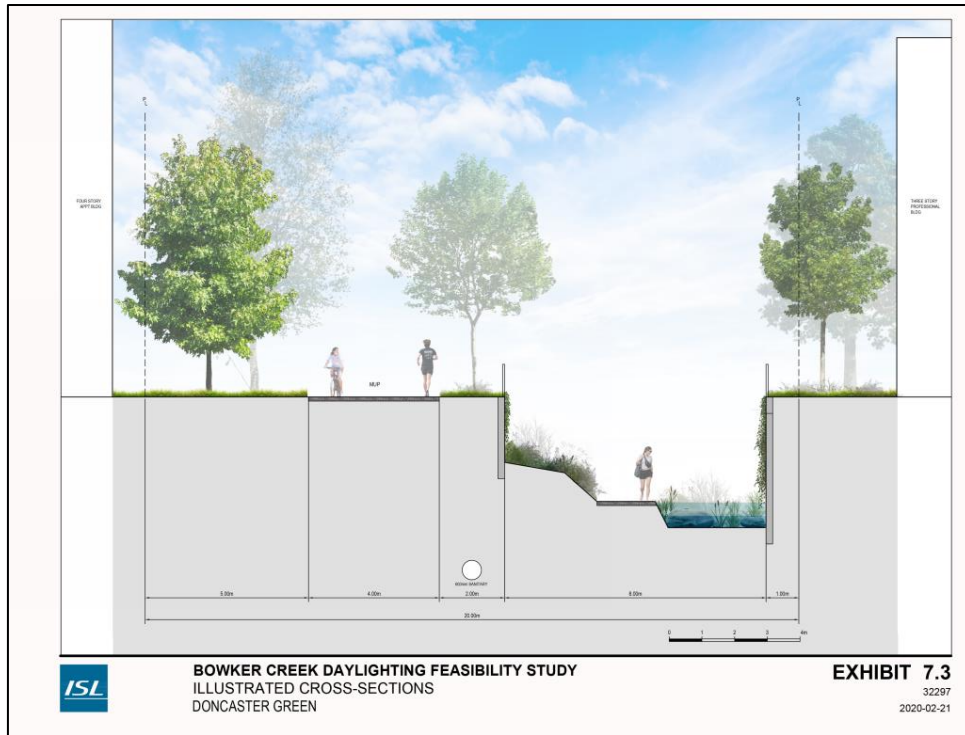


Figure 2: Doncaster Green Creek Cross Section Concept

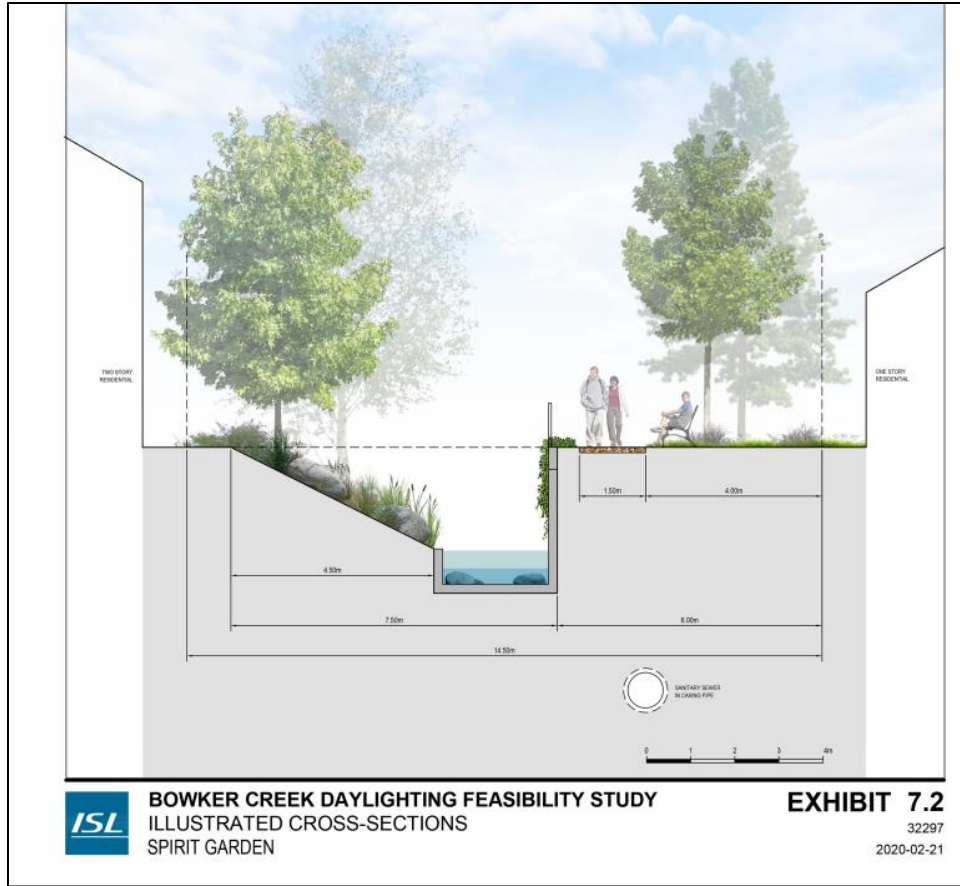


Figure 3: Spirit Garden Creek Cross Section Concepts

There are multiple options for daylighting Reach 11 (North Dairy Road to Clawthorpe Avenue), however the recommended alignment concept identified in the DFS report includes rerouting to the lane between Burton and Clawthorpe Avenues, extending through the south edge of Clawthorpe Park. Within Clawthorpe Park, the daylighted section could look similar to the naturalized section in Figure 4: Naturalized Creek Cross Section. This option could be achieved into the short- to medium-term, as no land acquisition is necessary.

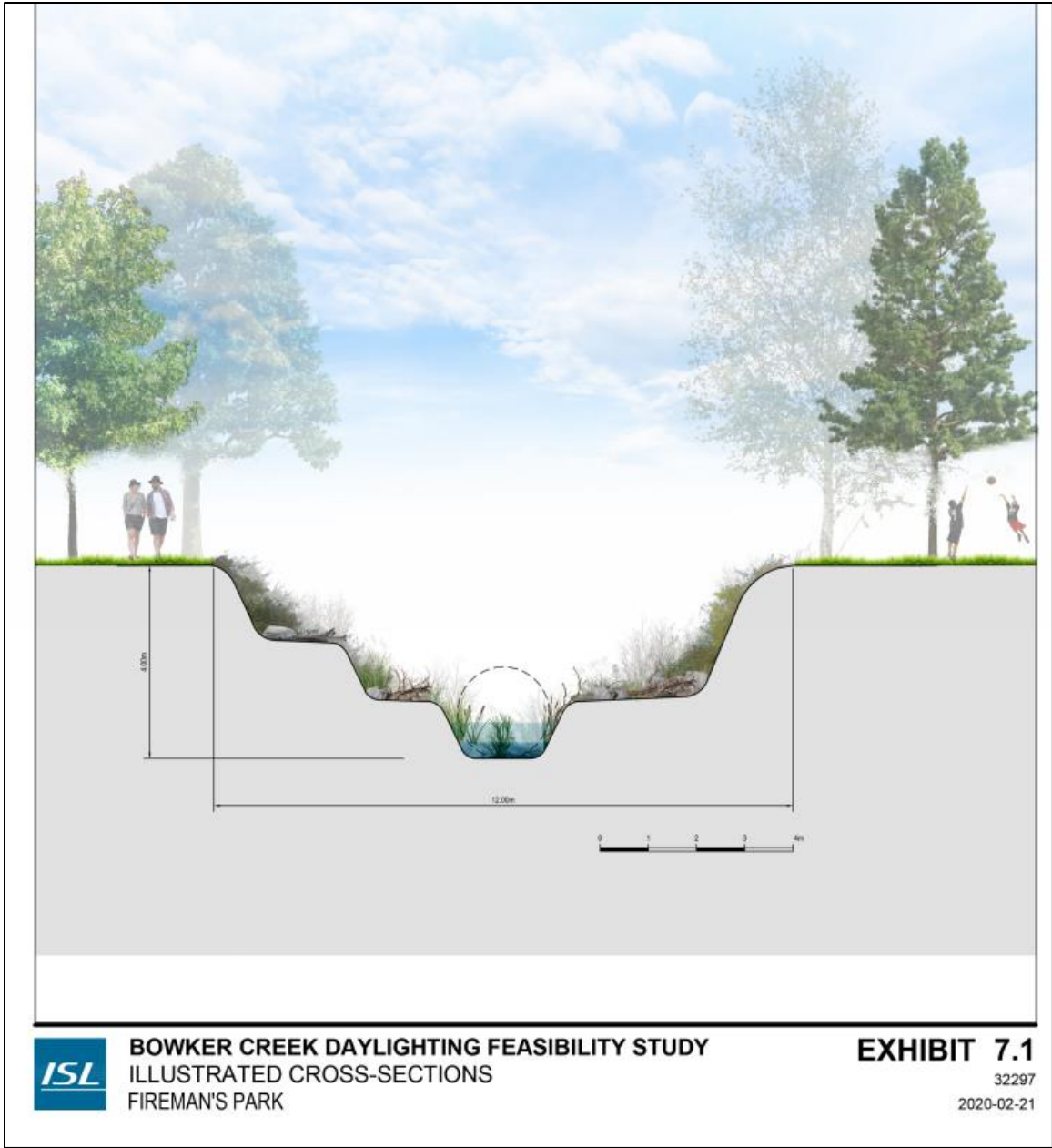


Figure 4: Naturalized Creek Cross Section Concept