



Item
Meeting.....2018 Dec 10

COUNCIL REPORT

TO: CITY MANAGER **DATE:** 2018 Nov 27

FROM: DIRECTOR ENGINEERING **FILE:** 9100-25
DIRECTOR - PARKS, RECREATION &
CULTURAL SERVICES

**SUBJECT: METRO VANCOUVER 2ND NARROWS WATER SUPPLY TUNNEL
VALVE CHAMBER LOCATION**

PURPOSE: To provide a recommendation to Council on the preferred location and configuration for the 2nd Narrows water tunnel valve chamber.

RECOMMENDATIONS:

1. **THAT** Council direct Staff to work with Metro Vancouver in preparing the Statutory Right of Way and construction access agreement consistent with Option 3 for the valve station location and pipe tie in configuration outlined in this report.
2. **THAT** Council approve inclusion of park benches, picnic tables, or other such interpretive park amenities on the crane pad adjacent to the valve station as a condition for approval of the SRW.
3. **THAT** Council direct staff to work with Metro Vancouver to identify a suitable temporary public trail detour around the construction zone as a condition for approval of the SRW.
4. **THAT** a copy of this report be sent to the Parks, Recreation and Culture Commission for information.

REPORT

1.0 INTRODUCTION

At a Council workshop on 2018 November 26, Metro Vancouver provided a project status update on the 2nd Narrows Water Supply Tunnel Project. In that workshop, Metro Vancouver also addressed the Council request to provide options for the location and configuration of the valve station.

To: CITY MANAGER
From: DIRECTOR ENGINEERING
Re: METRO VANCOUVER 2ND NARROWS
WATER TUNNEL VALVE CHAMBER
LOCATION

2018 November 27

Page 2

2.0 POLICY SECTION

The 2nd Narrows Water Supply Tunnel project is aligned with the City of Burnaby's Corporate Strategic Plan by supporting the following goals and sub-goals of the Plan.

Goal

- A Healthy Community
 - Healthy life –
Encourages opportunities for healthy living and well-being
 - Healthy environment –
Enhance our environmental health, resilience and sustainability

- A Dynamic Community
 - Economic opportunity –
Foster an environment that attracts new and supports existing jobs, businesses and industries
 - Community development –
Manage change by balancing economic development with environmental protection and maintaining a sense of belonging
 - City facilities and infrastructure –
Build and maintain infrastructure that meets the needs of our growing community

3.0 BACKGROUND

Council approved the location of the tunnel and shaft on 2018 October 29. The Metro Vancouver Board subsequently awarded a construction contract for the tunnel and shafts on 2018 October 31. Because Burnaby raised questions around the siting of the valve chamber and connecting water mains on 2018 August 27, these items were removed from the construction contract and will be added later once the final location has been established.

In response to the questions raised, Metro Vancouver has provided three options. The options and relative merits of each of the options are described in the sections below.

To: CITY MANAGER
From: DIRECTOR ENGINEERING
Re: METRO VANCOUVER 2ND NARROWS
WATER TUNNEL VALVE CHAMBER
LOCATION

2018 November 27

Page 3

4.0 OPTIONS

4.1 Option 1 – Original Design

Option 1 is the original design proposed by Metro Vancouver (see Figure 1). The valve station is sited directly adjacent to the tunnel shaft.

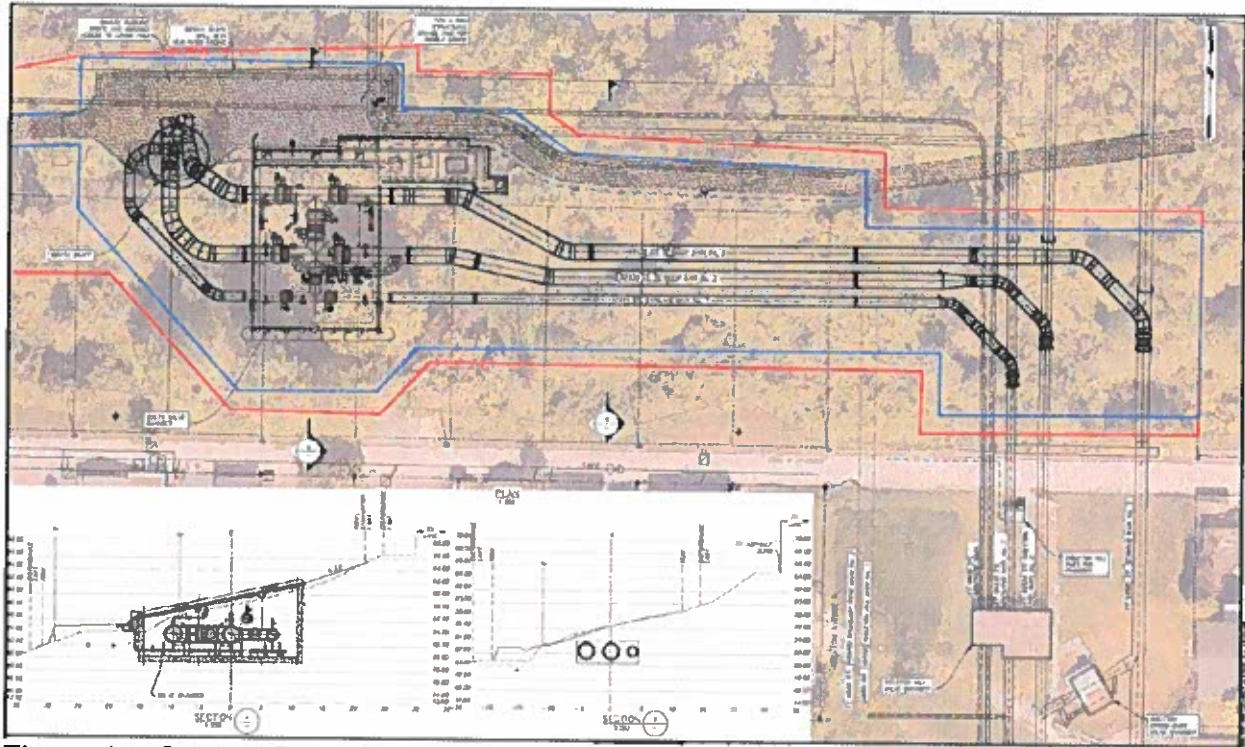


Figure 1 – Original Design

4.2 Option 2 – Valve Station in Ingleton Road Allowance

Option 2 has the valve station sited about 100m east of the original design in the Ingleton road allowance see (see Figure 2).

To: CITY MANAGER
From: DIRECTOR ENGINEERING
Re: METRO VANCOUVER 2ND NARROWS
WATER TUNNEL VALVE CHAMBER
LOCATION

2018 November 27

Page 4

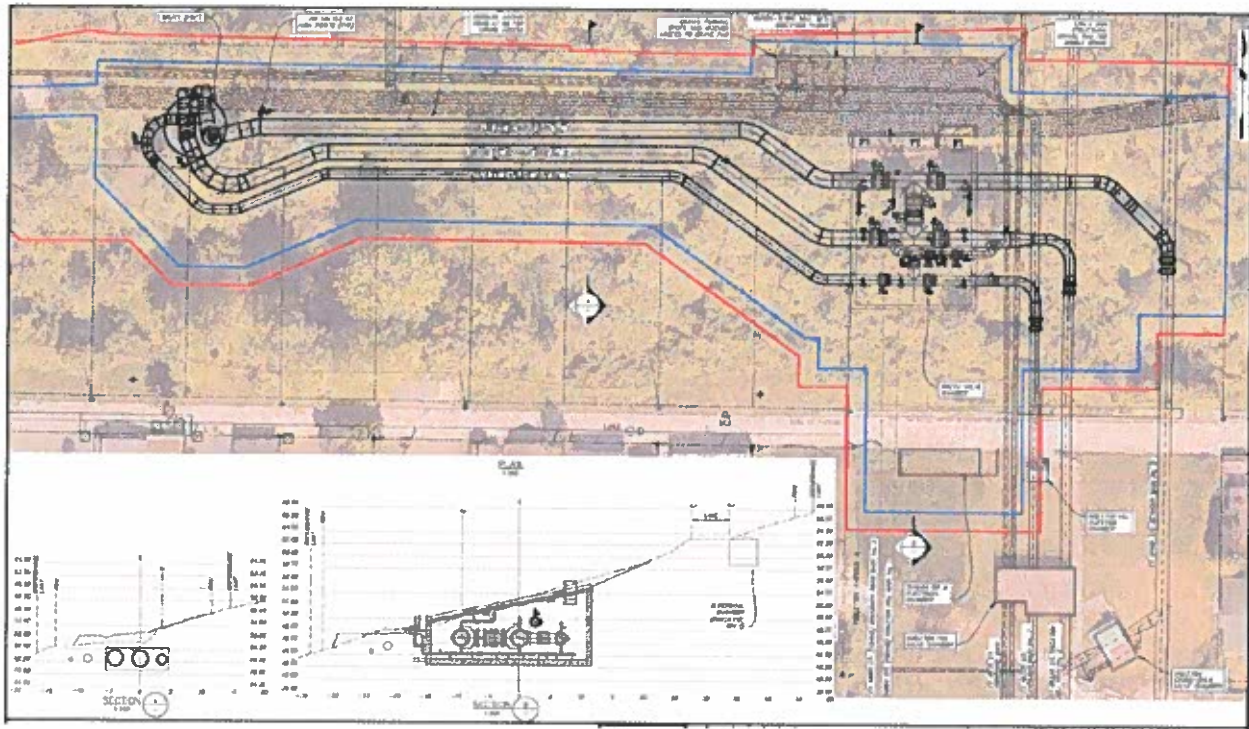


Figure 2 – Valve Station in Ingleton Road Allowance

4.3 Option 3 – Modified Original Design

In Option 3, the valve station is sited in the same place as the Option 1 original design. The difference in Option 3 is the connecting water mains have been shifted slightly north to reduce the area required for SRW and construction (see Figure 3).

To: CITY MANAGER
From: DIRECTOR ENGINEERING
Re: METRO VANCOUVER 2ND NARROWS
WATER TUNNEL VALVE CHAMBER
LOCATION

2018 November 27

Page 5

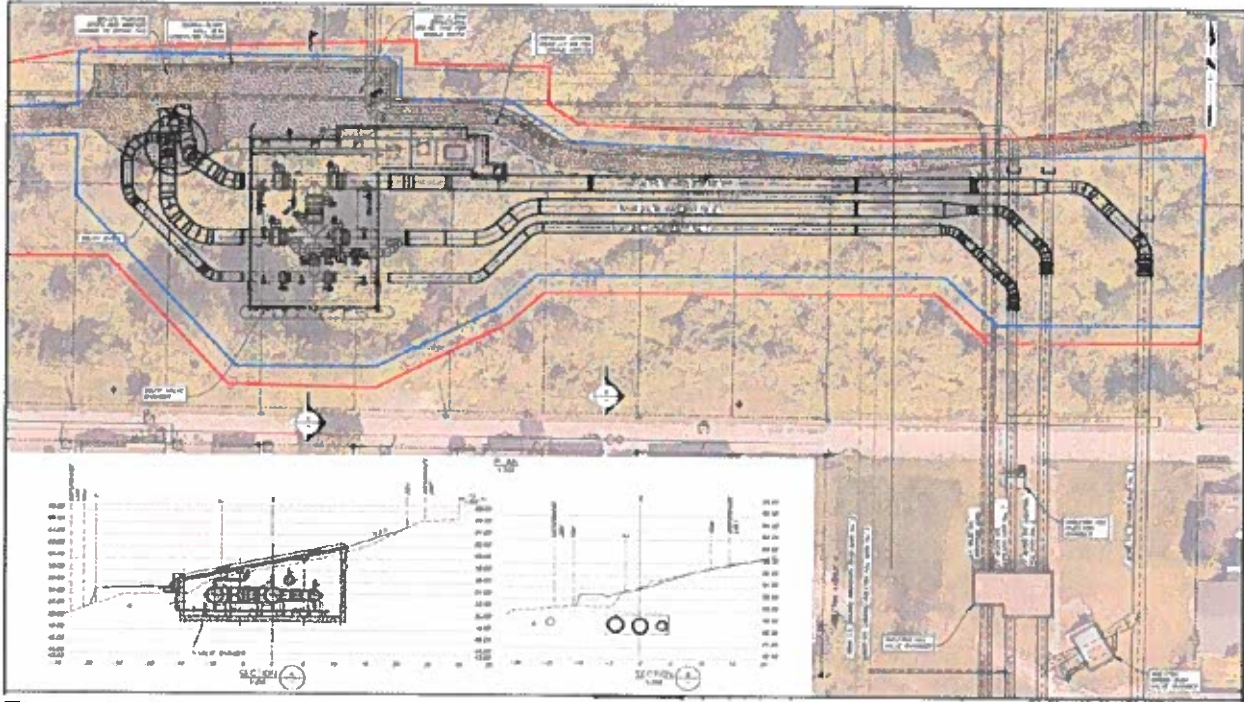


Figure 3 – Modified Original Design

5.0 OPTION ANALYSIS

Table 1 below summarizes the key impacts of each of the options.

Impact	Option 1 - Original	Option 2 - Alternative	Option 3 - Modified Original
Tree Removals (willow, alder, cottonwood, maple)	75	77	74
Total Disturbance Area (m ²)	10,010	11,030	9,449
Permanent Right of Way (m ²)	7,207	7,972	6,640

Table 1

To: CITY MANAGER
From: DIRECTOR ENGINEERING
Re: METRO VANCOUVER 2ND NARROWS
WATER TUNNEL VALVE CHAMBER
LOCATION

2018 November 27

Page 6

Option 3 has the least tree removal, the smallest area of disturbance, and the smallest permanent SRW. However, Option 3 carries a higher construction risk than Option 1 because the connecting water mains in Option 3 are closer to existing water mains that must remain in-service until the new water supply tunnel is put in service. As a result, Option 3 will cost more than Option 1 to address the extra excavation, shoring, and geotechnical investigation that is required to protect the existing water mains.

Option 2 has the highest cost, impacted area, and tree removal. It also has the highest construction risk of the three options because the valve station and connecting water mains are in close proximity to the existing water mains. The three major components of the works (the shaft, valve chamber and electrical room) are distributed over a larger area in Option 2 whereas these major components are consolidated in one area in the other two options.

Although Option 1 has a larger impacted area than Option 3, the area impacted is mostly populated by invasive species. So despite the larger permanent SRW, Metro Vancouver would remove the invasive vegetation and restore the area with native vegetation which would be a benefit to the park.

6.0 ADDITIONAL CONSIDERATIONS

Public use of the gravel service road along Montrose Street would be limited during construction. This gravel service road is often used as an alternate route or loop option by users of the Trans-Canada trail because the elevation changes are more gradual than the Boundary road access to the Trans-Canada trail. All options require use of the gravel service road for construction access, staging and as work area for the duration of the construction period. If continued public use of this alternate route is not feasible during the construction period, Metro Vancouver should work with staff to find a suitable detour for public use during construction. The detour must be aligned as to require no additional tree removal or fill, and result in no further impact to the adjacent forested park lands.

A pad area adjacent to the valve station needs to be built to accommodate a portable crane for times when the valves or electrical components need to be removed or serviced. Metro Vancouver has offered to work with Parks on the installation of park benches, picnic tables, or other such interpretive park features on this pad. The City might consider making this a condition of approval of the SRW.

To: CITY MANAGER
From: DIRECTOR ENGINEERING
Re: METRO VANCOUVER 2ND NARROWS
WATER TUNNEL VALVE CHAMBER
LOCATION

2018 November 27

Page 7

7.0 RECOMMENDATIONS

Weighing all the considerations, Staff believes Option 3 strikes the best balance between minimizing permanent impact on the park and mitigating cost and risk to the project. Staff recommends that Council approve the preparation of the statutory right of way and construction access agreement consistent with Option 3 for the valve station location and configuration as outlined in this report.

Staff also recommends that Council approve inclusion of park benches, picnic tables, or other such interpretive park amenities and the provision of a suitable detour during construction for trail users that currently use the gravel service road along the Montrose right-of-way as conditions of approval for the SRW.

A blue ink signature of Leon A. Gous, consisting of a stylized 'L' and 'G' followed by a horizontal line.

Leon A. Gous, P.Eng., MBA
DIRECTOR ENGINEERING

A blue ink signature of Dave Ellenwood, written in a cursive style.

Dave Ellenwood
DIRECTOR - PARKS, RECREATION &
CULTURAL SERVICES

JL/ac

Copied to: City Manager
City Solicitor
Director Planning and Building
Director Public Safety & Community Services