THE MUNICIPALITY OF THE VILLAGE OF LIONS BAY

INFRASTRUCTURE COMMITTEE MEETING
OF THE VILLAGE OF LIONS BAY
HELD ON MONDAY, NOVEMBER 26, 2018 at 7:00 PM
COUNCIL CHAMBERS, 400 CENTRE ROAD, LIONS BAY

AGENDA

1. Call to Order

2. Appointment of Recorder

3. Approval of the Agenda

4. Public Questions & Comments

5. Approval of Minutes
- A. Infrastructure Committee Meeting – September 24, 2018 (Page 3)
- B. Action Items from the Minutes

6. Business Arising from the Minutes

7. Unfinished Business
- A. Grant Funding Opportunities
- B. ICIP – Phase4/5; Bayview PRV; Mountain Control Valve
- C. Community, Culture and Recreation Infrastructure Fund – Lions Bay Beach Park
- D. Oceanview Stormwater System (Page 7)

8. New Business
- A. Updated Terms of Reference (as adopted by Council November 20, 2018) (Page 13)

9. Public Questions & Comments

10. Closed Infrastructure Committee Meeting

THAT the meeting be closed to the public on the basis of matters to be considered under the following sections of the *Community Charter*:

90 (1) A part of a council meeting may be closed to the public if the subject matter being considered relates to or is one or more of the following:

e) the acquisition, disposition or expropriation of land or improvements, if the council considers that disclosure could reasonably be expected to harm the interests of the municipality;

g) litigation or potential litigation affecting the municipality;
j) information that is prohibited, or information that if it were presented in a document would be prohibited, from disclosure under section 21 of the Freedom of Information and Protection of Privacy Act;

11. Adjournment

12. Next Meeting - TBA

LIONS BAY INFRASTRUCTURE COMMITTEE MEETING
MONDAY 24 SEPTEMBER 2018 AT 7:00 PM
COUNCIL CHAMBERS, 400 CENTER ROAD, LIONS BAY

MINUTES OF THE MEETING

In Attendance:

Fred Bain – Councilor and Committee Chair
Naizam Jaffer – Public Works Manager
Tony Greville – Resident
Karl Buhr – Mayor
Norm Barmeir - Councilor
Brian Ulrich – Resident

Regrets:

Peter Dejong - CAO
Jim Mutrie – Resident

1. **Call to Order**
   Meeting was called to order at 7:04 pm.

2. **Appointment of Recorder**
   Recorder: Brian Ulrich

3. **Approval of the Agenda**
   The Agenda was approved with the following change:
   The order of Sections 7 and 8 of the agenda were reversed so Section 8 was discussed first.

4. **Public Questions & Comments**
   None

5. **Approval of the Minutes**
   A. The 25 June 2018 IC meeting minutes were approved as is.

   B. Review of Action items from 22 January 2018 minutes.

   - Resend Bridge report to committee – Tony to do so following day.
     Completed
   - Nai to forward the Creus report when it comes available.
     Not complete. Nai to forward (comments to follow later this meeting in discussion on infiltration gallery)

6. **Business Arising from the Minutes**
   No business arising from the minutes.

7. New Business

A. Investing in Canada Infrastructure Program (ICIP)

Nai updated the IC on the ICIP grant program that is available. The deadline for applications is 23 January 2019. There is a total of $43M available for the whole province so the program is expected to be severely oversubscribed. Unfortunately, the Bayview drainage project does not fit the requirements of this program as well as it did for the CWW fund. Staff will identify other village project(s) which will better fit the requirements for this program and update.

The Bayview drainage, Mountainview PRV, and Phase 4&5 tank decommissioning were originally part of the work to be done in conjunct ion with the main Harvey tank replacement under the CWW grant. The final cost quote came in much higher than could be funded by the grant therefore a new tender is being issued for the Harvey tank replacement only. These 'remainder' parts of the project will need to be funded under different grants (thus the ICIP discussion).

Urban Systems, has generated our new water conservation plan, based on AECOM's draft, and the plan has been adopted by Council. Urban also specializes in writing grant applications and Staff is discussing the possibility of having them write the application(s) for our 'remainder' projects. This is on hold until Christmas.

B. Community, Culture and Recreation Infrastructure Fund (CCRI)

The Beach Park revitalization fits the requirements of the CCRI fund, which has $134M available. This can fund up to 90%. Deadline for applications is 23 January 2019. The estimated cost for the beach park improvement project is $600K, which according to Urban Systems, is a sweet sport for these applications. Staff is in the process of determining who should write the application, us or Urban Systems, who is experienced at this. Consensus within the IC is that Urban Systems should write the application for us.

8. Unfinished Business

A. CWWF Projects

Water Storage Facility Replacement – Update

The tender for the Harvey Tank replacement went out last week for a glass-fused bolted steel tank. The tender is open until 2 November 2018. Construction must be substantially complete by 15 Dec 2019 with total completion by 31 January 2020.

B. Magnesia infiltration gallery status update

The Magnesia intake structure is now broken. Debris from the creek has peeled away the protective metal mesh on top of the infiltration gallery and the gallery (rock bed) is still plugged. The design is not working as promised and needs to be repaired. Although it is not clear at this stage what the repair will be, the first step will be to clear the rocks and unplug the intake so Magnesia can provide water to the village while Harvey intake is down during tank replacement this winter.

C. Oceanview Road Stormwater Culvert CCTV

Originally, drainage from Upper Oceanview Road was directed through a culvert to Rundel Creek. When that culvert rotted out and caused water problems on private property nearby, it was abandoned and drainage diverted further down Oceanview Road.

Staff attempted to view the inside of the old stormwater culvert from Oceanview Road to Rundel using CCTV. No viewing was possible because the entrance to the culvert was filled with concrete when the stormwater was diverted to the black plastic culvert a few years ago. Options, discussed at length in the meeting, varied from re-establishing drainage to Rundel Creek to continue band-aid fixes to make the black culvert and all downstream Oceanview Road drainage capacity work. The IC agreed that the technically right thing to do is to attempt to re-establish drainage to Rundel if economically feasible. The IC acknowledges, however, that the technically right thing to do may not be economically feasible. If we can use the existing culvert by re-lining it, and avoid digging up a resident's garden, it may be feasible.

Therefore the IC recommends to Council that Staff should determine how far into the end of the old culvert the concrete plug extends. If it's just a short plug that can be hammered and broken out then the remainder of the culvert can be accessed and re-lined. If most of, or the entire length of the culvert is full of concrete then it cannot be re-used and another option would be required.

D. Primer – FlowWorks

Nai gave the IC a quick review of the data from FlowWorks showing supply and demand curves for our water system over the last several months. We could easily see a correlation between the reduced demand during this summer and the effective dates of our water conservation measures. Council and the IC are very pleased with the response of the village residents toward conserving water during low supply periods.

E. AECOM – Review of generator report

The AECOM report on the building demand and generator capacity does not adequately address the question as to whether our 100KW backup generator can power the Fire Hall and Village offices/community center during an emergency.

ACTION: Staff to update the peak power demand for both buildings for comparison with the generator capacity.

9. Public Questions and Comments

There were no questions or comments from the gallery.

10. Adjournment

Meeting was adjourned at 8:30 pm.

11. Next Meeting

The next meeting is scheduled for Monday 22 October 2018 at 7:00 pm.

FACSIMILE TRANSMISSION

Golder Associates Ltd.
#500 - 4260 Still Creek Drive
Burnaby, B.C., Canada V5C 6C6

Telephone: 604-296-4200
Fax Access: 604-298-5253

DATE:	March 25, 2008	**JOB NO:**	08-1411-0046
TO:	Don Reid	**FAX NO:**	604-921-6643
	Village of Lions Bay	**TOTAL PAGES:**	3
COPY:	Joe Canning – Village of Lions Bay	**cc: FAX NO:**	604-921-9213
FROM:	Chris Williams/Dick Butler	**EMAIL:**	cwilliams@golder.com

RE: PRELIMINARY GEOTECHNICAL ASSESSMENT OCEANVIEW ROAD STORM WATER SWALE LIONS BAY, BC

As requested, the following fax memorandum presents Golder Associates Ltd. (Golder)'s preliminary geotechnical assessment of the storm water swale along the east side of Oceanview Road, uphill of Lot Addresses 210, 220 and 230. The purpose of our assessment was to evaluate the potential for storm water infiltration from the swale to impact the road structure and downslope properties. This geotechnical assessment is based solely on field observations from a site inspection of the swale combined with review of a limited amount of background information provided by local residents and a member of Lions Bay Public Works Department staff. No subsurface investigation and/or detailed seepage or slope stability analyses have been carried out.

1.0 SITE LOCATION AND GENERAL DESCRIPTION

The area of interest is understood to consist of that portion of upper Oceanview Road in front of Lots 210, 220 and 230, generally extending between the switchback turn in front of Lots 260, 270 and 280 down to ~~the intersection of Highview~~ Place in the Village of Lions Bay. From the switchback turn, the road runs downhill, approximately on a south to north alignment for a distance of about 175 m. The overall topography slopes down from east to west, although the natural topography has been significantly altered for construction of the roadway and grading of the adjacent residential properties. A grass and gravel-lined drainage swale occupies the uphill (east) side of the road.

2.0 BACKGROUND

The roadway and homes are understood to have been in-place for some 30 years or more. The drainage swale on the uphill side of the roadway has also been in-place for some 30 years or more and consists of a generally grassed, relatively shallow channel, with some gravel and cobble sizes along the base of the swale. The swale in the area of interest was originally hydraulically separated from the upper drainage swale system servicing those portions of Oceanview Road uphill of the switchback turn at Lot 260. It is understood that the upper drainage swale system was previously piped south between Lots 260 and 270 to a discharge outlet into Rundle Creek.

Approximately three years ago, the surface runoff flow within the upper drainage swale was redirected through a culvert crossing under Oceanview Road, from about the front of Lot 290 to the south side of Lot 245, and now discharges into the lower swale. The redirection of the upper swale drainage into the lower swale reportedly resulted in a significant increase in water flow volumes along the lower swale. It is understood that concerns have been raised by residents with respect to the potential impact to downslope properties induced by the increased flows along the swale and possible increased infiltration into the roadway and adjacent slopes.

A number of previous roadway repairs are reported to have been carried out over a period of many years. However, all of the repairs were completed prior to diversion of the culvert. These repairs included the remedial treatment of a broken watermain which resulted in a significant sinkhole in front of Lot 240. The watermain break is reported to be as a result of major corrosion of the piping and not attributed to creep or soil instability. Multiple occurrences of roadway subsidence were also reported for the west edge of the roadway in front Lot 210.

3.0 SITE RECONNAISSANCE

A site inspection of the area of interest was carried out by Golder personnel on March 12, 2008. The residents of 220 Oceanview Drive and a representative of Lion Bay Public Works were met on site.

At the time of our site reconnaissance, no signs of recent distress or instability within the roadway or adjacent slopes were observed. Although extensive alligator cracking of the pavement was noted, no tension cracks or distress associated with slope creep or global instability were observed along the roadway. Similarly, no significant seepage or signs of slope creep or ground instability observed downslope of the swale on Lot 220.

Water was flowing within the swale at the time of the site inspection. It was observed that the volume of the surface water appeared to diminish as it flowed downgradient from south to north along the swale, particularly at the north end, suggesting that infiltration of water into the natural soils or road embankment fills underlying or adjacent to the swale was occurring.

4.0 GEOTECHNICAL ASSESSMENT

Other than the redirection of the flow from the upper swale system into the lower swale, visual observations and available information indicates that there has been no significant modification of the lower swale geometry or channel bottom conditions. Consequently, it is our opinion that the permeability (infiltration) characteristics of the swale have not changed. No signs of recent distress or instability were observed, either within the roadway or the adjacent slopes and residential properties.

In our opinion, the road embankment fill and subgrade materials as well as the adjacent slopes have been subject to some seepage flows and saturation due to infiltration from the swale, at least periodically, for a period of many years. Since the swale is relatively shallow, such that water levels can not significantly increase without these flows overtopping the swale, it is considered probable that there has been no more than limited or nominal increase in the height of the water (hydraulic head) within the swale due to the redirection of the upper swale flows. It is considered possible that the duration of the flows along the swale may have increased as a result of the added catchment area, which could induce some additional or more sustained infiltration from the swale.

Based on the limited available information and current site conditions, the potential for the increased storm water infiltration to impact the global stability of the downslope properties is considered low. If the redirected upper swale flows result in the lower swale alignment being subject to more sustained flow and infiltration, it is considered possible that there will be some accelerated deterioration of the pavement structure as a result of increased seepage flows into and saturation of the subgrade soils.

5.0 RECOMMENDATIONS

As previously indicated, the increased seepage is not expected to impact the global stability of the roadway or downslope properties and no immediate action is considered necessary. However, seepage into the roadway pavement structure and adjacent slopes is generally not desirable. It is recommended that consideration be given to reducing the rate of infiltration to limit the potential for long-term impacts.

One of the most practicable means of reducing infiltration rates without redirecting the water flow is considered to be the installation of a relatively impermeable lining or drainage facility along the wetted perimeter of the swale. This could be achieved by installing half-round sections of corrugated steel pipe or an equivalent flume along the bottom of the swale. However, we understand that this method has been used previously in the surrounding area with mixed success. As an alternative, it is recommended that consideration be given to installation of a low permeability geomembrane beneath the swale. In this case, the swale should be subexcavated a depth of some 300 mm below the final swale surface, lined with a suitable geomembrane and covered with 300 mm

thickness of clean, erosion resistant material such as well graded 200 mm minus crushed quarry tailings or blast rock to provide both surface protection of the geomembrane and to reduce flow velocities. In either case, it is recommended that suitable trench dams or barriers be installed at intervals of about 30 m to minimize the potential for excessive seepage flows to develop beneath the half round flume or geomembrane.

It is also recommended that periodic inspections of the swale, roadway, and adjacent slopes be carried out. If tension cracks, downslope sloughing, slope creep, concentrated or high volume seepage out of the slope face or other adverse change in conditions are observed, a geotechnical engineer should be notified immediately and additional geotechnical assessment should be carried out.

6.0 CLOSURE

We trust this facsimile is sufficient for your immediate requirements. If you have any further questions or comments regarding the above, please do not hesitate to contact us.

Yours very truly,

GOLDER ASSOCIATES LTD.

Chris Williams, P.Eng.
Geotechnical Engineer

Richard C. Butler, P.Eng.
Principal

CRW/RCB/afs

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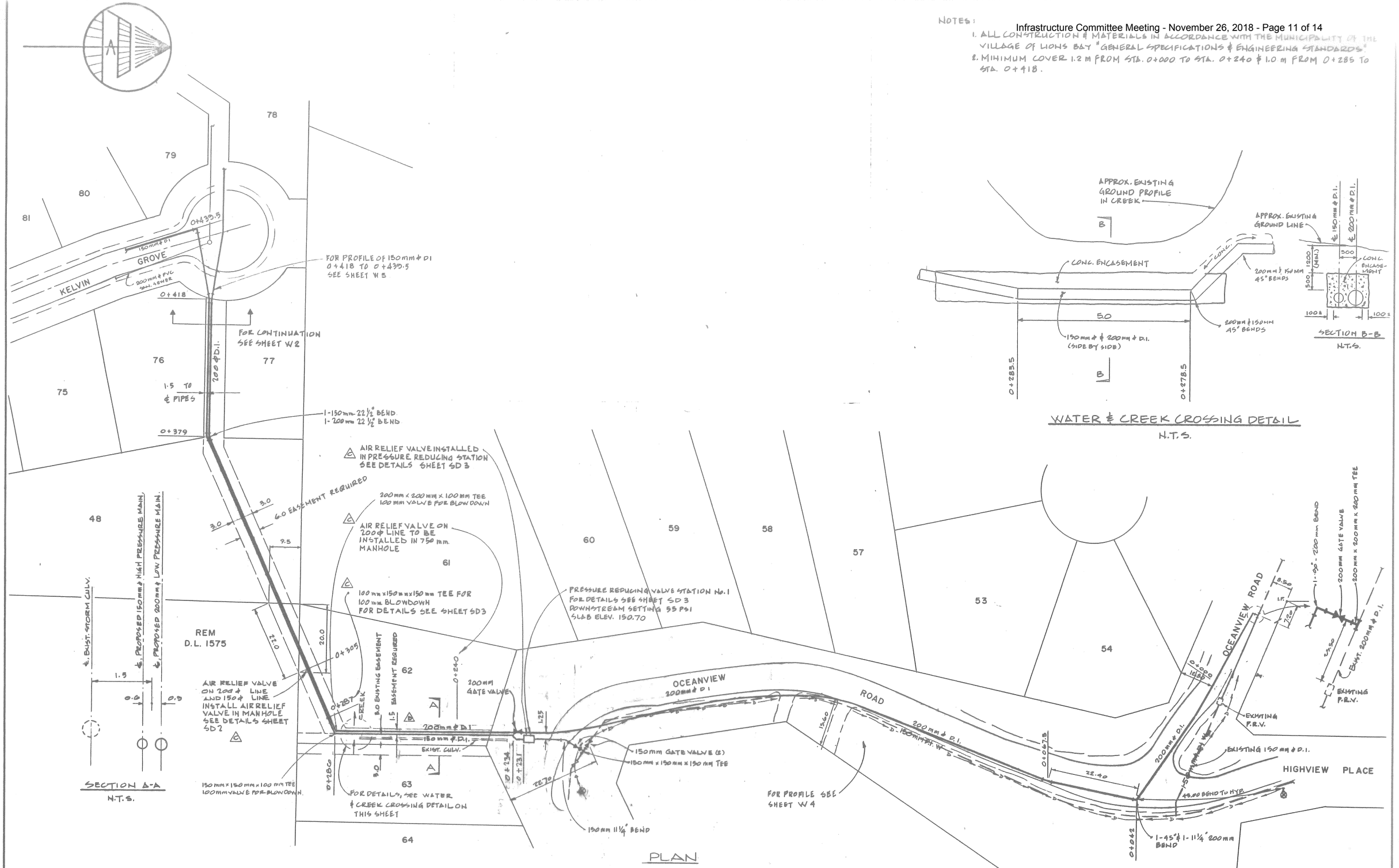
Hard copy to follow by mail ☐ Yes, ☒ No

NOTES:
1. ALL CONSTRUCTION & MATERIALS IN ACCORDANCE WITH THE MUNICIPALITY OF THE VILLAGE OF LIONS BAY "GENERAL SPECIFICATIONS & ENGINEERING STANDARDS"
2. MINIMUM COVER 1.2 m FROM STA. 0+000 TO STA. 0+240 & 1.0 m FROM 0+285 TO STA. 0+418.



WATER & CREEK CROSSING DETAIL
N.T.S.

A	NOV/81	'AS CONSTRUCTED'

PROFESSIONAL ENGINEER BRITISH COLUMBIA H. G. TOPLISS

DESIGNED HGT
DRAWN PC

M. P. T. ENGINEERING CO. LTD.
8211 COOK ROAD
RICHMOND, B.C.

KELVIN GROVE ESTATES
LIONS BAY DEVELOPMENT

SCALE HORIZ 1:500 VERT 1:100
ISSUE DATE AUG. 26, 1980

THE MUNICIPALITY OF THE VILLAGE OF LIONS BAY

INFRASTRUCTURE COMMITTEE

TERMS OF REFERENCE

Purpose

To advise Council on the establishment of policies, bylaws and matters related to infrastructure planning, development and maintenance in the Village.

Establishment and Authority

Section 141 of the Community Charter provides the Mayor with the authority to establish Standing Committees. The Infrastructure Committee (the "Committee") was amended from a Select Committee to a Standing Committee by a resolution of Council on January 6, 2015.

The Committee's role is advisory; it has no authority to approve or implement decisions. The Committee shall report directly to Council through its Chair.

Composition

The Committee shall be comprised of equal numbers of members of Council, and members of the public as appointed by the Mayor.

Committee Role and Responsibility

The Committee's role is to provide guidance and recommendations to Council with respect to Infrastructure as follows:

1. Suggest for Council's consideration revisions and/or updates to Village policies and bylaws with respect to infrastructure planning, development and maintenance.
2. Prepare and prioritize, for Council's consideration, a list of items to be included in the Village's budget for infrastructure planning, development and maintenance and recommend funding sources wherever possible.
3. Other items as may be assigned, by Council, to the Committee related to infrastructure planning, development, maintenance and funding.
4. Defer to Village staff for the day-to-day operations of the Village; Committee input will be at a strategic level.

Staff Role and Responsibility

1. Assists the Committee with information related to Village infrastructure planning, development and maintenance activities.
2. Bring forward Committee recommendations to Regular Council Meetings for consideration.
3. Manage the operation and contracts of activities related to infrastructure planning, development and maintenance for the Village.

Policies and Procedures

Committee procedures are in accordance with Part 4, Division 3 and Part 5, Divisions 2 and 4 of the BC Community Charter as well as the current version of the Village's Council Procedures Bylaw to the extent applicable.

The Committee is established as a non-voting structure, and its recommendations shall be formulated by consensus of those present at its meetings. In the event of procedural conflict, Roberts Rules of Order shall apply.

The Committee will appoint its own Chair and take descriptive minutes. Committee meetings shall not be recorded.

The Committee will meet on the 4th Monday of each month, subject to the Chair's ability to move meeting dates as necessary, in consultation with Committee members.

Adopted by Council:	February 17, 2015
Amended:	October 18, 2016
Amended:	November 20, 2018