

# **WESTBROOK Consulting Ltd.**

September 22, 2017

3057-02

City of Nanaimo  
Service and Resource Centre  
411 Dunsmuir Street  
Nanaimo, B.C. V9R 0E4

Attn: Brian Zurek, MPLAN, RPP

## **Re: Preliminary Offsite Improvements**

Dear Sir:

Westbrook Consulting has been engaged by Broadview Development Inc. to prepare a preliminary cost estimate for the offsite improvements requested as part of the development of 5260, 5280 and 5300 Tanya Drive.

### **BACKGROUND**

Watt Consulting Group has provided a Traffic Impact Assessment for the proposed development and surrounding areas. In their report, dated October 31, 2016, they examined the impact of development of the properties along Tanya Drive that are within the Urban Reserve, as well as some adjacent properties that are zoned R10, but not developed. In total, 8 properties were considered. The ultimate density of development was based on the total property areas, developed at maximum density permitted within the R10 zone – 16 units /ha. The total trip count was based on 1 trip/unit, and resulted in a total of 586 trips. The three subject properties represent 418 maximum trips or approximately 71% of the total increase. The Watt Consulting Group report concluded in saying that the *"Vanderneuk Road and Lost Lake Road can handle the expected volume of traffic if the properties on Tanya Drive are zoned to R-10."* They also stated that the intersection of Vanderneuk Road and Rutherford Road is required to be signalized.

### **OFFSITE IMPROVEMENT REQUESTS**

Through consultation with the City staff, additional road improvements have been requested. The following list was provided by Chris Winkel of the Traffic and Transportation Group.

- Two travel lanes (3.4)\*
- Left turn bay at Altavista (3.2)\*
- Two bike lanes (1.5)\*
- Sidewalk – one consistent side (2.0)\*
- On-street parking – one side where grades allow. (2.4)\*\*
- Blvd / trees should be provided fronting sidewalk where grades allow.\*\*\*
- Street lighting\*

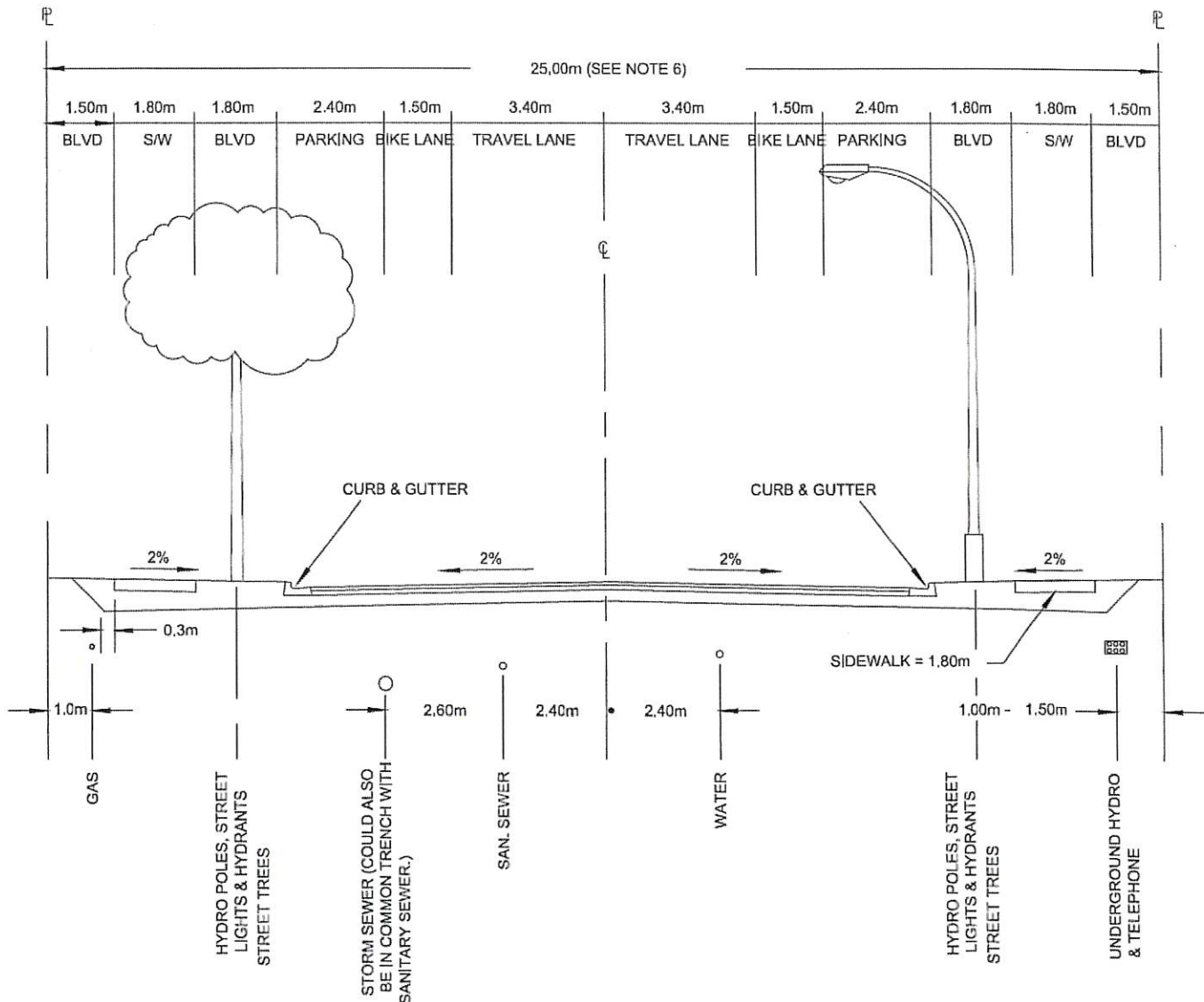
\*must have

\*\*high priority

\*\*\*desirable where possible

We understand the requested road widening is the result of a change in road classification of Lost Lake Road to a minor collector cross section.

The cross section shown below is the R3-XS1, Minor Collector cross section, which is the subject of our discussions.



## CONCERNS

Westbrook Consulting has visited the site and understand the City of Nanaimo's requested offsite improvements. Based on our site visit, and public consultations, we have concerns with the overall feasibility of road widening, mitigating traffic speeds, and maintaining overall pedestrian and bicycle safety.

## Feasibility of Road Widening

Westbrook has concerns about the constructability of the proposed improvements along Lost Lake Road. The cross-section width of the existing road is approximately 7.5m. The requested road cross section is a minimum of 11.8m wide. That means an additional 4.3m of flat area has to be created. In some sections of the corridor, this is possible. In other sections,



specifically between Tanya Drive and Smokey Crescent, this is not possible. The road geometry and driveway grades do not permit a 4.3m flat road widening. Nominal widening could be achieved in some areas; however, it is unrealistic to expect that it can be done through the full corridor.

The existing driveways along Lost Lake Road have driveway grades of approximately 12%-18% on both sides of the road. Lost Lake Road widening is not possible without increasing the driveway grades to 14%-23%. The driveways would require regrading, which has not been included in the attached cost estimate. Furthermore, we believe the regrading would de-value the affected properties and negatively impact the use and enjoyment of those properties. This is an outcome that we would like to avoid as it does not promote community building or enhance the neighbourhood. We believe there would be much resistance from the neighbours who would be affected. We believe that the residents who live in this corridor, and who commute in this area are accustomed to the narrow road. Please refer to the attached Figures 1-3.

### **Traffic Speed**

On June 29<sup>th</sup>, 2017, the developer hosted an open house for the public. Of the feedback received, many people were concerned not so much by traffic volumes on Lost Lake Road, but by the traffic speeds. Several people commented that people speed down the road, and how it can be hard to turn on to Lost Lake Road with speeding traffic.

The adjacent image was recently taken near the intersection of Dewar and Lost Lake Road. The text reads, "Caution Narrow Road Next 1.7km". The sign illustrates that Lost Lake Road is a narrow road and that drivers should use caution. We believe that widening the road would further compound this issue, encouraging drivers to go faster.



### **Pedestrian and Bicycle Safety**

Both pedestrian and bicycle uses were referenced in the Watt Consulting report. Reference was made specifically that neither Lost Lake Road nor Vanderneuk Road are identified as a bicycle route in the City of Nanaimo OCP. In the Conclusion section, it also said that Lost Lake Road is not a recommended cycling route, and that appropriate sidewalk plan should be made to connect the neighbourhood. We believe that the proposed development site should be linked to the adjacent neighbourhood to the west. However, we don't believe Lost Lake Road is the safest way to do so. Rather, an alternate link should be made so that pedestrians and cyclists can use a quieter road than Lost Lake Road.

## ALTERNATIVE IMPROVEMENTS

Because the existing driveway and building locations restrict the construction along sections of Lost Lake Road between Tanya Drive and Rutherford Road, we are pleased to present an alternative plan to address neighbourhood concerns, and improve overall safety. Please refer to attached figures 4 & 5. We have also provided cost estimates so the two scenarios can be compared.

The following table and attached figures illustrate our proposal.

	<b>Alternative Improvement</b>	<b>Benefits</b>	<b>Construction</b>
1	Traffic calming along Lost Lake Road – Speed Readers	The proposed improvements along Lost Lake Road are constructible and aim to reduce speed along the corridor.	Supply and install speed reader signs in both directions at one location along lost Lake Road.
2 & 5	Intersection improvements at Altavista Drive and Vanderneuk Road	Allow for safe pedestrian access to the proposed pedestrian/cycle corridor along Altavista Drive.  Increase the storage for the left hand turn onto Altavista Drive	Supply and install pedestrian activated cross walk.  Install additional sidewalk to accommodate the new cross walk.  Install a left turn lane from Lost Lake Road onto Altavista Drive.
3	Traffic Signals at Rutherford Road and Vanderneuk Road	Increase the level of service of the intersection.	Install traffic signals at the intersection of Rutherford Road and Vanderneuk Road.
4	Pedestrian/cycle corridor along between Rutherford Road and Tanya Drive along Venderneuk Road, Altavista, Smokey Crescent and a multi-use trail connection between Smokey Crescent and Tanya Drive.	The proposed pedestrian and cycle corridor does not require existing steep driveways along Lost Lake Road to be steeper.  The proposed pedestrian and cycle corridor is a quiet corridor. We believe this would be much safer for pedestrians and cyclists.	Line Painting along the pedestrian corridor.  Paved trail connection between Tanya Drive and Smokey Crescent.  Bike route signs along route  Pedestrian activated cross walk at Alta Vista
6	Provide street lighting	Additional street lighting would improve visibility and overall safety.	Provide streetlights along the Lost Lake Road corridor between Altavista Drive and Tanya Drive





### Proposed Improvement Schedule

Based on the preceding proposal, we present the following table outlining how the improvements would be phased in. We propose to phase in the improvements in the order shown below, as units are built and the number of trips is increased. The City of Nanaimo can secure the improvement schedule by way of a covenant.

	Proposed Improvements	Number of trips	% of Trips	Estimated Value	% of Cost
1	Speed Readers	8	2%	\$20,250	2%
2	Pedestrian Activated Cross Walk	22	5%	\$56,500	5%
3	Traffic Light	173	41%	\$442,500	41%
4	Multi-Use Trail to Smokey Cres	93	22%	\$239,438	22%
5	Turn Lane at Alta Vista	6	1%	\$15,875	1%
6	Street Lights	116	28%	\$296,500	28%
	<b>Total</b>	<b>418</b>		<b>\$1,071,063</b>	

### SUMMARY

We propose to provide a safe pedestrian and cycle route while limiting the impact on the existing properties along Lost Lake Road. As part of the offsite improvements, traffic calming measures and a cross walk will be installed along Lost Lake Road. Street lighting will be installed, and a signalized intersection at Rutherford Road and Vanderneuk Road will also be installed. The attached figures and cost estimates outline the location of works, and estimated costs.

We believe that our alternate proposal improves public safety without adversely affecting properties that front on to Lost Lake Road. We propose that the offsite road improvements be staged to match the progress of the development.

Please do not hesitate to contact the undersigned if you have any questions.

Yours truly,

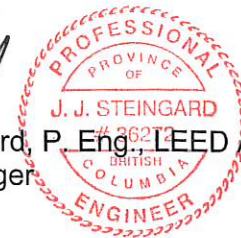
### WESTBROOK CONSULTING LTD.



Nicole Fischer, EIT  
Project Engineer

Reviewed by,

  
Jared Steingard, P. Eng., LEED AP  
Project Manager



Encl: Cost Estimates  
Figure 1-5

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**WESTBROOK**  
Consulting Ltd.

**WESTBROOK CONSULTING LTD.**

# 115 - 866 Goldstream Avenue

Victoria, B.C. V9B 0J3

**CONSTRUCTION COST ESTIMATE**

Project Name..... : **Broadview**  
Project Number..... : **3057**  
Project Description..... : **Requested Offsite Road Works**  
Date Estimate Prepared..... : **05/04/17**  
Estimate Prepared By..... : **JJS**

**BASIS OF ESTIMATE**

This Estimate is Valid for a period of 30 days only.

This Estimate is based on a preliminary servicing design and, as such is subject to change. The Road Cross Section R3-XS1 has been applied.

This Estimate assumes the following:

- \* Two 3.4m wide travel lanes
- \* 1.5m bike lanes in either direction
- \* Street Lights are spaced at 40m
- \* Rock Blasting is not required
- \* Non-mountable curb would be on one side of the road only
- \* The existing pavement and gravel substructure is adequate and would pass a benkleman beam test
- \* Altavista Turn Lane is 3.2m wide
- \* Altavista Turn Lane has storage for 2 vehicles
- \* No road improvements are required west of 5646 Lost Lake Road
- \* Sidewalk will be 2.0m, located at the back of curb
- \* Ditch enclosures will connect culverts with PVC, Ultrarib or equivalent pipe

This Estimate does not include the following:

- \* LANDSCAPING AND IRRIGATION
- \* GST
- \* CITY OF NANAIMO FEES
- \* UTILITY FEES
- \* REAL ESTATE FEES
- \* DEVELOPMENT COST CHARGES (DCCs)
- \* LEGAL FEES
- \* DRIVEWAY REGRADING GRADING

**SUMMARY OF THE DIRECT CONSTRUCTION COSTS****OFFSITE ROADWORKS COSTS**

Tanya Drive to Dewar.....	\$463,540.50
Dewar to Smokey Cres.....	\$304,957.50
Smokey Cres to Altavista .....	\$427,952.40
Traffic Light at Rutherford.....	\$350,000.00
<b>SUBTOTAL ONSITE COSTS</b>	<b>\$1,546,450.40</b>

**SUMMARY OF OTHER RELATED CHARGES AND FEES**

Civil Engineering Fees at 10% of Construction Costs.....	\$154,645.04
Geotechnical Engineering Fees.....	\$25,000.00
Legal Survey Fees.....	\$20,000.00
Traffic Control.....	
Contingency (15% of Construction Costs).....	\$232,000.00

**TOTAL PROJECT COSTS****\$1,978,095.44**

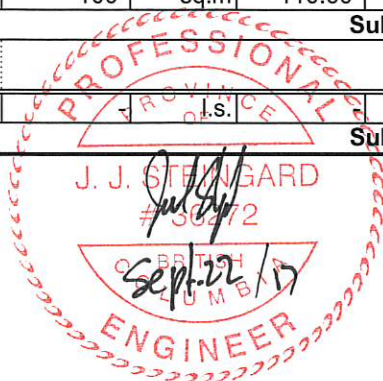


## PROJECT COST ESTIMATE

Project Name: Broadview

Project Number: 3057

DIRECT CONSTRUCTION COSTS					
Description	Quantity	Unit	Unit Cost	Amount	Total
<b>Tanya Drive to Dewar</b>					
Subgrade Construction	742	sq.m	8.00	5936.00	
250mm Pit Run Gravel (75mm)	742	sq.m	16.00	11872.00	
100mm Crushed Gravel (20mm)	609.5	sq.m	10.00	6095.00	
75mm Asphalt	609.5	sq.m	75.00	45712.50	
Non Mountable Curb	265	m	110.00	29150.00	
2.0m Concrete Sidewalk	265	m	250.00	66250.00	
Backfill Behind Sidewalk	-	l.s.	-	4000.00	
Streetlights	7	ea	7500.00	52500.00	
Electrical Conduit	265	m	65.00	17225.00	
Connect to Power Source	-	l.s.	-	5000.00	
Retaining Walls	484	sq.m	250.00	121000.00	
Structural Fill	580	cu.m	60.00	34800.00	
Ditch Enclosure	160	m	400.00	64000.00	
<b>Sub-total</b>					<b>\$463,540.50</b>
<b>Dewar to Smokey Cres</b>					
Subgrade Construction	405	sq.m	8.00	3240.00	
250mm Pit Run Gravel (75mm)	405	sq.m	16.00	6480.00	
100mm Crushed Gravel (20mm)	292.5	sq.m	10.00	2925.00	
75mm Asphalt	292.5	sq.m	75.00	21937.50	
Non Mountable Curb	225	m	110.00	24750.00	
2.0m Concrete Sidewalk	225	m	250.00	56250.00	
Backfill Behind Sidewalk	-	l.s.	-	4500.00	
Streetlights	6	ea	7500.00	45000.00	
Electrical Conduit	225	m	65.00	14625.00	
Connect to Power Source	-	l.s.	-	5000.00	
Retaining Walls	305	sq.m	250.00	76250.00	
Ditch Enclosure	110	m	400.00	44000.00	
<b>Sub-total</b>					<b>\$304,957.50</b>
<b>Smokey Cres to Altavista</b>					
Subgrade Construction	853.6	sq.m	8.00	6828.80	
250mm Pit Run Gravel (75mm)	853.6	sq.m	16.00	13657.60	
100mm Crushed Gravel (20mm)	659.6	sq.m	10.00	6596.00	
75mm Asphalt	659.6	sq.m	75.00	49470.00	
Non Mountable Curb	388	m	110.00	42680.00	
2.0m Concrete Sidewalk	388	m	250.00	97000.00	
Backfill Behind Sidewalk	-	l.s.	-	4000.00	
Streetlights	10	ea	7500.00	75000.00	
Electrical Conduit	388	m	65.00	25220.00	
Connect to Power Source	-	l.s.	-	6000.00	
Retaining Walls	40	sq.m	250.00	10000.00	
Structural Fill	275	cu.m	60.00	16500.00	
Ditch Enclosure	160	m	400.00	64000.00	
Turn Lane (Full road structure)	100	sq.m	110.00	11000.00	
<b>Sub-total</b>					<b>\$427,952.40</b>
<b>Traffic Light at Rutherford</b>					
Traffic Light at Rutherford	-	l.s.	-	350000.00	
<b>Sub-total</b>					<b>\$350,000.00</b>



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**BASIS OF ESTIMATE**

This Estimate is Valid for a period of 30 days only.

This Estimate is based on a preliminary servicing design and, as such is subject to change.

This Estimate assumes the following:

- \* Traffic calming along Lost Lake Road (Speed Reader Signs and Streetlights)
- \* Cycle/pedestrian corridor along Smokey Crescent, Altavista Drive and trail connection.
- \* Street Lights are spaced at 40m
- \* Traffic Light at Rutherford Road and Vanderneuk Road
- \* Pedestrian activated cross walk at Altavista Drive and Lost Lake Road.
- \* 4m wide trail connection between Smokey Crescent and Tanya Drive
- \* All engineering design work will be completed as one project but has been broken down into specific tasks for the purpose of this cost estimate

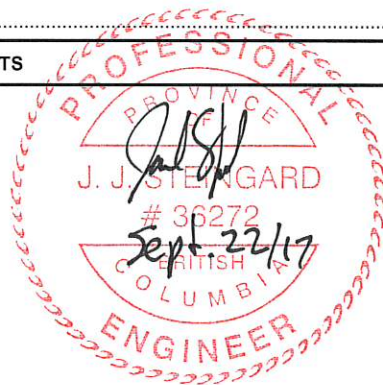
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- \* CITY OF NANAIMO FEES
- \* LEGAL FEES
- \* UTILITY FEES
- \* DRIVEWAY REGRADING GRADING

**SUMMARY OF THE DIRECT CONSTRUCTION COSTS**

**OFFSITE ROADWORKS COSTS**

Speed Reader Signs on Lost Lake Road.....	\$20,250.00
Pedestrian Activated Sidewalk.....	\$56,500.00
Traffic Light at Rutherford.....	\$442,500.00
Multi Use Connection.....	\$239,437.50
Left Turn Lane at Altavista Drive.....	\$15,875.00
Streetlights along Lost Lake Road.....	\$296,500.00
<b>TOTAL OFFSITE ROADWORKS COSTS</b>	<b>\$1,071,062.50</b>





# PROJECT COST ESTIMATE

Project Name: Broadview  
Project Number: 3057

DIRECT CONSTRUCTION COSTS					
Description	Quantity	Unit	Unit Cost	Amount	Total
<b>Speed Reader Signs on Lost Lake Road</b>					
Speed Reader Signs	2	ea	7500.00	15000.00	
Traffic Control	-	l.s.	-	1500.00	
Civil Engineering (10% of Construction Costs)	-	l.s.	-	1500.00	
Contingency (15%)	-	l.s.	-	2250.00	
<b>Sub-total</b>					<b>\$20,250.00</b>
<b>Pedestrian Activated Sidewalk</b>					
Pedestrian Activated Sidewalk	2	ea	10000.00	20000.00	
Electrical Conduit	20	m	65.00	1300.00	
Connect to Power Source	-	l.s.	-	5000.00	
Non Mountable Curb	40	m	110.00	4400.00	
2.0m Concrete Sidewalk	40	m	250.00	10000.00	
Backfill Behind Sidewalk	-	l.s.	-	1500.00	
Line Painting	-	l.s.	-	1000.00	
Traffic Control	-	l.s.	-	1000.00	
Legal Survey	-	l.s.	-	500.00	
Geotechnical	-	l.s.	-	1000.00	
Civil Engineering (10% of Construction Costs)	-	l.s.	-	4320.00	
Contingency (15%)	-	l.s.	-	6480.00	
<b>Sub-total</b>					<b>\$56,500.00</b>
<b>Traffic Light at Rutherford</b>					
Traffic Light at Rutherford	-	l.s.	-	35000.00	
Traffic Control	-	l.s.	-	3000.00	
Legal Survey	-	l.s.	-	1000.00	
Geotechnical	-	l.s.	-	1000.00	
Civil Engineering (10% of Construction Costs)	-	l.s.	-	35000.00	
Contingency (15%)	-	l.s.	-	52500.00	
<b>Sub-total</b>					<b>\$442,500.00</b>
<b>Multi Use Connection (Tanya Drive, Smokey Crescent, Altavista Drive)</b>					
Subgrade Construction	1550	sq.m	8.00	12400.00	
100mm Crushed Gravel (20mm)	1240	sq.m	10.00	12400.00	
50mm Asphalt	1240	sq.m	50.00	62000.00	
Sharrows	26	ea	300.00	7800.00	
Bike Path Signs	26	ea	250.00	6500.00	
Bollards	2	ea	250.00	500.00	
Streetlights	8	ea	7500.00	60000.00	
Electrical Conduit	310	m	65.00	20150.00	
Connect to Power Source	-	l.s.	-	5000.00	
Traffic Control	-	l.s.	-	2000.00	
Legal Survey	-	l.s.	-	2500.00	
Geotechnical	-	l.s.	-	1500.00	
Civil Engineering (10% of Construction Costs)	-	l.s.	-	18675.00	
Contingency (15%)	-	l.s.	-	28012.50	
<b>Sub-total</b>					<b>\$239,437.50</b>
<b>Left Turn Lane at Altavista Drive</b>					
Subgrade Construction	100	sq.m	8.00	800.00	
250mm Pit Run Gravel (75mm)	100	sq.m	16.00	1600.00	
100mm Crushed Gravel (20mm)	100	sq.m	10.00	1000.00	
75mm Asphalt	100	sq.m	65.00	6500.00	
Traffic Control	-	l.s.	-	1500.00	
Legal Survey	-	l.s.	-	1000.00	
Geotechnical	-	l.s.	-	1000.00	
Civil Engineering (10% of Construction Costs)	-	l.s.	-	990.00	
Contingency (15%)	-	l.s.	-	1485.00	
<b>Sub-total</b>					<b>\$15,875.00</b>
<b>Streetlights along Lost Lake Road</b>					
Streetlights	23	ea	7500.00	172500.00	
Electrical Conduit	900	m	65.00	58500.00	
Connect to Power Source	-	l.s.	-	5000.00	
Traffic Control	-	l.s.	-	1000.00	
Geotechnical	-	l.s.	-	500.00	
Civil Engineering (10% of Construction Costs)	-	l.s.	-	23600.00	
Contingency (15%)	-	l.s.	-	35400.00	
<b>Sub-total</b>					<b>\$296,500.00</b>

