CITY OF KELOWNA

MEMORANDUM

Date: July 8, 2009

File No.: OCP09-0001 / Z09-0007

To: City Manager

From: Community Sustainability Division

Subject: 245 Briarwood Road

1.0 RECOMMENDATION:

THAT Council receives for information the Supplemental Report of the Community Sustainability Division dated July 8, 2009 with respect to the requested Traffic Impact Study for OCP09-0001 / Z09-0007.

2.0 BACKGROUND:

At the initial Public Hearing for Bylaw No. 10198 (OCP09-0001) & 10199 (Z09-0007), Council made the following recommendation:

- That the Public Hearing with respect to Bylaw No. 10198 and Bylaw No. 10199 be kept open pending receipt of a traffic impact study;

The applicant, Troika Developments, has now provided staff with the Traffic Impact Study (TIS), a copy of which is attached. The submitted report summarizes the traffic movements at the Briarwood Rd/Rutland Rd intersection, as well as providing previously collected data from other neighbouring intersections along the Rutland Road corridor. The City's Traffic & Transportation Engineer, with the Infrastructure Planning Department, has reviewed the TIS and provided the following comments:

> "The additional traffic generated from the development will bring the intersection of Briarwood & Rutland Road close to failure. From our analysis, vehicles turning out of Briarwood Road will have a delay of 30 to 40 seconds (in 2019, AM peak). We do not see that intersection improvements would be required for this development, but any future development on Briarwood Road is likely to cause the failure of the intersection.
>
> The traffic study did not consider pedestrians. Due to the density & location of the development close to the Rutland Urban Centre and transit facilities, we recommend that the developer construct a sidewalk from the development to Rutland Road."

The Development Engineering Branch has revised their comments, including any improvements that may be required, a copy of which is attached.

The application has been placed on the agenda for the July 14, 2009 Public Hearing.

Submitted by:

Shelley Gambacort
Director, Land Use Management

Approved for Inclusion:

Jim Paterson
GM, Community Sustainability

ATTACHMENTS

Briarwood Rd Multifamily Project – Traffic Review from David Cullen, P.Eng. CTQ Consultants (dated July 7, 2009), 5 pgs
Revised Development Engineering Branch Comments

CTQ Consultants Ltd

July 7, 2009
File: 08170-10-5 001

Tel: (604) 869-4945

Troika Developments Inc.
620-1620 Dickson Avenue
Kelowna, BC V1Y 9Y2

Attention:

Mr. David Sargent

Dear Sir:

Reference: Briarwood Road Multifamily Project, Kelowna BC
Traffic Review

We are pleased to provide the following review of the anticipated traffic generated by the proposed 67 unit, RM-5 Multi Family site on Briarwood Road.

The existing site is zoned RM-3, and has 11 Multi Family units.

#205-1726 Dolphin Avenue, Kelowna, BC V1Y 9R9 · Phone: (250) 979-1221 · Fax: (250)

Reference: **Briarwood Road Multifamily Project, Kelowna BC**
Traffic Review

Traffic impact reviews are based on trip generation rates. The rates are based on information collated from actual traffic studies, and presented for the average weekday Peak Hour volumes the specific land use will generate, during normal operations. The trip generation rates applied for typical residential developments are from the Ministry of Transportation Trip Generation Rates Manual Table 7-1, as follows:

- Medium Rise Apartments (3-9 levels), with an AM rate of 0.23 trips per unit and PM rate of 0.37 trips per unit.

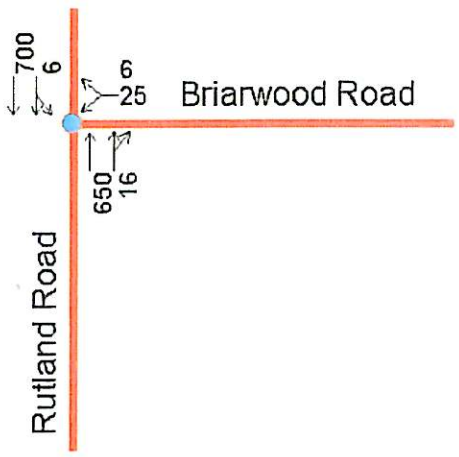
The proposed development consists of 67 apartment units, an increase of 56 units over the existing site.

Based on the above, the Site is anticipated to generate an average of 13 additional two-way vehicle trips during the AM Peak Hour (4 inbound / 9 outbound) and 21 additional two-way vehicle trips during the PM Peak Hour (12 inbound / 9 outbound).

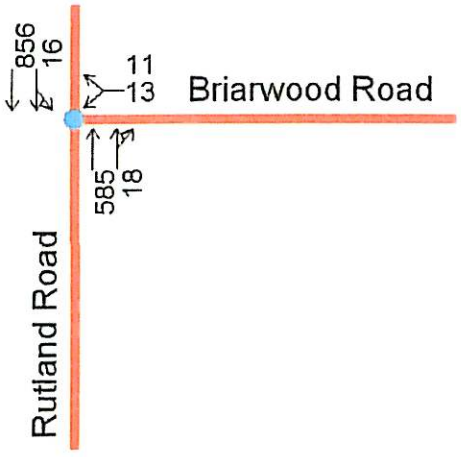
The Ministry of Transportation Site Impacts Analysis Requirements Manual has a policy that a detailed Site Impact Analysis is not required for developments which have an estimated peak hour trip generation below 100 two-way trips.

The City of Kelowna has indicated a site impact review is required for the development, with the following requirements. Intersection peak hour analysis for 2009 and the 2019 horizon, for the existing background traffic, the background traffic plus the proposed development, for the Rutland Road and Briarwood Road stop controlled intersection. The traffic on Rutland road is anticipated to grow at an average of 2% per year, over the next ten years.

In support of the intersection analysis, a one day traffic count was performed at the intersection of Briarwood Road and Rutland Road on July 6, 2009. 2008 Peak hour traffic count information was also obtained from the City of Kelowna for the Rutland Road / Leathead Road and Rutland Road / Mugford Road intersections. The traffic count information is appended. Based on the traffic count information, the average annual daily AM Peak hour and PM Peak hour volumes for the Briarwood Road and Rutland Road intersection are as follows:



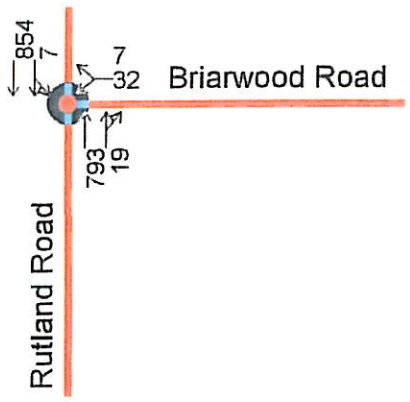
2009 AM Peak Hour



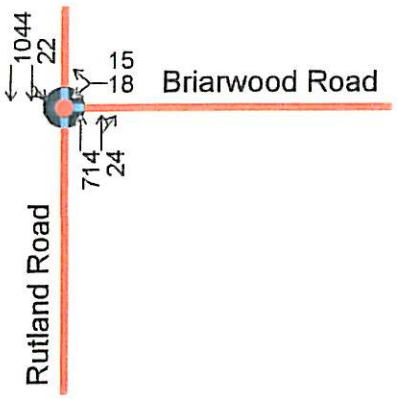
2009 PM Peak Hour

Reference: **Briarwood Road Multifamily Project, Kelowna BC**
Traffic Review

The additional traffic generated from the proposed development has been added to the projected 2019 background traffic volumes and is presented below:



2019 AM Peak Hour



2019 PM Peak Hour

The operation of the intersection has been analyzed utilizing Highway Capacity Manual Synchro 6 software for signalized and unsignalized intersections. An operational level of service is determined for each movement based upon the calculated delay.

- Levels of Service (LoS) A and B represent less than 10 seconds of average delay and are considered good operating conditions.
- Levels of Service C and D represent between 10 and 30 seconds of average delay and are considered fair operating conditions.
- Levels of Service E and F represent more than 30 seconds of average delay and are considered poor operating conditions.

Generally, and in accordance with the *Ministry of Transportation Site Impact Analysis Requirements Manual*, in urban areas, improvements are considered when the overall intersection performance nears Level of Service E. For the Rutland Road trough traffic improvements are to be considered when the performance nears Level of Service D.

The Briarwood Road and Rutland Road intersection background plus development traffic was analyzed for the Weekday AM and PM Peak Hour traffic for the 2019 horizon year. The analysis results are presented below:

Reference: **Briarwood Road Multifamily Project, Kelowna BC**
Traffic Review

3 Briarwood Road & Rutland Road

Options >

Controller Type: Unsignalized

Max v/c Ratio: 0.36
Int. Delay: 0.9
Int. LOS:
ICU: 38.5%
ICU LOS: A

SIGNING WINDOW	WBL	WBR	NBT	NBR	SBL	SBT
Lanes and Sharing (#RL)						
Traffic Volume (vph)	32	7	650	19	7	700
Sign Control	Stop		Free			Free
Median Type	None		None			None
Median Width (vehs)						
Right Turn Channelized		None		None		None
Critical Gap, tC (s)	6.8	6.9			4.1	
Follow Up Time, tF (s)	3.5	3.3			2.2	
Volume to Capacity Ratio	0.26	0.26	0.34	0.18	0.01	0.36
Control Delay (s)	35.0	35.0	0.0	0.0	0.1	0.1
Level of Service	D	D	A	A	A	A
Queue Length 95th (m)	7.6	7.6	0.0	0.0	0.2	0.2

2019 Background plus Development AM Peak Hour

3 Briarwood Road & Rutland Road

Options >

Controller Type: Unsignalized

Max v/c Ratio: 0.45
Int. Delay: 0.7
Int. LOS:
ICU: 54.6%
ICU LOS: A

SIGNING WINDOW	WBL	WBR	NBT	NBR	SBL	SBT
Lanes and Sharing (#RL)						
Traffic Volume (vph)	18	15	585	24	22	856
Sign Control	Stop		Free			Free
Median Type	None		None			None
Median Width (vehs)						
Right Turn Channelized		None		None		None
Critical Gap, tC (s)	6.8	6.9			4.1	
Follow Up Time, tF (s)	3.5	3.3			2.2	
Volume to Capacity Ratio	0.18	0.18	0.30	0.17	0.03	0.45
Control Delay (s)	27.2	27.2	0.0	0.0	0.4	0.3
Level of Service	D	D	A	A	A	A
Queue Length 95th (m)	4.9	4.9	0.0	0.0	0.7	0.7

2019 Background plus Development PM Peak Hour

Based on the above review, the traffic generated by the proposed multifamily development will have a minimal impact on the operation of the adjacent street network, and is a consistent use of the street classifications as presented in the City of Kelowna Official Community Plan, and should not require roadway infrastructure improvements to accommodate the minor increase in traffic resulting from the development.

Reference: **Briarwood Road Multifamily Project, Kelowna BC**
Traffic Review

The City of Kelowna has identified the realignment of McIntosh Road and Mugford Road, to create a new intersection with Rutland Road, to be completed within the next ten years. The new four legged intersection would also be signalized.

We trust the above meets your requirements. Please contact the undersigned if you have any questions on the above or require further information.

Sincerely,

CTQ CONSULTANTS LTD.
Per:

Mr. David D. Cullen, P.Eng.
Transportation Engineer
DDC:

CTQ Consulting Ltd.

VEHICLE TURNING MOVEMENT SURVEY

Location: Kelowna Day and Date: 6-Jul-09

Observer: Gary Fuller

Weather: Overcast Light: Overcast

Road Surface: dry

Speed Limit - Major Street: 50 km/hr Speed Limit - Minor Street: 50 km/hr

TIME			Rutland Road FROM SOUTH			Rutland Road FROM North			Briarwood Road FROM EAST		
				T	R	L	T		L		R
7:30	-	7:45		93	4	0	103		1		6
7:45	-	8:00		133	0	0	123		3		2
8:00	-	8:15		98	8	0	99		4		0
8:15	-	8:30		105	1	1	110		8		3
8:30	-	8:45		111	0	2	119		4		1
8:45	-	9:00		101	2	1	98		1		0
9:00	-	9:15		95	1	2	113		1		0
9:15	-	9:30		100	1	1	133		1		3
SUBTOTAL				836	17	7	898		23		15
Peak Hour				415	11	4	426		17		4
11:30	-	11:45		127	3	2	140		2		0
11:45	-	12:00		101	2	4	173		2		0
12:00	-	12:15		118	2	1	160		3		2
12:15	-	12:30		103	2	2	152		1		1
12:30		12:45		113	3	3	151		2		2
12:45		13:00		115	3	2	147		4		4
13:00		13:15		119	0	1	157		4		4
13:15		13:30		113	2	2	141		3		1
SUBTOTAL				909	17	17	1221		21		14
Peak Hour				435	9	10	636		8		5
15:30	-	15:45		154	3	2	207		3		1
15:45		16:00		169	4	5	207		3		2
16:00		16:15		135	2	4	184		1		3
16:15	-	16:30		148	5	5	173		2		1
16:30	-	16:45		146	2	6	208		2		3
16:45	-	17:00		109	8	3	160		2		3
17:00		17:15		129	1	0	184		6		3
17:15		17:30		141	4	6	162		0		5
17:30		17:45		147	3	5	154		0		1
17:45		18:00		110	7	4	147		3		2
SUBTOTAL				1388	39	40	1786		22		24
Peak Hour				532	16	14	725		12		10
TOTAL				3133	73	64	3905		66		53
Total Hours				6.5	6.5	6.5	6.5		6.5		6.5
Average Volume				482	11	10	601		10		8

Rutland Rd & Bach/Leathead Rd

Morning Peak Diagram

Specified Period
From: 7:00:00
To: 9:00:00

One Hour Peak
From: 8:00:00
To: 9:00:00

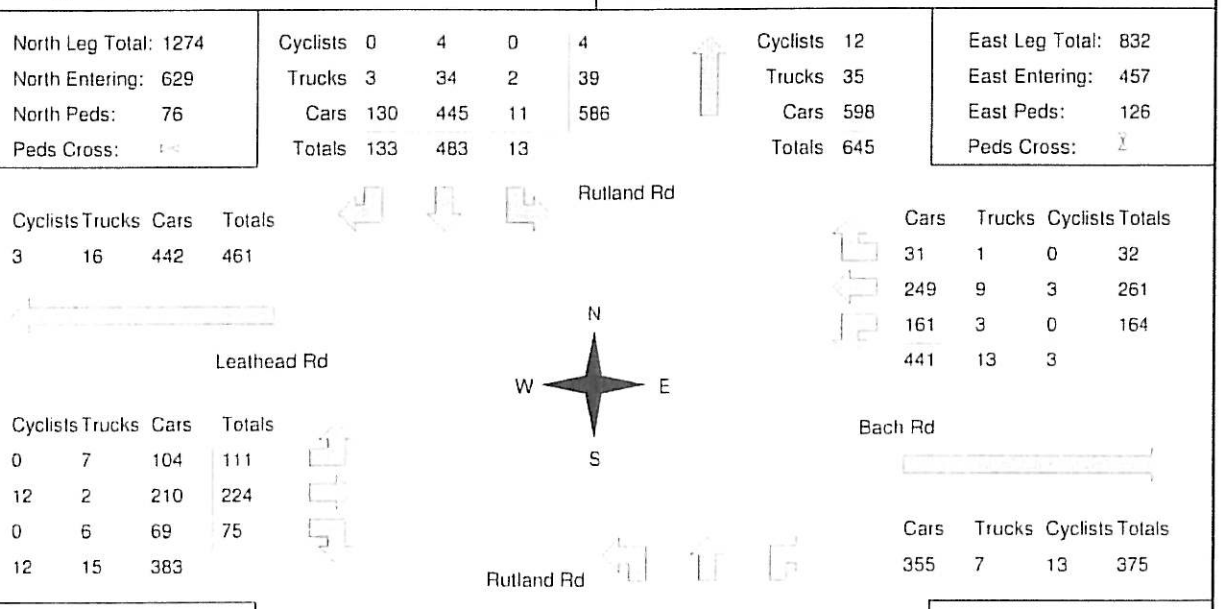
Municipality: Kelowna
Site #: 0000601396
Intersection: Rutland Rd & Bach/Leathead Rd
TFR File #: 1
Count date: 9-Oct-2008

Weather conditions:
Sunny

Person(s) who counted:
Dianne

**** Signalized Intersection ****

Major Road: Rutland Rd runs N/S



Comments

Rutland Rd & Bach/Leathead Rd

Afternoon Peak Diagram

Specified Period
From: 15:30:00
To: 17:30:00

One Hour Peak
From: 16:30:00
To: 17:30:00

Municipality: Kelowna
Site #: 0000601396
Intersection: Rutland Rd & Bach/Leathead Rd
TFR File #: 1
Count date: 9-Oct-2008

Weather conditions:
Sunny

Person(s) who counted:
Dianne

** **Signalized Intersection** **

Major Road: Rutland Rd runs N/S

North Leg Total: 1194	Cyclists	1	4	0	5
North Entering: 680	Trucks	2	19	0	21
North Peds: 6	Cars	106	537	11	654
Peds Cross:	Totals	109	560	11	

Cyclists	11			
Trucks	17			
Cars	486			
Totals	514			

East Leg Total: 499
East Entering: 232
East Peds: 1
Peds Cross:

Rutland Rd

Cyclists	Trucks	Cars	Totals
4	7	260	271

Cars	Trucks	Cyclists	Totals
15	0	0	15
112	2	3	117
97	2	1	100
224	4	4	

Leathead Rd

N
W E
S

Bach Rd

Cyclists	Trucks	Cars	Totals
0	1	134	135
0	0	148	148
0	1	102	103
0	2	384	

Cars	Trucks	Cyclists	Totals
265	2	0	267

Rutland Rd

Peds Cross:	Cars	736	Cars	42	337	106	485
West Peds: 4	Trucks	22	Trucks	3	16	2	21
West Entering: 386	Cyclists	5	Cyclists	0	11	0	11
West Leg Total: 657	Totals	763	Totals	45	364	108	

Peds Cross:
South Peds: 0
South Entering: 517
South Leg Total: 1280

Comments

Rutland Rd & Mugford Rd

Morning Peak Diagram

Specified Period
From: 7:00:00
To: 9:00:00

One Hour Peak
From: 8:00:00
To: 9:00:00

Municipality: Kelowna
Site #: 0000619329
Intersection: Rutland Rd & Mugford Rd
TFR File #: 2
Count date: 13-Nov-2008

Weather conditions:
Rainy

Person(s) who counted:
Karen

**** Signalized Intersection ****

Major Road: Rutland Rd runs N/S

North Leg Total: 1294	Cyclists	0	2	0	2
North Entering: 684	Trucks	0	36	1	37
North Peds: 0	Cars	0	626	19	645
Peds Cross:	Totals	0	664	20	

Cyclists	4			
Trucks	28			
Cars	578			
Totals	610			

East Leg Total: 80
East Entering: 42
East Peds: 51
Peds Cross:

Rutland Rd

Cyclists	Trucks	Cars	Totals
1	0	0	1

Cars	Trucks	Cyclists	Totals
18	2	2	22
0	0	1	1
18	0	1	19
36	2	4	

Mugford Rd

N
W E
S

Cyclists	Trucks	Cars	Totals
0	0	0	0
1	0	0	1
1	0	0	1
2	0	0	

Mugford Rd

Cars	Trucks	Cyclists	Totals
35	1	2	38

Rutland Rd

Peds Cross:	Cars	644	Cars 0	560	16	576
West Peds: 1	Trucks	36	Trucks 0	26	0	26
West Entering: 2	Cyclists	4	Cyclists 0	2	1	3
West Leg Total: 3	Totals	684	Totals 0	588	17	

Peds Cross:
South Peds: 4
South Entering: 605
South Leg Total: 1289

Comments

Rutland Rd & Mugford Rd

Afternoon Peak Diagram

Specified Period
From: 15:30:00
To: 17:30:00

One Hour Peak
From: 16:00:00
To: 17:00:00

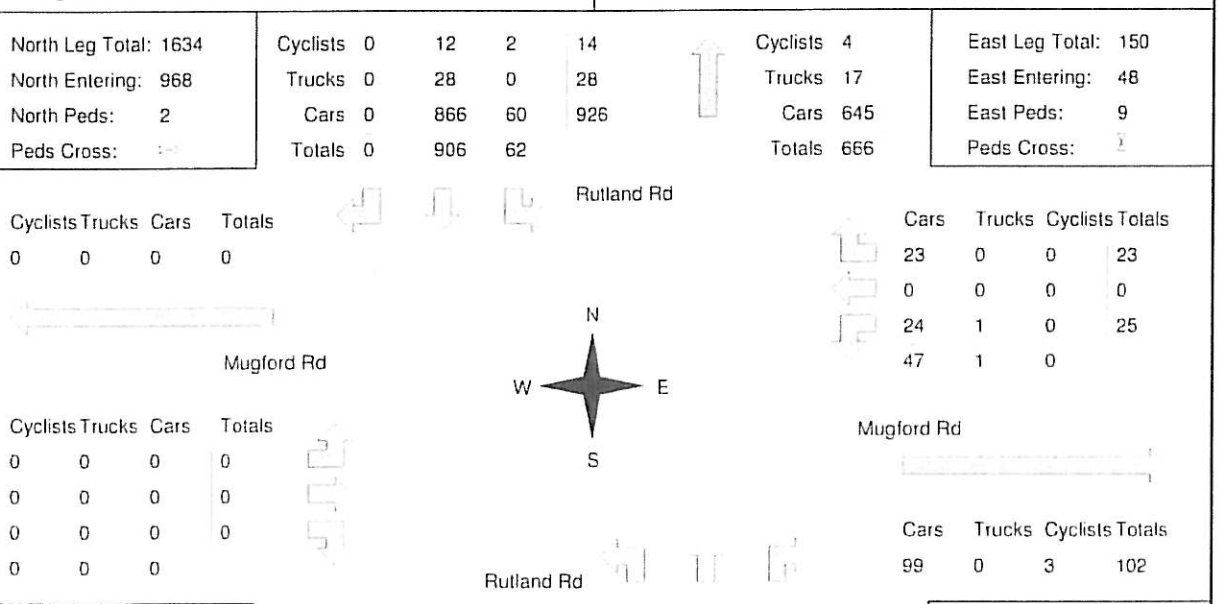
Municipality: Kelowna
Site #: 0000619329
Intersection: Rutland Rd & Mugford Rd
TFR File #: 2
Count date: 13-Nov-2008

Weather conditions:
Rainy

Person(s) who counted:
Karen

**** Signalized Intersection ****

Major Road: Rutland Rd runs N/S



Comments

CITY OF KELOWNA

MEMORANDUM

Date: *July 9, 2009*

File No.: Z09-0007 *(revision 1)*

To: Land Use Management Department (LT)

From: Development Engineering Manager (SM)

Subject: 245 Briarwood – Lot B, Plan, 20270, Section 26, Township 26, ODYD

The Development Engineering requirements and comments pertaining to this application, to rezone the subject property from RM3 to RM5, are as follows:

1. General.

a) Provide easements and right of ways as required.

2. Geotechnical Study.

A comprehensive Geotechnical Study is required, which is to be prepared by a Professional Engineer competent in the field of geotechnical engineering, the study is to address the following:

- Overall site suitability for development.
- Presence of ground water and/or springs.
- Presence of fill areas.
- Presence of swelling clays.
- Presence of sulfates.
- Provide specific requirements for footings and foundation construction.
- Provide specific construction design sections for roads and utilities over and above the City's current construction standards

3. Domestic water and fire protection.

a) This development is within the service area of the Rutland Waterworks District (RWD). The developer is required to make satisfactory arrangements with the RWD for these items. All charges for service connection and upgrading costs are to be paid directly to the RWD.

b) A single watermeter is mandatory as well as a sewer credit meter to measure all irrigation water. Watermeters must be housed in an above-ground, heated, accessible and secure building, either as part of the main site buildings or in a separate building. Remote readers units are also mandatory on all meters. Both buildings should be serviced from one common service.

.../2

c) The applicant is required to submit a report addressing the available fire flow supply to adequately protect the proposed development in accordance with current fire protection standards.

4. Sanitary Sewer.

a) The subject property is located within Specified Area # 20 and is connected to the Municipal Wastewater collection system. A 150 mm. service complete with an inspection chamber at the property line has been installed and should be adequate to service the proposed development. Any modification to the service that may be required to accommodate the proposed development will be at the cost of the developer.

b) The Sanitary sewer specified area charges for the existing 10 units have been cash commuted; therefore an equivalent units credit is available for the proposed development. The specified area charges are: 57 units (67 units less 10 units) x 0.5 factor x $4,863.78 = **$138,617.73** (valid until March 31, 2009).

5. Storm drainage.

A comprehensive drainage site management plan and design to comply with the City's Drainage Design and Policy Manual, is a requirement of this application.

6. Road improvements.

a) Briarwood Road frontage is to be widened and upgraded to a full urban standard which includes the design and construction of type I curb, gutter and monolithic sidewalk (SS-R5 standard), fillet paving, storm drainage works, street lighting, line painting, landscaped boulevard with irrigation and approved trees, and the removal and/or the relocation of utilities as may be required. The estimated cost for this work is **$35,200.00**, inclusive of a bonding escalation and exclusive of any utilities relocation.

*b) The developer has applied for a reduced parking stall requirement in an effort to encourage the tenants to use of public transport. The traffic report indicates that the intersection of Briarwood and Rutland Road will be close to failure due to the additional development. It is recommended that the existing sidewalk be extended to Rutland Road. The offset of the 1.5 m. wide sidewalk must be determined in order to allow the future construction of a curb and gutter at the same alignment as the existing curb recently installed as a condition of the adjacent development. The estimated cost for this work is $**13,800.00**, inclusive of a bonding installation and exclusive of any utilities relocation.*

7. Latecomer.

The sidewalk extension to Rutland Road may qualify for Latecomer protection under Section 939 of the Local Government Act.

.../3

8. Traffic issues.

A minor Traffic Impact Study addressing the effects of the additional traffic generated by the proposed development at the uncontrolled intersection of Briarwood Road and Rutland Road North is a requirement of this application. The applicant is required to discuss the scope and terms of reference for the study with the City of Kelowna traffic and transportation engineering branch.

9. Power and Telecommunication Services.

Briarwood is located within the Rutland Urban Town Centre which requires underground wiring as per current policies. It should be noted that the area is currently serviced with overhead wiring and the utilities companies have previously expressed that it would be preferable to keep the main feeding lines, running parallel with the road, overhead at this time. It is recommended that, based on the adjacent precedent, only the services to this new development are installed underground.

10. Engineering.

Design, construction, supervision and inspection of all off-site civil works and site servicing must be performed by a consulting civil Engineer and all such work is subject to the approval of the city engineer.

11. Design and Construction.

a) Design, construction supervision and inspection of all off-site civil works and site servicing must be performed by a Consulting Civil Engineer and all such work is subject to the approval of the City Engineer. Drawings must conform to City standards and requirements.

b) Engineering drawing submissions are to be in accordance with the City's "Engineering Drawing Submission Requirements" Policy. Please note the number of sets and drawings required for submissions.

c) Quality Control and Assurance Plans must be provided in accordance with the Subdivision, Development & Servicing Bylaw No. 7900 (refer to Part 5 and Schedule 3).

d) A "Consulting Engineering Confirmation Letter" (City document 'C') must be completed prior to submission of any designs.

e) Before any construction related to the requirements of this subdivision application commences, design drawings prepared by a professional engineer must be submitted to the City's Works & Utilities Department. The design drawings must first be "Issued for Construction" by the City Engineer. On examination of design drawings, it may be determined that rights-of-way are required for current or future needs.

12. Servicing Agreements for Works and Services

a) A Servicing Agreement is required for all works and services on City lands in accordance with the Subdivision, Development & Servicing Bylaw No. 7900. The applicant's Engineer, prior to preparation of Servicing Agreements, must provide adequate drawings and estimates for the required works. The Servicing Agreement must be in the form as described in Schedule 2 of the bylaw.

b) Part 3, "Security for Works and Services", of the Bylaw, describes the Bonding and Insurance requirements of the Owner. The liability limit is not to be less than $5,000,000 and the City is to be named on the insurance policy as an additional insured.

13. Bonding and Levies Summary.

a) Performance Bonding

Briarwood Road upgrading	***$ 49,000.00***

b) Levies

Sanitary Spec. Area charges (valid until March 31, 2009).	**$138,617.73**
Administration and Inspection fee (incl. GST)	**$ 834.60**
Total Levies	**$139,452.33**

Steve Muenz, P. Eng.
Development Engineering Manager

BB