

ATTACHMENT 1

This forms part of application

# Z17-0068

Planner  
Initials

LB

City of  
**Kelowna**  
COMMUNITY PLANNING



***Fred Hamel***  
***405 Poplar Point Drive***  
***Rezoning Application***

*PREPARED FOR:*  
*City of Kelowna*



**Kent Macpherson**



**Kent Macpherson**

June 28, 2017

Current Planning Department  
City of Kelowna  
1435 Water Street  
Kelowna, BC, V1Y 1J4

**Attention:** **Ryan Smith, Department Manager, Community Planning**

**Re:** **Rezoning Application**  
**405 Poplar Point Drive, Kelowna – Lot A, Plan EPP47591, ODYD**

**Applicant:** **Fred Hamel**

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Please accept this application to rezone the property at 405 Poplar Point Drive in Kelowna from RU1 (Large Lot Housing) to RU6 (Two Dwelling Housing).

The subject site is 0.828 acres and has frontage on both Poplar Point Drive and Herbert Heights Road. Located in the Kelowna North Neighborhood, it has been a residential property since it was originally subdivided in 1954. There are full municipal services in close proximity both road frontages of the site, providing a unique opportunity for the city to realize their goal of environmentally sensitive infill development.

By rezoning the property to RU6, the property will be able to accommodate a second dwelling located off of Herbert Heights Road. Through appropriate design, the future buildings foundation will be utilized to further stabilize the hillside while retaining the natural character and ecology of the hillside. We have engaged a team of local professionals that have helped guide the design and will continue to be engaged in the design of any future construction on site.

Our team consists of:

Architect

Jim Meiklejohn

Meiklejohn Architects Inc

Environmental

Jason Schleppe

Ecoscapes Environmental Consultants

Foundation & Construction	Gord Wilson	Team Construction
Geotechnical Engineer	Jeremy Block	Interior Testing Services Ltd
Surveyor	Neil Denby	Runnalls Denby Land Surveying

As mentioned, the development will be sensitively integrated into the natural setting, allowing for native vegetation to be replanted in order to control potential erosion, landslip, and rock falls. This will ultimately protect vital local ecological values while maintaining slope stability. As confirmed in the included geotechnical report published by local firm Interior Testing Services, provided that the proposed home is satisfactorily pinned to competent bedrock by micro piles or similar and all drainage water is collected and directed offsite, in their opinion they can conclude that the described parcel is suitable for the intended residential development. The geotechnical risk appears to be within the level of safety currently accepted by the governing authority.

Some site elements that we are proposing will include:

- Native planting on the entire sloped portions
- No exterior irrigation
- Low profile roof
- Rainwater collection

We have worked with Meiklejohn Architects Inc to create a house that will blend into the surrounding environment; seamlessly fitting into the existing rhythm of the neighbourhood and have minimal impact on any surrounding properties view. The proposed house has been designed to utilize the existing grade of the property in a two story format and is proposed in the style and location that we would be prepared to construct.

We were encouraged to watch the City work with the community during their recent Infill Challenge, and believe that by rezoning this subject property to RU6, we can meet many of the same infill goals.

By rezoning the subject property to permit a secondary house, we meet a plethora of OCP Goals around appropriate housing. The only OCP Goal that is not conforming to is Objective 5.15.12. This policy prohibits development on steep slopes (over 30%). The 30% slope has been encouraged for new development to ensure adequate greenspace, and to prevent any slope stability issues. We have attempted to remove these concerns by working with experts in various fields to ensure the end product is a benefit to the community, opposed to a detriment.

Within the Official Community Plan, infill housing represents an important part of the City of Kelowna's overall strategy to offset the impacts of urban sprawl. By permitting new development in the Poplar Point community urban infill will be achieved, reducing traffic and greenhouse gas emissions by drawing residential density closer to downtown Kelowna. The development will capitalize on existing infrastructure making an efficient use of the utilities based off of Herbert Heights Rd.

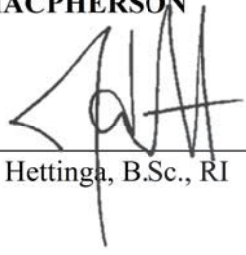
We look forward to working with the City to see this subject property densified and used as appropriate urban infill in our community.

If you have any questions pertaining to this Application, please do not hesitate to contact me.

Sincerely,

**KENT-MACPHERSON**

Per:

  
\_\_\_\_\_  
J. Hettinga, B.Sc., RI



## ***SITE RENDERINGS***







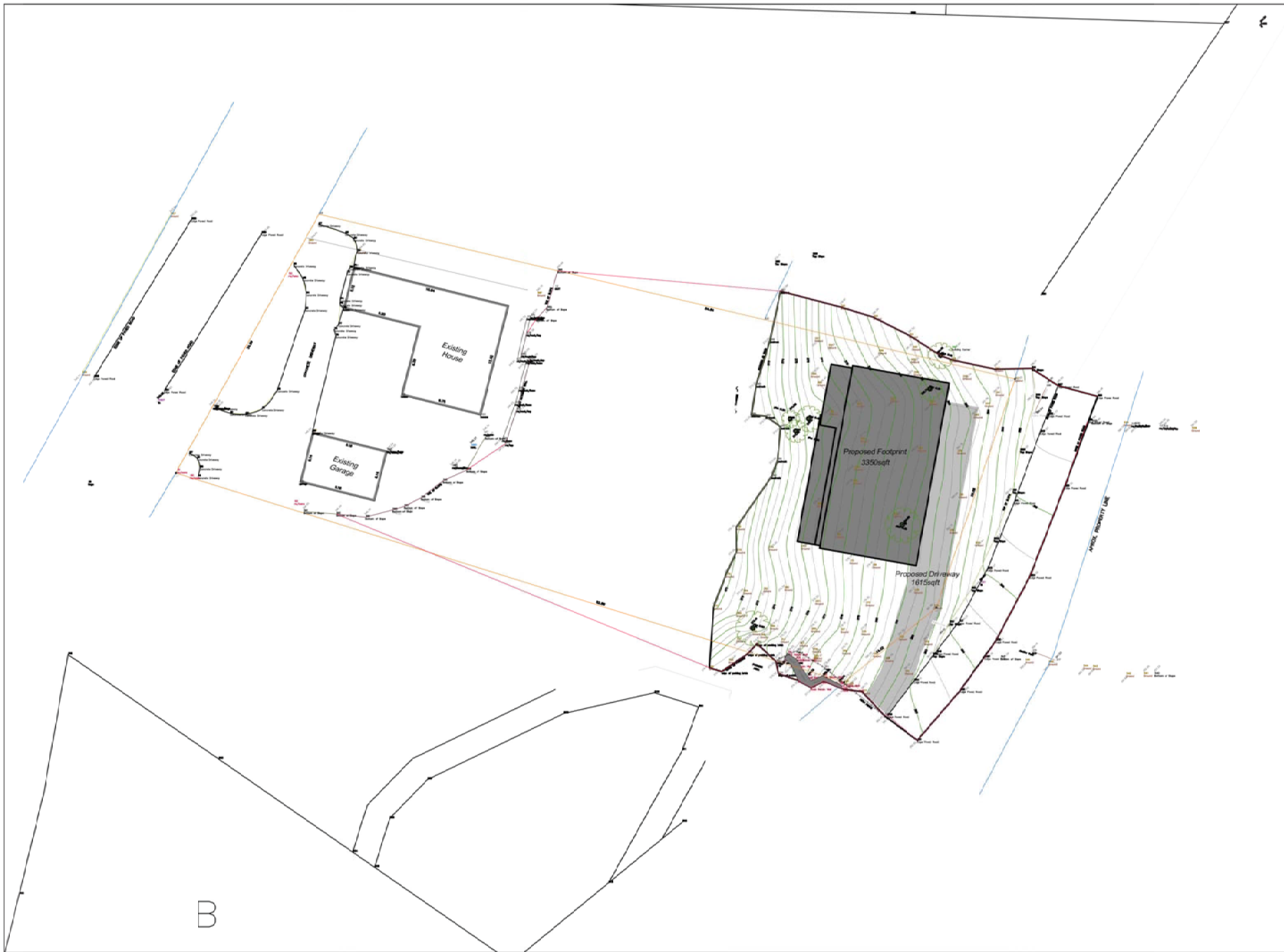




## *SITE PLAN*







215-751-1000  
PENNSYLVANIA, INC.  
TEL: 215-751-1000  
EMAIL: pen-mail@shaw.ca

213 BERNARD AVENUE  
KELOWNA, B.C.  
V1Y 6A2  
TEL: 250-742-3094  
EMAIL: kel-mail@shaw.ca

**m+m**  
MEIKLEJOHN ARCHITECTS INC.



Copyright reserved. This plan and design is and  
all other contents the exclusive property of  
Meiklejohn Architects Inc. and may not be used  
without the Architect's consent.

No.	Date	Revision

Project File

**POPLAR POINT  
RESIDENCE**

405 POPLAR POINT DRIVE KELOWNA

Drawing Number:

**A2**

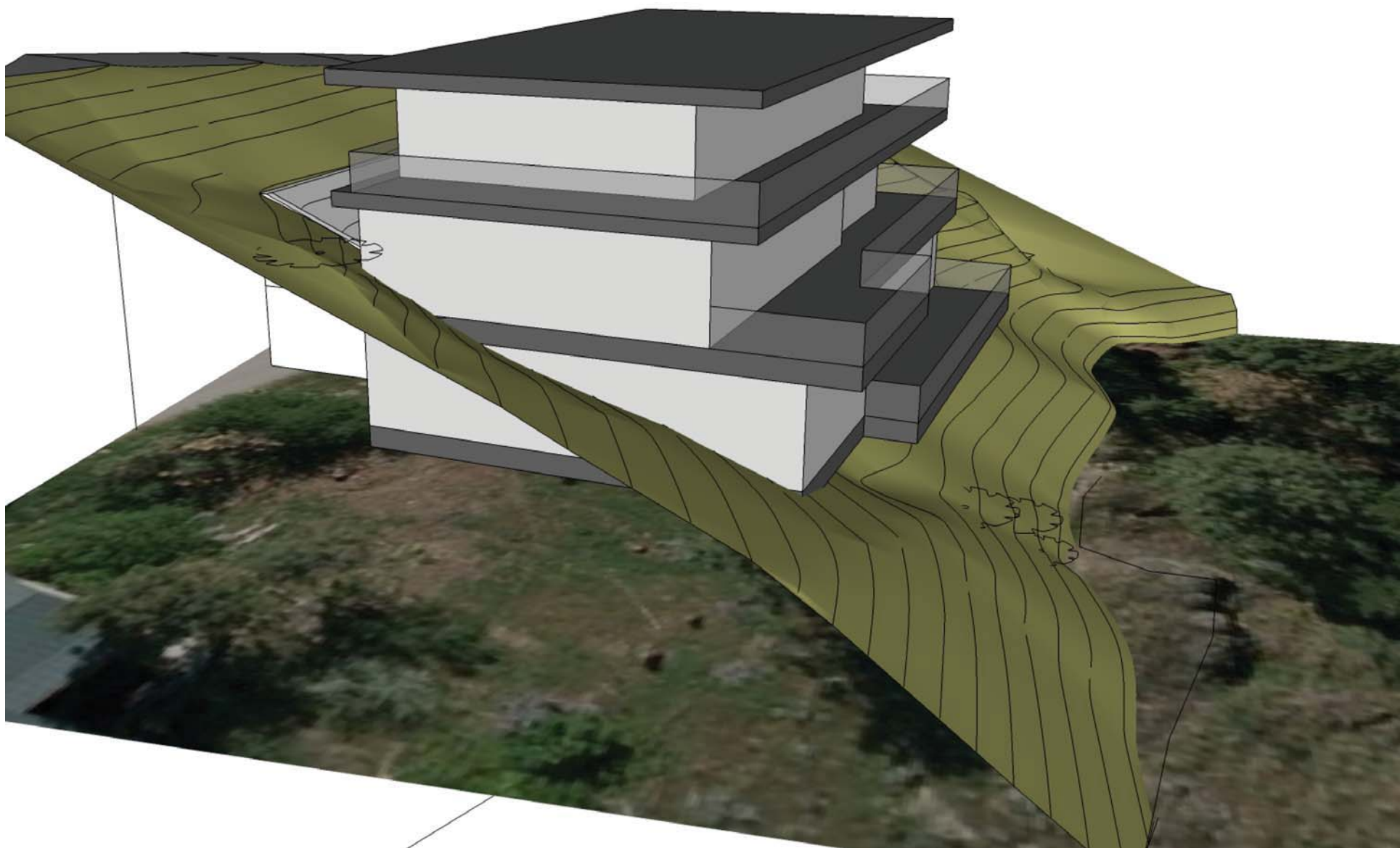
DRAWINGS ARE NOT TO BE REPRODUCED  
ALL DIMENSIONS SHALL BE SPECIFIED ON JOB

Drawing Title

**SITE PLAN**

scale: 1/16"=1'0"

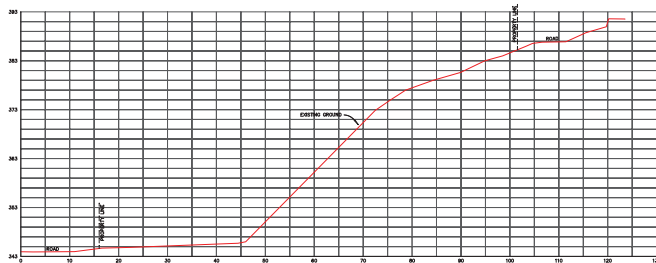
Date	
Job No.	1000-1000
Scale	AS SHOWN
Drawn	J.A.K.
Checked	



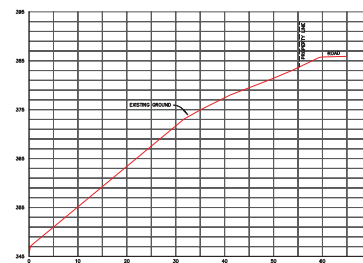
## ***SITE CONTOURS & CROSS SECTIONS***



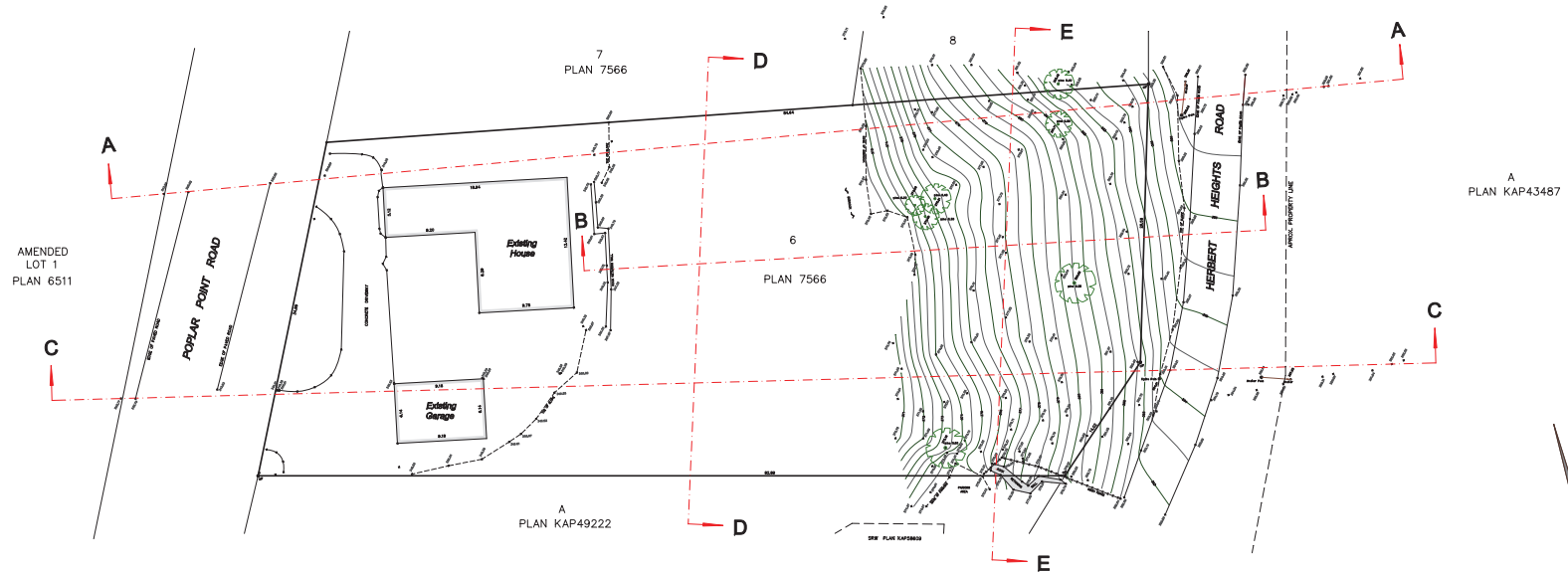
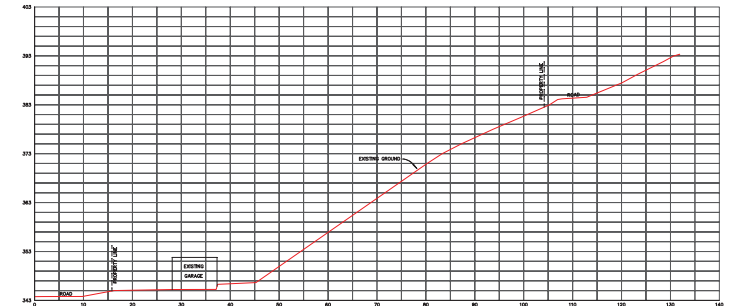
PROFILE A-A (SCALE 1:500)



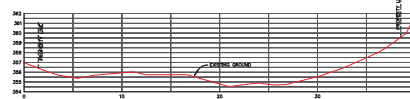
PROFILE B-B (SCALE 1:500)



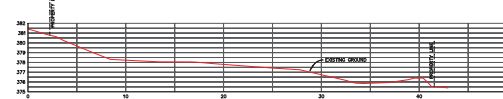
PROFILE C-C (SCALE 1:500)



PROFILE D-D (SCALE 1:250)



PROFILE E-E (SCALE 1:250)



LEGEND:

Elevations are Geodetic and are derived from  
Central Monument #7562443 Elev. = 389.361)  
Contour Interval = 0.5m

TITLE:

SITE PLAN AND CROSS SECTIONS OF PART OF LOT 6,  
DISTRICT LOT 219. O.D.Y.D., PLAN 7566

DRAWN BY:

**RUNNALLS DENBY**  
*british columbia land surveyors*  
259A Lawrence Avenue Phone: (250)763-7322  
Nelson, B.C. V1Y 6L2 Fax: (250)763-4413  
Email: nell@runnallsdenby.com

CLIENT:

**FREDCO HOLDINGS**

SCALE: 1:250 (22"x34")

DATE: NOV. 20, 2013

DWG: 13917 SITE 2

FILE No: 13917

REV. 0



# ***GEOTECHNICAL LETTER***



**- INTERIOR -  
TESTING SERVICES  
- LTD. -**

**MATERIALS TESTING • SOILS  
CONCRETE • ASPHALT • CORING  
GEOTECHNICAL ENGINEERING**

**1 - 1925 KIRSCHNER ROAD  
KELOWNA, B.C. V1Y 4N7  
PHONE: 860-6540  
FAX: 860-5027**

Fred Hamel  
400 Poplar Point Drive  
Kelowna, BC V1Y 1Y1

December 4, 2013  
Job 13.176

Attention: Mr Fred Hamel

Dear Sir;

Re: **Geotechnical Hazard Review  
Proposed 2 Lot Subdivision  
405 Poplar Point Drive  
Kelowna, BC**

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As requested and further to our proposal dated November 5, 2013, Interior Testing Services Ltd (ITSL) has carried out a geotechnical review of the above noted subject property. Please find attached a one page site plan with schematic logs, two pages of test pit logs, one page of laboratory results, Appendix A which includes a site plan and cross sections, a copy of the completed *Appendix D: Landslide Assessment Assurance Statement*, and a copy of our two-page "Terms of Engagement" that applies to our work on this project, previously accepted and signed.

## **1.0 INTRODUCTION**

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We understand that it is intended to subdivide 405 Poplar Point Drive into two separate lots (east and west). Currently there is an existing residence off Poplar Point Drive which would eventually become the west lot and we understand that the structure will remain.

We further understand the City of Kelowna (the City) requires a geotechnical assessment as part of the process for the subdivision and development permit application. Based on this, we identify the City as an authorized user of this report, subject to our attached "Terms of Engagement".

The current owner / developer should include this report in the package submitted to the proposed buyer of the subdivided property so that the geotechnical risks are understood by the ultimate end

users. Furthermore, we identify the buyer as an authorized user of this report, also subject to our attached "Terms of Engagement".

## **2.0 SCOPE OF WORK**

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Our scope of work was to assess the underlying soil and groundwater conditions, including surficial soil and bedrock with respect to geotechnical suitability and planning for the proposed subdivision. In addition, geotechnical hazards were to be identified and preliminary recommendations for mitigation provided.

The following report presents our findings and provides preliminary comments on slope issues and general considerations regarding design and construction of the upper (east) property.

## **2.0 FIELD WORK & RESULTS**

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On November 15, 2013, a tracked excavator operated by AG Appel was used to advance two test pits to 2.4 and 2.3 m below grade respectively. The soil profiles of the test pits were continuously logged in the field and occasional representative samples were recovered for moisture content determination and sieve analyses.

The approximate locations of the test pits are shown on Drawing 13.176-1 provided courtesy of Runnalls Denby BC Land Surveyors (Runnalls). Geodetic elevations of the test pits have been approximated from the contours also shown on Drawing 13.176-1.

### **2.1 Soil Profile**

In general, based on our two test pits, the site is underlain by surface topsoils, followed by SANDs and GRAVELs with varying silt (fines) content. Typically the SANDs are coarse, often gravelly. Occasional clay partings (seams) were observed with depth in TP2.

We did not encounter BEDROCK within the test pit areas. Within the general area, BEDROCK faces are typically exposed along the north (approximate) half of the site, extending through the properties to the north. However, there are no immediate BEDROCK exposures within the south half of the site.

Our general experience in the area suggests that BEDROCK may be at significant depth on the upper (east) proposed property, potentially on the order of 15 m.

## 2.2 Groundwater

Neither groundwater nor seepage was encountered during our investigation. We have experience within the area that suggests deep seated seepage and / or groundwater levels. We anticipate this is likely uphill drainage flowing across the top of the underlying BEDROCK. Nonetheless, groundwater levels will be affected by drainage and infiltration conditions.

The comment above should not be misconstrued as water not being a potential concern for this site. Given the sloping nature of this property, long-term slope stability will at least, in part be affected by drainage conditions and groundwater levels. More specifically, given the existing slope conditions, we do not anticipate septic fields to be appropriate for the upper (east) proposed property.

## 2.3 Laboratory Work

Moisture contents were determined on all recovered samples and the natural sands and gravels varied between 2 and 5%. The results are presented on the attached test pit logs (Drawings 13.176-2 to 13.176-3).

Several sieve analysis were also carried out to approximate the gradation characteristics of the underlying sands and gravels, which is useful for preliminary slope stability analysis. The sieve results are shown on Drawing 13.176-4 and generally indicate medium, coarse to gravelly sands, with trace to some silt.

## 2.4 General Field Review Comments

During our November 15, 2013 investigation and again on November 18, 2013, ITSL carried out general site reconnaissance. The subject property and adjacent roadways were traversed to broadly review existing surface soil, bedrock and drainage conditions. Observations of the uphill and adjacent properties were also included. Our observations were recorded with field notes and are generally summarized below.

1. The east half of the proposed subdivision (above the crest of the bedrock exposure) is moderately vegetated with localized areas of large, mature trees. No obvious bedrock exposures from the crest of the bedrock near the centre of the site to Herbert Heights Road (to the east) were noted.

There is also evidence of asphalt failure (cracking) along Herbert Heights Road near a possible utility service easement.



2. The downhill (west) half of the subject property appears to be densely treed within the steep, central section (south of the exposed BEDROCK) of the site. There is evidence of creep noted within the trees, which we normally define as the leaning or rotation of mature trees towards the downhill side. Creep does indicate some slow downhill movement of (at least) the overburden soil.
3. Above Herbert Heights Road, the length of the slope appears to be on the order of 50 m and based on rough field measurements, the slope angle appears to be roughly 35 degrees. Furthermore, the slope appears to be predominantly comprised of BEDROCK or shallow overburden. There was minor vegetation also noted.

There is evidence of minor rock fall / talus noted near the bottom of the slope (immediately east of Herbert Heights Road). Some catchment areas could be considered. In addition, there is a large rock fragment near the south of the road which may have fractured off the larger bedrock exposure mass.

4. In localized sections, the bedrock observed along the uphill slopes appeared to be fractured with random joint sets. The highly fractured nature suggests that some attention with respect to rock scaling and rock fall hazard could be considered uphill of the residential development which will likely require discussion with the uphill property owners. Conversely, the highly fractured nature may limit potential rock fall hazard particle size to roughly 300 mm diameter. If rock of this approximate size were to roll to the base of the slope, significant damage would likely not be expected considering the existing catchment provided by Herbert Heights road, which would reduce the rolling energy by acting as a buffer.

### 3.0 NATURAL HAZARD ASSESSMENT

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Hazards for the overall area were assessed in the field based on visible conditions, topography, climate, historical soil erosion and instabilities in areas with similar soil types and slope characteristics.

#### 3.1 Rock Fall

As noted above, it is possible that the large rock fragment noted near the end of Herbert Heights was dislodged from the main rock mass, which may suggest the possibility for above normal rock fall hazard. In addition, there was some minor rock fall / talus noted along the east side of Herbert Heights which suggests that there is some activity uphill. While the potential for natural events would likely not be significant, the potential for rolling rock hazard as a result of vandalism should also be considered.

The Herbert Heights road right of way currently separates the toe of the slope from the proposed subdivision. This right of way may act as an energy reducing buffer between the potential falling rock and the structures, so that significant damage and / or loss of life due to normal occupation of the residential structures would not typically be anticipated for common size fragments.

Although likely low, there appears to be some risk of potential rock fall. We expect that Herbert Heights road will act as a suitable buffer for the majority of potential fragments. Should the end user of the proposed uphill (east) property observe movement or rock fall from the slope above Herbert Heights road, a geotechnical review should be carried out. Furthermore, a geotechnical review should be carried out to assess possible risk to the subject properties if the areas above Herbert Heights road are to be developed.

### **3.2 Slope Instability**

As mentioned above there was evidence of soil creep within the south half of the subject property, as observed by rotated tree growth. As a minimum this is at least evidence of movement within the surface soils. Furthermore, as the south half of the property appears to be above a conventional 2H:1V line, we do not recommend further development within this particular area of the property. For visual reference, Section C-C in Appendix A is within the area we do not recommend development. Furthermore, the area approximated by Section C-C should not be disturbed from its current 'natural' condition (ie no landscaping, driveways etc). Future development / construction of the uphill (east) proposed property should be completed in a manner which does not significantly disturb the existing conditions of the slopes.

If a restrictive covenant is to be placed on the subdivided lot, further guidance can be provided to that respect.

## **4.0 DESKTOP REVIEW**

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In addition to our field work, a desktop review including topographic and local geological maps, as well as examination of a series of cross sections was carried out. The topographic and geological maps provide additional information of the physical terrain of the subject property and the overall surrounding area.

### **4.1 Geology**

As described by Roed (2004) the general area to the west of Knox Mountain can be described as rock hills, benches and slopes, with patchy veneer of moraine. This description is similar to the terrain observed. However, based on our shallow test pit information (see above) and experience in



the area, the depth to BEDROCK could potentially on the order of 15 m, which will impact long-term slope stability and may affect proposed residential construction within the upper (east) proposed property.

## 4.2 Cross-Section Review

A series of cross sections, shown in Appendix A, were prepared by Runnalls and forwarded for our review. It is conventional geotechnical practice to consider a setback of roughly 2 Horizontal to 1 Vertical (2H:1V) line for construction. For reference, we have sketched on a 2H:1V line for Sections A-A through to C-C.

For Sections A-A and B-B we estimated the approximate crest of the BEDROCK exposure and sketched the line above (east) of that position. Given that no immediate BEDROCK exposure was observed within Section C-C, the 2H:1V line was drawn from the toe of the slope.

As shown on the attached sheet, Sections A-A and B-B appear to be below or close to the 2H:1V (projected above the approximate crest of the BEDROCK exposure). Section C-C is above the 2H:1V line and likely is closer to 1.5H:1V, although there are likely localized steeper sections.

To further assess the condition of the existing slope, we carried out a brief slope stability analysis using the slope cross-sections provided, as follows.

$$FS = \tan ( \Phi ) / \tan ( \beta )$$

Where: FS = factor of safety (1.3 to 1.5 preferred)  
 $\Phi$  = the soil friction angle, and  
 $\beta$  = the slope angle of the failure plane under consideration

For a slope angle of 35 degrees and a soil friction angle of 40 degrees (Terzaghi and Peck 2<sup>nd</sup> Edition) a factor of safety of roughly 1.2 is calculated. A factor of safety of roughly 1.8 is calculated when a slope angle of 25 degrees is considered, which is roughly equivalent to a 2H:1V line.

## 5.0 PRELIMINARY GEOTECHNICAL RECOMMENDATIONS

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While we anticipate that conventional strip footings could be suitable for a building constructed within the north east section of the proposed uphill (east) property, given the existing slope condition, it would be preferable to connect the foundation system to solid bedrock.

Additional geotechnical investigations, including drilling, should be carried out to determine the depth to bedrock, which will provide useful information for foundation design purposes.

Our preliminary geotechnical recommendations for the potential residential construction on the proposed uphill (east) property are as follows.

### **5.1 Preliminary Foundation Design Considerations (proposed east property)**

As discussed above, proposed buildings should be set within the north east section of the property. This area can loosely be interpreted as the area above the bedrock face which crosses the north half of the property. Alternatively, this area is approximately by the location of Sections A-A and B-B in Appendix A. Any building footings / deck pads should be set below and behind a conventional 2H:1V line, projected up from the crest of this downhill bedrock face. This setback is to be confirmed by a professional surveyor prior to placing any footings or deck pads.

It is possible that standard strip footings could be considered if they are confirmed to be set below a conventional 2H:1V line. Alternatively, piles or rock socket type foundation systems could be considered for building support if setting conventional footings (or deck pads) behind a 2H:1V becomes challenging. As discussed above, additional geotechnical investigations will likely be necessary for any proposed building so that the depth (and type) of footings can be accurately determined prior to construction.

### **5.2 Existing Slopes**

As mentioned in 3.2.1 above, should the end user / owner of the proposed uphill (east) property observe movement or rock fall of the slope above Herbert Heights road, a geotechnical engineer should be given the opportunity to review. The current owner / developer should undertake the responsibility to convey this particular section of the report to the proposed purchaser.

With respect to the slope between the proposed east and west properties, consideration should be given to registering a no-build and no-disturb covenant on the areas in front of a conventional 2H:1V line. This would be in effort to allow the current slope condition to remain, which would assist in limiting the potential increased risk of localized downslope movement.

### **5.3 Finished Slopes**

In general, we recommend soil cut and structural fill slopes be finished to no steeper than roughly 2H:1V and vegetated to reduce the potential for erosion. All slopes may require some degree of maintenance with the passing of time. However, as noted above, we suggest a no-disturb, no-build area be applied to the areas in front of conventional 2H:1V lines.



## 5.4 Groundwater & Drainage

Given that this area is in the highland, we do not anticipate groundwater to be a significant geotechnical concern for the proposed development. This should be further assessed by additional subsurface investigations.

However, the uphill (east) proposed property does not appear to contain a suitable area for conventional septic fields, such that a sanitary sewer connection will need to be provided.

Depending on final layout, interceptor or infiltration drains may be necessary to collect uphill drainage and direct around the downslope areas. More specifically, roof and perimeter drainage should be collected and directed (in solid pipes) to (at least) the base of the existing slope which may necessitate allowing for a drainage easement through the proposed downhill (west) property.

As part of the process for development of the proposed uphill (east) property we recommend dry / xeriscaping as opposed to conventional water intensive landscaping. Furthermore, we suggest that no irrigation be carried out within any proposed residential development. Saturation of the underlying soils is often a catalyst for both localized and / or significant downhill movements / failures and limiting sources of potential water (irrigation) appears to be reasonable from a geotechnical perspective.

## 6.0 DISCUSSION OF RESULTS

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### 6.1 Existing Structure (proposed west property)

There appears to be an existing risk of damage to the current building on the proposed downhill (west) property. The structure appears to be constructed close to the toe of the slope and appears to be within a conventional 2H:1V runout line, projected down from the proposed upper (east) property.

Furthermore, it is challenging to quantify the existing risk to the current building. However, if the uphill (east) proposed property is developed following our preliminary recommendations above (to be supplemented with a site specific geotechnical investigation) we do not anticipate a significant increase to the existing downhill building. We note that while we do not anticipate a significant increase in risk, this does not translate to zero risk for the existing structure, as there is an existing risk which cannot be eliminated.

### 6.2 Potential Structure (proposed east property)

We understand that the City has adopted a 2% probability in a 50 year period as its level of safety (for this particular project) with respect to geotechnical hazards for the proposed development.

Based on our experience and comments above, it appears reasonable, in our opinion, to conclude that the above described location within the uphill (east) property, is suitable for the intended residential development and the geotechnical risk appears to be within the level of safety currently accepted by the governing authority.

While it appears reasonable to come to the opinion we have provided above with respect to 2% probability in a 50 year period, ITSL notes that the occurrence of a hazard event is always a possibility and cannot be construed as an error or omission on the part of ITSL or the City.

## 7.0 CONCLUSIONS

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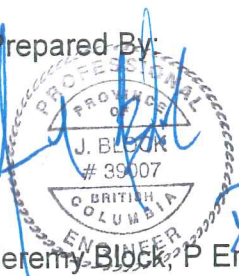
- 7.1 Results of our review and preliminary recommendations for site development have been provided in the previous sections of this report.
- 7.2 Based on our desktop and field reviews, the north east section of the uphill (east) proposed property appears adequately suited to residential construction, subject to our recommendations on natural hazards and site development above as well as a future site specific geotechnical investigation.

More specifically, while conventional strip footings could be considered for a proposed building, it would be preferable to connect foundations to the underlying bedrock mass.

We trust the above comments are sufficient at this stage. After your review, please feel free to call and discuss if you have any questions.

Sincerely,  
Interior Testing Services Ltd

Prepared By:



J. Block  
#39007  
BRITISH COLUMBIA  
ENGINEER

12.15/13

Jeremy Block, P Eng

Reviewed By

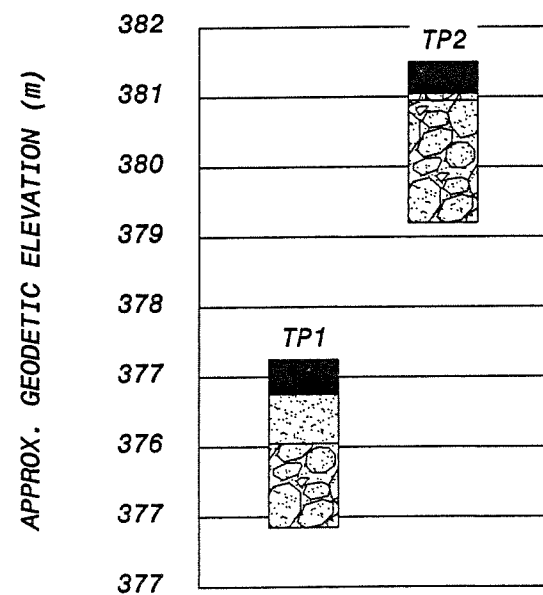


P.R. HANENBURG  
#22202  
BRITISH COLUMBIA  
ENGINEER





Peter Hanenburg, P Eng

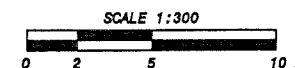


**SCHEMATIC LOGS**



**LEGEND**

-  TEST PIT LOCATION
-  FILL
-  SAND
-  SAND & GRAVEL



**NOTES**

1. REFERENCE PLAN SUPPLIED BY RUNNALLS DENBY.
2. TEST PIT LOCATIONS ARE APPROXIMATE AND MAY VARY FROM THAT SHOWN.
3. FOR DETAILED SOIL DESCRIPTIONS REFER TO TEST PIT LOGS.
4. TEST PIT ELEVATIONS APPROXIMATED FROM CONTOUR PLAN.

<p>FRED HAMEL</p> <p>PROPOSED 2 LOT SUBDIVISION</p> <p>405 POPLAR POINT DRIVE</p> <p>KELOWNA, BC</p>	<p><b>SITE PLAN</b></p> <p><b>&amp;</b></p> <p><b>SCHEMATIC LOGS</b></p>	<p>INTERIOR TESTING SERVICES LTD.</p> <p>1-1925 KIRSCHNER ROAD, KELOWNA, BC V1Y 4N7</p> <p>PH: 250-860-6540 FAX: 250-860-5027</p>	
		<p>DATE OF INVESTIGATION: NOVEMBER 15, 2013</p>	<p>JOB NUMBER: 13.176      DRAWING NUMBER: 13.176-1</p>



**- INTERIOR -  
TESTING SERVICES  
- LTD. -**

## LOG OF TEST PIT 1

Interior Testing Services Ltd.  
1 - 1925 Kirschner Road  
Kelowna, BC V1Y 4N7  
(250) 860 - 6540  
email: itsl@shawbiz.ca

Project : 13.176  
: Proposed Subdivision  
: 405 Poplar Point Drive  
: Kelowna, BC  
Location : See Dwg. No. 13.176-1

Method : Excavator  
Contractor : AG Appel  
Logged By : JB  
Date : November 15, 2013

Depth in Meters	Moisture Content 0 20 40 60 80	Moisture Content	Water Level	REMARKS	GRAPHIC	Sample Number	Sample Type	Legend	Depth in Meters
								<div>▼ Water Noted During Drilling</div> <div>▽ Water Noted in Piezometer</div> <div>□ Disturbed Sample</div>	
								DESCRIPTION	
0								Silty TOPSOIL, occasional roots.	0
1	3%			Sieve Analysis 14% Fines		S1	<input type="checkbox"/>	Light brown, gravelly, medium SAND, some silt, occasional cobble.	1
2	5%			Sieve Analysis 5% Fines		S2	<input type="checkbox"/>	Coarse, gravelly SAND.	2
3								Bottom of test pit at 2.4 m.	3
4									4
5									5

**- INTERIOR -  
TESTING SERVICES  
- LTD. -**

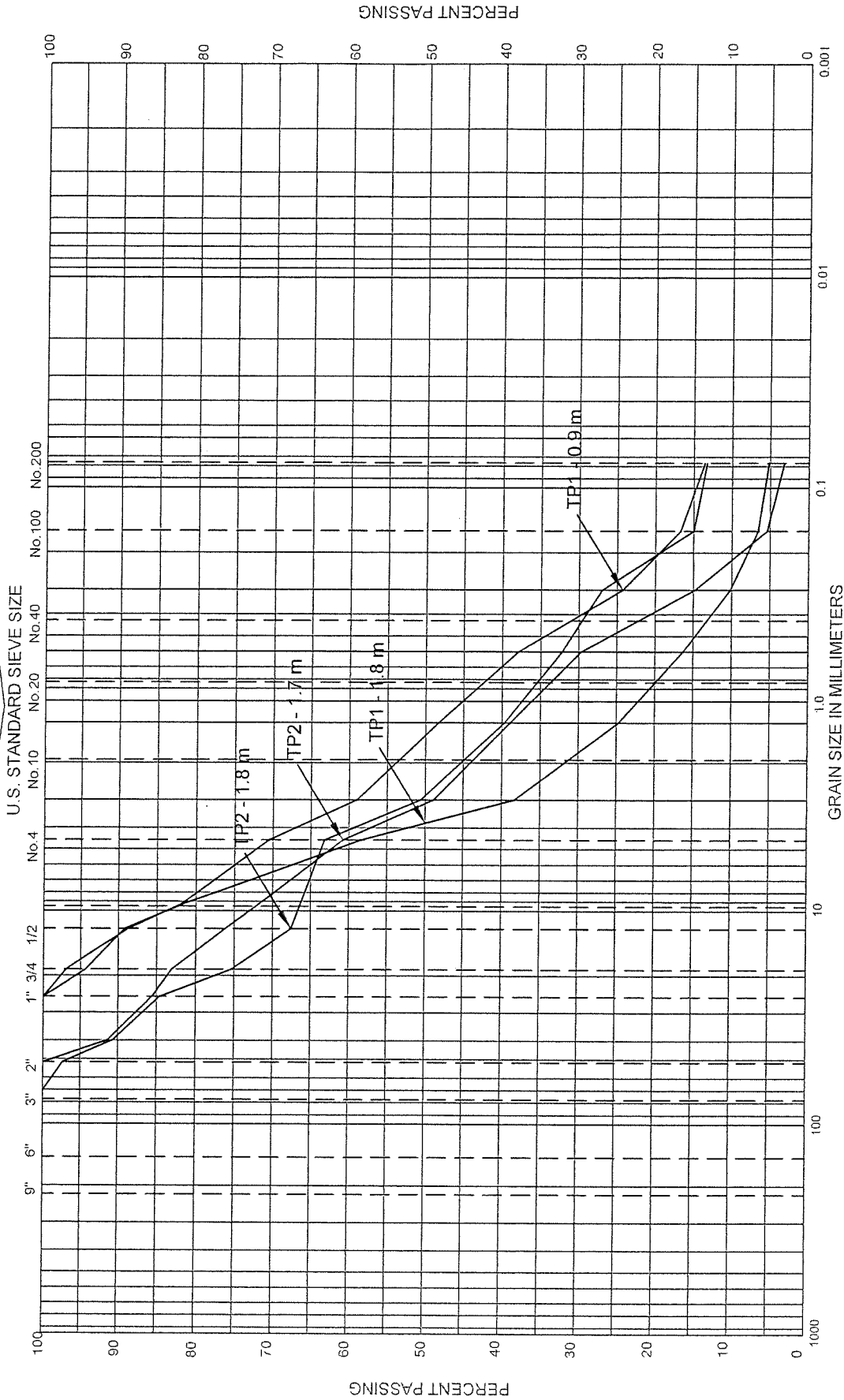
## LOG OF TEST PIT 2

Interior Testing Services Ltd.  
1 - 1925 Kirschner Road  
Kelowna, BC V1Y 4N7  
(250) 860 - 6540  
email: itsl@shawbiz.ca

Project	: 13.176	Method	: Excavator
	: Proposed Subdivision	Contractor	: AG Appel
	: 405 Poplar Point Drive	Logged By	: JB
	: Kelowna, BC	Date	: November 15, 2013
Location	: See Dwg. No. 13.176-1		

Depth in Meters	Moisture Content 0 20 40 60 80	Moisture Content	Water Level	REMARKS	GRAPHIC	Sample Number	Sample Type	Legend	Depth in Meters
								<div>▼ Water Noted During Drilling</div> <div>▽ Water Noted in Piezometer</div> <div>□ Disturbed Sample</div>	
								DESCRIPTION	
0								Dark brown, silty TOPSOIL, occasional roots.	0
								Light brown, silty SAND and GRAVEL.	
								Fine to coarse, gravelly, SAND, trace to some silt. Cobble sizes noted with depth. Occasional clay partings (seams).	
1	2%			Sieve Analysis 3% Fines		S1	<input type="checkbox"/>		1
				Sieve Analysis 13% Fines		S2	<input type="checkbox"/>		
2								Bottom of test pit at 2.3 m.	2
3									3
4									4
5									5

INTERIOR TESTING SERVICES LTD.  
 1-1925 KIRSCHNER ROAD, KELOWNA, B.C. V1Y 4N7  
 PH: 250-860-6540 FAX: 250-860-5027  
 E-MAIL: itsl@shawbiz.ca

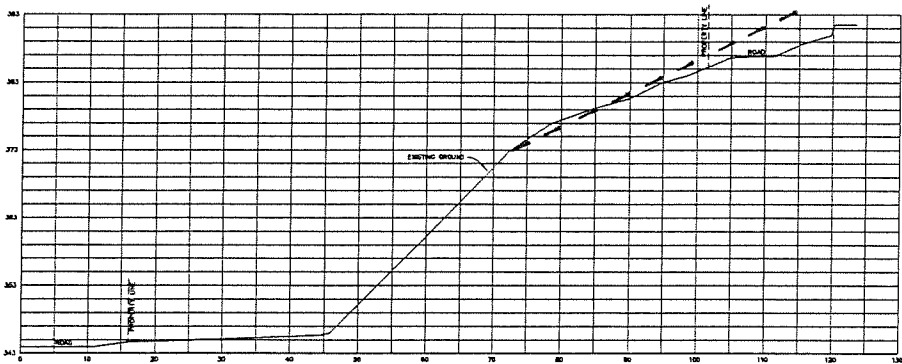




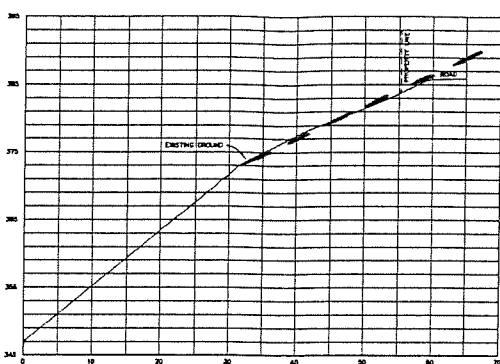
## **APPENDIX A**

### **SITE PLAN & SECTIONS**

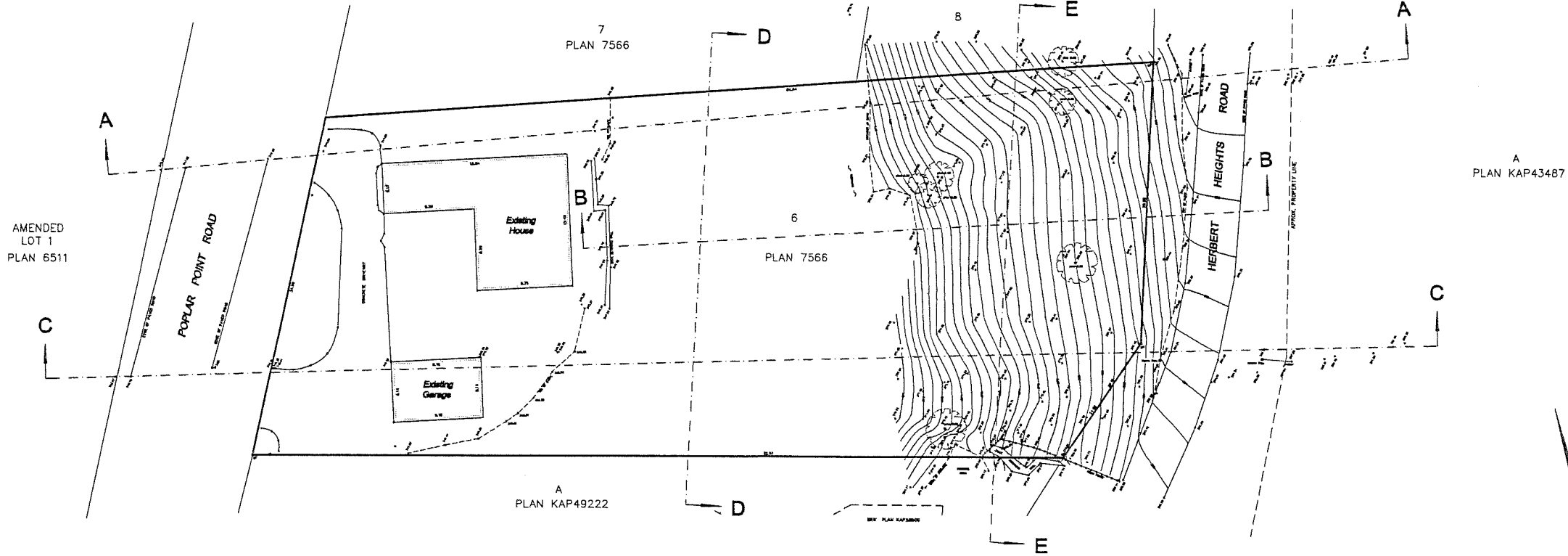
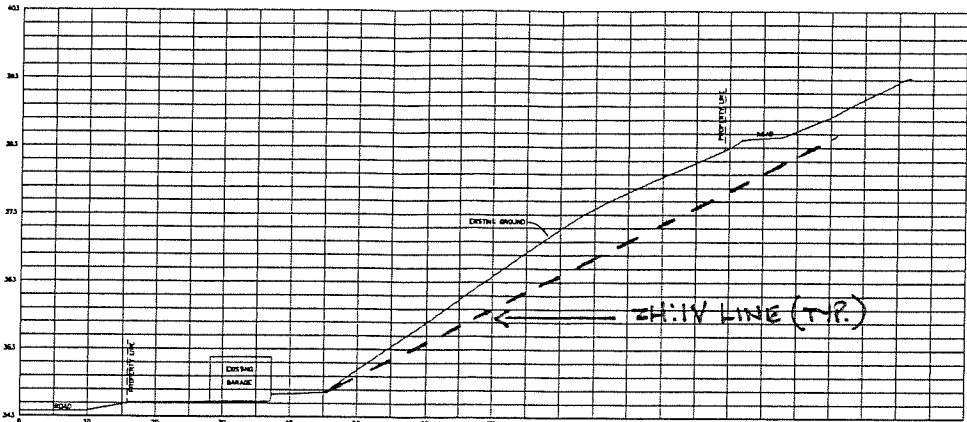
PROFILE A - A (SCALE 1:500)



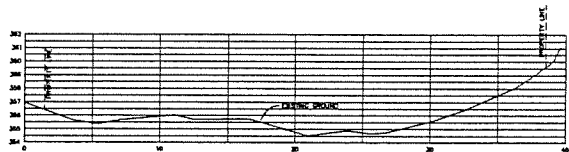
PROFILE B - B (SCALE 1:500)



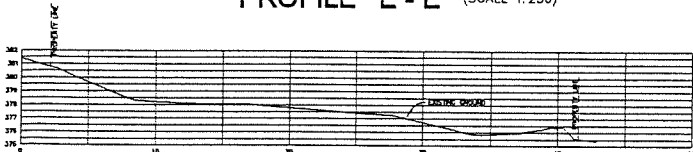
PROFILE C - C (SCALE 1:500)



PROFILE D - D (SCALE 1:250)



PROFILE E - E (SCALE 1:250)



LEGEND:  
Elevations are Geodetic and are derived from  
Control Monument #7542443 (Elev. = 389.361)  
Contour interval = 0.5m

TITLE:

SITE PLAN AND CROSS SECTIONS OF PART OF LOT 6,  
DISTRICT LOT 219. O.D.Y.D., PLAN 7566

DRAWN BY: **RUNNALLS DENBY**  
british columbia land surveyors  
259A Lawrence Avenue Phone: (250)763-7322  
Kelowna, B.C. V1Y 6L2 Fax: (250)763-4413  
Email: ned@runnallsdenby.com

CLIENT: **FREDCO HOLDINGS**

SCALE:	1:250 (22"x34")
DATE:	NOV. 20, 2013
DWG:	13917 SITE 2
FILE NO:	13917
REV.	0

## APPENDIX D: LANDSLIDE ASSESSMENT ASSURANCE STATEMENT

Note: This Statement is to be read and completed in conjunction with the "APEGBC Guidelines for Legislated Landslide Assessments for Proposed Residential Development in British Columbia", March 2006/Revised September 2008 ("APEGBC Guidelines") and the "2006 BC Building Code (BCBC 2006)" and is to be provided for *landslide assessments* (not floods or flood controls) for the purposes of the Land Title Act, Community Charter or the Local Government Act. Italicized words are defined in the APEGBC Guidelines.

To: The Approving Authority

Date: DECEMBER 2, 2013

CITY OF KELOWNA

c/o MR FRED HANDEL

Jurisdiction and address

With reference to (check one):

- ☒ Land Title Act (Section 86) – Subdivision Approval
- ☐ Local Government Act (Sections 919.1 and 920) – Development Permit
- ☐ Community Charter (Section 56) – Building Permit
- ☐ Local Government Act (Section 910) – Flood Plain Bylaw Variance
- ☐ Local Government Act (Section 910) – Flood Plain Bylaw Exemption
- ☐ British Columbia Building Code 2006 sentences 4.1.8.16 (8) and 9.4 4.4.(2) (Refer to BC Building and Safety Policy Branch Information Bulletin B10-01 issued January 18, 2010)

For the Property:

405 PEARL POINT DRIVE

Legal description and civic address of the Property

The undersigned hereby gives assurance that he/she is a *Qualified Professional* and is a *Professional Engineer* or *Professional Geoscientist*.

I have signed, sealed and dated, and thereby certified, the attached *landslide assessment* report on the Property in accordance with the *APEGBC Guidelines*. That report must be read in conjunction with this Statement. In preparing that report I have:

Check to the left of applicable items

- ☒ 1. Collected and reviewed appropriate background information
- ☐ 2. Reviewed the proposed *residential development* on the Property
- ☒ 3. Conducted field work on and, if required, beyond the Property
- ☒ 4. Reported on the results of the field work on and, if required, beyond the Property
- ☒ 5. Considered any changed conditions on and, if required, beyond the Property
- 6. For a *landslide hazard analysis* or *landslide risk analysis* I have:
  - ☐ 6.1 reviewed and characterized, if appropriate, any *landslide* that may affect the Property
  - ☒ 6.2 estimated the *landslide hazard*
  - ☐ 6.3 identified existing and anticipated future *elements at risk* on and, if required, beyond the Property
  - ☐ 6.4 estimated the potential *consequences* to those *elements at risk*
- 7. Where the *Approving Authority* has adopted a *level of landslide safety* I have:
  - ☒ 7.1 compared the *level of landslide safety* adopted by the *Approving Authority* with the findings of my investigation
  - ☒ 7.2 made a finding on the *level of landslide safety* on the Property based on the comparison
  - ☐ 7.3 made recommendations to reduce *landslide hazards* and/or *landslide risks*
- 8. Where the *Approving Authority* has **not** adopted a *level of landslide safety* I have:



- ☐ 8.1 described the method of *landslide hazard analysis* or *landslide risk analysis* used  
☐ 8.2 referred to an appropriate and identified provincial, national or international guideline for *level of landslide safety*  
☐ 8.3 compared this guideline with the findings of my investigation  
☐ 8.4 made a finding on the *level of landslide safety* on the Property based on the comparison  
☐ 8.5 made recommendations to reduce *landslide hazards* and/or *landslide risks*  
☒ 9. Reported on the requirements for future inspections of the Property and recommended who should conduct those inspections.

Based on my comparison between

Check one

- ☒ the findings from the investigation and the adopted *level of landslide safety* (item 7.2 above)  
☐ the appropriate and identified provincial, national or international guideline for *level of landslide safety* (item 8.4 above)

I hereby give my assurance that, based on the conditions<sup>[1]</sup> contained in the attached *landslide assessment* report,

Check one

- ☒ for subdivision approval, as required by the Land Title Act (Section 86), "that the land may be used safely for the use intended"

Check one

- ☒ with one or more recommended registered covenants.  
☐ without any registered covenant.

- ☐ for a development permit, as required by the Local Government Act (Sections 919.1 and 920), my report will "assist the local government in determining what conditions or requirements under [Section 920] subsection (7.1) it will impose in the permit".

- ☐ for a building permit, as required by the Community Charter (Section 56), "the land may be used safely for the use intended"

Check one

- ☐ with one or more recommended registered covenants.  
☐ without any registered covenant.

- ☐ for flood plain bylaw variance, as required by the "Flood Hazard Area Land Use Management Guidelines" associated with the Local Government Act (Section 910), "the development may occur safely".

- ☐ for flood plain bylaw exemption, as required by the Local Government Act (Section 910), "the land may be used safely for the use intended".

PETER HANENBURG, P.ENG.  
Name (print)

DEC 2, 2013  
Date

Signature

<sup>[1]</sup> When seismic slope stability assessments are involved, *level of landslide safety* is considered to be a "life safety" criteria as described in the National Building Code of Canada (NBCC 2005), Commentary on Design for Seismic Effects in the User's Guide, Structural Commentaries, Part 4 of Division B. This states:

"The primary objective of seismic design is to provide an acceptable level of safety for building occupants and the general public as the building responds to strong ground motion; in other words, to minimize loss of life. This implies that, although there will likely be extensive structural and non-structural damage, during the DGM (design ground motion), there is a reasonable degree of confidence that the building will not collapse nor will its attachments break off and fall on people near the building. This performance level is termed 'extensive damage' because, although the structure may be heavily damaged and may have lost a substantial amount of its initial strength and stiffness, it retains some margin of resistance against collapse".

1-1925 KIRSCHNER ROAD

Address

KILOWNA, BC V1Y 4N7

250-860-6540

Telephone



(Affix Professional seal here)

If the *Qualified Professional* is a member of a firm, complete the following.

I am a member of the firm INTERIOR TESTING SERVICES LTD.  
and I sign this letter on behalf of the firm. (Print name of firm)

## **TERMS OF ENGAGEMENT**

### **GENERAL**

Interior Testing Services Ltd. (ITSL) shall render the Services performed for the Client on this Project in accordance with the following Terms of Engagement. ITSL may, at its discretion and at any stage, engage subconsultants to perform all or any part of the Services. Unless specifically agreed in writing, these Terms of Engagement shall constitute the entire Contract between ITSL and the Client.

### **COMPENSATION**

Charges for the Services rendered will be made in accordance with ITSL's Schedule of Fees and Disbursements in effect from time to time as the Services are rendered. All Charges will be payable in Canadian Dollars. Invoices will be due and payable by the Client within thirty (30) days of the date of the invoice without hold back. Interest on overdue accounts is 12% per annum.

### **REPRESENTATIVES**

Each party shall designate a representative who is authorized to act on behalf of that party and receive notices under this Agreement.

### **TERMINATION**

Either party may terminate this engagement without cause upon thirty (30) days' notice in writing. On termination by either party under this paragraph, the Client shall forthwith pay ITSL its Charges for the Services performed, including all expenses and other charges incurred by ITSL for this Project.

If either party breaches this engagement, the non-defaulting party may terminate this engagement after giving seven (7) days' notice to remedy the breach. On termination by ITSL under this paragraph, the Client shall forthwith pay to ITSL its Charges for the Services performed to the date of termination, including all fees and charges for this Project.

### **ENVIRONMENTAL**

ITSL's field investigation, laboratory testing and engineering recommendations will not address or evaluate pollution of soil or pollution of groundwater. ITSL will co-operate with the Client's environmental consultant during the field work phase of the investigation.

### **PROFESSIONAL RESPONSIBILITY**

In performing the Services, ITSL will provide and exercise the standard of care, skill and diligence required by customarily accepted professional practices and procedures normally provided in the performance of the Services contemplated in this engagement at the time when and the location in which the Services were performed. ITSL makes no warranty, representation or guarantee, either express or implied as to the professional services rendered under this agreement.

### **LIMITATION OF LIABILITY**

ITSL shall not be responsible for:

- (a) the failure of a contractor, retained by the Client, to perform the work required in the Project in accordance with the applicable contract documents;
- (b) the design of or defects in equipment supplied or provided by the Client for incorporation into the Project;
- (c) any cross-contamination resulting from subsurface investigations;
- (d) any damage to subsurface structures and utilities;
- (e) any Project decisions made by the Client if the decisions were made without the advice of ITSL or contrary to or inconsistent with ITSL's advice;
- (f) any consequential loss, injury or damages suffered by the Client, including but not limited to loss of use, earnings and business interruption;
- (g) the unauthorized distribution of any confidential document or report prepared by or on behalf of ITSL for the exclusive use of the Client.

The total amount of all claims the Client may have against ITSL under this engagement, including but not limited to claims for negligence, negligent misrepresentation and breach of contract, shall be strictly limited to the lesser of our fees or \$50,000.00.

No claim may be brought against ITSL in contract or tort more than two (2) years after the Services were completed or terminated under this engagement.



## **PERSONAL LIABILITY**

For the purposes of the limitation of liability provisions contained in the Agreement of the parties herein, the Client expressly agrees that it has entered into this Agreement with ITSL, both on its own behalf and as agent on behalf of its employees and principals.

The Client expressly agrees that ITSL's employees and principals shall have no personal liability to the Client in respect of a claim, whether in contract, tort and/or any other cause of action in law. Accordingly, the Client expressly agrees that it will bring no proceedings and take no action in any court of law against any of ITSL's employees or principals in their personal capacity.

## **THIRD PARTY LIABILITY**

This report was prepared by ITSL for the account of the Client. The material in it reflects the judgement and opinion of ITSL in light of the information available to it at the time of preparation. Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. ITSL accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report. This report may not be used or relied upon by any other person unless that person is specifically named by us as a beneficiary of the Report. The Client agrees to maintain the confidentiality of the Report and reasonably protect the report from distribution to any other person.

## **INDEMNITY**

The client shall indemnify and hold harmless ITSL from and against any costs, damages, expenses, legal fees and disbursements, expert and investigation costs, claims, liabilities, actions, causes of action and any taxes thereon arising from or related to any claim or threatened claim by any party arising from or related to the performance of the Services.

## **DOCUMENTS**

All of the documents prepared by ITSL or on behalf of ITSL in connection with the Project are instruments of service for the execution of the Project. ITSL retains the property and copyright in these documents, whether the Project is executed or not. These documents may not be used on any other project without the prior written agreement of ITSL.

## **FIELD SERVICES**

Where applicable, field services recommended for the Project are the minimum necessary, in the sole discretion of ITSL, to observe whether the work of a contractor retained by the Client is being carried out in general conformity with the intent of the Services.

## **DISPUTE RESOLUTION**

If requested in writing by either the Client or ITSL, the Client and ITSL shall attempt to resolve any dispute between them arising out of or in connection with this Agreement by entering into structured non-binding negotiations with the assistance of a mediator on a without prejudice basis. The mediator shall be appointed by agreement of the parties. If a dispute cannot be settled within a period of thirty (30) calendar days with the mediator, the dispute shall be referred to and finally resolved by an arbitrator appointed by agreement of the parties.

## **CONFIRMATION OF PROFESSIONAL LIABILITY INSURANCE**

As required by by-laws of the Association of Professional Engineers and Geoscientists of British Columbia, it is required that our firm advises whether or not Professional Liability Insurance is held. It is also required that a space for you to acknowledge this information be provided.

Our professional liability insurance is not project specific for the project and should not be regarded as such. If you require insurance for your project you should purchase a project specific insurance policy directly.

Accordingly, this notice serves to advise you that ITSL carries professional liability insurance. Please sign and return a copy of this form as an indication of acceptance and agreement to the contractual force of these Terms of Engagement.

ACKNOWLEDGEMENT: \_\_\_\_\_

**- INTERIOR -  
TESTING SERVICES  
- LTD. -**

**MATERIALS TESTING • SOILS  
CONCRETE • ASPHALT • CORING  
GEOTECHNICAL ENGINEERING**

**1 - 1925 KIRSCHNER ROAD  
KELOWNA, B.C. V1Y 4N7  
PHONE: 860-6540  
FAX: 860-5027**

Mr Fred Hamel  
c/o Kent-Macpherson  
Suite 304 – 1708 Dolphin Avenue  
Kelowna, BC V1Y 9S4

June 28, 2017  
Job 13.176

Attention: Mr Jordan Hettinga, B.Sc, RI

Dear Sir;

Re: **Additional Geotechnical Comments – Proposed House  
405 Poplar Point Drive  
Kelowna, BC**

---

As requested, Interior Testing Services Ltd (ITSL) provides the following preliminary comments with respect to foundation design and preparation for the above noted proposed home. Please see attached a one page site plan complete with slope cross-sections (prepared by others). In addition, we also attach copy of our two-page "Terms of Engagement" that applies to our work on this project, previously accepted and signed.

## **1.0 INTRODUCTION & SCOPE OF WORK**

---

ITSL has previously provided a geotechnical review of the property, outlined in our report dated December 4, 2013.

Since then, we now understand that you intend to apply for a re-zoning of the above noted property in order to allow for construction of a second dwelling, which would parallel Herbert Heights road. We have been forwarded a site plan showing existing features and slope cross-sections (attached) as well as conceptual drawings showing the proposed home.

At this stage, we understand that you are considering connecting the proposed foundations to competent bedrock, which we noted as being the preferable foundation preparation option in our prior report. From a geotechnical perspective this appears reasonable. The intent of this letter is to provide preliminary comments and recommendations for foundation design and preparation.

## 2.0 DESIGN CONCEPTS & RECOMMENDATIONS

---

The prime consideration for foundation design for the proposed home is slope stability. For typical footings (strip footings), it is conventional to set foundations below a 2H:1V (26.5 degrees) line projected up from the toe of the downhill slopes. This line can also be projected up from the crest of downhill bedrock outcrops where they exist. This convention appears to be feasible for the very northeast section of the property (see attached cross-sections). However, toward the southeast area of the site, based on the provided slope cross-sections, ordinary foundations do not appear to be practical for house support, given the depth required to achieve the 2H:1V setback (see attached cross-sections).

To provide the necessary support for the proposed structure, our prior report noted that it would be preferable to connect the proposed foundations to competent bedrock. The intent of the structural connection to the bedrock is to provide adequate support to the foundations and to limit the load to the slope. By limiting the load to the slope, the driving force of a potential slide is reduced and an increased factor of safety is achieved, as compared to supporting the foundations directly on the slope.

As a preliminary comment, the proposed micro piles should be socketed into competent bedrock. Based on our experience in this area, the depth to competent bedrock will vary across the site. As outlined in our prior report, a deeper geotechnical investigation is recommended to identify the depth to the bedrock and to provide additional design guidance.

## 3.0 ADDITIONAL GENERAL COMMENTS

---

In our prior report, we recommended limiting the disturbance to the existing slopes. This would typically include not removing vegetation, which provides stability to the slope, and not imposing new significant loads to the slope crest. By adding grading fills, structures etc to the slope crest, the driving force of a potential slide is increased and the factor of safety against slope movement would be decreased.

We understand that it is intended to capture all site drainage water and direct it to the local storm system. From a geotechnical perspective this is reasonable. Water infiltration can reduce the factor of safety of a slope by decreasing the friction angle of otherwise dry soils. All water (driveway, house etc) should be directed in solid piping to the storm system or another suitable location downhill and away from the slope.



#### 4.0 CONCLUSIONS

---

As outlined in our December 4, 2013 report, we understand that the City has adopted a 2% probability in a 50 year period as the required level of safety with respect to geotechnical hazards for developments. Provided that the proposed home is satisfactorily pinned to competent bedrock, by micro piles or similar, and that all drainage water is collected and directed offsite, it appears reasonable, in our opinion, to conclude that the above described home location, is suitable for the intended residential development and the geotechnical risk appears to be within the level of safety currently accepted by the governing authority. Please see the comments in our prior report dated December 4, 2013 for additional comments and recommendations for site development. We also recommend additional site investigations in order to provide further design comments.

While it appears reasonable to come to the opinion we have provided above with respect to 2% probability in a 50 year period, ITSL notes that the occurrence of a hazard event is always a possibility and cannot be construed as an error or omission on the part of ITSL or the City.


We trust the above comments are sufficient at this stage. After your review, please feel free to call and discuss if you have any questions.

Sincerely,  
Interior Testing Services Ltd

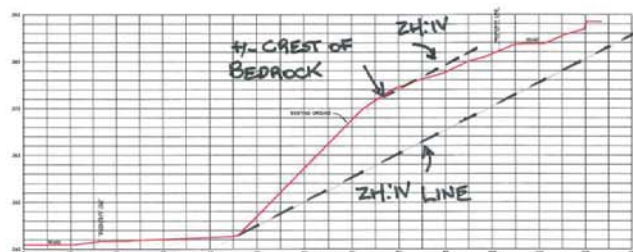
Prepared By:

  
J. BLOCK  
#39007  
BRITISH COLUMBIA  
ENGINEER  
JUNE 28/17  
Jeremy Block, P. Eng  
Intermediate Geotechnical Engineer

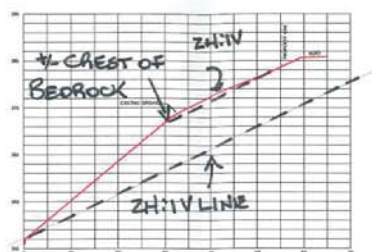
Reviewed By:

  
P. HANENBURG  
#28282  
BRITISH COLUMBIA  
ENGINEER  
Peter Hanenburg, P. Eng  
Principal Geotechnical Engineer

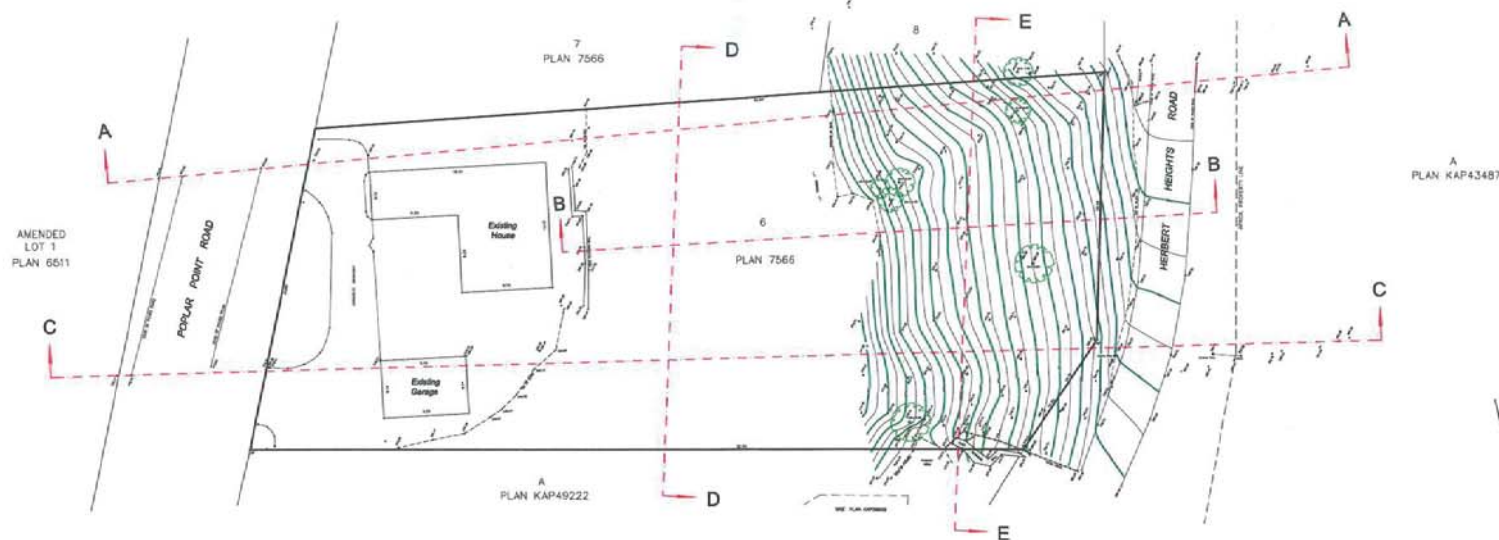
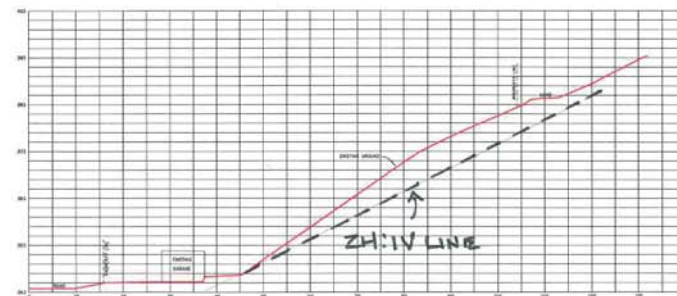
PROFILE A-A (SCALE 1:500)



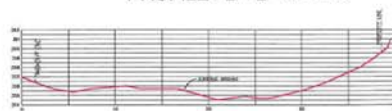
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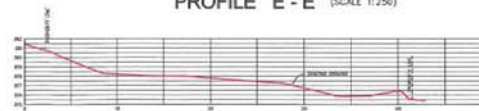
PROFILE C-C (SCALE 1:500)



PROFILE D-D (SCALE 1:250)



PROFILE E-E (SCALE 1:250)



LEGEND:

Elevations are Geodetic and are derived from  
Canadian datum (1984) (NAD 83) (NAD 83)  
Elevation interval = 0.5m

TITLE:

SITE PLAN AND CROSS SECTIONS OF PART OF LOT 6,  
DISTRICT LOT 219. O.D.Y.D., PLAN 7566

DRAWN BY:

**RUNNALLS DENBY**  
british columbia land surveyors  
2554 Lawrence Avenue  
Vancouver, B.C. V7T 6L2  
(Email: runnallsdenby.com)

SCALE: 1:250 (22"x34")

DATE: NOV. 20, 2013

DWG: 13917 SITE 2

CLIENT: FREDCO HOLDINGS

FILE NO: 13917

REV: 0

## **TERMS OF ENGAGEMENT**

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If either party breaches this engagement, the non-defaulting party may terminate this engagement after giving seven (7) days' notice to remedy the breach. On termination by ITSL under this paragraph, the Client shall forthwith pay to ITSL its Charges for the Services performed to the date of termination, including all fees and charges for this Project.

### **ENVIRONMENTAL**

ITSL's field investigation, laboratory testing and engineering recommendations will not address or evaluate pollution of soil or pollution of groundwater. ITSL will co-operate with the Client's environmental consultant during the field work phase of the investigation.

### **PROFESSIONAL RESPONSIBILITY**

In performing the Services, ITSL will provide and exercise the standard of care, skill and diligence required by customarily accepted professional practices and procedures normally provided in the performance of the Services contemplated in this engagement at the time when and the location in which the Services were performed. ITSL makes no warranty, representation or guarantee, either express or implied as to the professional services rendered under this agreement.

### **LIMITATION OF LIABILITY**

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- (a) the failure of a contractor, retained by the Client, to perform the work required in the Project in accordance with the applicable contract documents;
- (b) the design of or defects in equipment supplied or provided by the Client for incorporation into the Project;
- (c) any cross-contamination resulting from subsurface investigations;
- (d) any damage to subsurface structures and utilities;
- (e) any Project decisions made by the Client if the decisions were made without the advice of ITSL or contrary to or inconsistent with ITSL's advice;
- (f) any consequential loss, injury or damages suffered by the Client, including but not limited to loss of use, earnings and business interruption;
- (g) the unauthorized distribution of any confidential document or report prepared by or on behalf of ITSL for the exclusive use of the Client.

The total amount of all claims the Client may have against ITSL under this engagement, including but not limited to claims for negligence, negligent misrepresentation and breach of contract, shall be strictly limited to the lesser of our fees or \$50,000.00.

No claim may be brought against ITSL in contract or tort more than two (2) years after the Services were completed or terminated under this engagement.

## **PERSONAL LIABILITY**

For the purposes of the limitation of liability provisions contained in the Agreement of the parties herein, the Client expressly agrees that it has entered into this Agreement with ITSL, both on its own behalf and as agent on behalf of its employees and principals.

The Client expressly agrees that ITSL's employees and principals shall have no personal liability to the Client in respect of a claim, whether in contract, tort and/or any other cause of action in law. Accordingly, the Client expressly agrees that it will bring no proceedings and take no action in any court of law against any of ITSL's employees or principals in their personal capacity.

## **THIRD PARTY LIABILITY**

This report was prepared by ITSL for the account of the Client. The material in it reflects the judgement and opinion of ITSL in light of the information available to it at the time of preparation. Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. ITSL accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report. This report may not be used or relied upon by any other person unless that person is specifically named by us as a beneficiary of the Report. The Client agrees to maintain the confidentiality of the Report and reasonably protect the report from distribution to any other person.

## **INDEMNITY**

The client shall indemnify and hold harmless ITSL from and against any costs, damages, expenses, legal fees and disbursements, expert and investigation costs, claims, liabilities, actions, causes of action and any taxes thereon arising from or related to any claim or threatened claim by any party arising from or related to the performance of the Services.

## **DOCUMENTS**

All of the documents prepared by ITSL or on behalf of ITSL in connection with the Project are instruments of service for the execution of the Project. ITSL retains the property and copyright in these documents, whether the Project is executed or not. These documents may not be used on any other project without the prior written agreement of ITSL.

## **FIELD SERVICES**

Where applicable, field services recommended for the Project are the minimum necessary, in the sole discretion of ITSL, to observe whether the work of a contractor retained by the Client is being carried out in general conformity with the intent of the Services.

## **DISPUTE RESOLUTION**

If requested in writing by either the Client or ITSL, the Client and ITSL shall attempt to resolve any dispute between them arising out of or in connection with this Agreement by entering into structured non-binding negotiations with the assistance of a mediator on a without prejudice basis. The mediator shall be appointed by agreement of the parties. If a dispute cannot be settled within a period of thirty (30) calendar days with the mediator, the dispute shall be referred to and finally resolved by an arbitrator appointed by agreement of the parties.

## **CONFIRMATION OF PROFESSIONAL LIABILITY INSURANCE**

As required by by-laws of the Association of Professional Engineers and Geoscientists of British Columbia, it is required that our firm advises whether or not Professional Liability Insurance is held. It is also required that a space for you to acknowledge this information be provided.

Our professional liability insurance is not project specific for the project and should not be regarded as such. If you require insurance for your project you should purchase a project specific insurance policy directly.

Accordingly, this notice serves to advise you that ITSL carries professional liability insurance. Please sign and return a copy of this form as an indication of acceptance and agreement to the contractual force of these Terms of Engagement.

ACKNOWLEDGEMENT: \_\_\_\_\_



## ***SITE PHOTOS***















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**CITY OF KELOWNA**  
**MEMORANDUM**

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**Date:** Aug 01, 2017  
**File No.:** Z17-0068

**To:** Community Planning (LB)

**From:** Development Engineering Manager(JK)

**Subject:** 405 Poplar Point

RU1 to RU6

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The Development Engineering Department has the following comments and requirements associated with this rezoning application. The road and utility upgrading requirements outlined in this report will be a requirement of this development. The Development Engineering Technologist for this project is Jason Angus

**1. Domestic Water and Fire Protection**

This property is currently serviced with a 19mm-diameter copper water service. Two 19mm water services are required to meet current by-law requirements. An additional 19mm service can be provided by the City at the owner's cost. The applicant will be required to sign a Third Party Work Order for the cost of the water service upgrades. For estimate inquiry's please contact Jason Angus, by email [jangus@kelowna.ca](mailto:jangus@kelowna.ca) or phone, 250-469-8783.

**2. Sanitary Sewer**

Our records indicate that this property is currently serviced with a 100mm-diameter sanitary sewer service. No further utility upgrades are needed however, due to slope stability the City of Kelowna would like to see the second dwelling extend the sanitary main along Herbert Heights for connection to the sanitary sewer system at the applicants cost. The applicant will be required to sign a Third Party Work Order for the cost of the sanitary extension as well as all costs to install a second sewer service. For estimate inquiry's please contact Jason Angus, by email [jangus@kelowna.ca](mailto:jangus@kelowna.ca) or phone, 250-469-8783.

**3. Storm Drainage Improvements**

The developer must engage a consulting civil engineer to provide a storm water management plan for this site which meets the requirements of the City Storm Water Management Policy and Design Manual. The storm water management plan must also include provision of lot grading plans, minimum basement elevations (MBE), if applicable, and provision of a storm drainage service and recommendations for onsite drainage containment and disposal systems.

**4. Road Improvements**

- a. Poplar Point Drive must be upgraded to an urban standard along the full frontage of this proposed development, including sidewalk, pavement removal and replacement, boulevard landscaping, street lighting and re-location or adjustment of utility appurtenances if required to accommodate the upgrading construction. A

one-time cash payment in lieu of construction must be collected from the applicant for future construction by the City. The cash-in-lieu amount is determined to be **\$23,800.00** not including utility service cost.

- b. Herbert Heights Road must be upgraded to an urban standard along the full frontage of this proposed development, including sidewalk, pavement removal and replacement, boulevard landscaping, street lighting and re-location or adjustment of utility appurtenances if required to accommodate the upgrading construction. A one-time cash payment in lieu of construction must be collected from the applicant for future construction by the City. The cash-in-lieu amount is determined to be **\$28,300.00** not including utility service cost.
- c. Only the service upgrades must be completed at this time. The City wishes to defer the upgrades to Poplar Point Dr. and Herbert Heights Rd. fronting this development. Therefore, cash-in-lieu of immediate construction is required and the City will initiate the work later, on its own construction schedule.

Item	Cost
Sidewalk	\$17,100.00
Street Lighting	\$5,200.00
Road Fillet	\$10,800.00
Curb & Gutter	\$13,800.00
Blvd Landscaping	\$5,200.00
<b>Total</b>	<b>\$52,100.00</b>

#### 4. **Development Permit and Site Related Issues**

- a) Vehicle access for the second dwelling must be from Herbert Heights Road

#### 5. **Electric Power and Telecommunication Services**

The electrical and telecommunication services to this building must be installed in an underground duct system, and the building must be connected by an underground service. It is the developer's responsibility to make a servicing application with the respective electric power, telephone and cable transmission companies to arrange for these services, which would be at the applicant's cost.

#### 7. **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.

## 8. Servicing Agreement 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.

## 9. Administration Charge

An administration charge will be assessed for processing of this application, review and approval of engineering designs and construction inspection. The administration charge is calculated as (3.5% of Total Off-Site Construction Cost plus GST).

## 9. Survey, Monument and Iron Pins

If any legal survey monuments or property iron pins are removed or disturbed during construction, the developer will be invoiced a flat sum of \$1,200.00 per incident to cover the cost of replacement and legal registration. Security bonding will not be released until restitution is made.

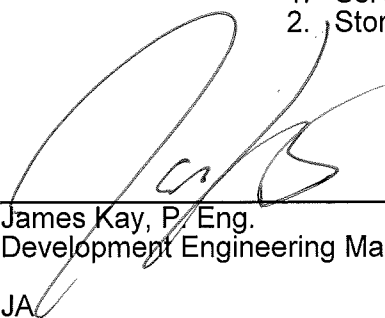
## 10. Bonding and Levy Summary

### (a) Levies

1. Poplar Point Drive frontage improvements	<b>\$23,800.00</b>
2. Herbert Heights Rd frontage improvements	<b>\$28,300.00</b>

### (b) Bonding

1. Service upgrades	<b>To be determined</b>
2. Storm Drainage System	<b>To be determined</b>

  
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 James Kay, P. Eng.  
 Development Engineering Manager

JA