

File No.: 04-1000-20-2016-157

September 13, 2016

s.22(1)

Dear s.22(1)

**Re: Request for Access to Records under the Freedom of Information and Protection of Privacy Act (the "Act")**

I am responding to your request of May 5, 2016 for:

**All emails relating to the breached aquifer at 7084 Beechwood Street, for the month of September, 2015.**

All responsive records are attached. Please note: this is the second of two record releases due to third party consultations.

Under section 52 of the Act you may ask the Information & Privacy Commissioner to review any matter related to the City's response to your request. The Act allows you 30 business days from the date you receive this notice to request a review by writing to: Office of the Information & Privacy Commissioner, [info@oipc.bc.ca](mailto:info@oipc.bc.ca) or by phoning 250-387-5629.

If you request a review, please provide the Commissioner's office with: 1) the request number assigned to your request (#04-1000-20-2016-157); 2) a copy of this letter; 3) a copy of your original request for information sent to the City of Vancouver; and 4) detailed reasons or grounds on which you are seeking the review.

Please do not hesitate to contact the Freedom of Information Office at [foi@vancouver.ca](mailto:foi@vancouver.ca) if you have any questions.

Yours truly,

A handwritten signature in black ink, appearing to be 'B. Van Fraassen', with a stylized, wavy flourish at the end.

Barbara J. Van Fraassen, BA  
Director, Access to Information  
*City Clerk's Department, City of Vancouver*  
Email: [Barbara.vanfraassen@vancouver.ca](mailto:Barbara.vanfraassen@vancouver.ca)  
Telephone: 604.873.7999

Encl.  
:cf

From: "[Roozbahani, Mark](mailto:Mark.Roozbahani@vancouver.ca)" <[Mark.Roozbahani@vancouver.ca](mailto:Mark.Roozbahani@vancouver.ca)>

To: "[Ryan, Pat \ \(PDS\\)](mailto:patrick.ryan@vancouver.ca)" <[patrick.ryan@vancouver.ca](mailto:patrick.ryan@vancouver.ca)>

["Mayberry, Jennifer"](mailto:Jennifer.Mayberry@vancouver.ca) <[Jennifer.Mayberry@vancouver.ca](mailto:Jennifer.Mayberry@vancouver.ca)>

["Collister, Mike"](mailto:mike.collister@vancouver.ca) <[mike.collister@vancouver.ca](mailto:mike.collister@vancouver.ca)>

Date: 9/29/2015 7:13:17 AM

Subject: Fwd: 7084 Beechwood Street

Edit

Sent from my iPhone

Begin forwarded message:

From: Thierry Carriou <[tcarriou@bcgroundwater.ca](mailto:tcarriou@bcgroundwater.ca)>

Date: September 29, 2015 at 7:09:25 AM PDT

To: <[Mark.Roozbahani@vancouver.ca](mailto:Mark.Roozbahani@vancouver.ca)>

Cc: <[goldensunhousing@gmail.com](mailto:goldensunhousing@gmail.com)>

Subject: RE: 7084 Beechwood Street

Good morning. One edit to the email is the cutoff date is Sept 30, 2015 to retain our services (not October). Thierry

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**From:** Thierry Carriou [<mailto:tcarriou@bcgroundwater.ca>]

**Sent:** Monday, September 28, 2015 11:14 PM

**To:** '[Mark.Roozbahani@vancouver.ca](mailto:Mark.Roozbahani@vancouver.ca)'

**Cc:** '[goldensunhousing@gmail.com](mailto:goldensunhousing@gmail.com)'

**Subject:** 7084 Beechwood Street

Good evening Mark,

Thanks for the earlier email and discussion.

To confirm your questions:

Question No. 1 Your involvement with the capping operations at the above noted address,

Yes, I confirm that my company (BC Groundwater) specializes in groundwater resource development / protection / monitoring. We are a small specialized consulting company in Kamloops with 25 years of experience in all types of wells throughout BC. I am the principal hydrogeologist with a M.Sc. in Hydrogeological Engineering and am registered as a P.Eng. in BC. We have very close links to BC registered contractors who have the equipment and skills to safely control and/or close wells whenever possible. We have a solid reputation with well control and you are welcome to discuss this with our contacts at the FLNRO and the BC Ground Water Association.

Question No. 2 If you have professionals on board for design and oversight of your scope of work (registered in BC),

I will be the project lead and will certify all proposed well construction and control. We have assembled a project team comprised of myself (Hydrogeologist); Rick Cronin (Well Control Specialist; Field Lead) and Perry Grunenber, P.Geo. (Geologist) to spearhead the work. Jim Fyfe (Fyfe Well Drilling) has agreed to consider our offer to join the team and we hope his role will be confirmed this Thursday when we meet on-site. We are also able to draw upon our contract R.P.Bio. if required for discharge permits.

With Andy's authorization, I would like to forward a copy of our contract with him to you for record. Please note that we have provided a cutoff date of October 30, 2015 at 4 pm for Golden Sun Housing to sign our retainer agreement and forward a deposit to engage our services. We have made it clear that \$ 150k - \$ 250k is a realistic

cost expectation based on what we know at this time and that this will be completed on a deposit basis.

Question No. 3 Brief description of your approach and methodology.

Flowing artesian wells are like people. They all have their own personality. It is important that we understand what we are dealing with before we try to fix it. The current BC Water Act requires all artesian wells to be “controlled and/or stopped”. This definition has been problematic in the past as it does not recognize the underlying causes or practical limitations of what can be safely accomplished. In this case, the artesian conditions are natural but the effects have been exacerbated by withdrawal of the casing. As mentioned to Andy, not all wells can be safely closed due to the possibility of blowout or sinkhole formation. Permanent diversion is sometimes the only safe option. I am making contact with the Regional Hydrogeologist (Michelle) from FLNRO this week to keep her informed.

Our approach is to first safely contain the discharge. We are considering a variety of options at this point including direct capture or drilling a specialized relief well. The option selected will depend upon the integrity of the confining layer and site conditions for drill rig access. Rick Cronin from our team will visit the site on a daily basis until our Thursday meeting. We will begin to collect a photographic record and identify the need for surface elevation monitoring if any sinkhole formation is evident. Jim Fyfe and myself will refine our options on Thursday and I will report to the client. Ideally, we will lower the water pressure adequately to prevent flow but still maintain a full column of water to maintain quasi-stable conditions.

The next step will depend upon the integrity of the ground and availability for rig access. It may be possible to regain control of the original well and safely close it in a few simple steps, but this depends on the success of the first step and the nature of the overlying confining layer and aquifer productivity. Mark, would you please assign a coordinator or point-person at the City who can help prepare permit applications as they are required. This would be really helpful for us so we can focus on the task at hand. I will forward a copy of our daily reports to our client, yourself and the regional hydrogeologist.

Thanks for your offer of assistance. We will take you up on this very soon.

Best regards,

Thierry



Thierry M. Carriou, M.Sc., P.Eng  
Hydrogeologist (1993)  
w (250) 851-9414  
c (250) 377-5758



From: "[Roozbahani, Mark](mailto:Mark.Roozbahani@vancouver.ca)" <[Mark.Roozbahani@vancouver.ca](mailto:Mark.Roozbahani@vancouver.ca)>

To: "[Collister, Mike](mailto:mike.collister@vancouver.ca)" <[mike.collister@vancouver.ca](mailto:mike.collister@vancouver.ca)>

["Mayberry, Jennifer"](mailto:Jennifer.Mayberry@vancouver.ca) <[Jennifer.Mayberry@vancouver.ca](mailto:Jennifer.Mayberry@vancouver.ca)>

Date: 9/30/2015 7:01:56 AM

Subject: Fwd: 7084 Beechwood Street - Artesian Well Daily Report Sept 29, 2015

Attachments: ATT00001.htm

15014.1 BCGW Bin Xue Cronin Report DRAFT - Sept 29 2015\_p.pdf

ATT00002.htm

FYI and in case you want to send inspectors to monitor. I will send a draft to Mike for an order later today.

Sent from my iPhone

Begin forwarded message:

From: "Thierry Carriou" <[tcarriou@bcgroundwater.ca](mailto:tcarriou@bcgroundwater.ca)>

To: "[goldensunhousing@gmail.com](mailto:goldensunhousing@gmail.com)" <[goldensunhousing@gmail.com](mailto:goldensunhousing@gmail.com)>

Cc: "Roozbahani, Mark" <[Mark.Roozbahani@vancouver.ca](mailto:Mark.Roozbahani@vancouver.ca)>, "'Simpson, Mike W FLNR:EX'" <[Mike.Simpson@gov.bc.ca](mailto:Mike.Simpson@gov.bc.ca)>

Subject: 7084 Beechwood Street - Artesian Well Daily Report Sept 29, 2015

Good evening Andy.

Attached, please find our first daily report.

Our team will be on site around 1 pm on Thursday. Rick, Jim and myself will tour the site alone first then I will meet with you in private. It is important for our team to have this uninterrupted time and hope you understand. I will text you when we have completed the inspection.

On Friday morning I have asked Mark from the City if he might have time to meet on site. The Ministry of Environment has been notified. They are confident in our team and will not be sending an observer.

Have a good night.

Thierry

Thierry M. Carriou, M.Sc., P.Eng

Hydrogeologist (1993)

w (250) 851-9414

c (250) 377-5758





# BC Groundwater Consulting Services Ltd.

Professional Well Development and Consulting Services

## DAILY REPORT

**DATE:** September 29, 2015

**TO:** Thierry Carriou, P.Eng. (Hydrogeologist)

**FROM:** Rick Cronin, Well Control Specialist (QWD)

**CLIENT:** Bin Xue (Owner) c/o Andrew Wang of Golden Sun Builders (Agent)

**LOCATION:** 7085 Beechwood St. Vancouver, BC

**PROJECT:** Well Control of Geothermal Borehole

**DAILY FOCUS:** Initial Site Investigation

**TIME ON SITE:** 10:30 am to 1:00 pm

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Thierry,

*In summary, I spent 2.5 hours on site today. I met with several contacts and performed a reconnaissance of the site investigating the items you requested. The uncased borehole looks the same as a couple of days ago. With regards to safety, I recommend that the builder erect fencing around the site.*

The following presents information collected today. Photos are attached.

Contacts met on site:

- Golden Builders Rep. (I did mention that at some point, steel fencing may have to be installed with warning signs around property.);
- Drilling Contractor- Geoenergia boss and his interpreter Marta (778-898-7682)

**" Focusing on sustainable development, protection and management of our groundwater resources "**



- Stormtec – Alex (604-690-5529) (phoned me after I left site) is supposed send me information of initial on-site observations on Friday and pictures. Apparently water was close to top of foundation when he arrived and was near the point of breaching onto adjoining neighbors yards.
  - He estimated original flow at 200 USgpm. However, Saturday morning he estimated it had increased to 300 USgpm. He said they will bring flow meters to site tomorrow to get a better idea of what we are dealing with.

Information from Geoenergia:

- Borehole drilled to 26 m. ( 85 ft.) on Friday September 25, 2015
- Encountered water at 25 m. (82 ft.)
- Pulled casing
- Drill rig is a Commacchio capable of drilling while turning casing and drill rods simultaneously with top head drive
- 6 inch casing was used and a 4 ¼" (107 mm) tri-cone drill bit while drilling
- Lengths of casing on site used to drill borehole.

12 x 2 m casings on skid

1 x 1 m casing on skid

1 x 2 m casing in drill rig mast

Total = 27m. X 3.28 ft. = 88.5 ft.

It therefore is assumed that there was 1 m stick-up of casing above ground level to rig table to achieve a TD of 26 m (85 ft).

Survey Pegs:

- I observed Survey pegs driven into ground at all four corners shown to me by building contractor person. However, as you mentioned survey company may have to contracted to located precise location of borehole at some point.

Trench & Flow Information: (Refer to pictures) as of 11:00 am September 29, 2015

- Depth near approx. center of borehole location is 33 inches deep.
- The width of erosion down-stream of borehole is 66 inches across.
- This borehole has completely collapsed and there is no way of measuring depth.
- Total length from erosion above borehole to edge of foundation is 166 inches.
- Where erosion diameter from around borehole reduces to a trench to foundation length is 65 inches.
- This trench varies in depth from 3 -4 inches
- Measured time of flow from approx. borehole center to edge of foundation is 10 seconds. This time takes into account the time the object used to measure the flow as it circulates around the borehole until the flow takes over to take it down the trench to foundation.
- The time measured from the edge of circumference of the erosion around the borehole itself where it became the "trench" to the foundation a distance of 65 inches was 2 seconds.







































