

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53

WHATCOM COUNTY COUNCIL
Public Works and Safety Committee

December 9, 2008

Committee Chair Barbara Brenner called the meeting to order at 1:35 p.m. in the Council Chambers, 311 Grand Avenue, Bellingham, Washington.

Present:

L. Ward Nelson
Laurie Caskey-Schreiber

Absent:

None

Also Present:

Carl Weimer

SPECIAL PRESENTATION

1. PRESENTATION BY RON REIMER, R&R EXCAVATION, REGARDING ON-SITE RAIN HARVESTING SYSTEMS (AB2008-407)

Ron Reimer, R&R Excavation, stated water issues are real and everywhere in the country. Locally, they want to treat quality and slow the speed of water. Rainwater capture and harvest is a debate in Washington State. They know detention ponds and other things they use deal with water quantity, but not water quality. The cost of dealing with water is increasing.

The type of system he is presenting today slows the water down and leaves a better quality of water. It includes a reserve capacity of water that can legally be used in the house and yard. The County has begun to require stormwater infiltration areas even on smaller lots. That's possible in sandy soil. However, a large area is required to infiltrate water in clay soil. Now, systems are designed to handle peak flow. This type of system will hold that volume and meter the slow release of the water into a rain garden using small pumps. This type of system is flexible because it isn't really capturing the rainwater, it just slows the rainwater flow.

Engineers don't seem to want to add electricity to moving stormwater. They seem to have a natural, built-in desire to use gravity in all cases. They've used these pumps in septic systems and wells. The technology isn't unfamiliar. He is trying to educate. These systems are more economical on a large scale. They're more flexible than concrete systems.

Brenner asked about using this system for public facilities. Reimer stated a Port of Bellingham facility has stormwater issues. In a situation like that, create an amphitheater design with a water channel with waterfalls in the center and large constructed wetland on the hillside. The water would re-circulate. During storm events in the winter, the system can be allowed to fill. Water can evaporate in an open air design. Evapo-transpiration isn't used in any detention systems used today. Even in the winter in Washington State, 35 to 40 percent of surface water evaporates in undeveloped areas. In developed areas, the water is funneled to a drainage system and there is zero evapo-transpiration. They are introducing more water into the ground than nature intended. To follow those standards, 25 to 40 percent of the rainfall needs to evaporate. Do that creatively through the use of pumps, jets, and wet walls. Green roof technology is expensive. Green walls are much less

1 costly to work with. Running water introduces a natural level of bacteria. Wildlife thrive in
2 it. The paperwork in the Council packet describes the systems.
3

4 Brenner asked Mr. Reimer to talk about the legality of these systems, and his
5 experiences with local and State officials. Reimer stated he talked to Herrera Environmental
6 Consultants, who seem to be the hydrologists doing many of the State studies and low-
7 impact development technical workshops. If they don't capture rainwater and hold it, a
8 system is completely legal. This type of system is completely legal, as long as they just
9 slow down the water. That's what detention ponds do already. An issue may come up with
10 the Tribes. Taking water out of the water system and put into the sewer system, for
11 example, their case could be made. They are already consistently getting up to 35 percent
12 more water than what was there 100 years ago, because there is no evapo-transpiration
13 effect. Now, there is a don't ask, don't tell policy.
14

15 Water is becoming more expensive to deal with. It makes more sense to use the
16 water where it falls than to capture, pump into and out of an aquifer, treat, chlorinate, and
17 then use to water flowers. People in society now have a desire to work with the
18 environment. Even if homeowners don't maintain their systems properly, they will still build
19 the systems. Now, individuals think detention ponds are the only option. If people learn to
20 interact with their own impact on the planet, they will treat it more responsibly. When
21 using any kind of small recirculation device, someone will know it's not operating if the
22 water isn't exiting the system.
23

24 The systems will cost \$4 to \$7 per month to run. The pumps that run the system
25 cost around \$200. When done, there is no organic settlement in the system. Detention
26 ponds accumulate leaves and other matter, and have to be cleaned so they don't become
27 an anaerobic sludge factory. With a system with water flow and oxygen, natural bacteria
28 will handle those things. There will be much less sludge that has to be cleaned out and
29 trucked away.
30

31 Caskey-Schreiber asked what it would take to get the State Department of
32 Transportation and Public Works staff to use this system instead of the detention ponds.
33 She asked what obstacles exist. Reimer stated the biggest obstacle is just time. The
34 product manufacturer is already talking to the State Department of Ecology. When an
35 engineer designs a project, they want it to be recognizable and understandable to the public
36 and permitting agencies. He is educating people about this alternative.
37

38 Weimer stated the State Department of Ecology, through its total maximum daily
39 load (TMDL) study, is saying the County needs to find a way to put the water back into the
40 ground. This seems to be a way to do that. He asked the cost. Reimer stated the cost will
41 vary. Over time, there is almost zero maintenance, other than checking the pump and the
42 organic sludge layer in the system. They would do that with large detention ponds anyway.
43 For an individual home, the cost to install the system would be about \$2.50 to \$5 per
44 gallon.
45

46 Weimer stated a 1,000 gallon tank would be about \$2,500. Reimer stated that if this
47 is designed before development, the cost would be about \$6 or \$7 per gallon, but that cost
48 could be recovered when the home is sold. The home would sort of have waterfront
49 property. They would design it so everyone would enjoy a semi-seasonal, year-round
50 stream.
51

1 Nelson asked the impact to the system of the power goes out for five days during a
2 storm event. Reimer stated the system still functions with an overflow system. The only
3 difference is that it isn't aerated or allowed to evaporate.
4

5 Nelson stated the water would wash out. Reimer stated that's correct. If the system
6 is filled up, it would draw down rain over the impervious surface over two days. Before the
7 power goes out, the system capacity will be one inch of rain.
8

9 Brenner asked if they could require a generator to keep the system running.
10

11 Caskey-Schreiber stated an ideal system would be to have a one in which the water
12 drives the power to pump it back out.
13

14 Reimer stated these are very low amp pumps. They are more reliable and cheap to
15 run.
16

17 Caskey-Schreiber asked if any of these have been installed in Whatcom County that
18 they can look at. Reimer stated he hasn't yet built a system as shown in this plan. He
19 described the water gardens and ponds he's built.
20

21 Brenner asked if these systems are used in other parts of the state. Reimer stated
22 there are, east of the mountains. A resort development is being proposed in Ellensburg.
23

24 Caskey-Schreiber stated the Bellingham Housing Authority built a fountain that acts
25 as a catch basin at a project in Lynden. They did that instead of a stormwater retention
26 pond. It's very attractive. Reimer stated that is a good example of what they're emulating.
27 That project just doesn't have the ability to slow the water flow. His system would slow and
28 meter the water flow.
29

30 Brenner asked if staff has seen this option.
31

32 Kraig Olason, Public Works Department, stated staff has seen this and similar kinds
33 of systems.
34

35 Brenner asked if Ecology would allow this system as a retrofit for low-impact
36 development (LID). Olason stated Ecology's issue is just about retaining the water and
37 using it outside a water permit. They couldn't use the system for potable water, just for
38 retention and treatment. There's a big debate about that this year. The people involved
39 with these systems have been pushing for a decision for awhile. The decision hasn't yet
40 been granted.
41

42 Brenner asked if this system could be an LID measure as long as its used for slowing
43 and filtering water, as long as the water isn't used for house hold consumption. Olason
44 stated that's his impression.
45

46 Reimer stated they are hoping the State will make some allowances.
47

48 Brenner stated that if a home isn't on a water or sewer system, using the water for
49 gray water should be okay as long as the water stays in the same watershed.
50

51 Olason stated some people also use the system for irrigation. Even though the water
52 is put on the ground, it's always been an issue in terms of exempt well limits.
53

1 Brenner stated it would still keep the water from rushing off the property. She asked
2 how long this debate will go. Olason stated the presenter at a recent conference who
3 installs these systems seemed to think they would resolve the issue soon.
4

5 Reimer stated he's worked in the Lake Whatcom watershed for 10 to 15 years, since
6 they started installing retention systems for individual properties. The amount of roof
7 versus the amount of pervious surface is calculated. A pipe goes through a catch basin and
8 two or three dump truck loads of gravel. There is an overflow pipe if there isn't infiltration.
9 Those systems can't be maintained at all. That's part of the reason he looked for
10 alternatives like this new system. Once the natural wildlife and everything is established,
11 it's difficult to remove the sludge, which can be considered contaminated. He's installed
12 systems in Sudden Valley that have become completely full of pine needles and cedar seeds
13 in a year. People can't maintaining those systems. The organic matter plugs the system.
14 When there is running water and a created wetland system, the natural biology breaks
15 down that material.
16

17 Nelson stated this system doesn't go into a natural system. It goes into a container
18 tank. Reimer stated it will eventually, within a couple of days.
19

20 Nelson stated the material will settle into the first tank off the roof. That will fill up
21 within two years. Reimer stated it will fill up, but not that quick. The system includes a
22 pre-filter in some cases.
23

24 Nelson stated that if the system fills up and isn't maintained, it will get into the rest
25 of the system. Reimer stated the materials pumped from the tank can go on the lawn or in
26 the flowerbed. The system is completely rehabilitated. The issue will come down to
27 maintenance. He will be designing a system for 20/20 Engineering.
28
29

30 **OTHER BUSINESS**

31
32 There was no other business.
33

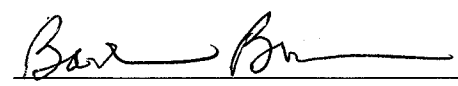
34
35 **ADJOURN**
36
37 The meeting adjourned at 2:15 p.m.
38
39
40
41
42
43
44
45
46
47
48
49
50

Jill Nixon, Minutes Transcription

ATTEST:

WHATCOM COUNTY COUNCIL
WHATCOM COUNTY, WASHINGTON


Dana Brown-Davis, Council Clerk


Barbara Brenner, Committee Chair