**Monday, August 3, 2020**

**To City of North Bend**

**Subject: Friends of the Snoqualmie Valley Trail and River Comments on North Bend 2020 Draft Water System Plan (**WSP)

**INTRODUCTION**

Friends of the Snoqualmie Valley Trail and River (Friends) has been closely following the evolution of municipal water system planning in the North Bend area since 2017. That effort has involved gaining a thorough understanding of the operation of North Bend Public Works (City) and Sallal Water Association (Sallal). The effort has also involved extensive coordination with the responsible governmental Agencies including the Department of Ecology (DOE), the Department of Health (DOH), and the Utilities Technical Review Committee (UTRC). Through the Public Records Request (PRR) process Friends has obtained extensive relevant information from the City and the Agencies noted above. Because Sallal is a member owned cooperative Friends has access to relevant information from that source as well.

Consequently, Friends became aware early on that Sallal had, at least on paper, exhausted its Annual Water Right back on October 13, 2016, when on the same day it issued 110 Water Certificates for Phase 1 of the Cedar River Apartments project and an additional 106 *Conditional* Water Certificates for Phase 2 of the same project. This means Sallal was not in a position to take advantage of inchoate water rights for any other purpose such as mitigation for the Centennial Well. No water right was reserved for that purpose.

The conditional provision related to Sallal having to obtain water from the City to serve Phase 2. And this alerted Friends (and Sallal member owners) to the fact that back in the 2007 timeframe when the Centennial Well was issued a Water Right by the DOE there was the assumption that Sallal would in effect trade up to 35% (243.6 acre feet) of its Annual Water Permit in exchange for wholesale water to serve development in Sallal’s Service Area within the City/UGA. The intent had been for the parties to agree to a contract for that to happen, but it never occurred apparently because the conditions imposed by the City were not acceptable to Sallal.

In effect what was being proposed is a “merger” of City/Sallal water supply and demand considerations. The crux issue driving it all is that the Centennial Well’s very large Water Right can only be exploited if withdrawals are mitigated (in kind, in time) during low instream flow periods which may occur more than 50% of the calendar year. The primary source for such mitigation was designated to be Seattle Public Utilities (SPU) Hobo Springs below Chester Morse Lake and Masonry Dam. However it was recognized in 2007 that Hobo Springs was not sufficiently reliable short term or particularly longer term and the Sallal Wells nearby were designated as an alternate/supplemental mitigation source. The Centennial Well was approved on the assumption that a contract between City and Sallal would be forthcoming which never happened. The City’s 2010 WSP was approved on that basis.

The proposed City 2020 WSP carries on counting on an agreement with Sallal. And the City carries on approving development dependent on that outcome. Friends believes this approach is fundamentally wrong. Water certificates should not be issued unless the water is currently available or else there is an additional source of that water identified that has no permitting roadblocks to have online in a timely manner to serve the development. So much hinges on a contract between City and Sallal that no WSP should be approved by the DOE, DOH, and UTRC. Friends has a number of individual concerns with the draft WSP and we note that inputs made by the latter agencies as well as the Tribes reflect some of these same concerns. Friends will be following the review/approval process ongoing and taking careful note of how these concerns are addressed.

**EXECUTIVE SUMMARY COMMENTS:**

1. It states that City anticipates growth of 2.5% over 10-year planning period. This appears inconsistent with the October 2018 City of North Bend Economic Profile which Gray and Osborne has characterized as 12% (2019), 15% (2020), 10% (2021), 5% (2022), and for following years 3.1% declining to 1.9% by 2038. How can the 2.5% constant growth rate be justified? Furthermore there does not appear to be an incremental ramping up of growth accompanying the recent explosion of residential housing in North Bend.

2. The emphasis herein is on the eventuality of a “drier summer” being the reason for a potential water shortage. That is oversimplifying the problem. For example in the 2015 water year the summer water shortage was a direct effect of a massive “blob” of unusually warm ocean water in the norther Pacific which raised the winter temperature averages by 5 degrees in the Cascades resulting in a huge reduction in snowpack. Precipitation was actually above normal for the water year, but snowpack was far below normal, and the fairly warm dry summer aggravated the problem. The random statistical analyses run by Golder and used within this WSP cannot characterize this threat.

3. The City acknowledges *“Under present peak summer demand, if a drier summer were to occur, the flows at Hobo Springs would be at or just below those required to properly mitigate water demand. The City must therefore increase its mitigation capacity by implementing two measures”.*

a. Adopt an onerous water conservation/rationing plan to cut demand back to meet supply during third quarter accepting the fact this means new development automatically results in less water available per capita. Friends does not agree with this approach, longstanding residents should not be punished to accommodate growth.

b. Procure additional mitigation resources to supplement Hobo Springs. The Executive Summary goes on to state “This plan is predicated on the City reaching an agreement with Sallal Water Association to obtain additional mitigation water within the next 2 years”. Given that 13 years have passed with no such agreement, we believe the agencies involved (DOE, DOH, and UTRC) should not approve the WSP until the agreement issue is resolved.

**CHAPTER 1 DESCRIPTION OF WATER SYSTEM COMMENTS:**

4. Under “Applications for New Service” it is made plain that new development must pass the concurrency test. It states, “The concurrency test determines if the capacity of available public facilities is equal to or greater than the capacity required *to maintain the City’s level of service standard* for the impact of the development”. And it elaborates that service standard includes among other aspects “Water Supply and Mitigation”. It would seem obvious to Friends that the City is issuing development approval without meeting appropriate concurrency requirements as defined by the WSP. Is there a way to justify this?

**CHAPTER 2 BASIC PLANNING DATA (AND APPENDIX F) COMMENTS:**

5. Conventionally this section would present historical supply/demand data for the previous ten years, with demand related as gallons per Equivalent Residential Unit (ERU). Supply would be related to average daily demand (ADD) and maximum daily demand (MDD) which considers a derived peaking factor involved in typical summer months. The annual and peak numbers would be compared to annual and instantaneous water rights respectively. And the supply would then be compared to a projection of growth in demand related to increase in ERU’s.

This WSP deviates significantly from that approach. Table 2-15 represents a mix of historical data already presented combined with demand related numbers taken from the Oct. 2019 Golder Report and summarized in Appendix F. Golder does assume that Sallal will mitigate for Centennial while buying water wholesale to serve the UGA within Sallal’s RSA. The 2019 Golder Report made it very clear that without Sallal mitigation (or an equivalent source), and even assuming Cascade Golf Course with pond, the City water supply would only be sufficient thru 2024/2025. The WSP should represent the status quo as a baseline and not assume either of the above possibilities.

Because the Golder Report is in effect the foundation of projected supply and demand it is a fundamental element of the WSP. Friends therefore believes that approval of the WSP has to go hand in hand with approval of the Golder Report which means the DOE, DOH, and UTRC should conduct a thorough review of the Report and formally approve it in an equivalent manner to the standards imposed on the WSP for approval.

The WSP does not begin to really address the complexity of a potential City/Sallal agreement to exchange water. This would require manipulating the withdrawal from Mt Si Springs, Centennial, Sallal Wells, and Hobo Springs day by day throughout the year to maximize use of Centennial (through mitigation) while operating within water rights for all sources on an annual and instantaneous basis. This would typically mean Sallal buying water from the City when instream flows are above threshold and selling water to City for mitigation of Centennial when instream flows are low. Mt Si Springs would be managed in a way that uses up its annual water right but offloaded Centennial when instream flows are low. All this water supply orchestration would have to be accomplished by extrapolating ahead to determine the optimum strategy and that will obviously be problematic. There would need to be very close coordination between the City and Sallal on a very regular basis, something that has never been the practice. Predicting weather patterns weeks or months in advance in our region is inherently unreliable. However it is very predictable that instream flows will be below threshold much of the year (up to more than 200 days), and typically almost the entire third quarter. Even if this complex plan were to be executed it will by definition result in more removal of water from the River during low instream flow times as discussed later in Closing Comments.

 The challenge will be mostly getting through the third quarter, but that is going to be very dependent on what has been done in the first and second quarters. Mt Si springs flow is not a function of winter snowpack so is predictably low in third quarter. Hobo Springs is directly related to level of Chester Morse Lake and Masonry Pool, and also predictably drops in third quarter, particularly in low snowpack years. And the Sallal Wells are vulnerable to a reduction of water availability since they are sustained by the same groundwater flow through the Cedar Moraine that supplies Hobo Springs. There is a proposal in the WSP to enhance output of Hobo Springs by capturing nearby groundwater emergence from the Moraine. This flow will be subject to the same influence that reduces Hobo Springs flow, however. Finally daily demand is on the order of 2.5 times average and maximum hourly demand will be on the order of 2.0 times maximum daily. What is missing in the WSP is a tabulation on at least a weekly basis of how all elements of supply and demand would balance out during worst-case weather-related scenarios. It is disturbing that the Golder Report unconventional handling of peaking factors associated with maximum daily and hourly use (particularly in third quarter) is apparently showing unconservative values. In the City 2010 WSP the daily peaking factor was 2.0 consistent with DOH guidance and the hourly peaking factor was 1.7 again consistent with DOH equation. For comparison the 2020 Sallal Draft WSP indicates 2.58 for a daily peaking factor and 1.7 for an hourly peaking factor. The Golder Report deals with peaking in Appendix A and Figure A-5 indicates daily peaking factors for Sallal and the City that are much lower (about 1.5 in August). This consideration is absolutely critical to properly assessing supply/demand in the third quarter. And this also reinforces the statement made above regarding how the Golder Report is essentially equivalent to the WSP and should require equivalent review and approval by the responsible Agencies.

The October 2019 Golder report addressed different weather scenarios and their effect on key water supply/demand parameters. This subject relates back to the “drier summer” reference discussed in item 2 above. In WSP Appendix F, Figure ES-2, Scenario 12 is shown which represents a Monte Carlo simulation covering the City RSA and the UGA within the Sallal RSA projected out to 2058. The agreement between City and Sallal is assumed to be in effect as well as availability of CGC for mitigation. For “Climate Options for Flows (Mt Si Springs, Hobo Springs, instream flows)” Golder states “randomly repeat historical data”. Friends has a problem with that supposition. Treating the relevant factors as “random” simply does not make sense. Every consideration that really matters is related to every other consideration that matters. One must consider that a single event (cause) like the “blob” in the Pacific Ocean resulting in higher than normal regional temperatures can have multiple simultaneous effects with regard to water supply and demand. For example reduced snowpack, low instream flows, low flow at Mt Si Springs in third quarter, low levels of Chester Morse and Masonry Pool with Hobo Springs potentially going dry, high summer temperatures, and high third quarter demand are a common effect of a singular climatic event. There is nothing at all random about this combination of circumstances. Friends has estimated that if the circumstances of the third quarter 2015 were repeated today with the increase in population demand that it would not be sustainable.

Friends maintains that if a specific combination of circumstances has happened on the record then it will happen again and even worse will happen. This is particularly true because Climatologists generally regard warming of the Pacific Ocean to be an expected fallout of Global Warming. The WSP should supplement the complex Monte Carlo analyses with some reality check like looking at real combinations of data on the record.

**CHAPTER 5 WATER USE EFFICIENCY PROGRAM COMMENTS**

6. In the City’s 2010 WSP it was acknowledged that the City was greatly exceeding the allowable Distribution System Leakage stipulated by regulations (10% as a rolling three-year average) by having a rolling average of 27.1% in 2008. As required by regulations the WSP presented a plan and commitment to achieve an annual DSL of 10% by 2014 and a rolling average of 11% by 2015. Per the 2020 WSP the DSL in 2014 was 16.3% and the rolling average in 2015 was 15.6% both well above the plan. The 2020 WSP indicates a DSL of 25.9% for 2019 and rolling average of 22.4%. Now there is another “plan” to lower those values to 10% in 2026 and a rolling average of 10% in 2028. The goal would be achieved by 1) Increased consumer conservation and 2) system infrastructure/monitoring enhancements. The first goal would be facilitated by the new controversial North Bend Water Conservation Ordinance “

Friends is not opposed to voluntary water conservation since all consumptive use comes directly or indirectly out of the River.  However we oppose approving increases in demand (new development) when that increase is sustained by such an inefficient water system and an aggressive and mandatory water conservation ordinance which impacts existing residents.  In 2019 the City recorded a metered usage of 152 MG.  This was accompanied by a DSL of 48 MG.  Every bit of new development brought online through 2019 accounted for its share of that wastage of water.”

It must be emphasized that the City’s water sources are in essentially direct hydraulic continuity with the River. Golder’s 2/28/2007 Report (023-1271-100.007) documented results from a one-day drawdown test of the Centennial Well showing that the typical (median) time for well withdrawal equates to 90% of the impact being realized by the River within four days. And Mt Si Springs withdrawals represent a direct diversion from the North Fork. Furthermore a disproportionate share of this impact will occur during the third quarter when demand is high and streamflows will be consistently low. Given the near-term impact of DSL wastage of water on the River there is no excuse for increasing that excess wastage by continuing to approve new water demands until the basic system is fixed. And it is not appropriate to shift any of the burden of dealing with the excess leakage to longstanding customers by in effect rationing their usage.

Given the established lack of credibility on the part of the City in controlling DSL Friends believes the Agencies should more forcefully demand accountability from the City before approving this WSP.

**CHAPTER 7 CAPITAL IMPROVEMENTS PLAN (MITIGATION IMPROVEMENTS) COMMENTS:**

7. MT-1 Golf Course Mitigation Well Improvements. The Tribes have had concerns with the proximity of this well to the South Fork going back to the time the water right was converted from the old Stearns water right to the Golf Course water right. They still have concerns and the DOE has not at this time to our knowledge approved a change in usage from irrigation to mitigation. Furthermore there is a concern with using the pond as a reservoir to store water until later in third quarter because of the water temperature. Mitigation must be “in kind, in time” and temperature does relate to the “in kind” consideration. In fact DOE’s 2011 “Total Maximum Daily Load” (TMDL) report on the Snoqualmie Basin cites three Federal Clean Water Act Category 5 (303(d)) river locations and “38 additional impaired areas that should be in Category 5” (the worst category for fish habitat). And the problem is all due to excessive water temperature. The City definitely has knowledge of this based on constraints for effluent release from the WWTP. The total third quarter allocation from the water permit is 11.1-acre feet so the ability to hold the 7-acre feet pond in reserve is significant. Even with the pond the mitigation contribution is relatively small. However change of usage for this water right must be sanctioned by DOE and it should not be presented so prominently as the first improvement without that approval.

8. MT-2 Hobo Springs Improvements. This proposal has not been approved by SPU and a number of conditions must be met before that can happen. It should be noted that this source is directly related to Masonry Pool levels just like the current Hobo Springs is. The Centennial ROE documented that Hobo Springs flow varies from 0-6 cfs dictating a backup/supplemental mitigation source. This improvement would not meet that objective. It should be noted that the level of Masonry Pool can drop to an elevation of 1500 feet (penstocks). In 2015 it dropped to 1511 feet, in 2003 to 1509 feet, in 1992 to 1512 feet, and in 1987 to 1500 feet. It should also be noted that Masonry Dam is 100 years old and subject to maintenance which may require drawdowns and the most practical time to do this is the third quarter. It is a given that 2015 resulted in no flow at Hobo Springs. The City Contract with SPU also makes it very plain that mitigation is out-prioritized by a number of other considerations.

9. Mt-3 Mitigation Well. This proposed well located about 2 miles upstream from the Centennial being used for mitigation makes no sense at all. Any water right approved current day would require mitigation just like Centennial even if it were originally submitted prior to the 1979 WRPP.

10. Mt-4 Sallal Mitigation Intertie. As stated, this proposal is subject to an agreement for water exchange between Sallal and City. And as discussed herein it is premature after 13 years of negotiation to count on that happening.

11. Mt-5 Mitigation Reservoir. This 10 MG reservoir would chip away at the problem but to put it in perspective the City has from day one (ROE) insisted on Sallal committing to 243.6-acre feet (79.4 MG) for mitigation. This reservoir does not even come close to replacing the Sallal contribution demanded.

12. The Tolt Reservoir. For some reason this option was not mentioned even though when Nicole DeNovio (Golder) gave a City Town Hall presentation on Oct. 18, 2018 it was shown on slide 24 as a viable option just as it was considered at time of ROE. SPU even encouraged it and did their own cost estimate, cited in the contract with City, as 1.7-2.3 million dollars. Why has the City not considered this option instead of Sallal?

**APPENDIX P: WELL HEAD PROTECTION PLAN (APPENDIX P):**

Starting with a little history on the subject the 2010 WSP opted to use the most crude of methodologies available, the Calculated Fixed Radius approach. This was in spite of the fact that earlier studies chartered by the City had characterized Centennial to be in the high-risk category for contamination. The 2010 WSP had the 10-year contamination radius at 3700 feet, or about 25% of the way to the Truck Stop. The 2020 number is over 20,000 feet, far past the Truck Stop. The new number is determined by Numerical Ground Water Flow Modeling which takes into account the significant upward hydraulic gradient east of Centennial coupled with the hydraulic conductivity of the soil involved. Consequently ten years of planning, zoning, and permitting has gone on based on highly un-conservative important data. Furthermore the new study illustrates just how much the entire UGA is hydraulically interconnected to so many miles of the River which is subject to contamination as well. How will the City alter their future practices with this new knowledge in hand, for example will this influence constraining the industrialization of the Truck Stop area?

**APPENDIX R: WATER SHORTAGE PLAN (APPENDIX R):**

A key element of the Water Conservation Ordinance (WCO) is the establishment of three stages for water usage restrictions starting every year on August 15. Baseline is stage 1, when Masonry Pool drops to 1523 feet stage 2 will be in effect, and when Masonry Pool drops below 1517 feet stage 3 will be in effect. Now there is no question in this timeframe instream flows will be low, demand will be high, and all Centennial withdrawals will have to be fully mitigated by Hobo Springs or an alternative mitigation source which has yet to be developed. There is no question that Hobo Springs flow is a function of Masonry Pool level and to illustrate this Attachment 1 is included. This shows levels of Chester Morse, Masonry Pool, and Rattlesnake Lake during May-December 2015. Hobo Springs flow is also shown in cfs. So it is apparent that there is lag time of around 30 days from the Masonry Pool to Hobo Springs and Rattlesnake lake associated with groundwater flow through the Cedar Moraine. On the right side of the graph the stage levels are noted to put in perspective the relatively brief period in stage 2. There are all kinds of variables at play here and each year will look different. And the rate of change in Masonry Pool level at a given point in time is just as important as the level. Going back to 1990 there have been 16 years where stage 2 would have been in effect and 11 years when stage 3 would have been in effect. Obviously the WCO is not planning for just unusual occurrences. Friends requests that the City explain the science involved in this approach.

**CLOSING COMMENTS:**

Friends was founded to be an advocate for the health of the Snoqualmie River System. And this goal will commonly place us at odds with certain development that has singular impacts related to impairment of the river. Hence Friends is branded by the City as simply being anti-development. And that argument is unfairly used to diminish our concerns. When Senate Bill 6091 was passed in January 2018 it was recognized that WRIA 7 (Snohomish/Skykomish/Snoqualmie System) would be required to develop in the near term a Watershed Restoration and Enhancement Plan. The point is that the River health is such that it is not good enough to simply cease further impairment and maintain status quo, there must be proactive measures to restore and enhance the River. As just one tangible example of the negative impact of human intervention on the River is the documented decline in Chinook Salmon. And now it is recognized that the latter is a key element in the decline of the Southern Puget Sound Orca whale. Friends believes this WSP is not consistent with the premises of restoration and enhancement, it basically uses the smokescreen of minimizing future degradation as its implicit selling point.

In Postema vs Pollution Control Board before the State Supreme Court in 2000 the Court clearly had enough of developers attempting to nuance the “de minimis” constraint on river impairment by downplaying the amount of water involved. The Court then made the finding:

*“The majority assumes that any diversion of surface water, no matter how slight, is an “impairment” as long as it can be measured.   As such, the majority adopts the thrust of the “qualitative” hydraulic continuity argument proffered by the Department of Ecology, which is satisfied by the mere interaction between ground and surface water resulting in the slightest diminution of the quantity of surface water through pumping of groundwater.   In essence, the rule proffered by the majority allows the Department of Ecology to deny a groundwater permit if Ecology proves only a single molecule of surface water was lost to the stream-assuming such a molecule is “ascertainable,” although perhaps not quantifiable, using the best available science”*

The so-called “one molecule standard” was the rule of law when the Centennial Well was approved, and every aspect of this standard applies to the Centennial mitigation considerations. Friends believes that the use of Sallal Wells which the DOE has acknowledged as “probably being in direct and immediate hydraulic continuity with the South Fork of the Snoqualmie River” for mitigation in the orchestrated manner described above results only in “a paper shuffle to allow more water to be pulled from an already impaired river”. The latter quote is from a DOE source in the context of assessing a proposal by the City to use their old (non-interruptible) water right at Mt Si Springs only when instream flows are not met and use their new (interruptible) water right at Centennial when flows are met. The Sallal/Centennial overall mitigation scenario is a “paper shuffle” and likewise will result in more water being taken from the river system during low instream flows than ever before.

Note that this version of Friend’s inputs regarding WSP replaces the previous version dated July 24. Because the WSP update amounted to a change from 824 pages to 1750 pages we are only highlighting some high-level concerns with the new material in the Appendices prior to the August 4 Council Meeting.

**Sincerely,**

**Jean Buckner and The Friends of the Snoqualmie Valley Trail and River**

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**Attachment (1)**