



Responses to questions asked by residents following the May 29, 2017 Public Information Meeting

<b>Q1</b>	<b>Do the current septic systems pose environmental concern?</b>
R1	This Bowser Village Feasibility Study did not look at the effect of existing septic systems on the environment. The Study is focused on facilitating the community’s evolution into a compact and complete community as envisioned by the current Bowser Village Centre Plan and current and previous Official Community Plans.
<b>Q2</b>	<b>Will there be an opportunity to review the collection system design and routing to coordinate with other local utility providers to identify cost saving opportunities?</b>
R2	Yes. Whenever undertaking any infrastructure project, the Regional District of Nanaimo (RDN) staff and consultants explore opportunities, within the scope of senior government requirements, to maximize efficiencies throughout the lifecycle of the project.
<b>Q3</b>	<b>What is the process for locating and permitting an outfall?</b>
R3	<p>The Waste Discharge Regulation defines which industries, activities and operations require authorizations to discharge or release waste to the air, water, and land under the <i>Environmental Management Act</i> (EMA) in B.C.</p> <p>In accordance with the legislation, the RDN is required to apply to the province for a site-specific permit that grants permission to discharge waste to the environment from a specific activity. A permit sets the terms under which discharge may occur for a particular facility, activity or operation as well as the suitability of the location for the outfall.</p>
<b>Q4</b>	<b>What treatment does the wastewater undergo? What is the quality of the effluent?</b>
R4	<p>Five different types of secondary treatment options were considered as part of the “Bowser Wastewater Servicing Study completed in 2014. Of these types, Sequencing Batch Reactor (SBR) was determined to be the most appropriate. SBR is a modified conventional activated sludge treatment whereby a single tank is used for both aeration and secondary clarification. Wastewater is treated in batches and each batch is sequenced through a series of four treatment stages to be carried out typically over a four hour period. Upstream of the SBR, the treatment process will include influent screening to remove inorganic material from the raw sewage and a splitter box will be provided to divert flows to each SBR unit.</p> <p>SBR will reduce the influent Biochemical Oxygen Demand (BOD) and Total Suspended Solids (TSS) concentrations to levels below that permitted by the plant’s proposed operating certificate.</p> <p>In addition to secondary treatment, UV disinfection of the wastewater will occur prior to discharge.</p>

<b>Q5</b>	<b>Why don't we put in a ground disposal system?</b>
R5	<p>The "Bowser Wastewater Servicing Study" (2014) considered both ground and marine discharge. The analysis concluded that viable land options for ground disposal were not identified. Constraints included: soil type (impermeable soils); size of parcel (too small); location (next to park and trails; within protected areas; or within groundwater recharge area).</p> <p>Based on this investigation, the geotechnical and marine outfall experts from Stantec Consulting Ltd., recommend that the wastewater plant use a marine outfall discharge.</p>
<b>Q6</b>	<b>Will the proposed outfall have impacts on the environment and local fisheries?</b>
R6	<p>Based on investigations and conclusions of the marine outfall experts, the marine environment at Bowser is capable of accepting treated wastewater. The marine environment in this area has a high assimilative capacity due to ocean volume and tidal actions for mixing and dispersion, and presence of marine organisms and physicochemical processes for nutrient breakdown.</p> <p>At the detailed design stage for the marine outfall site, specific environmental data will be collected to confirm currents and water column as well as the presence of sensitive habitat along the route and within proximity to shellfish beds. We already know that due to the proximity and importance of shellfish resources in the vicinity, the effluent will need to be disinfected before being discharged.</p>
<b>Q7</b>	<b>What will the pump station look like?</b>
R7	<p>The pump stations are comparable to those already in Nanoose in the RDN. The dimensions of the pump stations proposed for Bowser would have a footprint of 1 x 3 metres with a height of approximately 2 metres, as illustrated in the photos below.</p> <div style="display: flex; justify-content: space-around; align-items: flex-end;"> <div style="text-align: center;">  <p>Nanoose Pump Station #2 Electric Kiosk</p> </div> <div style="text-align: center;">  <p>Nanoose Pump Station #2 Generator</p> </div> </div>

<b>Q8</b>	<b>What happens if the pump station fails - how do you ensure the environment is protected?</b>
R8	Most pump station failures are a consequence of blockages. Best practices for avoiding failures and environmental concerns is to regularly monitor and maintain the pump stations.
<b>Q9</b>	<b>What happens if there is a failure of the treatment system?</b>
R9	<p>The RDN owns and successfully operates four wastewater treatment facilities across the region, conveying and treating wastewater from more than 110,000 residents. The RDN's experience is that these systems rarely have issues that result in a release into the environment. However, should a release occur it will typically represent a small fraction of the overall flow and may be a result of old infrastructure that is in the process of being replaced.</p> <p>Modern wastewater treatment plants are equipped with sensitive instrumentation to monitor critical functions, which are regularly monitored to assess that the equipment is functioning within acceptable standards and provide warnings in advance if appropriate mitigation measures are required.</p>
<b>Q10</b>	<b>How big is the treatment plant (footprint)?</b>
R10	The proposed wastewater treatment plant building is a single storey stand-alone structure. The gross building area is approximately 238 m <sup>2</sup> (2562 ft <sup>2</sup> ).
<b>Q11</b>	<b>Could the treatment plant be overwhelmed by high rainfall events?</b>
R11	No. Rainfall and groundwater are not to be discharged to the wastewater system so there should be little impact from such events.
<b>Q12</b>	<b>Will there be odours from the treatment plant and pump station?</b>
R12	Our target is to minimize odours. A carbon scrubber and other control measures are included in the design for the plant to reduce or eliminate odour.
<b>Q13</b>	<b>If I am one of the residences that have a grinder pump, what do I do when there is a power outage and the pump does not work?</b>
R13	A grinder pump is powered by electricity and will not function during a power outage. The pump has an emergency capacity use of 145 liters. In order to prevent waste from backing up into the lowest sink, tub, or toilet in your home, it is recommended that you significantly limit the interior use of water until power is restored. This means do not shower or wash dishes and limit flushing the toilet.

<b>Q14</b>	<b>What is the quality of the treated effluent?</b>
R14	The effluent criteria adheres to the requirements of the BC Municipal Wastewater Regulations and take into account the initial dilution zone. Regulatory requirements are included in “Bowser Village Wastewater Servicing Design Report”, prepared by Stantec Consulting Ltd, dated April 7, 2017 available on the RDN project webpage: <a href="http://www.rdn.bc.ca/bowser">www.rdn.bc.ca/bowser</a> by following the hyper link: <b>“Bowser Village Waste Project History”</b> .
<b>Q15</b>	<b>How do we ensure there is enough water for any future development?</b>
R15	The Bowser Waterworks District is responsible for determining available water capacity. Typically, capacity is determined once an application has been received. If the sewer service were to proceed, the waterworks district will need to revisit the “Water System Evaluation Report” to evaluate the need for upgrades. Any associated costs for an upgrade would be allocated over the expected number of units.  For more information on water servicing in Bowser, contact Bowser Waterworks District directly at: Tel: 250-757-8363.