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Memorandum



Date: 04/06/98

To: Jim Kelley - 3 pp. fax

CC:

From: Paul Tappel

RE: Minor Edits & Questions, SeaTac JARPA

Here are some minor inconsistencies, etc. I picked up when reviewing the permit application. These did not affect the overall assessment except to make it a bit more time-consuming to figure out. Others may also catch these.

They are not in a particular order, mainly in order of my review.

Sheet 4 of 44 JARPA: Alignment of V-shaped bypass structure in plan view does not match sheet 16 North arrow. assumed sheet 6 was correct (this structure has been deleted anyway - Parametrix 4/6/98).

Sheet 4 of 44: Stream buffer shown 50' wide one side, 25' wide other which is assumed correct because it matches text somewhere for this reach. However, sheet 14 referenced here does not match these widths if scaled off.

Sheet 9 of 44: Where is the airport security road? Would this addition push the stream further to the left? Just a thought, no answer needed.

Sheets 10, 11, 12, & 18 of 44: Elevations don't all match up if you try to draw all the profiles together and match it with text. For instance, the channel cross-section sheet 18 is incorrectly drawn. I haven't figured this out but made my on-site estimates in the field.

Sheet 10 of 44: This shows the relocated Miller Creek channel in a 10'-deep cut. I don't think the "existing grade" in the top half of the drawing is correct. The steeply incised channel does not appear to match what would really be built (guess 5' deep cut). I know the scales are exaggerated H:V. This was one of my initial concerns with the plan, since a 10'-deep cut is substantial for a little creek.

Sheet 13 of 44: This drawing is odd. Based on rough measurement and guessing other drawings, I estimated "variable width" to be 5'-10'. This is approx. based on site visit also, but other readers wouldn't know. The drawing shows a winter storm

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flow depth of 1', very shallow. Then I used Manning's equation to estimate flows, using $n=0.035$ as stated in the text (this seems too low, should be 0.06+). In short, this drawing does not describe the real proposed cross-section although some precision is attempted with 3" measurements, etc. I concluded the basic hydraulic calculations for the re-located channel were questionable after trying to apply this drawing. This drawing was probably intended to be conceptual, but engineers look at these relationships to check with their experience.

Sheet 16 and 17 of 44: I had questions about how these structures would operate, but understand they have been deleted from the design. This is okay with me, I came to the same conclusion in the field.

Sheet 23 of 44: A series of log or rock weirs makes sense to control erosion, but root wads, angle logs, and deflector logs (see sheet 25) are inappropriate (they increase bank scour to create fish habitat): Actually, all the log structures should be replaced with rock weirs - easier to build and there's no fish habitat to think about here.

Sheet 23 of 44: The level spreader referenced to sheet 20 is on sheet 24.

Miller Creek Relocation Plan Section 3.3: says "more sinuous reconstructed channel with a variety of naturalized creek features". This is optimistic and somewhat misleading. The very low stream channel gradient means there won't be any pools really, and silt and sand deposition are inevitable. These are natural stream conditions and nothing to apologize for. The generic text implies the stream will be converted into substantially higher quality trout habitat; I don't know how you can do that (given site limitations) and the drawings don't show any substantial changes from the existing excavated creek channel to the new excavated creek channel.

Table 4.1-1: Average base flow = 5 cfs (1' depth). These data don't make sense considering the cross-section shown sheet 13 of 44.

Section 6.3.4: This approach to channel design does not reflect reality. There's a lot going on besides adjustments of channel parameters, and I question the results. This overlooks several basic facts of creeks, such as substantial changes with n -value with flow, almost all bedload/sediment transport occurs during peak floods (not baseflow), 0.3% slope is impossible to build in a natural/semi-natural channel with excavators and bulldozers, plus other issues if I kept listing them.

Section 6.5.1.3 and 6.5.1.4: These sound like they were pulled from somewhere else and pasted in the document. The stream cannot be elevated to the stated habitat criteria: these sections are not realistic.

General: There are several technical contradictions throughout the report. First, native riparian species such as willow, salmonberry, etc. will be planted by the hundreds, but somehow they won't attract wildlife (?). These are some of the same

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species WDFW tells me to plant to maximize wildlife use of streamside areas, so what's going on? The report should be straight on the intent: If bird strikes, etc. over-ride, then tell everyone the streamside area will be mowed down to minimize birds for human safety reasons. Otherwise, accept the fact riparian areas attract birds. Likewise, the plan includes several criteria, etc. to minimize watershed effects on baseflow, hydrology changes, etc. but repeatedly states that all ponded areas will be sloped downhill to drain. This eliminates all small-scale retention/detention storage in the area, which is important to stream base flow, wetlands, etc. Plus this stated criteria would eliminate open-water detention areas (61 acre-feet) possibly offsetting wetland filling - plus 61 acre-feet may be unrealistic for vault detention basins. I know these are sources of aggravation (conflicting Port/FAA/environmental objectives) but the text should at least be clear on mutually exclusive goals and criteria. These caught my eye, anyway.

Let me know if you have any questions about these minor editorial comments.

Paul Taggart

P.S. - I don't think these need to be resolved this week or anything, they are just to keep in mind as the design goes ahead.

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