

September 5, 2014

Allyn Roe  
Centralia-Chehalis Airport  
PO Box 1344  
Chehalis, WA 98532

Re: Airport Storm Water Pump Station – Project Permitting and Cost Estimate  
RBE No. 14014

Dear Allyn:

Below is a summary of the permits required and an estimated design and construction costs to replace the aging storm pump station. I noticed an article in the Chronicle that the Flood Authority is looking for projects for the 2015 – 2017 budget cycles. I believe this project would be a candidate for that funding.

### **Permitting**

The following permitting is needed to receive approval to replace the existing storm water pump station and is processed through the JARPA application. The permitting review process would take approximately 6 to 8 months to complete. Ecological Land Services has already completed a biological analysis as part of the levee project for the area. Below are the anticipated environmental permits needed for this project.

SEPA Environmental Checklist

Ecology 401 Certification

Corp Section 10

WDFW HPA for work below the Ordinary High Water Mark.

The following permits will be required from the City of Chehalis.

Building Permit

Grading Permit

### **Concrete Wet Well Structure and Pump Support – Square or Round Structure**

The existing pump station was likely built on piles for ease of elevating the pumps and pump house above the design water elevation. Based on my knowledge of the soils in this area I don't expect that piles will be needed for the foundation slab for the recommended concrete box wet well or concrete circular wet well design. Some over excavation for the foundation support will be needed and backfilled with structural rock. The new wet well structure will need to extend upwards of 30 feet above the existing grade to elevate the pumps above the flood of record. Challenges with elevating the pump motors are that the discharge flange also gets elevated. We would need to plumb the new 24 inch discharge pipe using 45 degree bends down to the existing elevation piping. Concrete foundation support structures will be needed for this pipe work to handle the large thrust loads on the joints during pump operation. The wet well structure foundation will also be large due to height and associated overturning design requirements, so the footprint of the structure will be larger. I spoke with David Flack at Triangle Pump regarding a submersible style pump motor and he did not have an option for this condition. The top of the concrete wet well structure would be a concrete slab with perimeter railing along with the control panels and power disconnect service. The floor elevation of this structure

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14014 summary ltr

will be a minimum of 13 feet higher than the current pump house building floor to get the motors above the flood of record flood elevation.

### Control Panel and Generator

The cost estimate below includes an estimate from Triangle Pump for a dual pump soft start control panel to run the 50 HP pumps. The second pump would be for redundancy only. A second discharge pipe through the dike would be needed to run both pumps simultaneously. To make serving the generator easier, we should look at locating that on the existing dike with an elevated stand to get it above the record flood elevation. This will allow easier access for maintenance and re-fueling.

### Estimated Pump Station Construction Costs - \$624,000

Attached is a preliminary construction estimate to replace the existing storm water pumping station that includes new concrete foundation, concrete wet well, two new storm water pumps, elevated controls and emergency generator and telemetry for remote monitoring. This estimate is preliminary in nature and once a conceptual design and permitting requirements were completed we would be able to fine tune the estimate.

### Estimated Consultant Design Costs - \$92,000

The project will include the following disciplines to complete the design and permitting for replacing the pump station with a new facility. Challenges for design include the environmental permitting and accessing the site for the geotechnical work. I anticipate a tracked drill rig will be needed along with a temporary access road constructed to the area along with coffer dams and de-watering. There is currently standing water around the pump station at this time even with the dry summer we are experiencing. The preliminary estimates below include design and construction services throughout the project and are based on my discussion of the conceptual design outlined in this letter with my sub-consultants.

Civil Engineering – Project Management, Grading, Construction Plan Preparation and Permitting  
Environmental Biologist Consultant – Environmental Permitting  
Electrical Engineering Design - Pump Controls and Panel Design  
Structural Design Engineering – New Concrete Wet Well and Equipment Support Structure Design  
Geotechnical Engineering – Geotechnical Report for new foundation design

### Recommendation

If the Airport has available funding, I would recommend that a conceptual design phase begin along with the environmental permitting process. Once we get a conceptual design on paper and permit requirements resolved we can shore up the construction and design cost estimate and have necessary documents for use in future funding opportunities.

Please contact me at (360) 740-8919 or [robertb@RBEngineers.com](mailto:robertb@RBEngineers.com) if you have any questions.

Sincerely,



Robert W. Balmelli PE  
President

Enclosures: Preliminary Construction Estimate  
Rough Sketch of Pump System Profile

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## Airport Stormwater Pump Station Engineers Preliminary Construction Estimate.

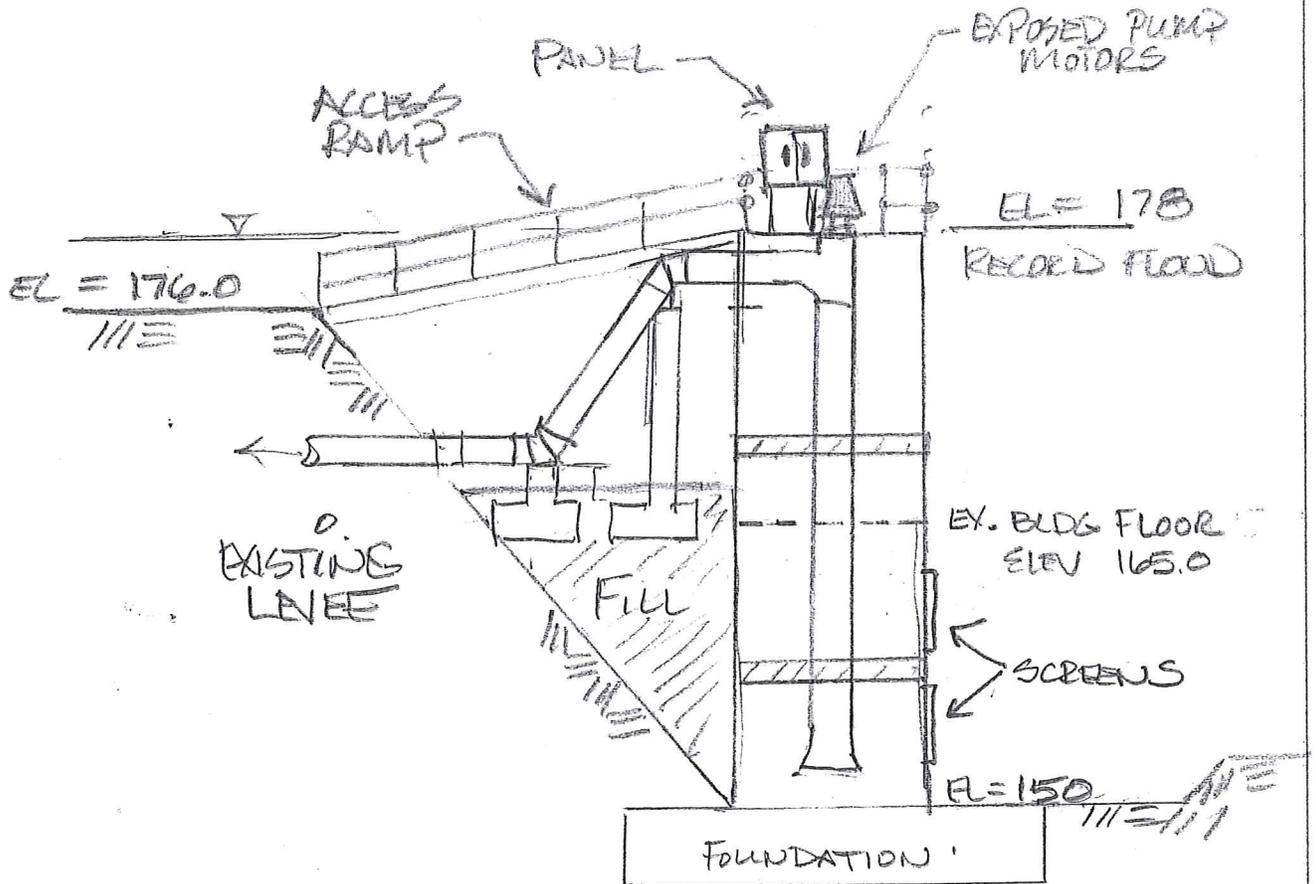
Item #	Item	Unit	Qty.	Unit Price	Total Cost
<b>MOBILIZATION/EROSION CONTROL</b>					
	Mobilization	LS	1	\$10,000.00	\$10,000.00
	Construction Entrance	EA	1	\$2,500.00	\$2,500.00
	Silt Fence	LF	1000	\$6.50	\$6,500.00
	Straw Waddles	LS	1	\$200.00	\$200.00
	<i>Sub-Total Mobilization/Erosion Control:</i>				\$19,200.00
<b>TRAFFIC CONTROL</b>					
	Traffic Control Labor	HR	40	\$30.00	\$1,200.00
	Traffic Control Signs	LS	1	\$2,000.00	\$2,000.00
	<i>Sub-Total Traffic Control:</i>				\$3,200.00
<b>PREPARATION/REMOVAL</b>					
	Install Access Road for Construction access.	LS	1	\$18,000.00	\$18,000.00
	Dewatering System	LS	1	\$12,000.00	\$12,000.00
	Demo Existing Structure, cut off piling	LS	1	\$9,000.00	\$9,000.00
	<i>Sub-Total Preparation/Removal:</i>				\$39,000.00
<b>WATER</b>					
	50 HP Cascade Storm Pumps and Motors	EA	2	\$52,000.00	\$104,000.00
	Ductile Iron Pipe, CL 50 for Water Main 24 in. Diam.	LF	20	\$250.00	\$5,000.00
	24" Check Valves and Installation	EA	2	\$5,000.00	\$10,000.00
	Misc. 24" Fittings	EA	3	\$1,500.00	\$4,500.00
	<i>Sub-Total Water:</i>				\$123,500.00
<b>CONCRETE FOUNDATION/STEEL STRUCTURE</b>					
	Concrete Foundations Slab and Rock Backfill	LS	1	\$40,000.00	\$40,000.00
	Piping Foundation and Wet Well Vault	LS	1	\$90,000.00	\$90,000.00
	Structural Steel support Platforms	LS	2	\$22,000.00	\$44,000.00
	<i>Sub-Total Paving/Concrete:</i>				\$174,000.00
<b>ELECTRICAL</b>					
	3 Phase 480V Service Disconnect and Labor	LS	1	\$26,000.00	\$26,000.00
	Pump Controllers - 50 HP Soft Start	LS	1	\$24,000.00	\$24,000.00
	Generator and Controls and Stand	LS	1	\$45,000.00	\$45,000.00
	<i>Sub-Total Electrical Improvements:</i>				\$95,000.00
<b>PLATFORM IMPROVEMENTS</b>					
	Platform Railing and Stairs Access Ramp	LS	1	\$24,000.00	\$24,000.00
	Signing, lighting and Security	LS	1	\$8,000.00	\$8,000.00
	<i>Sub-Total Landscape/Irrigation:</i>				\$32,000.00
<b>MISC.</b>					
	Project Administration	LS	1	\$15,000.00	\$15,000.00
	Insurance and Bonding	LS	1	\$10,000.00	\$10,000.00
	<i>Sub-Total Misc.:</i>				\$25,000.00
<b>ENGINEERING/SURVEYING</b>					
	Design Engineering - Civil/Structural/M&E/Geotechnical	LS	1	\$58,000.00	\$58,000.00
	Survey Topo	LS	1	\$5,000.00	\$5,000.00
	Construction Engineering (Bid Tender, inspection, as-built management etc.)	LS	1	\$29,000.00	\$29,000.00
	<i>Sub-Total Engineering:</i>				\$92,000.00
<i>Subtotal Project:</i>					\$602,900.00
<i>Contengency Allowance 10%</i>					\$60,290.00
<i>Sales Tax (8%):</i>					\$53,055.20
<b>TOTAL PROJECT COST:</b>					<b>\$716,245.20</b>

RBE 14014

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# AIRPORT STORMWATER PUMP STATION CONCEPT

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ELEVATIONS: NGVD 29