UW-040651

Canterwood Water Co., Inc.

4026 Canterwood Drive NW • Suite B • Gig Harbor, WA 98332
(253) 851-1645 • FAX (253) 851-9306

December 14, 2006

Carole Washburn
Executive Secretary
WUTC
PO Box 47250
Olympia, WA 98504-7250

Re: Release of funds from Escrow

Dear Ms Washburn:

We are requesting reimbursement for booster pump station (BPS) capacity improvements. These upgrades are included in Canterwood Water Company's (CWC's) 2006 Water System Plan (WSP) Update. A project report and construction documents for this project is being submitted to Washington State Department of Health (WSDOH) this month for approval. The total project cost exceeds the amount in the escrow account.

Construction Cost: **$82,239.52** (not including engineering, signed bids attached)

Engineering Cost: **$32,675.43** (PLC, DOWL and Montgomery) to date

Total Project Cost: **$114,914.95**

Total Amount in Escrow: **$75,265.17** thru November 30, 2006.

Recommended Percentage of Cost to Existing Customers: 78.05% to 78.35%

Amount of Construction Cost from Escrow: **$64,434.67**

Balance of Escrow to Pay for a Portion of Engineering; **$10,830.50**

This recommendation is from our Satellite Management Agency (SMA) engineer from Peninsula Light Company (PLC). The BPSs upgrades are necessary because existing customers peak hourly demand (PHD) is excessive due to irrigation demands. Multiple requests for voluntary reduction in outdoor water days, as well as a request not to water particularly during the hours of 5:00 a.m. to 7:00 a.m. have gone mostly unheeded.

Customer irrigation demands this past summer (2006) caused the fire pump to run to meet PHD on average 1.75 hours per day from June through August, basically equal to almost the entire time of the maximum PHD period from 5:00 a.m. to 7:00 a.m.

The fire pump is rated to supply 2000 gpm @ 35 psi. However, the BPSs existing capacity can provide fire flow to one hydrant without the fire pump ever running during non-peak times. For instance, on Baker Way we flowed the hydrant 1,334 gpm @ 65 psi for over 45 minutes and the fire pump never came on.

Canterwood is currently approved to serve 780 ERUs. With the planned upgrades the water system will be approved for 925 ERUs.

Actual metered customer services as of **June 2006: 690 billed customers or 722 ERUs**

Below is maximum day demand (MDD) and peak hourly demand (PHD) for each of the design criteria applied. **PHD is used to size source and booster pump capacity.**

Projected Water Demand:

	WSDOH	2000 WSP	2006 WSP
MDD (gpd)	800 gpd/ERU	1,400 gpd/ERU	1,544 gpd/ERU
PHD @ 722 ERUs (gpm)	785 gpm	1,360 gpm	**1,498 gpm**
PHD @ 780 ERUs (gpm)	836 gpm	1,450 gpm	1,597 gpm
PHD @ 925 ERUs (gpm)	965 gpm	1,675 gpm	**1,912 gpm per DOWL**

BPS capacity must meet or exceed PHD. BPS capacity greater than PHD provides operational flexibility and pump reliability. Whereas, if source capacity is less than PHD equalizing storage must be provided.

Summary of Booster Pump Station Capacity (gpm):

	BPS #1	BPS #2	BPS #3	Total BPSs #1 and #2
Existing	231 @ 40 psi	850 @ 43 psi*	539 @ 79 psi	**1,081 gpm**
With Upgrades	660 @ 50 psi	1,335 @ 50 psi	644 @ 81 psi	**1,995 gpm**
Future (proposed)	No change	1,515 @ 50 psi	No change	2,175 gpm
Existing Fire Pump	N/A	2,000 @ 35 psi	N/A	3,805 @ 50 psi

* At less than 54 psi for 3-HP and at less than 43 psi for 10-HP, existing booster pumps for BPS #2 are not operating on pump curve and may be operating in area that where cavitation can occur. Cavitation causes increased wear and tear on pump, and can cause pump operational failure.

Pressure Settings at Booster Pump Stations (psi):

	BPS #1	BPS #2	BPS #3
Existing	40:70* 40 psi (low)	40:70 (40 psi low)	66:90 55 psi (low)
With Upgrades (new pressure settings)	61:70 50 psi (low)	56:68 50 psi (low)	81:88 81 psi (low)
Existing Fire Pump		32:52 (old) 35:55 (new)	

*At BPS #1 existing boosters cannot provide the shut-off head to match BPS #2. Total dynamic head less than booster pump off settings. BPS #2 must overcome the booster pump settings at BPS #1 to shut-off booster pumps.

With new booster pumps and variable frequency drives (VFDs) at all three BPSs there will be less fluctuation in system pressures, and all the booster pumps will have adequate protection from excess cycling and hydraulic surges.

Percentage to Exiting Customers

Method 1: Based on ERUs

722 ERUs (as of June 2006) / 925 ERUS (new approval) = 78.05%

Method 1 does not take into account the existing customers exceed the existing booster pump station capacity, which is why the fire pump runs to supply existing PHD.

Method 2: Based on PHD and BPS Total Capacity

Amount BPS capacity required by existing customers		1,498 gpm
Additional BPS capacity required for growth		414 gpm
Minimum BPS capacity required:		1,912 gpm
Amount to be provided with upgrades		1,995 gpm
Total applicable to existing customers:	**1,498 gpm / 1,912 gpm**	**78.35%**
Total applicable to new customers:	414 / 1,912 gpm	21.65%

Method 2 takes into account the excess PHD over and above 2000 WSP water use planning figures. Note: Difference between 1,912 to 1,995 gpm is due to the fact it is impossible to fit real pump curves perfectly to match demand. The higher figure supplied by the pumps is minimal and could be accounted-for in pump curve deviations from actual installed pump capacities.

Future improvements at BPS #2 will actually increase the total BPS capacity more to provide for more operational flexibility and booster pump station reliability, as well as provide more fire flow @ 35 psi. The cost for this proposed future improvement is not included in the total project cost, nor is it included in the request for reimbursement from escrow. However, the project report for WSDOH will provide for future replacement of two of the existing 15-HP booster pumps with ones with more horsepower (HP) and better pump curves.

Total proposed future BPS capacity: (not including fire pump)	2,175 gpm

Booster Pump Station No. 1 (Source: 465 gpm; Storage: 39.700 gallons)

The existing BPS is designed to provide 231 gpm. However, because the new source recently approved and added to the system (Well 7, S06) with a capacity of 310 gpm, this production of this BPS needs to be increased to more effectively use this new source capacity, as well as the 40,000-gallon storage tank at this location. This BPS should be sized to provide more than 30% of PHD. With improvements BPS #2 will provide 645 gpm @ 55 gpm. The upgrades will provide adequate pump protection and a higher consistent pressure.

The three 3-HP booster pumps need to be replaced with three 10-HP booster pumps so that the new source capacity can be used to its full extent. However, the project cost at this BPS is also higher because the existing electric service has to be upgraded from single phase to three phase for long-term economic efficiency. Energy and booster pump cost will be less by providing three phase power.

The lack of BPS#1 capacity to contribute to PHD causes the fire pump to run at BPS #2. Therefore, PLC's engineer recommends that 78.35% of the project cost be funded out of Escrow.

Total BPS #1 Upgrades (excluding engineering)	$37,075.80
78.35% to existing customers	**$29,048.89**

Booster Pump Station No. 2 (Source: > 815 gpm; Storage: 176,700 gallons)

The existing BPS is designed to provide 855 gpm, excluding the fire pump, which should only operate to supply fire hydrants. This BPS has almost twice the source capacity and four times the storage (because of fire suppression storage). Therefore, this BPS should provide more than 70% of PHD. With improvements BPS #2 will provide 1,335 gpm @ 50 psi. The scheduled upgrades will eliminate the fire pump from running to supply fire flow demands. The upgrades will provide adequate pump protection and a higher consistent pressure.

The fire pump running to satisfy irrigation demands is unacceptable. Therefore, 78.35% of this cost should also be contributed to existing customers.

Total BPS #2 Upgrades (excluding engineering)	$20,358.44
78.35% to existing customers	**$15,950.84**

NOTE: Both of these stations must provide at least 100% of PHD without the fire pump operating. Any additional booster pump capacity over 100% provides for more operational flexibility and reliability. Therefore, when existing pumps not scheduled to be replaced fail, they will be replaced with better models in the future. The cost for future booster pump replacements has not been included.

Booster Pump Station No. 3

The existing BPS is designed to provide 539 gpm. It is estimated that it should be able to provide 25% or less of PHD. This BPS pumps from the system (BPS #1 and #2). It does not provide additional source and storage capacity. However, minimum system pressures in this upper pressure zone are difficult to maintain because of the excessive irrigation demands and resulting friction loss. These upgrades will provide more stable pressures at a slightly higher capacity of 644 gpm. The upgrades provide adequate pump protection and a higher consistent pressure.

100% of this project could be funded out of Escrow. However, future customers will also benefit from more consistent system pressures. Therefore, the same methodology above has been applied for BPS #3. **Otherwise, it should be based on: 539 gpm/644 gpm = 83.70%**

Total BPS #3 Upgrades (excluding engineering)	$24,805.28
78.35% to existing customers	**$19,434.94**
or 83.70%	**$20,762.02**

Engineering Cost

A Water System Plan Update with a Hydraulic Model, as well as Project Report and Construction Documents were required for WSDOH approval of booster pump station upgrades. 78.05% to 78.35% of this cost should be contributed to existing customers.

PLC engineering and technician cost to date to prepare this letter, project report and construction documents and provide WSP Update assistance is $5,192.36 (thru December 2006). DOWL's engineering cost for the Water System Plan Update and Montgomery Water Group for hydraulic modeling is $ **32,675.43** (thru December 2006).

Total Engineering Cost (to date)	$37867.79
78.05% to existing customers	**$29555.81**

We believe this methodology is reasonable and fair. We believe the reimbursement of these amounts is consistent with the intent behind the creation of the Escrow account. We respectfully request action upon this request at the Commission's earliest opportunity.

Escrow (if balance remaining)

If the Escrow balance is not used and has to be returned to customers there should be an allocation for the additional expense to PLC to adjust each of the accounts as well as providing a written notice to each customer explaining the refund. If this is the case, then the cost of this activity should also come directly out of Escrow. As it was the additional accounting expense for PLC to prepare the monthly reports in the first place was borne without an additional billing fee imposed on customers or CWC. CWC also had the additional time they had to devote to tracking and reporting the Escrow account to WUTC. Please inform us if we can submit the cost for these activities, too.

If you have any questions, please contact our SMA engineer from PLC at (253) 857-1598 or by cell at (360) 870-9476.

Sincerely,

Russell Tanner
President

cc: Lisa Raysby Hardcastle, P.E., PLC (PO Box 78; Gig Harbor, WA, 98335-0078)
John Ryding, P.E., WSDOH (20435 - 72nd Ave S, Suite 200, Kent, WA 98032-2358)

Attachments: Signed construction bids for BPS upgrades