

TO: BOARD OF DIRECTORS
FROM: BRUCE BUEL *B8TB*
DATE: OCT. 20, 2006

**AGENDA ITEM
E-3
OCT. 25, 2006**

BLACKLAKE BOOSTER STATION RE-BUILD

ITEM

Consider approving plans for Blacklake Water Booster Station re-build and authorize processing of bids for subsequent Board consideration [RECOMMEND APPROVAL]

BACKGROUND

The existing Water Pump Station at Blacklake is at the end of its useful life. All three pumps are worn out, the hydro-pneumatic tank is unreliable, the plumbing is ineffective. Your Honorable Board has retained Boyle Engineering to design a replacement station and budgeted \$302,000 to fund the work. Staff has also completed a by-pass so that Blacklake can be served from the Town System while the replacement proceeds.

Attached is Boyle's Blacklake Booster Station Technical Memorandum detailing their proposed design. As described in the Technical Memorandum, Boyle is recommending that the District remove the old booster station and replace it with a modern station including all new plumbing a vertical turbine pumps. Staff has worked closely with Boyle through the design and supports the proposed design with the one reservation that the Blacklake Water System is deficient on storage without reliance on the Town System for reserves.

Although the design is technically satisfactory, the projected project cost of \$652,000 is a serious problem. Currently, the Blacklake Water Fund has a replacement reserve of approximately \$465,000 and revenues from the existing rates this fiscal year are not adequately funding operating costs (See First Quarter Financial Reports in Agenda Item D-4). The Board could lend the Blacklake Fund the extra funding to pay for the project, however, a rate increase would likely be necessary to pay for the added Debt Service Cost.

The Board and the Blacklake Community may wish to consider an alternative concept to replacement of the Booster Station – interconnection to the Town System. With the new Intertie, the Town System could permanently feed Blacklake's water needs without a booster station. It would be necessary to re-plumb Blacklake Well #4 into the Town System and replace its pump to match the greater head at a total cost of approximately \$50,000. Staff would not recommend re-plumbing Blacklake #3 since its casing is at the end of its useful life.

If this alternate approach were to be considered, the Board and the Blacklake Community should also need to discuss the rate setting process for the Blacklake Water Fund. Historically, water rates for the Blacklake Fund have been lower than water rates for the Town Fund. With the adoption of the five year rate plan in 2005, Blacklake Water Fund rates are scheduled to be greater than Town Fund Water Rates in FY07-08. It may be prudent to compare Blacklake's future water rates as a stand-alone fund with and without the Booster Station and the rates that Blacklake Fund customers would pay if they were merged into the Town System. This analysis should be done over time to explore the economies of scale as the Town System grows.

RECOMMENDATION

Staff recommends that your Honorable Board review Boyle's Technical Memorandum and the funding issues addressed above and then continue this item until your December 13, 2006 Board Meeting so that discussion can be held with the Blacklake Community.

ATTACHMENTS

BOYLE'S TECHNICAL MEMORANDUM

T:\BOARD MATTERS\BOARD MEETINGS\BOARD LETTER\BOARD LETTER 2006\BLACKLAKE PUMP STATION DESIGN.DOC

DRAFT

Interim Draft Technical Memorandum

Blacklake Booster Station

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19996

October 2006

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Project Description

Blacklake Booster Station is an existing hydropneumatic pump station that provides fire flow and domestic water service to the Blacklake community. The booster station is operated by the Nipomo Community Services District (NCSD). An emergency intertie with a pressure-reducing valve is capable of delivering water to Blacklake in the event the pump station is out of service.

This memorandum addresses:

- *Pump station manifold pipe diameters;*
- *Pump capacities – based on historic water usage and peak flow;*
- *Replacement of the existing hydropneumatic tank;*
- *Surge protection;*
- *End suction centrifugal pumps compared to vertical turbine pumps;*
- *Variable speed pump operation, and;*
- *Preliminary Opinion of Probable Construction Costs.*

The pump station upgrades will meet peak hour demand and fire flow requirements based on historical flow data. Conceptual design layout of the pump station is shown on **Plate 2**.

The project includes:

- Demolish existing pumps and replace with two (2) average flow pumps; two (2) peak demand pumps; and one (1) low flow pump. The low flow pump should be capable of about 175-gallons per minute (gpm) at about 212-ft of total dynamic head (TDH); average flow pumps should be capable of delivering between 250 and 300-gpm at 212-ft TDH; and peak flow pumps should be capable of delivering approximately 1000-gpm at 165-ft TDH.
- The hydropneumatic tank will be removed from service. Small bladder tanks will be used to reduce pumping during low nighttime flows.
- Pipe, fittings, and valves for pump station control, operation, and maintenance.
- A reinforced concrete pad.
- Replacement and refurbishment of the electrical cabinet and control equipment (generator and PG&E service to remain unchanged).
- Relocation of the Supervisory Control and Data Acquisition (SCADA) system.
- Remove the existing Variable Frequency Drive (VFD) unit and replace with a modern VFD unit for each pump.

Pump Station Design Criteria

Site Location and Layout

Plate 1 depicts the existing pump station layout. A concrete pad will be provided for the pump station area. Access to the pumps will be provided for vehicles to maintain or replace the pumps in the future as shown **Plate 2**.

Blacklake Demands & Pump Station Sizing

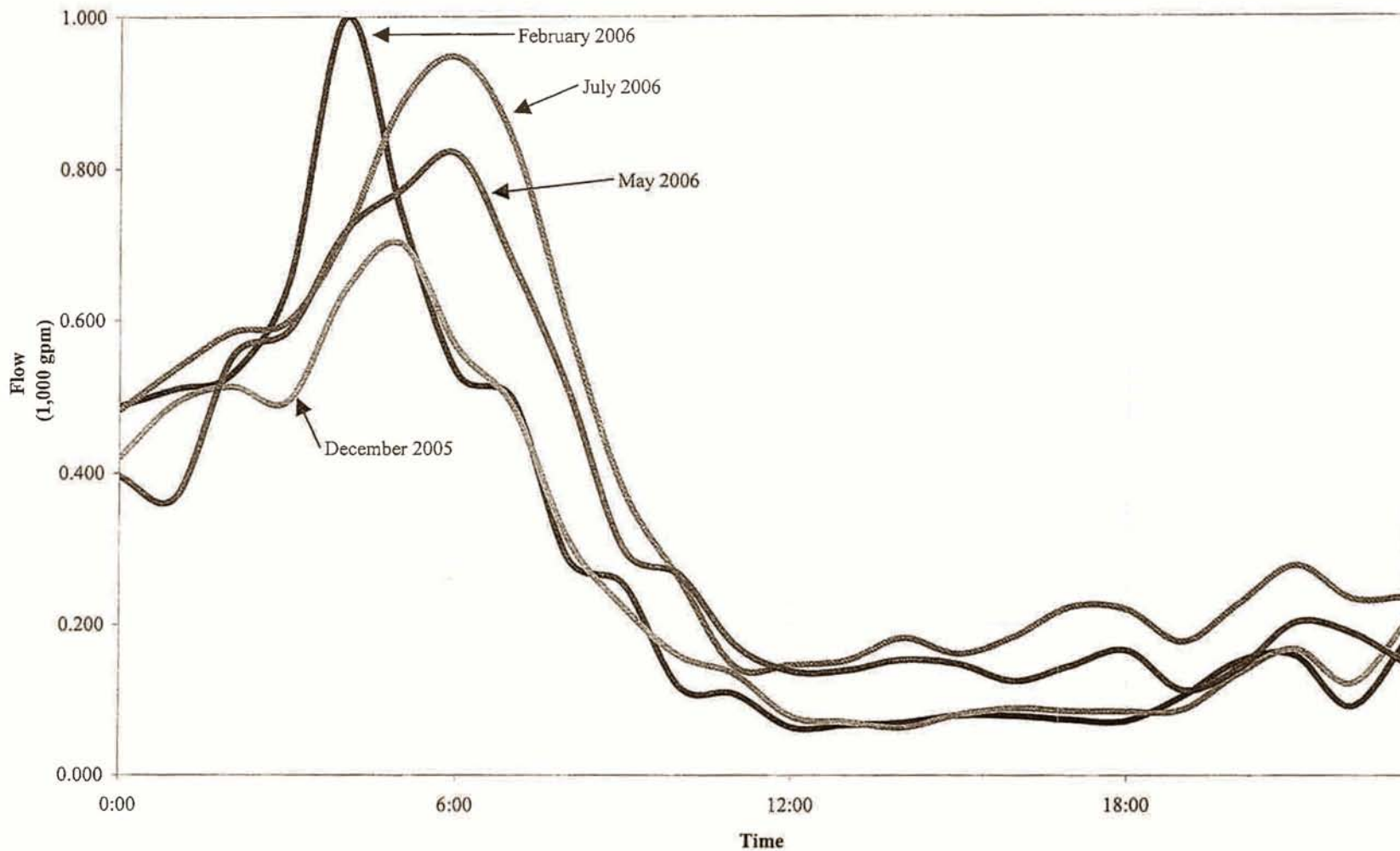
Five pumps will be provided: one low flow, two average flow, and two peak flow. The pumps are selected to meet the variation in flow experienced at Blacklake. The low flow pump is selected to pump 175-gpm, and will act to transition the booster station from the low flow condition to the average day condition. The average demand pump will be selected to deliver 300-gpm, and the peak pump will deliver 700-gpm. The pump station capacity is designed to pump a peak demand/fire flow of 2,500-gpm. Pump station combinations to meet the demands are based on historic pumping records from October 2005 to March 2006. The pump combinations are shown in **Table 1**.

TABLE 1
Black Lake Pump Station Capacity

Historical Demand		Pump Combination to Meet Demand
Minimum Flow	12-gpm	(1) Low Flow Pump + bladder tank
Average Day Demand	250-gpm	(1) Average Demand Pump
Peak Demand	1,000-gpm	(1) Average Demand Pump + (1) Peak
Fire Flow Demand	2,500-gpm	(2) Average Demand + (2) Peak Pumps

The average demand over the historical pumping period, October 2005 to July 2006, was 225-gpm, and the maximum demand was 1100-gpm (the peak demand ranges from 700 to 1100-gpm). The design average day demand of 250-gpm and a peak demand of 1,000-gpm are used to balance the summer and winter conditions. **Figure 1** presents sample diurnal curves for Blacklake for the Months of December 2005, February 2006, May 2006, and July 2006. The diurnal curve shows the variation of water use throughout the peak day of each month. Note that the peak flow occurs between 4:00 and 6:00 a.m., which is typical. The flow then settles between 75-gpm and 200-gpm for the late morning and into the afternoon. The demand then increases again at about 6:00 or 7:00 p.m.

Figure 1
Blacklake Peak Day Diurnal Curve Examples



Vertical Turbine Pumps (VTP) versus End-Suction Centrifugal Pumps

The decision to use VTP or centrifugal pumps should consider construction costs, maintenance requirements, operating costs, reliability, and ability to meet the variable system demands.

Construction and Installation. VTPs are more expensive to construct compared to centrifugal pumps. VTPs require excavation for construction of a below grade “can” to house the bowl assembly. Centrifugal pumps are installed above grade, and typically mounted on a small concrete pad. VTP bowl assemblies, discharge heads, and pump cans are either not required with centrifugal pumps, or are much more expensive. (See cost comparison section).

Maintenance. Centrifugal pumps which above grade and easily inspected without disconnecting the motor. To inspect or repair VTPs requires disconnecting the motor and pulling the bowl assembly from the submerged pump cans. This often requires use of a crane since the bowl assemblies can be 6-8-ft in the ground.

Energy Costs. Energy costs will depend on the efficiency of the pumps and motors, as well as operating time. The pumps will be moving the same amount of water over the same amount of time, so operating time can be ignored for comparison of pump technology. The Blacklake booster station VTP will allow the use of smaller motors (15-hp, 25-hp and 50-hp for VTP compared to 20-hp, 30-hp, and 60-hp for centrifugal pumps), which will result in decreased energy costs. Energy cost savings will be included in the life cycle cost analysis, see Preliminary Opinion of Probable Cost Section.

Reliability. Pump system reliability is impacted by many factors including:

1. Design Point - The engineer should select a pump that operates near the best efficiency point (BEP) (no more than 10-15% to the right for variable speed pumps);
2. Manufacturer – Some pumps are designed and built to be more reliable than others (regardless of pump type);
3. Installation - A qualified contractor with extensive experience in installing and testing pumps will help with long term reliability, and;
4. Operations & Maintenance - Proper O&M procedures can greatly lengthen the lifespan of a pump.

Blacklake booster station will be designed with these requirements as goals. Either selection can meet these criteria.

Pump Selection

For this analysis, VTP from Goulds and centrifugal pumps from Peerless were selected. Final pump selection will not be completed until the preferred pump technology has been selected. The pump curves were selected to provide low flow, average demands, peak demands, and fire flow either alone or

in combination.

NPSHr. Pumps require a certain amount of pressure at the inlet to prevent cavitation, which could damage the pump and impeller. This pressure is termed Net Positive Suction Head Required (NPSHr). This is compared to the Net Positive Suction head Available (NPSHa) for the particular booster station layout, and is dependent on tank elevation and the booster station manifold layout. VTP have a much lower NPSHr compared to end-suction centrifugal pumps. In addition, the placement of the VTP below grade in submerged cans will increase the NPSHa for the VTP application. This is important since the NPSHa at the Blacklake booster station is low, about 30 to 32-ft when the tank is at its lowest level. The worst-case VTP, the 700-gpm peak pump, has a NPSHr of 15-ft at run-out. For comparison, the 300-gpm end-suction pump has a NPSHr of 20-ft at its operating point, but could require as much as 44-ft at its run-out point. This means that in certain extreme operating conditions the end-suction pumps may not have enough suction head available and could experience cavitation.

Surge Protection

The proposed facility will require surge protection. This section will be completed when the final analysis is completed.

Hydropneumatic Tanks

Hydropneumatic tanks are used to reduce the number of pump starts and reduce the effects of surge on the water distribution system. The existing hydro-tank will be removed, because it has exceeded its design life. In place of a large volume hydro-tank variable speed pumps will be used to reduce the number of pump starts and stops. Prices for VFDs have dropped substantially in the last decade, they have become very reliable, take up a small space, and give the operators flexibility in the operation of the booster station to meet variable system demands. However, the removal of the hydro-tank necessitates installation of facilities to anticipate and suppress pressure surge; and installation of small volume bladder tanks (50 to 100-gallons) to meet the low flow demands experienced in the middle of the night.

Station Piping, Valves, and Other Hydraulic Equipment

Piping. Piping will be welded steel pipe, or flanged ductile iron pipe (DIP).

Piping Connections. Pipe joints will be welded or flanged depending on the use of steel or DIP pipe material, except where flanges or couplings are needed for equipment connections. The pump station will be furnished with AWWA C-207 Class "D" (ANSI B16.5, Class 150) flanges. Victaulic couplings will be provided on the discharge sides of the pumps to facilitate assembly and disassembly of equipment. Manifold piping is above grade to permit easy access to equipment and gauges.

Electromagnetic Flow Meter. For measuring flows, an electromagnetic flow meter ("Mag") will be installed on the discharge header pipe, just downstream of the pumps. Mag meters offer increased accuracy and reliability, and require less maintenance than traditional turbine meters because there are

no moving parts. The meter will also provide flow readings within 0.5 percent of the actual flow. In order to ensure accuracy, the meter will be 5 to 10 pipe diameters from any flow disturbances.

The meter signal converter will be local indicating, totalizing, and register gallons and gallons per minute. It will also transmit a 4-20mA digital signal to the PLC. Software programming (to be prepared by others) should provide an alarm to the operator whenever reverse flows occur. (A reverse flow would indicate a malfunction).

Isolation Valves. Butterfly valves will be used for isolation valves at both ends of the pump manifolds. Butterfly valves require less space than gate valves, resulting in a smaller footprint. Valves will be rubber seated flanged-type and equipped with hand wheel operators. Valves will be manufactured by Pratt, DeZurik, or equal.

Tank Inspection

The existing water storage tank should be inspected, inside and out, by a certified diver and inspector. The inspection will assess the condition of the tank and provide recommendations for repairs to the tank and coating systems both inside and outside of the tank.

Electrical

The existing standby generator is adequate for the upgraded pump station since full pump functionality is not required. The emergency inter-tie and pressure reducing valve can provide flows to the system in the event a power outage.

(To be completed as part of the final analysis).

Instrumentation and Controls

System pressure and flow will be used to operate the pump station. The pump station programmable logic controller (PLC) will communicate pump station information to the Supervisory Control and Data Acquisition (SCADA) network at the pump station site. The pump station PLC will monitor the system pressure and flow rate and execute pump starts/stops according to the routine's predetermined start/stop levels.

Hard-wired pump controls will have the following features:

- Pump shut down, if suction pressure is low. Manual reset.
- Pump shut down, if discharge pressure is low or high. Manual reset.
- Indicating lights for each pump: red (failure), green (run).
- Elapsed time meter for each pump.

Suction pressure will be monitored by a gauge, transmitter, and switch assembly that is mounted on the station wall and fed by a service line tapped into the above-grade suction header. A similar pressure gauge and transmitter assembly will be installed on the discharge header.

Pressure gauges and switches will also be mounted on the discharge side of each pump. These latter instruments will be supported on floor-mounted stanchions and connected with flexible piping to the manifold piping. The flexible piping and independent supports are intended to minimize vibration of the instruments.

A power quality meter will be used to monitor voltage, amperage and other power variables.

Site SCADA System

The existing SCADA system will be retained, dry contacts will be provided on all new equipment, and the District's SCADA contractor will integrate the system into the SCADA system, as well as troubleshooting and programming.

Preliminary Opinion of Probable Construction Cost

Preliminary opinions of the probable construction costs associated with construction of The Blacklake Booster Station Upgrade are included in **Table 2**. These costs do not include engineering or administrative cost. These costs represent the conceptual plans as discussed in this report. More refined opinions of probable cost will be provided with subsequent submittals of plans and specifications, as the details regarding the construction and materials required are refined. The most current opinion of the probable construction costs for the project is shown in **Table 2**.

VTP Opinion of Probable Construction Cost

TABLE 2

Nipomo Community Services District Blacklake Pump Station Replacement Project - VTP Alt. ENGINEER'S OPINION OF PROBABLE CONSTRUCTION COST Prepared by: JHR Prepared on: 10/16/2006				
Item	Description	Quantity	Unit	Amount
1	Mobilization (5%)	1	LS	\$26,000
2	Demolition of Existing Facilities	1	LS	\$10,000
3	Mechanical (Pumps and Piping)	1	LS	\$432,000
4	Electrical and Instrumentation	1	LS	\$75,000
<i>Sub Total</i>				\$543,000
Contingency (20%)				\$109,000
<i>Total</i>				\$652,000
ENR Construction Cost Index = 7882				

Project cost will be effected by the prevailing bid climate, which is driven by availability/cost of materials, equipment, competition among contractors and number of similar projects under construction at the same time.

Centrifugal Pump Opinion of Probable Construction Cost

The centrifugal pump option is anticipated to cost about \$570,000 including the 20% contingency or about \$82,000 less than the VTP option. However the cost to operate the centrifugal pump station will be higher, as discussed below.

Energy and Life Cycle Cost Discussion

Energy costs for the booster station will depend on the horsepower and efficiency of the selected pumps and motors. Motor size will be 15-hp, 25-hp, and 50-hp for VTP and 20-hp, 30-hp, and 60-hp for centrifugal pumps. Assuming the low flow pump runs for 12 hours per day, the average day pump runs for 12 hours per day and the peak pump operates for 6 hours per day; using an electricity cost of \$0.13/kW-hr energy is anticipated to cost \$28,000 per year for VTP and \$35,000 per year for centrifugal pumps. This means that the VTP will be more cost effective for the life of the station than the centrifugal pumps. By about year 10 the VTP will be more cost effective (on a 2006 present worth basis, with 3% cost escalation) than the centrifugal pump station based on the projected costs of electricity. By year 20 (the life of the pump station) the VTP are projected to use \$757,000 of electricity, and the centrifugal pumps will have used \$931,000.

Table 3
Pump Station Energy Cost Calculation

VTP					
Pump	HP	Daily Run Time (hr)	\$/kW-hr	Cost per year	20-yr total
Low Flow	15	12	\$ 0.13	\$ 6,499	\$174,630
ADD	25	12	\$ 0.13	\$ 10,831	\$291,051
Peak	50	6	\$ 0.13	\$ 10,831	\$291,051
			Total	\$ 28,162	\$756,732
Centrifugal					
Pump	HP	Daily Run Time (hr)	\$/kW-hr	Cost per year	20-yr total
Low Flow	20	12	\$ 0.13	\$ 8,665	\$232,840
ADD	30	12	\$ 0.13	\$ 12,998	\$349,261
Peak	60	6	\$ 0.13	\$ 12,998	\$349,261
			Total	\$ 34,661	\$931,363

Recommendation

Boyle recommends the selection of the VTP option. It will result in a long-term cost savings to the District. Should energy prices increase at a rate greater than 3% the savings will be realized early. In addition, the VTP option has better pump selections available for the application, and requires less suction head to operate, which is important in the longevity of the pumps, especially at Blacklake, which has minimal suction head available.

The proposed pump curves and operating points are shown as **Figures 2 and 3**. The figures show the system curves, which are the pressure the pumps need to produce to move water through the system at a given rate of flow; and the pump curves, which are the relationship between flow and pressure for each specific pump. Where the pump curve crosses the system curve is the flow and pressure that the system will operate. There are three system curves shown on the figures, these represent the high, low and fire flow pressures that the booster station should operate at. The high pressure has been set at 92-psi, the low pressure at 82-psi and the fire flow pressure at 70-psi. It is acceptable for the fire flow pressure to be lower since it is typical for the system to experience reduced pressure during a fire flow event, as long as the residual pressure in the system remains above 20-psi. It is desirable to use a lower pressure for fire flow since the pumps can deliver more water at lower pressures. As can be seen from the pump curves, the proposed pump breakdown will allow the booster station to deliver water at flow rates ranging from a low of 50-gpm to a peak of 2,500-gpm (lower flow may be possible depending on manufacturer recommendations for variable speed pumping, which will be addressed in the final analysis).

Figure 2
Low Flow and Average Demand Pump Comparison

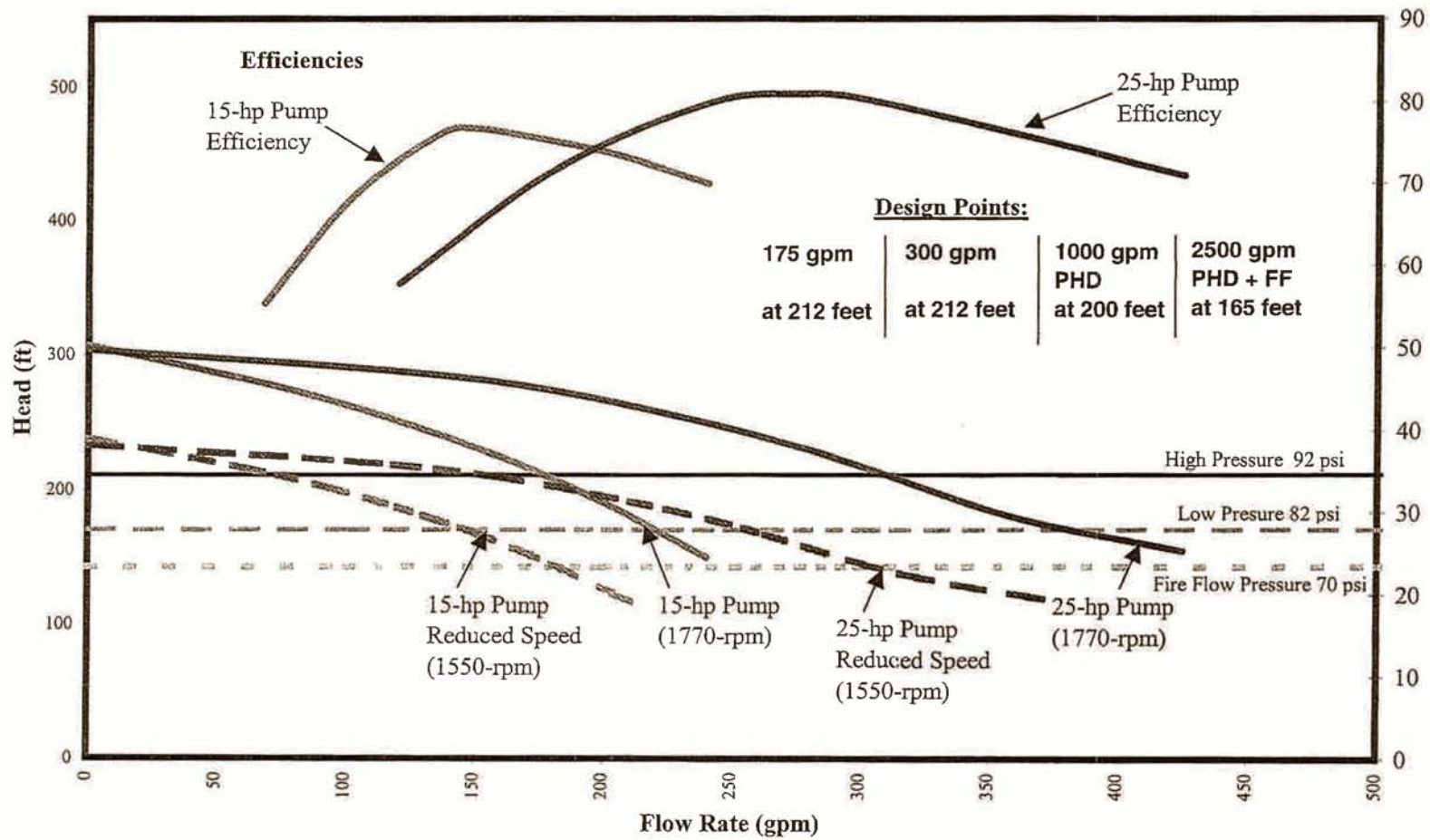
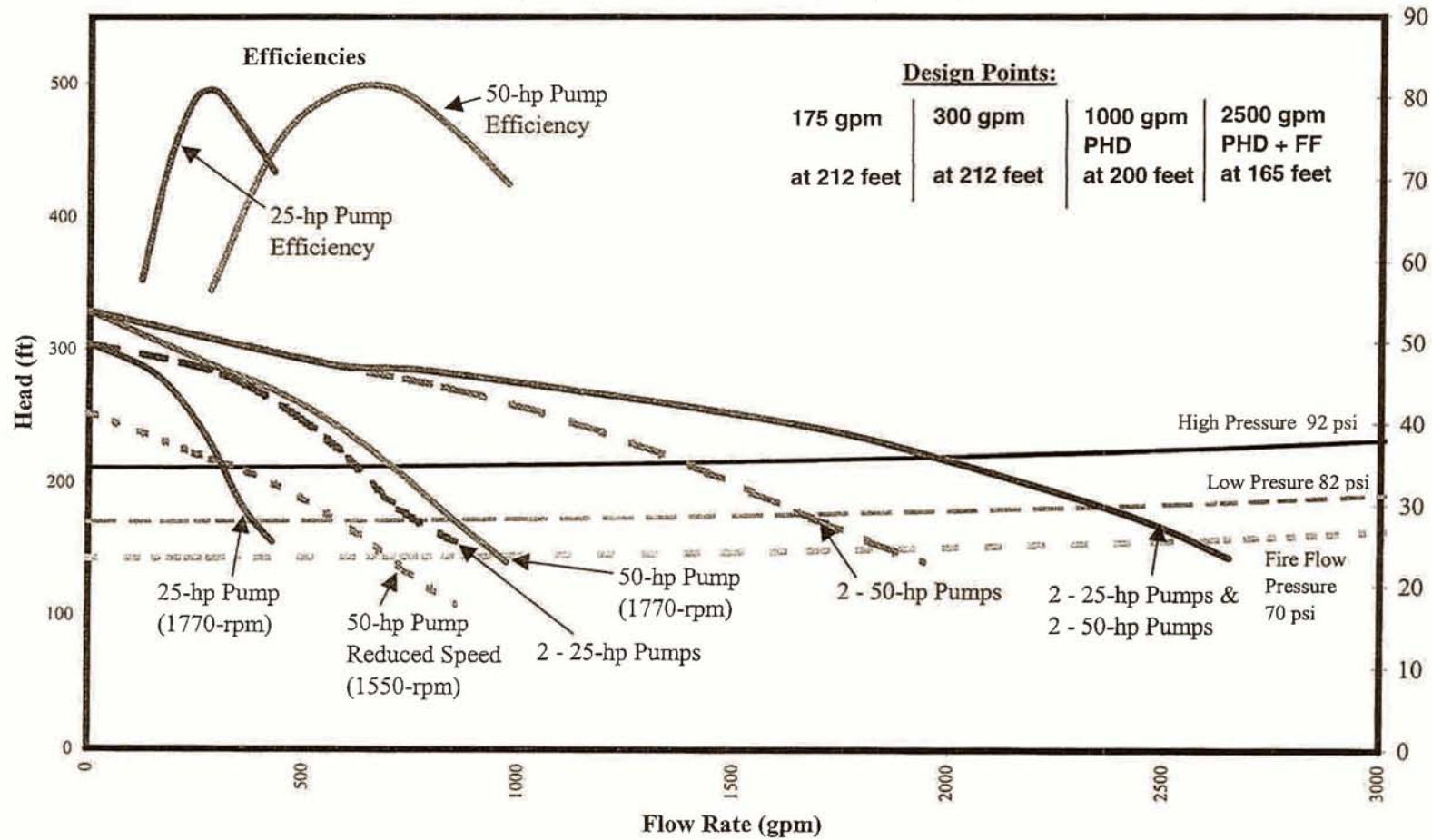


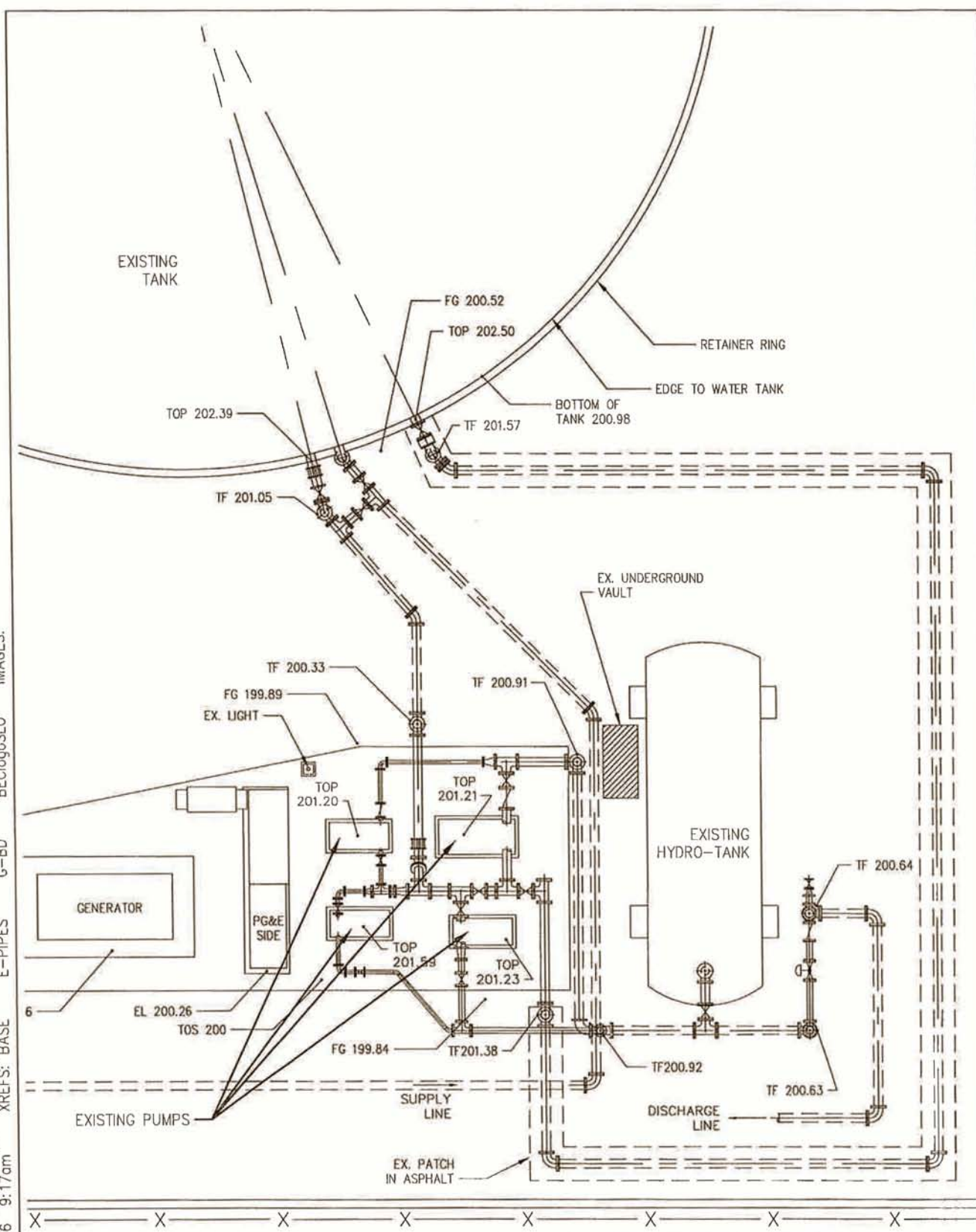
Figure 3
Average Demand and Peak Pump Comparison



Plates

Plate 1: Existing Pump Station Site Plan
Plate 2: Proposed Pump Station Site Plan

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 E-PIPES
 BEClogoSLO
 G-BD
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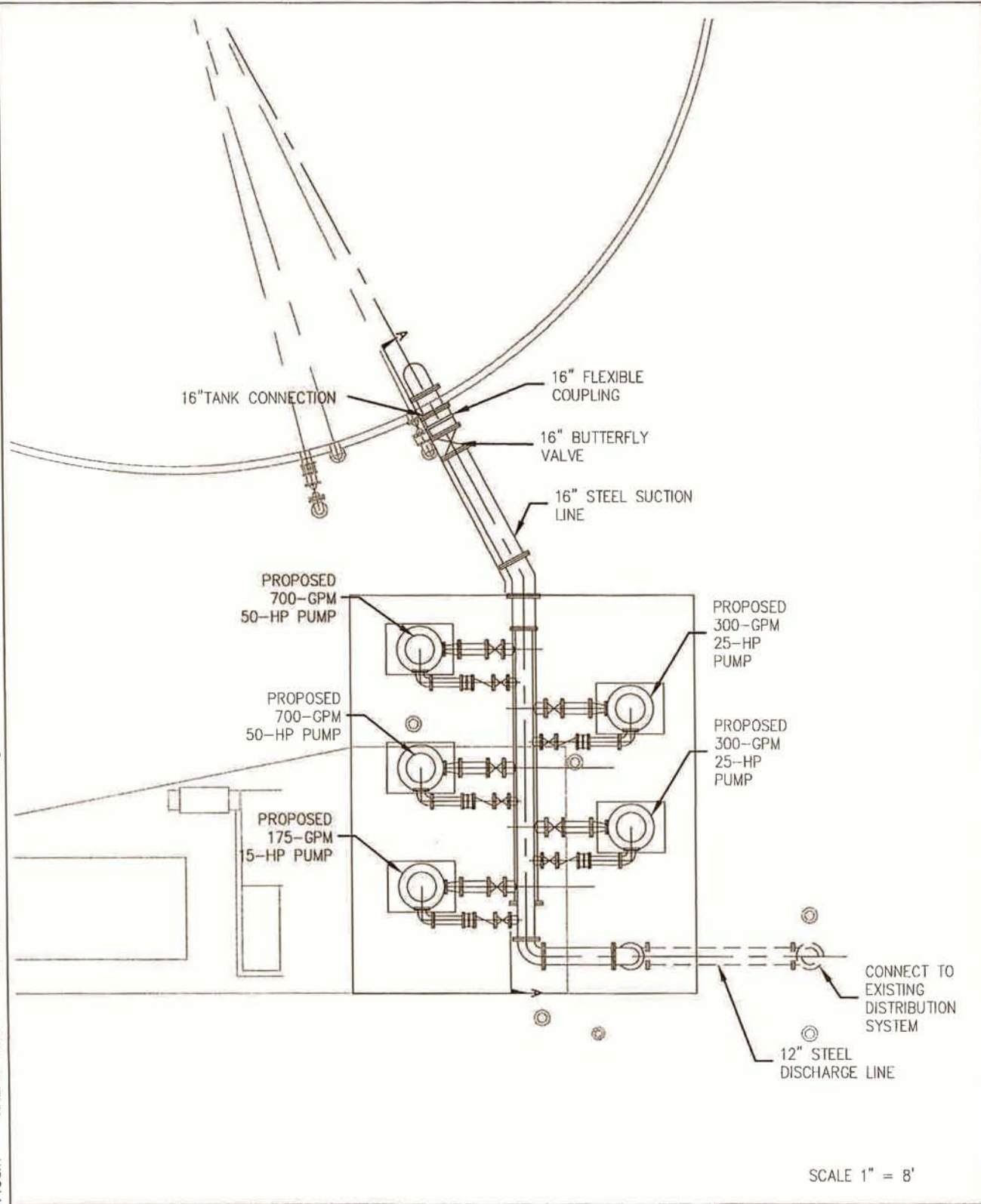
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BLACKLAKE BOOSTER STATION
 EXISTING PUMP STATION

BEC PROJECT NO.
 19996

PLATE
 1

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BLACKLAKE BOOSTER STATION
 PROPOSED PUMP STATION

BEC PROJECT NO.
 19996

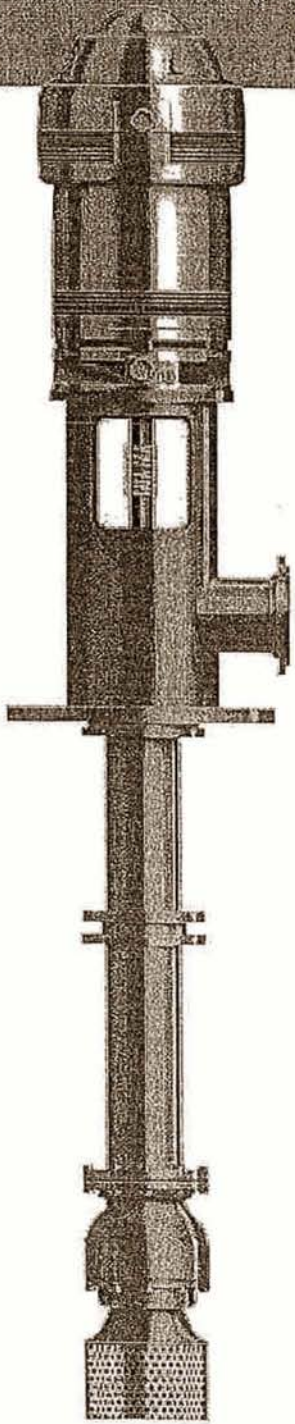
PLATE
 2

APPENDIX A

Manufacturers' Pump Data

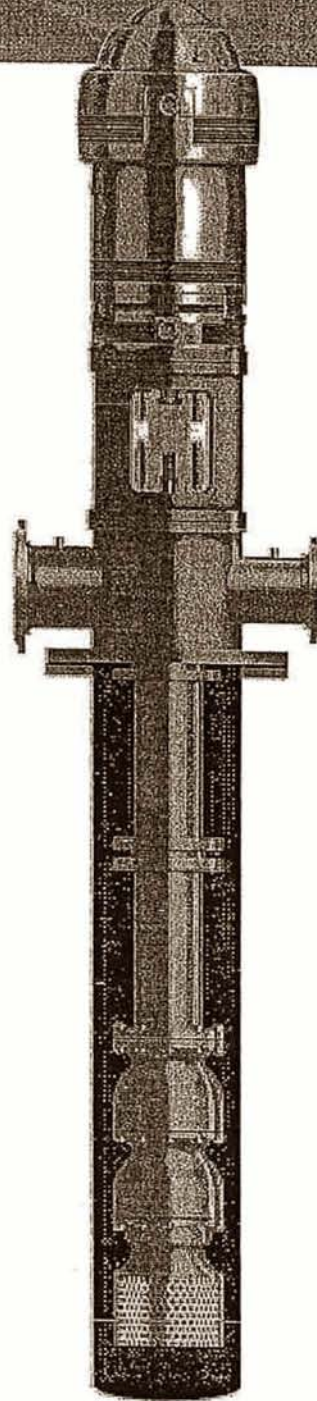
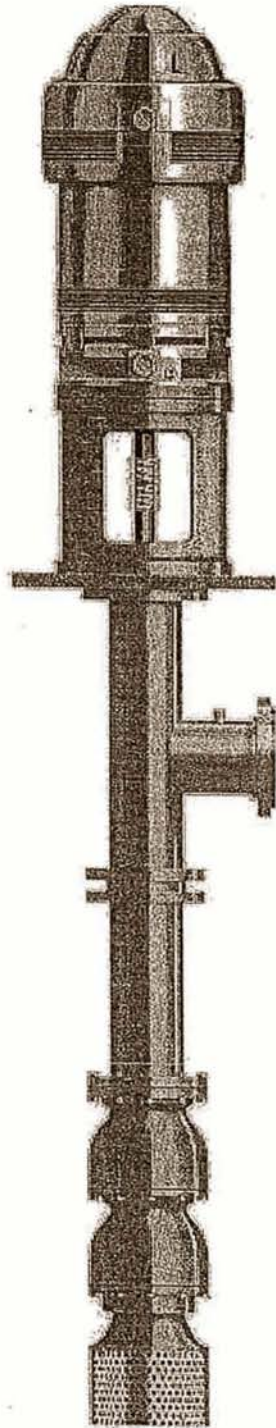
Goulds Vertical Turbine Pumps

Sterling Peerless Centrifugal Pumps



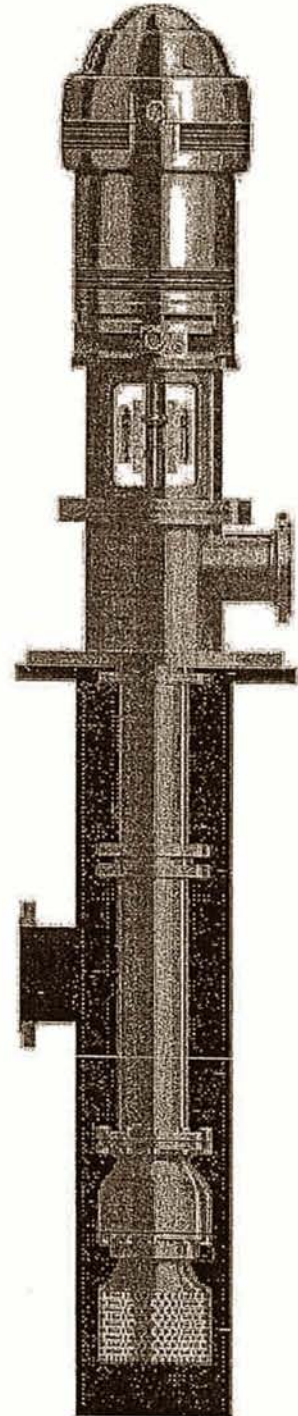
Type "F"
Head

Type "U"
Discharge Located
Underground



Type "T"
Suction Inlet Located
in the Head

Type "L"
(Can) Suction Inlet
Located in the Can



Selection list: ---

Search Criteria:

Flow: 170 US gpm *175 gpm*
 Head: 215 ft *212 ft*
 Tolerance: 5 % of head

Fluid: Water

Temperature: 60 °F
 SG: 1
 Viscosity: 1.105 cP
 Vapor pressure: 0.2563 psi a
 Atm pressure: 14.7 psi a

NPSHa: --- ft

Advanced Criteria:

Preferred Operating Area: 100% to 115% of BEP
 Secondary Operating Point: ---
 Max temperature: --- °F
 Max suction pressure: --- psi g
 Max sphere size: --- in
 Max power: --- bhp
 Max suction specific speed: --- (Nss)
 Min trim: --- % of max diameter
 Min head rise: --- % to shutoff

Curve Corrections: none

Catalog: Goulds Lineshaft 60Hz vers 2.03

Pump: 8ILC (8 stages)

Type: Lineshaft
 Synch speed: 1800 rpm
 Speed: 1760 rpm
 Dia: 5.8125 in
 Curve no.: 3101

Specific Speeds

Ns: 1605 Nss: ---

Dimensions:

Suction: --- in Discharge: --- in

Vertical Turbine:

Bowl size: 7.5 in
 Max lateral: 0.63 in
 Thrust K factor: 2.6 lb/ft

Pump Limits:

Temperature: 120 °F
 Pressure: 365 psi g
 Sphere size: 0.25 in
 Power: --- bhp

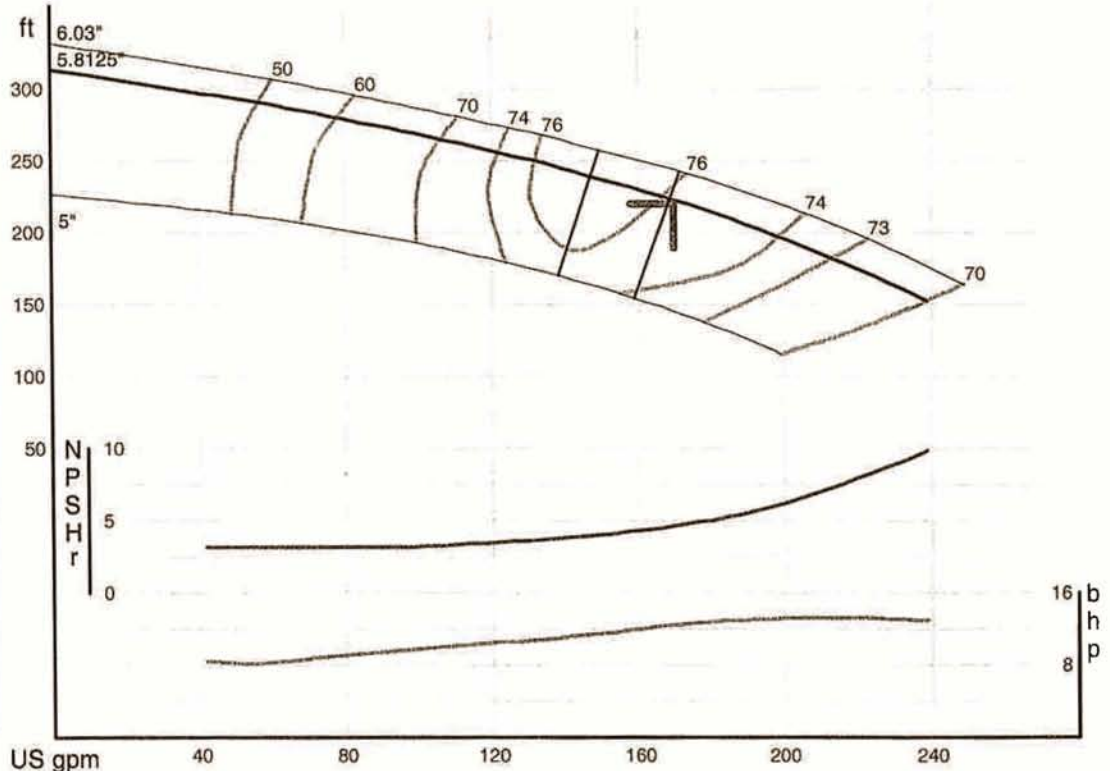
Motor: 15 hp

Speed: 1800
 Frame: 254
 Standard: NEMA
 Enclosure: WPI
 Sizing criteria: Max Power on Design Curve

--- Data Point ---
 Flow: 170 US gpm
 Head: 217 ft
 Eff: 75.8%
 Power: 12.3 bhp
 NPSHr: 4.5 ft

-- Design Curve --
 Shutoff Head: 307 ft
 Shutoff dP: 133 psi
 Min Flow: --- US gpm
 BEP: 76.8% eff
 @ 149 US gpm
 NOL Pwr: 13.1 bhp
 @ 213 US gpm

-- Max Curve --
 Max Pwr: 14.7 bhp
 @ 223 US gpm



Pump note: Suction Size-5" Discharge Sizes-5",6"

Selection list: ---

Catalog: Goulds Lineshaft 60Hz vers 2.03

Pump: 8ILC (8 stages)

Performance Evaluation:

Flow US gpm	Speed rpm	Head ft	Pump %eff	Power bhp	NPSHr ft	Motor %eff	Motor kW	Hrs/yr	Cost /kWh
204	1760	187	73.6	13	6.33				
170	1760	217	75.8	12.3	4.5				
136	1760	241	76.2	10.8	3.57				
102	1760	262	68.4	9.79	3.09				
68	1760	279	55.3	8.58	3				

Selection list: 140gpmPump.ufs

Search Criteria:

Flow: 300 US gpm
Head: ~~210 ft~~ 212
Tolerance: 5 % of head

Fluid: Water

Temperature: 60 °F
SG: 1
Viscosity: 1.105 cP
Vapor pressure: 0.2563 psi a
Atm pressure: 14.7 psi a

NPSHa: --- ft

Advanced Criteria:

Preferred Operating Area: 100% to 115% of BEP
Secondary Operating Point: ---
Max temperature: --- °F
Max suction pressure: --- psi g
Max sphere size: --- in
Max power: --- bhp
Max suction specific speed: --- (Nss)
Min trim: --- % of max diameter
Min head rise: --- % to shutoff

Curve Corrections: none

Catalog: Goulds Lineshaft 60Hz vers 2.03

Pump: 11RALC (6 stages)

Type: Lineshaft
Synch speed: 1800 rpm
Speed: 1770 rpm
Dia: 6.75 in
Curve no.: 1167-4

Specific Speeds

Ns: 1585 Nss: ---

Dimensions:

Suction: --- in Discharge: --- in

Vertical Turbine:

Bowl size: 11.6 in
Max lateral: 0.38 in
Thrust K factor: 5.3 lb/ft

Pump Limits:

Temperature: 120 °F
Pressure: 400 psi g
Sphere size: 0.5 in
Power: --- bhp

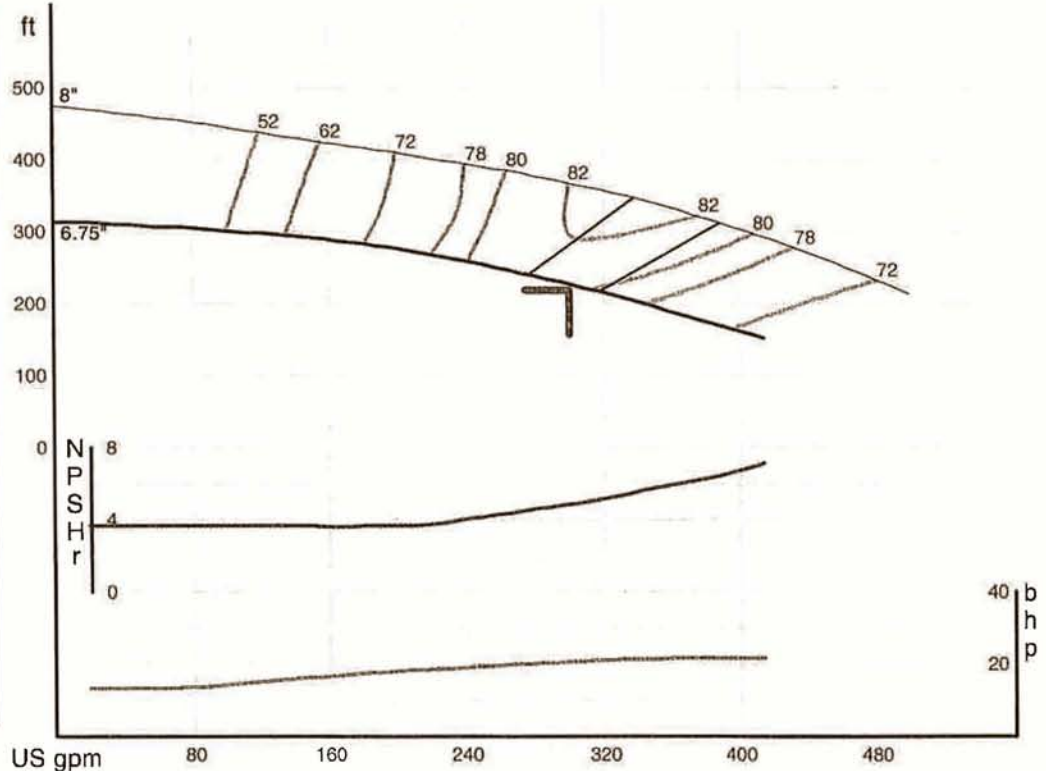
Motor: 25 hp

Speed: 1800
Frame: 284
Standard: NEMA
Enclosure: WPI
Sizing criteria: Max Power on Design Curve

---- Data Point ----
Flow: 300 US gpm
Head: 218 ft
Eff: 80.4%
Power: 20.5 bhp
NPSHr: 4.7 ft

-- Design Curve --
Shutoff Head: 304 ft
Shutoff dP: 131 psi
Min Flow: --- US gpm
BEP: 81% eff
@ 276 US gpm
NOL Pwr: 21.7 bhp
@ 395 US gpm

-- Max Curve --
Max Pwr: 38.1 bhp
@ 499 US gpm



Pump note: Discharge Sizes-6",8",10"

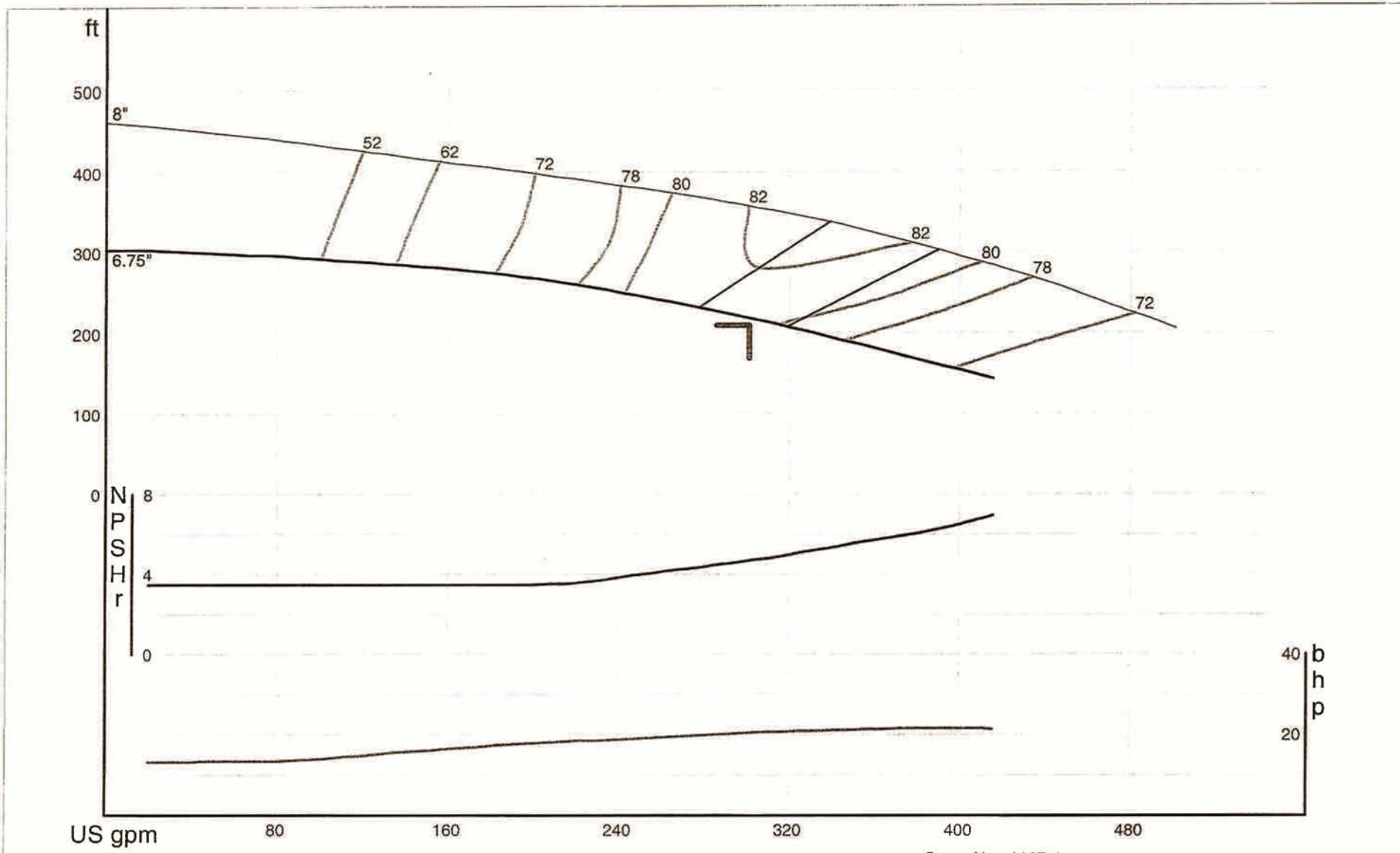
Selection list: 140gpmPump.ufs

Catalog: Goulds Lineshaft 60Hz vers 2.03

Pump: 11RALC` (6 stages)

Performance Evaluation:

Flow US gpm	Speed rpm	Head ft	Pump %eff	Power bhp	NPSHr ft	Motor %eff	Motor kW	Hrs/yr	Cost /kWh
360	1770	180	76.1	21.4	5.76				
300	1770	218	80.4	20.5	4.7				
240	1770	250	79.9	18.9	3.87				
180	1770	274	71.7	17.3	3.5				
120	1770	288	57.7	15	3.5				



Curve No.: 1167-4

Boyle Engineering
 Black Lake ADF Pump
 08/01/06
 140gpmPump.ufs

Turbine 60 Hz
 Catalog: Goulds Lineshaft 60Hz, vers 2.03
 Lineshaft - 1800
 Design Point: 300 US gpm, 210 ft

Size: 11RALC 6 stages
 Speed: 1770 rpm
 Dia: 6.75 in



Selection list: ADFPump.ufs

Search Criteria:

Flow: 700 US gpm
Head: ~~210~~ 212
Tolerance: 5 % of head

Fluid: Water

Temperature: 60 °F
SG: 1
Viscosity: 1.105 cP
Vapor pressure: 0.2563 psi a
Atm pressure: 14.7 psi a

NPSHa: --- ft

Advanced Criteria:

Preferred Operating Area: 100% to 115% of BEP
Secondary Operating Point: ---
Max temperature: --- °F
Max suction pressure: --- psi g
Max sphere size: --- in
Max power: --- bhp
Max suction specific speed: --- (Nss)
Min trim: --- % of max diameter
Min head rise: --- % to shutoff

Curve Corrections: none

Catalog: Goulds Lineshaft 60Hz vers 2.03

Pump: 13RALC (3 stages)
Type: Lineshaft
Synch speed: 1800 rpm
Speed: 1770 rpm
Dia: 9.5 in
Curve no.: 1196-4

Specific Speeds

Ns: 1690 Nss: ---

Dimensions:

Suction: --- in Discharge: --- in

Vertical Turbine:

Bowl size: 13.38 in
Max lateral: 0.5 in
Thrust K factor: 7.9 lb/ft

Pump Limits:

Temperature: 120 °F
Pressure: 430 psi g
Sphere size: 0.56 in
Power: --- bhp

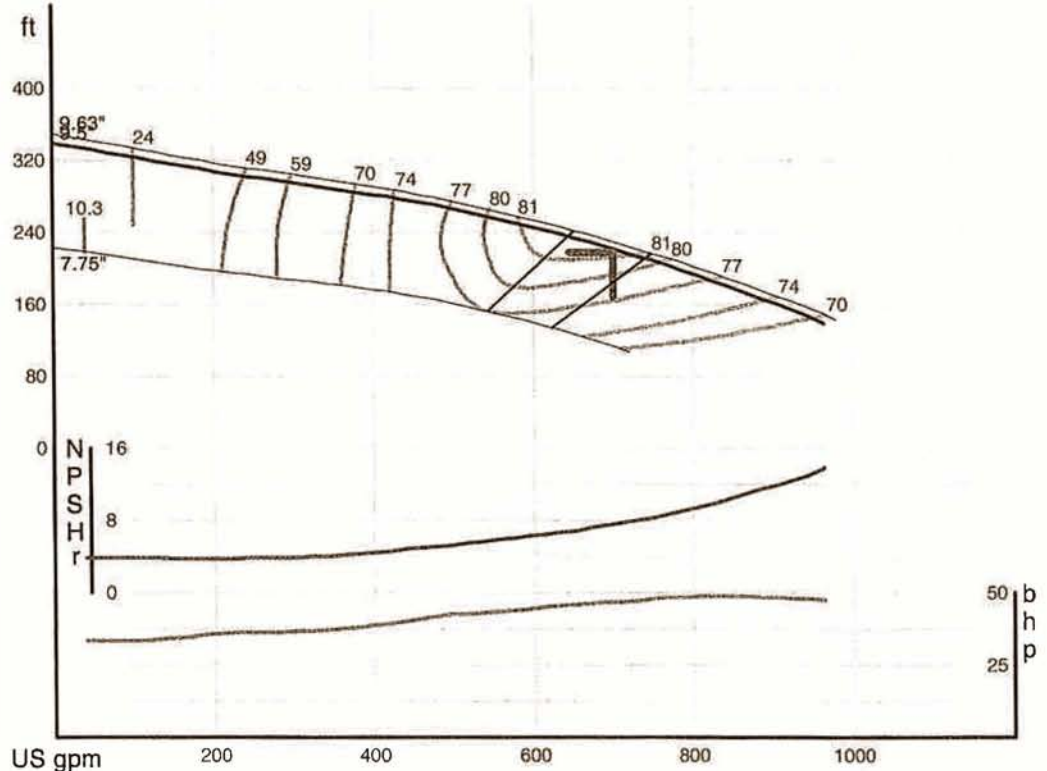
Motor: 50 hp

Speed: 1800
Frame: 326
Standard: NEMA
Enclosure: WPI
Sizing criteria: Max Power on Design Curve

---- Data Point ----
Flow: 700 US gpm
Head: 213 ft
Eff: 81.2%
Power: 46.2 bhp
NPSHr: 7.31 ft

-- Design Curve --
Shutoff Head: 329 ft
Shutoff dP: 142 psi
Min Flow: --- US gpm
BEP: 81.8% eff
 @ 643 US gpm
NOL Pwr: 48.4 bhp
 @ 820 US gpm

-- Max Curve --
Max Pwr: 50.2 bhp
 @ 836 US gpm



Pump note: Discharge Sizes-8",10",12"

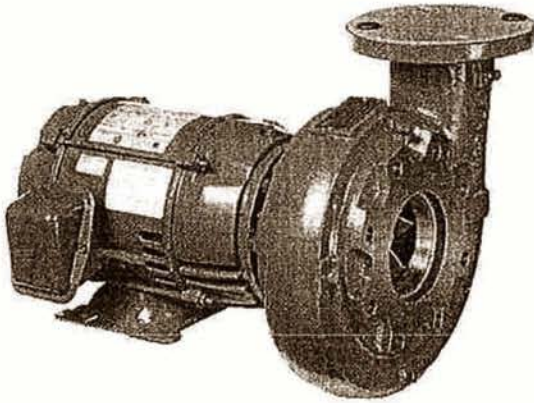
Selection list: ADFPump.ufs

Catalog: Goulds Lineshaft 60Hz vers 2.03

Pump: 13RALC (3 stages)

Performance Evaluation:

Flow US gpm	Speed rpm	Head ft	Pump %eff	Power bhp	NPSHr ft	Motor %eff	Motor kW	Hrs/yr	Cost /kWh
840	1770	174	76.1	48.2	9.94				
700	1770	213	81.2	46.2	7.31				
560	1770	246	80.4	43.1	5.62				
420	1770	271	73.5	39	4.36				
280	1770	289	56.4	36.1	3.63				



Peerless Pump

GENERAL PURPOSE END SUCTION PUMPS

The Peerless Pump C Series Pumps are close coupled with standard C-face JM or JP solid shaft ball bearing motors specifically designed for pump applications in accordance with standards developed by the Hydraulic Institute (HI) and the National Electrical Manufacturers Association (NEMA).

Applications

Peerless Pump Series C close coupled single suction pumps are designed for applications in medium duty service and provide maximum pump value in heating, air conditioning, booster and general circulating service.

Features

Series C Pumps are available in cast iron bronze fitted and all iron construction. Packed boxes or mechanical seals are available.

Pump casing is fitted with a bronze/steel replaceable wear ring. The pipe connection flanges are equivalent 125# ANSI flanges rated for 175# Maximum Working Pressure (MWP).

Motor bearings are **grease lubricated** and are sized for a minimum of 20,000 hours L_{10} basic rating life or 100,000 hours median bearing life. Shaft is designed to limit the shaft deflection to no more than .002" at the seal faces.

The motor/impeller shaft is protected with a **replaceable (bronze/stainless steel) sleeve** installed between the shaft and the packing or mechanical seal.

Mechanical seals are designed for water service and light hydrocarbons up to 250°F. Seals are face type with Ni-resist seat, carbon washer, 18-8 stainless steel metal parts and Viton elastomers.

Series C pumps are furnished with enclosed dynamically balanced impellers for **smooth, low vibration operation**. The impeller is keyed to the shaft for positive driving and is secured in place with a stainless steel washer and self-locking cap screw.

The impeller diameter is **no more than 90 percent** of the maximum impeller diameter which the case tongue or cut-water could accommodate. This design feature results in **low hydraulic noise levels**.

Quality Engineering

Peerless Pump designs tough, versatile products to meet your pumping needs. The C Series delivers **variety, durability, standardized options and configurations** unequalled in the industry. Please contact your local authorized Peerless Pump sales office to find out more about the C Series, options and prices.

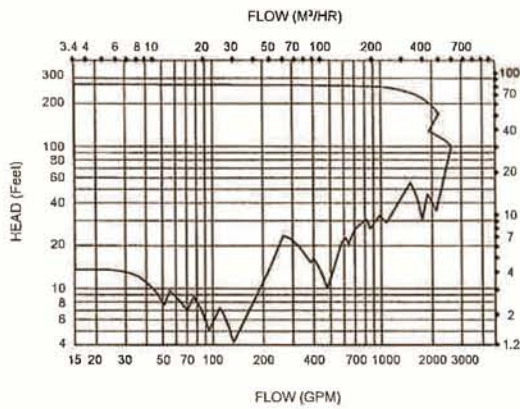
Specifications

Capacities: Up to 2300 gpm (560 m³/hr)
Head: Up to 400 feet (122 meters)
Pressure: Up to 175 psi (12.3 kg/cm², 1,206 kPa)
Horsepower: Up to 75 hp (55 kW)
Temperature: From 32 °F to 250 °F (0 °C to 120 °C)
Drives: HI/NEMA JM or JP Electric Motors
Liquids: Water and Liquid Hydrocarbons
Materials: CI 30 CI, Bronze

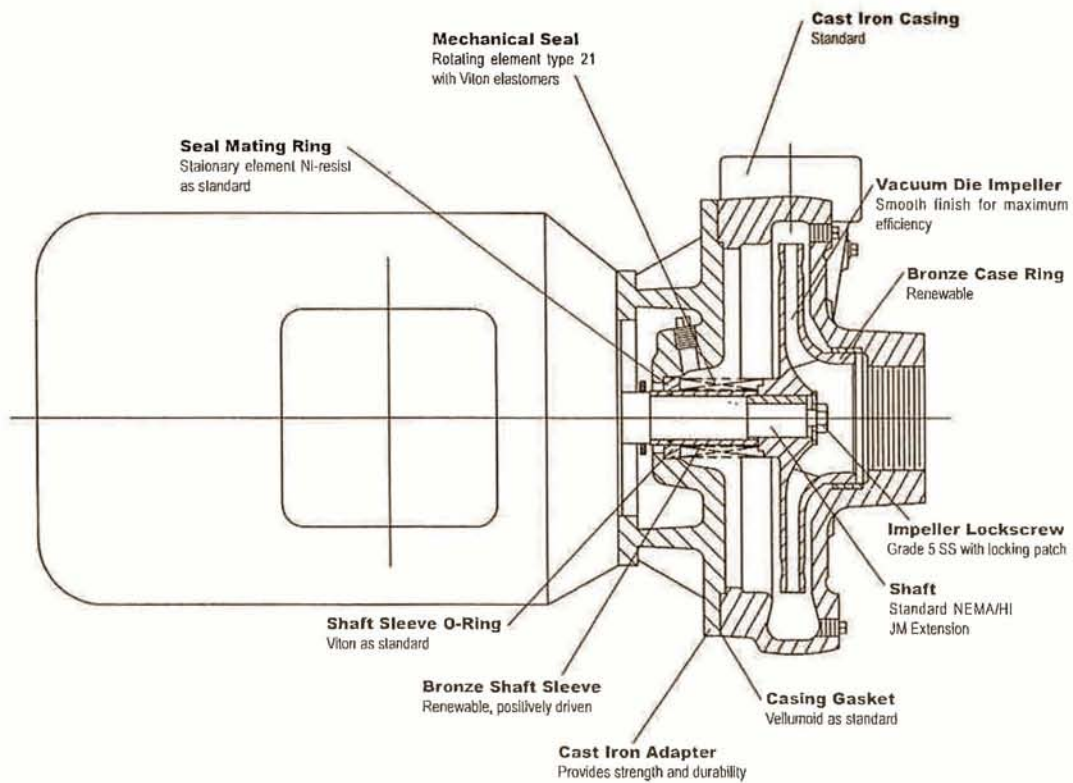
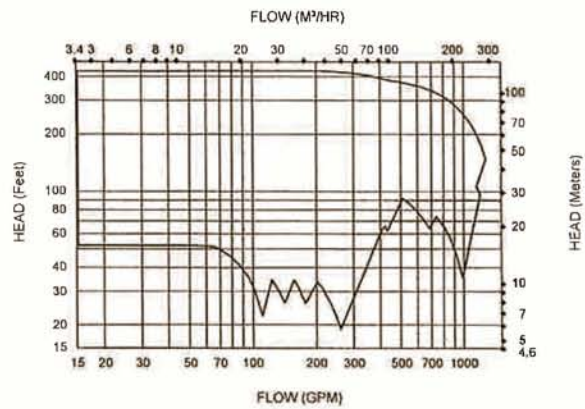


C Series

C Series Range Chart - 1750 RPM



C Series Range Chart - 3500 RPM



Peerless Pump Company
P.O. Box 7026
Indianapolis, IN 46207-7026
(317)925-9661, Fax: (317)924-7388
www.peerlesspump.com

ISO 9001





Peerless Pump Company
 1755 Broadway Fresno, CA 93721
 Al Madsen
 Phone 559-233-1241 x19
 Fax 559-233-2984

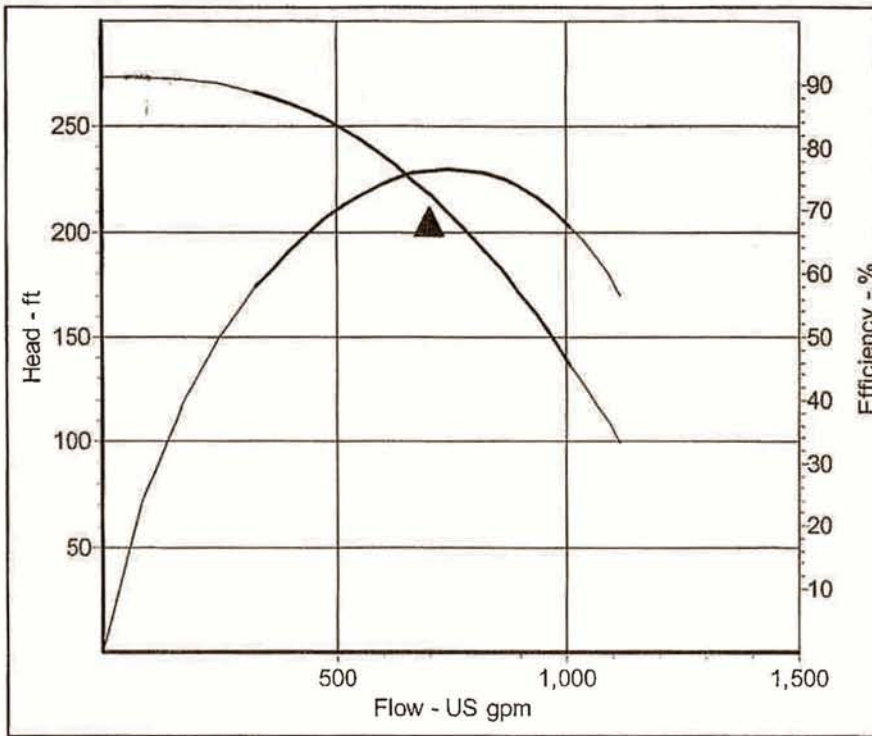
Customer : Boyle Engineering Corp
 1194 Pacific Street
 Suite 204
 San Luis Obispo, CA
 93401

Project : Black Lake
 Quote No. : US-3509-5

Page No : 1

Contact : Rosalyn Piza
 Phone : 805-542-9840 x105 Fax : 805-542-9990
 Date : Wednesday, August 23, 2006

Type: C - End Suction Close Coupled General Purpose
 Pump Model: Peerless - C1140
 Nom. Speed: 3558 RPM, 60 Hz Electric
 Impeller Dia.: 8.58 inch
 Curve No.: 3115096
 Market : Water
 Item : 1
 Impeller No.: 2892385
 Fluid: Water
 Temperature: 68 °F
 Viscosity: 1.007 cSt
 Sp. Gravity: 1.000
 Your Ref. :



Duty Flow	700 US gpm
Duty Head	212 ft
Imp. Dia.	8.58 inch
Power Required	50.6 hp
NPSH Required	19.4 ft
Efficiency	76.3 %
Peak Power	52.3 hp
Closed Valve Head	261.5 ft
Tolerance	Hyd Inst- Peerless Std

Comments
 Performance curve represents typical performance. See Standard Hydraulic Performance document in the selective printing area of RAPID for testing tolerances &

Flow (US gpm)	Head (ft)	Efficiency (%)	Power Required (hp)	NPSH Required (ft)
326.4	266.4	57.9	37.9	
411.7	260.1	64.7	41.8	13.5
496.9	251.2	69.9	45.1	14.7
582.2	239.5	73.7	47.8	16.2
667.4	224.8	75.9	49.9	18.3
752.6	207.1	76.5	51.4	21.6
837.9	186.5	75.6	52.2	26.1
923.1	163.1	72.8	52.2	31.9
1008.4	136.7	67.6	51.5	39.6





Peerless Pump Company
 1755 Broadway Fresno, CA 93721
 Al Madsen
 Phone 559-233-1241 x19
 Fax 559-233-2984

Customer : Boyle Engineering Corp
 1194 Pacific Street
 Sulte 204
 San Luis Obispo, CA
 93401

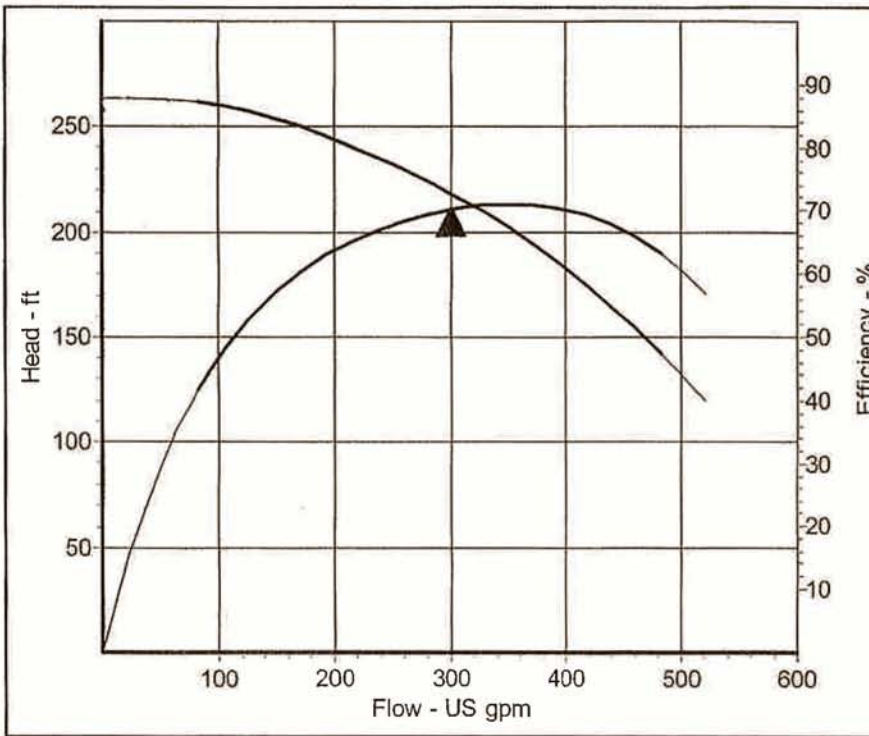
Project : Black Lake
 Quote No. : US-3509-5

Page No : 1

Contact : Rosalyn Piza
 Phone : 805-542-9840 x105 Fax : 805-542-9990
 Date : Wednesday, August 23, 2006

Type: C - End Suction Close Coupled General Purpose
 Pump Model: Peerless - C1020A
 Nom. Speed: 3569 RPM, 60 Hz Electric
 Impeller Dia.: 8.04 inch
 Curve No.: 3114073
 Market : Water

Item : 1
 Impeller No.: 2680870
 Fluid: Water
 Temperature: 68 °F
 Viscosity: 1.007 cSt
 Sp. Gravly: 1.000
 Your Ref. :



Duty Flow	300 US gpm
Duty Head	212 ft
Imp. Dia.	8.04 inch
Power Required	23.6 hp
NPSH Required	20 ft
Efficiency	70.2 %
Peak Power	27.4 hp
Closed Valve Head	257.1 ft
Tolerance	Hyd Inst- Peerless Std

Comments
 Performance curve represents typical performance. See Standard Hydraulic Performance document in the selective printing area of RAPID for testing tolerances &

Flow (US gpm)	Head (ft)	Efficiency (%)	Power Required (hp)	NPSH Required (ft)
81.9	261.9	41.8	13.0	8.3
132.0	256.7	54.0	15.8	8.9
182.1	248.0	61.7	18.5	10.8
232.2	236.8	66.6	20.9	14.0
282.3	223.6	69.6	22.9	18.3
332.3	208.1	71.0	24.6	23.6
382.4	189.8	70.8	25.9	30.0
432.5	168.1	68.5	26.8	37.3
482.6	142.2	63.3	27.4	45.3





Peerless Pump Company
 1755 Broadway Fresno, CA 93721
 Al Madsen
 Phone 559-233-1241 x19
 Fax 559-233-2984

Customer : Boyle Engineering Corp
 1194 Pacific Street
 Suite 204
 San Luis Obispo, CA
 93401

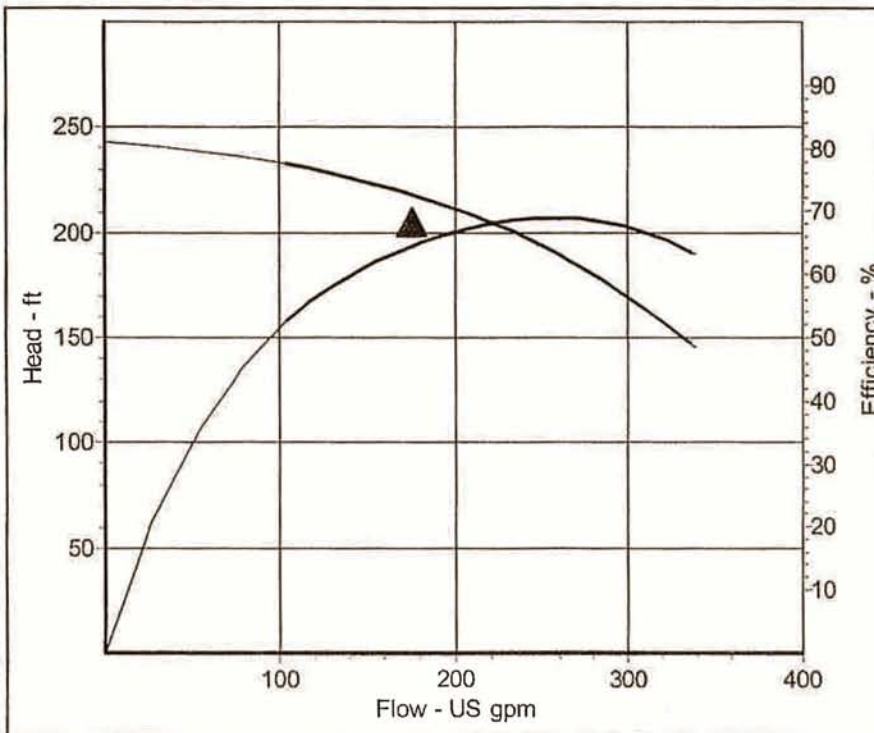
Project : Black Lake
 Quote No. : US-3509-5

Page No : 1

Contact : Rosalyn Piza
 Phone : 805-542-9840 x105 Fax : 805-542-9990
 Date : Wednesday, August 23, 2006

Type: PV - In-line Close Coupled Mech Seal
 Pump Model: Peerless - 2PV10A
 Nom. Speed: 3514 RPM, 60 Hz Electric
 Impeller Dia.: 7.84 inch
 Curve No.: 2897848r1
 Market : Water

Item : 1
 Impeller No.: 2678368
 Fluid: Water
 Temperature: 68 °F
 Viscosity: 1.007 cSt
 Sp. Gravity: 1.000
 Your Ref. :



Duty Flow	175 US gpm
Duty Head	212 ft
Imp. Dia.	7.84 inch
Power Required	15 hp
NPSH Required	19.9 ft
Efficiency	64.5 %
Peak Power	19.6 hp
Closed Valve Head	242.9 ft
Tolerance	Hyd Inst- Peerless Std

Comments
 Performance curve represents typical performance. See Standard Hydraulic Performance document in the selective printing area of RAPID for testing tolerances &

Flow (US gpm)	Head (ft)	Efficiency (%)	Power Required (hp)	NPSH Required (ft)
103.7	232.5	52.6	11.6	
132.8	227.7	58.6	13.0	14.3
161.8	221.6	63.0	14.4	18.1
190.8	214.1	66.0	15.6	22.2
219.8	204.9	68.0	16.7	26.9
248.8	193.8	68.9	17.7	32.0
277.8	180.6	68.6	18.5	37.9
306.8	165.1	67.0	19.1	44.6
335.8	147.0	63.6	19.6	52.2



TO: BOARD OF DIRECTORS
FROM: BRUCE BUEL *BBB*
DATE: OCT. 20, 2006

**AGENDA ITEM
E-4
OCT. 25, 2006**

WATER ALLOCATION AND ANNEXATION POLICY DEVELOPMENT

ITEM

Receive Presentation on Water Allocation and Annexation Policy Issues and Schedule Special Meeting to Consider Revisions to Water Allocation Policy and Annexation Policy [Receive Presentation and set meeting]

BACKGROUND

Your Honorable Board set this item to further its discussion of the respective policy issues. Staff is scheduled to summarize the Second Groundwater Technical Memorandum for SAIC and to provide feedback on Water Allocation and Annexation Policy Issues. Staff will also summarize the responses to the questions regarding the First Groundwater Technical Memorandum raised by your Honorable Board at your October 11, 2006 Meeting (See attached summary).

RECOMMENDATION

Staff believes that these two issues are related and sufficiently complex that they deserve discussion at a workshop. Staff recommends that the Board schedule a workshop starting at 9am on Wednesday November 15, 2006 at the NCSD Office. It should be noted that the WRAC will meet this same day starting at 1:30pm.

ATTACHMENTS

RESPONSES TO QUESTIONS RAISED REGARDING FIRST TECHNICAL MEMORANDUM

T:\BOARD MATTERS\BOARD MEETINGS\BOARD LETTER\BOARD LETTER 2006\allocation review 061025.DOC

QUESTIONS RE SAIC TECHNICAL MEMO

1. Page 1; Table 1 – Is the DWR Estimate of 84,000 AF of GW in storage above Sea Level for the Hydrologic Sub-Area the same number as Page 90 of the 2002 DWR Report?

RESPONSE: Yes.

2. Page 1; Table 1 – Do the storage values assume continuous saturation below the surface of the Groundwater Level?

RESPONSE: Yes.

3. Page 1; Table 1 – Do the storage values assume a constant specific yield of 11.7% throughout the aquifer?

RESPONSE: Yes.

4. Page 1; Table 1 – Is there a difference between potentially useable volume and total volume of groundwater above sea level? If so, can we quantify the two measures?

RESPONSE: The difference between potentially useable volume and total volume is established through the assumed specific yield. The 121,000 acre feet presented in the Technical Memorandum is potentially useable groundwater above sea level; however, the capture system would need to avoid any cones of depression in order to get 100% of the potentially useable storage.

5. Page 1; Table 1 – Were all of the “non-rejected wells” from table 2 used to calculate the 2006 storage volume? Some of the wells at the bottom of Page 1 of Table 2 appear to be East Side wells outside of the NMMA, if so, were they used??

RESPONSE: All of the “Non-Rejected” wells listed on Table 2 were used in the analysis. The East Side wells are listed so that SAIC can estimate the surface geometry of the groundwater at the interface of the NMMA and the East Side aquifer.

6. Page 1; Table 1 – Where can I get a listing of the wells used to compute the 2000 storage volume?

RESPONSE: SAIC will supply this table to NCSD by close of business 10/27/06.

7. Figure 2 and Figure 3 – What is the meaning of the white perimeter at the bottom of the side view (cut away)? If it is bedrock or aquiclude, why is it different between Figure 2 and Figure 3?

RESPONSE: Figure 2 and 3 are not cross sections as we see in traditional representations of hydrogeologic characteristics, similar to plan and profile views in engineering work. Instead, they represent the top of the groundwater (or groundwater surface elevation) predicted at each point along the “angle of view” as shown in the inset figure. The maximum groundwater surface elevation along the

“angle of view” is represented by the top of the colored field and the minimum groundwater surface elevation along the “angle of view” is represented by the bottom of the colored field. Thus, the elevations within the white space at the base of the colored field are elevations where groundwater exists along the entire “angle of view”. The difference between 2000 and 2006 is because the pumping that occurred in the interval changed the lowest groundwater surface elevation along the transect line.

8. Figure 2 and Figure 3 – Is Sea Level accurately illustrated??

RESPONSE: Yes. The sea level line displayed is a constant that did not change between 2000 and 2006, however, the graphic above the sea level line must be interpreted as stated above instead of a traditionally cross section above a reference point or line.

TO: BOARD OF DIRECTORS
FROM: BRUCE BUEL *BB*
DATE: OCT. 20, 2006

**AGENDA ITEM
E-5
OCTOBER 25, 2006**

APPLICATION FOR SERVICE - TRACT 2441 – BLUME & GRANDE

ITEM

Consider Issuing an Intent-to-Serve letter pursuant to District's updated Policies and Charges for an on-going 38-lot subdivision located at Blume and Grande.

BACKGROUND

The applicant for this project, the Gray Trust, originally applied to the District for Water and Sewer Service to this 38-lot residential subdivision off of Blume Street in July 2001 with Board approval on an Intent to Serve Letter in August 2001. This Intent to Serve Letter expired in 2003 and the applicant re-applied. On August 27, 2003, your Honorable Board issued a new Intent-to-Serve letter to this development. The Intent-to-Serve letter expired on August 28, 2006, after two extensions. On August 21, 2006, the Applicant requested an Intent-to-Serve letter in writing and paid a \$50.00 administrative fee.

On September 13, 2006 and September 27, 2006, your Honorable Board discussed the application and continued consideration of this matter. Staff provided historical documentation at the September 27, 2006 Board Meeting. Your Honorable Board received information regarding available Ground Water storage on October 11, 2006 and staff is scheduled to present information on dependable yield at this meeting (Agenda Item E-4).

Both the phasing and the calculation of the projected water demand are determined by the allocation policy. According to Section 3.05.030(A) in page 2 of the Allocation Policy, the projected "total demand, including landscaping" shall be established as .3 AFY per single family dwelling unit located on a parcel size of four thousand five hundred (4,500) square feet or less. According to Section 3.05.040(A1), a total of thirty-five (35) AFY including landscaping is reserved for single family dwelling units in any one allocation year. According to Section 3.05.100(A) the District will not allocate more than twenty percent (20%) of the use type allocation to any one project during any one allocation year. Thus, the allocation policy would project the total demand for 38 lots on small parcels at 11.4 AFY (38 times .3) and require that no more than 7AFY (.2 times 35) be allocated in any one allocation year.

As set forth in the attached Water Allocation Accounting Summary, the District has not approved any other single family dwelling projects in Allocation Year 2006-07, leaving 32.5 AF available this allocation year.

RECOMMENDATION

Staff recommends your Honorable Board direct staff to allocate water to the project (7 acre-feet in AY06-07 and 4.4 acre-feet in AY07-08) in accordance the District's water allocation policy and re-issue the Intent-to-Serve (ITS) letter for the project with the following conditions:

- A Will-Serve letter for the project will be issued after development plans are approved and signed by General Manager.
- Make a non-refundable deposit ("Deposit") at the time the District issues a Will-Serve letter in an amount equal to the then calculated Fees for Connection.
- Fees for Connection shall be calculated and owing as of the date the District sets the water meter(s) to serve the affected property from which the amount of the Deposit shall be deducted.

October 25, 2006

- The District will set water meter(s) upon proof of a building permit from the County of San Luis Obispo and that the District has accepted improvements to be dedicated to the District, if applicable.
- Intent-to-Serve letters shall automatically terminate in Two (2) years. However, applicant shall be entitled to a one-year extension upon proof of reasonable due diligence in processing the project.
- This Intent-to-Serve letter shall be subject to the current and future rules, agreements, regulations, fees, resolutions and ordinances of the District.
- This Intent-to-Serve letter may be revoked, or amended, as a result of conditions imposed upon the District by a court or availability of resources, or by a change in ordinance, resolution, rules, fees or regulations adopted by the Board of Directors.

Should your Honorable Board not wish to approve this intent to serve letter, this matter should be continued and policy direction provided to staff regarding the policy changes that the Board wishes to consider before it considers this application.

ATTACHMENT

- Current Application
- Allocation Policy
- Water Allocation Accounting Summary

T:\BOARD LETTER 2006\SERVICE REQUEST TRACT 2441A.DOC



NIPOMO COMMUNITY SERVICES DISTRICT

148 SOUTH WILSON STREET
POST OFFICE BOX 326 NIPOMO, CA 93444 - 0326
(805) 929-1133 FAX (805) 929-1932 Website: nlpomocsd.com

Office use only:
Date and Time
Complete
Application and
fees received:

INTENT-TO-SERVE/WILL-SERVE APPLICATION

1. This is an application for: Sewer and Water Service Water Service Only

2. SLO County Planning Department/Tract or Development No.: Tract 2241

3. Attach a copy of SLO County application.

Note: District Intent-to-Serve letters expire eight (8) months from date of issue, unless the project's County application is deemed complete.

4. Project location: Corner of Blume & Grande in Nipomo

5. Assessor's Parcel Number (APN) of lot(s) to be served: 092-130-049

6. Owner Name: Gray Trust (Mid-State Properties, LLC)

7. Mailing Address: 1320 Archer Street, San Luis Obispo CA 93401

8. Email: _____

9. Phone: 805 543-1500 FAX: 805 543-1590

10. Agent's Information (Architect or Engineer):

Name: Westland Engineering, Inc.

Address: 3480 S. Higuera Street #130, San Luis Obispo CA 93401

Email: telder@westlandengr.com

Phone: 805 541-2394 FAX: 805 541-2439

11. Type of Project: (circle as applicable)

Single Family Residence Duplex Secondary (a.k.a Granny) Unit
Multi-Family (under single roof) Commercial Mixed-Use (commercial & residential)

11. Number of Dwelling Units 38 Number of Low Income units 0

12. Does this project require a sub-division? Yes (yes/no)

If yes, number of new lots created 3

13. Site Plan:

For projects requiring Board approval, submit six (6) standard size (24" x 36") copies and one reduced copy (8½" x 11"). Board approval is needed for the following:

- more than four dwelling units
- property requiring sub-divisions
- higher than currently permitted housing density
- commercial developments

All other projects, submit two (2) standard size (24" x 36") and one reduced copy (8½" x 11").

Show parcel layout, water and sewer laterals, and general off-site improvements, as applicable.

14. Water Demand Certification:

A completed Water Demand Certification, signed by project engineer/architect, must be included for all residential and the residential-portion of mixed use.

~~15. Commercial Projects Service Demand Estimates:~~

Provide an estimate of yearly water (AFY) and sewer (MGD) demand for the project.
Please note: All commercial projects are required to use low water use irrigation systems and water conservation best management practices.

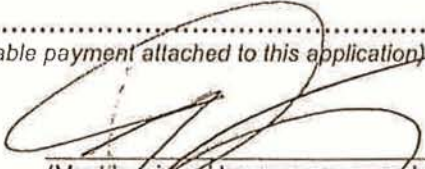
16. Agreement:

The Applicant agrees that in accordance with generally accepted construction practices, Applicant shall assume sole and complete responsibility for the condition of the job site during the course of the project, including the safety of persons and property; that this requirement shall apply continuously and not be limited to normal working hours; and the Applicant shall defend, indemnify, and hold the District and District's agents, employees and consultants harmless from any and all claims, demands, damages, costs, expenses (including attorney's fees) judgments or liabilities arising out of the performance or attempted performance of the work on this project; except those claims, demands, damages, costs, expenses (including attorney's fees) judgments or liabilities resulting from the negligence or willful misconduct of the District.

Nothing in the foregoing indemnity provision shall be construed to require Applicant to indemnify District against any responsibility or liability or contravention of Civil Code §2782

Application Processing Fee..... \$50.00
(Non-refundable payment attached to this application)

Date 8/21/06

Signed 
(Must be signed by owner or owner's agent)

Print Name HILL CRYPTIC TRUST



NIPOMO COMMUNITY SERVICES DISTRICT

148 SOUTH WILSON STREET
POST OFFICE BOX 326 NIPOMO, CA 93444 - 0326
(805) 929-1133 FAX (805) 929-1932 Email address gm@nipomocsd.com

WATER DEMAND CERTIFICATION

Supplement to Intent-to-Serve/Will Serve Application

Definitions

(Please note – these definitions do NOT reconcile with standard SLO County Planning department definitions)

Multi-family dwelling unit – means a building or portion thereof designed and used as a residence for three or more families living independently of each other under a common roof, including apartment houses, apartment hotels and flats, but not including automobile courts, or boardinghouses.

Two-family dwelling units (duplex) – means a building with a common roof containing not more than two kitchens, designed and/or used to house not more than two families living independently of each other.

Single-family dwelling unit – means a building designed for or used to house not more than one family.

Secondary dwelling units – means an attached or detached secondary residential dwelling unit on the same parcel as an existing single-family (primary) dwelling. A secondary unit provides for complete independent living facilities for one or more persons.

Commercial Projects

Commercial projects are exempt from Water Demand Certification; however, low water-use irrigation systems and water conservation best-management practices are required. The dwelling component of Mixed-Use projects (e.g. commercial and residential), are required to provide Water Demand Certification for the dwelling unit portion of the project.

Non-Commercial Projects

Water Demand Certification is required for all non-commercial projects and for the dwelling units of Mixed-Use. Certification must be signed by a licensed Engineer/Architect.

- - - Go to next page for demand calculation and certification - - -

Demand Calculation (for new dwelling units only)

Total project water demand (dwelling units including irrigation), by District standard, is as follows:

Number of Multi-family Units	_____	X	0.18	=	_____
Number of Duplexes/Secondary Units	_____	X	0.3	=	_____
Number of Single Family Units with:					
Parcel less than 4,500 sq. ft.	<u>38</u>	X	0.3	=	<u>11.4</u>
Parcel between 4,500 and 10,000 sq. ft.	_____	X	0.45	=	_____
Parcel greater than 10,000 sq. ft.	_____	X	0.55	=	_____
Total demand all dwelling units including irrigation				=	<u>11.4</u>

Certification

I the undersigned do here by certify:

Project design incorporates low water use landscape and landscape irrigation systems.

The design maximum total water demand, including landscaping does not exceed the following:

- 0.18 AFY per Multi-Family Dwelling Unit;
- 0.3 AFY per Dwelling Unit for duplexes and Secondary Dwellings;
- 0.3 AFY per Single Family Dwelling Unit located on a parcel size of four thousand five hundred (4,500) square feet or less;
- 0.45 AFY per Single Family Dwelling Unit located on a parcel size between four thousand five hundred (4,500) and ten thousand (10,000) square feet.
- 0.55 AFY per Single Family Dwelling Unit located on a parcel size that exceeds ten thousand (10,000) square feet.
- 0.85 AFY for the entire parcel when a secondary home is being added.

Note: "AFY" = acre-foot per year
 Parcel size is net area

Signed  Date 8.21.06
Must be signed by project engineer/architect

Title Pres License Number PE 21,807 Expires 3.30.07

Project Tract Map 2441 (e.g. Tract Number, Parcel Map #, APN)

ORDINANCE NO. 2004 - 100

AN ORDINANCE OF THE NIPOMO COMMUNITY SERVICES DISTRICT
ADOPTING RULES AND REGULATIONS FOR ALLOCATING
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CHAPTER 3.05 OF THE DISTRICT CODE

WHEREAS, it is essential for the protection of the health, welfare, and safety of the residents of the Nipomo Community Services District ("District"), and the public benefit of the State of California ("State"), that the groundwater resources of the Nipomo Mesa be conserved; and

WHEREAS, all of the current water supply requirements for the District are met by the use of groundwater; and

WHEREAS, the District is a party to a groundwater litigation matter, Santa Maria Valley Water Conservation District v. City of Santa Maria, etc. et al., Case No. CV 770214 ("Groundwater Litigation"). Until the Groundwater Litigation is resolved or settled the District's ability to rely on groundwater from the Santa Maria Groundwater Basin cannot be quantified; and

WHEREAS, the District's Urban Water Management Plan acknowledges that the District's future water supply will be dependent on the Court's decision on the adjudication of the Santa Maria Groundwater Basin with the possibility of the District having to curtail its pumpage from the Nipomo Sub-Area of the Santa Maria Groundwater Basin; and

WHEREAS, S.S. Papadopoulos and Associates, Inc. has prepared a report titled *Nipomo Mesa Groundwater Resource Capacity Study, San Luis Obispo, California* for the San Luis Obispo County Board of Supervisors (said Report and referenced documents are incorporated herein by this reference). Said Report included the following opinions and findings:

1. That groundwater pumping in the Nipomo Mesa area is in excess of the dependable yield. Since current and projected pumping beneath Nipomo Mesa exceeds inflow (natural recharge plus subsurface inflow), the Nipomo Mesa portion of the Santa Maria Groundwater Basin is currently in overdraft and projections of future demand indicate increasing overdraft.
2. DWR's findings for groundwater beneath the Nipomo Mesa Area are consistent with the County's Resource Management System Water Supply Criterion, Level of Severity III - existing demand equals or exceeds the dependable supply.

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3. Although, existing and projected future water demand at Nipomo Mesa exceeds sustainable groundwater supply based on local water balance analyses, associated potential impact such as seawater intrusion of the aquifer system is not an imminent threat. Hydraulic analyses indicate that a time lag of many decades is likely before heavy groundwater pumping a few miles from the coast results in evidence of seawater intrusion near the coastline.
4. Analysis of historical rainfall data indicate a 30% likelihood that another 10-year period will occur within the next 100 years with annual rainfall nearly 2 inches below average. This would result in major declines in groundwater levels in the Santa Maria River Valley and Nipomo Mesa accompanied by reduced production capability from many wells, increased energy costs for pumping, and increased risk of seawater intrusion of the aquifers near the coastal margin.
5. Management response to these findings could include increased use of recycled water, increased importation of supplemental water, implementation of additional conservation measures, and appropriate limits on development; and

WHEREAS, the San Luis Obispo County Department of Planning and Building's 2004 Resource Capacity Study for the Water Supply in the Nipomo Mesa Area recommends a Level of Severity III (existing demand equals or exceeds dependable supply) be certified for the Nipomo Mesa Area and that measures be implemented to lessen adverse impacts of future development (said Study and referenced documents are incorporated herein by reference); and

WHEREAS, SAIC, the District's groundwater expert, has testified to Phase III of the above referenced Groundwater Adjudication that the Nipomo Mesa Area is in overdraft (said testimony and exhibits are incorporated herein by this reference); and

WHEREAS, the County of San Luis Obispo has adopted a "Growth Management Ordinance" (Title 26 of the County Code) that imposes a 2.3 percent growth limitation for non-exempt projects for the Nipomo Mesa area (said Title 26 and implementing Ordinance and supporting studies, including the supporting CEQA analysis are incorporated herein by this reference). The stated

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purpose of Title 26 is to establish regulations to protect and promote the public health, safety and welfare including:

1. To establish an annual rate of growth that is consistent with the ability of community resources to support the growth, as established by the Resource Management System (RMS) of the County General Plan;
2. To establish a system for allocating the number of residential construction permits to be allowed each year by the annual growth rate set by the County Board of Supervisors; and
3. To minimize adverse effects on the public resulting from a rate of growth which will adversely affect the resources necessary to support existing and proposed new development as envisioned by the County General Plan; and

WHEREAS, it is essential for conservation purposes, and for the protection of groundwater resources, that the District adopt procedures allocating water service.; and

WHEREAS, the District Board of Directors, at a public meeting, on June 16, 2004, considered a Staff Report, and public testimony regarding potential actions to implement restrictions on water service within the District boundary; and

WHEREAS, on September 7, 2004, the District Board of Directors conducted a public hearing, considered the Staff Report and public testimony on the proposed Ordinance (Chapter 3.05 to the District Code); and

WHEREAS, on September 29, 2004, the District Board of Directors conducted a Public Hearing, considered the Staff Report and public testimony on the proposed Ordinance (Chapter 3.05 to the District Code) and continued the Public Hearing; and

WHEREAS, on October 13, 2004, the District Board of Directors, at a continued Public Hearing, took the following actions in considering the adoption of this Ordinance:

- A. Considered the facts and analysis as presented in the Staff Report prepared for the adoption of this Ordinance;

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- B. Conducted a public hearing to obtain public testimony on the proposed Ordinance;
- C. Considered the contents of an environmental initial study and adopted a negative declaration status for the Ordinance.

WHEREAS, in adopting this Ordinance, the District does not intend to limit other authorized means of managing, protecting and conserving the groundwater basin, and intends to work cooperatively with other agencies to implement joint groundwater management practices; and

WHEREAS, based on the Staff Report, Staff presentation, and public comment, the District Board of Directors finds:

- A. That it is the purpose and intent in adopting this Ordinance includes those purposes found in Section 3.05.010 of the Ordinance;
- B. Adopting and allocating Intent-to-Serve Letters for water service, based on resource quantities, will provide greater assurance that there will be adequate groundwater to meet present and future needs of District residents;
- C. That imposing a 2.3 percent cap on water allocation to non-exempt projects provides a logical, consistent approach to water allocation;
- D. That adopting this Chapter 3.05 will conserve the water supply for the greater public benefit, with particular regards to domestic use, sanitation and fire protection.
- E. That the hearing adopting this Ordinance has been appropriately noticed as required by law.

NOW, THEREFORE BE IT ORDAINED, by the Board of Directors of the District as follows:

Section 1. Adoption of Chapter 3.05 to the District Code

Chapter 3.05 to the District Code, attached hereto as Exhibit "A", is hereby incorporated herein by reference and adopted by the Board of Directors of the Nipomo Community Services District.

Section 2. Incorporation of Recitals

The recitals to this Ordinance are true and correct, support the

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implementation of conservation measures and procedures adopted by this Ordinance and are incorporated herein by this reference.

Section 3. Severability

If any section, subsection, sentence, clause or phrase of this Ordinance is for any reason held to be unconstitutional, ineffective or in any manner in conflict with the laws of the United States, or the State of California, such decision shall not affect the validity of the remaining portions of this Ordinance. The Governing Board of the District hereby declares that it would have passed this Ordinance and each section, subsection, sentence, clause and phrase thereof, irrespective of the fact that any one or more sections, subsection, sentence, clause or phrase be declared unconstitutional, ineffective, or in any manner in conflict with the laws of the United States or the State of California.

Section 4. Effect of headings in Ordinance

Title, division, part, chapter, article, and section headings contained herein do not in any manner affect the scope, meaning, or intent of the provisions of this Ordinance.

Section 5. Inconsistency

To the extent that the terms of provision of this Ordinance may be inconsistent or in conflict with the terms or conditions of any prior District Ordinance(s), Motions, Resolutions, Rules, or Regulations or any County Ordinance(s), Motions, Resolutions, Rules, or Regulations adopted by the District, governing the same subject matter thereof, then such inconsistent and conflicting provisions of prior Ordinances, Motions, Resolutions, Rules, and Regulations are hereby repealed.

Section 6. Effective Date

This Ordinance shall take effect immediately upon its adoption. Before the expiration of fifteen (15) days after passage it shall be posted in three (3) public places with the names of the members voting for and against the Ordinance and shall remain posted thereafter for at least one (1) week. The Ordinance shall be published once with the names of the members of the Board of Directors voting for and against the Ordinance in the Five Cities Times Press Recorder.

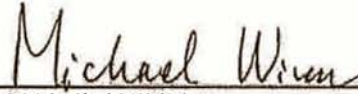
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On motion of Board Member Vierheilig, seconded by Board Member Trotter, and on the following roll call vote, to wit:

AYES: Directors Vierheilig, Trotter, Winn
NOES: Directors Wirsing and Blair
ABSENT: None

The foregoing Ordinance was passed and adopted this 13th day of October, 2004.



MICHAEL WINN,
President of the Board of Directors
Nipomo Community Services District

ATTEST:

APPROVED AS TO FORM:



DONNA K. JOHNSON
Secretary to the Board



JON S. SEITZ
District Legal Counsel

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NIPOMO COMMUNITY SERVICES DISTRICT

EXHIBIT "A"

CHAPTER 3.05 OF THE DISTRICT CODE

WATER SERVICE LIMITATIONS

3.05.010 Purpose.

The purposes of this Chapter include the following:

- A. To promote public health and safety and to avoid water shortage emergencies by establishing a maximum annual water allocation for residential water service within the District boundaries.
- B. To promote conservation by establishing goals for the maximum beneficial use of water by residential category.
- C. To allocate water service by categories to avoid a particular category from being excluded from participation and receiving water service.
- D. To establish a maximum allocation for any one project during an allocation year, so as to allow greater opportunity for all projects in a category to participate and to receive water service.
- E. To avoid speculation by requiring applicants to diligently process their projects consistent with the rules and regulations of the County of San Luis Obispo.
- F. To grant a priority for the provision of available resources to proposed housing developments which help meet the County of San Luis Obispo's share of regional housing need for lower income households as identified in the Housing Element adopted by the San Luis Obispo County Board of Supervisors.
- G. To provide flexibility by allowing the Board to consider redistributing allocations at the end of the second (2nd) quarter and in the middle of the fourth (4th) quarter of each allocation year.

3.05.020 Definitions.

- A. ~~AFY~~ – means acre feet per year.
- B. ~~Allocation Year~~ – means October 1st through September 30th of each calendar year.

C. **Lower income housing** – means lower income housing as identified in the Housing Element of the San Luis Obispo County General Plan, as amended from time to time.

D. **Multi-family dwelling unit** – means a building or portion thereof designed and used as a residence for three or more families living independently of each other under a common roof, including apartment houses, apartment hotels and flats, but not including automobile courts, or boardinghouses.

E. **Two family dwelling unit (duplex)** – means a building with a common roof containing not more than two kitchens, designed and/or used to house not more than two families living independently of each other.

F. **Single family dwelling unit** – means a building designed for or used to house not more than one family.

G. **Secondary dwelling units** – means an attached or detached secondary residential dwelling unit on the same parcel as an existing single-family (primary) dwelling. A secondary unit provides for complete independent living facilities for one or more persons.

3.05.030. Limitations on Water Use.

The following total demand limitations, including landscaping, are established for the following uses:

- A. 0.18 AFY per Multi-Family Dwelling Unit;
- B. 0.3 AFY per Dwelling Unit for duplexes and Secondary Dwellings;
- C. 0.3 AFY per Single Family Dwelling Unit located on a parcel size of four thousand five hundred (4,500) square feet or less;
- D. Subject to subsection C, above 0.45 AFY per Single Family Dwelling Unit located on a parcel size between four thousand five hundred (4,500) and ten thousand (10,000) square feet.;
- E. 0.55 AFY per Single Family Dwelling Unit located on a parcel size that exceeds ten thousand (10,000) square feet.

3.05.040 Water Allocation per Allocation Year.

A. Fifty-one (51) acre feet per allocation year is allocated to non-exempt projects on a first come first served basis as follows:

1. Category 1: A total of thirty-five (35) AFY, including landscaping, is reserved for:

- a. For Single Family Dwelling Units; and

b. Two Family Dwelling Units (duplexes).

2. Category 2: A total of eleven (11) AFY, including landscaping, is reserved for Multi-Family Dwelling Units.
3. Category 3: A total of five (5) AFY is reserved for Secondary Dwelling Units and local agency maintained landscaping projects.

B. During the end of the second (2nd) quarter and in the middle of the fourth (4th) quarter of each allocation year the unused allotments for Categories referenced in Section A, above, may be re-allocated by the Board of Directors to other Categories referenced in Section A, above.

C. Notwithstanding subparagraph B, above, the District shall reserve 3.3 AFY for proposed housing developments which help meet the County of San Luis Obispo's share of regional housing needs for lower income housing as identified in the Housing Element adopted by the San Luis Obispo County Board of Supervisor's. Said reservation shall be applied only to Category 1 and Category 2 projects referenced in Subparagraph A, above. Further, said reservation may only be re-allocated during the fourth (4th) quarter of each allocation year.

3.05.050 Water Demand Certifications Required.

A. Will Serve Letters: All applications for Will Serve Letters for Single Family Dwelling Units on existing parcels and for Secondary Dwelling Units require an engineer's or architect's certification that:

1. Low use landscape irrigation systems will be installed to irrigate landscaping; and
2. The Maximum total water demand, including landscaping does not:
 - a. For Single Family Dwelling Units – exceed the limitations established in Section 3.05.030, above for single family dwelling units;
 - b. For Secondary Dwelling Units – exceed a total water demand of 0.8 AFY for both the secondary and the primary dwelling units.

B. Intent to Serve Letters: All applications for Intent to Serve Letters require a registered engineer's or architect's certification that:

1. That low use landscape irrigation systems will be installed to irrigate landscaping; and

2. That the design maximum total water demand, including landscaping, does not exceed the limitations on water use established in 3.05.030, above.

3.05.060 Application for Intent-to-Serve Letters, Will-Serve Letters and Termination

The following procedures, are in addition to other District Rules and Regulations relating to Intent-to-Serve Letters and Will-Serve Letters, and shall apply to all applications for Intent-to-Serve Letters and Will-Serve Letters approved by the District:

A. Application shall be made on District's Application for Intent-to-Serve Letter or Will-Serve Letter form. In order to be considered for an Intent-to-Serve Letter or Will-Serve Letter applications shall contain a verification that applicant has submitted the proposed project for initial review to the County Planning and Building Department.

B. Intent-to-Serve Letters shall automatically terminate on the first to occur:

1. Failure of the applicant to provide District with written verification that County application for the project has been deemed complete within two hundred forty (240) calendar days of the date the Intent-to-Serve Letter is issued; or
2. Two (2) years. However, applicant shall be entitled to a one year extension upon proof of reasonable due diligence in processing the project.

3.05.70 Exempt Projects.

The following projects are exempt from the requirements of Section 3.05.040:

A. Commercial Projects that submit a landscape plan consistent with best management practices, including that low use landscape irrigation systems will be installed.

B. Projects with existing Intent-to-Serve Letters that have not expired.

C. Projects with existing Will-Serve Letters.

D. Remodels, and changes of use (i.e. commercial to residential) where the resulting water demand does not exceed the requirements of Section 3.05.030, above.

E. Projects that require annexation and are supported by supplemental water pursuant to the District's Annexation Policy as amended from time to time.

3.05.080 Mixed Use Projects.

Projects that include both commercial and dwelling units (mixed use) will only be approved if the dwelling units associated with the project meet the Dwelling Unit Standard set forth in Section 3.05.030 (A), above.

3.05.090 Limitation on Secondary Units

In addition to the other requirements contained in this Chapter, applications for water service to secondary units will only be accepted that include an engineer's or architect's certification that the total water demand for the secondary unit and the primary dwelling unit will not exceed 0.8 AFY. Applications for secondary units will be allocated Will-Serve Letters under 3.05.040 (A)(3), above.

3.05.100 Limitations on Allocations

A. Only one (1) request for an Intent-to-Serve Letter will be considered for any one (1) project or parcel. The District will not allocate more than twenty percent (20%) of the allocations referenced in 3.05.040 (A) (1) (2) or (3) to a project during any one allocation year.

B. A maximum of fifty percent (50%) of the annual water allocation for each successive allocation year may be reserved for projects requiring phasing of water commitments.

3.05.110. Waiting List

A. The General Manager shall maintain a waiting list for the issuance of Intent-to-Serve Letters.

B. Only applicants who have submitted a completed Intent to Serve/Will Serve application shall be placed on the waiting list and/or considered for approval.

3.05.120 Transfer of Allocations

Allocations provided in the District's Intent-to-Serve Letter shall run with the land and cannot be transferred to other parcels.

3.05.130 Implementing Procedures

The General Manager is hereby authorized to develop and implement procedures for allocating intent to Serve Letters and Will-Serve Letters consistent with this Chapter and its purposes and intent.

3.05.140 Annual Review

A. During the fourth quarter of each allocation year, the District Board of Directors shall hold a public hearing to:

- Evaluate the water allocation formulas contained in this Ordinance; and
- To evaluate the water allotment for ensuing year.

B. The Board of Directors reserves the right, at any time, to evaluate, amend or modify this Ordinance.

3.05.150 Re-evaluation

The District Board of Directors will re-evaluate Chapter 3.05 concurrently with any final agreement that obligates the parties for the delivery of supplemental water.

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TO: BOARD OF DIRECTORS
FROM: BRUCE BUEL *BB*
DATE: OCT. 20, 2006

AGENDA ITEM
E-6
OCT. 25, 2006

DISCUSS BIGHORN DECISION IMPACTS ON DISTRICT PROCESSES

ITEM

Discuss impacts of California Supreme Court Decision in Bighorn Case on District Processes
(Receive Presentation)

BACKGROUND

District Legal Counsel Jon Seitz will review the Supreme Court's Decision and discuss implications for the District.

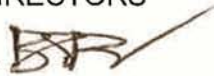
RECOMMENDATION

It is recommended that your Honorable Board receive District Legal Counsel's presentation and discuss the implications of the decision on the District.

ATTACHMENTS

NONE

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TO: BOARD OF DIRECTORS
FROM: BRUCE BUEL 
DATE: OCT. 20, 2006

**AGENDA ITEM
E-7
OCT. 25, 2006**

DISCUSS 2006 LEGISLATION

ITEM

Discuss select legislation adopted by the State (Receive Presentation)

BACKGROUND

District Legal Counsel Jon Seitz will review select bills approved by the legislature and signed by the Governor in 2006.

RECOMMENDATION

It is recommended that your Honorable Board receive District Legal Counsel's presentation and discuss the implications of the legislation on the District.

ATTACHMENTS

NONE

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