WATER SYSTEM PLAN

Dockton Water Association
Vashon, Washington

May 2002

WESCORP
Consulting Engineers

Dockton Water Association
Water System Plan
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Chapter 1

Description of Water System

1.A. Ownership and Management

The Dockton Water Association, ID No. 19550J, is a non-profit, membership owned association of property owners in the purveyor's service area. A Board of Directors, consisting of seven members, is elected by the membership and governs the system.

The board elects officers consisting of President, Vice President, Secretary and Treasurer. Appendix A contains copies of the Association Bylaws and Board of Director Policies.

1.B. System History and Background

The first elements of the system were constructed in the 1880's when springs were developed in the area currently identified as the Dockton Springs source. Distribution to a lumber mill and other small businesses was by flume and wooden pipe. Subsequently, a large windmill powered well was dug on SW Windmill Street east of 99th Avenue. Water from this source was supplied to the Dockton Drydock, Codfish Dock and the Matinolich Shipyard.

In October 1937 the Dockton Improvement Company was formed by 35 residents of the community to develop a water system. The system utilized water from the Dockton Springs site and was put in operation in November 1938. For storage, a covered rectangular concrete tank was constructed at a site located on SW 268th Street east of 99th Ave. SW. As population and storage needs increased, a second and third tank were constructed at this site. The third tank was constructed in 1972.

During the same time period, the Harborview Water Company (HWC), established a service area adjacent to the Dockton Improvement Company system. The source of water for the HWC system was a set of springs east of and in close proximity to Dockton Springs.

In the early 1960's, the Sandy Shores Community developed a well that is now identified as the Sandy Shores Well source of the Dockton Water Association.

In 1972, a spring source identified as Hake Springs was developed on property located west of 99th Avenue SW on SW 268th Street. A rectangular concrete collector basin and a pump house were constructed at the site. The collected water was pumped via the system's distribution lines to the reservoirs on SW268th Street east of 99th Avenue SW.

In 1982, the three systems were consolidated into a single system owned and operated by the Dockton Water Association. Shortly thereafter, in conjunction with the

establishment of an upper pressure zone in the system, the facilities of the three systems were physically integrated. The Dockton Improvement Company system and the HWC system together became the lower pressure zone of the current system.

The upper pressure zone system consists of two above ground cylindrical concrete storage tanks, located on an easement at the highest elevation in the service area, and the necessary mains to service a portion of the upper zone. The Sandy Shores system was integrated into the new zone and became the primary source for the upper zone. Construction was completed and the system put into operation in early 1983.

Two extensions were added to the upper pressure zone, one in 1985 (The Manzanita Extension) and the second in 1988 (The Harbor Vista Extension). The Manzanita Extension connected to the system at 101st Avenue SW and SW 280th Street. The extension served property on Manzanita Beach Road SW, SW Northilla Road and SW 280th Lane. The developer of two short plats located south and east of SW 280th Street and 99the Avenue SW constructed the Harbor Vista Extension. Upon completion it was accepted by the Dockton Water Association for integration into the system.

1.C. Related Plans

The Dockton Water Association was a participant in the development of the "Vashon Coordinated Water System Plan (Regional Supplement)" which was completed in June 1990. The plan was developed in accordance with the "Public Water System Coordination Act of 1977, Chapter 70.116 RCW." The plan established service areas for each of the major water purveyors in Vashon and Maury Islands and established standards and guidelines to be adhered to by each system. The map and Service Area Agreement is included in Appendix B.

The "Vashon Ground Water Management Plan" is currently being developed under the leadership of the Vashon Ground Water Advisory Committee and King County. Implementation of the plan has not yet been authorized.

1.D. Service Area

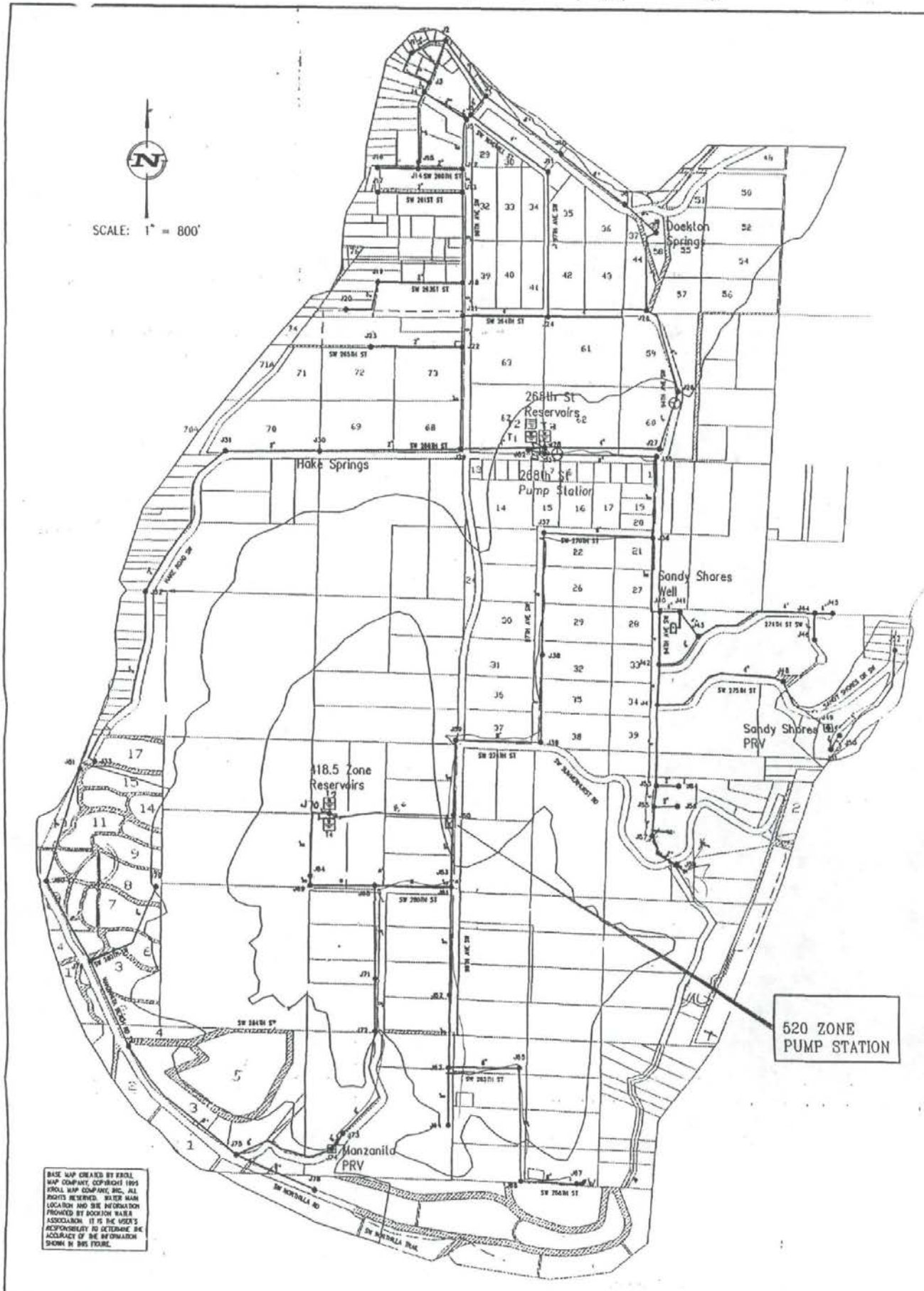
A map of the existing service area showing the location of major facilities and the distribution system is shown on Figure 1.

There are no plans by the Association to expand the service area allocated by the "Vashon Coordinated Water System Plan."

1.E. Service Area Agreements

The geographical service area boundaries for the system were delineated by agreements of the parties to the "Vashon Coordinated Water System Plan (Regional Supplement)." The geographical area assigned to the Dockton Water Association is comprised of that portion of Maury Island lying within Sections 29, 30, 31 and 32 of Township 22 North, Range 3 East, WM, and Section 5 and 6 of Township 21 North, Range 3 East, WM. A copy of the agreement is shown in Appendix B.

The portion of the geographical service area currently served by existing mains, such that service connections would be available, comprises approximately 80 percent of the



PREPARED BY:

RH2 ENGINEERS PLANNERS SCIENTISTS

DOCKTON WATER ASSOCIATION

FIGURE 1

buildable property within the service area. Of the remaining 20 percent, future main extensions would be required to serve the areas.

1.F. Service Area Policies

The Board of Directors has adopted a "Service Extension" policy, which requires the extension of existing mains for service to properties beyond the reach of the current distribution system. The policy delineates the conditions, including cost obligations, for such extensions. The policy includes provisions for a "latecomer" agreement. A copy of this policy, together with other currently active policies of the Board was shown in Appendix A.

The Association does not expect to establish or manage any satellite or remote systems.

The bylaws of the Association state the rights and responsibilities of members and the duties and limitations of officers and the board of Directors. A copy of the Bylaws is included in Appendix A.

A condition of service policy enumerates the fees for membership in the Association, monthly fees for water service and charges for connection to the system. It addresses requirements for obtaining "Certificates of Water Availability" and penalty charges.

1.G. Geography

The topography of the southern portion of the service area (south of SW 268th Street) is characterized by steep slopes rising from the shoreline to elevations of 300 to 400 feet. At the upper elevations, the topography levels to gently rolling plateaus. The plateaus are, in places, cut by ravines, which drain rainfall towards the shore. At some locations there is a flat shelf of land at the base of the shoreline steep slopes. The northern portion of the service area (north of SW 268th Street) consists of gently sloping terrain with elevations near 200 feet near 268th Street to low-bank and no-bank shorelines.

The geology and soils in the area are best described in "Vashon/Maury Island Water Resources Study" Prepared by J.R. Carr & Associates in 1983.

1.H. Adjacent/Neighboring Purveyors

While there are no neighboring purveyors whose service area is contiguous to that of the Dockton Water Association. There are two Class A water systems in the near vicinity. The Gold Beach Water Company is north and east of Dockton and the Maury Mutual Water Company is north of the Gold Beach system.

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Chapter 2

Basic Planning Data

2.A. Current Population, Service Connections, and Water Use

2.A.1. Residential Population

A current population census of the water service area has not been performed, therefore an assumption of average household size must be made to estimate population. The best source for the average household size assumption is Table II-1 from the "Vashon Coordinated Water System Plan," which includes entire Vashon Island. It is reasonable to assume that demographics with the Dockton Water Association service area are representative of demographics on the entire island. Based on this assumption and the data in the referenced table, the average household size is 2.30 persons, and the population of the service area is estimated to be:

> 2.30 persons per connection x 358 residential connections = 823 people as of early 2002.

2.A.2 Total Service Connections

As of February 2002 there were 361 service connections within the system. Of these, 358 were residential while three were classified as commercial (a park/marina, a fire station and an unmanned telephone switching station).

2.A.3 Water Use Data Collection

Source meters are installed at each source and are read daily, seven days per week. Past data is available well beyond the 5-year requirement and will continue to be collected daily.

All residential and commercial services are metered and read monthly. A monthly "Report of Activities" includes the total cubic feet of water delivered to customers (sum of meter readings) and the average household usage. Data retention of these readings exceed five years.

An evaluation of Average Day Demand (ADD), Maximum Day Demand (MDD) and Peak Hourly Demand (PHD) for the system is presented in Chapter 3. These important values will continue to be assessed and will be presented in future updates of this WSP.

Water losses are identified and discussed as part of the System Analysis in Chapter 3.

No water is imported or exported through interties nor by wholesaling of water into or out of the system.

2.B. Equivalent Residential Units (ERU)

An ERU is a unit of measure used to equate non-residential or multi-family residential water usage to an equivalent number of single family residences. The number of ERU's in the Dockton system equals the number of single family residences served (including full-time and part-time residences) plus the number of equivalent single family residences represented by the three commercial connections. The three commercial connections include the County Park, fire station and PTI Communications station, although the last two customers are not technically classified as commercial customers, for rate schedule purposes, due to their low water usage. For purposes of the ERU calculations, they will be considered commercial. The number of ERU's being served, as of March 2001, is as follows:

Number of single family residences being served = 358

ERU calculation for commercial connections:

County Park:	ERU	=	4.7
Fire Station:	ERU	=	0.04
PTI Comm.	ERU	=	0.02

Total ERU's = 358 + 4.7 + 0.04 + 0.02 = 363

The present system can support more than the 363 ERU's being served. Discussion and calculation of the maximum ERU's that can be supported is presented in Chapter 3.

2.C. Projected Land Use, Future Population, and Forecast Water Demands

2.C.1 Existing Land Use Patterns

The predominant land use in the service area is rural residential. Some agricultural usage in the form of orchards, plant nursery and pasture are located primarily in the Dockton "town" area. A King County park/marina, and a fire station are also located in this area.

The upper plateau area consists of very low-density housing. Zoning in this area requires 5 and 10 acre building sites. Much of this area is covered with woodlands. The shoreline properties in this area are more densely populated with waterfront homes. These tend to be a single tier of residences since the width of the flat land at the base of steep slopes limits building further inland.

The lower plateau (the town of Dockton) is more densely populated. The zoning allows smaller lots (plats were filed for most of this area before the current more restrictive zoning laws were enacted).

The service area, and all of Vashon Island, is within King County. The County's latest comprehensive plan under the State Growth Management Act (GMA) was adopted by the King County Council on February 12, 2001 and published in June 2001. This most

recent Plan incorporates provisions of the Vashon Town Plan, adopted in 1996. The Vashon Town Plan is a subarea plan as provided by the GMA, and maintains the rezoning accomplished in 1992. Rezoning changed a few areas from a minimum of 5 to 10 acres to a minimum of 2.5 acres. In addition, many large lots that existed prior to rezoning are still allowed to subdivide more densely than existing zoning under "grandfather" provisions. Current GMA planning permits commercial activities concentrated in the village of Dockton. Based on the above, there exists a potential for further subdivision of land within the service area.

2.C.2 Projected Land Use Patterns

The land use zoning and topography inhibits "housing developments" and commercial development within most of the service area. Use patterns are expected to be almost totally single family residences.

The number of buildable acres in the service area still left undeveloped has not been accurately quantified, however, it is roughly estimated at 250 to 350 acres. The entire service area is about 1,350 acres, and is primarily zoned Rural.

The King County Comprehensive Plan 2000 provides statistics on projected and actual dwelling unit growth on Vashon Island. The "Target" projection for the period 1992-2012 (as projected in 1992) was between 300 and 500 new households. The actual growth between 1993 and 2000 was 594 dwelling units, thereby significantly exceeding the projected 20 year growth in only 7 years. This indicates a continuing pressure for building permits on Vashon.

2.D. Projected Population

Using the increase in number of connections over time as the indicator of future growth and projecting from data over the period of 1990 to 2000 gives a viable prediction of future growth. Table 3-2 in Chapter 3 tabulates the connection history over this period. The data yields an average increase of 8.1 connections per year. Using the "Vashon Coordinated System Plan" data for household size, the 6 and 20-year populations will be:

> Future Population = (2000 Population) + (Average Connection Increases per year x Number of Years x Average Household Size for Period).
>
> Population 2006 = 800 + (8.1 x 6 x 2.25) = 912 people.
>
> Population 2020 = 800 + (8.1 x 20 x 2.11) = 1,142 people.

2.E. Projected Non-Residential Water Needs

As described above under Projected Land Use Patterns, there is expected to be only minimal demand for non-residential water services.

2.F. Water Demand Forecasting

Future demand is calculated based on population growth (connections) and maximum usage from historical data. Projections are presented for 6 and 20-year growth periods, with and without implementation of conservation measures, as average day and maximum day usage. Historical maximum day usage is shown in Chapter 3 (518 gal./connection.) and historical average day demand is taken from the highest value in the past 10 years (246 gal./connection).

There was a total increase of 65 connections from 1990 to 1998, which yields an average annual increase of 8.1 connections. There were no new shares issued in 1996 (had reached the limit on allowable connections) or until February 1997 after meeting DOH requirements for an increase in connection allowance. From July 1997 to July 1998, the 16 additional connections were made. It is believed that many of these connections would have been made earlier had shares been available. Based on the above, an average annual increase of 8.1 connections are used for forecast purposes. This average was used to project the expected connections increase for the 6 and 20-year periods. The number of projected connections was multiplied by the largest average day use per connection (246 gallons) to determine average demand for the two projection periods. The maximum daily demands were calculated in a similar manner. Projections are presented in Table 2-1.

Table 2-1
Projected 6 and 20 Year Daily Demands

Year	Connections	Average Day	Maximum Day
2006	401	98,650 gal. 96,873 gal. (a)	207,720 gal. 203,565 gal. (a)
2020	514	126,440 gal. 119,486 gal. (b)	266,250 gal. 251,606 gal. (b)

(a) with 2.5% accumulated conservation between 2000-2006
(b) with 5.5% accumulated conservation between 2000-2020

Actions the Association has taken to promote conservation is described in Chapter 4, para. 4.A.4. DWA will continue to promote conservation measures among its members. In addition, it is anticipated that proposed future line replacements will help to minimize relatively high losses that appear to be occuring within the system. Based on experience data from other small water systems, it is reasonable to assume that DWA can achieve its conservation goals with its current water conservation plan.

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Chapter 3

System Analysis

3.A. System Design Standards

The Minimum Design Standards of Part IV of the "Vashon Coordinated Water System Plan " have been adopted as minimum standards for the Dockton Water Association, and are incorporated herein by reference.

Water mains will be sized based on hydraulic analysis (mathematical model or hand computation) and satisfying both of the following demand scenarios; 1) ability of the system to deliver the peak hourly demand at a minimum of 30 psi at every existing and proposed service connection, and 2) ability to deliver the maximum day demand rate, in addition to fire flow, at a minimum of 20 psi throughout the system.

Water main shutoff valves shall be located such that no more than 1,000 feet of main will be isolated between two shutoff valves. Hydrants and blowoffs shall be installed at low points and dead ends in the distribution system to allow for sufficient flushing and disinfection of distribution mains.

3.B. Water Quality Analysis

The water quality from all sources of the system have consistently met all primary requirements set by the State DOH for compliance with the federal Safe Drinking Water Act. There have been no adverse trends in any of the contaminant levels over the period of testing.

In addition to State mandated testing, the system has met the King County DOH standards for coliform bacteria and has had no violations in at least the last five years.

However, the system needs to address two concerns: (1) The manganese levels in source water delivered from the Sandy Shores well exhibits values which exceed the secondary maximum contaminant levels set by State and Federal regulations; and (2) Turbidity levels in water delivered from Dockton Springs and the Sandy Shores well both exceed the accepted levels for unfiltered water systems.

3.C. System Inventory Description and Analysis

The Dockton water system consists of three water sources with attendant pump stations, two reservoir sites and a distribution network. The following is a description of these facilities.

3.C.1 Sources

Water for the system originates from two springs and a well. The location of these sources is shown on Figure 1 and a description follows:

Dockton Springs (S01)

Dockton Springs consists of eleven well points and a lateral interceptor. Six of the well points feed into an upper collector basin and five well points plus the lateral collector feed into a lower collector basin. Total output from the well points and lateral collector is 69 gpm. A centrifugal pump, rated 65 gpm at 95 psig, pumps water from the collector basin into the system and to the lower reservoirs on SW 268th Street. Operation of the transfer pump is controlled by a float switch at the #2 reservoir at SW 268th Street to maintain the reservoir level. A float switch in the lower collector basin at Dockton Springs provides low level cutoff control. The low-level cut-off is activated by a water level of 2.5 feet and the pump enabled when the level rises to 5.0 feet. Overflow is at 5.1 feet above the basin floor. Water from the upper collector basin (about 14 feet higher than lower basin) is fed to the lower basin through a six-inch pipe. It is controlled by an electrically operated valve actuated by a float switch set to open whenever the lower level basin water reaches a level one foot above pump cut-off.

The elements of this facility requiring periodic capital expenditures are the transfer pump, the roof structures on the collector basins and the electrical controls. Other elements such as well points and piping will be maintained under routine maintenance. The current pump is new and was installed in May 1998. As part of the capital improvement program, installation of a redundant parallel pump is being considered. The collector basin roof structures and roofing were replaced in 1992-3. The roofing is a 50-year metal roof on each collector basin. Electrical controls will be refurbished/updated as part of the new pump installation. Upon completion of the upgrades, the facility should have a useful life exceeding an additional 30 years.

Sandy Shores Well (S02)

The Sandy Shores Well is a 423-foot deep well with a 100 gpm submersible pump. This source is not generally used during the period from early November to late April, since the Dockton Spring source can presently satisfy the total demand during the winter months. However, this well has been used periodically during the winter period when maintenance is being performed on the Dockton Springs source and when, as a maintenance precaution, it is occasionally exercised to insure it operations.

Pump discharge is either fed directly into the system and to the upper reservoir site or is routed through a booster pump to increase output. Control of the choice of these two modes is achieved manually. In the direct mode, the submersible pump discharges at the rate of 88 gpm and in the coupled mode the combined pump output is 105 gpm at full drawdown. Appendix C contains performance curves for both pumps.

The most vulnerable element of this supply source is the deep well pump. The pump is 18 years old and remaining useful life cannot be reliably predicted. If the pump fails beyond repair, it is estimated that it would take 2 to 3 days to install a replacement pump. A booster pump is installed to operate when needed. The booster pump can be

replaced or maintained without interruption of flow from the deep well pump to the system.

Hake Springs (S03)

The source at Hake Springs consists of a single well point which feeds a collector basin located about 15 feet above the transfer pump inlet. The transfer pump is controlled by a time clock, which allows operation for four periods per day, each cycle being from 1.5 hours to 2 hours, for a total of 7 hours and 15 minutes of operation per day. Operation is independent of system controls and pumps whether or not there is a system demand. It has a consistent output of 8,000gal/day to the SW 268th Street reservoirs. This source is not normally used during the winter months.

The elements of the Hake Springs source potentially needing capital improvements are the pump and the collector basin roof. Due to the small contribution this source makes to the system capacity, about 8,000 gals/day, no backup pump configuration is needed. The small pump will be replaced upon failure or wearout with only minor impact to capacity or budget. A new 50-year metal roof was installed on the collector basin in 1996 together with repairs to the roof structure. Useful life should exceed 30 years.

A summary of the capability of each source in the system is shown on Table 3-1.

Table 3-1
Source Capability Summary

Source Name	Source Flow, gpm	Water Right, gpm (0.16+0.16)	Transfer Pump Flow, gpm
Dockton Park Springs	69	143.6	65
Hake Springs	5.5	13.5	20
Sandy Shores	100	100	100
Totals	174.5	257.1	185

3.C.2 Reservoirs

Water is stored in reservoirs at two sites. The SW 268th Street Reservoir serves the 246-foot pressure zone, and the Upper Level reservoir serves the 418.5 pressure zone. In addition, the Upper Level reservoir serves the 520 foot pressure zone through a booster pump station and the 238 and 234 pressure zones through two pressure reducing stations.

SW 268th Street Reservoir

Water is stored at this site in three separate, but hydraulically connected, concrete rectangular structures. Total storage capacity of all three structures is 57,600 gallons at maximum level, and 50,300 gallons at the refill demand level. A float switch controls water level in Reservoir #2 which is connected to the Dockton Springs transfer pump controls by means of leased phone lines.

A transfer pump at this site delivers water at a measured rate of 68 gpm to the upper pressure zone reservoirs whenever there is sufficient water available in the SW 268th Street reservoirs. The purpose is to maximize the use of Dockton Spring water in preference to Sandy Shores well water. The transfer pump is controlled locally by a float switch in Reservoir #1 which is set to allow water transfer whenever there is sufficient water available. The switch has an on-off range of ten inches and is set eight inches below the float switch in Reservoir #2.

During periods of peak usage demand in the lower pressure zone there may be insufficient water supplied by the spring sites to maintain reservoir levels. A connection is provided between the upper reservoir and the 268th Street reservoir through a float control valve, which allows water to flow from the upper to the lower reservoir when needed. The connecting pipe and valve are 6 inches in diameter. The valve outlet is reduced to 4 inches to maintain sufficient back-pressure for proper operation. The float has a 31-inch travel between stops and opens whenever the water level falls 44 inches below the full level and closes when the water level rises to 13 inches below the full level. It should be noted that elevations shown on storage reservoir as-built drawings are in error. The correct overflow elevation is 246 feet, as determined by levels run from King County monument #FL-9.

Elements of this storage facility subject to periodic capital improvements include the transfer pump house, the reservoir structures, and reservoir roofs. The transfer pump was replaced in 1998. The pump is most active during winter months when the Sandy Shores pump is inactive due to low demand. Should a failure occur during that period, the Sandy Shores well would automatically begin pumping to the upper reservoir. The roofing on one of the three reservoir tanks was replaced with three-tab asphalt shingles and the other two are currently in acceptable condition.

Upper Level Reservoir

The Upper Level Reservoir consists of two cylindrical concrete tanks, each 40 feet high by 26 feet inside diameter. The tanks were constructed in 1982. The overflow is located 2 feet below the top of the tank. The two tanks have a combined capacity of 301,800 gallons at the overflow level. The water level is maintained by means of two float switches. Float Switch #1provides demand and full signals via leased telephone lines to the transfer pump controls at the SW 268th Street reservoir site. This switch is set for a full level at 36 feet and a demand level of 35 feet. Float Switch #2 provides demand and full signals via leased telephone lines to the pump controls at the Sandy Shores well site. The demand and full levels for this switch are set one foot below those for Float Switch #1. This arrangement provides a preference for spring water over well water. The demand levels are dictated by a need to maintain a reasonable supply pressure to higher elevation homes in the upper pressure zone. It should be noted that elevations shown on the as-builts are in error. The ground level at the reservoir is approximately 385 feet and the overflow is at 420.5 feet as determined by levels run from King County monument #FL-26.

3.C.3 Distribution System

Distribution system pressures were analyzed by RH2 Engineering , Inc. in its report dated July 24, 1996. A map of the water system, showing pipe routes, sizes and nodes used in the RH2 hydraulic analysis, is shown in Chapter 1, Figure 1.

The lower pressure zone distribution system, as it exists today, was constructed between 1972 and 1974. No plans of its construction are available. However, on the system map, sizes and locations are shown, as determined from repair activities and the memories of those who were officers of the Association at the time of construction. The lower system served by the 268th Street Reservoirs consists primarily of two-inch plastic piping, although other materials, including rigid steel electrical conduit, are said to have been used for some distribution piping runs. A 6-inch asbestos cement pipe, laid in 1972, is located along Dock Street between the Dockton Springs facility and 99th Avenue SW, and then in 99th Avenue SW from Dock Street to SW 268th Street.

The Sandy Shores Water System, before consolidation with the Dockton Water system, was installed in 1962 and consists primarily of 6-inch and 4-inch plastic pipe. The remaining useful life of the piping is difficult to assess, and the adequacy of the smaller size piping, particularly for fire protection, is a concern.

The upper pressure zone distribution system was constructed in three stages. The initial portion, including the 268th Street reservoirs, was constructed in 1983. The Manzanita Extension was constructed in 1984 and the Harbor Vista Extension from early to mid-1986. The Sandy Shores System was built as an independent system in late 1963 or early 1964. The system was consolidated with the Dockton Water Association system in 1983 and was integrated with the upper pressure zone system during the first phase of that system's construction. The 99th Avenue booster pump station serving the 520 pressure zone was constructed in late 1996 and early 1997.

The Upper Pressure Zone (the area served by the upper reservoirs) consists of four sub-zones, as follows:

a) The area served by direct gravity pressure from the upper reservoirs, the 418.5 zone.
b) The area served from the upper reservoir through the booster pump station on 99th Avenue SW, the 520 zone.
c) Lower Sandy Shores, below the PRV station, the 238 zone.
d) The Manzanita Extension below the PRV station, the 234 zone.

These sub-zones, as well as the other configuration details, are shown on the water system map, Figure 1.

The 520-foot pressure zone booster pump station was constructed in 1997, and has operated without significant problems since then. The 520 Zone Booster Pump Station is a packaged unit consisting of an epoxy coated enclosure 20.5 feet long by 8.5 feet wide by 8.25 feet high containing four pumps together with electrical controls and environmental control devices. The four pumps are rated as follows:

Pump Nos. 1 and 2	17 gpm @ 85 feet TDH
Pump No. 3	80 gpm @ 85 feet TDH
Pump No. 4	108 gpm @ 100 feet TDH

Pump Nos. 1, 2 and 3 are activated by pressure sensing controls in a sequential manner in response to system demands. Output pressure is controlled between 92 and 102

psig. Pump No. 4 is a fire flow pump and activates when sensed output falls below 60 psig and shuts down when the output pressure rises to 70 psig.

3.C.4 Capacity Analysis

Water usage for the period from 1990 to 1998 for the Dockton Water Association is given in Table 3-2. The table indicates that system losses are high but appear to be decreasing slightly in recent years. Likewise, average daily usage has decreased since the early 1990's but has been consistent during the past 5 years.

Table 3-2
Water Usage (1990-1998) (gallons)

Year	Volume Pumped	Volume Delivered	Percent Unaccounted	Number of Customers	Average Daily Usage
1990	24,363,000	14,636,000	39.9	270	247
1991	24,999,000	16,738,000	33.0	280	245
1992	25,986,000	17,615,000	32.2	295	241
1993	24,431,000	17,472,000	28.5	297	225
1994	25,192,000	18,742,000	25.6	304	234
1995	25,633,000	18,736,000	26.9	313	224
1996	24,832,000	19,142,000	22.9	318	214
1997	25,812,000	17,605,000	31.8	320	221
1998	27,810,000	22,224,000	20.1	336	227

It is difficult to assess the accuracy of the data presented in Table 3-2 due to potential inaccuracies in the source and service meters. Many of the service meters, for instance, are 30 to 40 years old and have never been calibrated. DWA is currently engaged in a service meter replacement program, and have replaced 26 service meters with new equipment during 2001. This service meter replacement schedule is continuing during 2002 on an accelerated schedule. Since many of the very old service installations did not include a meter set, the cost of swapping out the old meters has been expensive. The meter replacement program has included the installation of a meter set when the meter is replaced. In addition, DWA recently committed to purchasing a spare source flow meter that would allow calibration of source meters on an annual basis.

Although the Association tabulates water usage from the source meters on a daily basis, the manual tabulation is not done at a consistent time period each day. Consequently, it is difficult to determine definitively the maximum daily usage. However, an evaluation of the reported maximum day values, considering the reported time periods, leads to the conclusion that the maximum day usage is approximately 518 gallons per day per connection.

The capacity of the water system is a function of the ability of the system to meet demands with the peak day demands generally being the limiting factor. Given the current maximum source capacity of 174.5 gpm (69 gpm at Dockton Springs, 5.5 gpm at Hake Springs, and 100 gpm at Sandy Springs), the maximum daily capacity of the sources is 251,280 gallons per day. With the maximum daily demand of 518 gallons per day, the maximum number of ERU's allowed, based on storage, will be 485. Since the

current number of ERU's is 363, the allowable increase in connections is 122. As given in Chapter 2, the current growth rate is approximately 8 connections per year. Consequently, based on storage, the system will reach its maximum number of connections in approximately 15 years.

The capacity of the distribution system to provide the Peak Hourly Demand (PHD) was also checked. DWA does not have access to the hydraulic model previously prepared by RH2 in 1996, so the impact that an additional 35 connections would have on the system can only be estimated at this time.

The water system does not have the instrumentation to measure PHD on the system. Therefore, DOH's Water System Design Manual (August 2001) was used to determine PHD. Based on a Maximum Day Demand of 518 gpd/ERU and 485 connections, the PHD would be 377 gpm. Based on the 450 currently approved connections, the PHD is 354 gpm. Without mathematically modeling the system, it is difficult to definitively say what impact the additional PHD will have at critical points in the system. However, in general it appears that areas served by 6-inch and 8-inch lines will be capable of delivering the PHD at pressures greater than 30 psi per the regulations. Areas served by 4-inch lines and smaller are already flow restricted, but DWA plans to replace existing lines in these areas with larger diameter pipe.

The system is currently approved by DOH for 450 connections. This approval was based upon the system capacity in 1997, and several new improvements to the system have been implemented since then. If the system is limited to the currently approved 450 connections, the capacity will be reached in 11 years.

It should also be pointed out that the Dockton system has a high loss rate (between 20 and 40 percent). Losses undoubtedly come from several sources. There is one water tap in the system that allows un-metered use of water, but a new service meter has recently been installed on the tap. The Fire District has also been asked to provide estimates of water use from un-metered hydrants. Replacing old service meters will provide a more accurate measure of water use, and future replacement of older, smaller diameter, distribution mains will help to lower the loss rate. Altogether, these actions should reduce system losses below 20% and provide a more accurate measure of water supply and demands. Recent experience for the last few months indicate that the water loss on a monthly basis is now reduced to less than 10%.

3.C.5 Reservoir Storage Analysis

The Upper Reservoirs have a total capacity of 302,000 gallons to the overflow level and 278,000 gallons at the level where the source control pumps turn on. The SW 268th Street reservoirs have a total capacity of 60,300 gallons and an active storage of 50,300 gallons at the refill level. Consequently, the system has a total active storage of 328,300 gallons.

The volume of storage required is the greater of either the emergency storage required or the sum of the fire storage plus equalizing storage. These calculations are shown as follows:

Emergency Storage	= 2 days of storage to account for power outages = 2 X maximum connections X average daily demand = 2 X 485 X 246 = 238,620 gallons
Fire Storage	= 2 hours X 1000 gpm = 2 X 60 X 1000 = 120,000 gallons
Equalizing Storage	= (PHD - Q) x 150 minutes = (377 - 174.5) (150) = 30,375 gallons

The maximum storage required, under full usage of the available supplies, is therefore the volume of emergency storage. Since the available storage is greater than the required storage, 328,300 > 238,620, the system meets its storage requirements. Since an emergency that could last 2 days is most likely to occur during a fall-winter-spring period, using the average daily demand in the calculation probably gives a fairly conservative estimate of the amount of emergency volume required. In addition, DWA has a propane-fueled auxilliary power generator installed at the Sandy Shores Well site to supply electrical power to the pump should there be an extended power outage.

3.D. Summary of System Deficiencies

3.D.1 Line Replacements or Additions

Lines are typically replaced or added because they have reached their useful life, they are undersized, or are needed to improve the distribution of water within the system. In 1995, as a part of the design and construction of the 520 pressure zone improvements, RH2 Engineering developed a computer model of the Dockton system. Information of this assessment is contained in two reports prepared by RH2 for the Dockton Water Association. Consequently, our current assessment is primarily based upon information presented in those reports.

Water distribution lines are normally limited to lines 6 inches or greater, the line sizing being dependent upon the volume of water being transmitted and the need to minimize head loss. State regulations stipulate that distribution lines shall be no less than 6-inch diameter. However, four-inch lines are frequently used in small systems, but should never be used when fire protection is being provided because they can not deliver the required volumes of water during a fire event. The use of 6-inch lines with fire protection are limited to areas where they are looped and water can reach a hydrant from two directions. The RH2 computer model determined that virtually all of the Dockton system, except the 520 pressure zone, cannot meet the fire flow requirements as established by the King County Marshall's office (1000 gpm for 2 hours). In addition, several additional locations exhibit low pressures during peak flow conditions.

A selection of materials is available for use in water distribution systems. For 6- and 8-inch lines, the sizes needed within the Dockton system, the most common materials are ductile iron pipe (DIP), polyvinyl chloride pipe (PVC), and high-density polyethylene (HDPE). Asbestos-cement pipe has been used historically but its use has diminished in recent years because of health concerns and the introduction of less expensive PVC

pipe. Factors which impact the selection of a piping material include service conditions (pressure, soils, corrosion potential), availability, properties of the pipe, and economics (installed costs, maintenance costs, and life of the pipe).

Significant portions of the distribution pipelines within the Dockton Water Association service area do not meet the size, materials or flow requirements discussed above. Potential improvements include the following:

- Replacement of all existing 2-inch and 4-inch lines with at least 6-inch lines. Four-inch lines will be considered if they are not currently utilized for fire protection or are not expected to be used for fire flow protection in the future. Pipelines included in the potential replacement include those in the Dockton community, those along 268th Street and Hake Road SW, and most if not all of the Sandy Shores system. It is likely that the smaller 2-inch lines may be responsible for some of the higher losses in the system.

- Replace or repair the Manzanita and Sandy Shores pressure reducing valves (PRV). A valve supply company has been hired to overhaul and test these valves.

3.D.2. Disinfection Improvements

The requirements to disinfect depend, in a large part, upon whether the sources are springs and groundwater or whether they are determined to be under the influence of surface water. Studies are currently underway by the Association to determine whether the two spring sources are under the influence of surface water. Currently, under Washington Department of Health regulations, the Dockton sources could fall under three different categories, each with their own requirements for disinfection:

1. If the Department of Health determines that the well and spring sources have satisfactory bacteriological histories at the sources and meet the requirements for source water protection as outlined in WAC 246-290-135, then disinfection may not be required.

2. If the Department of Health determines that the wells or springs must use disinfection, then the combination of free chlorine residual concentration (C) in mg/l and contact time (T) in minutes must results in a C x T of greater or equal to six. The contact time is measured from the point the disinfectant is added until the water reaches the first customer (WAC 246-290-451-3a).

3. If the springs or wells are found to be under the influence of groundwater, then the above CT requirements must be met and the contact time must be measured following the guidance provided in WAC 246-290-636 (tracer studies or empirical calculations). MPA samples taken at both Dockton Springs sources during a dry season in September 2000 and a wet season in november 2001 all indicate a low risk of groundwater under the influence of surface water. A wet season MPA test of the Hake Springs site was completed in November 2001, and also indicates a low risk of groundwater under the influence. The dry season MPA test for Hake Springs will be completed during the summer of 2002.

At the present time, all three sources are using disinfection processes. A hypochlorite solution is added to the lower collector basin at Dockton Springs and at Hake Springs

using a micro metering feed pump. A pump at the basin outlets transfers the water into the system based upon signals received from the 268th Street reservoirs. If there were complete mixing in the collector basins, the contact time would be more than adequate to meet the CT requirement. However, it is doubtful that complete mixing occurs because the basins were not designed for that purpose and short circuiting can occur. The hypochlorite solution added at the Sandy Springs well is injected directly into the discharge line without contact time.

Contact time can be obtained in the distribution lines assuming that the service to the first residence is a sufficient distance away from the collector basin. A preliminary calculation indicates that the distance requirement for the existing Dockton Springs system would vary between 300 and 900 feet, assuming no credit for mixing in the collector basins. Since the existing systems are operated to provide a concentration of chlorine of approximately 0.2 mg/l, a contact time of 30 minutes is required, or 900 feet of existing line. However, the first customers are located only about 450 feet from the injection point. Hence, improvements are needed to the chlorination system at Dockton Springs. Likewise, the contact time at Hake Springs and Sandy Shores are also minimal and improvements may be needed there also.

3.D.3. Additional Treatment Requirements

Disinfection is one method of treatment that meets the requirements for the removal of pathogens and may be effective for the inactivation of protozoa and viruses. Disinfection may also be provided to comply with the Total Coliform rule as it applies to the distribution system. However, treatment may also be required to remove other contaminants and suspended materials.

The Sandy Shores well contains iron and manganese in concentrations that exceed secondary maximum contaminant levels. As secondary standards, they are enforceable but are considered less serious than the primary standards. Iron and manganese in water can cause staining of appliance and other materials than they contact. A number of treatment technologies are available for the removal of iron and manganese and will be reviewed. Several new, relatively inexpensive techniques are currently available.

The addition of hypochlorite and other chlorine compounds to waters containing organic matter can cause the formation of trihalomethanes (THM's). Although we have not seen the reporting data, apparently the THM values are below the threshold that requires treatment.

During our tour of the Dockton system, we were made aware that the lateral interceptor at Dockton Springs contains a significant amount of sediment or organic matter which coats the inside of the pipe system and settles in the collector basin. This matter results in elevated levels of turbidity. Tests results to determine turbidity levels in the system may be available but have not been received. A letter from the Department of Health to the Association in March 1999 indicated that high turbidity levels also existed at the Sandy Shores Well. Additional studies are needed to determine the significance of these levels.

3.D.4. Operational Improvements

Two improvements to the facilities have been identified as possible capital improvement projects. These improvements are needed to maintain the existing facilities in an operational mode and to improve the reliability of the facilities.

- Procure redundant pumps at Dockton Springs, Sandy Shores well, and at the 268th Street pump house. These pumps are needed to improve the reliability of the Dockton Springs and Sandy Springs sources. Dual pumps previously existed at the springs and reservoir locations and have been considered for re-installation. However, rather than installing duplicate pumps at these three locations, it is desirable to simply purchase and keep a keep a second pump on hand for each facility.

- Construct improvements at the 268th Street Reservoirs. Several new piping connections are needed within the reservoir area to improve the transfer of water from the 3 reservoirs to the lower pressure zone. In addition, the floors of the reservoirs should be inspected to determine if seepage losses are occurring.

Dockton Water Association
Water System Plan

Chapter 4

Water Resource Analysis

4.A. Conservation Program

Dockton Water Association has implemented a conservation program with measures that exceed the State's recommendation for small water systems. Following is a description of these measures.

4.A.1 Source Metering

All three sources of the system have totalizing meters measuring water pumped into the system. In addition, a meter is installed in the pump discharge line at the lower reservoir. This pump supplies water from the lower reservoir to the upper reservoir whenever excess water is available. All meters are read and pumpage recorded daily, including weekends and holidays. In order to maintain consistent 24-hour readings, the operator attempts to read the meters at the same time each day. However, since circumstances can alter this routine, the time of day that the meter was read is also recorded.

4.A.2 Service Meters

All services in the system are metered. Meters are read and data recorded monthly. There are three non-residential services in the system; King County Dockton Park and Marina; King County Fire District #13 fire station, and PTI Communications switching station. The fire protection line to the park marina is not metered.

As an integral function of the meter reading and billing process, any abnormal usage is displayed in an exception report generated by the billing software. Each such anomalous usage is investigated by rechecking the meter reading and if the usage is confirmed, the property owner is promptly notified. In most cases the cause is leakage from failed plumbing or malfunctioning fixtures in the home. Detection of these loss sources is a primary reason for monthly meter readings as opposed to bi-monthly readings.

4.A.3 Water Rates

Members whose property receives water service pay a basic monthly charge of $30.00 for the first 1000 cubic feet of water used. A charge of $1.00 is assessed for each 100 cubic foot used in excess of 1000 cubic feet. A rate of $2.00 for each 100 cubic foot in excess of 1500 cubic feet is assessed. "Receive water service" means that a connection to the main has been made and a meter installed.

Members who have reserve shares (i.e. not receiving water and no meter installed) are entitled to water service upon request. These members pay a monthly charge of $15.00.

4.A.4 Conservation Promotion

The Association has distributed DOE and DOH conservation pamphlets to its members in the past. In addition, such materials are made available at annual and special meetings of the membership and at the Association office.

Emergency conservation measures caused by loss of supply due to failures in the system or extremely hot and dry weather are addressed by public notification of restrictions on water use. The service area has a unique ability to quickly notify members in that ingress and egress from the service area is by a single county road. A signboard placed on the shoulder of this road with announcement of the emergency restriction attracts the attention of residents passing by. The actions required of members when such an emergency arises is included in annual report mailings.

4.B. Source of Supply

The system has three sources of supply; Dockton Springs; Sandy Shores Well; and Hake Springs. The physical capabilities of these sources was more thoroughly described in Chapter 3. The legal capabilities of these sources are discussed below.

4.C. Water Rights

The Association holds water rights for all three of its sources. A water rights summary is tabulated in Table 3-1. There are no claims or pending water right applications outstanding. Copies of the water rights certificates are included in Appendix D.

The Association operates its source pumps within the legal maximum flow rates allowed pursuant to its water rights. At present, the total maximum instantaneous flow rate capacity from the combined three sources is 179.5 gpm, which is 70 percent of the total water right instantaneous flow of 257.1 gpm.

Maximum instantaneous flow rates for sources Dockton Springs and Hake Springs are the flow rates of water entering catchment basins from well points. The transfer pumps maximum instantaneous flow from catchment basins into the system is greater than that shown.

The existing consumption instantaneous flow rates for sources at the two Springs are well within that allowed by the water right certificates The Sandy Springs well withdraws water at the water certificate allowable rate.

The Sandy Springs well and Hake Springs each withdraw maximum annual volumes well below that allowed by water rights. Dockton Springs withdraws a maximum annual volume within 3.3 acre-feet of the water right value.

All water that is not utilized from Dockton Springs runs off from the spring field area or overflows from catchment basins into a ditch and culvert system that flows into Quartermaster Harbor at a point approximately 300 feet from the Dockton Springs facility

boundary. The only downstream property is a public park (Dockton Park) that is served water from the Dockton Water System.

4.D. Water Supply Reliability

Very little is known about the maximum safe capacity of the springs and well utilized by Dockton, particularly as it begins to approach its potential maximum usage. The establishment of a measuring weir at the discharge point from Dockton Springs is a way to determine if additional well points or other facilities can be used to develop its established water rights. The collection of static water levels at the Sandy Shores well on a monthly basis is also desirable.

4.E. Interties

There are no physical or legal interties to the existing system, and there are no current plans to establish an intertie with any of the nearest water companies (Gold Beach Water Company or Maury Mutual Water Company).

Dockton Water Association
Water System Plan

Chapter 5

Source Protection

In accordance with WAC 246-290-135 purveyors of water systems using ground water or spring sources shall develop and implement a wellhead protection program. This Chapter describes describes the Association's wellhead protection program.

5.A. Characterization of Service Area

The service area is almost totally comprised of single family dwellings. Sources of contamination consist of animal excrement from horses, a few beef animals and wild animals (predominantly deer); septic systems; lawn and garden fertilizers and pesticides; and oils and other elements washed from road surfaces. All testing to date has shown no effect on the purity of the water delivered from the system to the customer. There have been no exceedences of MCLs of any tests required by the County and State DOH over, at least, the past five years.

5.B. Susceptibility Assessment

A Susceptibility Assessment Survey of the three sources of supply was submitted to the Division of Drinking Water, DOH in 1994. The State's review of the Survey resulted in Dockton Springs and Hake Springs being rated as medium or high susceptibility and were not granted a Susceptibility Waiver for synthetic organic compounds (SOC's). However, an Area Waiver was granted for the 1993-95 and the 1996-98 periods; therefore no testing was performed. Samples have been tested for volatile Organic Chemicals (VOC's) for both these sources and met all requirements. Additional testing is planned for 2001.

The Sandy Shores Well was rated as low susceptibility for SOC's and was granted a Susceptibility Waiver for the 1993-95 and 1996-98 periods. VOC samples were tested and found in compliance with all requirements.

5.C. Wellhead Protection Area and Contaminant Source Inventory

A map locating the source and delineating the wellhead protection area together with a contaminant source inventory was submitted as part of the Susceptibility Assessment Survey on December 12, 1994. Copies of the maps are included in Appendix D.

5.D. Documentation

The regulations require that the inventory of all known and potential ground water contamination sources be updated on a two-year basis per WAC 246-290-135-3c(iii). Also, the notification to all owners of the contamination sources, notification to agencies, contingency plan, and coordination with local emergency responders must be documented.

DWA observes changes to the existing environment and land use around each of its water sources, and no changes have been observed since its first survey was completed in 1995 as part of the well head protection plan. In the 1995 survey the only potential sources of contamination were found to be septic systems installed at the residences that fell within the CFR(calculated fixed radius). And in one instance a pasture that has some domestic animals. Since that survey, there has been no new construction within the CFR and no change in the use of the pasture.

Dockton Water Association
Water System Plan

Chapter 6

Operation and Maintenance Program

6.A. Water System Management and Personnel

The Dockton Water Association is a non-profit corporation, which provides water to residents of the Dockton/South Maury Island area of King County, Washington. Each owner of a residence and/or parcel of land that has purchased one or more shares in the Association is entitled to a vote for each share they own. At the annual meeting they elect by majority vote, in person or by proxy, members to fill board vacancies. The board consists of seven members who serve three-year terms. Terms are staggered to provide continuity. The board has overall responsibility for the successful operation of the system.

The Board of Directors elects officers annually immediately following the annual meeting, each of whom has specific responsibilities as stated in Article 3 of the Bylaws (See Appendix A).

Daily management of the system is delegated to an employed Water System Manager/Operator who supervises other hourly employees and contracted employees, subject to direction by the President of the Association. In general, the System Manager/Operator accomplishes most administrative duties such as supervision, scheduling, financial functions, records retention and public contact. In addition to managerial functions, the System Manager/Operator is also responsible for overseeing hourly personnel and providing the functions including emergency response, water treatment, water testing, meter reading, maintenance troubleshooting and other such operating categories. A detailed position description of the System Manager/Operator duties is shown in Appendix E. Currently it is expected that this position will require 20 hours per week.

Emergency response, water treatment, water testing, meter reading, maintenance troubleshooting and other such operating categories are delegated to the System Operator. A detailed position description for the Operator is shown in Appendix E. The position is currently being satisfied at 30 hours per week.

Billing, Accounts Receivable and Payable, data bases and accounting reports are prepared by the contracted bookkeeper with guidance and review by the Manager. The Statement of Work for the Bookkeeping Contract is provided in Appendix E.

Normal activities, which require licensed personnel, such as electricians and contractors are normally selected from the available pool of such companies on Vashon Island. For major projects, those requiring design by a registered engineering firm, bids are solicited from a more extensive list of recommended companies. The Association has adopted General Construction Standards as described in Appendix H.

6.B. Operator Certification

The System Manager/Operator is in the process of obtaining a certificate and has been granted temporary approval by the DOH while the certification process is underway. It is the policy of the Association to encourage and pay expenses for training and continuing education as necessary to maintain the operator's certification and to advance to a higher level.

6.C. System Operation and Control

6.C.1. Identification of Major System Components

A description of each major system component, their normal operation and the relationship of each component with other system components are described in detail in Chapter 1. There are no alternate operation modes available without significant modifications to the system.

6.C.2 Routine System Operation

Dockton Park Springs source

Normal start-up and shutdown is controlled automatically by float switches. Restart of service after a shutdown for repair or replacement of a major component requires that the following steps be followed:

(1) Test the disinfection system for proper operation. If the injection pump is operating properly, fluid can be observed dripping from the feed line into the pump chamber.

(2) If the suction line to the water pump has drained (foot valve leakage), it must be primed by providing water via the bypass line (bypassing the check valve in the pump discharge line). After valve positions have been checked the pump may then be started and the flow meter is observed for proper flow. If no flow or low flow is observed, and with the pump running, open the pump air bleed valve located at the top end of the pump body. When water flows from the bleed valve, close the valve and observe the flow meter for expected flow.

Sandy Shores Well source

Normal startup and shutdown is controlled automatically by a controls protocol. Restart following repair or replacement of a major component requires that the following steps be followed:

(1) Test the disinfection system for proper operation. The diaphragm pump injects the chlorine into the pump discharge line.

(2) Once the chlorination is verified, and pumphouse valves are verified to be in the correct position, the deep well pump should be started and the flow meter observed for any abnormalities. The booster pump remains on standby until a higher flow rate is required to meet a demand that exceeds the capability of the deep well pump alone. A pressure switch located in the discharge line must be closed to indicate an output from the deep well pump before the booster pump can be operated. Placing

the control switch to the "AUTO" position will start the booster pump, which can only be put on line manually. Failure of the booster pump to operate would most likely be due to a column of air in the deep well pump. In such case the air must be bled from the system through the bleed valve on the booster pump.

Hake Springs

The Hake Springs pump operation is controlled by a time clock and a low water level float switch during normal operation. Restart after repair or replacement of the pump requires that the following steps be followed:

(1) Test the disinfection system for proper operation. The system is the same as that at the Sandy Shores source.

(2) Check that all valves are open. Two valves are located midway between the catchment basin and the pumphouse and one in the pump discharge line. Partially fill the pump by closing the discharge valve and open the house bib located in piping on the discharge side of the pump. With the hose bib still open, start the pump. When the water discharge is steady and free of air, open the discharge line valve and close the hose bib. Since no flow meter is installed at this location, proper operation is verified if the daily expected volume is achieved as measured by a service meter installed in the discharge line.

6.C.3 Daily Routine

The System Manager/Operator trains and oversees personnel making visits to each operating pumping station and reservoir every day, seven days per week. Two stations are normally shut down during the winter. Tasks performed during the "Rounds", which are periodic rather than daily, are noted as such. These "Rounds" are normally performed in a particular order, as follows:

Dockton Park Springs

*Record 24 hour pump flow meter reading together with time of reading.
*Record chlorine usage
*Replenish chlorine tank
*Observe conditions inside catchment basins, checking for normal appearing flow from wellpoint lines
*Make visual check of float switches and plumbing elements
*Check rodent screens and similar devices periodically

Water System Office

*Check message center and respond to any messages that require immediate attention. Record calls and pass messages to System Manager or Bookkeeper as appropriate.

Upper System Reservoir

*Read water level in reservoir tanks
*Record level at SW 268th Street reservoir pump house

Water Sample

*Take first water sample for chlorine residual test from hose bib of home on upper pressure system.

SW 268th Street Reservoirs

*Check water level in reservoir #3
*Record 24 hour pump flow meter reading together with time of reading
*Record reservoir levels
*Draw water sample for chlorine residual test (at inlet side of pump)
*Exercise float operated valve monthly. Valve which controls flow from upper reservoirs to lower reservoirs.
*Inspect rodent screens periodically.

Sandy Shores Well (When in operation – normally closed in winter)

*Record pump 24 hour flow meter reading together with time of reading.
*Top off chlorine tank as needed.

Hake Springs

*Inspect inside catchment basin
*Record flow meter reading and time of reading
*Record chlorine usage
*Replenish chlorine as required
*Inspect rodent screens periodically

Water System Office

*Run chlorine residual tests from collected samples plus a sample from office and record results.

6.C.4 Periodic Routine Operations

Vegetation Control

Various components of the system must be kept free of vegetation for accessibility and visibility at all times, especially hydrants and valve marker posts. Also, reasonable perimeters around structures (including reservoir sites) are maintained under vegetation control. This work is performed under contract by a local commercial gardener, with the exception of the Dockton Springs facility, which is maintained by the System Operator. The exception is due to the possible damage to exposed well point lines, which could be damaged by anyone unfamiliar with their locations. The brush clearing and mowing is usually performed in mid to late spring and again in late summer. Mowing of the grass at the office site is performed more frequently as needed. Clearing around service meters is the responsibility of each member.

Service Meter Replacement

The entire system is equipped with service meters, mostly 5/8" – ¾", with a few dozen 1" meters. Meters are replaced whenever they appear faulty or, in the case of older meters, they become difficult to read due to condensation on the lens. While this is a reasonably easy task on newer meters having meter setter yokes installed, many older meters without setter yokes can be quite difficult.

Whenever the particular installation permits, these meters are installed with meter resetter yokes.

Flushing Mains

Flushing of mains to remove sedimentation is conducted twice yearly, in the spring and again in the fall. Flushing is most critical in the upper pressure zones, which receive their primary source of water from the Sandy Shores Well during the summer months. This source has a relatively high content of iron and manganese, which results in significant sediment and discoloration of the water. Flushing begins just below the reservoirs and progresses in pipe sections between hydrants to the end of the distribution segment.

Three other tasks are accomplished in conjunction with flushing. (1) The output pressure of the PRV stations on the Manzanita Extension and the lower Sandy Shores PRV. If not within the specified ranges, appropriate adjustments are performed. (2) Check that after charging, each hydrant barrel is draining properly after shut off. If it fails to drain properly, a record is made for follow-up repair. (3) Hydrant and standpipe cap threads are cleaned and greased.

The date flushing each hydrant and standpipe is recorded on the System Maintenance Record.

Exercising Valves

All system valves are exercised through a full cycle of open and close each year. During the performance of this task, any deficiencies are noted for follow-up maintenance. These deficiencies could include stripped stems on small valves, excessive torque required to operate, and sunken valve boxes. This task is performed incrementally over the year and a check-off diagram is used to assure that all valves have been covered.

Painting

Items within the distribution system that require painting periodically include hydrants, valve markers, guard posts, valve box covers and meter marker stakes. Painted marks are also laid down on the road pavement adjacent to valves and meters using yellow aerosol paint. Meter marker stakes are painted white with the meter number marked in black. Valve markers, guard posts and valve box covers are painted yellow. The valve marker posts have the distance from the post to the valve marked in black. Hydrants are painted red with white connection covers and have the distance from the hydrant to the valve serving it marked in black.

6.C.5 Preventive Maintenance Program

Preventive maintenance consists primarily of observation of proper operation of equipment (pumps, source meters, chlorinators, etc.) during the Daily Routine inspections described in 6.C.3 and noting any deficiencies, followed by corrective action. The exercising of valves described in 6.C.4 provides assurance that all

valves are operable in the case of required use. Any valves showing signs of improper operation are scheduled for repair or replacement.

6.C.6 Equipment, Supplies and Chemical Listing

Maintenance equipment is limited to common hand tools, power tools such as a string trimmer, a chain saw, a portable pump, metal detector and bench tools such as a grinder and vise.

A listing of the local suppliers of equipment such as pumps, PRV's, valves, and meters, is maintained at the system office with the name and phone number of the contact person. Service or assistance with the pre-packaged 99th Avenue pump station is referred to the manufacturer of the unit, Engineered Fluid, Inc, of Centralia, Illinois. The only chemical used by the system is a 5.25 % solution of sodium hypochlorite (common bleach) which is supplied by the local supermarket.

Specifications, together with maintenance information for pumps and PRV's are contained in Appendix C. A manual for operation and maintenance of the 99th Avenue pump station was provided by the supplier, Engineered Fluid, Inc. as a part of the purchase contract. The O&M manual is titled "Operation and Maintenance Manual, Booster Pump Station, Dockton Water Association".

6.D Water Quality Monitoring

The water quality tests required by State DOH regulations, except when granted a waiver, are being undertaken on a regular basis. In addition to the periodic tests, a special GWI test program was instituted in 1998 to measure ambient temperature, water temperature, conductivity and rainfall. As a result of evaluation of the GWI test data by DOH, further special tests were imposed to determine particulate quantity and size as a further indicator of GWI status.

Test samples for residual chlorine are taken and tested each weekday at varying locations to assure optimal residuals throughout the system.

Sampling locations for each type of test are as follows:

Coliform: See "Water Quality Sampling Plan" in Appendix F.

Inorganics. At Dockton Springs, a sample is dipped from the pump chamber at the opposite end of the catchment basin to where chlorine is added to the water. At the Sandy Shores well, the sample is taken from a faucet in the pump discharge line downstream from the chlorine injector after five minute flush. At Hake Springs, the sample is taken from a faucet in the pump discharge line downstream from the chlorine injector after a five minute flush.

SOC. Same as Inorganic locations

Lead and Copper. In customer homes

GWI Special Tests. At Dockton Springs, one sample is taken at the discharge of a representative well point in the well point field and one sample from the discharge of the lateral interceptor discharge to the collector basin. At Hake Springs, one sample is taken at the discharge of the single wellpoint.

Residual Chlorine. See "Water Quality Sampling Plan" in Appendix F.

Tests. All testing is performed by laboratories certified by the State DOH, except that coliform tests are performed by the State DOH laboratory and the GWI and residual chlorine tests are performed by the water system's certified operator.

Frequency of Tests. See Appendix F.

6.E. Emergency Response Program

6.E.1. System Personnel Emergency Call-up List

In case of an emergency, the following personnel are to be called in the order listed.

Name	Title	Phone No.	Responsibilities
Robert Colombo	System Manager / Operator	(206) 463-9226	a,b,c,d
Frank Zellerhoff	Contractor	(206) 463-2074 (206) 396-0350 cell	e,f
Ray Bucy	President	(206) 463-6345	g

Responsibility Notes:

(a) Make an immediate investigation of the emergency and take any immediate action within his unaided capabilities to safeguard the system and properties adjacent to the emergency site.

(b) Mobilize personnel and equipment, including contractor support if needed, to control the situation and make repairs.

(c) Notify residents affected when water must be turned off in any section of the system.

(d) Provide oversight and support to the System Operator. Issue "Boil Water" notifications to customers and notify the State DOH when system contamination is believed to have occurred.

(e) Provide equipment and personnel to support control of the situation and to make repairs.

(f) If the System Manager/Operator is not available, perform tasks (a), (b) and (c), except notify the System President in task (b).

(g) In the absence of the System Manager/Operator, perform the tasks assigned to the Manager.

When emergency calls are made to the System's office at times when it is not staffed, a recording advises the caller of the order and phone numbers to call for a response. Additionally, the same information is posted on the office door.

The 99th Avenue Pump Station has an automatic dialer, which responds to sensors, which send a signal to the dialer whenever proper operating parameters are exceeded. The dialer then calls the numbers in the call-up list. If it gets no response from the first number, it proceeds to call the next number in order until answered. A recorded voice notifies the respondent of the category of the failure by code letter.

6.E.2 Notification Procedures in the event of a water quality emergency.

In the event that the emergency involves a question of water quality, the method of notifying affected residents and public would vary with the extent of users affected. In a localized event, such as a water main break, where a section of the main can be isolated, notification of loss of service and a need to boil water, if indicated, is by direct contact at each residence or, if no one is at home, a notice will be placed on their front door. Commercial doorknob notes are used. In the event that the problem is too widespread for this approach, two methods of notification will be used: (1) Sandwich board signs will be placed at strategic locations and (2) Volunteers will be recruited to make phone calls to affected users. In the case of the only public user in the service area, Dockton Park, the Vashon Park District will be notified and requested to post signs at their facilities.

The County Health Department and the State DOH will be notified by phone of any water quality emergencies.

6.F. Safety Procedures

The Association facilities, with few exceptions, do not contain hazardous elements. The typical installation and repair work, both in roadways and on Association property is performed by private contractors who are responsible for the safety of their personnel. The system operator, when performing maintenance tasks on road shoulders, uses traffic cones and/or barricades to warn traffic of his presence. Those conditions or operation, which require particular attention to safety, are:

- When handling or dispensing the chlorine bleach, proper ventilation and the use of optical shielding is required.
- The Association does not own or operate any construction equipment. However, the System Operator is equipped with a hard hat to use when inspecting or assisting work being performed by outside contractors.
- All electrical installations or repairs are performed or overseen by licensed electricians to ensure that no dangerous electrical conditions exist in the system.
- There is no machinery in the system with unguarded shafts, belts or gears.
- The two 40-foot high silo reservoirs in the upper pressure zone require that personnel climb an attached steel ladder to the roof of the tanks for such tasks as inspection, cleaning and float switch adjustment. For cleaning, they must also descend a similar ladder inside the tanks. Each ladder has a vertical safety cable adjacent to the ladder. The cable has a latching mechanism, which is free running in upward travel and latching in downward

travel. The lanyard of a safety harness is attached to the mechanism. The harness is worn whenever an individual ascends or descends the ladders.

- Standard procedures regarding confined spaces, e.g. manholes or the above silo reservoirs, requires that a backup person be present and that proper ventilation be provided. The underground 99th Avenue booster pump station, while a confined space, is not deemed to be hazardous due to its controlled atmosphere and is therefore exempt from the above rule.

6.G. Cross Connection Control Program

DWA will comply with requirements for cross connection control programs as required by WAC 246-290-490(3). DWA already has implemented several of the required program elements as described below.

As previously described, the service area is almost exclusively rural residential. A survey of all connections to the system identified only two customers where a cross-connection threat existed. One of these is the marina at Dockton Park. Water service to the floating dock requires a flexible transition conduit from the fixed portion of the dock to the floating portion. With tide changes, this flexible conduit is immersed in salt water. The other facility is the fire station where tanker trucks are filled from the potable supply. Both of the facilities have on-facility backflow prevention assemblies installed and conduct annual testing of the devices. Reports of the tests are provided to the Dockton Water Association. The device at the Dockton Park marina is a FEBCO Model 825 RPBA, Serial #C3384. The device at the fire station is a WATTS Model #709 DCVA, Serial #168730.

While no residence was found to be a threat, all new residential connections use meter sets, which incorporate check valves for backflow prevention. As older meters are replaced, meter sets with integral check valves are installed as needed.

6.G.1. The bylaws of the Association were revised at the August 21, 1999 annual meeting to establish the authority to enforce the provisions or cross connection control regulations (See Appendix A).

6.G.2. DWA will develop and implement procedures and schedules for evaluating new and existing service connections to assess the degree of hazard posed by the consumer's premises to DWA's system. Consumer will be notified of results.

Surveys to detect cross connection problems will be conducted in two phases.

Phase 1. A questionnaire will be mailed to all customers to solicit information, which could identify a potential problem.

Phase 2. Inspections will be conducted where responses to the survey indicate a possible cross connection. When a problem is identified, the customer will be required to take corrective action in accordance with the bylaws and State regulations.

For those properties where responses are not indicative of a problem, but observation or reports indicate otherwise, an on site inspection will be performed.

6.G.3. DWA will develop and implement procedures and schedules for ensuring that cross connections are eliminated or controlled by installing approved backflow preventers.

6.G.4. DWA will provide a certified CCS to develop and implement the program.

6.G.5. DWA will develop procedures to ensure that backflow preventers are inspected and/or tested.

6.G.6. DWA will develop a backflow prevention quality control program.
6.G.7. DWA will develop procedures for responding to backflow incidents.

6.G.8. DWA will educate consumers about cross connection control via bill inserts and periodic meetings of the Association.

6.G.9. DWA will maintain cross connection control records as described below.

6.H. Recordkeeping and Reports

The following records are maintained in indexed files located in the DWA office for the periods indicated:

- Bacteriological and turbidity analyses are retained for five years.
- Chemical analysis results as contained in certified laboratory reports are retained permanently.
- Records of daily source meter readings are retained for five years.
- Water quality sampling records are retained for five years.
- Records of locations and installation dates of cross connection devices will be retained, together with certificates of annual tests, indefinitely.
- Records of consumption (monthly sum or residential meters); monthly financial records; yearly financial actuals to budget comparisons, etc. are retained for a minimum of five years.
- All other records of operation or analysis as may be required by DOH are retained a minimum of three years.

Dockton Water Association
Water System Plan

Chapter 7

Capital Improvement Program

7.A. Background and Discussion.

This portion of the Water System Plan sets forth the 2001-2006 program to correct system deficiencies and upgrade system components to the standards established by current regulatory requirements. It recognizes that, as the result of amalgamating small three water systems, many components are at or near the end of their useful life or fall short of meeting design requirements for today's level of service.

7.A.1. Planning Factors

The 2001-2006 capital improvement program will be funded from accrued savings and revenue set-asides. It is estimated that $390,000 will be obligated for this purpose during that five year period. The plan also identifies improvements the accomplishment of which necessarily extends beyond the present five year planning horizon. During the 2001-2006 period alternatives for scheduling and funding those long-term needs will be examined and a long-range plan developed.

The 2001-2006 Plan does not address future service expansion except as required to serve the 89 reserve accounts not currently connected. Based upon past experience it is expected that service will be extended to such accounts at a rate of not more than 10 per year. Based upon Year 2000 delivery volumes such connections will add a requirement for delivering an additional 3.9 million gallons per year by Year 2006.

Extension of service beyond the system's current capabilities is not contemplated during the 2001-2006 period, but will be addressed by subsequent long-term planning action. Current indications are that zoning within the service area limits the prospect of growth as the result of new construction. Of greater short-term concern is the potential need to serve current homes now dependent upon wells or other small systems located within the service area. It is estimated that future extension to such existing homes may require as many as 30 additional service connections.

Six basic goals underlie the 2001-2006 Program, the overall intent of which is to address the system's most pressing needs.

1. Ensure water quality that meets or exceeds regulatory standards.
2. Provide reliable service, including adequate fire flow, to all who are served by DWA.
3. Establish appropriate resource management measures, including an effective conservation program.
4. Minimize recurring maintenance requirements through appropriate design.
5. Establish the basis for future expansion of service throughout the franchise area.

6. On an annual basis, devote approximately 20% of gross revenues to the Capital Improvement Program.

7.A.2. Priorities.

The following priorities govern the 2001-2006 Capital Improvement Program:

1. All improvements will incorporate features to insure long-term reliability and minimize recurring maintenance.

2. Priority is assigned to improvements of the underlying source, storage and pumping controls infrastructure. Defects will be dealt with in the following order: Insure overall water quality; provide system reliability, and elimination of water losses due to leakage.

3. Long-term needs will govern design considerations in order to develop the appropriate foundations for future actions.

7.B. 2001-2006 Capital Improvement Plan

The 2001-2006 Plan identifies two categories of work.

- Group A are those actions required during 2001-2006 to correct known deficiencies, insure continued delivery of good quality water, and improve infrastructure needed to support future projects.
- Group B are those actions which need to be accomplished to meet regulatory standards, but will be scheduled for accomplishment after 2006.

Group A projects are summarized in Table 7-1.

Table 7-1

Group A Projects

ID	DESCRIPTION	ESTIMATE
A-1	Upgrade 268th St. & Dockton Springs Facilities Engineering services Acquire Back-up Pumps Repair and modify Reservoirs @ 268th St. Improve Contact Time @ S01 Install additional well points @S01 Upgrade controls at all sites Replace collection lines @S01 & S02 Install measuring weir @S01	$390,000
	TOTAL GROUP A	**$390,000**

7.B.1. Group A – Project A-1: Upgrade 268th Street and Dockton Springs Facilities.

The water available at Dockton Springs can fulfill the system's current demands for water, but limitations imposed by storage and pumping capacities at the Springs and the 268th Street results in an inability to satisfy peak demands from that source. In addition, there are specific problems at both sites that require correction. Correcting those deficiencies require:

1. Increasing chlorine contact time at Dockton Springs.
2. Increasing water capture at Dockton Springs.
3. Replacement of collection lines at Dockton Springs.
4. Upgrade/replacement of 268th Street reservoirs.
5. Upgrade system controls.
6. Acquire secondary back-up pumps for each pumping station.

The flow rate of Dockton Springs needs to be documented for potential future development. Current practice measures all water pumped from the source but does not measure either overflow from the settling tank or water not captured. Incident to the Project, modifications must be made to measure total flow, using a weir to gauge that portion of the flow that is not pumped.

All work accomplished under the upgrade Project shall be designed to minimize recurring maintenance and protect captured water from dust, insects and rodent intrusion. The Project must be planned for implementation in logical increments that will minimize service disruption and provide adequate flow to the lower system during all work on the 268th Street reservoirs. All elements of the Project must be designed to be capable of execution by Island contractors (with the exception of electrical modifications and control systems).

The work will be accomplished in three phases:

Phase I.

1. Utilizing the services of a professional engineer, assess the facilities at Dockton Springs and the 268th Street reservoirs to include their incorporation with the Sandy Shores well and the high zone reservoirs.
2. Develop a comprehensive plan for accomplishing the required improvements and modifications, including a detailed sequencing and recommended time schedule for accomplishment of all work. The plan will include budgetary estimates for each major increment of work. Work items requiring permits will be clearly identified and an estimate made of the effort needed for the permit process.
3. The assessment may identify other work which is required to meet State or County regulations.

Phase II.

1. Cost estimates and specifications will be prepared for each element that is to be accomplished by a contractor.

2. Contractor-performed work that should be subject to oversight and inspection by a qualified engineer will be identified.

3. Permit applications will be developed for all phases of the work, as required.

Phase III.

This phase consists of accomplishment of the identified work in keeping with the schedule developed during Phase II. Work requiring movement of equipment in normally wet areas will be scheduled for accomplishment during the dry summer months.

7.B.2. Group B.

Group B projects are shown in Table 7-2, together with preliminary estimates of cost. During the 2001-2006 period the projects will be prioritized and planning initiated for accomplishment of the highest priority items as part of the 2007-2012 plan. Group B projects, estimated to cost approximately $1,700,000, will be funded by a savings program that will accrue approximately $30,000 per year from the Operations and Maintenance budget and placed in a Certificate of Deposit with a local bank.

Table 7-2
Group B Projects

No.	Title	Estimated Cost
B-1	Engineering, Dockton Line Replacement	$93,000
B-2	Replace Undersized Lines, 268th St.	$106,800
B-3	Replace Undersized Lines, Hake Road	$282,500
B-4	Replace Undersized Lines, 265th St.	$38,200
B-5	Replace Undersized Lines, 263rd St.	$100,200
B-6	Replace Undersized Lines, 261st St.	$36,500
B-7	Replace Undersized Lines, 260th St.	$36,500
B-8	Replace Undersized Lines, Dockton	$191,000
B-9	Replace Undersized Lines, 94th Ave.	$125,100
B-10	Replace Undersized Lines, Upper Sandy	$119,400
B-11	Replace Undersized Lines, Lower Sandy	$190,800
B-12	Eastern Dockton Line Replacement to 264th	$120,800
B-13	Eastern Dockton Line Replacement to 268th	$110,400
B-14	Install Dual Deep Well Pump, Sandy Shores	$10,000
B-15	Sandy Shores Well Filtration	$150,000
	TOTAL GROUP B	**$1,711,200**

Dockton Water Association
Water System Plan

Chapter 8

Financial Program

8.A. Financial Viability

The Association has developed an analysis of the viability following the requirements of the 1995 Financial Viability Manual. The results of the analysis, based upon 5 years of actual data and 8 years of projections, indicate that the Association is in a satisfactory financial position. The summary of the analysis, Work Sheet 5, is included in Appendix G. The analysis shows that the Association is able to fund improvements on a pay-as-you-go program.

8.B. Past Financial Status

Financial records of the Association's operations have been kept for many years and the current structure was adopted in 1994. Data for the past 6 years have been used to develop future projections utilizing growth rates discussed earlier and a 3 percent inflation rate for most expense items. District projections for the year 2000 were used as the basis for projecting operations for the next 10 years.

8.C. Current Rate Structure

The current monthly rate structure is shown below:

Basic Charge (including the first 1000 cubic feet)	$30.00
Excess of 1000 cubic feet to 1500 cubic feet	$1.00 per 100 cubic feet
Excess of 1500 cubic feet	$2.00 per 100 cubic feet
Shares not receiving water	$15.00

8.D. Funding of the Capital Improvement Program

Implementation of the Capital Improvement Program described in Chapter 7 will require a significant increase in expenditures for the Dockton Water Association. For purposes of this analysis, it is assumed that the 2001-2006 CIP will be funded using the $234,000 that the Association currently has in the bank plus approximately 20% of its annual revenues. A reserve fund of approximately $30,000 will be maintained.

Table 8-1 summarizes the future financial operations of the Association assuming that the capital projects described in Chapter 7 are constructed utilizing the funding source described above. The analysis assumes that the projects are constructed over the 2001 to 2006 period, CIP costs are inflated by an average of 2% per year, and 20% of annual revenues are deposited into the CIP Fund.

Table 8-1
Dockton Water Association
Financial Projections

No.	Budget Item	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
1	Operations Expenses		70,951	73,248	75,622	78,076	80,612	83,235	85,732	88,304	90,953	93,682
2	General and Admin. Expenses		35,683	36,724	37,795	38,899	40,036	41,207	42,443	43,717	45,028	46,379
3	Taxes		10,975	11,260	11,549	11,843	12,142	12,446	12,570	12,696	12,823	12,951
4	Total Expenses		$117,609	$121,232	$124,966	$128,818	$132,790	$136,888	$140,746	$144,717	$148,804	$153,012
5	Water Shares Income		116,280	119,352	122,424	125,496	128,568	131,640	134,712	137,784	140,856	143,928
6	Reserve Shares Income		13,710	12,270	10,830	9,390	7,950	6,510	5,070	3,630	2,190	750
7	Hook Up Fees		9,888	10,185	10,490	10,805	11,129	11,463	11,807	12,161	12,526	12,902
8	Interest		15,840	15,727	13,621	11,197	8,423	5,271	1,714	2,467	3,146	3,741
9	Total Income		$155,718	$157,533	$157,365	$156,887	$156,070	$154,884	$153,302	$156,042	$158,718	$161,321
10	Capital Improvement Costs		$40,000	$71,400	$72,800	$74,300	$75,800	$77,300				
11	20% CIP Funding		$31,144	$31,507	$31,473	$31,377	$31,214	$30,977				
12	CIP Fund Balance	$234,000	$225,144	$185,250	$143,923	$101,001	$56,415	$0				
13	Reserve Fund Balance	$30,000	$36,965	$41,760	$42,686	$39,378	$31,444	$28,559	$41,116	$52,441	$62,355	$70,664

Notes:

All expense items are increased by 3% per year, except electrical which is increased by 5% annually

Water share income is increased by 8 new connections per year while reserve share income is reduced by a similar amount.

Water share income is based upon $32 per share per month. Maximum shares is assumed to be 480.

CIP costs are increased by 2% annual for inflation. Funding in 2001 is for planning and preliminary design. Projects are assumed at $70,000 per year plus 2% inflation.

Construction fund balance equals previous balance plus 20% of income less CIP costs.

AGREEMENT
FOR ESTABLISHING WATER UTILITY SERVICE AREA BOUNDARIES AS IDENTIFIED BY THE VASHON COORDINATED WATER SYSTEM PLAN

This agreement for water utility service area boundaries identifies the external boundaries of the service areas for which the designated water purveyors will assume direct water service responsibility. The responsibilities accepted by the water purveyor are outlined in the Vashon Coordinated Water System Plan (CWSP), and as defined by the adopted rules and regulations of the Washington State Department of Social and Health Services (DSHS).

This agreement does not give new authorities to the water purveyor or to the County or State regulatory agencies, but rather acknowledges the geographical area for these designated service responsibilities.

The terms used within this agreement shall be as identified in the implementing regulations of Chapter 70.116 RCW, except as identified below.

1. VASHON OVERALL WATER SERVICE AREA MAP shall mean the map referenced in the Agreement as Attachment A, which represents the overall water service areas for the Vashon Critical Water Supply Service Area, except as may be amended in accordance with the CWSP procedures and with the concurrence of the affected water purveyors.

2. WATER SERVICE AREA shall mean the designated geographical area in which a water utility shall supply water, as identified in Attachment A.

3. LEAD AGENCY for administering the Vashon Water Utility service area agreements and service area maps shall be the King County Building and Land Development (BALD) Division; Parks, Planning and Resources Department, unless otherwise established by amendment to the CWSP.

The authority for this agreement is granted by the Public Water System Coordination Act of 1977, Chapter 70.116 RCW.

WHEREAS, Such an agreement is required in accordance with WAC 248-56-730, "Service Area Agreements-Requirements", and

WHEREAS, The designation of water service areas, together with the cooperation of utilities, will help assure that time, effort, and money are best used by avoiding unnecessary duplication of service; and

WHEREAS, Definite service areas will facilitate efficient planning for, and provision of, water system improvements to accommodate future development;

NOW, THEREFORE, the undersigned utility, having entered into this Agreement by the signature of its authorized representative, concurs with and will abide by the following provisions:

SECTION 1. Service Area Boundaries. The undersigned utility acknowledges that the Vashon Primary Water Systems Utility Service Area Map, included as Attachment A to this Agreement, identifies the utility's proposed new water service area. The undersigned further acknowledges that there are no service area conflicts with adjacent utilities or with existing Class 4 utilities within its service area boundaries, or, where such conflicts exist, that no water service will be expanded within disputed areas until such conflicts are resolved.

SECTION 2. Boundary Streets. Unless separate agreements exist with adjacent utilities, the undersigned agrees that the centerline of public streets, roads or highways shall not be used to define any part of a service area boundary. Depth of service on boundary streets shall be limited to one platted lot or as otherwise agreed upon by the utilities. Existing services on boundary streets shall remain as connected unless transfer of service is agreed to in writing by both parties. Nothing in this Agreement shall prohibit the placement of facilities in the same street by adjacent water utilities where geographic or economic constraints require such placement for the hydraulic benefit of both utilities.

SECTION 3. Boundary Adjustments. If, at some time in the future it is in the best interest of the undersigned party to make service area boundary adjustments, such modifications must be by written concurrence of all involved utilities and the proper legislative authorities. These written modifications must be noted and filled with the designated King County lead agency and DSHS. It is understood by the undersigned utility that it may decline to provide service within its designated service area boundary, but in this case, an applicant may be referred to other adjacent utilities, to a pre-qualified Satellite System Management Agency (SSMA), or that a new utility may be created and the original service area boundary adjusted accordingly.

SECTION 4. Service Extension Policies. The undersigned utility agrees that in order to expand its water service area, other than by addition of retail customers to existing water mains, or to serve in the capacity of a pre-qualified SSMA, it shall have adopted design standards and Utility Service extension policies. The design standards shall meet or exceed the Vashon Minimum Design Standards and Specifications established in the CWSP.

This agreement by reference includes Attachment A - Primary Water Systems Utility Service Area Map.

IN WITNESS WHEREOF, the undersigned party has executed this Agreement as of _____.

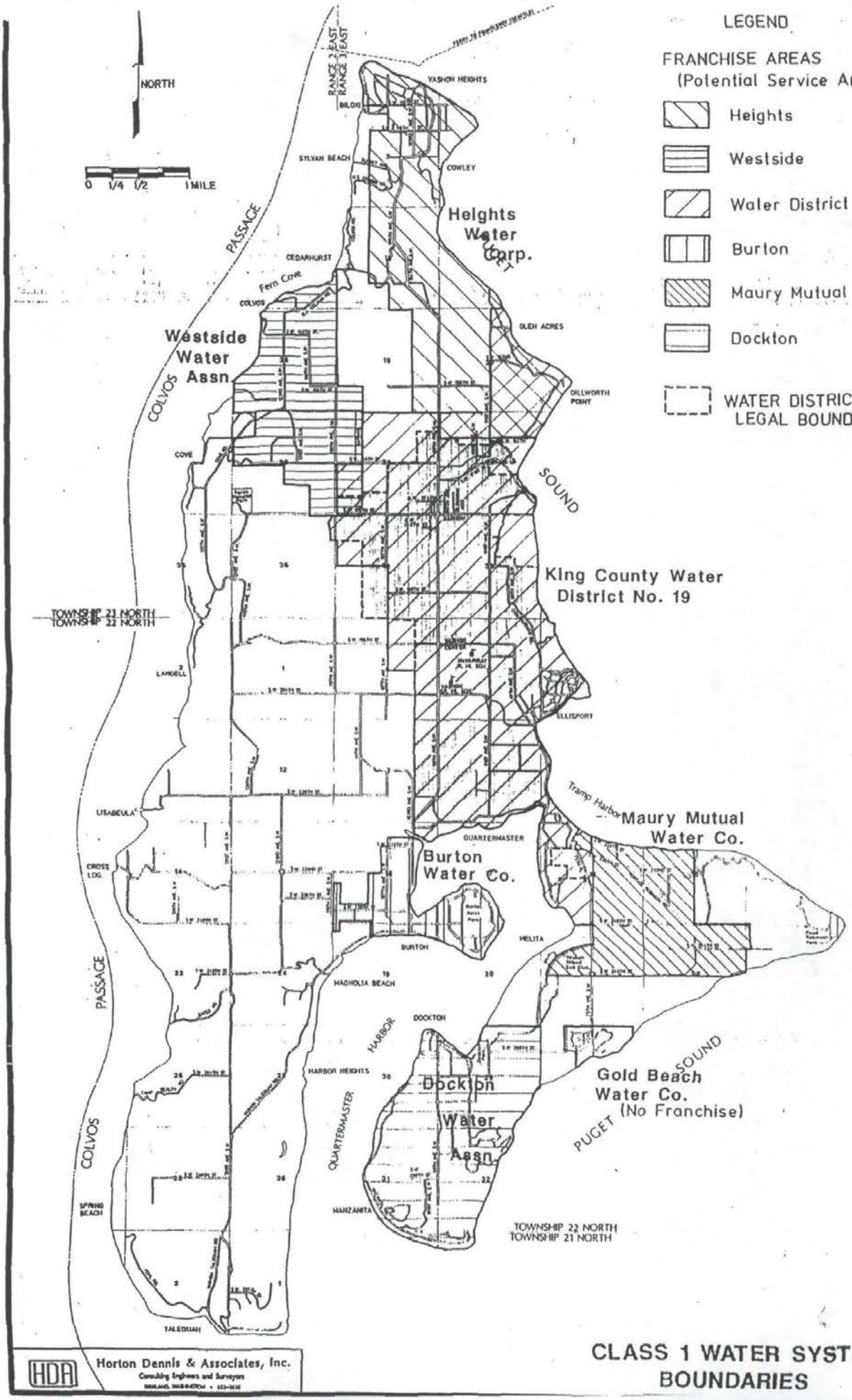
_____
Water Utility

_____
Representative

_____
Title

Receipt Acknowledged:

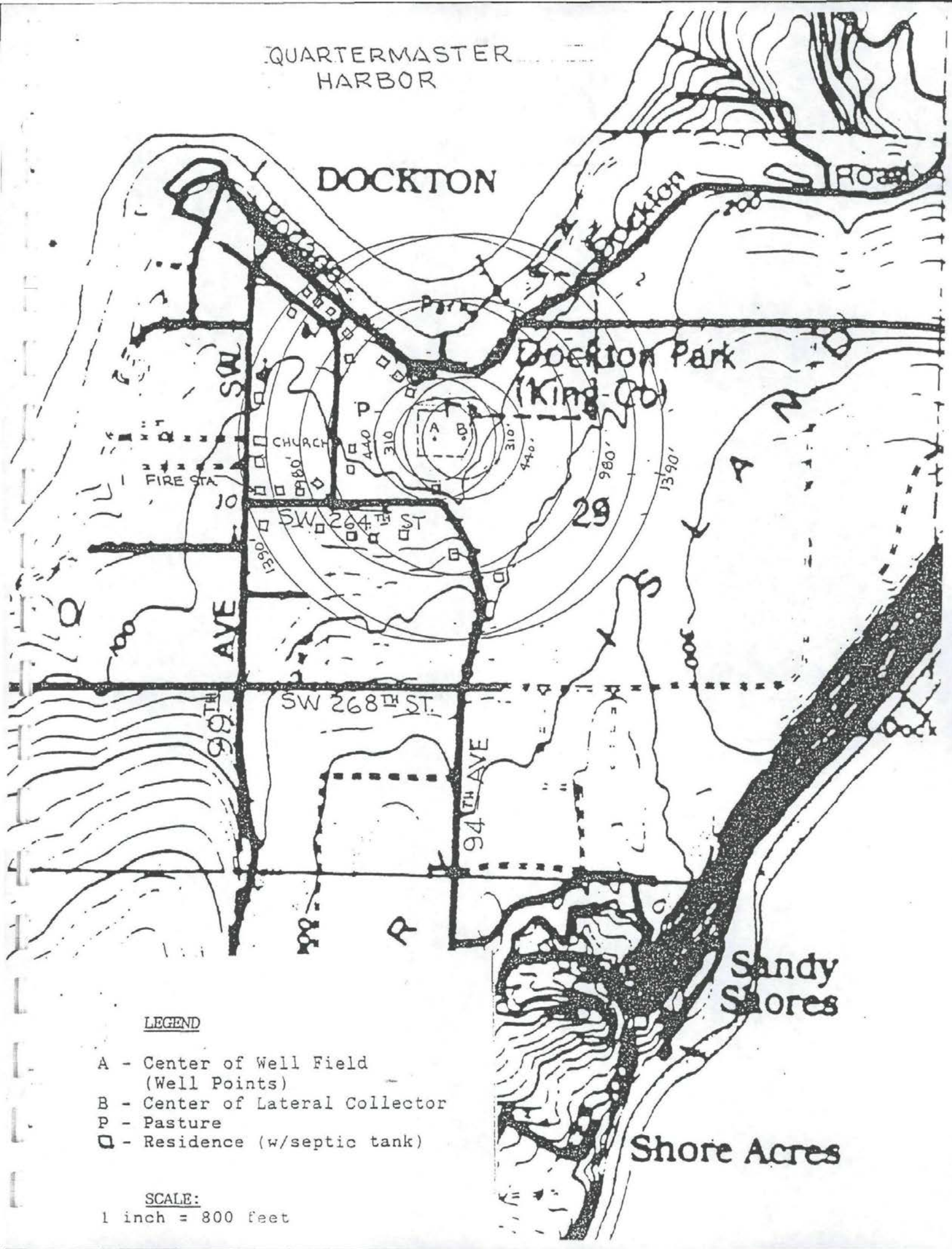
_____ _____
King County Parks, Planning & Resources Date


NORTH
0 1/4 1/2 1 MILE
LEGEND
FRANCHISE AREAS
(Potential Service Areas)
Heights
Westside
Water District 19
Burton
Maury Mutual
Dockton
WATER DISTRICT 19
LEGAL BOUNDARY
RANGE 2 EAST
RANGE 3 EAST
VASHON HEIGHTS
SYLVAN BEACH
COWLEY
Heights Water Corp.
CEDARHURST
Fern Cove
COLVOS
Westside Water Assn
GLEN ACRES
DILLWORTH POINT
COVE
PASSAGE
SOUND
King County Water District No. 19
TOWNSHIP 23 NORTH
TOWNSHIP 22 NORTH
LANDELL
ELLISPORT
Tramp Harbor
Maury Mutual Water Co.
LISABEULA
QUARTERMASTER
Burton Water Co.
CROSS LOG
BURTON
MELITA
MAGNOLIA BEACH
DOCKTON
HARBOR
HARBOR HEIGHTS
Dockton Water Assn.
Gold Beach Water Co.
(No Franchise)
PUGET SOUND
MANZANITA
SPRING BEACH
TALEQUAH
TOWNSHIP 22 NORTH
TOWNSHIP 21 NORTH
HDA
Horton Dennis & Associates, Inc.
Consulting Engineers and Surveyors
CLASS 1 WATER SYSTEM
BOUNDARIES

APPENDIX D

Susceptibility Assessment Maps

Water Rights Certificates


QUARTERMASTER HARBOR
DOCKTON
Dockton Park (King Co)
CHURCH
FIRE STA
SW 264TH ST
SW 268TH ST
99TH AVE
94TH AVE
Sandy Shores
Shore Acres
LEGEND
A - Center of Well Field (Well Points)
B - Center of Lateral Collector
P - Pasture
Residence (w/septic tank)
SCALE:
1 inch = 800 feet

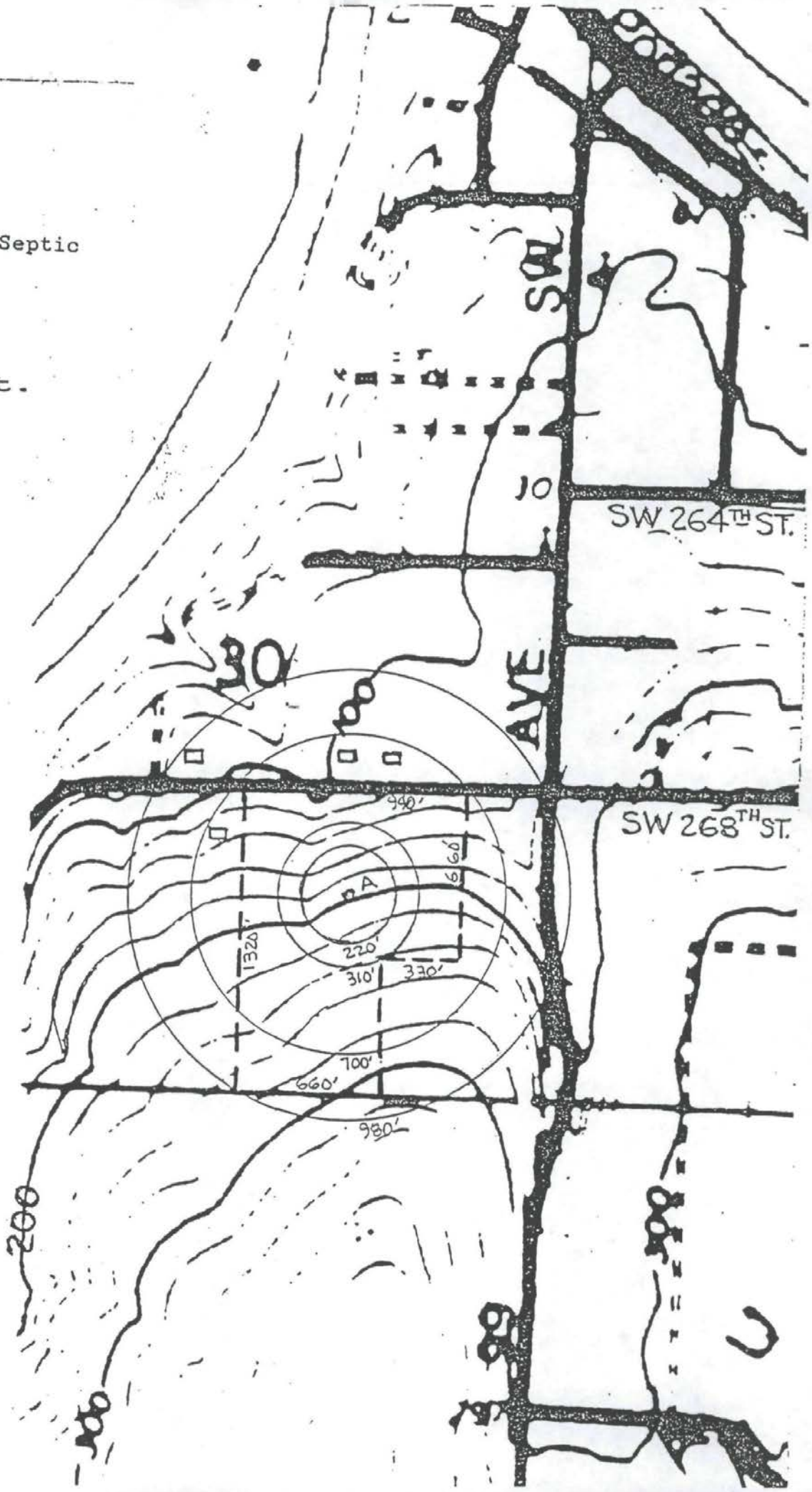
LEGEND

A - Well Point

□ - Residence w/Septic System

SCALE:

1" = 603 ft.



Permit or Cert. #	Name of Rightholder	Priority Date	Source Number	Primary or Supplemental	Existing Water Rights		Existing Consumption		Current Water Rights Status Excess/(Deficiency)	
					Maximum Instantaneous Flow Rate (Qi)	Maximum Annual Volume (Qa)	Maximum Instantaneous Flow Rate (Qi)	Maximum Annual Volume (Qa)	Maximum Instantaneous Flow Rate (Qi)	Maximum Annual Volume
Dockton Springs	S1-23804C	Dockton Water Assn.	March 17, 1981	SO-1	0.16 cu ft per second 71.8 GPM	25 acre-ft. per year	0.15 cu ft per second 69 GPM	66.7 acre ft per year	017 cu ft per second. 74.6 GPM	3.3 acre-ft. per year
Dockton Springs	Permit # 7810 Cert # 10, Page 4669	Johnson & Berry See Note 2	October 11, 1951	SO-1	0.16 cu ft per second 71.8 GPM	45 acre-ft per year	See note 1	See note 1.	See note 1.	See note 1.
S. Shores	Permit # 5739 Cert # 11, Page 5383-A	Bard and Howard See Note 3	August 10, 1961	SO-2	0.22 cu ft per second 100 GPM	48 acre-ft. per year	0.22 cu ft per second 100 GPM	5.8 acre ft per year	0	42.2 acre-ft per year
Halee	Permit # 2537 Cert # 14, Page 6734	Dockton Improvement Corporation	November 12, 1937	SO-3	0.04 cu ft per second 18 GPM		0.012 cu ft per second 5.5 GPM	SO2=55	per second GPM	12.4 acre-ft. per year
Halee	S1-20464C	Dockton Improvement Corporation	March 1, 1973	SO-3	0.03 cu ft per second 13.6 GPM	16 acre-ft. per year	See note 4		e 4	See Note 4
	TOTAL				0.61 Cu ft per second 275.2 GPM	134.0 acre-ft. per year	0.382 cu ft per second 174.5 GPM	year	cu ft per second 100.7 GPM	57.9 acre-ft per year

NOTES:

1. Certificate # SI-23804C and Permit #7810 are integrated as one source following consolidation.

2. Johnson & Berry sold water system to Harborview Water Association in July, 1963. Dockton Improvement Corp. and Harborview Water Association consolidated as Dockton Water Association effective January 01, 1983.

3. Bard & Howard (Sandy Shores Water Co.) sold that water system to Sandy Shores Homeowners Assn. which then consolidated with the Dockton Improvement Corp to form Dockton Water Association effective January 01, 1983.

4. Certificate # SI-20464C and Permit #2537 are integrated as one source.

STATE OF WASHINGTON

DEPARTMENT OF ECOLOGY

CERTIFICATE OF WATER RIGHT

[X] Surface Water (Issued in accordance with the provisions of Chapter 117, Laws of Washington for 1917, and amendments thereto, and the rules and regulations of the Department of Ecology.)

[ ] Ground Water (Issued in accordance with the provisions of Chapter 263, Laws of Washington for 1945, and amendments thereto, and the rules and regulations of the Department of Ecology.)

PRIORITY DATE	APPLICATION NUMBER	PERMIT NUMBER	CERTIFICATE NUMBER
March 17, 1981	S1-23804	S1-23804P	S1-23804C

NAME
DOCKTON WATER ASSOCIATION

ADDRESS (STREET)	(CITY)	(STATE)	(ZIP COD
P. O. Box 5101	Dockton	Washington	98

8410220797

This is to certify that the herein named applicant has made proof to the satisfaction of the Department of Ec of a right to the use of the public waters of the State of Washington as herein defined, and under and specif subject to the provisions contained in the Permit issued by the Department of Ecology, and that said right t use of said waters has been perfected in accordance with the laws of the State of Washington, and is hereby firmed by the Department of Ecology and entered of record as shown.

PUBLIC WATER TO BE APPROPRIATED

SOURCE
Unnamed spring

TRIBUTARY OF (IF SURFACE WATERS)

MAXIMUM CUBIC FEET PER SECOND	MAXIMUM GALLONS PER MINUTE	MAXIMUM ACRE-FEET PER YEAR
0.16		25.0

QUANTITY, TYPE OF USE, PERIOD OF USE
Community domestic supply - continuously (50 homes)

LOCATION OF DIVERSION/WITHDRAWAL

APPROXIMATE LOCATION OF DIVERSION—WITHDRAWAL
800 feet north and 1100 feet west of center of Sec. 29

LOCATED WITHIN (SMALLEST LEGAL SUBDIVISION)	SECTION	TOWNSHIP N.	RANGE, (E. OR W.) W.M.	W.R.I.A.	COUNTY
SE¼NW¼	29	22	3 E	15	King

RECORDED PLATTED PROPERTY

LOT	BLOCK	OF (GIVE NAME OF PLAT OR ADDITION)
Tract 58		Plat of Dockton

LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS TO BE USED

All of the SW¼SW¼ of Sec. 29, T. 22N., R. 3 E. except County road, together with the West 390 feet of the SE¼SW¼ of said Section 29, except County Road. Together with the NW¼NW¼ and the west 12 acres of the NE¼NW¼ of Sec. 32, T. 22N., R. 3 E.W.M., except County road.

84/10/22 #0

At such time that the Department of Ecology determines that regulation and management of the subject waters is necessary and in the public interest, an approved measuring device shall be installed and maintained in accordance with RCW 90.03.360 and WAC 508-64-020 through WAC 508-64-040.

8410220797

The right to the use of the water aforesaid hereby confirmed is restricted to the lands or place of use herein described, except as provided in RCW 90.03.380, 90.03.390, and 90.44.020.

This certificate of water right is specifically subject to relinquishment for nonuse of water as provided in RCW 90.14.180.

Given under my hand and the seal of this office at Redmond *Washington, this* 15th *day*

The right to the use of the water aforesaid hereby confirmed is restricted to the lands or place of use herein described, except as provided in RCW 90.03.380, 90.03.390, and 90.44.020.

This certificate of water right is specifically subject to relinquishment for nonuse of water as provided in RCW 90.14.180.

Given under my hand and the seal of this office at Redmond *Washington, this* 15th *day*

October, *19* 84

DEPARTMENT OF ECOLOGY
ENGINEERING DATA
OK

Department of Ecology

by Robert K. McCormick

ROBERT K. McCORMICK, Regional Manager

FOR COUNTY USE ONLY

501-3
Dock. Spa.

S. F. No. 3... 3-51—15C. 27756

4242385

VOL 5 PAGE 137

CERTIFICATE RECORD NO. 10, PAGE NO. 4669

STATE OF WASHINGTON, COUNTY OF King

CERTIFICATE OF SURFACE WATER RIGHT

(In accordance with the provisions of Chapter 117, Laws of Washington for 1917, and amendments thereto, and the rules and regulations of the State Supervisor of Water Resources thereunder.)

This is to certify that DONALD JOHNSON & THEODORE BERRY of Dockton, State of Washington, has made proof to the satisfaction of the State Supervisor of Water Resources of Washington, of a right to the use of the waters of an unnamed stream, a tributary of Quartermaster Harbor, with point or points of diversion within the South 100 feet of Lot 38, Plat of Dockton, Sec. 29, Twp. 22 N., R. 3 E., W. M., under and subject to provisions contained in Appropriation Permit No. 7810 issued by the State Supervisor of Water Resources, and that said right to the use of said waters has been perfected in accordance with the laws of Washington, and is hereby confirmed by the State Supervisor of Water Resources of Washington and entered of record in Volume 10, at Page 4669, on the 2nd day of June, 19 52 that the priority date of the right hereby confirmed is October 11, 1951

amount of water under the right hereby confirmed, for the following purposes is l actually beneficially used and shall not exceed

0.16 of a cubic foot per second for the purposes of domestic supply and the irrigation of 60 acres.

A stream to Unnamed Spring
Pt of diversion 800 ft North & 1400 ft west of E cor of Sec 29

A description of the lands under such right to which the water right is appurt place where such water is put to beneficial use, is as follows:

The SW¼ of SW¼, less county road; W½ of E½ of NW¼ of SE¼ of SW¼; SW¼ of SE¼ of SW¼, less P.S.P. & L. easement; W½ of NW¼ of SE¼ of SW¼, less P.S.P. & L. easement, all of Sec. 29, Twp. 22 N., Rge. 3 E.W.M.

The E½ of NE¼ of SE¼ of SE¼ of Sec. 30, Twp. 22 N., Rge. 3 E.W.M. and NW¼ of NE¼, less county road, of Sec. 32, Twp. 22 N., Rge. 3 E.W.M.

ALSO, beginning at Northwest corner of Gov't. Lot 5, thence South 700 feet; thence East 672 2/7 feet; thence North 700 feet; thence West to beginning; ALSO, the W½ of NE¼ of SE¼ of SW¼ of Sec. 29, Twp. 22 N., Rge. 3 E.W.M.

SE¼ of SE¼ of SW¼; and E½ of NE¼ of SE¼ of SW¼ of Sec. 29, Twp. 22 N., Rge. 3 E.W.M.

S½ of SE¼ of NE¼ of SW¼ of Sec. 29, Twp. 22 N., Rge. 3 E.W.M.

SE 1/4 · NW 1/4 section 29-22-3 3E

A Use See 51-23804C

The right to the use of the water aforesaid hereby confirmed is restri use hereinabove described, except as provided in Sections 6 and 7, Chapter 122, L

WITNESS the seal and signature of the State Supervisor of Water Resou

2nd day of June, 19 52.

State Supervisor of Water Resources.

CERTIFICATE OF CHANGE OF PURPOSE AND PLACE OF USE OF WATER

In accordance with the provisions of Chapter 117, Laws of Washington for 1917 and amendments thereto, and rules thereunder of the State Supervisor of Division of Water Resources,

THIS IS TO CERTIFY that Donald Johnson and Theodore Berry of Dookton, Washington, have complied with all of the requirements of section 90.28.090 Revised Code of Washington, and are hereby granted a permit to change the place and purpose of use of waters of an unnamed stream in the amount of 0.16 second-foot as granted in water right Certificate No. 4669; that such water had been used for irrigation and domestic supply on the following described lands:

The SW¼SW¼ less county road; W½E½NW¼SE¼SW¼; SW¼SE¼SW¼ less P.S.P.& L. easement; W½NW¼SE¼SW¼ less P.S.P.& L. easement, all in Sec. 29, T. 22 N.,R. 3 E.W.M. The E½NE¼SE¼SE¼ sec. 30, T 22 N., R. 3 E.W.M., and NW¼NW¼ less county road, of sec. 32, T. 22 N., R. 3 E.W.M. ALSO, beginning at northwest corner of Gov't Lot 5, thence south 700 feet; thence east 672 2/7 feet; thence north 700 feet; thence west to beginning; ALSO, the W½NE¼SE¼SW¼ sec. 29, T. 22 N., R. 3 E.W.M., SE¼SE¼SW¼ and E½NE¼SE¼SW¼ sec. 29, T. 22 N., R. 3 E.W.M. S½SE¼NE¼SW¼ sec. 29, T. 22 N., R. 3 E.W.M.

That they have changed the purpose of use of said waters to community domestic supply and changed the place of use to the following described lands:

SW¼SW¼ less county road; W½E½NW¼SE¼SW¼; SW¼SE¼SW¼ less P.S.P. & L. easement; W½NW¼SE¼SW¼ less P.S.P. & L. Easement, sec.29,T. 22 N., R. 3 E.W.M. E½NE¼SE¼SE¼ sec. 30, T. 22 N., R. 3 E.W.M. NW¼NW¼ less county road, sec. 32, T. 22 N., R. 3 E.W.M., E½E½NW¼SE¼SW¼ sec. 29, T. 22 N., R. 3 E.W.M., except county road, SE¼SE¼SW¼ and E½NE¼SE¼SW¼ all in sec. 29, T. 22 N., R. 3 E.W.M. West 12 acres of the NE¼NW¼ sec. 32, T. 22 N., R. 3 E.W.M. Beginning at northwest corner of Gov't, Lot 5; thence south 700 feet; thence east 672 2/7 feet; thence north 700 feet; thence west to beginning. (Tax Lots 20, 22 and 29). Also, W½NE¼SE¼SW¼ (21) all in sec. 29, T. 22 N., R. 3 E.W.M., and S½SE¼NE¼SW¼ sec. 29, T. 22 N., R. 3 E.W.M., being five acres. E½NE¼NE¼SW¼ (6); south 264 feet of west 330 feet of NE¼NE¼SW¼ except county road on west (26); north 396 feet of west 330 feet of NE¼NE¼SW¼ except county road (27); sec. 29, T. 22 N., R. 3 E.W.M., all within King County, Washington.

WITNESS THE SEAL and SIGNATURE of the Supervisor of the Division of Water Resources of the State of Washington, affixed this 5th day of August [illegible]

M. O. WALKER, Supervisor
DIVISION OF WATER RESOURCES

Recorded Page [illegible]
Volume [illegible] of
Records, Change of
Purpose and Place of
Use of Water

ENGINEERING DATA

FORM L58

Statutory Warranty Deed

THE GRANTORS, DONALD JOHNSEN and MARY JOHNSEN, his wife, and THEODORE BERRY and ROSIE BERRY, his wife,

for and in consideration of SIX THOUSAND AND NO/100THS DOLLARS ($6,000.00)

in hand paid, conveys and warrants to HARBORVIEW WATER ASSOCIATION, a Washington corporation,

the following described real estate, situated in the County of K I N G State of Washington, to-wit: PARCEL 1: South 100 feet of Tract 38 and all of Tract 58 of Dockton, as per plat recorded in Volume 12 of Plats, Page 17, records of said County;

PARCEL 2: That portion of Gov. Lot 5 in Sec. 29, Township 22 No., Range 3 E.W.M., described as follows: Beginning at the NW corner of Gov. Lot 5 and running thence South, along the Westerly line thereof, 700 feet to the true point of beginning of the tract herein described; thence East 100 feet; thence North, parallel with the Westerly line of said Government Lot 5, 100 feet; thence West 100 feet to the Westerly line of said GovernmentLot;thence South, along said Westerly line, to the true point of beginning, TOGETHER with a water system formerly operated by Grantors, including water rights, pumping station, water mains located on 97th Ave. S. W. from S. W. 268th to S. W. 246th and on Maple Wood Ave. (or 98th S. W.) from S.W. 262nd to S.W.264th in Sec. 29, Township 22 No., Range 3 E.W.M., King County, Washington, and a 10,000 gallon storage tank located on said Parcel 2, and any other water mains and appurtenances comprising said water system.

This deed is given in fulfillment of a real estate contract dated March 29, 1963, and title is warranted as of said date and as against any act or deed of the grantors subsequent thereto.

Dated this 30 day of July, 1963.

Theodore Berry
THEODORE BERRY

Donald Johnsen (SEAL)
DONALD JOHNSEN

Rosie Berry
ROSIE BERRY

Mary Johnsen (SEAL)
MARY JOHNSEN

STATE OF WASHINGTON, } ss.
County of K I N G. }

On this day personally appeared before me DONALD JOHNSEN and MARY JOHNSEN, his wife, and THEODORE BERRY and ROSIE BERRY, his wife,
to me known to be the individual s described in and who executed the within and foregoing instrument, and acknowledged that they signed the same as their free and voluntary act and deed, for the uses and purposes therein mentioned.

GIVEN under my hand and official seal this 3 day of July, 1963.

Notary Public in and for the State of Washington,
residing at

Form L12

Statutory Warranty Deed

THE GRANTOR Alfred C. Stuckey as his seperate estate

for and in consideration of Eight hundred ----------(800)----dollars ---------

in hand paid, conveys and warrants to Theodore Berry and Donald Johnsen

the following described real estate, situated in the County of King
State of Washington:

The south 100 feet of lot 38 and all of lot 58 of plat of Dockton.

Together with the use of 75% of the water flowing across the above land.

SALES TAX LIEN
PAID
OCT 16 1951
A. A. TREMPER
KING COUNTY TREASURER
By Earl Meyers DEPUTY
E 20044
REC. #

Dated this 10th. day of October 1951

Alfred C. Stuckey (SEAL)

.....(SEAL)

STATE OF WASHINGTON,
} ss.
County of King

On this 10th. day of October 1951 , before me, the undersigned,

a Notary Public in and for the State of Washington, duly commissioned and sworn, personally appeared

Alfred C. Stuckey

to me known to be the individual described in and who executed the foregoing instrument, and acknowledged to me that he signed and sealed this said instrument as his free and voluntary act and deed for the uses and purposes therein mentioned.

GIVEN under my hand and official seal this 10th. day of October 1951

.....

Notary Public in and for the State of Washington,
residing at Vashon

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

CERTIFICATE OF WATER RIGHT

[X] Surface Water (Issued in accordance with the provisions of Chapter 117, Laws of Washington for 1917, and amendments thereto, and the rules and regulations of the Department of Ecology.)

[ ] Ground Water (Issued in accordance with the provisions of Chapter 263, Laws of Washington for 1945, and amendments thereto, and the rules and regulations of the Department of Ecology.)

PRIORITY DATE	APPLICATION NUMBER	PERMIT NUMBER	CERTIFICATE NUMBER
March 1, 1973	S1-20464	S1-20464P	S1-20464C

8202180511

NAME
DOCKTON IMPROVEMENT CORPORATION

ADDRESS (STREET)	(CITY)	(STATE)	(ZIP CODE)
P. O. Box 7A	Dockton	Washington	98018

This is to certify that the herein named applicant has made proof to the satisfaction of the Department of Ecology of a right to the use of the public waters of the State of Washington as herein defined, and under and specifically subject to the provisions contained in the Permit issued by the Department of Ecology, and that said right to the use of said waters has been perfected in accordance with the laws of the State of Washington, and is hereby confirmed by the Department of Ecology and entered of record as shown.

PUBLIC WATER TO BE APPROPRIATED

SOURCE
Unnamed springs

TRIBUTARY OF (IF SURFACE WATERS)

MAXIMUM CUBIC FEET PER SECOND	MAXIMUM GALLONS PER MINUTE	MAXIMUM ACRE-FEET PER YEAR
0.03		16.0

QUANTITY, TYPE OF USE, PERIOD OF USE
Community domestic supply - continuously

LOCATION OF DIVERSION/WITHDRAWAL

APPROXIMATE LOCATION OF DIVERSION—WITHDRAWAL
1166 feet north and 825 feet west from the southeast corner of Sec. 30

LOCATED WITHIN (SMALLEST LEGAL SUBDIVISION)	SECTION	TOWNSHIP N.	RANGE, (E. OR W.) W.M.	W.R.I.A.	COUNTY
SE¼SE¼	30	22	3 E.	15	King

RECORDED PLATTED PROPERTY

LOT	BLOCK	OF (GIVE NAME OF PLAT OR ADDITION)

LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS TO BE USED

Area served by Dockton Improvement Corporation in Sections 29 and 30, T. 22 N., R. 3 E.W.M

Springs

F (IF SURFACE WATERS)

MUM CUBIC FEET PER SECOND	MAXIMUM GALLONS PER MINUTE	MAXIMUM ACRE-FEET PER YEAR
.03		16.0

QUANTITY, TYPE OF USE, PERIOD OF USE
Community domestic supply - continuously

RECD

LOCATION OF DIVERSION/WITHDRAWAL

APPROXIMATE LOCATION OF DIVERSION—WITHDRAWAL
1166 feet north and 825 feet west from the southeast corner of Sec. 30

LOCATED WITHIN (SMALLEST LEGAL SUBDIVISION)	SECTION	TOWNSHIP N.	RANGE, (E. OR W.) W.M.	W.R.I.A.	COUNTY
SE¼SE¼	30	22	3 E.	15	King

RECORDED PLATTED PROPERTY

LOT	BLOCK	OF (GIVE NAME OF PLAT OR ADDITION)

LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS TO BE USED

rea served by Dockton Improvement Corporation in Sections 29 and 30, T. 22 N., R. 3 E.W.M.

FILED for Record at Request of

Name Dockton Improvement Corp.

Address P. O. Box 72

Dockton, Wa. 98018

RECORDED THIS DAY

FEB 18 2 16 PM '82

BY THE DIVISION OF
RECORDS & ELECTIONS
KING COUNTY

040-1-2 (Rev. 4-77) (SEE REVERSE SIDE) CERTIFICATE

Dockton Water Association

PROVISIONS

An approved measuring device shall be installed and maintained in accordance with RCW 90.03.360, WAC 508-64-020 through WAC 508-64-040.

The right to the use of the water aforesaid hereby confirmed is restricted to the lands or place of use herein described, except as provided in RCW 90.03.380, 90.03.390, and 90.44.020.

This certificate of water right is specifically subject to relinquishment for nonuse of water as provided in RCW 90.14.180.

Given under my hand and the seal of this office at Redmond *Washington, this* 16th *day of* February, 19 82.

Department of Ecology

by Robert K. McCormick

ROBERT K. McCORMICK, Regional Manager

ENGINEERING DATA

OK

FOR COUNTY USE ONLY

A. F. No. 1341—1-66—3M. 8260

CERTIFICATE RECORD NO. 11 PAGE NO. 5383-A

STATE OF WASHINGTON, COUNTY OF King

Certificate of Ground Water Right

Issued in accordance with the provisions of Chapter 263, Laws of Washington for 1945, and amendments thereto, and the rules and regulations of the State Supervisor of Water Resources thereunder.

THIS IS TO CERTIFY That BARD & HOWARD

of Vashon, Washington, has made proof to the satisfaction of the State Supervisor of Water Resources of Washington, of a right to the use of the ground waters of a well located within NE¼NW¼ (Lot 2, Plat of Sandy Shores) Sec. 32 Twp. 22 N., R. 3 E. W.M. for the purpose of community domestic supply under and subject to provisions contained in Ground Water Permit No. 5739 issued by the State Supervisor of Water Resources and that said right to the use of said ground waters has been perfected in accordance with the laws of Washington, and is hereby confirmed by the State Supervisor of Water Resources of Washington and entered of record in Volume 11 at page 5383-A; that the right hereby confirmed dates from August 10, 1961; that the quantity of ground water under the right hereby confirmed for the purposes aforesaid, is limited to an amount actually beneficially used for said purposes, and shall not exceed 100 gallons per minute; 48 acre-feet per year, for community domestic supply.

Special provisions required by the Supervisor of Water Resources:

A description of the lands to which such ground water right is appurtenant:

Plat of Sandy Shores, within Sec. 32, T. 22 N., R. 3 E.W.M.

The right to the use of the ground water aforesaid hereby confirmed is restricted to the lands or place of use herein described, except as provided in Sections 6 and 7, Chapter 122, Laws of 1929.

WITNESS the seal and signature of the State Supervisor of Water Resources affixed this 14th day of April, 19 66

W. B. Walker

State Supervisor of Water Resources

CERTIFICATE RECORD NO. 14, PAGE NO. 6734

STATE OF WASHINGTON, COUNTY OF King

CERTIFICATE OF SURFACE WATER RIGHT

(In accordance with the provisions of Chapter 117, Laws of Washington for 1917, and amendments thereto, and the rules and regulations of the State Supervisor of Water Resources thereunder)

This is to certify that DOCKTON IMPROVEMENT CO.

of Dockton, State of Washington, has made proof to the satisfaction of the State Supervisor of Water Resources of Washington, of a right to the use of the waters of unn. stream & trib. springs

with point or points of diversion within the

Sec. 30, Twp. 22 N., R. 3 E., W. M., under and subject to provisions contained in Appropriation Permit No. 2537, issued by the State Supervisor of Water Resources, and that said right to the use of said waters has been perfected in accordance with the laws of Washington, and is hereby confirmed by the State Supervisor of Water Resources of Washington and entered of record in Volume 14, at Page 6734, on the 14th day of February, 1957, that the priority date of the right hereby confirmed is November 12, 1937; that the amount of water under the right hereby confirmed, for the following purposes is limited to an amount actually beneficially used and shall not exceed 0.04 of a cubic foot per second for community domestic supply

A description of the lands under such right to which the water right is appurtenant, and the place where such water is put to beneficial use is as follows:

Community of Dockton, Washington

The right to the use of the water aforesaid hereby confirmed is restricted to the lands or place of use herein described, except as provided in Sections 6 and 7, Chapter 122, Laws of 1929.

WITNESS the seal and signature of the State Supervisor of Water Resources affixed this

14th day of February, 1957

COMPARED BY

O.K.

State Supervisor of Water Resources.