05/29/98

Introduced By: Brian Derdowski

Proposed No.: 98-225

ORDINANCE NO. 13209

AN ORDINANCE approving the King County Water District 123 Comprehensive Water System Plan.

PREAMBLE:

K.C.C. 13.24 requires approval of comprehensive plans for water utilities as a prerequisite for granting right-of-way permits.

The King County Water District 123 Comprehensive Water System Plan (Plan) is categorically exempt from State Environmental Policy Act review per WAC 197-11-800(24)(b).

The Board of Commissioners of King County Water District 123 adopted the Plan on March 30, 1995.

The King County Utilities Technical Review Committee (UTRC) reviewed and conditionally approved the Plan on November 12, 1997. The conditions of approval (technical corrections to the Plan) have been met by King County Water District 123.

The UTRC recommends that the Council approve the Plan.

13209

BE IT ORDAINED BY THE COUNCIL OF KING COUNTY:

SECTION 1. The King County Water District 123 Comprehensive Water System Plan, Attachment A, is hereby approved without conditions.

INTRODUCED AND READ for the first time this 6th day of April, 1998.

PASSED by a vote of 11 to 0 this 15th day of June, 19___.

KING COUNTY COUNCIL
KING COUNTY, WASHINGTON

Louise Miller
Chair

ATTEST:

Clerk of the Council

APPROVED this 18 day of June, 1998.

King County Executive

Attachments: A. The King County Water District 123 Comprehensive Water System Plan.

13209
98-225

1998

COMPREHENSIVE

WATER PLAN

For:

King County Water District No. 123

P.O. Box 995
Preston, Washington 98050

February 1998

875 - 140th Avenue Northeast, Suite 201
Bellevue, Washington 98005

King County Water District No. 123

Board of Commissioners

Roger Armstrong	**President**
Robyn Chisholm	**Secretary**
Steve Carlson	**Treasurer**

February 1998

Prepared By:

AKB Engineers, Inc.

875 - 140th Avenue Northeast, Suite 201
Bellevue, Washington 98005
(425) 747-3592

RESOLUTION 95-1

BE IT RESOLVED BY THE BOARD OF COMMISSIONERS OF KCWD #123, THAT

SEE ATTACHED RESOLUTION

95-1

Passed and approved this 30th day of March, 1995.

Roger D Armstrong

CERTIFICATION

I, Roger Armstrong, duly appointed and President of KCWD # 123, do hereby certify that the ~~above~~ ATTACHED is a true and correct copy of a resolution passed and approved by the Board of Commissioners on the 30th day of March, 1995.

Date: 3-30-95

Roger D Armstrong

WATER DISTRICT NO. 123
KING COUNTY, WASHINGTON

RESOLUTION NO. 95-1

A RESOLUTION OF THE BOARD OF COMMISSIONERS OF WATER DISTRICT NO. 123 OF KING COUNTY, WASHINGTON APPROVING AND ADOPTING THE DRAFT 1994 COMPREHENSIVE WATER PLAN UPDATE AND CAPITAL IMPROVEMENT PLAN FOR THE DISTRICTS WATER SYSTEM.

WHEREAS, the Board of Commissioners of King County Water District No. 123 previously authorized AKB Consulting Engineers, the District's consulting engineer, to update the District's Comprehensive Water Plan and Capital Improvement Plan; and,

WHEREAS, AKB Consulting Engineers, have prepared a draft Comprehensive Water Plan update and Capital Improvement Plan for the District which is now being modified in accordance with the preliminary review comments received from the county agency having jurisdiction for such preliminary review; and,

WHEREAS, it has come to the attention of the Board of Commissioners that the Comprehensive Water Plan update and Capital Improvement Plan must be adopted by the 21st of April, 1995, to be eligible for a 1996 Washington State Public Works Trust Fund construction loan; and,

WHEREAS, the Commissioners of Water District No. 123 have determined that it is in the best interest of the District to adopt the draft Comprehensive Water Plan update and Capital Improvement Plan to meet Washington State Public Works Trust Fund loan eligibility requirements; and,

WHEREAS, during the preceeding year discussions pertaining to the proposed improvements to the District's water system as outlined in the Comprehensive Water Plan update and Capital Improvement Plan have taken place at each Water District monthly meeting, open to the public and attended at various times by Water District customers, free to comment on the plan proposals;

NOW, THEREFORE, BE IT RESOLVED by the Board of Commissioners of Water District No. 123 of King County Washington, that the draft 1994 Comprehensive Water Plan update and Capital Improvement Plan is hereby approved and adopted for use by the District subject to modification based on comment from state, county and local agencies with jurisdiction regarding such plan.

ADOPTED by the Board of Commissioners of King County Water District No. 123 at the regular open public meeting thereof held March 30, 1995.

Roger Armstrong, Commissioner

Robyn Chisholm, Commissioner

Todd White, Commissioner

BE IT NOTED that on _____, at a regular meeting of King County Water District No. 123, the 1998 Water District Comprehensive Plan was reviewed. A quorum of the Board of Commissioners was present.

A MOTION was introduced, seconded, and passed to approve the Comprehensive Water Plan and submit same to necessary government officials for approval.
Said motion was duly recorded in the minutes.

SIGNED:_____

Roger Armstrong, President

ATTESTED BY:_____

Robyn Chisholm, Secretary

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LIST OF ABBREVIATIONS

WATER DISTRICT	King County Water District No. 123
CWSP	East King County Coordinated Water System Plan
CWSSA	East King County Critical Water Supply Service Area
WUCC	East King county Water Utilities Coordinating Committee
GPD	Gallons per day
GPM	Gallons per minute
DIM	Dimensions
HGT	Height
Dia.	Diameter
Gals	Gallons
HP	Horsepower
QTR QTR	Quarter Quarter
T 25 N, R 7 E	Township 25 North, Range 7 East, Willamette Meridian
PSI	Pounds per square inch
PRV	Pressure Regulating Valve
SDWA	Safe Drinking Water Act
EPA	Environmental Protection Agency
WHPP	Wellhead Protection Program
WHPA	Wellhead protection Area
PSCOG	Puget Sound Council of Governments
AWWA	American Water Works Association
WAC	Washington Administrative Code
KCC	King County Code
DOH	Washington State Department of Health
DSHS	Washington State Department of Social and Health Services
DOE	Washington State Department of Ecology
af/yr	Acre Feet per year = 43,560 cubic feet/year
MID	Maximum Instantaneous Demand
SEPA	Washington State Environmental Policy Act

I. INTRODUCTION

I. INTRODUCTION

A. PURPOSE AND SCOPE

The purpose and scope of this plan is to assist King County Water District No. 123 with the development and operation of a continuous and reliable water distribution system for the benefit of its users. This plan is intended to provide the present and future Boards of Commissioners with a general information document along with the necessary guidelines for a smooth and coordinated operation of the water distribution system and to meet the requirements of local, state and federal agencies and their related laws and regulations as pertaining to the ownership and operation of a Group A water system.

B. GENERAL

The Water District's Boundary's are as shown in Figure 1 of Appendix "A". The Districts water system presently serves 78 homes located within the limits of the Township of Preston, Washington. The water system consists of a ground water supply well, a water storage reservoir, and a network of distribution piping.

All of the homes in the District are served with individual septic tanks and no sewer system construction is planned for the area at this time.

Existing residences are mostly older homes, nearly one half of which were constructed prior to 1930. There are few newer homes lying within the present District service area. Future home construction within the service area will very likely require extension of existing watermains. Updating of the system has consisted mainly of constructing a ground water supply well to remove the system from its original surface water source, and replacement of existing watermains to reduce leakage and to improve the water service pressures and fire flow.

This plan is intended to comply with, and be a supplement to, the CWSP. This plan is also intended to comply with the King County Comprehensive Plan and the Snoqualmie Valley Community Plan.

C. FORM OF ORGANIZATION

King County Water District No. 123 is a public utility which was formed on November 5, 1968 and operated under the provisions or R.C.W. Title 57. The Water District is governed by a Board of Commissioners elected at the general election by Water District residents. There are three commissioners with terms of office of 6 years each. Terms are staggered with the addition of one commissioner every 2 years.

System maintenance and operation is provided by a part time employee of the District. Bookkeeping and billing are provided by a part time bookkeeper.

Engineering for the District is provided by A.K.B. Consulting Engineers of Bellevue, Washington.

D. HISTORY

The Preston area developed early in this century as a typical Northwest mill town built around the operations of the Preston Mill company. Following the trend of other company owned towns in the Northwest, the mill company sold off the housing which they had developed for their employees together with the other platted properties, so that, except for the mill site itself, all of the developed land in the area is now in private ownership. With the improvements to Interstate Highway 90, commuting from the Preston area to the Seattle metropolitan area is more attractive and consequently, many of the people who live in Preston work elsewhere.

The mill company developed a water system to supply domestic water for their workers and for in-plant operations, and to provide some fire protection for the mill itself. The supply was developed by diverting water from two small streams located to the south across what is now Interstate Highway 90. The early water system consisted of the diversion facility, a series of wooden storage tanks, and a combination of wood and steel pipes somewhat following the street patterns throughout most of the residential area of Preston. Most of the distribution system was installed prior to 1930. In 1957, in conjunction with work then being done on what is now Interstate 90, new 8-inch and 6-inch A.C. pipe were installed from the highway southerly to a new 80,000-gallon concrete storage tank near the stream diversions. For many years, summertime water shortages were frequent. The shortages were the result of more water users and the usual sharp decrease in stream flow during the late summer period. The repeated water shortages and the inconvenience of the number of intermittent water shut-offs, necessitated for repair and maintenance of the old system, prompted interest in the improvement of water service. A petition to form a Water District was prepared, and a District boundary established as shown in Figure 1 of the Appendix. In accordance with state law, the proposition to form Water District No. 123, King County, was placed on the November 5, 1968 ballot together with a proposal that there be a 5 mill levy assessed against all properties in the District to help finance the preliminary organizational efforts. At this election, the voters approved the formation of the District and the assessment of the levy.

The first commissioners were Mr. Ronald Johnson, Mr. Glen Lundquist and Mr. Leonard Davidson. The first regular meeting of the Water District was held on December 11, 1968, when the Commissioners elected Mr. Johnson Chairman and Mr. Lundquist Secretary. In April 1969, the first Comprehensive Water Plan was prepared and submitted to the Board of Commissioners. The plan determined that a new water source should be developed, it also concluded that it would be more desirable to construct a new water system than to attempt to utilize portions of the existing system.

The resolution to adopt the comprehensive plan for a water supply and new distribution system for the District was submitted to the residents for approval on July 22, 1969. At this election, however, the voters rejected adoption of the plan, partially because of the relatively high cost on a per customer basis. Initial efforts to improve the water system were thus stalemated for a time.

After rejection of the comprehensive plan, the Preston Mill Company informed the Commissioners that they desired to be relieved of the responsibility for operating the water system. In May 1970, final negotiations were completed, where upon the District agreed to purchase the water system and storage tank for the sum of $14,000 and to assume operation and maintenance of the system.

In 1976, as part of completion of Interstate 90, new 6-inch D.I. pipe was installed to replace wood and A.C. piping under the Interstate Highway.

In July of 1977, HUD block grant funding was received from King County for updating of the Water District Comprehensive Plan. The updated plan was completed in December 1977. The plan presented two alternatives for upgrading of the Water Districts facilities. Alternate one called for development of a well supply to be connected to existing storage and distribution facilities and abandonment of the existing surface water source. Replacement of existing water mains with 8" diameter ductile iron pipe would be made as existing piping deteriorated. Alternate two called for development of a well supply, construction of a new storage facility, and complete replacement of all distribution lines with new 8 inch ductile iron pipe.

In 1980 the Water District constructed a well on the east side of the Raging River immediately south of Bridge Street. This well is 167 feet deep and produces 200 gallons per minute. A new 1100 foot section of 8" ductile iron line was installed to connect the well with the existing system. This new main extends from the well westerly along Bridge Street and southerly along Park Boulevard to a connection with the existing 6 inch PVC water main near the intersection of Park Boulevard and Lovegreen Drive. Additional watermain extension and replacement projects were constructed in 1990, 1992, and 1993. These projects consisted of a) the installation of 700 feet of 8 inch ductile iron watermain connecting the transmission line along Park Boulevard with the west Preston distribution system on Railroad Avenue (1990), b) the installation of 600 feet of 8 inch ductile iron watermain on 312th Street (Riverside Avenue) extending northeasterly from a connection with the 8 inch ductile iron watermain on Bridge Street (1992), and c) the installation of 550 feet of 8 inch ductile iron watermain on Lovergreen Drive, (1993). These projects resulted in the replacement of approximately 1100 feet of 1" and 4" steel, and 2" wood watermain pipe and the addition of approximately 1200 feet of new watermain. (See existing water system exhibit).

II. EXISTING SYSTEM

II. EXISTING SYSTEM

A. GENERAL

Water is pumped from the District's well, located immediately east of the Bridge Street crossing of the Raging River, through 8 inch and 6 inch transmission mains northwesterly on Bridge Street to the Preston - Fall City highway, then southwesterly along this roadway and through mill property to a crossing of Interstate 90. From the south side of Interstate 90 the transmission main ascends a steep and winding abandoned access road, crossing Soderman Creek, to the systems storage reservoir.

Several pressure reducing valve CPRV) stations located along the Preston - Fall City highway, connect the transmission main to the upper, middle, and lower service area distribution systems. In 1997 a lot of the previous substandard size piping was replaced with 8 inch and 4 inch transmission / distribution system. The distribution piping is as shown in Appendix "B" - Exhibit B.1 and described in Appendix "C" - Table C.1.

B. DEMAND

The actual water usage of the District is unknown as the 78 water service connections and the well pump have been until recently unmetered. Prior to the recent telemetric operation improvements, the pump was set to operate automatically on two - two hour cycles per day. Additional manual pump operation was made on a demand basis during summer high water use periods. An estimate of this annual water withdrawal from the well, based on 4 hours per day pump operation at 200 gpm, would be 48,000 GPD (53.8 acre feet per year).

This figure included approximately 400,000 gallons per month or 13,150 GPD of water supplied to the Pure Water Corporation. Actual domestic water use can be estimated as follows:

48,000 GPD-13,150 GPD = 34,850 GPD for 78 connections

= 447 GPD/Connection,

or approximately 125 gallons per day per person based on 3.6 persons per residence. It should be noted that 3.6 persons per household compares well with DOH recommended minimum 350 GPD per equivalent residential unit (ERU). Also, the census for this portion of King County indicates the density of approximately 3.0 persons per household.

Under the improvements to the system in 1997 all connection were fitted with a water meter. Regular measurements at these meter will establish the current usage and demand on the system.

C. PRESSURE ZONES

There are two pressure zones in the system. The lower zone, serving east Preston, lies along the Preston - Fall City highway and extends easterly to the Raging River. Pressures in this zone vary from 75 psi to 100 psi. The 8 inch water main along 312th Street on the east side of the Raging River is connected directly to the transmission main connecting the pump with the storage reservoir. Pressures along these lines are an average of 95 psi static. Pressure reducers are required on service lines connected to these water lines. The 8 inch and 4 inch distribution loop at 85th Place and 311 th Ave SE is pressure regulated at 80 psi. The upper zone, serving west Preston, extends from 310th street westerly to the westerly limits of the present service area (Mill Street). Pressures in this zone vary from 80 psi static along 310th street (Lovegreen Drive) to 60 psi +/- static at the most northerly service on 308th street (Cedar Street). Prior to the most recent improvements to the system the pressure here was as low as 35 psi.

D. TOPOGRAPHY

Topography of the present service area consists of an upper plateau area extending from the westerly boundary of the district to Railroad Avenue. This plateau, west Preston, is approximately at an elevation of 510 and covers generally the westerly 40 percent of the service area. Elevations then drop to the east from Railroad Avenue to the Preston - Fall City Highway. The elevation loss is approximately 90 feet, dropping from an elevation of 510 on the plateau, to 420 in the lower Preston area near the highway. The contours continue to drop easterly to the Raging River to approximate elevation 380. This lower area covers approximately 30 percent of the present service area. Contours then rise to the east from the Raging River, gaining 200 feet, more or less, at the easterly service area boundary. This easterly section of the service area covers approximately 30 percent of the service area, is primarily undeveloped, and is not presently served by the Water District.

E. SOURCE OF SUPPLY

The District's water supply is withdrawn from an 8 inch diameter 167 foot deep well lying on the south side of Bridge Street immediately east of the Raging River Bridge. The well was constructed in 1979 and is fitted with a 20 horsepower submersible pump, capable of pumping 200 G.P.M. to the systems storage facility.

The flood zone information on flood insurance rate map (FIRM) for townships 23 & 24 North and Range 7 East shows that the flood elevation in the vicinity of the well is 394 feet. The well log shows the elevation of the well at 410 feet. Therefore, the well is not in flood zone.

Water is withdrawn from the well under the Department of Ecology Ground Water Certificate No. G1-23312C. (appendix B-3). This certificate has a priority date of February 20, 1979, and allocates 90 acre feet of water to the Water District per year.

The water is supplied to the distribution system without any treatment.

F. STORAGE

Storage is provided in an 80,000 gallon, two cell, concrete reservoir constructed in 1957 and located approximately 500 feet south of Interstate 90 along the west side of Soderman Creek. The reservoir has a wood frame superstructure and sheet metal roof.

G. TRANSMISSION AND DISTRIBUTION

The existing transmission system from the reservoir to Interstate 90 consists of 6 inch and 8 inch asbestos cement piping installed in 1957. Transmission piping lying beneath Interstate 90 consists of 6 inch ductile iron pipe installed in 1976. In 1980 approximately 1,600 lineal feet of 8-inch ductile iron pipe was installed between Interstate 90 to the new well on Bridge Street.

Until recently, virtually all of the water distribution system in the upper and lower service areas consisted of 1 inch, 2 inch, and 4 inch steel water mains constructed prior to 1930.

The distribution system serving the middle area was replaced with 8 inch ductile iron water mains in 1990 and 1993. A massive system improvements project was taken up in 1997 and is now complete. Existing substandard watermains were replaced with about 3,000 linear feet of 8" ductile iron pipe and about 2,500 linear feet of 4" ductile iron pipe.

There were 5 fire hydrants in the system, one each in the upper and middle service areas and three in the lower service area. With the recent improvements there are eleven fire hydrants with substantially improved pressure and fire flows.

The system also has two pressure reducing stations to regulate pressures throughout the service area. The system was unmetered, until the recent upgrades when the individual connections were fitted with water meters.

H. WATER QUALITY

The monitoring of Water Quality has continually been done by the district in accordance with WAC 246-290-300 Through 330. Water samples are collected and tested routinely by the district at the DOH laboratory for coliform contamination. There have been no significant water quality problems in the District since abandoning the surface water source and construction of the groundwater well. Recently, when the water reservoir was cleaned, E-Coli contamination was detected in one sample. Immediate action by the district in flushing all the mains removed this isolated problem. Since that time no further water quality problems have been encountered.

I. SUMMARY

1. Supply

The existing well pump installed in 1979 is now 18 years old. Although it is presently operating properly, these pumps generally begin requiring repair service after 8 to 10 years. It is reasonable to expect problems to begin developing in the existing pumping system. The pump will eventually require replacement. The pump is also unmetered and therefore there are no withdrawal records.

2. Storage

The existing storage reservoir was constructed in 1957 and is now nearly 40 years old. It's outlet valving has weathered over the years, although is now operable and not in immediate need of replacement.

The existing storage capacity does not meet fire and standby storage requirements. The Water district is located in a King County zone classified as Rural Neighborhood, where lots over 3,5000 SF are not required to have fire protection of 1,000 gallons per minute at 20psi for two hour duration. Existing structures are exempt unless improvements are proposed. New developments on lots smaller than 3,5000 SF will be required to provide fire sprinklers with in the proposed structures.

The existing storage reservoir is located on DNR property, a situation which has presented some problems in access and maintenance over the past years.

The reservoir's ability to provide satisfactory pressure to meet fire flow requirements in the upper service area is questionable. Following the recent improvements to the system minimum fire flows in the order of 600gm @ 20psi are estimated.

3. Transmission

That portion of the existing transmission system lying south of Interstate 90 is asbestos cement pipe and is now 37 years old. The pipe, which crosses Soderman Creek at two locations, is jeopardized by creek flood flows, stream meandering, and bank erosion.

4. Distribution Systems

All of the existing distribution system piping in the upper and lower service areas consisting of 1 inch, 2 inch, and 4 inch steel water mains constructed prior to 1930 has been replaced with 8" and 4" ductile iron water mains.

Eleven fire hydrants now exist at spacing no greater than 700 feet on new mains installed in 1990 or later. These fire hydrants do not provide coverage to some isolated parts of the existing service area.

III. MAINTENANCE & OPERATION

III. MAINTENANCE AND OPERATION

A. ROUTINE OPERATION

The sampling, maintenance, and the operation of the system is performed by a part time Water District employee.

Basically, the maintenance of the system consists of visual inspection, flushing of the lines, responding to calls for system failure, fire hydrant/blow-off operation, obtaining and submitting bacteriological samples, and incidentals such as painting, uncovering of valve boxes, maintaining the access road to the reservoir, brushing around the PRV's and well, and pumping out the Pressure Reducing Stations.

The billing and clerical work is accomplished by a part time Bookkeeper.

Water monitoring is done in accordance with WAC 246-290-300 thru 330, and any revisions and additions there to.

B. EMERGENCY RESPONSE

Presently available to Water District 123 are at least four water works contractors that can be called upon by the Districts maintenance employee for major facility failures caused by nature such as wind storms, earthquakes, washouts, etc. The procedures used to cover other emergencies such as water quality problems or any other situation that endangers the public health are covered under WAC 246-290-320 and 246-290-330, and any revisions thereto.

IV. PLANNING

IV. PLANNING

A. SERVICE AREA

The service area of the Water District is shown in Appendix "A" - Figure 1.

The service area is located in Sections 32 and 33, Township 24 North, Range 7 East, W.M. in King County, Washington and covers approximately 140 acres. The service area of the Water District will probably not be enlarged, due to boundary limits set by the East King County Coordinated Water System Plan.

B. KING COUNTY FRANCHISE

Water District 123 operates and maintains water supply, storage and distribution facilities in King County under King County Franchise No. 3838.

C. LAND USE

King County Ordinance 9462, Section 1.A, states that "Water service provided...is to be consistent with local land use plans". Section 1.B requires East King County water purveyors, including Water District 123, recognize county land use policies and that they "will not use water service as a vehicle to supersede (county) land use policies and zoning within unincorporated King County."

It should be noted that Water District 123 does not have any authority to establish land use.

Existing land use per the King County Comprehensive plan is rural neighborhood.

Water District 123's service area lies within the Snoqualmie Valley Community Plan (SQP). The SQP acknowledges Water District 123 as an approved existing water system.

The service area is zoned "Rural Area: AR-2.5". The area's zoned to permit uses that are more appropriate in rural areas (horses, private stables, and livestock). They also intend to provide long-term low-density lot sizes and buffers to adjacent forestry zoned areas. Permitted uses include single family dwellings, agricultural activities, nurseries, campsites, forest practices, and other uses consistent in rural environments. Minimum lot size is 2.5 acres.

The above is consistent with the Washington State Growth Management Act King County comprehensive plan, and King County land use plans now in effect.

D. POPULATION

The present service area population is approximately 280 people. This population is based on an estimate of 3.6 people living at each service. Currently there are 78 services.

King County's Snoqualmie Valley Community plan shows preston neighborhood zoning mostly as Rural neighborhood AR - 2.5, allowing one dwelling unit (D.U.) per 2.5 acre lot. From the zoning map it appears that most of the existing connections are located with in a 1,320' x 1,320' square, a 40 acre area. Total area bounded with in the district boundary is about 140 acre. With a reasonable assumption that in the remaining 100 acres the development takes place at the rate of 1 D.U. / 2.5 acres, the number of ERU's possible within the district will equal 118.

$$\text{ERU's} = 78 + (140 - 40) / 2.5$$
$$= 78 + 40 \quad = 118$$

Therefore, saturation population under current zoning

$$= 118 \times 3.6 = 425.$$

The population projection table C-2 in appendix C is developed assuming that the saturation population will be reached in the next ten years. A growth rate of 14.4% can be deduced. This projected growth rate is much higher then the growth rate of 0.37% the district has experienced in the past 16 years.

E. ENVIRONMENTAL CONSIDERATIONS

This plan is exempt from environmental review in accordance with the Washington State Environmental Policy Act as all utility lines are 8 inches in diameter or less. (Virtually all proposed projects for upgrading of the system, with the exception of replacement of the storage reservoir, have been located within existing road right of ways and their construction work had a negligible impact on the environment.

F. CONSERVATION

Conservation is a desirable program to utilize at all times. This can be done through periodic notices to customers which include suggestions on ways to conserve water and how to use it more wisely. Water District 123 is required by law to reduce its consumption by 8% by the year 2000.

The Water District does not meter its ground water withdrawals, and its domestic water service were metered recently; therefore, it has no records of water consumption. To comply with mandated water use reductions for the year 2000, the Water District has installed a radio control system which provides for automatic well pump operation tied to water storage reservoir water levels. In the recent past the well pump was operated manually and ran for four hours each day. This system did not provide for automatic shut off of the pump when the reservoir was full; therefore, overflows from the reservoir occurred periodically. The new radio control system automatically shuts off the pump when a predetermined water level in the reservoir is reached. Water wastage from overflows has been eliminated. Though it is not quantified by means of measured values, it would be a conservative statement to assert that this measure in itself would account for the mandated 4% reduction in consumption over the 1990 usage.

The Water District's Capital Improvement Plan for the years 1998 through year 2008 is included in the Appendix in Tables C-4. The recent improvement project included the installation of water service meters for existing connections.. Accurate of water use records

can now be obtained as individual metering has been completed. The mandated reduction in consumption to 2000 can be based on data obtained from these meters.

An in-flow meter will also be installed at the well pump discharge in the year 2,000 to begin metering of withdrawals from the well. This information will provide better estimate of usage.

1. Goal and Objectives

a. Meet the CWSP and county mandated water usage reduction target.

b. Comply with county, State and CWSP guidelines regarding conservation.

2. Short Range Plan

During drought conditions, notices alerting members of the situation as well as tips on saving water will accompany monthly billings mailed to the services. The Water District can also allocate water in case of emergency or a drought.

Seasonal water demand is always highest during drought conditions. This is due mainly to heavy irrigation of lawns and shrubs. Invariably customers use far more water than is necessary for their landscape. They can be educated as to the correct amount of water that is necessary for irrigation. In the northwest, an inch of water per week for lawn watering is considered adequate during the growing season. By staggering the watering to every third day, only a third of the services hypothetically will be watering at any one day. At two waterings a week, a half inch each third day should be sufficient. This amount may be measured in shallow containers placed on the lawn.

A water calendar will be distributed to each member during high demand periods. It limits irrigation to every third day. It does this by using house addresses so that only a

third of all members may irrigate on a given day.

3. Long Range Plan for Water Use Reduction

Methods available to the Water District to encourage conservation of water are:

a. Customer Billing

1. Encourage conservation with rate structures

BILLING RATE	WATER USAGE
$20/Month	200 GPD OR LESS
$25/Month	350 GPD OR LESS
$30/Month	MORE THEN 350GPD

2. During high demand periods (Summer months)
   - ♦ Raising rates
   - ♦ Offering discounts and year-end rebates to customers who use less water by a certain amount.

b. Technical Assistance/Education

1. Purchase and distribute water-saving retrofit kits for each customer, which could include toilet dams, showerhead flow restrictors, leak detection dye tablets, faucet aerators and information brochures.
2. Provide information on low water use landscaping, as well as ways to use water more wisely.
3. Distribute literature explaining why its important to conserve water.
4. Provide technical assistance to customers who request it.

c. Policies

1. Discourage the use of potable water for non-potable purposes, such as

outdoor lawn watering, and other related activities.

2. Participate in regional education programs and studies regarding long term water conservation.

G. NEIGHBORING WATER PURVEYORS

Water District No. 123 lies within a critical water supply service area (CWSSA), as declared by the King County Council. By being part of the CWSSA, Water District 123 is also subject to the East King County Coordinated Water System Plan (CWSP) for the establishment of its service area boundary.

DOH regulations require water purveyors design their systems so that they are compatible with adjoining purveyors. The Water Districts closest neighboring water purveyor is the Preston Industrial Park Water Association (See Appendix A, Figure 5). That purveyor is privately owned by The Preston Industrial Park and was established to provide domestic water to the park's commercial buildings. The industrial park lies immediately west of the present Water District's Boundary. Proposed construction and replacement of existing water distribution system piping will be made in such a manner that connecting both systems will be feasible (if that is ever required).

The Water District is also surrounded by the service area of Water District 127. Presently, the closest Water District 127 water main lies to the north on 328th Way S.E. and the Preston - Fall City Highway. This main is approximately 1 3/4 miles north east of Preston and in a lower pressure zone. At the present time there are no plans for connecting the two systems.

Two other small private water system lie south of the Water District's service area. These systems are owned and operated by the Blue Sky II Mobile Home Park and the Alpine Mobile Manor respectively and provide service to the mobile home parks only. These systems would ultimately be taken over and served by the Water District.

H. FINANCING

1. Source of Revenue

The Water District's present source of income is the $14.00 per month service charge to each of it's 78 customers. An increase in the rate to $20 is proposed. Sale of water to the Pure Water Corporation (approximately 400,000 gallons per month) has ceased, so did the revenue from that source.

The Districts average monthly income from this source is:

Service Charges

78 @ $14.00 ($20 proposed) = $ 1,092.00 ($1,560.00)

Total Monthly Income = **$ 1,092.00 ($1,560.00)**

= **$13,104/Year ($18,720.00)**

2. Expenses

The Water Districts annual expenses for 1992 and 1993 were:

YEAR	EXPENSES
1992	$ 31,337.26
1993	$ 41,368.76

To reflect average annual operating costs, these figures were adjusted by subtracting out the capital improvement costs associated with two new water main construction projects, one in 1992 and the other in 1993. The adjusted figures are as follows:

YEAR	EXPENSES
1992	$ 13,840.00
1993	$ 12,930.00

The average annual operating expenses for the district for the past two years (1992 - 1993) is $13,385.00. This gives a current average monthly operating cost of $1,115.00. It is apparent from the income and expenses comparison that a rate increase to $ 20/month is badly needed

3. Funding of Capital Projects

Based on the proposed rate of $20.00 per month, net income available from its monthly revenues for financing capital improvements to water system facilities is:

Total Monthly Income	= $ 1,560.00
Average Monthly Operating Cost	= $ 1,115.00
Monthly Revenues	= $ 445.00
(Available for Capital Expenditures)	

Without the Pure Water Corporations account, the Water District's monthly income barely balances its monthly expenses. Additional revenues would need to be obtained through rate increases and/or from assessments. These sources, however, would provide limited additional financing capability. Financing of system improvements must be assisted by funds from grants and/or long term, low interest loans.

V. SYSTEM ANALYSIS

V. SYSTEM ANALYSIS

A. DESIGN STANDARDS

Water District 123's Design Standards will incorporate the CWSP's Minimum Design Standards, and any amendments or upgrades thereof. All proposed system improvements plans will be prepared for DOH approved. All appurtenances will comply with AWWA standards. Construction specifications will be upgraded to incorporate changes made by the AWWA, and Federal, State and County revisions.

B. DEMAND

The Water District has never in the past reached 800 GPD per connection. Therefore, 800 GPD per connection will be the Water District's assumed maximum day demand for sizing future source and storage requirements as recommended in DOH guidelines.

Per DOH *Sizing Guidelines*, the assumed maximum instantaneous demand for W.D. 123 shall be 195 GPM (Based on projected 118 customers in 2008).

C. SOURCE REQUIREMENTS

Water District 123 obtains it's water supply from a well having a capacity of 200 GPM.

The requirements for source production per DOH *Sizing Guidelines*, Article V.A.1, are 800 gallons/residential connection/day. This is the Water Districts assumed maximum day demand. Based on it's restricted service area, zoning, and it's saturation population the Water District is expected to have 118 connections by the year 2008. DOH *Sizing Guidelines* require a maximum production capability of:

800 GPD per connection X 118 connections = 94,400 GPD.

The existing water supply well has a capacity of 288,000 GPD. At 800 GPD per connection, the existing well has the capacity to serve 360 connections.

D. STORAGE REQUIREMENTS

1. Standby Storage

The requirements for standby storage per DOH *Sizing Guidelines* Article V.B.4, systems with 100 or more connections and a single source, is 800 gallons per connection (minimum).

The standby storage required for Water District 123 is:

118 connections X 800 gallons/connection = 94,400 GPD.

2. Equalizing Storage

No equalizing storage is required as the source production rate of 200 GPM exceeds the maximum instantaneous demand of 195 GPM, at saturation density.

3. Fire Storage

Per K.C.C. 17.08 fire storage requirements for rural residential lots smaller than 35,000 SF is 1,000 GPM for 2 hours. The fire storage required is:

1,000 GPM X 2 hrs. X 60 min./hr. = 120,000 GPD.

4. Summary

The total storage volume required to meet standby equalizing and fire flow requirements is:

Standby Storage	94,400 Gallons
Equalizing Storage	- 0 -
Fire Storage	120,000 Gallons
Total Storage Required	**214,400 Gallons**

E. FIRE PROTECTION REQUIREMENTS

Fire protection is provided for by King County Fire Protection District No. 10. The Fire District has a fire station with equipment located in Preston and manned by a volunteer crew. Fire District No. 10 has a Class 5 insurance rating. Water District No. 123 is responsible for supplying adequate fire flow and providing adequate fire hydrants, as dictated by various rules and regulations.

1. Standards

a. Fire flow and fire hydrants are subject to Water District 123's Design Standards, KCC 17.08, and WAC 246-293. County regulations are contained in *Rules and Regulations Relating To Fire Hydrants And Water Mains*, issued by the Planning and Community Development Division.

b. WAC 246-293-630(@) requires water system plans to "identify and schedule improvements needed in order for the water system to be capable of supplying fire flow for new and expanding public water systems consistent with these regulations."

2. Minimum Required Fire Flow

a. Per County regulations and Water District 123's Design Standards, for new developments on lots smaller than 35,000 SF the is required fire flow is at least 1,000 GPM at a minimum of 20 psi for 2 hours at any point in the system. The district can not provide the fire flow at this time. Therefore, these developments will be required to construct a fire sprinkler system within the proposed structures.

F. TRANSMISSION AND DISTRIBUTION SYSTEM REQUIREMENTS

Department of Health *"Sizing Guidelines for Public Water Systems"* requires transmission and distribution system piping be of sufficient size to maintain at least a 30 psi residual pressure at all

points in the system at the maximum instantaneous demand. Piping must also be of adequate size to provide for a fire flow of 1,000 GPM at a residual pressure of 20 psi's.

Minimum pipe size shall be 4 inches in diameter unless serving a fire hydrant. Per RCC 17.08.040 all mains providing fire flow at a hydrant shall be a minimum of 6 inches in diameter for looped mains and 8 inches in diameter for dead end mains.

G. SUMMARY

1. Although the existing well pump is presently functioning satisfactory, it is 18 years old and may soon fail. Purchase and storage of a new pump is not recommended, due to the damage the storage may cause to bearings, seals, etc. The existing pump should be checked by a service company and replaced if necessary. A totalizing flow meter should be installed.

2. The existing storage tank provides inadequate fire storage and pressure. A new 240,000 gallon water storage reservoir, with water level controls, should be constructed along Mitchell Hill Road at an elevation of 600 or higher. A new transmission main should be installed to tie the reservoir to the distribution system. The existing reservoir and its transmission piping from Interstate 90 south should be removed and or plugged and abandoned.

3. The existing distribution piping as improved recently is adequate to provide required fire and domestic flows and residual pressures. Fire hydrant spacing for the most part provides recommended fire protection coverage.

   Previous substandard distribution piping has been up-sized to 4 inch and 8 inch ductile iron. Lines have been looped where feasible and fire hydrants added to meet minimum spacing and coverage requirements.

VI. SUMMARY & RECOMMENDATIONS

VI. SUMMARY AND RECOMMENDATIONS

A. COMPREHENSIVE PLAN

It is our recommendation that this plan be adopted as the Comprehensive Water Plan for Water District No. 123. This plan, costing approximately $790,000 (see Appendix C, Table C-3) will provide a system capable of meeting the domestic requirements of the District's customers projected to the year 2008, and beyond. It will also provide 2 hour fire flow availability for all areas served by the water system.

It is recommended that the water system be improved in the following two phases. These phases may be undertaken individually or jointly, depending on the funding available.

1. Phase 1 - Improvements to Existing Systems

Construction in this phase would include the installation of the 8 inch in-line flow meter and other items listed installed on an as required basis.

a. Supply

1. Install 4 inch in-line flow meter at the well pump to provide accurate water use data.
2. Replace well pump (on an emergency basis - if existing pump fails).

b. Storage

1. Replace existing outlet pipe valving at reservoir.

c. Transmission and Distribution

1. Replace existing lines and appurtenances on an as needed basis (i.e. to repair leakage or failures).

2. Phase 2 - Future Supply, Storage, Transmission, and Distribution System Improvements

Construction in this phase would not begin until funding were available.

a. Source

1. Replace existing pump with higher head submersible pump capable of pumping 200 GPM to new higher elevation water reservoir.

b. Storage

1. Construct 240,000 gallon storage reservoir along Mitchell Hill Road at an elevation of 600 +.

c. Transmission and Distribution

1. Construct 1,750 L.F. +\- of 8 inch D.I. Transmission main along Mitchell Hill Road from reservoir to a connection with the existing distribution system.
2. Revise or replace pressure reducing station(s) and bypass piping as required.

B. PLAN OF ACTION

The following action should be taken by the Commissioners of Water District No. 123:

1. Review the Comprehensive Water Plan and adopt it as the plan for water supply, storage, and distribution system improvements for the District.
2. Install a totalizing flow meter at the well pump and replace the 8-inch gate valves at the storage reservoir outlet as needed. These improvements (Phase I) to be financed out of the Water District's existing or low interest loan funds and would be provided as needed.
3. Investigate the various sources of grants and loans available from the Department of Social and Health Services, the HUD Block Grant Program and the Farmers Home Administration.
4. Upon completion of all Phase I improvements, the District should pursue funding for Phase II or, if not feasible at that time, other storage alternatives would be investigated, including an interconnection with the Preston Industrial Park Water Association.

VII. CLOSING REMARKS

VII. CLOSING REMARKS

This plan is intended to be as broad as possible to enable the Water District to continue to maintain guidelines that are beneficial to its customers. Upgrading of the plan may be needed if the future government regulations so require. Since Water District No. 123 cannot expand its service area, it appears that the water system, when completed as per this plan, will serve its customers for the foreseeable future.

VIII. APPENDIX

A. MAPS
1. Vicinity Map
2. King County Comprehensive Plan Designation
3. Community Plan Map
4. King County Zoning
5. Neighboring Water Purveyors
6. Flood Map

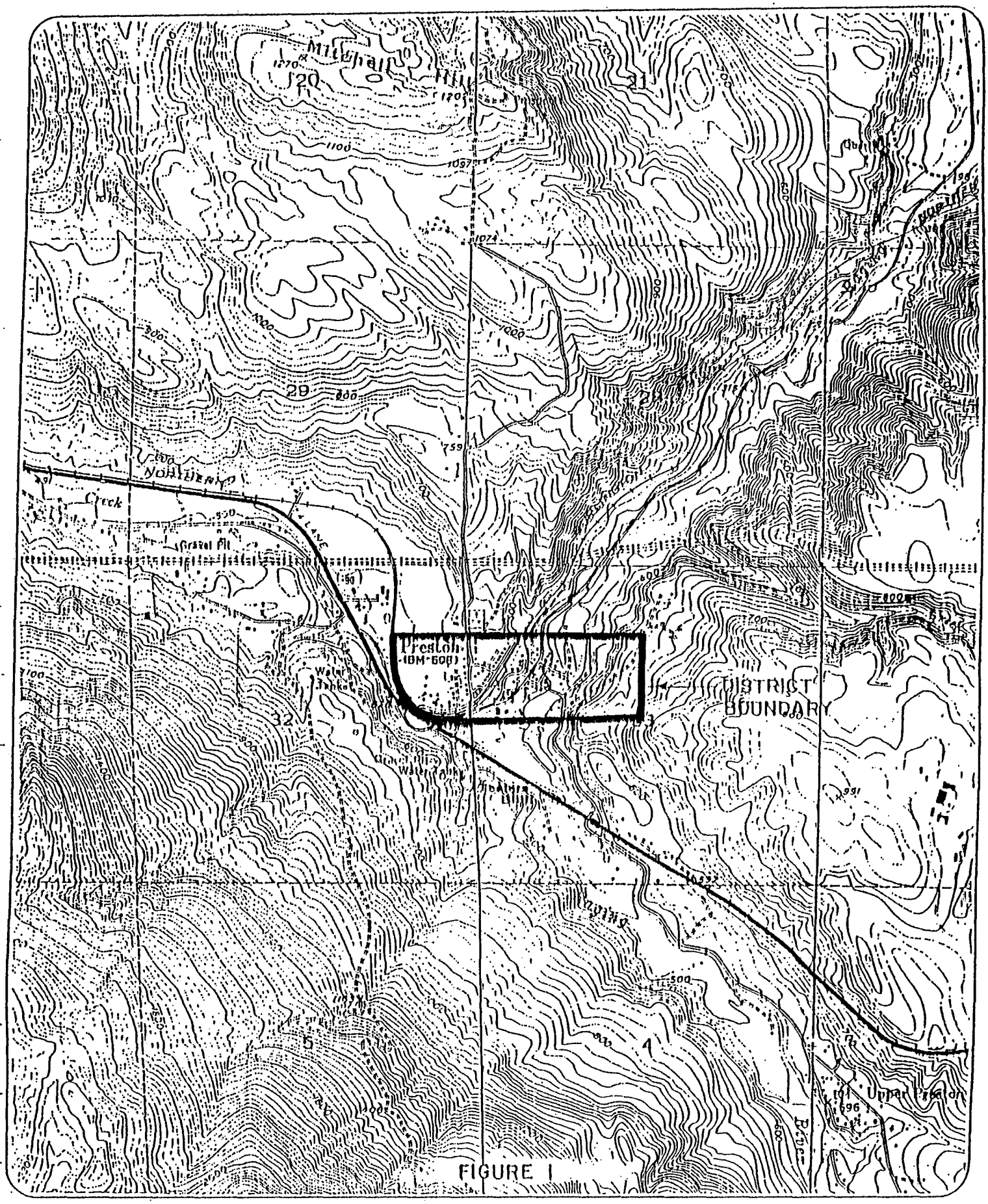


FIGURE 1

AKB CONSULTING ENGINEERS
875-140th Avenue N.E. • Suite 201
Bellevue • Washington • 98005-3400
(206) 747-3592 • FAX (206) 747-5461

Date	November, 1994
Scale	1" = 2000'

King County W.D.
No.: 123 Vicinity Map

Drawing Number	
Sheet Number	1 of 1

FIGURE 1

KING COUNTY COMPREHENSIVE PLAN DESIGNATIONS

- Rural Residential Area
- Agricultural Production Districts
- Forest Production District
- Rural Activity Centers
- Rural Neighborhood Centers

Snoqualmie Valley
Community Plan

N

0 1 2 3 Miles

King County Planning and Community Development Division

FIGURE 2

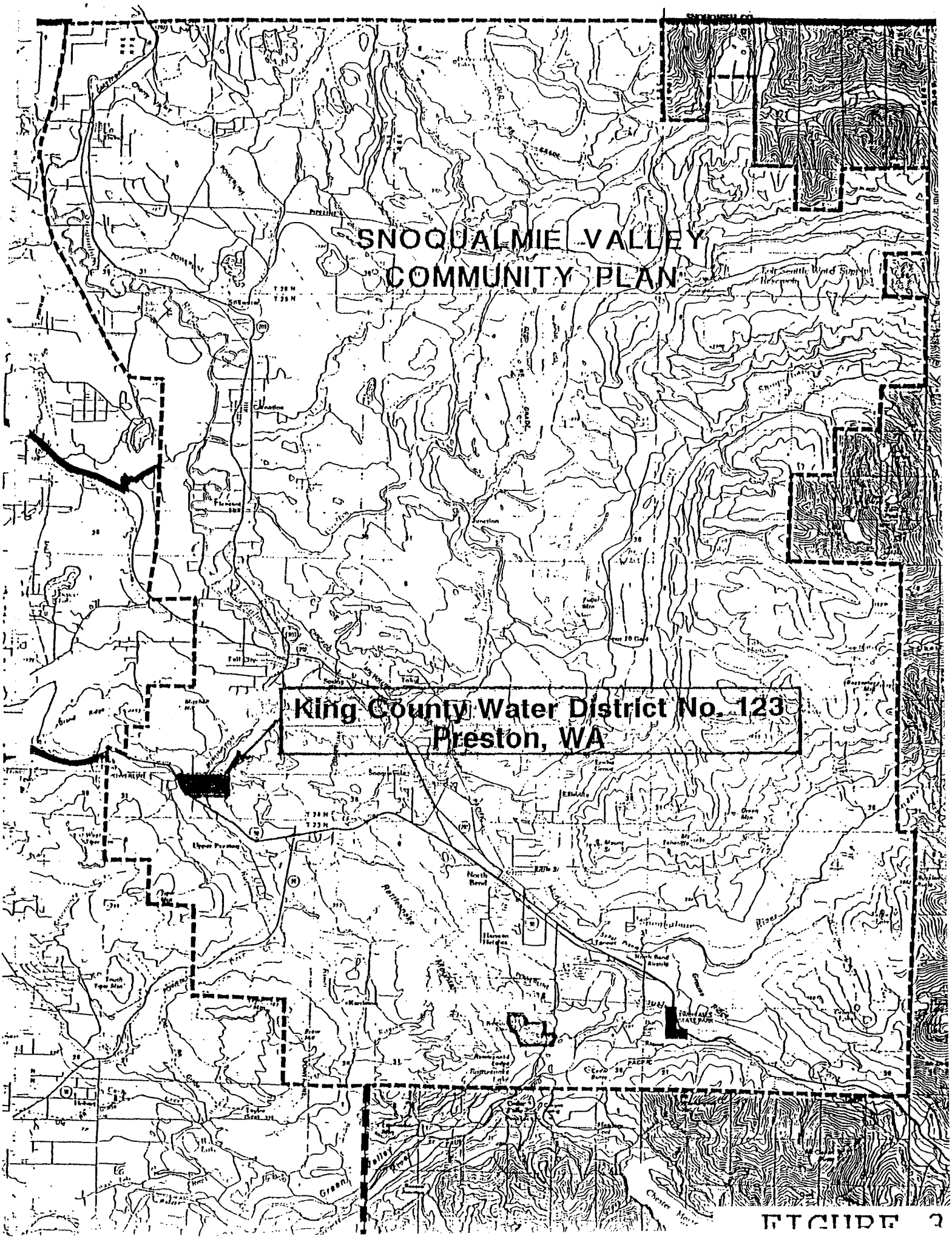
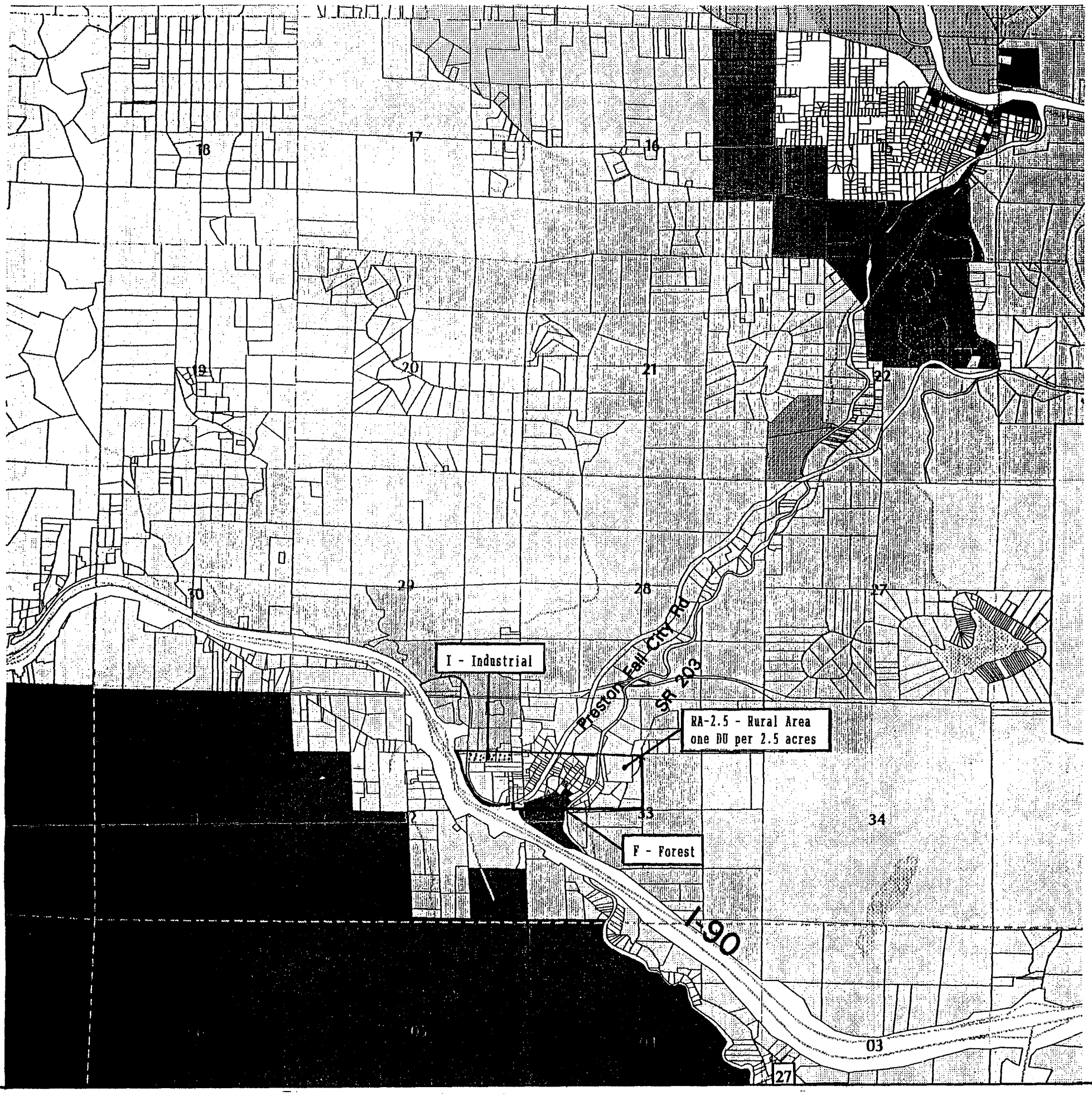

SNOQUALMIE VALLEY
COMMUNITY PLAN
King County Water District No. 123
Preston, WA

FIGURE 3



KING COUNTY ZONING ATLAS

February 2, 1995

Township 24 Range 7

1:30000 1 inch = 2500 feet

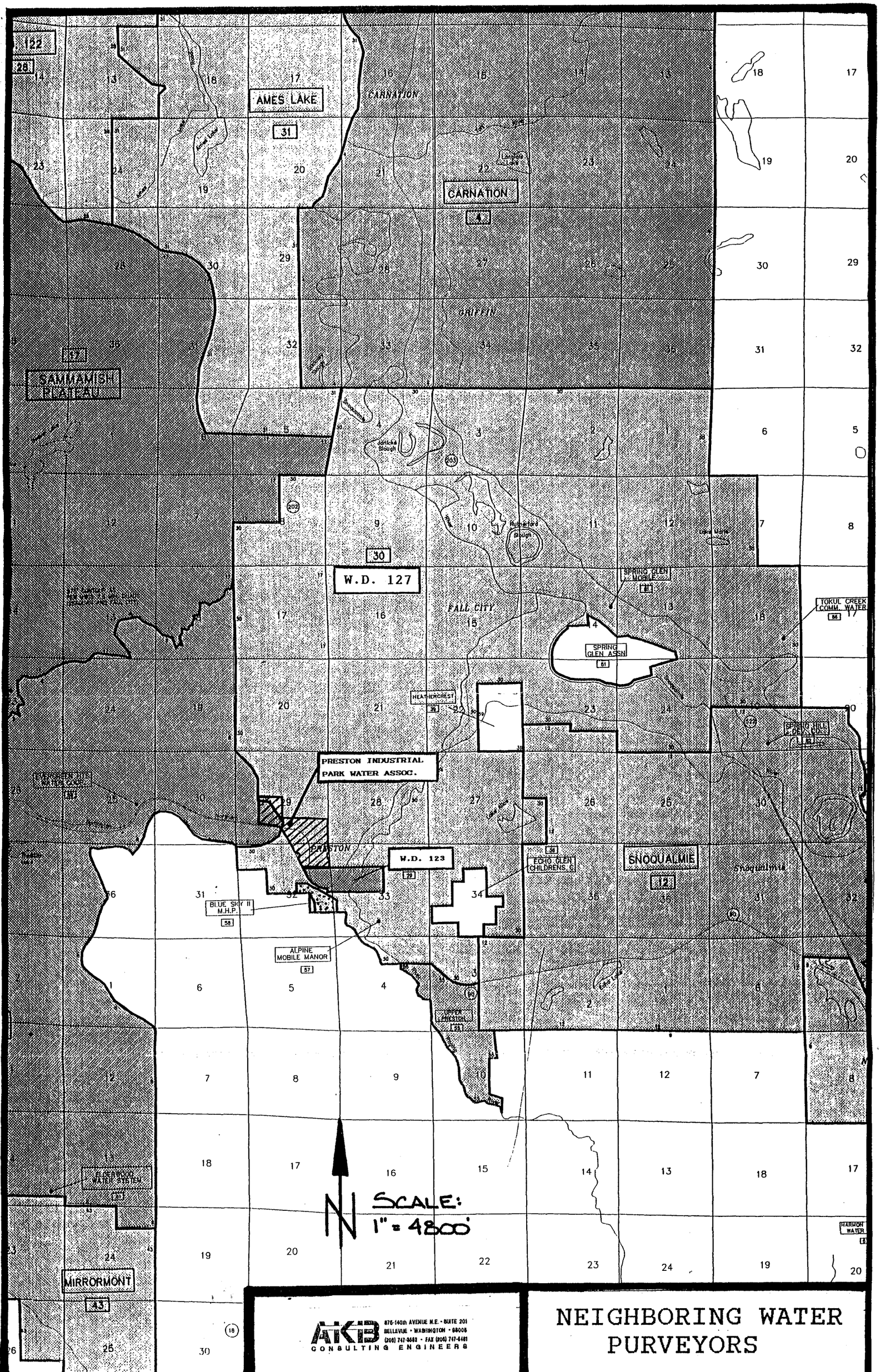
0 0.2 0.4 0.6 0.8 1

MILES

ZONING CLASSIFICATION (DU = Dwelling Unit)

- F - Forest
- A-10 - Agriculture, one DU per 10 acres
- A-35 - Agriculture, one DU per 35 acres
- M - Mining
- RA-2.5 - Rural Area, one DU per 2.5 acres
- RA-5 - Rural Area, one DU per 5 acres
- RA-10 - Rural Area, one DU per 10 acres
- UR - Urban Reserve, one DU per 5 acres
- R-1 - Residential, one DU per acre
- R-4 - Residential, four DU per acre
- R-6 - Residential, six DU per acre
- R-8 - Residential, eight DU per acre
- R-12 - Residential, 12 DU per acre
- R-18 - Residential, 18 DU per acre
- R-24 - Residential, 24 DU per acre
- R-48 - Residential, 48 DU per acre
- O - Office
- NB - Neighborhood Business
- RB - Regional Business
- CB - Community Business
- I - Industrial
- Incorporated City
- Muckleshoot Reservation
- Urban Growth Area Line

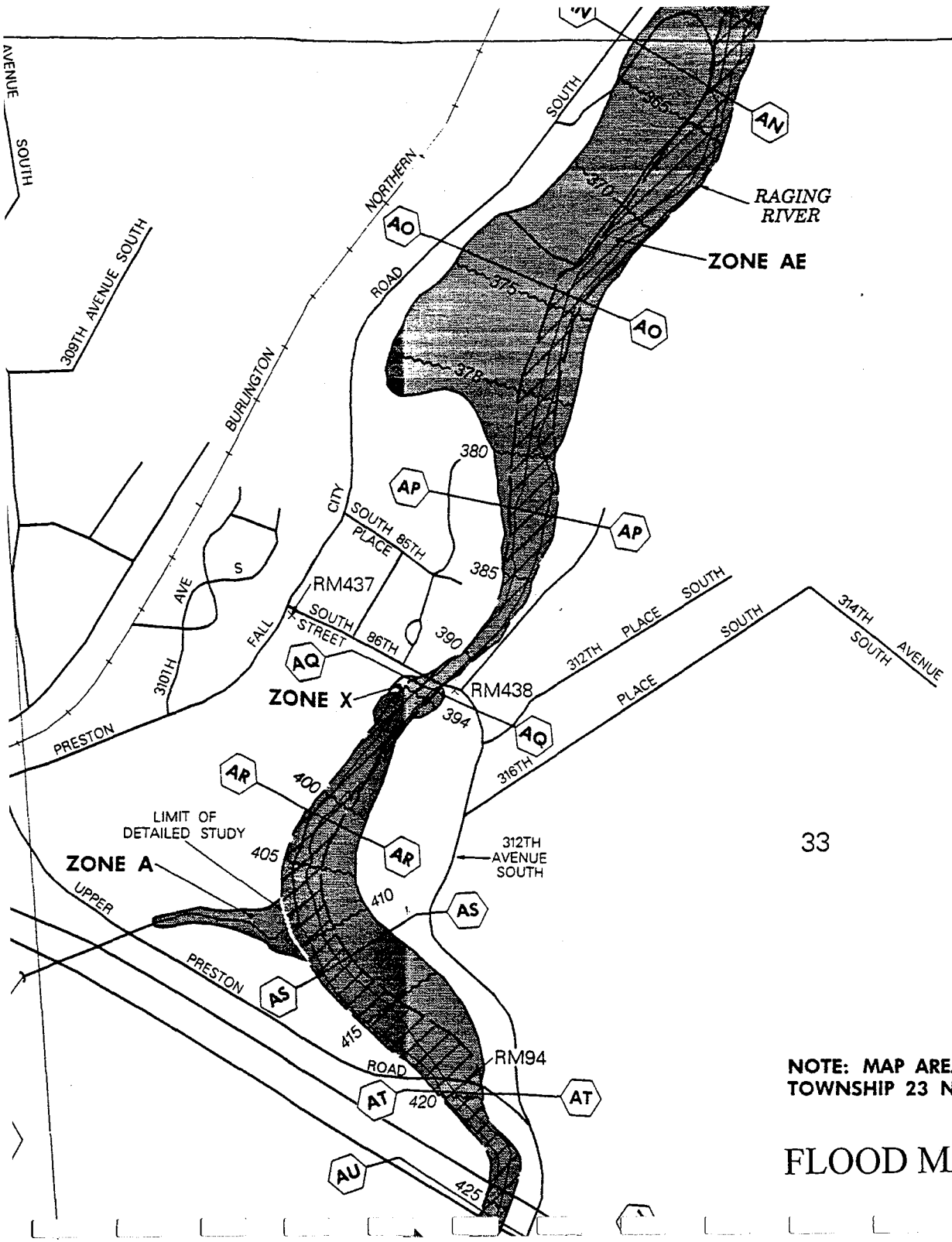
ETUDE 4



AKB CONSULTING ENGINEERS
876-140th AVENUE N.E. - SUITE 201
BELLEVUE - WASHINGTON - 98008
(206) 747-3683 - FAX (206) 747-6401

NEIGHBORING WATER PURVEYORS

FIGURE 5



33

NOTE: MAP AREA SHOWN ON THIS PANEL IS LOCATED WITHIN TOWNSHIP 23 NORTH, RANGE 7 EAST AND TOWNSHIP 24 NORTH, RANGE 7 EAST

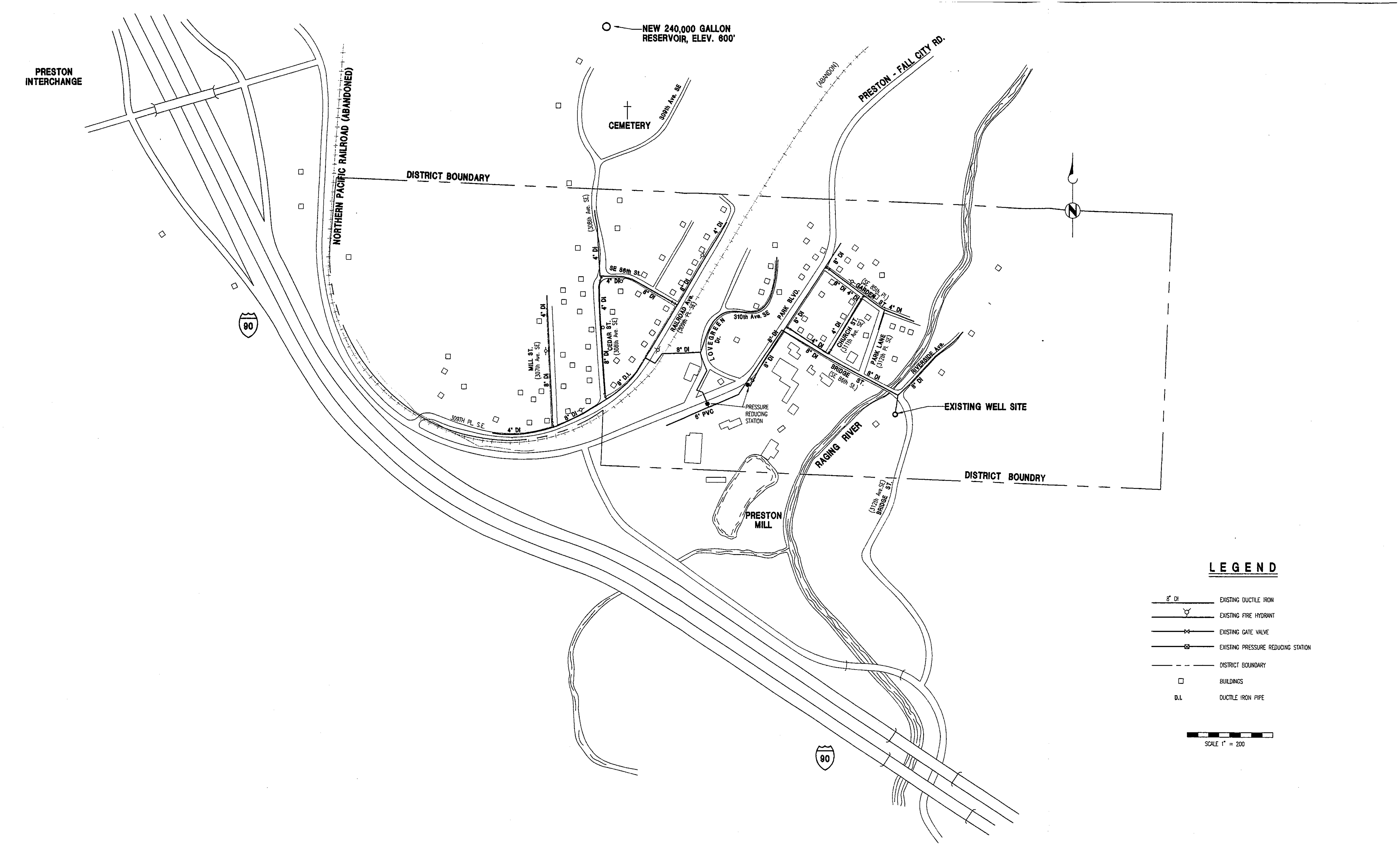
FLOOD MAP (FEMA)

FIGURE 6

VIII. APPENDIX

B. EXHIBITS

1. **Existing Water System**
2. **Proposed Water System Improvements**
3. **Water Rights Certificate**
4. **Water Well Log**



NO.	DATE	BY	APPR.	REVISIONS

Approved By

DATE

DATE

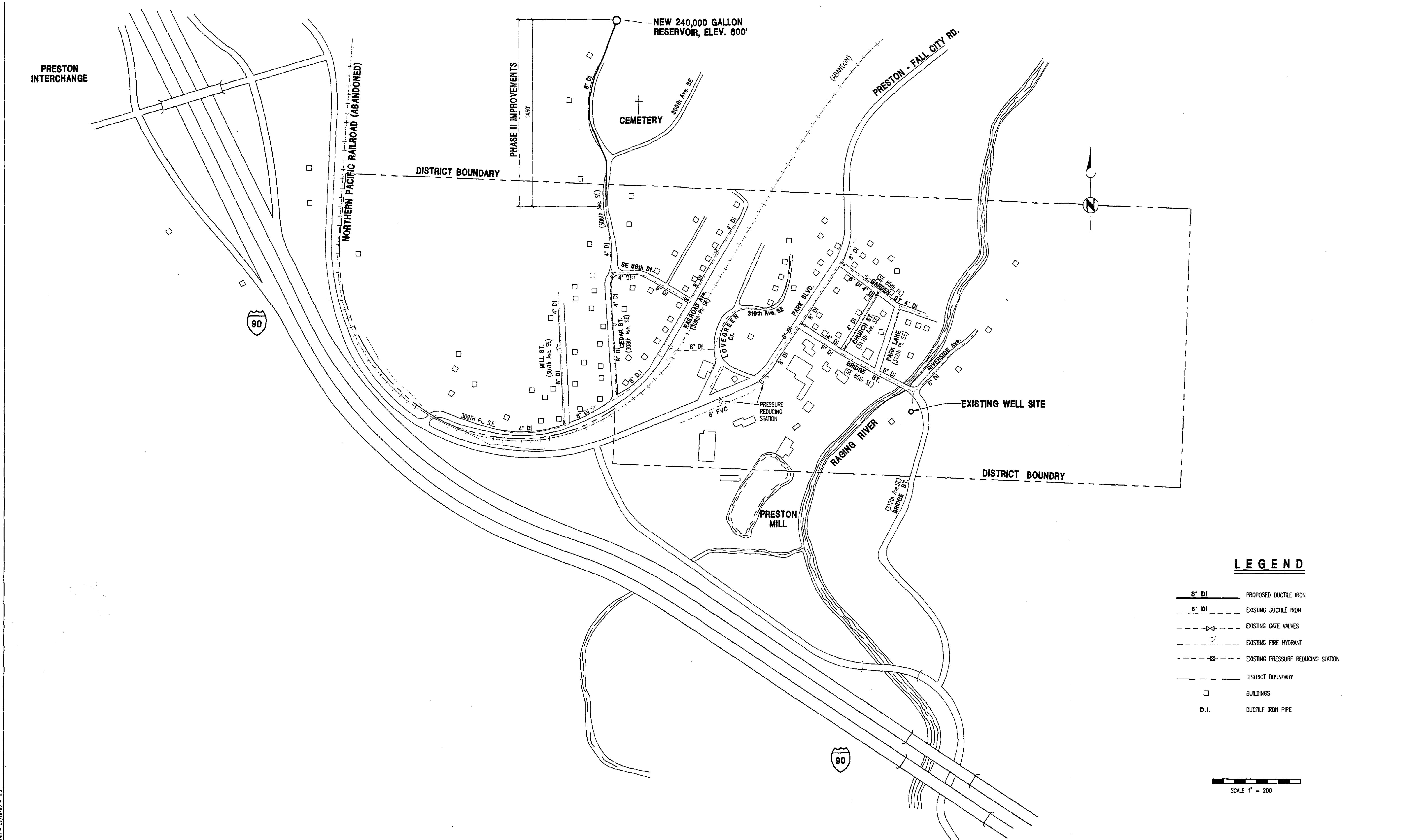
S. TATU, P.E. 2/18/98 — DESIGNED BY — DATE
TLU 2/18/98 — DRAWN BY — DATE
S. TATU, P.E. 2/18/98 — CHECKED BY — DATE

AKB ENGINEERS, INC.
875-140th AVENUE N.E. - SUITE 201
BELLEVUE - WASHINGTON - 98005
(425) 747-3592 - FAX (425) 747-5461
AKB JOB No. 93095

KING COUNTY
WATER DISTRICT 123
PRESTON, WA

EXISTING WATER SYSTEM PLAN

EXHIBIT B1 — SHT B-1 OF 2



NO.	DATE	BY	APPR.	REVISIONS

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BELLEVUE · WASHINGTON · 98005
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AKB JOB No. 93095

KING COUNTY
WATER DISTRICT 123
PRESTON, WA

WATER SYSTEM DEVELOPEMENT PLAN
FUTURE IMPROVEMENTS

EXHIBIT B2 SHT B-2 OF 2

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

CERTIFICATE OF WATER RIGHT

☐ 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
February 20, 1979	G1-23312	G1-23312P	G1-23312C

NAME
KING COUNTY WATER DISTRICT NO. 125

ADDRESS (STREET)	(CITY)	(STATE)	(ZIP CODE)
P.O. Box 995	Preston	Washington	98050

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
Well

TRIBUTARY OF (IF SURFACE WATERS)

MAXIMUM CUBIC FEET PER SECOND	MAXIMUM GALLONS PER MINUTE	MAXIMUM ACRE-FEET PER YEAR
	125	90.0 Supplemental to existing rights

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

LOCATION OF DIVERSION/WITHDRAWAL

APPROXIMATE LOCATION OF DIVERSION/WITHDRAWAL
1360 feet east and 200 feet north from W¼ corner of Sec. 33.

LOCATED WITHIN (SMALLEST LEGAL SUBDIVISION)	SECTION	TOWNSHIP N.	RANGE E. (OR W.) W.M.	W.R.I.A.	COUNTY
SE¼SW¼NW¼	33	24	7	7	King

RECORDED PLATTED PROPERTY

LOT	BLOCK	OF (GIVE NAME OF PLAT OR ADDITION)

LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS TO BE USED

Within the community of Preston, Washington now served by King County Water District No. 123.

WATER RIGHTS CERTIFICATE EXHIBIT B 3

DEVELOPMENT SCHEDULE		
BEGIN PROJECT BY THIS DATE:	COMPLETE PROJECT BY THIS DATE:	WATER PUT TO FULL USE BY THIS DATE:
Started	1 yr from permit issuance	2 yrs from permit issuance

REPORT ~~PROVISIONS~~

Background:

This application to withdraw 125 gallons per minute from a well in Preston, King County for community domestic supply of approximately 80 residents was received February 20, 1979 from King County Water District No. 123.

Public notice was made on June 20 and 27, 1979 and no protests were filed.

Investigations:

Information relating to this application was office investigated on January 20, 1981. The log for the well shows that the hole drilled to 250 feet was backfilled to 160 feet and screened in sand and gravel below 107 feet. The well is an artesian well flowing at about 10 gpm and is easily capable of maintaining a 125 gpm discharge.

The well taps an aquifer in glacial deposits which underlie river alluvium of the Raging River. Appropriation from the well should not affect discharge in the Raging River because of poorly permeable clay and till layers which confine the source aquifer.

Other water rights in the vicinity of the subject well include five surface water rights on springs which may originate in the same source aquifer but which will probably not be affected by the proposed pumping. Other wells in this aquifer have high static water levels of 10-20 feet below land surface and are pumped at lower rates ranging from 7 to 60 gpm. Other water rights in the Preston area should not be adversely affected by this appropriation.

With an estimated 150 services by the year 2000, the annual water requirement in the Preston area will be 90.0 acre-feet based on the local consumption rate of 0.60 acre-feet per service per year. Other water rights held by the community of Preston consists of one Certificate of Surface Water Right No. 7181 which grants an instantaneous rate of diversion from Soderman Creek of 1.0 cfs with an annual quantity of 647 acre-feet per year. Oral communication with the applicant indicates they would prefer to retain Certificate No. 7181 for emergency back-up water supply. Since the annual quantity in rights presently held by the applicant exceeds projected demand within the water district, the subject application should be considered as supplemental to existing rights.

Conclusion:

In accordance with Section 90.03 and 90.44 RCW, I find that there is water available for appropriation from the source in question and that the appropriation as recommended above will not impair existing rights or be detrimental to the public welfare. Therefore, permit should issue subject to existing rights and indicated provisions.

Recommendation:

I recommend that this application to withdraw 125 gallons per minute from a well in Preston for community domestic supply be granted, and permit issue with an annual quantity of 90.0 acre-feet per year supplemental to existing rights.

Installation and maintenance of an access port as described in Ground Water Bulletin No. 1 is required. An air line and gauge may be installed in addition to the access port.

Flowing wells shall be so constructed and equipped with valves to ensure that the flow of water can be completely stopped when not being used. Likewise, the well shall be so maintained as to prevent the waste of water through leaky casings, pipes, fittings, valves, or pumps - either above or below land surface.

A certificate of water right will not be issued until a final investigation is made.

REPORT BY: David P. Garland DATE: April 30, 1981

PETITION FOR FORMATION OF WATER DISTRICT

TO: Board of County Commissioners
King County
Washington

The undersigned, qualified registered voters and residents within the boundaries of the hereinafter described land, hereby respectfully petition the Board of County Commissioners of King County, Washington, for the formation of a water district upon the following showing:

I.

That the object of the proposed water district shall be the acquisition, construction, maintenance, operation, development, and regulation of a water supply system, and all necessary appurtenances, and to provide for additions and betterments thereto, within the following described area and with boundaries of such proposed water district being as follows:

> Beginning at the Northwest corner of the Southwest 1/4 of the Northwest 1/4 of Section 33, Township 24 North, Range 7 East, W.M.; Thence East on the North line of South 1/2 of Northwest 1/4 to the Northeast corner of the Southeast 1/4 of the Northwest 1/4; Thence South on the East line to the Southeast corner of the said Southeast 1/4 of Northwest 1/4; Thence West on the South line to the Southwest corner of said Northwest 1/4; Thence North on the West line of said Northwest 1/4 an approximate distance of 295 feet to the North boundary of Northern Pacific Railroad Right of Way which is 50 feet in total width; Thence Southwesterly, Westerly, Northwesterly and Northerly on the North Railroad Right of Way line to a point on the North line of the Southeast 1/4 of the Northeast 1/4 of Section 32, Township 24 North, Range 7 East, W.M.; Thence East on the North line to the Northeast corner of said Southeast 1/4 of Northeast 1/4 and point of beginning, all in King County, Washington.

II.

That the establishment of said proposed water district will be conducive to the public health, convenience, and welfare, and will be of benefit to the property included in the boundaries of said district.

Wherefore, the petitioners pray that a hearing upon this petition be held at such time as the Board of County Commissioners shall designate.

G443213

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

PROOF OF APPROPRIATION OF WATER

APPLICATION NUMBER		PERMIT NUMBER
G1 -23312		G1-23312 P

NAME OF PERMITTEE
King County Water District No. 123

POST OFFICE ADDRESS	CITY	STATE	ZIP CODE
P.O. Box 995	Preston	WN	98050

ACTUAL SOURCE OF APPROPRIATION
Well

PURPOSE OR PURPOSES WATER IS USED FOR
Domestic use

DATE WATER WAS COMPLETELY APPLIED TO PERMITTED USE	IF USED FOR IRRIGATION, NUMBER OF ACRES ACTUALLY IRRIGATED
May 7, 1930	
IF SOURCE IS A WELL, IS AN ACCESS PORT NOW INSTALLED	MONTHS DURING WHICH WATER IS USED
[x] YES [ ] NO	Continuous use

PUMP SIZE
8-inch, 20-Hp

ACTUAL AMOUNT WITHDRAWN OR DIVERTED FROM PERMANENT SYSTEM	
200	[x] GPM [ ] CFS
HAVE ALL PROVISIONS AS REQUIRED BY PERMIT BEEN ACCOMPLISHED	IF NO, EXPLAIN
[x] YES [ ] NO	

LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS USED (USE ADDITIONAL SHEET IF NECESSARY)

Water will be used for domestic purposes within the community of Preston, Washington now served by King County Water District No. 123.

proof ok
issue cert.
per permit
DPG 2-19-82

STATE OF WASHINGTON,
County of KING } ss

Allen G. Lundgren, being first duly sworn, depose and say that I have read the above and foregoing proof of appropriation, that I know the contents thereof, and that the facts therein stated are true.

IN WITNESS WHEREOF, I have hereunto set my hand this 28th day of January, 1982.

Commissioner
Permittee Signature KCWD #125

Subscribed and sworn to before me this 28th day of January, 1982.

E. Kindred Secretary
Notary Public

ECY 040-1-26

P/A

File Original and First Copy with Department of Ecology
Second Copy — Owner's Copy
Third Copy — Driller's Copy

WATER WELL REPORT

STATE OF WASHINGTON

Application No.
Permit No.

(1) OWNER: Name Water Dist. No. 123 Address

(2) LOCATION OF WELL: County King County SW ¼ NW ¼ Sec. 33 T. 24 N., R. 7 E W.M.

Bearing and distance from section or subdivision corner

(3) PROPOSED USE: Domestic ☐ Industrial ☐ Municipal ☒ Irrigation ☐ Test Well ☐ Other ☐

(4) TYPE OF WORK: Owner's number of well (if more than one)
New well ☒ Method: Dug ☐ Bored ☐
Deepened ☐ Cable ☒ Driven ☐
Reconditioned ☐ Rotary ☐ Jetted ☐

(5) DIMENSIONS: Diameter of well 8 inches.
Drilled 250 ft. Depth of completed well 160 ft.

(6) CONSTRUCTION DETAILS:
Casing installed: 8 " Diam. from 0 ft. to 105 ft.
Threaded ☐ " Diam. from ft. to ft.
Welded ☒ " Diam. from ft. to ft.

Perforations: Yes ☐ No ☒
Type of perforator used
SIZE of perforations in. by in.
perforations from ft. to ft.
perforations from ft. to ft.
perforations from ft. to ft.

Screens: Yes ☒ No ☐
Manufacturer's Name Johnson
Type Stainless Steel Model No.
Diam. 8 Slot size 75 from 107 ft. to 117 ft.
Diam. 8 Slot size 45 from 134 ft. to 139 ft.
8 100 151 156

Gravel packed: Yes ☐ No ☒ Size of gravel:
Gravel placed from ft. to ft.

Surface seal: Yes ☒ No ☐ To what depth? 18 ft.
Material used in seal Cement
Did any strata contain unusable water? Yes ☐ No ☒
Type of water? Depth of strata
Method of sealing strata off

(7) PUMP: Manufacturer's Name
Type: H.P.

(8) WATER LEVELS: Land-surface elevation above mean sea level 410 ft.
Static level +5.0 ft. below top of well Date 6/27/79
Artesian pressure flowing lbs. per square inch Date
Artesian water is controlled by Cap (Cap, valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? Yes ☒ No ☐ If yes, by whom?
Yield: 300 gal./min. with 41 ft. drawdown after 12 hrs.

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level
10	4.47	22	2.6	50	0.53
16	3.20	30	1.78	60	0.10
20	2.80	40	1.08		

Date of test 6/27/79
Bailer test gal./min. with ft. drawdown after hrs.
Artesian flow 10 gpm g.p.m. Date
Temperature of water Was a chemical analysis made? Yes ☒ No ☐

(10) WELL LOG:

Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.

MATERIAL	FROM	TO
Top Soil	0	2
Hard Cemented Boulders	2	8
Gray Tight cemented Sa & Gr	8	12
Blue Cemented Sa & Gr	12	23
Gray Sticky Silty Sa & Gr	23	30
Tight dirty Blue Sa & Gr w/b	30	33
Blue claybound Sa & Gr	33	43
Fine blue sticky silty Sa	56	61
Blue Sticky Silty Clay	61	71
Fine Blue w/b Sand	71	85
Fine Blue w/b Sa & Gr	85	100
Blue w/b Sa & Gr	100	104
Blue clay Bound Sa & Gr	104	106
Blue w/b Sa & Gr	106	119
Fine Silty Blue Sa with Gr	119	134
Blue Till	134	136
Blue w/b Sa & Gr	136	141
Tight Blue Till	141	153
Tight Blue Sa & Gr	153	155
Very Tight compact Sa & Gr	155	165
Formation getting siltier with gravel layers	165	171
Fine sticky compacted silt	171	197
Fine compacted Sa & Gr	197	206
Tight Blue Till	206	207
Tight Blue w/b Sa & Gr	207	215
Gummy Till	215	217
Blue Till	217	239
Tight Blue Till layered	239	250
(Log after drillers log)		

Work started 6/4, 19 79 completed 6/29, 19 79

WELL DRILLER'S STATEMENT:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

NAME By Hart-Crowser & Associates Inc. (Person, firm, or corporation) (Type or print)

Address 1910 Fairview Ave. E., Seattle, Wa. 98102

[Signed] drilled by Billy Dodge - Story Armstong, Ir (Well Driller)

License No. 0492 Date 19

(USE ADDITIONAL SHEETS IF NECESSARY)

ECY 050-1-20

WATER WELL LOG

EXHIBIT B 4

VIII. APPENDIX

A. TABLES
   1. Inventory of Existing Water System
   2. Population Projections
   3. Estimated Costs of Improvements
   4. King County Zoning

TABLE C - 1 INVENTORY OF EXISTING WATER SYSTEM				
ITEM & LOCATION	SIZE	CONSTRUCTION	QUANTITY	AGE
1. Reservoir	80,000 gal.	Concrete	1	40 years
2. Reservoir to Highway	8 inches	A.C.	350 L.F.	40 years
3. Reservoir to Highway	6 inches	A.C.	550 L.F.	40 years
4. Under Highway	6 inches	D.I.	480 L.F.	22 years
5. Highway to Mill	6 inches	D.I.	500 L.F.	22 years
6. Park Blvd.	6 inches	PVC	520 L.F.	22 years
7. Park Blvd.	8 inches	D.I.	370 L.F.	19 years
8. Park Blvd.	4 inches	D.I.	130 L.F.	NEW
9. Park Blvd.	8 inches	D.I.	671 L.F.	NEW
10. Bridge Street	4 inches	D.I.	219 L.F.	NEW
11. Bridge Street	8 inches	D.I.	720 L.F.	19 years
12. Garden Street	8 inches	D.I.	142 L.F.	NEW
13. Garden Street	4 inches	D.I.	343 L.F.	NEW
14. Lovegreen Drive	8 inches	D.I.	550 L.F.	5 years
15. Lovegreen Drive	8 inches	D.I.	340 L.F.	8 years
16. Railroad Crossing	8 inches	D.I.	290 L.F.	8 years
17. Railroad Avenue	8 inches	D.I.	796 L.F.	NEW
18. Railroad Avenue	4 inches	D.I.	178 L.F.	NEW
19. Railroad Avenue	8 inches	D.I.	30 L.F.	8 years
20. Mill Street	4 inches	D.I.	246 L.F.	NEW
21. Mill & Cedar	8 inches	D.I.	1,266 L.F.	NEW
22. SE 86th Street	8 inches	D.I.	298 L.F.	NEW
23. SE 86th Street	4 inches	D.I.	124 L.F.	NEW

TABLE C - 1 CONT'D INVENTORY OF EXISTING WATER SYSTEM				
ITEM & LOCATION	SIZE	CONSTRUCTION	QUANTITY	AGE
24. Church Street	4 inches	D.I.	333 L.F.	NEW
25. 309th PL SE	8 inches	D.I.	268 L.F.	NEW
26. 309th PL SE	4 inches	D.I.	212 L.F.	NEW
27. 312th Ave SE	8 inches	D.I.	350 L.F.	6 years
28. Miscellaneous	1-1/2 inches	Polyethylene	250 L.F.	NEW
29. Valves	6 inches		2	40 + years
30. Valves	4 inches		3	NEW
31. Pressure Red. Valve	2 inches		1	?
32. Pressure Red. Valve	2 inches		1	19 years
33. Standpipe			16	53 years
34. Hydrant Assembles	STANDARD		1	28 + years
35. Connections	5/8"X3/4" Meters		78	NEW
36. Valves	8 inches		2	8 years
37. Valves	8 inches		1	6 years
38. Valves	8 inches		6	NEW
39. Hydrant	STANDARD		1	8 years
40. Hydrant	STANDARD		1	5 years
41. Hydrant	STANDARD		1	6 years
42. Hydrant	STANDARD		1	19 years
43. Hydrant	STANDARD		6	NEW

Abbreviations:

A.C.	Asbestos Cement Pipe
PVC	Poly Vinyl Chloride (Plastic) pipe
L.F.	Lineal Feet
D.I.	Ductile Iron Pipe

TABLE C-2

WATER DISTRICT NO. 123

POPULATION PROJECTIONS

(Based on Saturation Density Under Current Zoning)

YEAR	SERVICES	PERCENT	INCREASE	POP
1998	78	-	-	281
1999	82	5.13	4	295
2000	86	4.88	4	310
2001	90	4.65	4	324
2002	94	4.44	4	339
2003	98	4.26	4	353
2004	102	4.08	4	367
2005	106	3.92	4	382
2006	110	3.77	4	396
2007	114	3.64	4	411
2008	118	3.51	4	425
TOTAL			40	

Note:

1. Growth rate is based on the saturation population occurring over the next 10 years. There were 78 connections in 1998 and 118 connections are projected in 2000..

2. Population is based on 3.6 persons per connection.

Table C - 3

Improvements to Continue as Required

ESTIMATED COST OF IMPROVEMENTS

ITEM	QUANTITY	UNIT COST	AMOUNT
Phase 1 -Improvements to Existing Systems			
1. Supply			
a.) 8" Flow Meter and Vault	L.S.		$10,000.00
b.) Submersible Well Pump 200 GPM, 400 Static Head. (when required)	L.S.		$4,500.00
2. Storage			
a.) Replace Exists Valving 2-8" G.V.s. and Fittings	L.S.		$4,000.00
3. Transmission & Distribution	Est.		
a.) Replace Existing Piping and Appurtenances as Required.			$10,000.00

Subtotal All Costs	$28,500.00
Contingency 10%	$2,850.00
Total Construction Cost	$31,350.00
Overhead (Engineering, Legal, Sales Tax, Etc.) 35%	$7,838.00
TOTAL	$39,188.00

TAB LE C-3 (Cont'd)

Improvements to be Made After Completion of Phase I

ESTIMATED COST OF IMPROVEMENTS CONTINUED

ITEM	QUANTITY	UNIT COST	AMOUNT
Phase II - Storage and Transmission			
1. Site Purchase	L.S.		$100,000.00
2. 240,000 Gallon Reservoir	L.S.		$310,000.00
3. Control System			$12,000.00
4. Misc. Appurtenances (i.e., fencing, electrical, valving, site preparation, etc.)	L.S.		$18,000.00
5. 8" Ductile Iron Transmission Line	1,450 L.F.	$42/L.F.	$60,900.00
6. Modify PRV's	2 EA.	$2,000/EA.	$4,000.00
Subtotal All Costs			$504,900.00
Contingency 10%			$50,490.00
Total Construction Cost			$555,390.00
Overhead (Engineering, Legal, Sales Tax, Etc.) 35%			$194,386.50
TOTAL			$749,776.50