

Spokane County Water District No. 3 Emergency/Contingency Plan

1.1. Introduction and System Characteristics

This Wellhead Protection Contingency Plan has been prepared to meet the requirements of the 1994 Washington State Wellhead Protection Program which was mandated by the 1986 amendments to the Federal Safe Drinking Water Act. Under the State's program, all group "A" public water systems using wells or springs (excluding systems using purchased sources or inter-ties) are required to develop a wellhead protection program. This contingency plan is part of the "Management" component of the wellhead protection program for Spokane County Water District No. 3. The other two components are

- 1) Delineation of wellhead protection areas
- 2) Inventory of potential contaminant sources

This contingency plan seeks to ensure that water district customers will have adequate potable water in the event of a temporary or permanent loss of the largest well/wellfield. The plan addresses:

1. Maximum water system capacity and reduction of capacity assuming loss of the largest well/wellfield.
2. Identification of alternate water sources including existing and potential inter-ties with other public water systems and the ability of the alternate water source to meet the system capacity shortfall identified in item 1 above. Estimate costs of purchasing or delivering the alternate supplies.
3. Identify future potential sources such as future well sites.
4. Develop quality assurance and contamination control methods to better protect future supplies.

Spokane County Water District No. 3 serves approximately 7,800 connections or 23,000 people located in Spokane County and adjacent or near the City of Spokane. The District's customers are primarily residential, with some commercial strips along arterial streets. A more complete summary of the District's systems can be found in the Comprehensive Water Plan of January 1993. Additional and updated information is also available from the District's General Manager.

1. Service Areas

Spokane County Water District No. 3 is comprised of nine (9) separate water systems identified as water service areas (WSA's). Five of the nine WSA's are located over the Spokane Aquifer.

- WSA #1 is termed the West Spokane Valley System and consists of the following water supply sources:

Three (3) older wells with a capacity of approximately 500 gpm each and one new well with a capacity of 2000 gpm. There are also three (3) inter-ties with the City of Spokane that are available for emergency use. These inter-ties have been used in the past to meet peak demands during the summer months until recently. Two of these inter-ties with the City of Spokane have automatic pressure reducing valves that allow water to flow directly to SCWD #3 whenever a low pressure situation occurs in this system. Additional inter-ties exist with Carnhope Irrigation District No. 7 (a one way flow to CID #7) and East Spokane Water District No. 1 (a one way flow to SCWD #3).

- WSA #2 is termed the South Spokane Valley System and consists of the following supply sources:

A wellfield with a capacity of 4,200 gpm and two (2) wells with a capacity of 2,200gpm and 3,400 gpm. This system has one inter-tie with Model Irrigation District No. 18 (a one way flow to MID #18).

- WSA #3A is termed the North Spokane System as it lies adjacent to and north of the City of Spokane. It consists of the following supply system:

Two (2) wells with capacities of 750gpm and 800 gpm. There are two (2) inter-ties, one (1) with the City of Spokane (a one way flow to SCWD #3) and one (1) with Whitworth Water District No. 2 (WWD#2). The Whitworth intertie has the ability to allow water to flow in both directions through the use of an automatic pressure sustaining valve.

- WSA #3B is termed the Mead System and also lies north of the City of Spokane. It consists of the following water supply systems:

One (1) older well with a capacity of 300 gpm and two (2) newer wells with capacities of 1,150 gpm and 600 gpm. Two (2) inter-ties exist with two (2) different systems owned by WWD #2. One of the WWD #2 inter-ties is also connected with the City of Spokane and with WSA #3A (North Spokane System); which could allow the "wheeling" of water from one or both of these sources through WWD #2's system to the WSA #3B (Mead System). Future inter-ties are planned with North Spokane Irrigation District No. 8 and with another SCWD#3 system, WSA #3BP (Pineriver Park System).

- WSA #3BP is termed the Pineriver Park System and is located near the Little Spokane River.
It consists of one (1) wellfield with a capacity of 420 gpm. Future plans envision a new ground level reservoir and a booster pump station to transmit water from this system to WSA #3B. A bypass arrangement would allow water to flow back to WSA #3BP during emergency situations. Additionally, a one way inter-tie could be made with WWD #2.
- WSA #3C is termed the Riverview Hills (Colbert) System and is located in the Colbert Area north of the City of Spokane.
It consists of one (1) well with a capacity of 450 gpm. An intertie with Whitworth Water District No. 2 exists that will be modified in the spring of 1999 to include an automatic pressure reducing valve that will allow water to flow into this system any time a pressure drop in the district's system occurs. This system is located outside of the Spokane Aquifer.
- WSA #3D is termed the Chattaroy Hills System and is located in the north part of Spokane County.
It consists of one well with a capacity of 400 gpm. There are currently no water purveyors adjacent to this system that could provide an emergency water supply. This system is located outside of the Spokane Aquifer.
- WSA #4 is termed the South Spokane (South Hill) System and is located south of the City of Spokane.
Its water supply supplied is provided wholly from the City of Spokane's Water Supply System and is fully dependent upon the City for contingency planning.
- WSA #5 is termed the Waterview Terrace System and is located in the northwest corner of Spokane County.
It consists of a single well with a capacity of 275 gpm. No fire flow capacity is included in this system. There are currently no water purveyors adjacent to this system that could provide an emergency water supply. This system is outside of the Spokane Aquifer.

2. System Demand/Capacity

- Demand and capacity in gallons per minute for each system is shown below:

WSA	Fire Flow (gpm)	Peak Demand ⁽²⁾ (gpm)	Supply Capacity (gpm)
#1	3000	4000	4450
#2	3000	6870	10900
#3A	3500	1650	2000
#3B	3500	2300	3000
#3BP	1000	350	410
#3C	1000	400	450
#3D	1000	470	800
#4		See Note (1)	
#5	1000	30	275

Notes:

(1) The City of Spokane provides the sole water supply for this WSA

(2) SCWD #3 Comprehensive Plan Table 3-3, Year 2000

(3) See attached system schematics for details

1.2. Action Plans

1.2.1. WSA #1. Excess capacity within WSA #1 (West Valley) is generally available through most of the year to compensate for the loss of a well with no significant impact on public health or safety. A future 1500 gpm well is planned to replace existing smaller wells. There are three interties with the City of Spokane water system, with two of those connections being fully automatic PRV valves that will open if the SCWD #3 pressure drops below established levels. Fire flows can be maintained through existing reservoir storage capacity. See Figure 1.

- **Short Term Plan:** If the largest well (2000 gpm) is lost, water would be purchased as needed through existing interties with the City of Spokane. The City provided water to the District for several years prior to the recent installation of this large well. If any of the other wells are lost, some water may need to be purchased from the City of Spokane during the summer months.
- **Long Term Plan:** If the largest well (2000 gpm) was lost, and the loss appeared to be long term (more than 36 months), the District would likely drill a new well in a new location.

1.2.2. WSA #2. Excess capacity within WSA #2 (South Valley) is generally available through most of the year to compensate for the loss of a well with no significant impact on public health or safety. Each well/wellfield produces in excess of 3500 gpm. An intertie with Model Irrigation District No. 18 (MID #18) is a one way connection benefiting MID #18 only. Fire flows can be maintained through reservoir storage capacity. See Figure 2.

- **Short Term Plan:** The District has chosen a five year time of travel for delineating the capture zones for each well/wellfield within WSA #2. The capture zone delineation as shown in Figure 3-38 (Volume 1 of SAJB Report) displays capture zone overlap for the 20th and Balfour and Brown's Park production wells out to Shelly Lake and overlap for all wells including 26th and Vercier to the east of Shelly Lake. Therefore, the District's Short Term Plan must address two scenarios.

The first scenario is the loss of the largest source (3950 gpm at 20th and Balfour) caused by contamination located west of the Brown's Park well. If that occurs, water could possibly be supplied from the other two wells. However, during peak demand periods, the single twelve-(12) inch transmission main connecting the two distinct portions of the service area may not be large enough to handle the flow.

For the second scenario, if contamination occurs east of Brown's Park, both Brown's Park and 20th and Balfour well/wellfields will likely be impacted and a long-term plan will likely be necessary. The District will need to respond as soon as possible when contamination has been detected by neighboring water purveyors to the east of these two wells.

A rapid response is necessary to analyze the impact and timing to all of WSA #2's well/wellfields. This may be accomplished by using monitoring well information and production well information from Vera Water and Power (Well #4) and Consolidated Irrigation District No. 19 (Wells #2 and #3).

- **Long Term Plan:** The long-term plan is to replace the impacted well/wellfields with new groundwater wells in new locations. This would likely be to the north, more toward the center of the aquifer, likely nearby or within Modern Electric Company's Service Area. This would involve finding a suitable site, designing a transmission main and transferring water rights to the new site. Investigation of a new well site has begun. Other, secondary potential solutions could also include connection with Hutchinson, and the possibility to wheel water from WSA#1 through Hutchinson to WSA#2 exist, or possibly an intertie with Modern Electric Water Company.

1.2.3. WSA #3A. WSA #3A (North Spokane) has excess capacity that would be available if one of the two wells within this system became contaminated. However, summer (high) demand periods would be impacted; and the short fall would need to be replaced. Interties with WWD #2 and the City of Spokane are in place and could be used to make up the lost supply capacity.

- **Short Term Plan:** The District has chosen a five year time of travel for delineating the capture zones for each well within WSA #3A. The capture zone delineation displayed in Figure 3-37 (volume 1 of SAJB Report) shows that the two wells respective capture zones overlap to the south at approximately Rowan Avenue. Therefore, the District's Short Term Plan must address two scenarios.

The first scenario is for the loss of one well. If that occurs, water would need to be purchased from the City of Spokane and/or WWD #2 during the summer months to provide peaking capacity.

For the second scenario, if contamination occurred south of Rowan Avenue, thereby possibly impacting both wells, the District will need to respond as soon as possible. A rapid response is necessary to analyze the impact and timing to both of WSA #3A's wells. This may be accomplished by using monitoring well information and production well information from the City of Spokane (Central Avenue Well & the Nevada/Grace Well).

- **Long Term Plan:** The long-term plan is to replace the impacted well/wellfields with new groundwater wells in new locations. The most likely site would be to the east between Lincoln and Magnesium Roads toward Crestline Street. This would involve obtaining a site with sufficient area for a new well, construction of new transmission mains and transferring water rights to the new site.

1.2.4 WSA #3B. WSA #3B, surrounding the old town site of Mead, has minimal excess capacity. The production of these wells range in capacity from 300 gpm at the Freya Well, 600 gpm at the Helena Well, to 1,150 gpm at the Cherry Well. There are two (2) inter-ties with two (2) different water service areas owned by WWD #2. One of the WWD #2 inter-ties is also inter-tied with the City of Spokane and with WSA #3A (North Spokane System); which could allow the "wheeling" of water from one or both of these sources through WWD #2's system to the WSA #3B (Mead System).

- **Short Term Plan:** There are two scenarios for the short-term plan. If either of the smaller wells are contaminated, the District could meet average water demands. However, if the largest well (Cherry Well) were lost, peak

(summer) demands could not be met and water would need to be purchased from WWD #2 and/or the City of Spokane.

- Long Term Plan: There are also three likely scenarios for the long-term plan.

The first option is to replace the impacted wells with new wells at new locations. The most likely site would be to the south between Lincoln and Magnesium Roads near Crestline Street. This would involve obtaining a site with sufficient area for a new well, construction of new transmission mains and transferring water rights to the new site.

The second option is an intertie with WSA#3BP (Pineriver Park). This intertie would be to the north of the service area and would involve constructing a new reservoir and booster pumping station along with a new transmission main. In addition to transferring water rights, a change in the place of use would be necessary.

The third option for providing an alternative water supply is a future intertie are planned with North Spokane Irrigation District No. 8. This option has been explored with North Spokane, and would require a significant transmission main.

1.2.5. WSA #3BP. WSA #3BP (PineRiver Park) has no excess capacity because it has one wellfield with a total production of 410 gpm. Peak demand is 350 gpm. An intertie with WWD #2 is needed. A future intertie with WSA #3B is planned.

- Short Term Plan: The short-term plan is to construct an intertie with WWD #2.
- Long Term Plan: The relatively small demand of this WSA could be provided from WSA #3B. This would involve constructing the planned transmission main connection between the two systems.

1.2.6 WSA #3C. WSA #3C (Riverview Hills-Colbert) has no excess capacity because it has one well with a total of 450 gpm available. Peak demand is 400 gpm. An emergency intertie with WWD #2 exists but needs to be metered and automated with the installation of a PRV valve (planned for installation in spring of 1999).

- Short Term Plan: The emergency intertie with WWD #2 would need to be utilized on a manual basis until a long term plan could be implemented.
- Long Term Plan: The emergency intertie with WWD #2 would need to be made more permanent with the installation of a flowmeter and automated with

a PRV valve. Otherwise, drilling a new well may be an option depending upon the nature and extent of the contamination.

1.2.7 WSA #3D. WSA #3D (Chattaroy Hills) has no excess capacity because it only has one well with a total of 400 gpm available. Peak demand is 470 gpm.

- Short Term Plan: A combination of importing bottled water, boiling or otherwise treating the water and conservation would need to be utilized until a long term plan could be implemented.
- Long Term Plan: This system is isolated as there currently are no other water systems with enough capacity near this system to be viable options for alternate sources of water. However, WWD #2's future water service area is to the south of this system and Stevens County PUD's future service area is to the north of this system. A future intertie may be a possibility. Otherwise, drilling a new well may be the only option depending upon the nature and extent of the contamination.

1.2.8 WSA #4. WSA #4 (South Spokane) has excess capacity as water to this system is purchased from the City of Spokane. The City's system is well established with excess capacity and a wellhead protection plan.

1.2.9 WSA #5. WSA #5 (Waterview Terrace) has no excess capacity because it only has one well with a total of 275 gpm available. No storage and no fire protection is provided by this system.

- Short Term Plan: A combination of importing bottled water, boiling or otherwise treating the water and conservation would need to be utilized until a long term plan could be implemented.
- Long Term Plan: This system is small and very isolated, an intertie with another water purveyor is not an option within the foreseeable future. Treating the water or drilling a new well may be viable options depending upon the nature and extent of the contamination. Most of the water services within this system are seasonal (vacation) homes. Abandonment of the water system may be an option of last resort.

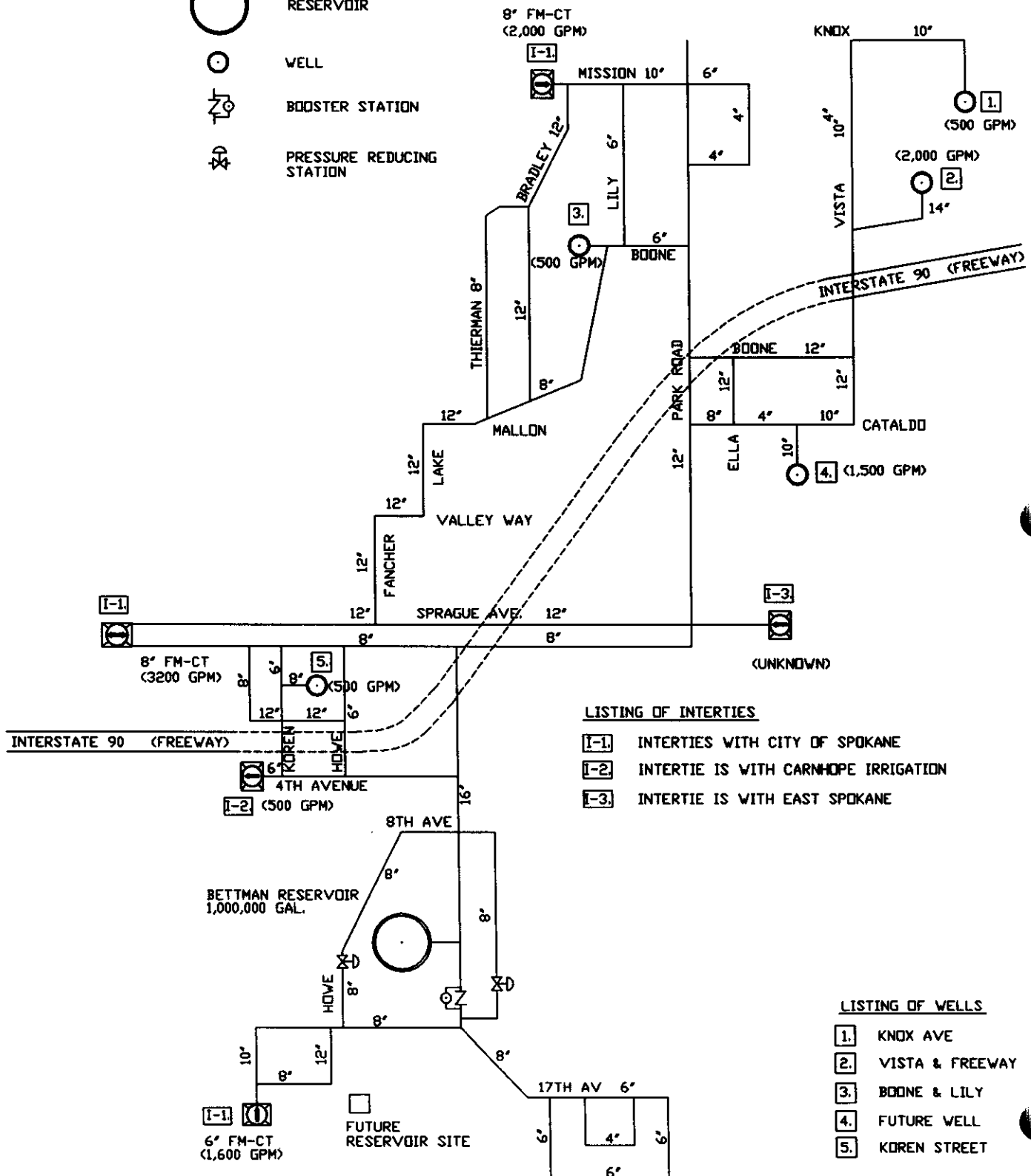
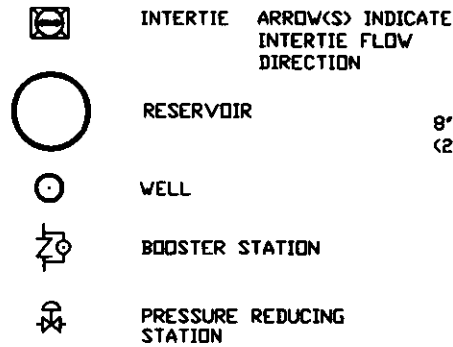
1.3. Recommendations

The following recommendations summarize the action plans previously discussed, and which the District is currently acting upon.

- WSA#1 – Identify location of potential new well site (2,000 gpm)
- WSA#2 – Investigate water wheeling through Hutchinson
Investigate Intertie with MEWCo
Identify location of potential new well site
- WSA#3A- Identify location of potential new well site
- WSA#3B- Identify location of potential new well site
Intertie with N. Spokane Irr District as allowed
Make connection with WSA#3BP system
- WSA#3BP- Make connection with WSA#3B
- WSA#3C- Rehabilitate existing WWD#2 intertie
- WSA#3D- Identify mechanism for importing bottled water
Monitor progress of WWD#2 growth and Stevens Co. PUD for future
intertie potential.
- WSA#4- No recommendations
- WSA#5- No recommendations

WSA 1 WEST SPOKANE VALLEY SYSTEM SCHEMATIC

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LISTING OF INTERTIES

- I-1 INTERTIES WITH CITY OF SPOKANE
- I-2 INTERTIE IS WITH CARNHOPE IRRIGATION
- I-3 INTERTIE IS WITH EAST SPOKANE

LISTING OF WELLS

- 1. KNOX AVE
- 2. VISTA & FREEWAY
- 3. BOONE & LILY
- 4. FUTURE WELL
- 5. KOREN STREET





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I-1. INTERTIE WITH MODEL IRRIGATION

I-1. INTERTIE WITH MODEL IRRIGATION

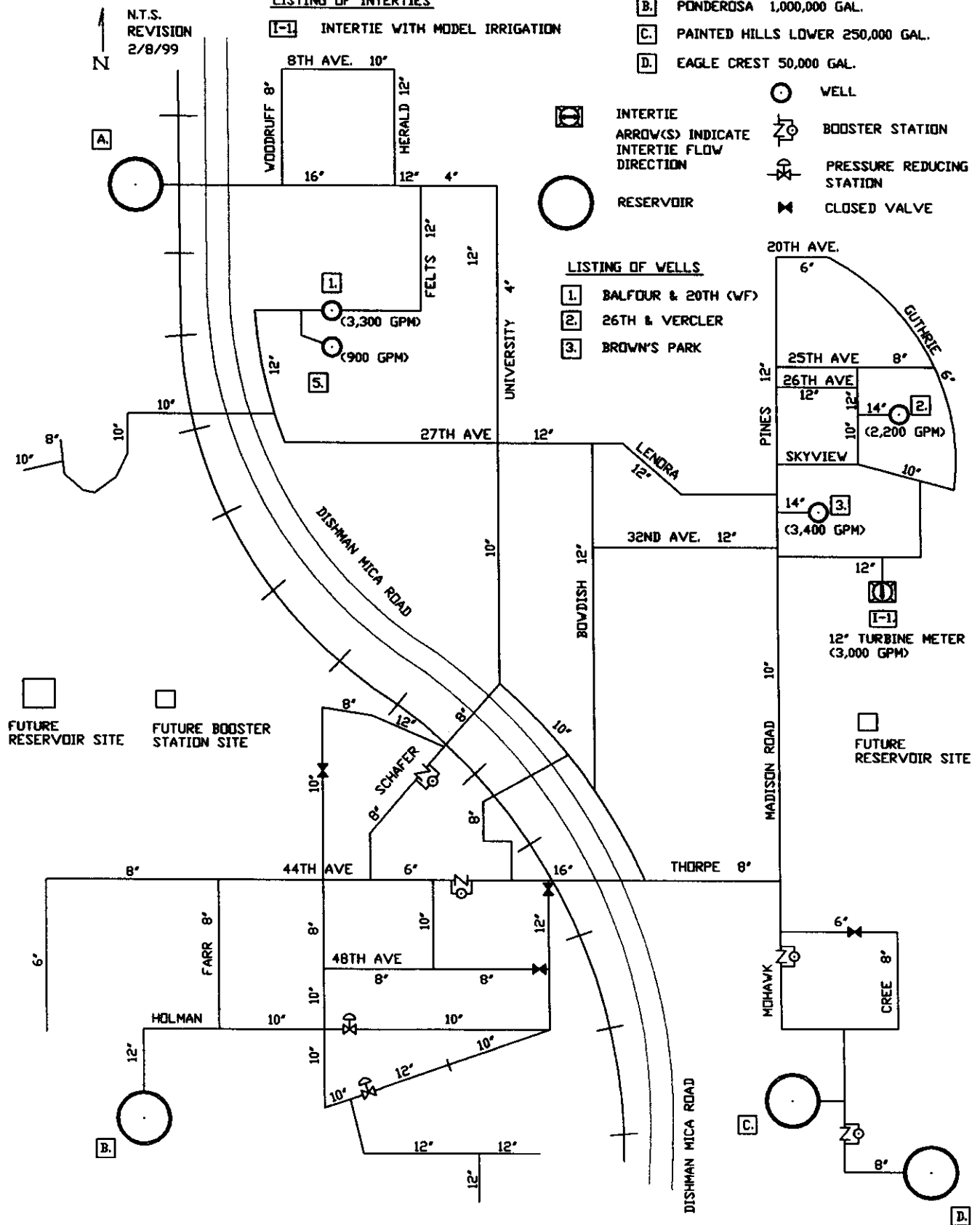
- ☐ A. DISHMAN 1,000,000 GAL.
- ☐ B. PONDEROSA 1,000,000 GAL.
- ☐ C. PAINTED HILLS LOWER 250,000 GAL.
- ☐ D. EAGLE CREST 50,000 GAL.

- ☐ A. DISHMAN 1,000,000 GAL.
- ☐ B. PONDEROSA 1,000,000 GAL.
- ☐ C. PAINTED HILLS LOWER 250,000 GAL.
- ☐ D. EAGLE CREST 50,000 GAL.

	WELL
	BOOSTER STATION
	PRESSURE REDUCING STATION
	CLOSED VALVE

1. BALFOUR & 20TH (WF)
2. 26TH & VERCLER
3. BROWN'S PARK

1. BALFOUR & 20TH (WF)
2. 26TH & VERCLER
3. BROWN'S PARK



WSA 3A NORTH SPOKANE SYSTEM SCHEMATIC

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INTERTIE
ARROW(S) INDICATE
INTERTIE FLOW
DIRECTION



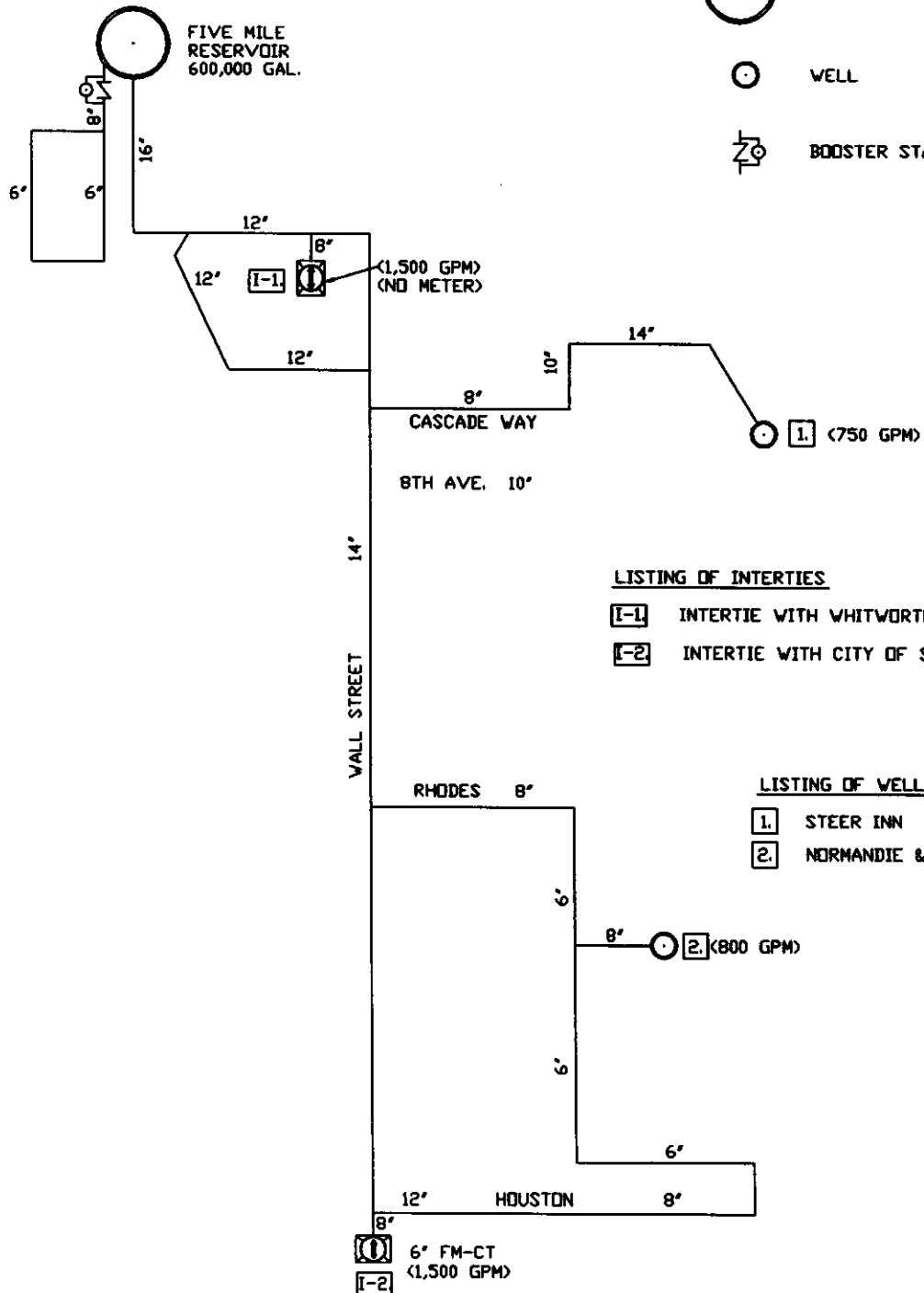
RESERVOIR



WELL



BOOSTER STATION



LISTING OF INTERTIES

- I-1 INTERTIE WITH WHITWORTH
- I-2 INTERTIE WITH CITY OF SPOKANE

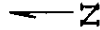
LISTING OF WELLS

- 1. STEER INN
- 2. NORMANDIE & LYONS

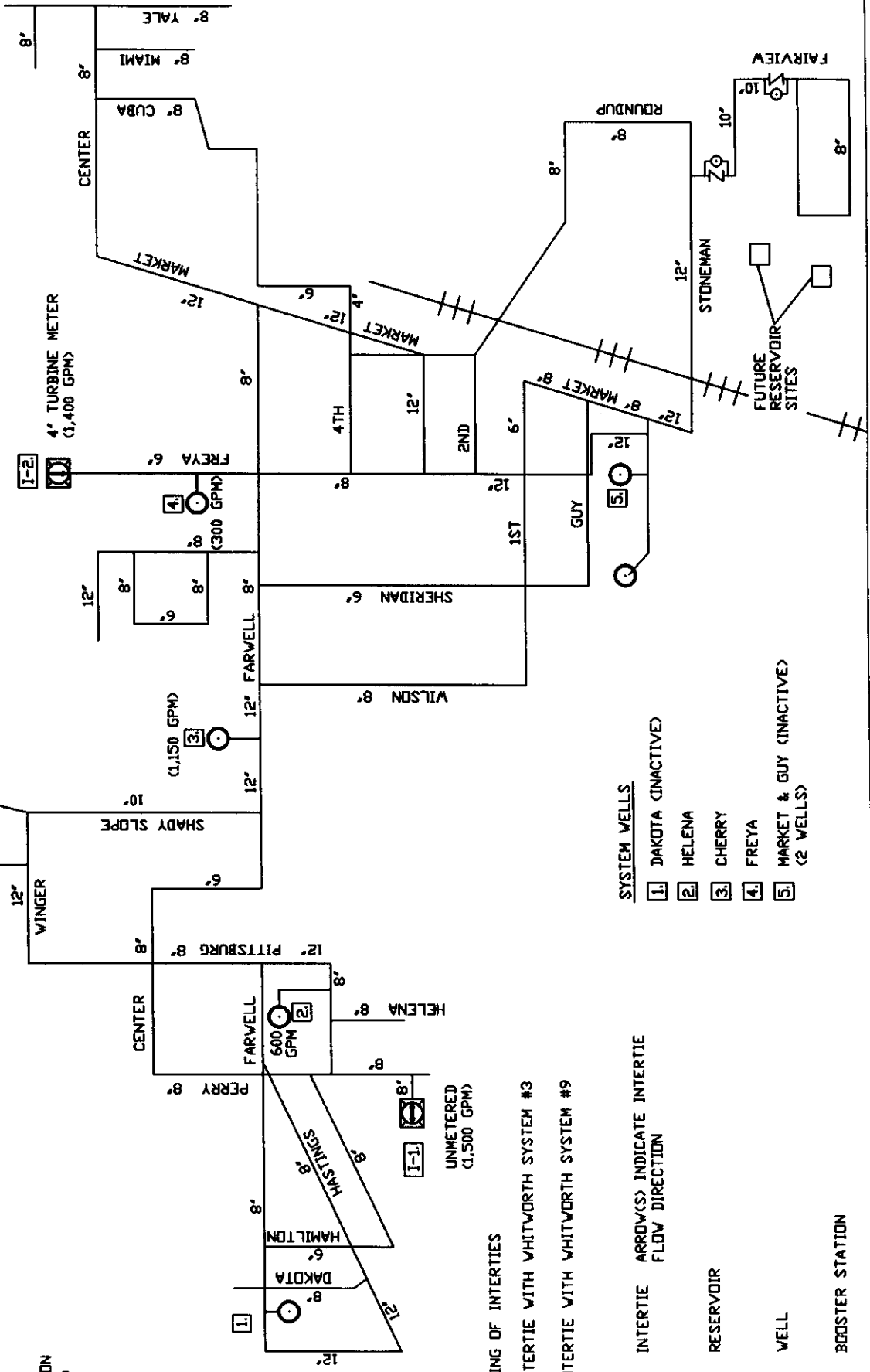
FRANCIS AVENUE

WSA 3B MEAD SYSTEM SCHEMATIC

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HEAD RESERVOIR
500,000 GAL.



LISTING OF INTERTIES

- [I-1] INTERTIE WITH WHITWORTH SYSTEM #3
- [I-2] INTERTIE WITH WHITWORTH SYSTEM #9

INTERTIE
ARROW(S) INDICATE INTERTIE
FLOW DIRECTION



RESERVOIR



WELL



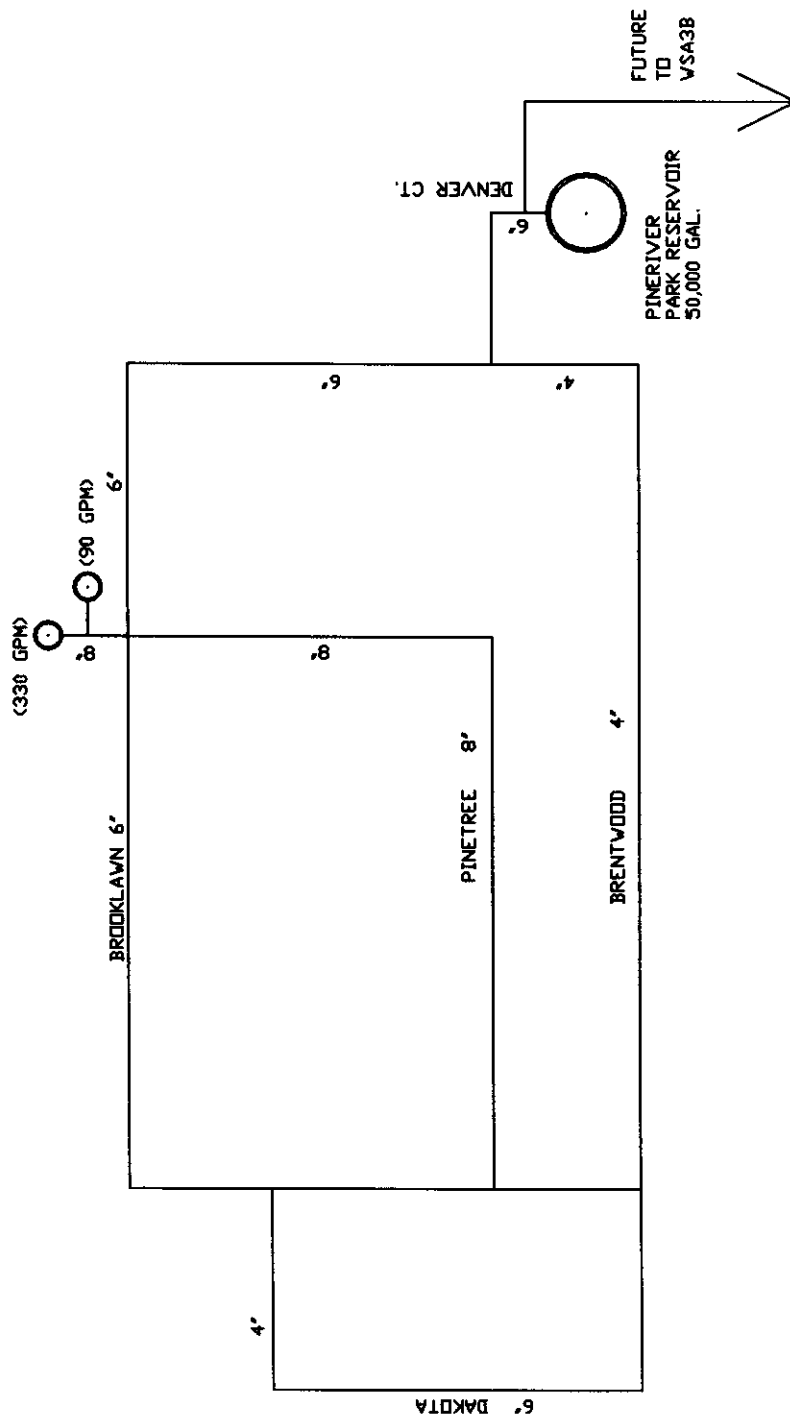
BOOSTER STATION





SYSTEM WELLS

- [1] DAKOTA (INACTIVE)
- [2] HELENA
- [3] CHERRY
- [4] FREYA
- [5] MARKET & GUY (INACTIVE)
(2 WELLS)

WSA 3BP PINE RIVER PARK SYSTEM SCHEMATIC

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-  INTERTIE ARROW(S) INDICATE INTERTIE FLOW DIRECTION
-  RESERVOIR
-  WELL - PINE RIVER PARK WELL FIELD
-  BOOSTER STATION

WSA 3C RIVERVIEW HILLS (COLBERT)
SYSTEM SCHEMATIC

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RESERVOIR

WELL

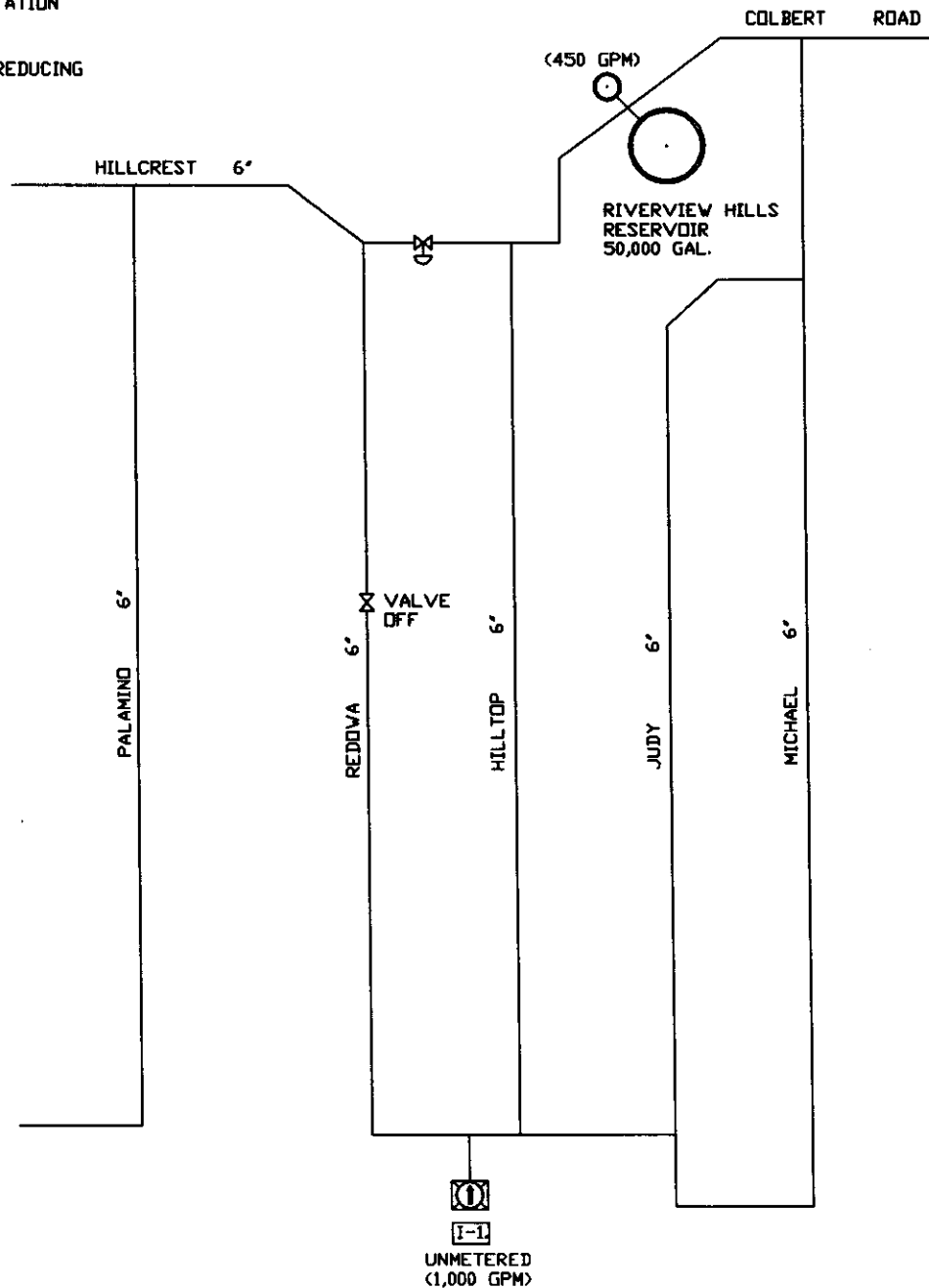
BOOSTER STATION

**PRESSURE REDUCING
STATION**

VALVE

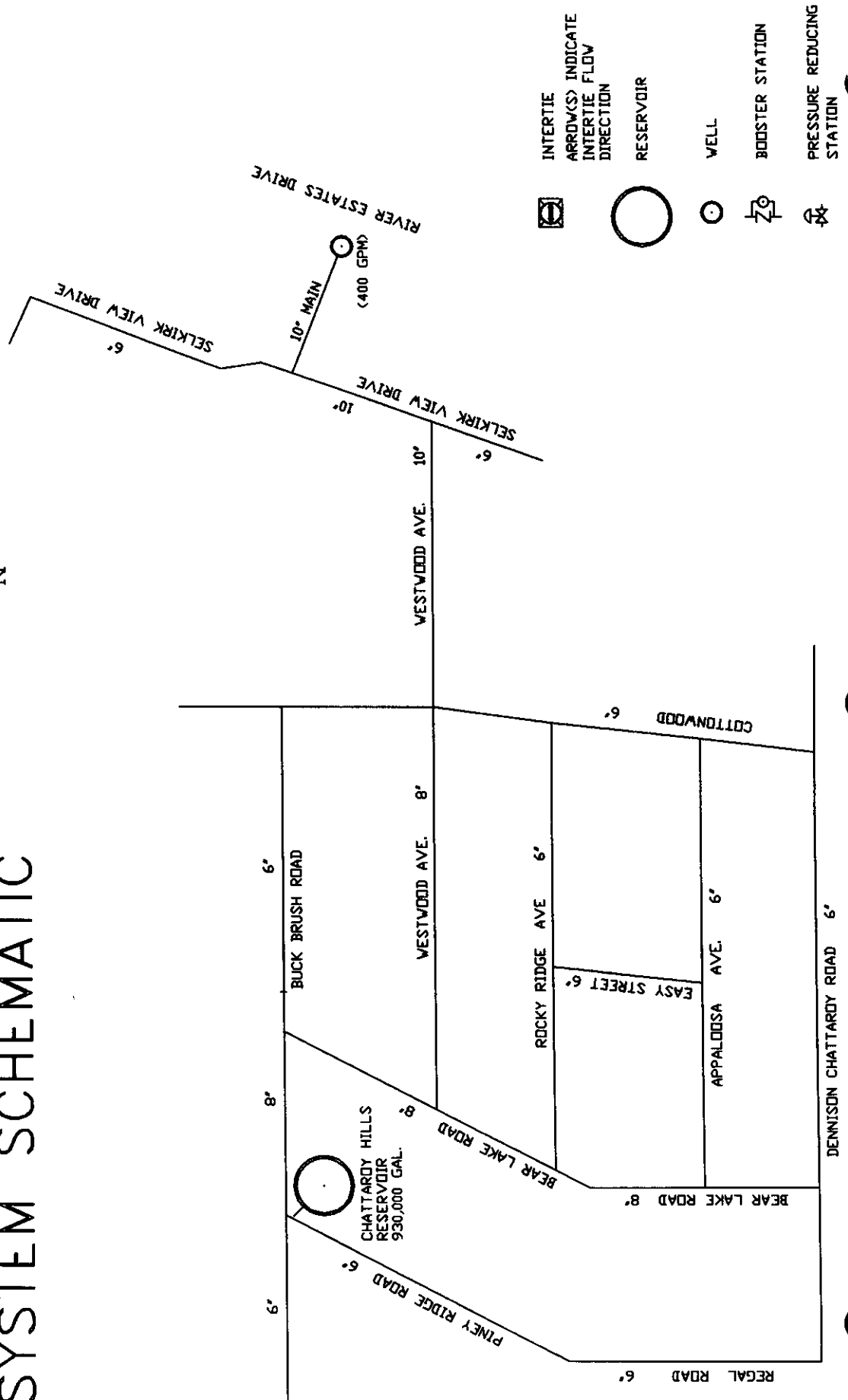
INTERTIE

I-1. INTERTIE WITH WHITWORTH



WSA 3D CHATTAROY HILLS SYSTEM SCHEMATIC

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






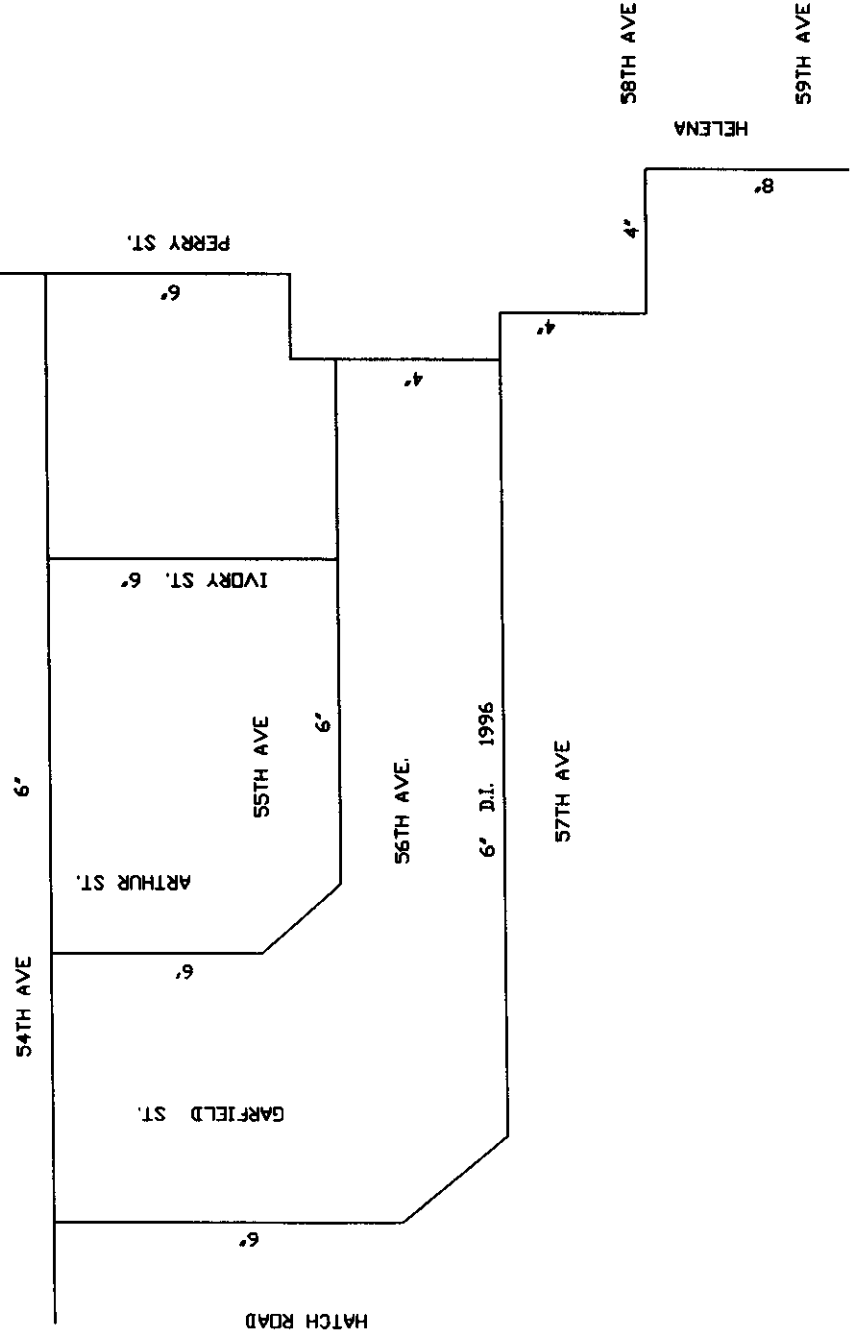
WSA 4 SOUTH SPOKANE (SOUTH HILL) SYSTEM SCHEMATIC

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NOTE: ALL WATER USED IN WSA#4 IS PURCHASED
FROM THE CITY OF SPOKANE

4" FM CT
(500 GPM)

-  INTERTIE
-  ARROW(S) INDICATE
INTERTIE FLOW
DIRECTION
-  RESERVOIR
-  WELL
-  BOOSTER STATION
-  PRESSURE REDUCING
STATION



WSA 5 WATERVIEW TERRACE SYSTEM SCHEMATIC

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