State of California
The Resources Agency
DEPARTMENT OF WATER RESOURCES
Northern District

WATERMASTER SERVICE IN NORTHERN CALIFORNIA

1976 Season

December 1977

FOREWORD

This report discusses the watermaster service provided by the Department of Water Resources to areas in Northern California during the 1976 watermaster season. Authority for its preparation is described in the California Water Code, Division 2, Part 4, Chapter 7.

Data are presented in two parts: the first contains general information about water rights, water supply, service areas, and watermaster duties. The second contains sections describing the 21 active service areas, 19 in the Department's Northern District and 2 in the Central District. Each of these 21 sections includes descriptions of the general area, the basis of watermaster service, water supply, method of distribution, 1976 distribution, and other significant information for each area.

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State of California
The Resources Agency
DEPARTMENT OF WATER RESOURCES

NORTHERN DISTRICT

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* Big Sage Reservoir serves Hot Springs Valley I.D., upstream of Big Valley, but has considerable effect on the water supply to Big Valley.

Watermaster Service Areas in Northern California

Source Name	Service Area	References				
		Text	Flow Data		Map	
		Page	Table	Page	Figure	Page
Cooks Creek	Indian Creek	60			10,10b	61,63
Cottonwood Creek	N.F. Cottonwood Cr.	83			12	85
N.F. Cottonwood	N.F. Cottonwood Cr.	83	19	88	12	85
Cottonwood Creek	N.F. Pit River	87,90	21	91	13,13a	96,97
Couch Creek	N.F. Pit River				13,13e	96,101
Cow Creek	Cow Creek	31			6	34
N. Cow Creek	Cow Creek	31	11	33	6,6a,b,c	34-37
S. Cow Creek	Cow Creek				6	34
Dale Creek	Shasta River	111			15,15a	119,120
Davis Creek	N.F. Pit River	87,89	22	91	13,13b	96,98
DeSabla Reservoir	Butte Creek	25				
Deep Creek	Surprise Valley	139,141			17,17f	149,157
N. Deep Creek	Surprise Valley	141	48	146	17,17f	149,157
S. Deep Creek	Surprise Valley	141	49	146	17,17f	149,157
Deep Cut	Susan River				18d	175
Dicen Slough	M.F. Feather River				11,11b	70,72
Digger Creek	Digger Creek	41,42	12	42	7	43
Dill Slough	Susan River	163			18,18e	169,176
Doby Creek	N.F. Cottonwood Creek				12	85
Dorris Reservoir	S.F. Pit River				16a	134
Duck Lake Creek	French Creek	47	13	48	8	49
Dwinnell Reservoir	Shasta River	111-113	33,34	116,117	15f	125
Eagle Creek	N.F. Cottonwood Cr.				12	85
Eagle Creek	Surprise Valley	139,142	52	148	17,17i	149,160
Eagle Lake	Susan River				18	169
Eagle Lake Canal	Susan River				18f	177
E. Branch Soldier C.	Surprise Valley (See Soldier Creek)					
East Channel	M.F. Feather River (See Little Last Chance and Smithneck Creeks)				11a,11b	71,72
East Creek	S.F. Pit River				16	133
East Juniper Creek	Big Valley	15				

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Source Name	Service Area	References: Text Page	Flood Data: Table	Flood Data: Page	Map: Figure	Map: Page
Eastside Canal	S.F. Pit River				16,16b&d	133,35,37
Eddy Creek	Shasta River	111			15,15a	119,120
Edgar Slough	Butte Creek				5	29
Elesian Creek	Susan River	163			18,18d	169,175
Emerson Creek	Surprise Valley	139,142	53	148	17,17j	149,161
Evans Creek	Shackleford Creek	107				
Eyster Slough	Surprise Valley				17i	160
Feather River						
Middle Fork	M.F. Feather River	67,68	17	69	11,11g&i	70,77,79
West Branch	Butte Creek (Import)	25				
Fitzhugh Creek	S.F. Pit River	129,130	40	132	16,16b	133,135
N.F. Fitzhugh Cr.	S.F. Pit River	129			16,16b	133,135
S.F. Fitzhugh Cr.	S.F. Pit River				16,16b	133,135
M.F. Fitzhugh Cr.	S.F. Pit River				16b	135
Fletcher Creek	M.F. Feather River	67,68			11k	80
Flood Channel	Susan River				18e	176
Franklin Creek	N.F. Pit River	87,89	24	92	13,13d	96,100
French Creek	French Creek	47,48	13	48	8	49
North Fork	French Creek	47,48			8	49
French Reservoir	S.F. Pit River	129			16	133
Frenchman Reservoir	M.F. Feather River	67				
Gleason Creek	N.F. Pit River				13,13g	96,103
Gold Run Creek	Susan River	163-165	55	167	18,18b	169,172
Hahn Channel	Hat Creek				9	55
Hamlin Creek	M.F. Feather River	68			11,11j	70,80
Hamlin Slough	Butte Creek	25			5	29
Hartson Slough	Susan River	163			18,18e	169,176
Hat Creek	Hat Creek	53	14	54	9,9c	55.58
Hendricks Canal (Also known as Toadtown Canal, Import)	Butte Creek	25	10	27		
Hills Creek	Susan River	163,165			18b	172

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Source Name	Service Area	References: Text Page	Flow Data: Table	Flow Data: Page	Map: Figure	Map: Page
Hog Flat Reservoir	Susan River	164	58	168	18	169
Holtzclaw Creek	Susan River	163,165				
Horse Range Creek	French Creek	47,48			8	49
Indian Creek	Indian Creek	59,60	15	60	10,a,b,c,	61-64
Iverson Reservoir	Big Valley	15,16			3	19
Jackson Creek	Shasta River	111				
Jerusalem Creek	N.F. Cottonwood Cr.	83			12	85
Joseph Creek	N.F. Pit River	87,89	19	88	13,13e	96,101
Juniper Creek	Big Valley				3	19
Kanavel Creek	Susan River				18d	175
Lake Leavitt	Susan River	164-166	58	168	18,18c	169,173
Lake Shastina	Shasta River (See Dwinnell Reservoir)				15,15f	119,125
Lassen Creek	Susan River	163,164			18,18b	169,172
Lassen Irrigation Company Reservoir	Susan River	164,165				
Last Chance Creek	M.F. Feather River (See Little Last Chance Creek)					
Linville Creek	N.F. Pit River	87,89	23	92	13,13c	96,99
Lights Creek	Indian Creek	59,60			10,10b&c	61,63,64
Little Cow Creek	Cow Creek (See Cow Creek, North)					
Little Last Chance	M.F. Feather River	67,68			11a,11b	71,72
East Channel	M.F. Feather River				11a,d&i	70,74,79
North Channel	M.F. Feather River				11a,11i	71,79
Little Shasta River	Shasta River	111,113	35	117	15,15h	119,127
Little Truckee Div.	M.F. Feather River	67,68	16	69	11,11e	70,75
Little Truckee R.	M.F. Feather River (Import)	67,68				
Long Ditch	Susan River	165				
Lower Shasta River	Shasta River (See Shasta River)					
Martin Creek	N.F. Pit River				13f	102
McCoy Flat Res.	Susan River	163-166	58	168		
Meeks Meadow Creek	French Creek				8	49
Middle Channel	M.F. Feather River (See Smithneck Creek)				11d	74

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Watermaster Service Areas in Northern California

Source Name	Service Area	References: Text Page	Flow Data: Table	Flow Data: Page	Map: Figure	Map: Page
Owl Creek	Surprise Valley	139,141	50	14	17,17g	149,158
Parker Creek	Susan River	163-165			18,18d	169,175
Parker Creek	N.F. Pit River	87				
Parks Creek	Shasta River	111,112	32	115	15,15e	119,124
Payne Reservoir	S.F. Pit River	129			16b	134
Paynes Lake Creek	French Creek	47,48			8	49
Perry Creek	M.F. Feather River				11e,11f	75,76
Peters Creek	Indian Creek				10,10b	61,63
Pine Creek	S.F. Pit River	129,130	41	132	16,16a	133,134
Pine Creek	Surprise Valley	139,141	46	145	17,17d	149,155
Pine Creek Res.	S.F. Pit River	129			16	133
Pine Creek, New	N.F. Pit River (See New Pine Creek)				13	96
Pit River	Big Valley	15,16	6	17	3	19
North Fork	N.F. Pit River	87,90	26	93	13,c,e,f,g, 13i,j	96,99, 101,2,3,5,6
South Fork	S.F. Pit River	129,130	38	131	16,c&d	133.6&7
Piute Creek	Susan River	163-165			18,18a	169,171
Plum Canyon Res.	N.F. Pit River				13h	104
Plum Creek	N.F. Pit River				13h	104
Porter Reservoir	N.F. Pit River				13h	104
Radar Creek	Surprise Valley	139,142	51	147	17,17h	149,159
Range Creek	French Creek				8	49
Rainbow Lake	N.F. Cottonwood Cr.	83			12	85
Rising River	Hat Creek	53			9c	58
Roberts Reservoir	Big Valley	15,16			3	19
Rock Creek	Digger Creek				7	43
Round Valley Res.	Indian Creek				10,10a	61,62
Rush Creek	Ash Creek	11,12			2	14
Rutherford Creek	Surprise Valley				17,17b	149,153
Shackleford Creek	Shackleford Creek	107			14	109
Shasta River	Shasta River	111-113	31,36,37	113,118	15,a,b,c, 15f&i	119-22, 125,128

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Watermaster Service Areas in Northern California

Source Name	Service Area	References: Text Page	Flow Data: Table	Flow Data: Page	Map: Figure	Map: Page
Shasta River (continued)						
Little Shasta R.	Shasta River	111-113	35	117	15,15h	119,127
Lower Shasta R.	Shasta River	111-113	37	118	15i	128
Upper Shasta R.	Shasta River	112			15a	120
Shields Creek	N.F. Pit River	87	29	95	13h	104
Silver Creek	Cow Creek				6e	39
Slaughter Pole Cr.	Cow Creek				6e	39
Sloss Creek	Susan River	163			18,18d	169,175
Smithneck Creek	M.F. Feather River	67,68			11b,11c	72,73
East Channel	M.F. Feather River				11a,11d	71,74
Middle Channel	M.F. Feather River				11d	74
West Channel	M.F. Feather River				11d	74
Soldier Creek	Surprise Valley	139,141	45	144	17,17c	149,154
South Channel	N.F. Pit River (See Davis Creek)					
South Channel	N.F. Pit River (See Franklin Creek)				13d	100
South Clover Creek	Cow Creek (See Clover Creek)				6e	39
South Deep Creek	Surprise Valley (See Deep Creek)					
S.F. Davis Creek	N.F. Pit River (See Davis Creek)				13b	98
S.F. Digger Creek	Digger Creek (See Digger Creek)					
S.F. Pit River	S.F. Pit River (See Pit River)					
Spring Brook	M.F. Feather River				11,11j	70,80
Spring Channel	M.F. Feather River	67,68			11,11k	70,81
Stony Canyon Creek	N.F. Pit River				13f	102
Susan River	Susan River	163-165	54,56	166,167	18,a,b,c	169-173
Tanner Slough	Susan River	163			18,18e	169,176
Thoms Creek	N.F. Pit River	87,89	27	94	13,13f&i	96,102,105
Toadtown Canal	Butte Creek (See Hendricks Canal)					
Town Creek	M.F. Feather River				11e,11f	75,76
Truckee R., Little	M.F. Feather River, Import (See Little Truckee Diversion)					
Tule Canal	Susan River				18e	176
Turner Canyon	M.F. Feather River				11j	72

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Source Name	Service Area	References: Text Page	Flow Data: Table	Flow Data: Page	Map: Figure	Map: Page
Turner Creek	M.F. Feather River	68			11j	80
Webber Creek	M.F. Feather River	67,68			11,11e	70,75
W. Br. Feather R.	Butte Creek, Import (See Feather River)					
W. Fork Parker Cr.	Susan River (See Parker Creek)					
West Channel	M.F. Feather River (See Smithneck Creek)				11a	71
West Side Canal	M.F. Feather River	67,68			11,11h,i,j	70,78-81
West Side Canal	S.F. Pit River				16,16d	133,137
West Valley Creek	S.F. Pit River	129	39	131	16c,16e	136,138
West Valley Res.	S.F. Pit River	129,130			16,16a&c	133,34,36
West Valley Res.	Big Valley	15,16				
Whitehead Slough	Cow Creek	163			18e	176
Wildcat Creek	Cow Creek				6e	39
Willow Creek	Ash Creek	11,12			2	14
Willow Creek	Susan River	163-165	57	168	18,18f	169,177
Willow Creek	Willow Creek	179			19	180
Wimer Branch	Surprise Valley				17b	153
Wolf Creek	Indian Creek	59,60			10,10a	61,62
Wyndham Creek	Cow Creek				6e	39

TABLE 1

CONVERSION FACTORS

English to Metric System of Measurement

Quantity	English unit	Multiply by	To get metric equivalent
Length	inches (in)	25.4	millimetres (mm)
		.0254	metres (m)
	feet (ft)	.3048	metres (m)
	miles (mi)	1.6093	kilometres (km)
Area	square inches (in^2)	6.4516×10^{-4}	square metres (m^2)
	square feet (ft^2)	.092903	square metres (m^2)
	acres	4046.9	square metres (m^2)
		.40469	hectares (ha)
		.40469	square hectometres (hm^2)
		.0040469	square kilometres (km^2)
	square miles (mi^2)	2.590	square kilometres (km^2)
Volume	gallons (gal)	3.7854	litres (l)
		.0037854	cubic metres (m^3)
	million gallons (10^6 gal)	3785.4	cubic metres (m^3)
	cubic feet (ft^3)	.028317	cubic metres (m^3)
	cubic yards (yd^3)	.76455	cubic metres (m^3)
	acre-feet (ac-ft)	1233.5	cubic metres (m^3)
		.0012335	cubic hectometres (hm^3)
		1.233×10^{-6}	cubic kilometres (km^3)
Volume/Time (Flow)	cubic feet per second (ft^3/s)	28.317	litres per second (l/s)
		.028317	cubic metres per second (m^3/s)
	gallons per minute (gal/min)	.06309	litres per second (l/s)
		6.309×10^{-5}	cubic metres per second (m^3/s)
	million gallons per day (mgd)	.043813	cubic metres per second (m^3/s)
Mass	pounds (lb)	.45359	kilograms (kg)
	tons (short, 2,000 lb)	.90718	tonne (t)
		907.18	kilograms (kg)
Power	horsepower (hp)	0.7460	kilowatts (kW)
Pressure	pounds per square inch (psi)	6894.8	pascal (Pa)
Temperature	Degrees Fahrenheit (°F)	$\frac{tF - 32}{1.8} = tC$	Degrees Celsius (°C)

DECREED WATER RIGHTS

	Service Area	Number of Decreed Water Users	Total Decreed Water Rights litres/sec.	cu.ft/sec.
1.	Ash Creek	59	3 501.40	123.65
2.	Big Valley	58	6 847.62	241.82
3.	Burney Creek	10	937.01	33.09
4.	Butte Creek	44	11 958.27	422.30
5.	Cow Creek	90	1 907.63	67.367
6.	Digger Creek	38	657.66	23.225
7.	Fall River	2 1/		
8.	French Creek	27	866.22	30.59
9.	Goose Creek	1 1/		
10.	Hat Creek	55	9 095.42	321.20
11.	Indian Creek	45	3 738.68	96.715
12.	Juniper Creek	3 1/		
13.	M. F. Feather River	102	10 521.61	371.565
14.	N. F. Cottonwood Creek	13	858.00	30.30
15.	N. F. Pit River	91	6 075.41	214.55
16.	Shackleford Creek	42	1 832.96	64.73
17.	Shasta River	110	17 055.95	602.322
18.	S. F. Pit River	36	9 938.42	350.97
19.	Surprise Valley	171	8 884.46	313.75
20.	Susan River	160	9 960.00	351.732
21.	Willow Creek	3		2/

1/ Does not include Pacific Gas & Electric Company, who is a participant

2/ Water based on percentage of flow in Willow Creek

INTRODUCTION

Purpose and Benefits

The primary purpose of watermaster service is to distribute water in accordance with established water rights. This is accomplished by apportioning to the rightful users the available supplies in streams which have had water right determinations.

Distribution of water in watermaster service areas is a continuing statutory function of the Department of Water Resources as provided in Part 4 of Division 2 of the California Water Code.

A major benefit of watermaster service to water users and the State is that court litigation and physical violence, which in past years occurred quite frequently, are essentially eliminated.

Under watermaster service each water right owner is assured that his rights are being protected without his having to take legal action against other users. Another important benefit results from increased use of available supplies through reduction of waste.

Because both the water right owners and the State receive benefits from watermaster service, the costs of performing the service are shared. The State general tax fund pays half the cost of operating each service area. The water right owners in the service area pay the other half. Individual users' shares are determined in accordance with Article 3 of Chapter 7 of the above-mentioned Part 4 of Division 2 of the Water Code.

Determination of Water Rights

Almost all of the streams under State watermaster service have had their water rights defined by the courts under one of three adjudication procedures. These adjudications establish each owner's rights as to allowable rate of diversion, season of use, point of diversion, and place of use. They also establish priorities whereby each owner's rights are ranked in relation to the rights of all other decreed owners. Under this system all rights of any one priority must be fully satisfied before water can be diverted under any lower priority rights. The determinations of the courts are set forth by entering judgments, commonly called decrees.

Water rights determinations necessary for establishing watermaster service areas may be accomplished by "statutory adjudication", "court adjudication", "court reference", permit of license to appropriate, or agreement.

Statutory Adjudications

The California Water Code (Sections 2500-2900) prescribes a procedure whereby water users on any stream may petition the State Water Resources Control Board, Division of Water Rights, to make a legal determination of all water rights on that stream. If the Board finds that such a determination is in the best public interest, it proceeds with a statutory adjudication. This adjudication ultimately results in a court decree which defines all water rights on the stream.

Court Adjudications

A less extensive method of defining water rights is the "court adjudication" procedure. This type of adjudication results when two or more parties involved in a water rights dispute seek a solution to their problem under civil law. A decision handed down in such a civil action determines only the water rights of the

parties involved in the action and therefore does not necessarily define all water rights on the stream. As a result, serious conflicts sometimes arise between decreed water right owners and persons claiming riparian or appropriative rights which were not specified in the decree.

Court Reference

The "court reference" type of adjudication arises when a civil action as discussed aboye is referred to the State Water Resources Control Board for a determination under authority contained in Sections 2000-2076 of the Water Code. The Board's report becomes the basis of the court's decision. As in court adjudications, a court reference determines only the water rights of the parties involved in the action. The number of decreed owners and amounts of water rights for each service area are shown on page xv.

Watermaster Service Areas

Formation

Watermaster service is provided in areas where the rights have been defined by the Superior Court of the County, or by agreement, and where an unbiased qualified person is needed to properly apportion the available water according to the established rights. The Director of Water Resources creates watermaster service areas where these conditions exist, following either a request by the users or an order by the Superior Court.

The first watermaster service areas were created in September 1929. Prior to 1929, some watermaster service was provided in accordance with the Water Commission Act of 1913. There are now about 50 streams in Northern California which are under state watermaster service. The three newest service areas were created in 1975.

The counties and principal water sources of the various service areas in Northern California are listed in Table 4. Of these 21 areas, 19 are in the Department's Northern District, and two in the Central District. In 1976, two service areas in the Northern District, Seiad Creek in Siskiyou County and Pine Creek in Butte and Tehama Counties, were inactive.

Description of Region

The service areas are primarily in the mountainous northeastern part of the State where the growing season varies between about 100 and 140 days. Meadow hay and alfalfa are the principal crops under irrigation, although a considerable amount of land is used exclusively for pasturing livestock. Most irrigation is accomplished by gravity systems, with water users diverting directly from the streams at one or more diversion points. However, pumped diversions and sprinkler irrigation systems are becoming popular in some areas.

A map of this region showing the 20 service areas is presented in Figure 1.

Watermaster Responsibilities

Authority

To assure the proper distribution of water within his service area, each watermaster must ascertain the amount of water available and distribute it both by amount and priority in accordance with established water rights. To accomplish his responsibility, the watermaster is provided authority both by the Water Code and by provisions of pertinent court decrees or voluntary agreements to physically regulate the various streams in the service area. He is

further authorized to supervise the design, construction, operation, and maintenance of diversion dams, headgates, and measuring devices.

Each watermaster supervises water distribution at approximately 100 to 200 diversions in one or more service areas. The need for frequently checking and regulating these diversion points increases substantially in years of short water supply.

Control Devices

Permanent measurement and control devices, which the State requires (Water Code Sections 4100-4104) at each owner's main point of diversion, are constructed by the water users under supervision of the watermaster. Installation of accurate, easily set, and lockable structures is a continuing objectiye of watermaster service, since once they are built, conflicts among water users almost always stop. Also, the watermaster's ability to check and set each diversion regularly is greatly facilitated by good structures.

Interpretation of Decrees

The watermaster is often called upon to make immediate field or on-the-spot interpretations of various court decrees, agreements, etc. Since most of these documents were written more than 30 years ago, many situations have developed that were not initially considered. Therefore, the watermaster must use sound, careful, and practical judgment in attempting to reach workable solutions to water disputes. To accomplish this he must possess a good understanding of California water rights law.

Water Supply

Water supply in the watermaster service areas is derived principally from unregulated runoff of small streams. Peak runoff, snowmelt in most cases, occurs in the spring, with relatively small streamflow occurring in the summer and early fall. Additional supplies from storage reservoirs and ground water pumping are used in some areas to supplement natural streamflow. However, State watermasters do not supervise the use of ground water in this part of the State.

In some service areas the water supply must be predicted in advance to determine the date watermastering will begin and, to some extent, the manpower needed. The Department's Bulletin 120 series, "Water Conditions in California", is used to assist in these predictions.

Precipitation

The streamflow available for distribution is affected by total precipitation, amount of snowpack, air temperature, and the amount of rainfall received during the irrigation season. The latter is particularly important in the Upper Pit River-Surprise Valley areas, where about 25 to 30 percent of the annual precipitation occurs normally in April, May, and June. Spring storms, which are normally accompanied by relatively cool temperatures, materially affect both the water supply and the demand. Temperatures in the spring affect the demand for water and the manner in which snowmelt runoff occurs. A hot, dry spring depletes the water supply very early, even in years of normal snowpack. A cold, wet spring can extend the supply well into the irrigation season, but cold temperatures retard the growth of crops and are not necessarily desirable.

Data collected at representative snow courses showing the snowpack as of April 1, 1976, on all courses and the snowpack on May 1 and June 1 at selected courses, is presented in Table 2. This information was obtained from the Department's basic data files.

Table 1 reports the quantity of precipitation at selected stations in the service areas during the 1975-76 water year. The seasonal precipitation gives an indication of the related water supply available for distribution, and provides a basis for comparing the current year's supply with a long-term average.

Streamflow

The general water supply available for diversion within each watermaster area is determined from stream gaging stations placed at key locations in the main stream channels. Several major stations are installed and maintained by the United States Geological Survey as part of a federal-state program for collection of year-round streamflow records. In addition, several stream gaging stations are installed and operated by the watermasters during the irrigation season to provide supplemental information. Also, water stage recorders are often installed by the watermaster in selected diversion ditches to further assist him in proper distribution of the various water right allotments.

Table 3 presents runoff data at selected stream gaging stations in or near the service areas.

TABLE 1

PRECIPITATION AT SELECTED STATIONS - 1975-76 SEASON (IN MILLIMETRES AND INCHES)

		October		November		December		January		February		March		April		May		June		July		August		September		Total		Percent of Mean
		(mm)	(in)	(mm)	(in)	(mm)	(in)	(mm)	(in)	(mm)	(in)	(mm)	(in)	(mm)	(in)	(mm)	(in)	(mm)	(in)	(mm)	(in)	(mm)	(in)	(mm)	(in)	(mm)	(in)	
Fort Jones Ranger Station	Siskiyou	71.37	2.81	57.15	2.25	55.12	2.17	18.29	0.72	80.52	3.17	28.96	1.14	25.65	1.01	3.81	0.15	10.16	0.40	26.16	1.03	54.35	2.14	33.02	1.30	464.57	18.29	
		41.15	1.62	76.71	3.02	111.00	4.37	116.84	4.60	64.26	2.53	44.45	1.75	25.14	0.99	25.65	1.01	20.32	0.80	8.63	0.34	10.92	0.43	9.14	0.36	554.23	21.82	84
Happy Camp Ranger Station	Siskiyou	226.06	8.90	153.67	6.05	127.51	5.02	84.33	3.32	214.12	8.43	97.54	3.84	28.95	1.14	5.33	0.21	2.54	0.10	22.86	0.90	74.93	2.95	24.13	0.95	1061.97	41.81	
		109.98	4.33	216.41	8.52	285.50	11.24	308.10	12.13	185.93	7.32	154.68	6.09	73.91	2.91	50.80	2.00	23.36	0.92	10.92	0.43	8.89	0.35	17.52	0.69	1446.02	56.93	73
Yreka	Siskiyou	69.60	2.74	53.34	2.10	47.75	1.88	19.81	0.78	92.47	3.64	20.07	0.79	22.60	0.89	14.98	0.59	8.89	0.35	16.00	0.63	82.04	3.23	14.98	0.59	462.53	18.21	
		37.59	1.48	60.45	2.38	99.57	3.92	89.41	3.52	52.58	2.07	36.32	1.43	22.09	0.87	24.89	0.98	22.86	0.90	7.87	0.31	14.22	0.56	10.41	0.41	478.28	18.83	97
Redding Fire Station No. 2	Shasta	130.30	5.13	34.29	1.35	69.85	2.75	9.67	0.38	177.80	7.00	39.12	1.54	91.69	3.61	0.50	0.02	T	T	2.54	0.10	148.84	5.86	6.57	1.44	741.17	29.18	
		57.92	2.28	135.89	5.35	188.72	7.43	212.85	8.38	149.10	5.87	115.82	4.56	78.48	3.09	41.65	1.64	27.17	1.07	1.52	0.06	6.60	0.26	14.22	0.56	1029.97	40.55	72
Hat Creek Power House No. 1	Shasta	72.39	2.85	20.83	0.82	21.34	0.84	4.06	0.16	65.79	2.59	11.94	0.47	11.93	0.47	1.27	0.05	12.19	0.48	0.25	0.01	53.08	2.09	28.70	1.13	303.78	11.96	
		33.02	1.30	55.63	2.19	83.31	3.28	80.26	3.16	64.77	2.55	50.29	1.98	34.54	1.36	31.75	1.25	25.65	1.01	5.84	0.23	6.85	0.27	10.16	0.40	482.09	18.98	63
Lookout 3WSW	Lassen	65.28	2.57	36.07	1.42	20.57	0.81	3.30	0.13	113.79	4.48	40.64	1.60	7.36	0.29	0.70	0.03	12.70	0.50	4.06	0.16	53.59	2.11	17.01	0.67	375.16	14.77	
		30.99	1.22	84.58	3.33	106.43	4.19	115.06	4.53	52.32	2.06	53.59	2.11	37.84	1.49	26.67	1.05	31.24	1.23	6.85	0.27	13.71	0.54	14.22	0.56	573.53	22.58	65
Lakeview, Oregon (So. Central Sec.)	Lake	64.01	2.52	14.73	0.58	40.89	1.61	26.67	1.05	57.66	2.27	9.40	0.37	18.79	0.74	8.12	0.32	25.90	1.02	35.30	1.39	77.21	3.04	6.35	0.25	385.06	15.16	
		33.53	1.32	45.47	1.79	55.12	2.17	58.17	2.29	38.35	1.51	34.04	1.34	27.94	1.10	43.94	1.73	43.18	1.70	4.82	0.19	9.39	0.37	12.70	0.50	406.65	16.01	95
Alturas Ranger Station	Modoc	9.91	0.39	15.49	0.61	10.67	0.42	9.91	0.39	35.05	1.38	28.45	1.12	4.06	0.16	5.33	0.21	12.70	0.50	11.68	0.46	25.14	0.99	28.95	1.14	197.36	7.77	
		27.67	1.09	38.61	1.52	41.91	1.65	43.43	1.71	31.75	1.25	30.23	1.19	25.40	1.00	37.84	1.49	34.03	1.34	7.36	0.29	10.41	0.41	8.38	0.33	337.06	13.27	59
Jess Valley	Modoc	65.02	2.56	24.89	0.98	32.26	1.27	28.45	1.12	66.55	2.62	46.99	1.85	31.49	1.24	6.60	0.26	28.70	1.13	21.33	0.84	66.29	2.61	27.94	1.10	446.53	17.58	
		34.80	1.37	48.51	1.91	52.07	2.05	49.53	1.95	43.43	1.71	42.93	1.69	41.91	1.65	57.15	2.25	49.02	1.93	8.63	0.34	11.93	0.47	13.97	0.55	453.90	17.87	99
Cedarville	Modoc	64.52	2.54	29.45	1.16	19.56	0.77	13.72	0.54	61.72	2.43	30.73	1.21	10.92	0.43	0.50	0.02	5.08	0.20	19.55	0.77	42.16	1.66	28.44	1.12	326.39	12.85	
		32.26	1.27	42.93	1.69	70.36	2.77	46.23	1.82	33.27	1.31	29.97	1.18	24.63	0.97	29.21	1.15	28.19	1.11	8.38	0.33	7.36	0.29	7.87	0.31	360.68	14.20	90
Susanville Airport	Lassen	38.10	1.50	8.38	0.33	2.29	0.09	8.38	0.33	8.38	0.33	17.02	0.67	2.03	0.08	3.81	0.15	7.87	0.31	8.38	0.33	42.41	1.67	26.16	1.03	173.23	6.82	
		29.21	1.15	43.18	1.70	67.06	2.64	70.61	2.78	50.55	1.99	32.00	1.26	18.54	0.73	19.55	0.77	19.55	0.77	5.84	0.23	3.81	0.15	8.12	0.32	368.05	14.49	47
Greenville Ranger Station	Plumas	137.67	5.42	53.85	2.12	26.67	1.05	18.29	0.72	93.47	3.68	46.23	1.82	28.95	1.14	0.00	0.00	11.93	0.47	14.73	0.58	43.18	1.70	20.57	0.81	495.55	19.51	
		65.28	2.57	128.02	5.04	167.39	6.59	190.50	7.50	150.11	5.91	131.06	5.16	71.12	2.80	39.62	1.56	21.59	0.85	6.85	0.27	10.41	0.41	12.95	0.51	994.92	39.17	50
Sierraville Ranger Station	Sierra	139.95	5.51	42.16	1.66	32.51	1.28	5.84	0.23	71.88	2.83	52.83	2.08	26.41	1.04	11.17	0.44	11.93	0.47	6.85	0.27	64.77	2.55	27.94	1.10	494.26	19.46	
		54.36	2.14	91.95	3.62	124.21	4.89	134.87	5.31	97.28	3.83	72.39	2.85	43.18	1.70	34.29	1.35	17.01	0.67	7.36	0.29	6.35	0.25	9.90	0.39	693.17	27.29	71
Vinton	Plumas	32.77	1.29	18.80	0.74	8.89	0.35	11.43	0.45	23.62	0.93	9.65	0.38	4.82	0.19	0.76	0.03	9.65	0.38	12.70	0.50	30.73	1.21	28.44	1.12	192.29	7.57	
		24.64	0.97	42.42	1.67	56.64	2.23	62.23	2.45	42.42	1.67	34.04	1.34	22.82	0.90	24.63	0.97	18.28	0.72	7.87	0.31	6.09	0.24	7.12	0.28	349.25	13.75	55

Note: Figures above line are for current season; below line are long-term averages.

TABLE 2

SNOWPACK AS OF APRIL 1 AND MAY 1, 1976 AT REPRESENTATIVE SNOW COURSES

Watermaster Service Areas (Grouped Geographically)**	Snow Courses** Relating to Each Group	Elevation (in metres)	Elevation (in feet)	WATER CONTENT OF SNOW							
				April 1 Average (in mm*)	April 1 Average (in inches)	April 1, 1976*** In mm*	April 1, 1976*** In inches	April 1, 1976*** In Percent of April 1 Average	May 1, 1976*** In mm*	May 1, 1976*** In inches	May 1, 1976*** In Percent of April 1 Average
French Creek	Parks Creek	2 042	6,700	914	36.0	566	22.3	62			
Shackleford Creek	Middle Boulder No. 1	2 012	6,600	787	31.0	475	18.7	60	572	22.5	73
Shasta River	Little Shasta	1 890	6,200	508	20.0	584	23.0	115			
Ash Creek	Blue Lake Ranch	2 073	6,800	305	12.0	193	7.6	63			
Big Valley	Eagle Peak	2 195	7,200	381	15.0	381	15.0	100			
North Fork Pit River	Cedar Pass	2 164	7,100	432	17.0	452	17.8	105	419	16.5	97
South Fork Pit River	Adin Mountain	1 935	6,350	330	13.0	254	10.0	77	91	3.6	28
Surprise Valley											
Burney Creek	Thousand Lakes	1 981	6,500	965	38.0	513	20.2	53	511	20.1	53
Cow Creek	New Manzanita Lake	1 798	5,900	203	8.0	56	2.2	28	0	0.0	00
Digger Creek	Burney Springs	1 433	4,700	51	2.0	0	0.0	00	0	0.0	00
Hat Creek											
Butte Creek	Humbug Summit	1 478	4,850	305	12.0	0	0.0	00	0	0.0	00
Susan River	Silver Lake Meadows	1 966	6,450	762	30.0	391	15.4	51	178	7.0	23
	Fredonyer Pass No. 1	1 753	5,750	203	8.0	0	0.0	00	0	0.0	00
Indian Creek	Independence Lake	2 576	8,450	1 041	41.0	574	22.6	55	566	22.3	54
	Mount Dyer No. 1	2 164	7,100	635	25.0	226	8.9	36	208	8.2	33
Middle Fork Feather River	Rowland Creek	2 042	6,700	457	18.0	193	7.6	42	56	2.2	12
	Yuba Pass	2 042	6,700	787	31.0	290	11.4	37	178	7.0	23

* Millimetres
** Snow courses are listed in order of elevation within each geographical group of watermaster service areas.
*** Data collected only at stations listed.

TABLE 3

RUNOFF AT SELECTED STATIONS - 1975-76 (CUBIC HECTOMETRES AND ACRE-FEET)

	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sept.	Total	1/ Average	Percent Average
Shasta River near Yreka	13.04 10,570	14.16 11,480	17.14 13,900	17.10 13,860	17.84 14,460	19.60 15,890	9.54 7,730	6.58 5,340	3.62 2,940	1.64 1,340	8.38 6,790	5.32 4,320	133.96 108,600	168.00 136,200	80
Hat Creek near Hat Creek	12.20 9,890	11.84 9,600	11.83 9,590	11.62 9,420	11.13 9,020	11.73 9,510	10.88 8,820	12.30 9,970	10.65 8,630	10.05 8,150	10.00 8,110	9.48 7,680	133.71 108,400	125.08 101,400	107
Pit River near Canby	9.39 7,610	7.29 5,910	10.14 8,220	7.67 6,220	6.01 4,870	16.94 13,730	13.20 10,700	15.55 12,610	5.11 4,140	1.73 1,400	5.09 4,130	5.43 4,410	103.55 83,950	223.26 181,000	46
South Fork Pit River near Likely	4.44 3,600	2.83 2,290	3.00 2,430	2.18 1,770	.74 603	1.57 1,270	3.76 3,050	15.33 12,430	7.55 6,120	7.22 5,850	6.83 5,530	7.40 5,990	62.85 50,950	71.14 57,670	88
Susan River at Susanville	1.63 1,320	1.85 1,500	1.65 1,340	1.21 984	1.75 1,420	3.26 2,640	4.72 3,830	4.50 3,650	.48 389	.33 267	.43 347	.45 356	22.26 18,050	87.94 71,290	25
Indian Creek near Crescent Mills	10.71 8,680	11.66 9,450	10.11 8,200	9.24 7,490	10.68 8,660	19.14 15,520	11.99 9,720	7.19 5,830	2.37 1,920	4.92 3,990	7.74 6,280	8.07 6,550	113.82 92,270	494.14 400,600	23
Middle Fork Feather River near Clio	11.39 9,230	10.02 8,120	9.02 7,310	7.33 5,940	10.39 8,420	14.84 12,030	5.25 4,260	4.06 3,290	2.52 2,040	1.33 1,080	1.73 1,400	1.84 1,490	79.70 64,620	260.02 210,800	31
Butte Creek near Chico	12.71 10,300	13.93 11,290	14.42 11,690	11.62 9,420	15.07 12,220	23.07 18,700	22.09 17,910	16.42 13,320	10.01 8,120	7.77 6,310	8.62 7,000	7.46 6,060	163.19 132,300	365.49 296,300	

1/ Long-term average

NOTE: Figures above line are in cubic hectometres; (below are acre-feet).

TABLE 4

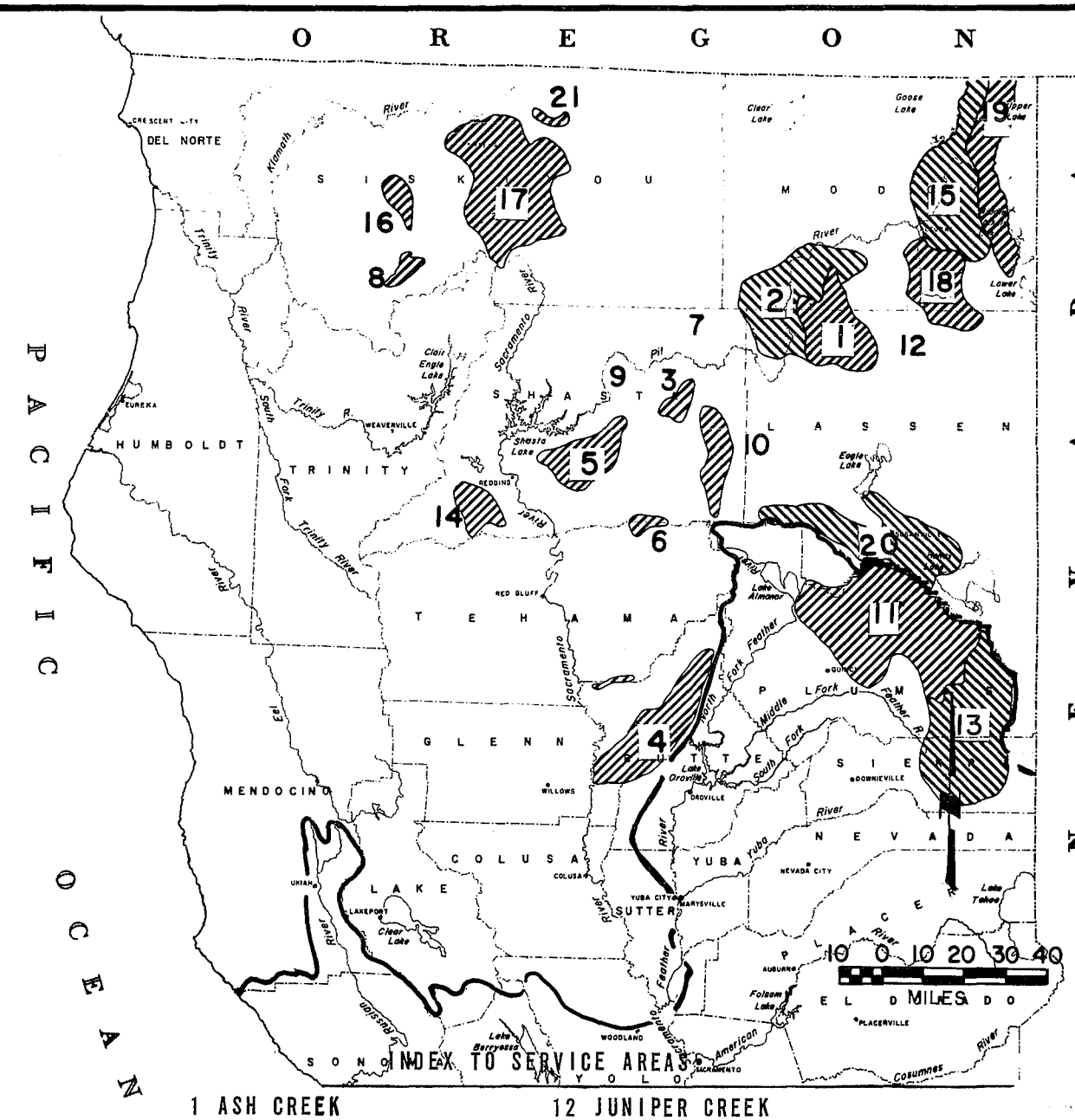
WATERMASTER SERVICE AREAS AND STREAM SYSTEMS

Service Area	County	Principal Water Sources: MAJOR STREAM and Tributaries[a]	Principal Water Sources: Reservoirs and Nontributary Streams
Ash Creek	Lassen, Modoc	ASH CREEK	
Big Valley	Lassen, Modoc	PIT RIVER	Roberts Reservoir
Burney Creek	Shasta	BURNEY CREEK	
Butte Creek	Butte	BUTTE CREEK	W. Branch Feather River
Cow Creek	Shasta	COW CREEK[b] N. Cow, Clover, Oak Run Creeks	
Digger Creek	Shasta, Tehama	DIGGER CREEK	
Fall River	Shasta	FALL RIVER	
French Creek	Siskiyou	FRENCH CREEK Miners Creek	Duck Lake, Paynes Lake
Goose Creek	Shasta	GOOSE CREEK	Lake Margaret
Hat Creek	Shasta	HAT CREEK	
Indian Creek	Plumas	INDIAN CREEK Lights Creek, Wolf Creek	
Juniper Creek	Lassen	JUNIPER CREEK	Iverson Reservoir
Middle Fork Feather River	Plumas, Sierra	M. FORK FEATHER RIVER Little Last Chance, Smithneck, Webber and Fletcher Creeks; Spring Channels, Westside Canal	Little Truckee River
N. Fork Cottonwood Creek	Shasta	N. FORK COTTONWOOD CREEK	Rainbow Lake
North Fork Pit River	Modoc	N. FORK PIT RIVER Parker Creek	Pine, Cottonwood, Davis Creeks
Shackleford Creek	Siskiyou	SHACKLEFORD CREEK Mill Creek	Campbell and Cliff Lakes
Shasta River	Siskiyou	SHASTA RIVER Little Shasta River	Dwinnell Reservoir (Lake Shastina)
South Fork Pit River	Modoc	S. FORK PIT RIVER Pine and Fitzhugh Creeks	West Valley Reservoir
Surprise Valley	Modoc	NONE (All creeks listed at right, are unconnected)	Bidwell, Mill, Soldier, Pine, Cedar, Deep, Owl, Rader, Eagle and Emerson Creeks
Susan River	Lassen	SUSAN RIVER Willow Creek	Lake Leavitt, Hog Flat, McCoy Flat Reservoirs; Baxter and Parker Creeks
Willow Creek	Siskiyou	WILLOW CREEK	

a/ Major tributaries only. A complete listing is given in "Index to Water Sources" page vi.

b/ Cow Creek proper not in service area.

Figure 1



INDEX TO SERVICE AREAS

1 ASH CREEK
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French

WATERMASTER SERVICE AREAS IN NORTHERN CALIFORNIA

SERVICE AREA DESCRIPTIONS AND 1976 NARRATIVES

This portion of the report consists of 21 sections, one for each service area active in 1976, presented in alphabetical order.

Each of these sections begins with a description of the particular service area, including location, geography, and general characteristics. Following this is a section entitled "Basis of Service". Under this heading are presented such data as the case number, date, and type of decrees; a brief summary of the decree or agreement which defines the water rights; the date the service area was created; and other related information.

These sections of the bulletin also present data on the water supply, methods of distribution, significant events of the watermaster season, and daily streamflow records. A map or schematic sketch of the stream system, including diversion locations, roads, etc., is also included for each service area.

A noticeable trend in recent years is the increasing number of water right owners in many areas, due to subdividing or "splitting" of property. For example, in the Ash Creek service area the number increased from 32 in 1967 to 60 in 1976, practically doubling in 8 years. This trend not only causes more work for the individual watermasters, but makes it difficult to maintain up-to-date records of all ownerships and their respective water rights. The water right ownerships are updated as of March 1 each year from County Assessors' records. Changes not on record by March 1 are therefore not reflected on the service area maps included in the various sections.

Since the purpose of this bulletin is to report the activities of the watermaster service, and because of the difficulty in keeping the data current, nothing herein should be construed as a determination of water rights. Furthermore, in some service areas there are diversions which may have been active but are not shown on the maps because they did not require the watermaster's attention during 1976.

As in previous years, watermaster service was begun on different dates in the various areas depending upon the streamflow conditions, the ranchers' needs for the water, or, as on some streams, the terms of the decree. Service was continued in all areas through the growing season and was concluded by October 15, 1976.

The date service was started in each service area and the name of the watermaster in charge are listed on the following page.

Service Area	Date Service Began in 1976	Watermaster
Ash Creek	April 1	Paul E. Lawler
Big Valley	April 1	Paul E. Lawler
Burney Creek	May 1	Seth K. Barrett
Butte Creek	April 14	Kenneth E. Morgan
Cow Creek	May 1	Seth K. Barrett
Digger Creek	May 23	Kenneth E. Morgan
French Creek	March 16	Lester L. Lighthall
Hat Creek	May 1	Seth K. Barrett
Indian Creek*	May 1	Earl Stower Joe Nessler
M. F. Feather River*	March 15	Conrad Lahr Joe Nessler
N. F. Cottonwood Creek	May 1	Seth K. Barrett
N. F. Pit River	March 15	Eldon E. Rinehart
Shackleford Creek	March 16	Lester L. Lighthall
Shasta River	March 1	Lester L. Lighthall
S. F. Pit River	March 19	L. L. Bates
Surprise Valley	March 19	Charles G. Hodge
Susan River	March 1	Virgil D. Buechler
Willow Creek	April 1	Lester L. Lighthall

* Within Central District; all others in Northern District

Fall River	Mar. 15 to Oct. 15	Paul E. Lawler
Goose Creek	Nov. 1 to June 1	Kenneth E. Morgan
Juniper Creek	Nov. 1 to May 1	Kenneth E. Morgan

ASH CREEK WATERMASTER SERVICE AREA

The Ash Creek service area is situated in Modoc and Lassen Counties near the town of Adin, about 160 kilometres (100 miles) northeast of Redding via Highway 299. Figure 2, page 14, shows the Ash Creek stream system and diversions, plus the roads in the area.

The major sources of water for the service area are Ash Creek and three tributaries, Willow, Rush, and Butte Creeks. Ash Creek rises in Ash Valley in the southeastern part of the service area and flows northwesterly about 30 km (18 miles) to its confluence with Rush Creek, then southwesterly to the town of Adin, and then westerly to Ash Creek Swamp and the Pit River. Butte and Willow Creeks head in the mountains to the east and flow northwesterly into Big Valley. Butte Creek meets Ash Creek near the head of the valley at Adin and Willow Creek about 5 km (3 miles) farther west near the head of Ash Creek Swamp. The valley floor in this vicinity is at an elevation of approximately 1 280 metres (4,200 feet).

Basis of Service

The rights on this creek system were determined by a court reference and set forth in Decree No. 3670, Modoc County Superior Court, dated October 27, 1947. From 1949 through 1958 Ash Creek was included as a part of Big Valley watermaster service area. The Ash Creek watermaster service area was created April 3, 1958.

Approximately 85 percent of the water rights in the service area are in Big Valley, west of the town of Adin. The remaining water rights are along the upstream tributaries and in Ash Valley, east of the town of Adin. The portion of Big Valley served is approximately 16 km (10 miles) long by 10 km (6 miles) wide, extending from the town of Adin to the confluence of Ash Creek and the Pit River.

The Ash Creek decree establishes the number of priority classes on the individual streams within the service area as follows: Ash Creek - five; Willow Creek - four; Rush Creek - one; and Butte Creek - two. Each of these streams is independently regulated.

Water Supply

The water supply for Ash and Rush Creeks is derived primarily from snowmelt, since most of the watershed is between 1 524 and 1 828 m (5,000 and 6,000 feet) in elevation. Willow Creek and Butte Creek receive a substantial portion of their water from springs. These creeks normally have sufficient water to satisfy demands until about June 1, after which the supply decreases rapidly. By the latter part of June, Ash Creek normally has receded to about 566 litres per second (20 cubic feet per second), and Butte Creek to less than 28 l/s (1 cfs). The flow of these creeks then remains nearly constant for the remainder of the season.

Method of Distribution

Irrigation from Ash Creek and its tributaries is accomplished by using numerous small dams to divert the flow into a system of ditches. The ditches deliver the water to the various fields for spreading. Wild flooding is the method most used; however, some ranchers have checks and borders and some use pumps to operate sprinklers or to lift water to higher spreader ditches. In some cases, runoff water is captured and reused before it returns to the stream.

1976 Distribution

Watermaster service began April 2 and continued through September 21. Paul E. Lawler, Assistant Engineer, Water Resources, was the watermaster for this season.

Ash Creek. The available water supply in Ash Creek was sufficient to meet all demands (five priorities) until the latter part of June. For most of the remainder of the irrigation season, water was available for first priority allotments only (rains occurring during June, July and August supplemented the stream flows). Some water was lost via muskrat holes from Big Valley Canal above Highway 299, flooding a small parcel of land south of the highway.

The daily mean discharge of Ash Creek at Adin is presented in Table 5. This stream gaging station is downstream from a substantial number of the diversions; consequently, flows recorded do not include all of the available supply of this stream.

Rush Creek. The water supply in Rush Creek was generally lower than normal throughout the irrigation season. The supply was sufficient to satisfy all allotments (one priority) until early May. The remainder of the irrigation season saw the flows reduced to about 25 percent of normal (2-3 cubic feet per second).

Willow Creek. The water supply in Willow Creek was sufficient to satisfy all allotments (four priorities) until May 15. For most of the remainder of the irrigation season, water was available for first priority allotments only.

Butte Creek. The water supply in Butte Creek was available for first priority allotments only throughout the irrigation season. Butte Creek at Highway 299 was dry starting about June 1; however, a small amount of water was available for use upstream at the Haury Ranch.

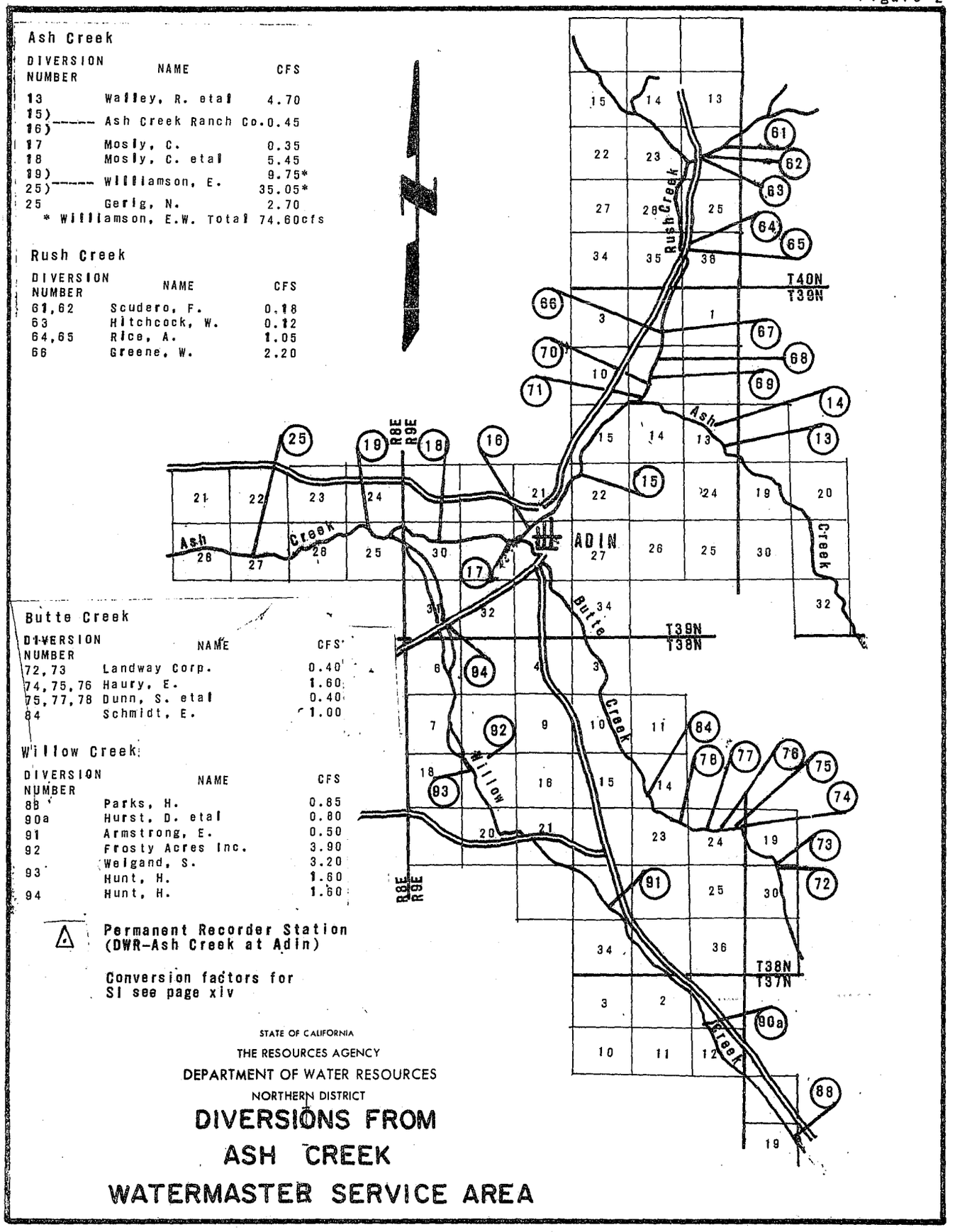
ASH CREEK WATERMASTER SERVICE AREA
1976 Daily Mean Discharge

TABLE 5

ASH CREEK AT ADIN

Day	March		April		May		June		July		August		September		Day
	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	
1	5130	181	1590	56	1780	63	651	23	510	18	736	26	708	25	1
2	3230	114	1500	53	1730	61	623	22	538	19	793	28	708	25	2
3	2270	80	1470	52	1640	58	623	22	538	19	708	25	736	26	3
4	1950	69	1440	51	1560	55	623	22	538	19	680	24	708	25	4
5	1640	58	1500	53	1530	54	623	22	510	18	680	24	708	25	5
6	1670	59	1420	50	1470	52	651	23	510	18	736	26	708	25	6
7	2120	75	1420	50	1250	44	651	23	538	19	736	26	566	20	7
8	4760	168	1440	51	1080	38	623	22	538	19	708	25	651	23	8
9	5890	208	1420	50	1080	38	736	26	453	16	651	23	680	24	9
10	6000	212	1420	50	1130	40	935	33	453	16	623	22	708	25	10
11	4280	151	1420	50	1020	36	963	34	481	17	595	21	935	33	11
12	3200	113	1420	50	991	35	793	28	510	18	595	21	1020	36	12
13	3170	112	1390	49	935	33	680	24	481	17	595	21	1080	38	13
14	3650	129	1420	50	878	31	651	23	453	16	850	30	1130	40	14
15	4020	142	1610	57	906	32	623	22	453	16	1080	38	1900	67	15
16	3680	130	1500	53	850	30	595	21	453	16	793	28	1930	68	16
17	3480	123	1500	53	821	29	538	19	680	24	680	24	1440	51	17
18	3260	115	1760	62	793	28	538	19	850	30	793	28	1100	39	18
19	2520	89	1590	56	765	27	510	18	708	25	765	27	821	29	19
20	2070	73	1500	53	736	26	538	19	538	19	708	25	708	25	20
21	1900	67	1670	59	708	25	623	22	510	18	680	24	708	25	21
22	1840	65	1730	61	708	25	821	29	510	18	736	26	651	23	22
23	1810	64	1930	68	680	24	651	23	538	19	793	28	680	24	23
24	1760	62	2270	80	680	24	566	20	906	32	708	25	623	22	24
25	1730	61	2520	89	680	24	538	19	906	32	680	24	623	22	25
26	1730	61	1950	69	651	23	538	19	651	23	680	24	680	24	26
27	1700	60	1760	62	623	22	538	19	595	21	651	23	736	26	27
28	1870	66	1590	56	623	22	538	19	595	21	651	23	793	28	28
29	1780	63	1440	51	595	21	510	18	651	23	651	23	765	27	29
30	1590	56	1700	60	623	22	481	17	595	21	651	23	821	29	30
31	1610	57			651	23			595	21	651	23			31
Mean	2820	99.5	1610	56.8	973	34.4	632	22.3	574	20.3	711	25.1	868	30.6	Mean
Volume															Volume
hm	7.540		4.170		2.610		1.640		1.540		1.900		2.250		hm
AF		6110		3380		2110		1330		1240		1540		1820	AF

Figure 2


Ash Creek
DIVERSION NUMBER | NAME | CFS
13 | Walley, R. etal | 4.70
15)----- | Ash Creek Ranch Co. | 0.45
16)
17 | Mosly, C. | 0.35
18 | Mosly, C. etal | 5.45
19)----- | Williamson, E. | 9.75*
25) | | 35.05*
25 | Gerig, N. | 2.70
* Williamson, E.W. Total 74.60cfs
Rush Creek
DIVERSION NUMBER | NAME | CFS
61,62 | Scudero, F. | 0.18
63 | Hitchcock, W. | 0.12
64,65 | Rice, A. | 1.05
66 | Greene, W. | 2.20
Butte Creek
DIVERSION NUMBER | NAME | CFS
72,73 | Landway Corp. | 0.40
74,75,76 | Haury, E. | 1.60
75,77,78 | Dunn, S. etal | 0.40
84 | Schmidt, E. | 1.00
Willow Creek
DIVERSION NUMBER | NAME | CFS
88 | Parks, H. | 0.85
90a | Hurst, D. etal | 0.80
91 | Armstrong, E. | 0.50
92 | Frosty Acres Inc. | 3.90
Welgand, S. | | 3.20
93 | Hunt, H. | 1.60
94 | Hunt, H. | 1.60
Permanent Recorder Station (DWR-Ash Creek at Adin)
Conversion factors for SI see page xiv
STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES
NORTHERN DISTRICT
DIVERSIONS FROM ASH CREEK WATERMASTER SERVICE AREA
ADIN
Ash Creek
Rush Creek
Butte Creek
Willow Creek
T40N
T39N
T38N
T37N
R8E
R9E

BIG VALLEY WATERMASTER SERVICE AREA

The Big Valley service area is in Modoc and Lassen Counties in the vicinity of the towns of Lookout and Bieber, about 145 kilometres (90 miles) northeast of Redding via State Route 299.

The Pit River is the major source of water regulated by the watermaster. The river enters the valley north of the town of Lookout and flows southerly through the western part of the valley and out at the southern end. The major area of use is on approximately 21 km (13 miles) of valley floor, up to 10 km (6 miles) wide, along the Pit River at an approximate elevation of 1 280 metres (4,200 feet).

A map of the Big Valley stream system with towns, roads, and diversions is presented as Figure 3, pages 18 and 19.

Basis of Service

The Big Valley watermaster service area was created on November 13, 1934, and service began with the 1935 season, operating under an agreement to determine water rights recorded in 1934. The water rights in this service area were set forth in Decree No. 6395, Modoc County Superior Court, a statutory decree, dated February 17, 1959.

Distributing the water on a continuous-flow basis, as provided by the decree, has proven impracticable because of the wide variation of flow which frequently occurs. By mutual agreement, an alternative procedure has been established allowing each user a definite amount of water in acre-feet (AF) for each cubic foot per second (cfs) of right allotted by the decree. The watermaster estimates the amount of water available for the next 15 to 30 days and then chooses the appropriate AF/cfs ratio so that the rotation through the valley is completed in not more than 30 days.

Water Supply

The flow in the Pit River at the head of Big Valley is derived principally from direct runoff, mainly snowmelt, and return flow from irrigation water released from West Valley and Big Sage Reservoirs above South Fork Pit River and Hot Springs Valley, respectively.

The available water supply in the Pit River as it flows through Big Valley is ordinarily adequate to satisfy all demands until about June 1. The irrigation practices in Hot Springs Valley, about 32 km (20 miles) upstream from Big Valley, have a significant effect on the available water supply in Big Valley throughout the remainder of the irrigation season. Water users in Hot Springs Valley divert most of the flow of the Pit River for 2- or 3-week periods. Natural flow available for use in Big Valley during these periods is often less than 566 litres per second (20 cfs). Periodic releases from channel storage in the lower end of Hot Springs Valley sometimes increase the flow to as much as 5 663 to 8 495 l/s (200 to 300 cfs) for relatively short periods. Consequently, equitable water distribution in Big Valley is very difficult to attain.

Roberts Reservoir, which stores runoff of a minor tributary of the Pit River near the upper end of Big Valley above Lookout, serves as a supplemental source of water to those users in the area who are members of the Big Valley Mutual Water Company. Water from this reservoir is released into the Pit River and distributed to members of the water company along with the natural flow to which they are entitled.

Iverson Reservoir stores runoff of East Juniper Creek, a tributary to the Pit River at the lower end of Big Valley. This reservoir was completed in 1969 to provide a supplemental water supply for the McArthur and Britten Ranches.

Water from Iverson Reservoir is released into the Pit River and then rediverted to the users along with their decreed rights from natural flow of the Pit River.

Records of two stream gaging stations in the Big Valley service area are presented in Table 6, page 17.

Method of Distribution

Most water users in the Big Valley service area irrigate on a rotation schedule either by wild flooding or by checks and borders. Large flashboard dams placed in the channel make it possible to use the large heads of water characteristic of the supply in the area. In addition, some pumps are used for diversion, both in ditches and directly into sprinkler systems. The ranches which irrigate by wild flooding must use large heads of water in order to cover unleveled or high ground. Much of the runoff is recaptured for use by downstream lands, resulting in a relatively high irrigation efficiency for the valley.

1976 Distribution

Watermaster service began in the Big Valley service area on April 2 and continued through September 21, with Paul E. Lawler, Assistant Engineer, Water Resources, as watermaster. (Lee R. Gibson, 1975 watermaster, assisted during the latter part of September).

The season began with Big Sage, West Valley, Roberts, and Iverson Reservoirs somewhat below capacity. Lookout Dam was installed on April 15. Although a dry season was expected, sufficient water was available for unregulated irrigations through May. The first irrigation rotation, initiated on June 7, was completed on June 18. A second rotation was started on June 19, and was completed on July 23. Pumpers were shut down for about five days during early July due to low flows in the river. Rain on July 16 and 17 deposited approximately 19 millimetres (0.75 inch) of moisture in the valley, although spotty. On August 3, a partial irrigation rotation was started, but due to large increases in river flows from subsequent rainfall, this was increased to a "full" irrigation. Additional rains on August 13 and 14, 59 mm (2.31 inches) recorded during the month at Adin added greatly to the ground moisture. A limited rotation was begun at Fulcher Pipe on August 21; however, because of high river flows, all water users received full irrigations on a "take all you can use" basis. A final rotation was begun on September 14 and was still in progress on September 21.

The first measured releases from Roberts Reservoir occurred from August 4 through August 13, 370 000 cubic metres (300 acre-feet), with a second release made from August 26 through September 5 of 229 000 m^3 (186 A/F). Water was delivered to the following shareholders:

User	Cubic Metres	Acre-feet
S. Gerig	123 300	100
N. Gerig	37 000	30
E. Williamson	61 700	50
C. Kramer	123 300	100
D. Babcock	185 000	150
C. Hawkins	37 000	30
W. Graham	32 000	26
Totals	599 300	486

Maximum storage recorded this season for Iverson Reservoir was 1 221 165 m^3 (990 acre-feet). Total capacity is 2 220 300 m^3 (1,800 A/F). Iverson water was used only on the Mitchell (Iverson) ranch this season, with some tailwater utilized to a small extent downstream.

BIG VALLEY WATERMASTER SERVICE AREA
1976 Daily Mean Discharge

TABLE 6

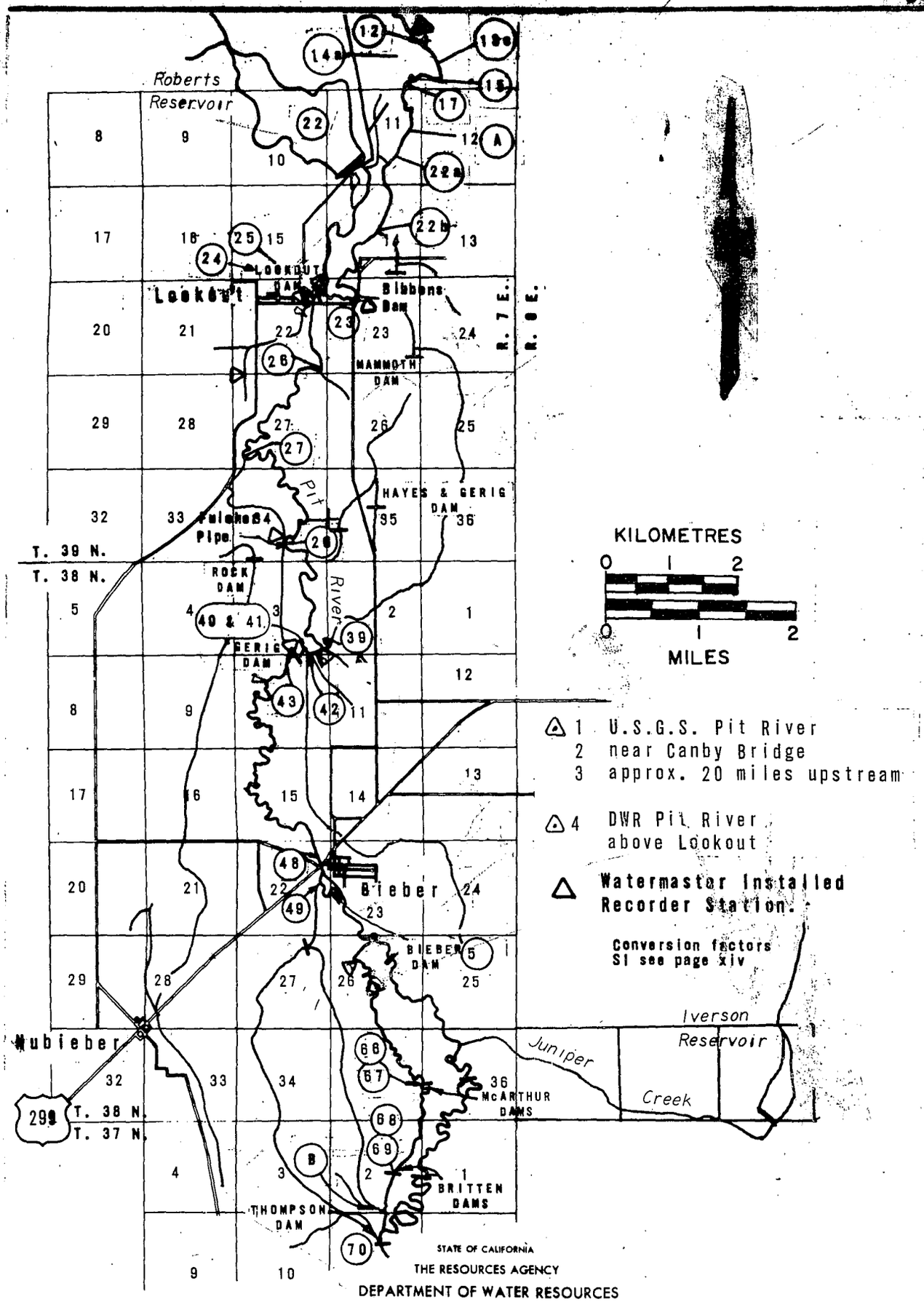
PIT RIVER NEAR CANBY

Day	March		April		May		June		July		August		September		Day
	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	
1	9490	335	4360	154	4160	147	1870	66	821	29	246	8.7	935	33	1
2	8840	312	3910	138	6460	228	878	31	793	28	368	13	1390	49	2
3	7930	280	3740	132	8160	288	1530	54	793	28	1020	36	1300	46	3
4	6320	223	3480	123	7360	260	2690	95	765	27	1160	41	906	32	4
5	5070	179	3850	136	5610	198	1980	70	963	34	963	34	878	31	5
6	4190	148	4930	174	7110	251	1930	68	510	18	396	14	991	35	6
7	3680	130	4330	153	8350	295	1700	60	246	8.7	1870	66	1100	39	7
8	3710	131	4390	155	8950	316	2180	77	96	3.4	4590	162	1050	37	8
9	4280	151	5010	177	9880	349	1760	62	170	6.0	4190	148	1080	38	9
10	5580	197	4110	145	9690	342	1470	52	246	8.7	3260	115	991	35	10
11	8500	300	4500	159	9880	349	1420	50	368	13	2800	99	1250	44	11
12	10480	370	4360	154	8210	290	2630	93	510	18	2490	88	1500	53	12
13	9090	321	4300	152	7900	279	5890	208	906	32	2120	75	1530	54	13
14	8690	307	3290	116	7790	275	3710	131	1270	45	2150	76	1470	52	14
15	10340	365	3120	110	7220	255	5380	190	1270	45	2010	71	1700	60	15
16	11190	395	4130	146	8610	304	3430	121	1270	45	2010	71	2460	87	16
17	9460	334	4500	159	9290	328	2150	76	1190	42	2070	73	4330	153	17
18	9740	344	4930	174	5780	204	1760	62	1050	37	2070	73	5490	194	18
19	9260	327	4220	149	4960	175	1810	64	850	30	2150	76	5980	211	19
20	6290	222	4960	175	4220	149	1560	55	680	24	2210	78	4670	165	20
21	5130	181	5320	188	3140	111	1330	47	623	22	2610	92	3290	116	21
22	4280	151	7480	264	5520	195	1220	43	765	27	2630	93	2410	85	22
23	3990	141	6600	233	4360	154	1220	43	821	29	2440	86	1870	66	23
24	4080	144	6540	231	2830	100	1160	41	680	24	2210	78	1640	58	24
25	4080	144	7730	273	3260	115	1100	39	481	17	1900	67	1670	59	25
26	3740	132	9290	328	2690	95	1190	42	396	14	1470	52	1810	64	26
27	3790	134	8920	315	2240	79	1220	43	396	14	623	22	2520	89	27
28	3770	133	7250	256	2100	74	1050	37	340	12	1080	38	2410	85	28
29	3710	131	5980	211	1730	61	991	35	312	11	1390	49	2320	82	29
30	3480	123	3170	112	1270	45	878	31	198	7.0	1470	52	2070	73	30
31	3820	135			1330	47			195	6.9	1020	36			31
Mean	6320	223	5090	180	5810	205	1970	69.5	644	22.8	1900	67.2	2100	74.2	Mean
Volume															Volume
hm	16.900		13.200		15.600		5.110		1.730		5.100		5.440		hm
AF	13700		10700		12600		4140		1400		4130		4410		AF

Diversion Number	Name			l/s	Cfs
	First priority for the entire river is to maintain channel storage and stock water.			424.75	15.00
2	Mohr, K. *			15.01	0.53
3	Bushey, R. *			61.45	2.17
13c	Duncan, J. *			80.99	2.86
14a	Gould, K. *			33.98	1.20
17	Viso, J. *			197.65	6.98
22	Roberts Reservoir - Total 6.784 hm^3 (5500 Ac. Ft.)				
	Gerig, N.	5 shares			
	Gerig, O.	3 shares			
	Babcock, D.	3 shares			
	Kramer, C.	2 shares			
	Williamson, E.	2 shares			
	Graham, W.	1 share			
	Mamath, C.	1 share			
	Hawkins, C.	1 share			
	Monchamp, L.	1 share			
	Amen, G. et al	1 share			
24	Joiner, W. *			31.43	1.11
24	Lennon, J. *			40.49	1.43
22a	Monchamp, L. *			48.99	1.73
22b	Bibbens, R.			116.10	4.10
23	Three Corners Diversion		Total	660.92	23.34
	Mamath, C.			246.36	8.70
	Williamson, E.			178.40	6.30
	Hayes, H.			95.43	3.37
	Gerig, O.			140.74	4.97
24	Lookout Dam				
25	Oilar Ditch		Total	504.04	17.80
	Amen, G. et al			321.11	11.34
	Leventon, D. **			182.93	6.46
26	Ash Valley Land & Investment Co., Inc.			215.78	7.62
27	Oney, T. *			127.43	4.50
28	Fulcher Pipe		Total	679.04	23.98
	Kramer, C.			259.10	9.15
	Johnson, C.			229.37	8.10
	Knox Ranch (Gerig, N.)			108.45	3.83
	Wing, E.			58.90	2.08
	Murphy, R.			5.95	0.21
	Babcock, A.			17.27	0.61
39	Ash Creek Pipe				
40	Gerig, N.			260.52	9.20
42	Watson Ditch		Total	172.17	6.08
	Babcock, D.			126.29	4.46
	Hawkins, C.			45.87	1.62
43	Gerig Dam				
48	Graham Pipe			13.31	0.47
49	Babcock Pipes		Total	824.02	29.10
	Cox, R.			77.59	2.74
	Weigand, S.			71.08	2.51
	McArthur, J.			129.13	4.56
	Babcock Brothers			423.34	14.95
	Thompson, W.			122.90	4.34
50	Drewry, W. *			77.02	2.72
50	Bieber Dam				
66 & 67	McArthur Dams			481.39	17.00
68 & 69	Britten Dams			353.96	12.50
70	Thompson Dam			325.65	11.50

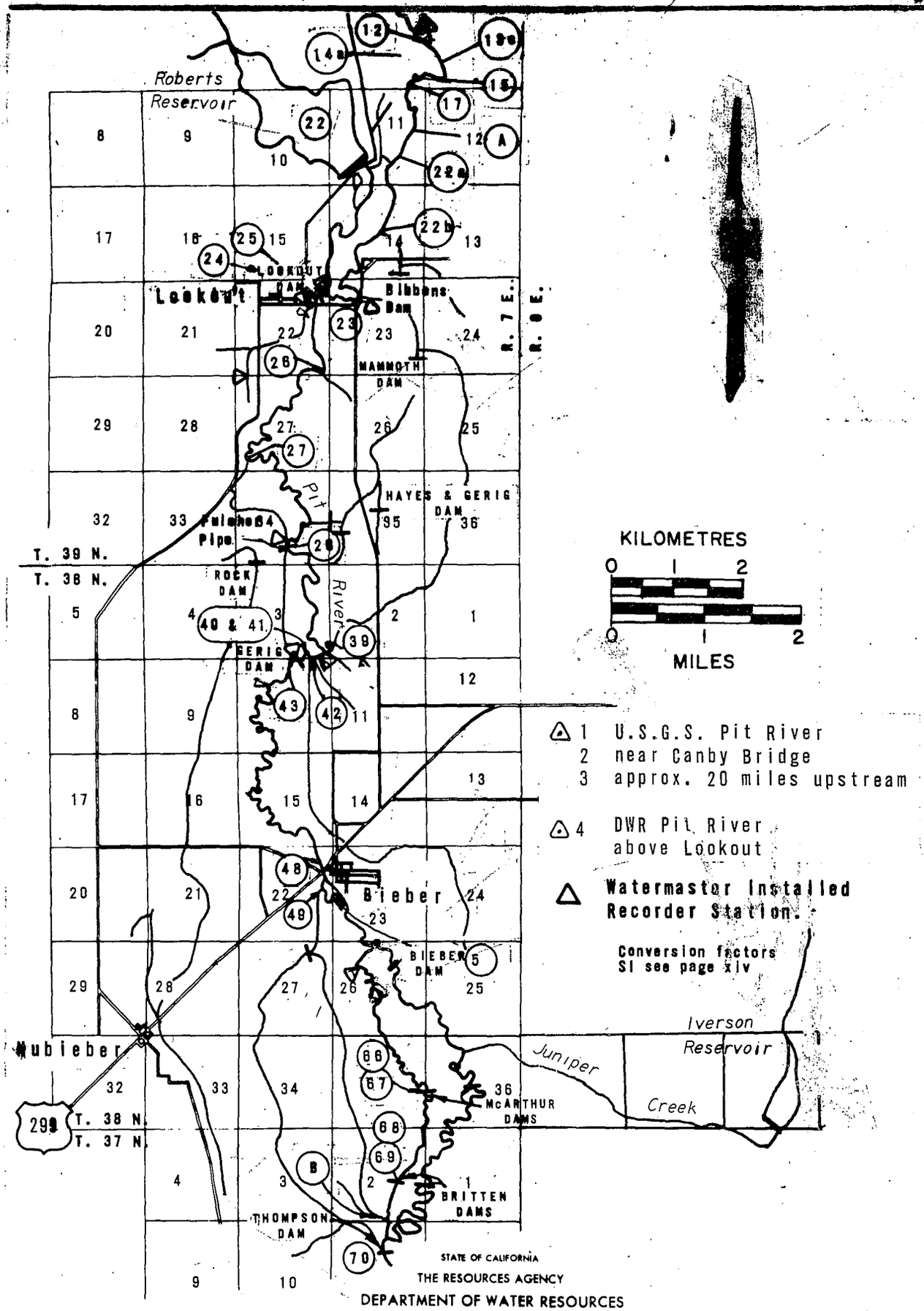
* Pump
** Pump & Flooding

NOTE: Tabulation indicates currently active diversions only.



STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES
NORTHERN DISTRICT

DIVERSIONS FROM PIT RIVER
BIG VALLEY WATERMASTER SERVICE AREA



STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES
NORTHERN DISTRICT

DIVERSIONS FROM PIT RIVER
BIG VALLEY WATERMASTER SERVICE AREA

BURNEY CREEK WATERMASTER SERVICE AREA

The Burney Creek service area is in eastern Shasta County above and below the town of Burney. Figure 4, page 23 shows the Burney Creek stream system including the diversions and roads.

The source of water supply for this service area is Burney Creek, which enters the southern part of the service area and flows through Burney in a northerly direction to the Pit River. The portion of the valley served by this stream is approximately 18 kilometres (11 miles) long and 3 km (2 miles) wide, and extends both north and south of Burney.

Basis of Service

The rights on this creek system were determined by a court reference and set forth in Decree No. 5111, Shasta County Superior Court, dated January 30, 1926. Watermaster service was provided on the creek from 1926 to 1929 under the old Water Commission Act. The service area was created, along with some others, on September 11, 1929, under a new law passed in that year.

The Burney Creek decree sets forth a rotation schedule of distribution. The water users, however, have found it more beneficial to irrigate on a continuous-flow basis (one priority class plus surplus allotments), which is now normal practice. The water allotted to the Greer-Cornaz Ditch is distributed in accordance with supplemental court decrees.

Water Supply

The water supply for Burney Creek comes from springs and snowmelt. Most of the watershed lies between the elevations of 1 219 and 2 286 metres (4,000 and 7,500 feet) on the northeast slopes of Burney Mountain. The creek normally has sufficient water to supply all demands until about the middle of June. The supply then gradually decreases until the end of July. For the remainder of the irrigation season, runoff from perennial springs keeps the flow nearly constant at approximately 40 percent of allotments.

The daily mean discharge of Burney Creek near Burney is presented in Table 7, page 22. The stream gaging station on Burney Creek is downstream from four points of diversion; consequently, the records do not show all of the available water supply of the creek.

Method of Distribution

Water is diverted from Burney Creek, in most cases by means of low diversion dams, into ditches which convey it to the place of use. Lateral ditches are then used to irrigate the land.

1976 Distribution

The watermaster in the Burney Creek service area was Seth Barrett, Water Resources Technician II. Because of a short supply of water due to the unusually dry winter, the watermaster service began May 1 and continued until September 30.

By agreement of the majority of the water right owners, the allotments were distributed on a continuous-flow basis.

The water supply had dropped to 100 percent by June 1, then to 50 percent by June 22 and to 45 percent by the end of June. The lowest supply was 35 percent in late July. Rain showers in August relieved the shortage briefly and held steady between 40 and 45 percent where it remained until the end of September.

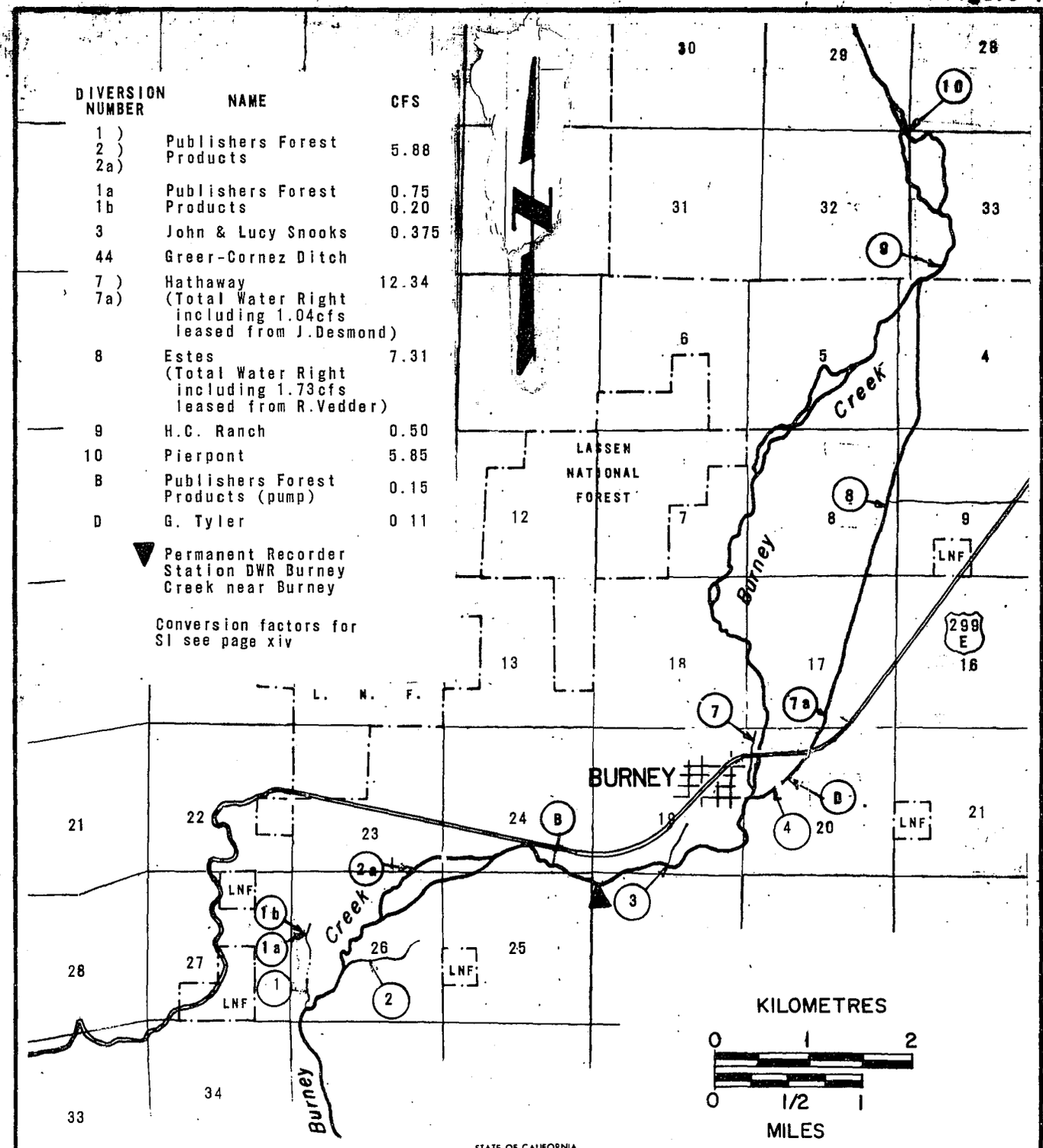
BURNEY CREEK WATERMASTER SERVICE AREA
1976 Daily Mean Discharge

TABLE 7

BURNEY CREEK NEAR BURNEY

Day	March		April		May		June		July		August		September		Day
	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	
1	9660	341	1670	59	1640	58	623	22	425	15	312	11	312	11	1
2	5380	190	1610	57	1670	59	595	21	396	14	340	12	312	11	2
3	4250	150	1640	58	1470	52	595	21	396	14	312	11	312	11	3
4	3600	127	1590	56	1390	49	566	20	368	13	283	10	312	11	4
5	3090	109	1640	58	1440	51	566	20	368	13	283	10	312	11	5
6	2720	96	1780	63	1420	50	538	19	340	12	283	10	312	11	6
7	2550	90	1340	65	1360	48	566	20	312	11	312	11	312	11	7
8	2440	86	2440	86	1420	50	510	18	312	11	312	11	312	11	8
9	2410	85	2290	81	1470	52	510	18	312	11	283	10	312	11	9
10	2320	82	2070	73	1500	53	510	18	283	10	283	10	340	12	10
11	2270	80	2040	72	1420	50	510	18	266	9.4	283	10	340	12	11
12	2070	73	2100	74	1330	47	481	17	263	9.3	283	10	340	12	12
13	2040	72	1950	69	1300	46	481	17	258	9.1	283	10	340	12	13
14	1980	70	1930	68	1270	45	453	16	235	8.3	340	12	340	12	14
15	2070	73	2040	72	1190	42	453	16	227	8.0	425	15	368	13	15
16	2100	74	1900	67	1100	39	425	15	272	9.6	396	14	368	13	16
17	2240	79	1760	62	1020	36	425	15	312	11	340	12	340	12	17
18	2630	93	1780	63	963	34	425	15	283	10	340	12	340	12	18
19	2180	77	1780	63	878	31	425	15	241	8.5	340	12	340	12	19
20	1900	67	1870	66	821	29	425	15	227	8.0	312	11	340	12	20
21	1730	61	1900	67	765	27	396	14	221	7.8	312	11	312	11	21
22	1670	59	1930	68	736	26	368	13	224	7.9	312	11	312	11	22
23	1610	57	1950	69	708	25	396	14	244	8.6	312	11	312	11	23
24	1780	63	1980	70	680	24	368	13	255	9.0	312	11	312	11	24
25	1810	64	2010	71	623	22	368	13	249	8.8	312	11	312	11	25
26	1670	59	1870	66	651	23	340	12	252	8.9	312	11	312	11	26
27	1560	55	1760	62	623	22	312	11	249	8.8	312	11	312	11	27
28	1530	54	1670	59	623	22	368	13	246	8.7	312	11	312	11	28
29	1470	52	1590	56	595	21	425	15	249	8.8	312	11	312	11	29
30	1440	51	1560	55	595	21	396	14	246	8.7	312	11	312	11	30
31	1760	62			651	23			272	9.6	312	11			31
Mean	2510	88.8	1860	65.8	1070	38.0	461	16.3	284	10.0	315	11.1	324	11.4	Mean
Volume															Volume
hm	6.730		4.830		2.880		1.190		.760		.837		.840		hm
AF		5460		3920		2330		967		616		684		681	AF

Figure 4.



STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES
NORTHERN DISTRICT

DIVERSIONS FROM BURNEY CREEK WATERMASTER SERVICE AREA

BUTTE CREEK WATERMASTER SERVICE AREA

The Butte Creek service area is situated in Butte County a few miles southeast of the City of Chico. The watermaster service area extends for about 18 kilometres (11 miles) along Butte Creek, commencing approximately 6 km (4 miles) east of Chico and extending downstream to the crossing of the Western Canal. It contains about 8 094 hectares (20,000 acres) of valley floor lands at an average elevation of 45 metres (150 feet).

A map of the Butte Creek stream system is presented in Figure 5, page 29.

Basis of Service

The rights on this stream system were determined by a statutory adjudication and set forth in Decree No. 18917, Butte County Superior Court, dated November 6, 1942. The Butte Creek watermaster service area was created on January 7, 1943.

The Butte Creek decree established three priority classes for summer use under Schedule 7, a surplus class inferior to the above rights, and a special class for Hamlin Slough. Schedule 3 of the decree defines the rights for rediversion (Diversion 50) of foreign water delivered into Butte Creek from the West Branch of Feather River.

The Water Resources Control Board, on September 18, 1969, granted permits for the following applications to appropriate water from Butte Creek: applications 22321, Gorrill Land Company; 22534, Garrison Patrick; and 22564, Louis C. Camenzind, Jr. These appropriative rights are also under control of the watermaster.

Water Supply

Butte Creek, the major source of water, drains approximately 388 square kilometres (150 square miles) of the western slope of the Sierra Nevada Mountains in the northeasterly portion of Butte County above the watermaster service area. The maximum elevation in the watershed is about 2 134 m (7,000 feet).

Normally, snowmelt produces sustained high flows in the creek until about the end of June, after which perennial springs continue to produce flows of more than 1 132 litres per second (40 cubic feet per second). Additional water is imported for distribution from the West Branch Feather River by means of the Hendricks (Toadtown) Canal through De Sabla Reservoir and Powerhouse into Butte Creek.

Records of the daily mean discharge at stream gaging stations in the Butte Creek service area are presented in Tables 8, 9 and 10, pages 26 and 27.

Method of Distribution

Water is diverted from Butte Creek by pumping and by gravity diversions. Parrott Investment Company, M & T Inc., Dayton Mutual Water Company, and Durham Mutual Water Company divert relatively large amounts of water by gravity into ditches leading to their individual distribution systems. Various methods of irrigation are in general practice, including contour checks, strip or border checks, basin checks, furrows, wild flooding, and sprinklers. The use of sprinklers has increased in the past few years, especially for orchards.

1976 Distribution

Watermaster service began April 14, 1976 in Butte Creek service area and continued until September 30, with Kenneth E. Morgan, Water Resources Engineering Associate as watermaster.

The water supply available for Butte Creek in the 1976 irrigation season was below average. Close regulation of diversions was required throughout the season to ensure equitable distribution.

Sufficient water was available to satisfy all water rights until April 28. The appropriative water right of Newhall Land and Farming Company (Application 22039) was satisfied on April 28 and supplied in decreasing amounts until May 18, when it was terminated.

Due to insufficient flow in Butte Creek, the Gorrill Land Company did not receive water under Application 22321 after April 28. The Durham Mutual Water Company diversion dam leaked water so that the flow diverted was less than their entitlement. Decreed surplus and third priority allotments were filled until the first week in May. Second priority water was available until mid-June. First priority allotments were filled until mid-July. The flow continued to decrease throughout July and early August, reaching the seasonal low of approximately 70 percent of first priority. The unseasonable rains which started in mid-August and continued through September helped to provide 100 percent of first priority commitments during this period.

BUTTE CREEK WATERMASTER SERVICE AREA
1976 Daily Mean Discharge

TABLE 8

BUTTE CREEK NEAR CHICO

Day	March		April		May		June		July		August		September		Day
	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	
1	20760	733	7000	247	7650	270	4590	162	3230	114	2690	95	2920	103	1
2	13710	484	6600	233	7730	273	4470	158	3200	113	2720	96	2920	103	2
3	11810	417	6540	231	7760	274	4280	151	3310	117	2690	95	2890	102	3
4	10340	365	6490	229	7820	276	4330	153	3260	115	2720	96	2890	102	4
5	9430	333	6740	238	7760	274	4250	150	3230	114	2720	96	2860	101	5
6	8980	317	6970	246	7650	270	4160	147	3170	112	2970	105	2860	101	6
7	8810	311	7310	258	7480	264	4130	146	3140	111	3140	111	2860	101	7
8	8690	307	12180	430	7530	266	4110	145	3120	110	3120	110	2830	100	8
9	8520	301	10620	375	7530	266	4250	150	3060	108	3060	108	2800	99	9
10	8470	299	10540	372	7450	263	4450	157	3000	106	2970	105	2780	98	10
11	8350	295	10730	379	7310	258	4560	161	3000	106	2950	104	3030	107	11
12	8010	283	10700	378	7160	253	4330	153	3030	107	2950	104	3120	110	12
13	7700	272	10390	367	6630	234	4160	147	2970	105	2970	105	3060	108	13
14	7620	269	9570	338	6740	238	3960	140	2920	103	3680	130	3400	120	14
15	7530	266	9460	334	6370	225	3770	133	2890	102	5070	179	4840	171	15
16	7560	267	9200	325	6030	213	3710	131	2890	102	4330	153	5150	182	16
17	7670	271	8810	311	5830	206	3650	129	2860	101	3540	125	4330	153	17
18	7820	276	8610	304	5610	198	3570	126	2780	98	3570	126	4110	145	18
19	8100	286	8500	300	5440	192	3510	124	2780	98	3570	126	3090	109	19
20	7700	272	8350	295	5300	187	3570	126	2720	96	3370	119	2460	87	20
21	7530	266	8100	286	5150	182	3540	125	2780	98	3230	114	2410	85	21
22	7450	263	8520	301	5010	177	3460	122	2750	97	3460	122	2350	83	22
23	7390	261	8300	293	4900	173	3260	115	2750	97	3540	125	2320	82	23
24	7480	264	8210	290	4810	170	3120	110	2690	95	3140	111	2270	80	24
25	7730	273	8210	290	4730	167	3510	124	2660	94	3370	119	2210	78	25
26	7330	259	8040	284	4590	162	3540	125	2630	93	3120	110	2120	75	26
27	7140	252	7960	281	4420	156	3460	122	2630	93	3120	110	2010	71	27
28	6940	245	7870	278	4330	153	3460	122	2630	93	3060	108	1900	67	28
29	6830	241	7650	270	4250	150	3460	122	2690	95	3030	107	1840	65	29
30	6680	236	7590	268	4500	159	3370	119	2660	94	3000	106	1840	65	30
31	6940	245			4670	165			2630	93	2950	104			31
Mean	8610	304	8530	301	6130	217	3870	137	2910	103	3220	114	2880	102	Mean
Volume															Volume
hm	23.100		22.100		16.400		10.000		7.780		8.620		7.470		hm
AF	18700		17900		13300		8120		6300		6990		6050		AF

BUTTE CREEK WATERMASTER SERVICE AREA
1976 Daily Mean Discharge

TABLE 9

BUTTE CREEK NEAR DURHAM

Day	March		April		May		June		July		August		September		Day
	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	
1	20480	723	2970	105	2920	103	935	33	136	4.8	368	13	396	14	1
2	15430	545	2660	94	2690	95	935	33	181	6.4	312	11	396	14	2
3	12570	444	2720	96	2610	92	878	31	144	5.1	312	11	396	14	3
4	10370	366	2970	105	2610	92	878	31	139	4.9	312	11	425	15	4
5	9150	323	3540	125	2610	92	821	29	153	5.4	283	10	453	16	5
6	8500	303	4470	158	2460	87	765	27	130	4.6	340	12	425	15	6
7	8350	295	4960	175	2320	82	651	23	90	3.2	368	13	368	13	7
8	7930	280	10340	365	2290	81	538	19	79	2.8	283	10	340	12	8
9	7650	270	9200	325	2290	81	963	34	76	2.7	425	15	283	10	9
10	7560	267	8920	315	2150	76	651	23	96	3.4	425	15	283	10	10
11	7360	260	9540	337	2040	72	736	26	153	5.4	368	13	340	12	11
12	7080	250	9320	329	2010	71	708	25	110	3.9	368	13	396	14	12
13	6800	240	9320	329	1670	59	651	23	82	2.9	368	13	340	12	13
14	6660	235	8890	314	1730	61	510	18	85	3.0	481	17	595	21	14
15	6540	231	8500	300	1500	53	425	15	142	5.0	1500	53	1760	62	15
16	6490	229	8410	297	1300	46	481	17	147	5.2	1390	49	2380	84	16
17	6460	228	7820	276	1100	39	396	14	139	4.9	963	34	1840	65	17
18	6710	237	7560	267	1020	36	283	10	122	4.3	708	25	1610	57	18
19	7050	249	7330	259	1100	39	453	16	204	7.2	680	24	1130	40	19
20	6660	235	6970	246	1050	37	218	7.7	204	7.2	481	17	425	15	20
21	6490	229	6200	219	935	33	566	20	210	7.4	312	11	278	9.8	21
22	6400	226	6600	233	850	30	283	10	195	6.9	340	12	212	7.5	22
23	6200	219	5470	193	793	28	278	9.8	218	7.7	510	18	178	6.3	23
24	6320	223	4560	161	850	30	241	8.5	218	7.7	595	21	269	9.5	24
25	5920	209	4470	158	793	28	170	6.0	224	7.9	453	16	396	14	25
26	4620	163	4160	147	765	27	198	7.0	212	7.5	396	14	312	11	26
27	3850	136	3490	123	765	27	173	6.1	221	7.8	368	13	453	16	27
28	4130	146	3540	125	708	25	153	5.4	215	7.6	340	12	991	35	28
29	3820	135	3290	116	708	25	130	4.6	280	9.9	368	13	1020	36	29
30	3060	108	3090	109	793	28	122	4.3	368	13	275	9.7	1020	36	30
31	2890	102			935	33			340	12	283	10			31
Mean	7410	262	6040	213	1560	55.1	506	17.9	171	6.1	433	17.1	657	23.2	Mean
Volume															Volume
hm	19.300		15.700		4.180		1.310		.460		1.290		1.700		hm
AF		16100		12700		3390		1060		372		1050		1380	AF

TABLE 10

TOADTOWN CANAL ABOVE BUTTE CANAL

Day	April		May		June		July		August		September		Day
	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	
1			3230	114	2010	71	1190	42	878	31	1220	43	1
2			3260	115	2100	74	1190	42	906	32	1220	43	2
3			3260	115	1930	68	1300	46	878	31	1220	43	3
4			3260	115	1950	69	1250	44	906	32	NR	NR	4
5			3260	115	1870	66	1250	44	906	32	NR	NR	5
6			3260	115	1840	65	1270	45	1360	48	NR	NR	6
7			3230	114	1840	65	1220	43	1330	47	1190	42	7
8			3230	114	1780	63	1190	42	1360	48	1190	42	8
9			3230	114	1900	67	1160	41	1330	47	1080	38	9
10			3200	113	1840	65	1130	40	1300	46	1190	42	10
11			3120	110	1840	65	1130	40	1300	46	1300	46	11
12			3000	106	1780	63	1160	41	1330	47	1250	44	12
13			3000	106	1730	61	1130	40	1300	46	1250	44	13
14			2920	103	1640	58	1130	40	1950	69	1220	43	14
15	3060	108*	2690	95	1590	56	1080	38	2150	76	2490	88	15
16	3340	118	2550	90	1560	55	1050	37	1700	60	2210	78	16
17	3310	117	2440	86	1530	54	935	33	1360	48	2180	77	17
18	3310	117	2320	82	1500	53	935	33	1500	53	1190	42**	18
19	3260	115	2240	79	1470	52	935	33	1390	49			19
20	3290	116	2150	76	1440	51	963	34	1440	51			20
21	3260	115	2100	74	1420	50	991	35	1330	47			21
22	3260	115	2070	73	1250	44	991	35	1560	55			22
23	3260	115	1950	69	1160	41	963	34	1390	49			23
24	3260	115	1950	69	1100	39	963	34	1360	48			24
25	3260	115	1950	69	1760	62	963	34	1300	46			25
26	3260	115	1900	67	1530	54	963	34	1300	46			26
27	3260	115	1900	67	1500	53	935	33	1330	47			27
28	3260	115	1810	64	1670	59	935	33	1300	46			28
29	3230	114	1700	60	1500	53	935	33	1300	46			29
30	3230	114	2040	72	1390	49	878	31	1300	46			30
31			NR	NR			878	31	1250	44			31
Mean	3257	115	2520	89.1	1650	58.2	1060	37.6	1330	47.0	1427	50.3	Mean
Volume													Volume
hm	4.500		6.760		4.270		2.850		3.570		1.850		hm
AF		3650		5480		3460		2310		2890		1500	AF

* Beginning of Record
** End of Record

Diversion Number	Water Right Owner	Priority 1st l/s	1st cfs	2nd l/s	2nd cfs	3rd l/s	3rd cfs	Surplus l/s	Surplus cfs	Import l/s	Import cfs	Application Permit	
Butte Creek													
50	M. & T. Incorporated	84.95	3.00					707.92	25.00	1 510.15	53.33*		
	Parrott Investment Co.							707.92	25.00	1 510.15	53.33*		
	McClain, Benson et al	84.95	3.00										
	Dayton Mutual Water Co.	453.07	16.00							94.29	3.33*		
	*Water imported by PG&E from West Branch Feather River via Hendricks Canal and released into Butte Creek, less 5% for conveyance losses.												
53[2]	U.S. Dept. of Agriculture	56.63	2.00										
54	Patrick	125.87	4.445									368.12	13.0[1]
	Smith	15.72	0.555										
55	Camenzind Brothers	141.58	5.00									184.06	6.50[1]
56	Durham Mutual Water Co.	1 265.77	44.70										
	Parrott Investment Co.	56.63	2.00										
	Carlson	13.59	0.48										
	Bell	11.04	0.39										
	Domom Brothers	18.97	0.67										
	Logan	0.28	0.01										
	Vernoga	40.97	1.447										
	Konyn - Amerio	11.33	0.40										
	Bebich	12.63	0.446										
	Jugum	12.66	0.447										
	Wheelock	7.36	0.26										
	Total	1 451.25	51.25										
57[2]	Coats	56.63	2.00										
58[2]	Wakefield	17.27	0.61										
	Hansen							70.79	2.50				
59B[2]	Brandt	11.04	0.39										
60	Newhall Land & Farming Co.			169.90	6.00	21.24	0.75	601.74	21.25			4 247.55	150.00[3]
60A[2]	Knowles	18.67	0.66										
	Phillips	18.67	0.66										
61	Gorrill Land Co.[4]					28.32	1.00[5]	586.16	20.70[5]			2 123.77	75.00[3]
62[2]	White, Mead, McAlister, & Ryon					28.32	1.00	269.01	9.50				
Hamlin Slough													
	Newhall Land & Farming Co.	470.06	16.60										
	Gorrill Land Co.	614.48	21.70[5]										

1/ March 1 - June 30

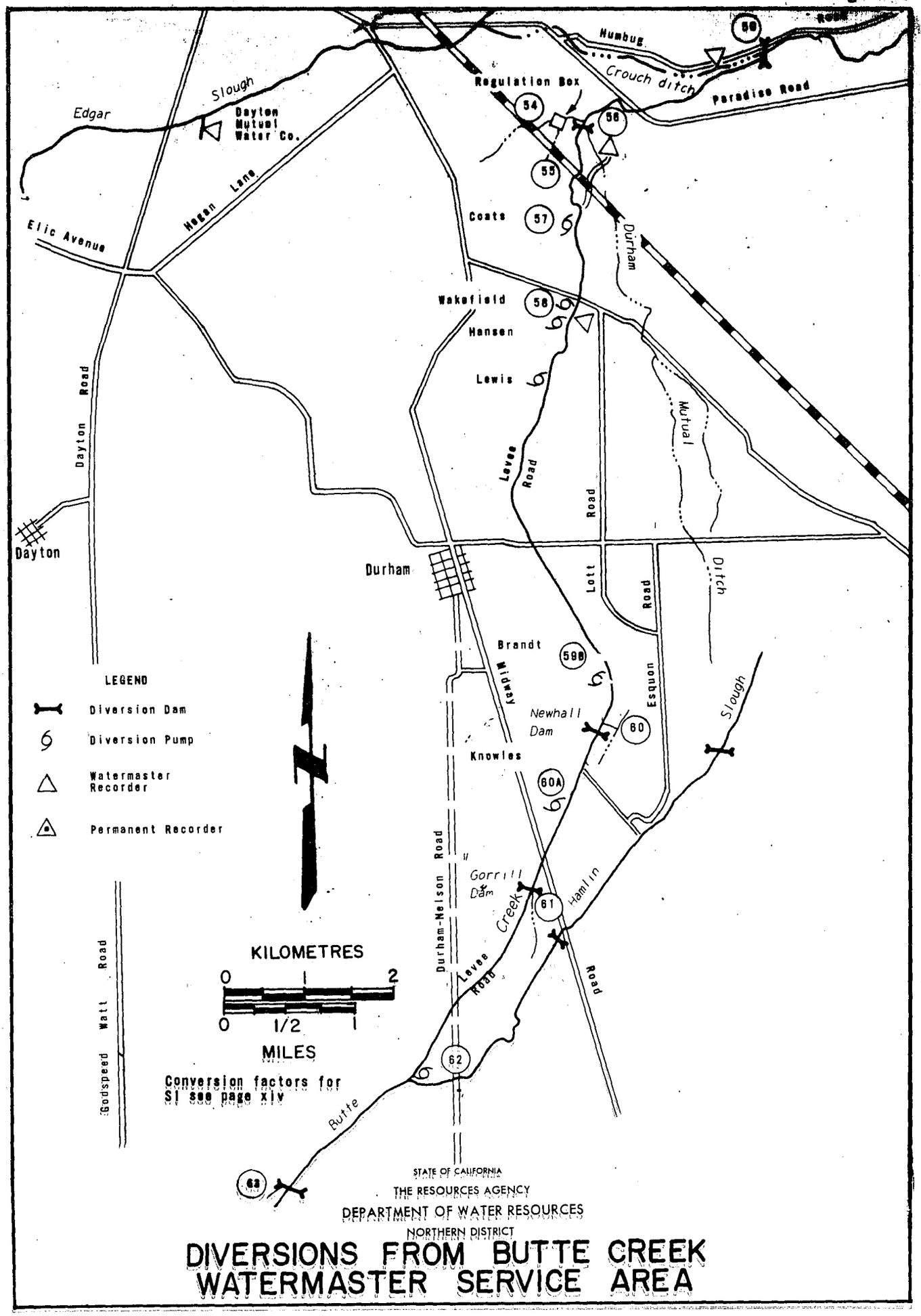
2/ Pumps

3/ March 15 - June 15

4/ See Hamlin Slough

5/ Total diversions from Butte Creek and Hamlin Slough not to exceed 614.98 l/s (21.70 cfs).

Figure 5


Humbug
Crouch ditch
Paradise Road
Regulation Box
Slough
Edgar
Dayton Mutual Water Co.
Hegan Lane
Elic Avenue
Coats
Durham
Wakefield
Hansen
Lewis
Dayton Road
Levee Road
Mutual
Ditch
Lott Road
Dayton
Durham
Brandt
Midway
Esquon
Newhall Dam
Knowles
Slough
Gorrill Dam
Durham-Nelson Road
Creek
Hamlin
Road
Godspeed Watt Road
Butte
LEGEND
Diversion Dam
Diversion Pump
Watermaster Recorder
Permanent Recorder
KILOMETRES
0 1 2
0 1/2 1
MILES
Conversion factors for SI see page xiv
STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES
NORTHERN DISTRICT
DIVERSIONS FROM BUTTE CREEK
WATERMASTER SERVICE AREA

COW CREEK WATERMASTER SERVICE AREA

The Cow Creek service area is in central Shasta County in the foothills east of Redding. Figures 6 through 6e, pages 34 through 39, show the Cow Creek stream system, including the diversions and major access roads.

The source of water supply for this service area consists of three major creek systems. They are North Cow Creek (sometimes referred to as Little Cow Creek), Oak Run Creek, and Clover Creek. These creeks flow in a westerly direction to their confluence in the Millville-Palo Cedro area and thence south to the Sacramento River east of the City of Anderson. The service area is generally a narrow strip of land on both sides of each of these creeks. In some cases water is exported from one creek to the other.

Basis of Service

The water rights on each of these creek systems were determined by court references and set forth in separate decrees. Water rights for these creeks were set forth by Shasta County Superior Court decrees as follows:

Creek	Decree No.	Date
North Cow	5804	April 29, 1932
Oak Run	5701	July 22, 1932
Clover	6904	October 4, 1937

The North Cow Creek decree sets forth a rotation schedule of distribution. The water users, however, have found it more beneficial to irrigate on a continuous-flow basis which is now normal practice. Only one priority allotment was provided in each of the Cow Creek service area decrees except for the Oak Run Creek decree which contains a surplus allotment.

The Cow Creek watermaster service area was originally created on October 17, 1932, including North Cow Creek and Oak Run Creek water rights. On January 21, 1938, the service area was expanded to include the Clover Creek rights.

Water Supply

The water supply for this service area is derived mostly from springs and seepage, with some early snowmelt runoff. The watershed varies in elevation from 152 to 1 524 metres (500 to 5,000 feet) and consists primarily of low brushy hills which do not accumulate a heavy snowpack. Relatively large amounts of precipitation during the winter months normally produce substantial seepage and springs that flow through the irrigation season. The creeks normally have sufficient water to supply all demands until late July. The supply then gradually decreases to an average of about 60 to 70 percent of allotments by around mid-September.

The daily mean discharge of North Cow Creek near Ingot is presented in Table 11, page 33. The stream gaging station on North Cow Creek is downstream of many of the diversions and is used by the watermaster primarily to indicate changes in flow conditions rather than amounts of water available. Consequently, the records do not show all the available water supply of the creek.

Method of Distribution

Water is diverted from the creeks, in most cases by means of low diversion dams, into ditches which convey it to the place of use. Lateral ditches are then used to spread it over the land. Irrigation has been on a continuous-flow basis instead of by rotation since 1934.

1976 Distribution

Watermaster service began on May 1 and continued until September 30. Seth K. Barrett, Water Resources Technician II, was watermaster during this period.

North Cow Creek. The precipitation and stream runoff of North Fork Cow Creek was below normal during 1976. Surplus water was generally available to North Cow Creek users until late June, when all diversions were regulated to 100 percent of allotments. By mid-July, the water supply had decreased to about 70 percent of allotments and remained constant until early August, at which time there were rains heavy enough to cause some surplus flows until the first week in September. Again in mid-September, rains enhanced the flow and the allotments continued at about 100 percent of water rights through September.

Cedar Creek. The water supply was adequate throughout the season because the Truman Ranch did not use its allotment and the supply was augmented by rains in August and September, accompanied by cooler weather.

Oak Run Creek. Oak Run Creek historically provides the best supply of all streams in the Cow Creek service area. The springs at its headwaters are not as severely affected in drought periods as those of neighboring streams. Although an extremely low water supply existed elsewhere in Northern California, the Oak Run supply, though below average, was sufficient for near-normal irrigation.

Clover Creek. The available water supply on Clover Creek was below average, but better than was anticipated at the beginning of the season. Some surplus water was available until mid-June. On June 30 all diversions were regulated to 85 percent of allotments and the flow gradually decreased until, on September 10, a seasonal low of 65 percent was reached. Thereafter, scattered rainstorms and cooler weather helped increase the water supply to 90 percent by mid-September, where it remained until September 30.

Excessive channel loss, as usual, was a problem on Clover Creek because of the approximately 19 kilometres (12 miles) between the upper users near Fern and the lower users near Millville.

Clover Creek runoff did not increase as much as North Cow Creek from the August rains.

Figure 6

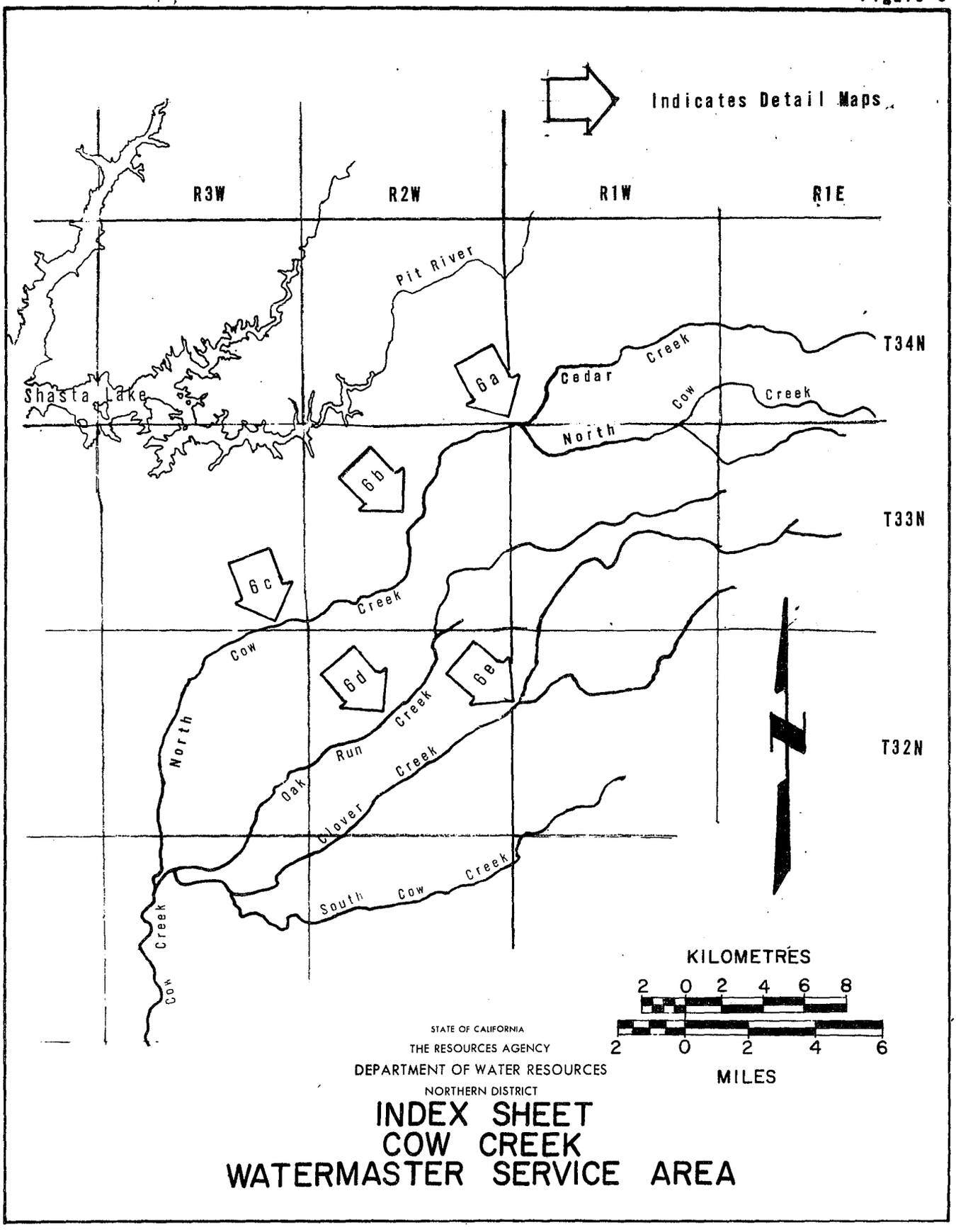
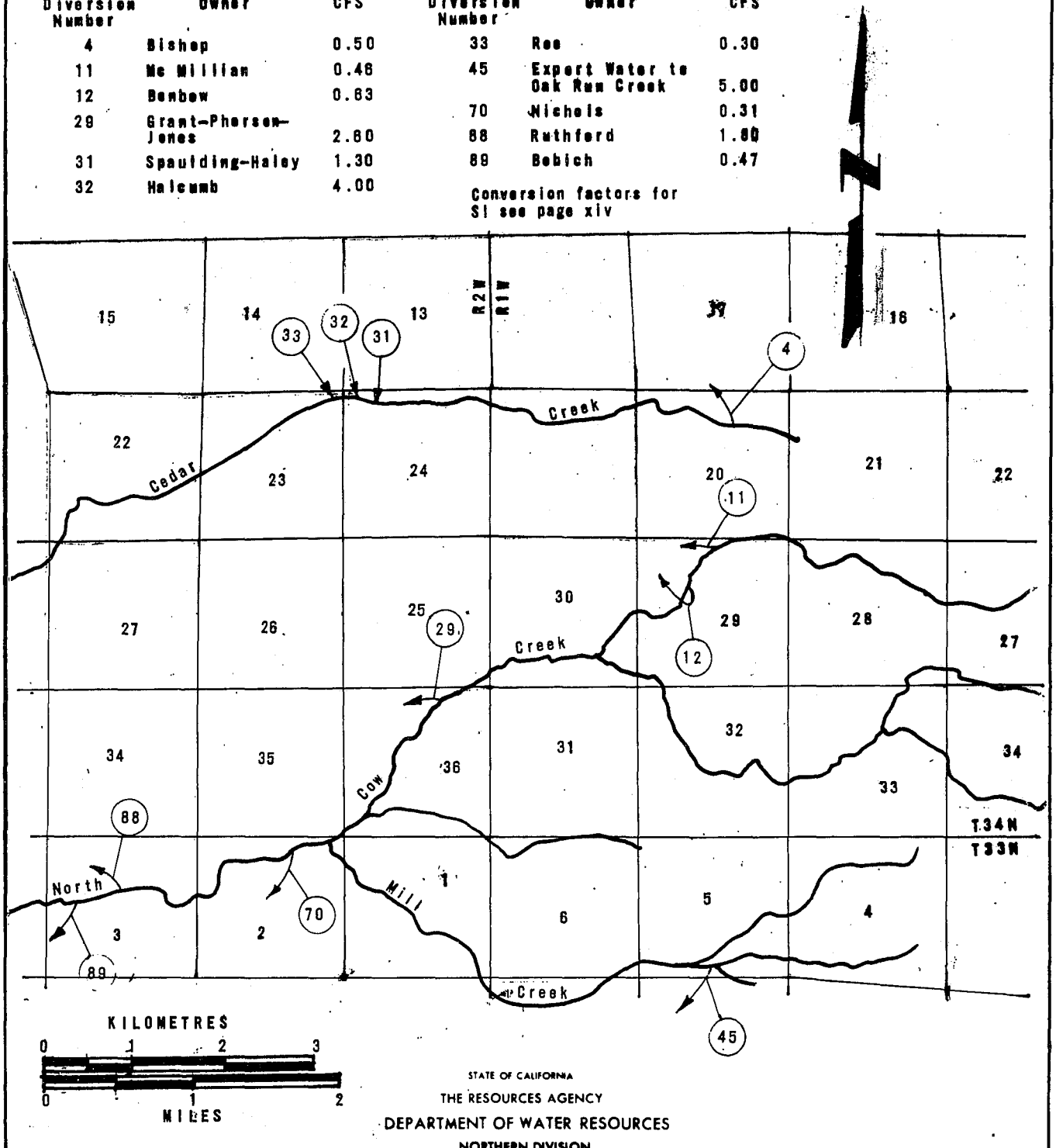

Indicates Detail Maps
R3W
R2W
R1W
R1E
T34N
T33N
T32N
Shasta Lake
Pit River
Cedar Creek
Cow Creek
North Cow Creek
6a
6b
6c
6d
6e
North Cow Creek
Oak Run Creek
Clover Creek
South Cow Creek
Cow Creek
KILOMETRES
2 0 2 4 6 8
2 0 2 4 6
MILES
STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES
NORTHERN DISTRICT
INDEX SHEET
COW CREEK
WATERMASTER SERVICE AREA

Figure 6a

Diversion Number	Owner	CFS
4	Bishop	0.50
11	Mc Millian	0.46
12	Benbow	0.63
29	Grant-Pherson-Jones	2.60
31	Spaulding-Haley	1.30
32	Halcumb	4.00
33	Ree	0.30
45	Export Water to Oak Run Creek	5.00
70	Nichols	0.31
88	Rutherford	1.80
89	Bobich	0.47

Conversion factors for SI see page xiv



STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES
NORTHERN DIVISION

DIVERSIONS FOR
UPPER USERS NORTH COW CREEK
COW CREEK WATERMASTER SERVICE AREA

Figure 6b

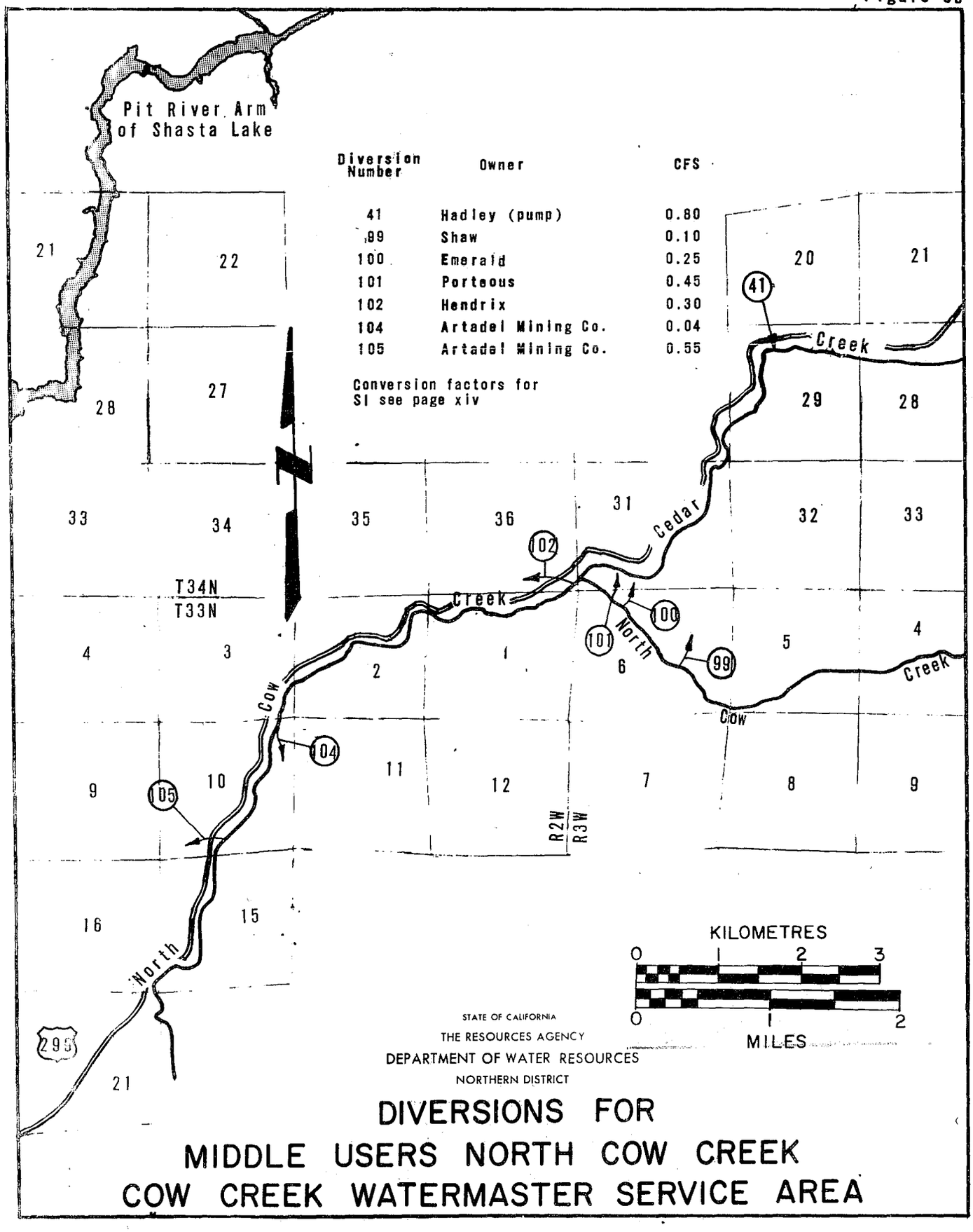

Pit River Arm of Shasta Lake
Diversion Number
Owner
CFS
41 Hadley (pump) 0.80
99 Shaw 0.10
100 Emerald 0.25
101 Porteous 0.45
102 Hendrix 0.30
104 Artadel Mining Co. 0.04
105 Artadel Mining Co. 0.55
Conversion factors for SI see page xiv
T34N
T33N
R2W
R3W
Cedar Creek
North Cow Creek
Cow Creek
KILOMETRES
0 1 2 3
0 1 2
MILES
STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES
NORTHERN DISTRICT
DIVERSIONS FOR
MIDDLE USERS NORTH COW CREEK
COW CREEK WATERMASTER SERVICE AREA

Figure 6c

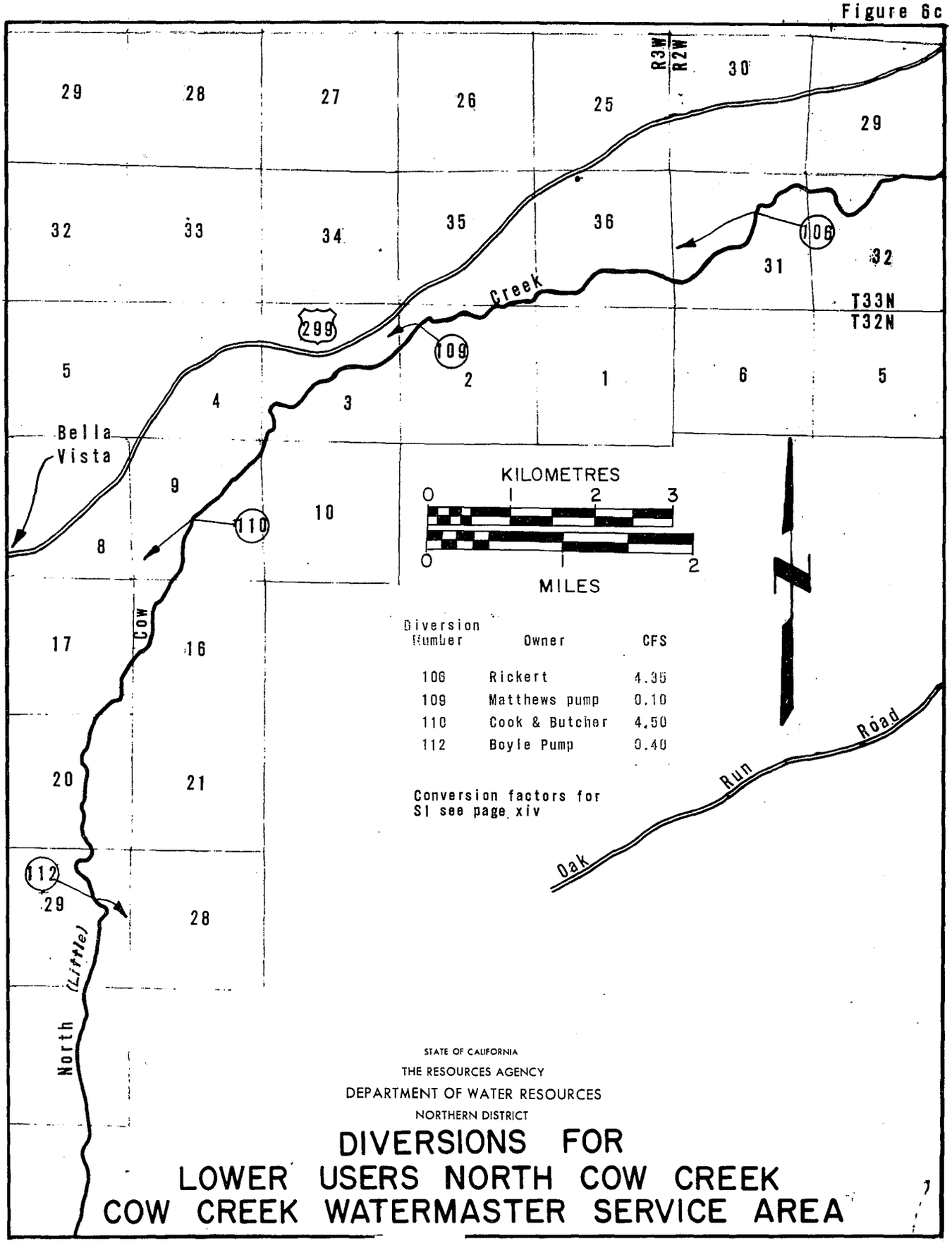
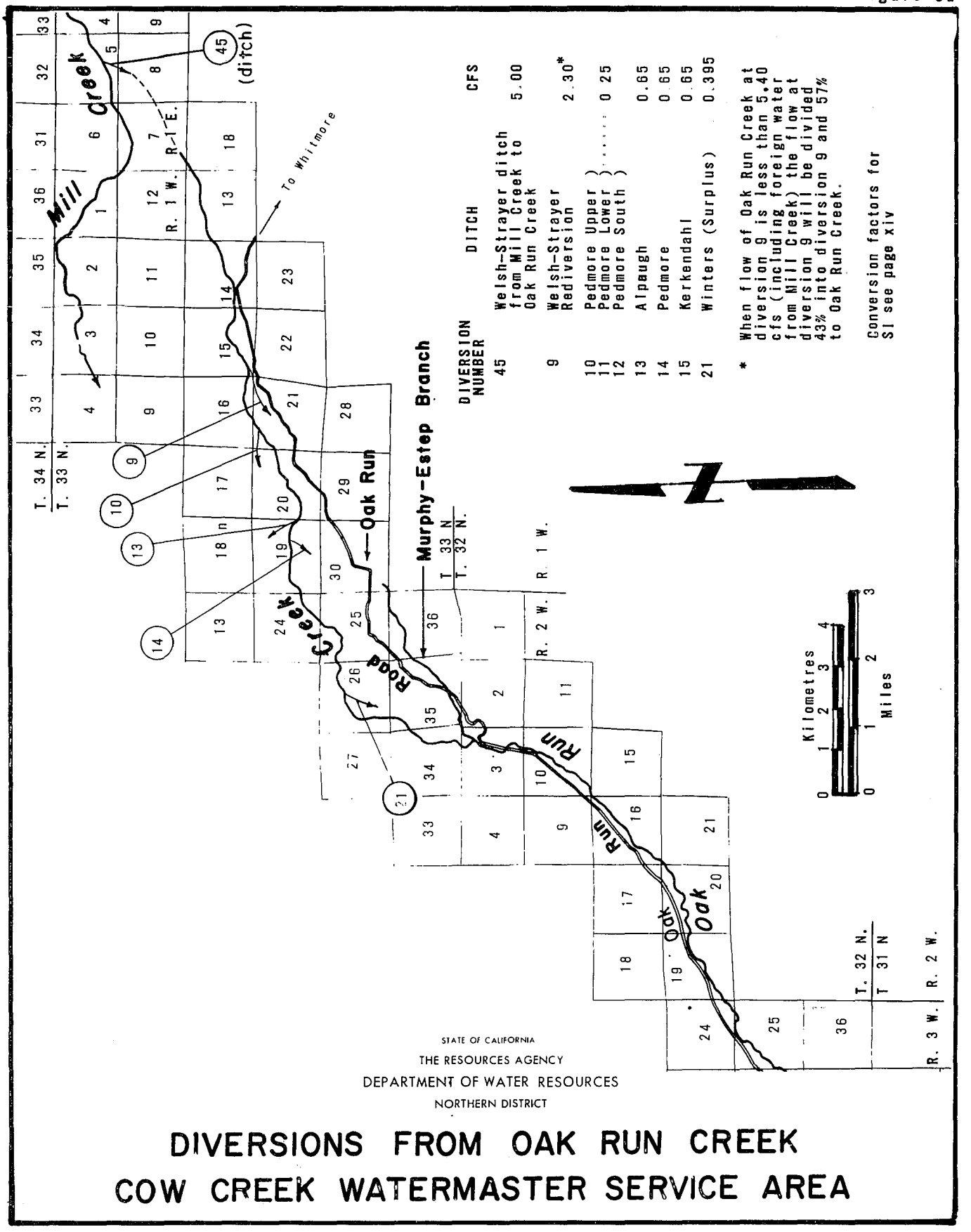
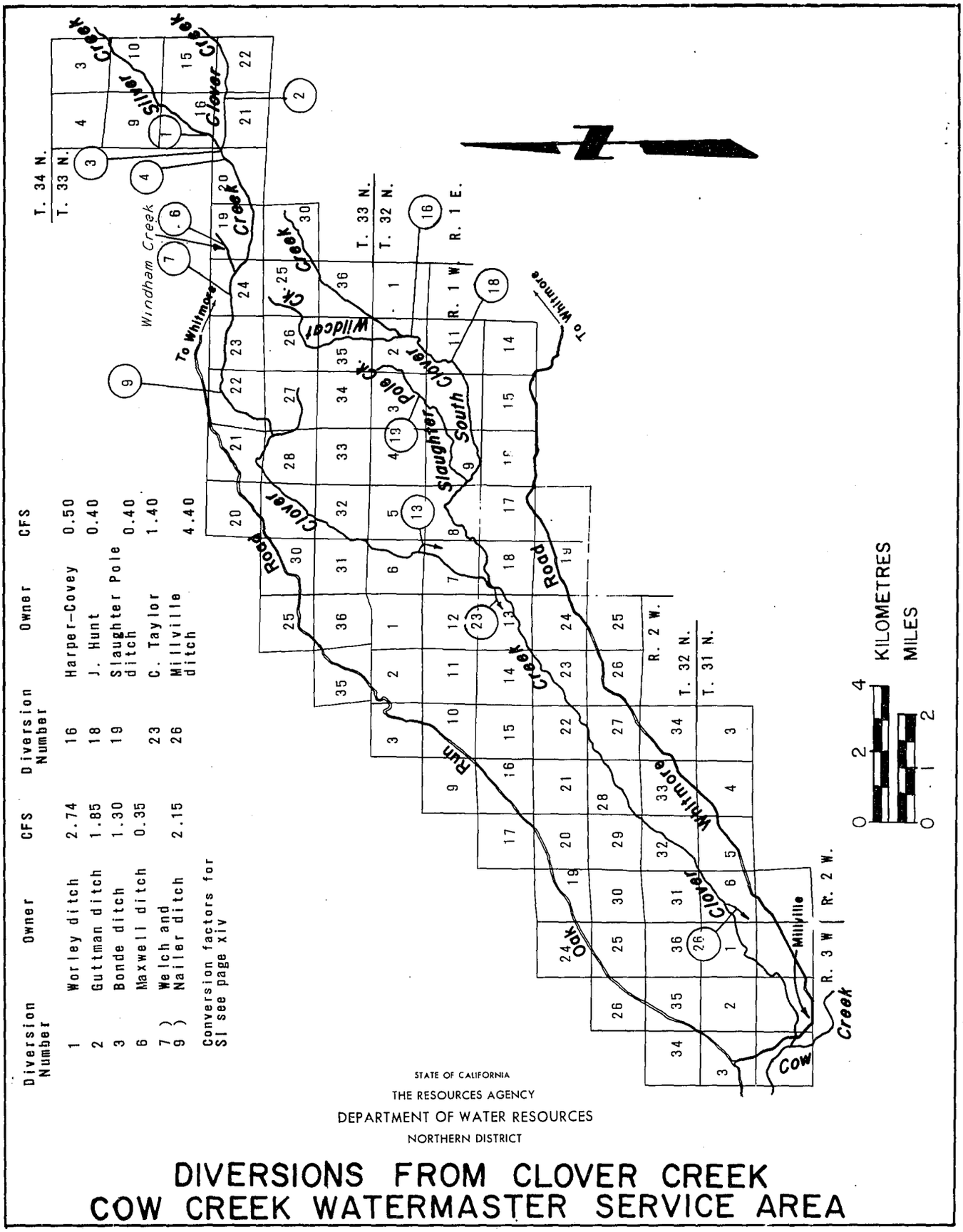

R3W
R2W
T33N
T32N
Creek
Bella Vista
KILOMETRES
0 1 2 3
0 2
MILES
Diversion Number | Owner | CFS
106 | Rickert | 4.35
109 | Matthews pump | 0.10
110 | Cook & Butcher | 4.50
112 | Boyle Pump | 0.40
Conversion factors for SI see page xiv
Cow
North (Little)
Oak Run Road
STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES
NORTHERN DISTRICT
DIVERSIONS FOR
LOWER USERS NORTH COW CREEK
COW CREEK WATERMASTER SERVICE AREA

Figure 6d



DIVERSIONS FROM OAK RUN CREEK
COW CREEK WATERMASTER SERVICE AREA

Figure 6e



Diversion Number	Owner	CFS	Diversion Number	Owner	CFS
1	Worley ditch	2.74	16	Harper-Covey	0.50
2	Guttman ditch	1.85	18	J. Hunt	0.40
3	Bonde ditch	1.30	19	Slaughter Pole ditch	0.40
6	Maxwell ditch	0.35	23	C. Taylor	1.40
7) 9)	Welch and Nailer ditch	2.15	26	Millville ditch	4.40

Conversion factors for SI see page xiv

STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES
NORTHERN DISTRICT

DIVERSIONS FROM CLOVER CREEK
COW CREEK WATERMASTER SERVICE AREA

DIGGER CREEK WATERMASTER SERVICE AREA

The Digger Creek service area is situated in southeastern Shasta County and northeastern Tehama County.

Digger Creek forms a portion of the boundary line between Shasta and Tehama Counties. It drains an area of approximately 117 square kilometres (45 square miles) on the western slopes of mountains situated immediately west of Lassen National Park. The creek flows in a westerly direction through the town of Manton to its confluence with North Fork Battle Creek. Manton, the only community in the area, is located approximately 64 km (40 miles) northeast of Red Bluff.

A map of the Digger Creek stream system is presented as Figure 7, page 43.

Basis of Service

The rights to use of the waters of Digger Creek were determined by five court adjudications. The Crooker Ditch, now combined with the Harrison Ditch, may divert all the water in the creek at its point of diversion. Diversions below this point, though defined by decree, are not in the service area.

Four Tehama County Superior Court decrees define the rights included in the service area. These decrees are listed on page 42.

The four decrees have, in effect, divided the water rights on the creek into two groups, the upper users and the lower users. The three upper users irrigate land adjoining the stream so that all water not consumptively used returns to Digger Creek. The lower users are located within a 13 km (5-square mile) area. Very little runoff from the lower users returns to the creek.

The water rights of the three upper users are absolute and not correlative to the lower users; therefore, allotments are not cut proportionally as Digger Creek flows decrease. Since the lower users have to stand all deficiencies, the upper users, in effect, have first priority allotments, and the lower users have second and third priority allotments.

Water Supply

Precipitation, occurring principally in the winter months, is typical of Northern California foothill areas. Snowmelt contributes to the early runoff but the summer streamflow is primarily from springs. In average runoff years there is sufficient flow in Digger Creek, with careful regulation, to satisfy all decreed allotments throughout the entire irrigation season. However, serious deficiencies occur in dry years.

The estimated daily mean discharge of Digger Creek below the mouth of the South Fork is presented in Table 12 page 42.

Method of Distribution

Irrigation is accomplished principally by wild flooding, although border checks and sprinklers are used on a few fields. Small diversion dams are placed in the stream channel to divert water into ditches for conveyance to the fields.

1976 Distribution

Watermaster service began May 23 and continued until September 30 in the Digger Creek service area. Kenneth E. Morgan, Water Resources Engineering Associate, was watermaster during this period.

Precipitation in the Digger Creek area was well below average during the winter; however, unusually heavy rainfall occurred during August and September.

The available water supply on Digger Creek was sufficient to satisfy all priority allotments until the first week in July. Near mid-July the lower users' allotments were regulated to 90 percent. The flow in Digger Creek continued to decrease, reaching the seasonal low of 75 percent in the last week of July. The scattered rainstorms and cooler weather resulted in an increase in the available water supply during August and September with these lower users receiving 75 to 100 percent of their allotments, depending on weather conditions.

Decrees Defining Digger Creek Water Rights

Case	Decree No.	Date Entered
Gransbury v. Edwards	2213	August 12, 1899
Wells v. Pritchard	2114	May 27, 1913
Harrison et al v. Kaler et al	3327	October 16, 1917
Herrick v. Forward	4570	February 24, 1927

DIGGER CREEK WATERMASTER SERVICE AREA
1976 Daily Mean Discharge in Cubic Feet Per Second

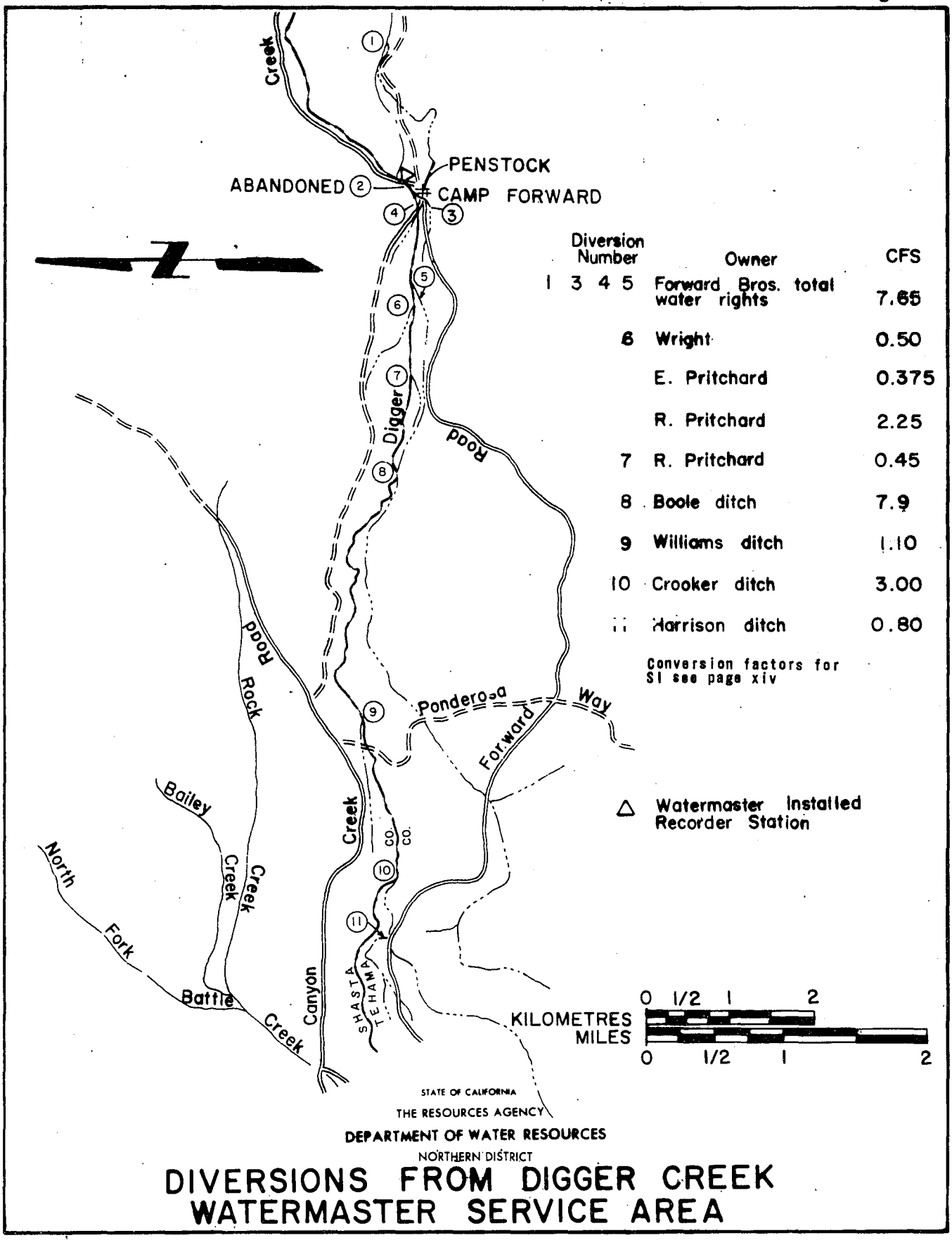
TABLE 12

DIGGER CREEK BELOW SOUTH FORK BRANCH

Day	April		May		June		July		August		September		Day
	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	
1					595	21*	396	14	368	13	312	11	1
2					595	21	396	14	396	14	312	11	2
3					566	20	396	14	368	13	312	11	3
4					566	20	396	14	368	13	312	11	4
5					566	20	396	14	368	13	312	11	5
6					538	19	396	14	368	13	312	11	6
7					538	19	396	14	368	13	312	11	7
8					538	19	396	14	368	13	312	11	8
9					566	20	396	14	368	13	312	11	9
10					566	20	396	14	340	12	312	11	10
11					566	20	396	14	340	12	312	11	11
12					538	19	396	14	340	12	312	11	12
13					510	18	396	14	340	12	312	11	13
14					510	18	368	13	396	14	312	11	14
15					481	17	368	13	510	18	312	11	15
16					481	17	368	13	396	14	312	11	16
17					481	17	368	13	368	13	312	11	17
18					481	17	368	13	368	13	312	11	18
19					481	17	368	13	368	13	312	11	19
20					453	16	368	13	368	13	312	11	20
21					481	17	368	13	368	13	312	11	21
22					453	16	368	13	368	13	312	11	22
23					453	16	368	13	368	13	312	11	23
24					453	16	368	13	368	13	312	11	24
25					425	15	368	13	368	13	312	11	25
26					425	15	368	13	368	13	312	11	26
27					425	15	368	13	340	12	312	11	27
28					425	15	368	13	340	12	312	11	28
29					425	15	368	13	340	12	312	11	29
30					425	15	368	13	340	12	312	11	30
31							340	12	312	11			31
Mean					500	17.7	379	13.4	366	12.9	312	11.0	Mean
Volume													Volume
hm	.000		.000		1.300		1.010		.980		.810		hm
AF		.0		.0		1050		822		795		655	AF

* Beginning of record

Figure 7


Creek
PENSTOCK
ABANDONED
CAMP FORWARD
Digger
Road
Rock
Road
Ponderosa
Way
Forward
Bailey
Creek
Creek
North
Fork
Battle
Creek
Canyon
Creek
CO.
CO.
SHASTA
TEHAMA
Diversion Number
Owner
CFS
1 3 4 5 Forward Bros. total water rights 7.65
6 Wright 0.50
E. Pritchard 0.375
R. Pritchard 2.25
7 R. Pritchard 0.45
8 Boole ditch 7.9
9 Williams ditch 1.10
10 Crooker ditch 3.00
11 Harrison ditch 0.80
Conversion factors for SI see page xiv
Watermaster Installed Recorder Station
0 1/2 1 2
KILOMETRES
MILES
0 1/2 1 2
STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES
NORTHERN DISTRICT
DIVERSIONS FROM DIGGER CREEK
WATERMASTER SERVICE AREA

FALL RIVER WATERMASTER SERVICE AREA

The Fall River service area is in Shasta County in the vicinity of the towns of Fall River Mills and McArthur, about 112 kilometres (70 miles) northeast of Redding via State Route 299.

The Tule River originates at Big Lake and Horr Pond and flows for a distance of about 8 km (5 miles), where it enters Fall River. The McArthur diversion canal diverts water from the Tule River by gravity which flows for a distance of 8 km (5 miles) to near the town of McArthur where land is irrigated along the Pit River.

Two pumps are monitored in the service area, one located on the Tule River and the second on Fall River.

Basis of Service

The Fall River service area was created on January 14, 1976, and watermaster service began in 1976.

The water rights in this service area were set forth by the Shasta County Superior Court in a judgment dated April 26, 1928, modified by agreement dated March 15, 1976, between Kenneth McArthur and the Pacific Gas and Electric Company.

Watermaster service is provided annually from March 15 to October 15 in accordance with an agreement dated November 25, 1975 between John McArthur, Kenneth McArthur and the P. G. and E. Company.

1976 Distribution

The first season of watermaster service began on May 13 in the Fall River service area and continued until October 15, with Paul E. Lawler, Assistant Engineer, Water Resources, as watermaster.

The flow in McArthur Canal was regulated in accordance with water rights adjudicated to the McArthur family by the Shasta County Superior Court in a judgment dated April 26, 1928, modified by agreement dated March 15, 1976, between Kenneth McArthur and P. G. and E.

As provided in the letter of understanding dated October 13, 1975, between P. G. and E. and John R. McArthur, it was agreed that for all water used on nonriparian lands (presently comprising approximately 1 902 hectares (470 acres), corresponding flow reductions will be made in the diversions into the McArthur Canal. These reductions were made, if necessary, during the scheduled regulation changes to the McArthur Canal.

1976 MONTHLY SUMMARY OF McARTHUR DIVERSIONS

Period	McArthur Canal		Two Pumps Nonriparian Lands		Total McArthur Diversions		McArthur Water Rights	
	hm^3	A/F	hm^3	A/F	hm^3	A/F	hm^3	A/F
May 13[1/]	1.27	1,031	.29	232	1.56	1,263	1.39	1,128
June	1.95	1,581	.43	345	2.38	1,926	2.44	1,976
July	3.02	2,452	.45	365	3.47	2,817	3.57	2,894
August	3.22	2,610	.30	244	3.53	2,854	3.57	2,894
September	1.89	1,533	.20	169	2.11	1,702	2.19	1,783
October 15[2/]	.86	688	.00	0	.83	688	.81	672
Totals	12.21	9,895	1.67	1,355	13.88	11,250	13.97	11,327

1/ Beginning of watermaster service

2/ End of watermaster season.

FRENCH CREEK WATERMASTER SERVICE AREA

The French Creek service area is situated in Scott Valley, western Siskiyou County, near the town of Etna. The major sources of water supply are French, Miners, and North Fork French Creeks. French Creek flows in a northeasterly direction through the central part of the service area. Miners Creek begins east of the headwaters of French Creek and flows in a northerly direction, joining French Creek about 4.8 kilometres (3 miles) above its confluence with Scott River. North Fork French Creek begins north of the headwaters of French Creek and flows easterly, joining French Creek 1.6 km (1 mile) upstream from the confluence with Miners Creek.

The service area encompasses the entire agricultural area within the French Creek Basin, and some additional lands along the west side of the Scott River near the town of Etna. The service area is about 0.8 km (1/2 mile) wide and 8 km (5 miles) long, with the main axis and drainage running from south to north. Elevations of the agricultural area range from about 975 metres (3,200 feet) at the south to about 853 m (2,800 feet) at the confluence of French Creek and Scott River.

A map of the French Creek stream system with the diversions and roads is presented as Figure 8, page 49.

Basis of Service

The rights on this creek system were determined by a court reference and set forth in Decree No. 14478, Siskiyou County Superior Court, dated July 1, 1958.

Water is distributed according to three schedules: North Fork French Creek with three priorities; Miners Creek with three; and the French Creek, Horse Range Creek, Paynes Lake Creek, and Duck Lake Creek system with seven. These schedules are independent of each other with two exceptions: (1) Miners Creek users have the option of diverting from French Creek when water is not available from Miners Creek; and (2) maximum allowable flows are specified at given points, regardless of the source of the water.

One peculiarity of this decree is that it included two water rights that have a specified amount but are subject to the exclusive control of the other owners of the ditch.

The French Creek watermaster service area was created on November 19, 1968, and service was started on July 1, 1969.

Water Supply

The water supply is derived from snowmelt runoff, springs and seepage, and occasional summer thundershowers.

The watershed of French Creek contains about 82 km^2 (32 square miles) of heavily forested, steep, mountainous terrain of the easterly slopes of the Salmon Mountains. It varies in elevation from about 2 194 m (7,200 feet) along its west rim to about 975 m (3,200 feet) at the foot of the slopes bordering French Creek Valley. Snowmelt runoff is normally sufficient to supply all demands until about the middle of July. The daily mean discharge of Duck Lake Creek, a tributary, is presented in Table 13, page 48.

Method of Distribution

Irrigation is accomplished primarily by wild flooding, with permanent pasture and alfalfa fields comprising the major crops. Water is conveyed by ditches and laterals to the place of use.

1976 Distribution

Watermaster service began in the French Creek service area on March 16 and

continued until September 30. Lester Lighthall, Water Resources Technician II, was watermaster during this period.

Because watermaster service was initiated during the 1969 season, few data are available for a water supply comparison with past years. However, it is the opinion of most ranchers in the area that an above-average water year condition prevailed.

Upper third priority allotments were regulated in decreasing quantities to satisfy the upper second priority rights. However, downstream third priority allotments were available throughout the remainder of the season.

Downstream first, second, and third priority allotments can rely on a more dependable water supply than those of the upper users, due to inflow from Paynes Lake Creek, Horse Range Creek, and North Fork French Creek, all tributaries to French Creek below the upper users.

FRENCH CREEK WATERMASTER SERVICE AREA
1976 Daily Mean Discharge

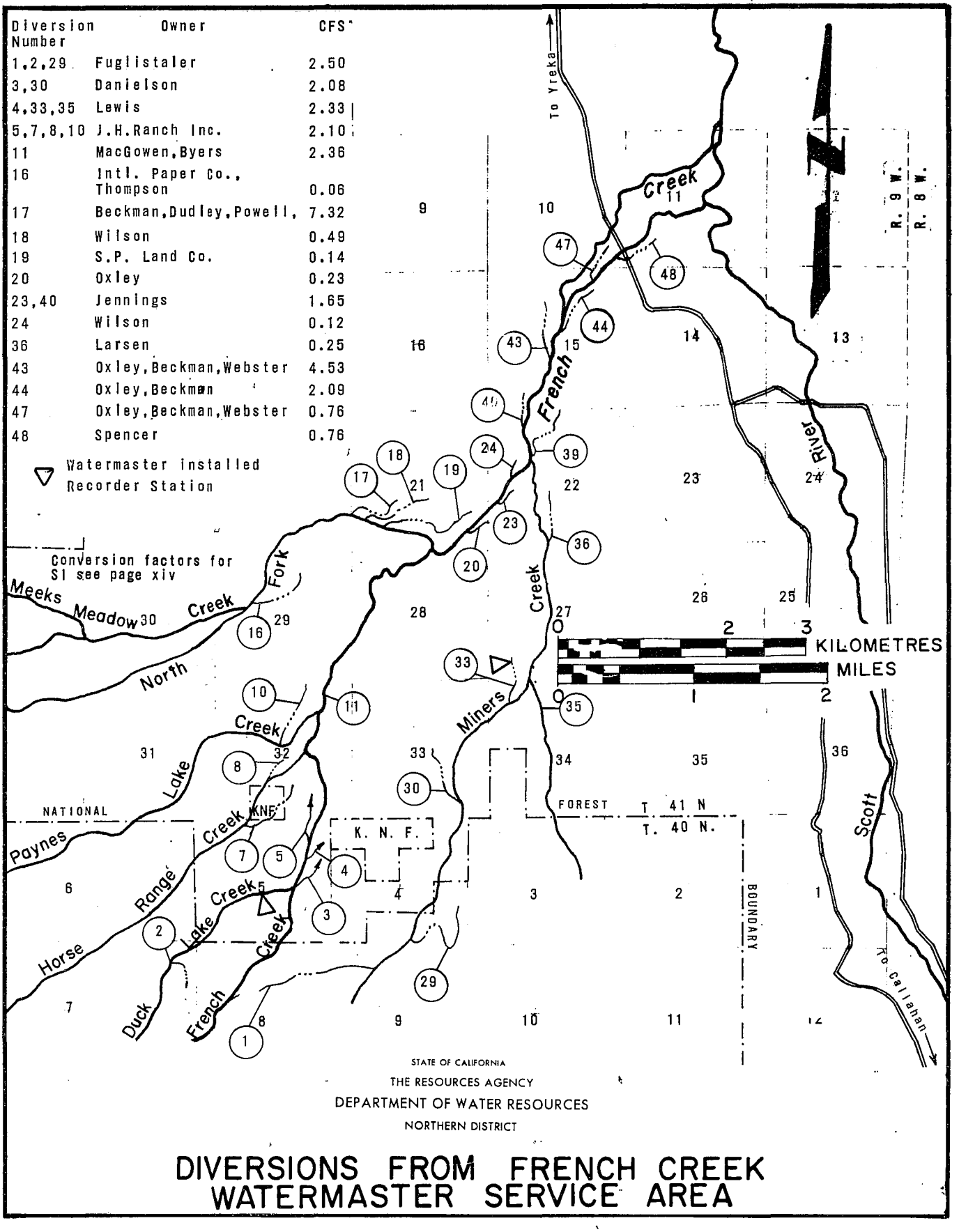
TABLE 13

DUCK LAKE CREEK TRIBUTARY TO FRENCH CREEK

Day	April		May		June		July		August		September		Day
	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	
1			623	22	481	17	147	5.2	76	2.7	51	1.8	1
2			680	24	425	15	133	4.7	65	2.3	51	1.8	2
3			623	22	396	14	130	4.6	62	2.2	51	1.8	3
4			680	24	312	11	130	4.6	56	2.0	51	1.8	4
5			793	28	283	10	130	4.6	70	2.5	51	1.8	5
6			736	26	283	10	125	4.4	82	2.9	51	1.8	6
7			821	29	283	10	116	4.1	82	2.9	51	1.8	7
8			1270	45	283	10	116	4.1	70	2.5	51	1.8	8
9			1640	58	283	10	113	4.0	62	2.2	51	1.8	9
10			1670	59	283	10	105	3.7	51	1.8	48	1.7	10
11			1470	52	255	9.0	99	3.5	48	1.7	48	1.7	11
12			1420	50	255	9.0	99	3.5	48	1.7	48	1.7	12
13			1870	66	283	10	96	3.4	51	1.8	48	1.7	13
14			1810	64	312	11	93	3.3	87	3.1	48	1.7	14
15			1420	50	255	9.0	90	3.2	142	5.0	48	1.7	15
16			1420	50	283	10	87	3.1	130	4.6	56	2.0	16
17			1300	46	312	11	90	3.2	113	4.0	56	2.0	17
18			1190	42	340	12	90	3.2	113	4.0	56	2.0	18
19			1130	40	481	17	79	2.8	93	3.3	51	1.8	19
20			963	34	453	16	73	2.6	70	2.5	51	1.8	20
21			935	33	312	11	70	2.5	73	2.6	51	1.8	21
22			935	33	283	10	68	2.4	73	2.6	48	1.7	22
23			935	33	238	8.4	65	2.3	73	2.6	48	1.7	23
24			850	30	215	7.6	62	2.2	68	2.4	48	1.7	24
25			793	28	198	7.0	56	2.0	65	2.3	48	1.7	25
26			850	30	193	6.8	53	1.9	62	2.2	45	1.6	26
27	198	7.0*	963	34	170	6.0	51	1.8	59	2.1	45	1.6	27
28	193	6.8	850	30	164	5.8	51	1.8	56	2.0	48	1.7	28
29	193	6.8	708	25	161	5.7	51	1.8	56	2.0	48	1.7	29
30	312	11	623	22	156	5.5	48	1.7	53	1.9	51	1.8	30
31			595	21			48	1.7	51	1.8			31
Mean	224	7.9	1050	37.1	288	10.2	89.4	3.2	73.2	2.6	50.0	1.8	Mean
Volume													Volume
hm	.080		2.810		.750		.240		.200		.130		hm
AF		62.7		2280		604		194		159		105	AF

* Beginning of Record

Figure 8


Diversion Number | Owner | CFS
1,2,29 | Fuglistaler | 2.50
3,30 | Danielson | 2.08
4,33,35 | Lewis | 2.33
5,7,8,10 | J.H.Ranch Inc. | 2.10
11 | MacGowen,Byers | 2.36
16 | Intl. Paper Co., Thompson | 0.06
17 | Beckman,Dudley,Powell, | 7.32
18 | Wilson | 0.49
19 | S.P. Land Co. | 0.14
20 | Oxley | 0.23
23,40 | Jennings | 1.65
24 | Wilson | 0.12
36 | Larsen | 0.25
43 | Oxley,Beckman,Webster | 4.53
44 | Oxley,Beckman | 2.09
47 | Oxley,Beckman,Webster | 0.76
48 | Spencer | 0.76
Watermaster installed Recorder Station
Conversion factors for SI see page xiv
To Yreka
French Creek
French River
Meeks Meadow Creek
North Fork
North Creek
Miners Creek
Lake Creek
Paynes Creek
Horse Range Creek
Duck Lake Creek
French Creek
Scott River
To Callahan
NATIONAL FOREST
K. N. F.
KNF
BOUNDARY
T. 41 N.
T. 40 N.
R. 9 W.
R. 8 W.
KILOMETRES
MILES
STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES
NORTHERN DISTRICT
DIVERSIONS FROM FRENCH CREEK
WATERMASTER SERVICE AREA

GOOSE VALLEY CREEK WATERMASTER SERVICE AREA

The Goose Valley Creek service area is situated in the northeast part of Shasta County, 9.66 kilometres (6 miles) northwest of the town of Burney.

Basis of Service

The Goose Valley Creek watermaster service area, which consists of Lake Margaret (formerly known as Haynes Reservoir), was created on January 14, 1976.

The State Water Resources Control Board granted License 8943 to store 7,894 square hectometres (6,400 acre-feet) between about November 1 and April 1 of each year and a maximum withdrawal of 4.934 hm^3 (4,000 A/F) in any one year.

In the matter of License 8943 before the Water Resources Control Board, a stipulation and agreement, dated December 9, 1975, between Pacific Gas and Electric Company and John and Margaret Casey, owners of Lake Margaret, is the basis for watermaster service between November 1 and June 1 of each year.

1976 Distribution

Watermaster service began in the Goose Valley Creek on January 14, 1976 and continued until June 1, 1976, with Kenneth E. Morgan, Water Resources Engineering Associate as watermaster.

The following is a summary of Lake Margaret operations for 1976.

Lake Margaret Operations

	Actual Storage		Right to Store	
Date	hm^3	A/F	hm^3	A/F
1/14/76	4.874	3952		
			.000	0
2/1/76	4.954	4016		
			.000	0
2/29/76	5.397	4375		
			.327	265
3/6/77	5.723	4640		
			.000	0
3/30/77	5.274	4276		
			.534	433 1/
5/1/77	5.809	4709		
			.000	0
5/31/77	4.798	3890		

1/ Goose Valley Ranch, on March 30, requested to store for regulatory storage, a 30-day water supply for irrigation. The request was allowed as it was considered to be reasonable and beneficial to irrigate under a riparian claim.

Pacific Gas and Electric Company water rights were filled from February 29 to March 5, which allowed storage in Lake Margaret during this period.

5 Branch

HAT CREEK WATERMASTER SERVICE AREA

The Hat Creek service area is in the eastern part of Shasta County north of Lassen Volcanic National Park. The maps, Figures 9 through 9c, pages 55 through 58, show the Hat Creek service area and stream system, including locations of the diversions of the upper and lower user groups.

Hat Creek, which flows in a northerly direction through the area, is the only source of water supply in the service area. The place of use is Hat Creek Valley, which is approximately 32 kilometres (20 miles) long and 3.2 km (2 miles) wide, extending northward from about 4.8 km (3 miles) south of the town of Old Station to the confluence with Rising River. The irrigable lands, which consist primarily of volcanic ash, are interlaced with large outcroppings of volcanic rocks.

Basis of Service

Water from Hat Creek is distributed under provisions of court reference adjudications which resulted in Decree No. 5724, dated May 14, 1924, and Decree No. 7858, dated May 7, 1935, Shasta County Superior Court. Decree No. 5724 established irrigation and nonirrigation allotments for 18 periods of rotation between "upper" and "lower" user groups for the period of May 1 to October 28 annually. Decree No. 7858 established three allotments for continuous irrigation, May 1 through October 28, and allotments for the period October 28 to May 1 annually for all users. These latter rights are not normally supervised by the watermaster.

Watermaster service in the Hat Creek area has been provided in accordance with the decree since 1924. The existing service area was created on September 11, 1929.

Decree No. 5724 defines the allotments in the separate schedules: upper and lower users, requiring 10-day rotations beginning at 6 a.m., May 1, and terminating at 6 a.m., October 28. All water rights are of the same priority, with the surplus flows distributed according to the users that are on rotation. The upper users' water rights require 4 380 litres per second (154.7 cubic feet per second) and lower users require 4 715 l/s (166.5 cfs). The lower users require more because of additional channel loss. When the upper users are being served, the lower users receive a minimum flow for stock water.

Water Supply

The water supply of Hat Creek is derived from snowmelt runoff from Lassen Peak and from large springs. Snowmelt normally creates a high flow during May and June, but the substantial portion of the summer supply comes from large springs which decrease only slightly in output. Only after a series of dry years does the flow of these springs fall much below 75 percent of total allotments.

A record of the daily mean discharge of Hat Creek near the town of Hat Creek is presented in Table 14, page 54.

Method of Distribution

Most irrigation in the area is accomplished by wild flooding. Large heads of water are used to cover the land rapidly, thereby preventing excessive loss from percolation in the extremely porous soil. Diversion dams constructed across the creek serve to divert water into large ditches. The fields, many of which have checks and borders, are then flooded from the main diversion ditches or from laterals. A few domestic rights are met by pumping directly from Hat Creek.

1976 Distribution

The watermaster in the Hat Creek service area was Seth Barrett, Water Resources

Technician II. Watermaster service was provided from May 1 until September 30.

The water supply equalled 100 percent of water rights on May 1; therefore, rotation periods were started at the beginning of the season. The supply remained steady until late June. On June 30, during the upper users' rotation period, the flow was regulated to 80 percent of water rights. The supply remained constant for the remainder of the season with the exception of a brief two-day runoff in August from locally heavy showers in the upper drainage area. This constant supply remained adequate for 80 percent to the upper users or 75 percent to the lower users whose total water demand is greater by about 283.17 l/s (10 cfs) than that of the upper users. Local showers during August disrupted the haying cycle and caused some erratic periods of irrigation. More rains in September resulted in less demand for the constant supply, so adequate water was available throughout the season.

HAT CREEK WATERMASTER SERVICE AREA
1976 Daily Mean Discharge

TABLE 14

HAT CREEK NEAR HAT CREEK

Day	March		April		May		June		July		August		September		Day
	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	
1	4530	160	4250	150	4360	154	4470	158	3820	135	3910	138	3600	127	1
2	4420	156	4250	150	4420	156	4420	156	3770	133	4020	142	3600	127	2
3	4390	155	4250	150	4420	156	4390	155	3770	133	3850	136	3600	127	3
4	4390	155	4250	150	4470	158	4330	153	3710	131	3850	136	3570	126	4
5	4420	156	4280	151	4470	158	4300	152	3740	132	3820	135	3570	126	5
6	4450	157	4250	150	4500	159	4300	152	3680	130	3850	136	3570	126	6
7	4450	157	4280	151	4420	156	4280	151	3620	128	3850	136	3570	126	7
8	4470	158	4280	151	4530	160	4280	151	3680	130	3820	135	3710	131	8
9	4450	157	4250	150	4530	160	4300	152	3680	130	3680	130	3740	132	9
10	4450	157	4250	150	4640	164	4160	147	3820	135	3600	127	3740	132	10
11	4420	156	4220	149	4870	172	4050	143	3880	137	3600	127	3790	134	11
12	4390	155	4220	149	4870	172	4020	142	3880	137	3600	127	3770	133	12
13	4390	155	4190	148	5040	178	3990	141	3880	137	3600	127	3740	132	13
14	4390	155	4220	149	5270	186	3960	140	3880	137	3650	129	3770	133	14
15	4390	155	4250	150	5040	178	3940	139	3850	136	3880	137	3990	141	15
16	4420	156	4190	148	5010	177	3940	139	3850	136	3740	132	3820	135	16
17	4450	157	4220	149	4980	176	3910	138	3850	136	3650	129	3740	132	17
18	4500	159	4220	149	4840	171	3910	138	3850	136	3650	129	3710	131	18
19	4420	156	4220	149	4760	168	3940	139	3850	136	3620	128	3710	131	19
20	4390	155	4220	149	4640	164	4080	144	3710	131	3650	129	3680	130	20
21	4390	155	4110	145	4420	156	4130	146	3650	129	3770	133	3600	127	21
22	4390	155	4050	143	4330	153	4080	144	3650	129	3770	133	3540	125	22
23	4390	155	4050	143	4360	154	4050	143	3650	129	3770	133	3540	125	23
24	4360	154	4130	146	4330	153	4050	143	3650	129	3740	132	3540	125	24
25	4250	150	4250	150	4300	152	4050	143	3620	128	3740	132	3540	125	25
26	4280	151	4160	147	4360	154	4020	142	3680	130	3710	131	3480	123	26
27	4250	150	4110	145	4450	157	3990	141	3680	130	3740	132	3480	123	27
28	4250	150	4110	145	4470	158	3990	141	3620	128	3770	133	3620	128	28
29	4220	149	4080	144	4390	155	3990	141	3650	129	3680	130	3680	130	29
30	4250	150	4190	148	4250	150	3880	137	3790	134	3600	127	3680	130	30
31	4280	151			4500	159			3850	136	3600	127			31
Mean	4380	155	4200	148	4590	162	4110	145	3750	132	3730	132	3660	129	Mean
Volume															Volume
hm	11.700		10.900		12.300		10.600		10.000		10.000		9.480		hm
AF	9510		8820		9960		8620		8140		8100		7680		AF

Figure 9

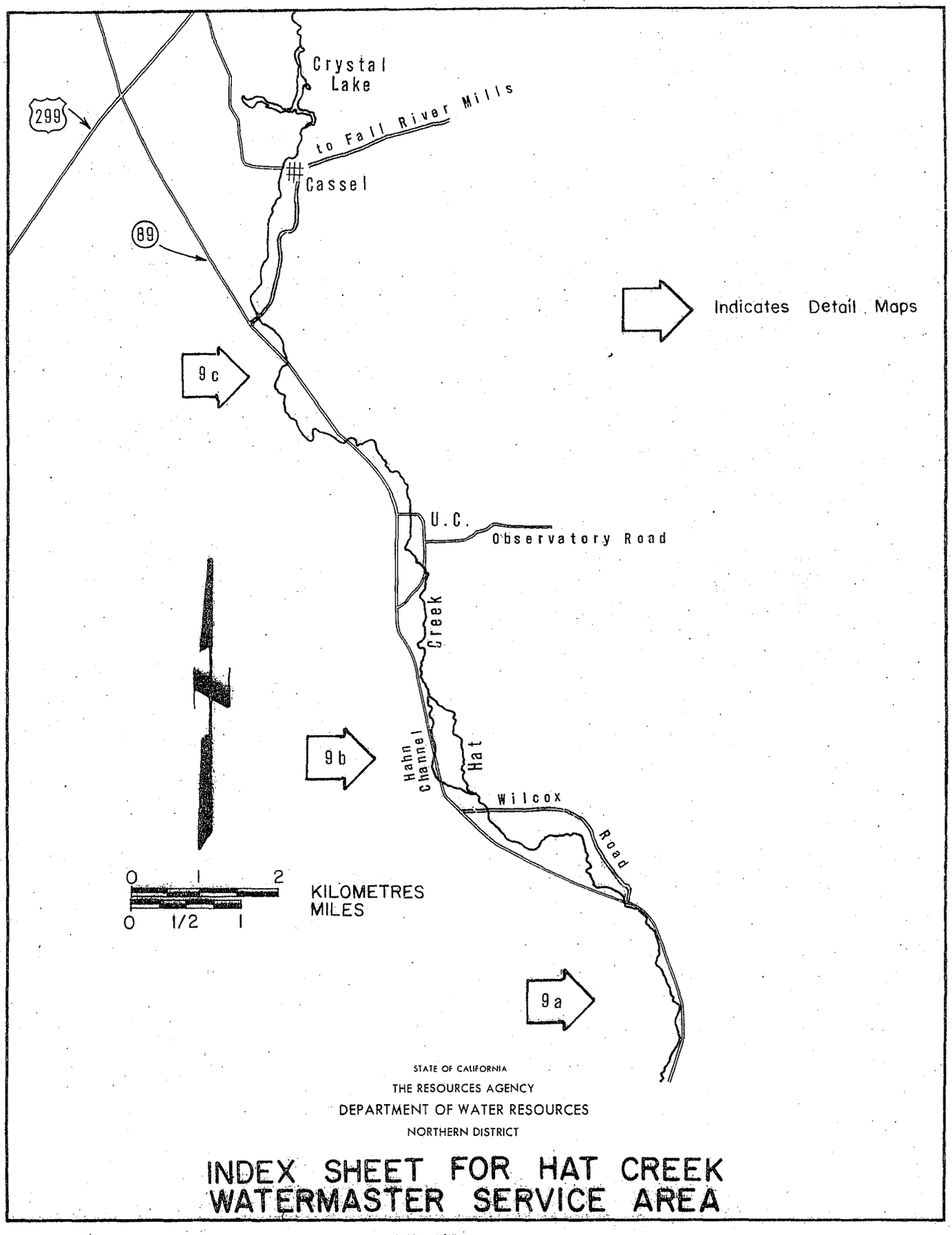
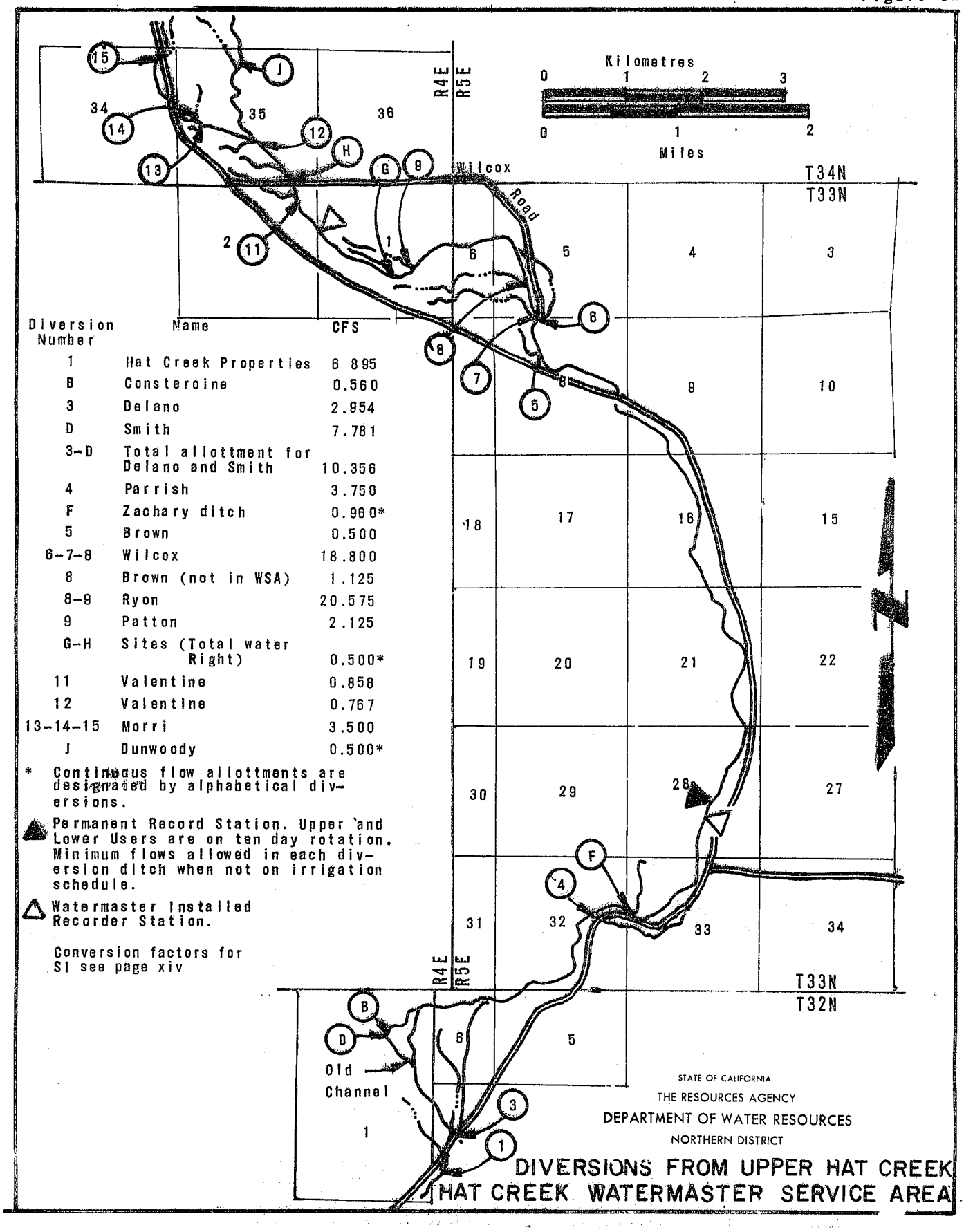

Crystal Lake
299
to Fall River Mills
Cassel
89
Indicates Detail Maps
9c
U.C.
Observatory Road
Creek
9b
Hahn
Channel
Hat
Wilcox
Road
0 1 2
KILOMETRES
MILES
0 1/2 1
9a
STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES
NORTHERN DISTRICT
INDEX SHEET FOR HAT CREEK
WATERMASTER SERVICE AREA

Figure 9a



Diversion Number	Name	CFS
1	Hat Creek Properties	6 895
B	Consteroine	0.560
3	Delano	2.954
D	Smith	7.781
3-D	Total allottment for Delano and Smith	10.356
4	Parrish	3.750
F	Zachary ditch	0.960*
5	Brown	0.500
6-7-8	Wilcox	18.800
8	Brown (not in WSA)	1.125
8-9	Ryon	20.575
9	Patton	2.125
G-H	Sites (Total water Right)	0.500*
11	Valentine	0.858
12	Valentine	0.767
13-14-15	Morri	3.500
J	Dunwoody	0.500*

* Continuous flow allottments are designated by alphabetical diversions.

▲ Permanent Record Station. Upper and Lower Users are on ten day rotation. Minimum flows allowed in each diversion ditch when not on irrigation schedule.

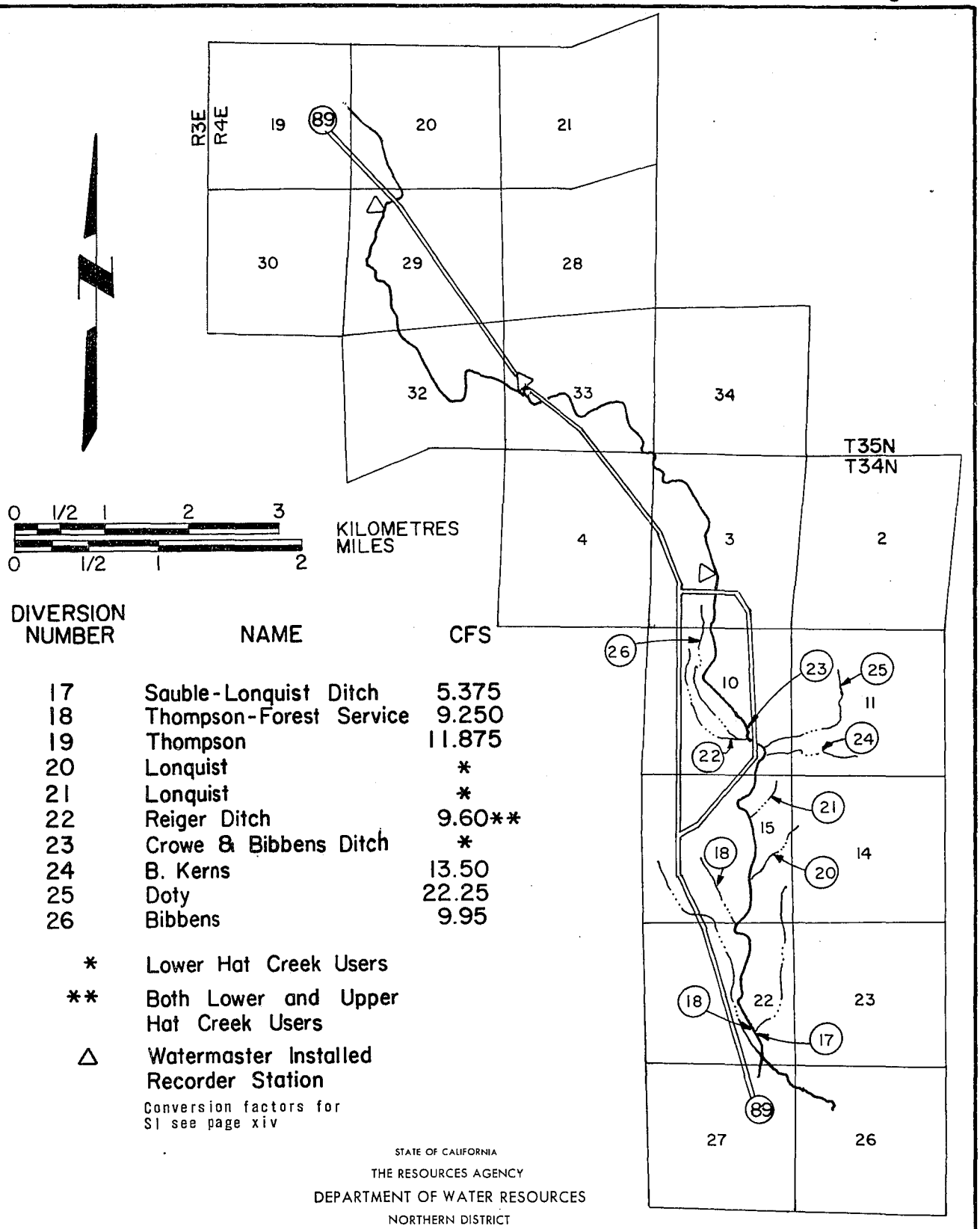
△ Watermaster Installed Recorder Station.

Conversion factors for SI see page xiv

STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES
NORTHERN DISTRICT

DIVERSIONS FROM UPPER HAT CREEK
HAT CREEK WATERMASTER SERVICE AREA

Figure 9b



DIVERSION NUMBER	NAME	CFS
17	Sauble-Lonquist Ditch	5.375
18	Thompson-Forest Service	9.250
19	Thompson	11.875
20	Lonquist	*
21	Lonquist	*
22	Reiger Ditch	9.60**
23	Crowe & Bibbens Ditch	*
24	B. Kerns	13.50
25	Doty	22.25
26	Bibbens	9.95

* Lower Hat Creek Users

** Both Lower and Upper Hat Creek Users

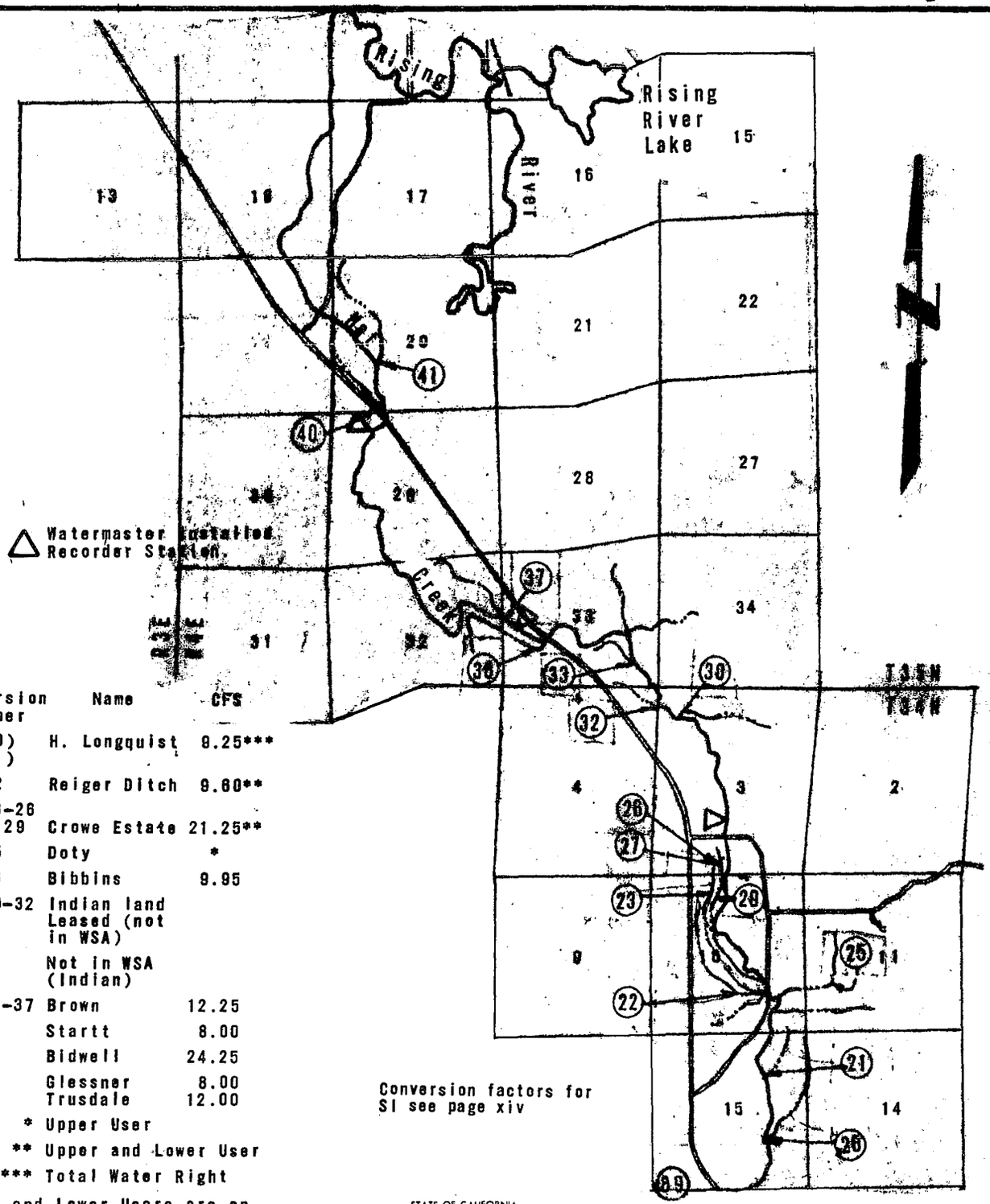
△ Watermaster Installed Recorder Station

Conversion factors for SI see page xiv

STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES
NORTHERN DISTRICT

DIVERSIONS FROM LOWER UPPER HAT CREEK HAT CREEK WATERMASTER SERVICE AREA

Figure 9c



Diversion Number	Name	CFS
20) 21)	H. Longquist	8.25***
22	Reiger Ditch	9.60**
22-23-26 27 & 29	Crowe Estate	21.25**
25	Doty	*
26	Bibbins	9.95
30-32	Indian land Leased (not in WSA)	
33	Not in WSA (Indian)	
36-37	Brown	12.25
37	Startt	8.00
40	Bidwell	24.25
41	Glessner	8.00
	Trusdale	12.00

* Upper User

** Upper and Lower User

*** Total Water Right

Upper and Lower Users are on ten (10) day rotation. Minimum flows allowed in each diversion ditch when not on irrigation schedule.

Conversion factors for SI see page xiv

STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES
NORTHERN DISTRICT

DIVERSIONS FROM LOWER HAT CREEK HAT CREEK WATERMASTER SERVICE AREA

INDIAN CREEK WATERMASTER SERVICE AREA

The Indian Creek service area is located in the north central part of Plumas County in the vicinity of the town of Greenville.

The major sources of supply in the service area are Indian Creek and two major tributaries, Wolf Creek and Lights Creek. Indian Creek and its minor tributaries rise in the mountains east of the service area. It then flows through Genesee Valley and through Indian Valley past the towns of Taylorsville and Crescent Mills to its confluence with the North Fork Feather River. Indian Creek is joined on the north by Lights Creek in the southeast part of Indian Valley and by Wolf Creek in the northwest part of the valley. The major place of use is in Indian Valley, an irregular-shaped area of about 52 square kilometres (20 square miles). The average elevation is about 1 067 metres (3,500 feet).

Maps of the whole area and of each major stream system within the Indian Creek service area are presented as Figures 10 through 10c, pages 61 through 64.

Basis of Service

The Indian Creek watermaster service area was created on February 19, 1951, to include, with certain exceptions, the water rights set forth in Decree No. 4185, entered December 19, 1950, by the Superior Court of Plumas County, and the rights under Permit 7665 issued in approval of Application 12642 subsequent to entry of the decree. The statutory proceeding leading to the decree was entitled "In the Matter of the Determination of the Rights of the Various Claimants to the Water of Indian Creek Stream System in Plumas County, California".

The service area has been amended twice. Watermaster service has been provided during each irrigation season since the service area was created, and annual reports have been prepared to show the work accomplished.

The Indian Creek decree establishes three priority classes for each of the major stream systems within the service area.

Water Supply

The water supply in the Indian Creek service area is derived primarily from snowmelt runoff with springs and seepage maintaining some late summer flows. The flow of Wolf Creek is normally sufficient to supply all allotments until June 1. Indian and Lights Creeks, with the exception of some tributaries, have sufficient flow to supply all allotments until July 1. After these dates, the flow steadily decreases throughout the season until by the end of August only a small portion of allotments is available.

A record of the daily mean discharge of Indian Creek near Taylorsville, where Indian Creek enters the valley, is presented in Table 15, page 60.

Method of Distribution

The basic method of irrigation in Indian Valley is wild flooding. Small diversion dams are constructed in the stream channels to divert water into distribution ditches for conveyance to the fields. Small check dams, located throughout the fields in swales, help to spread the water over the ground. There is a limited amount of check and border irrigation in the valley. A few sprinkler systems are also in use.

1976 Distribution

Watermaster service began in the Indian Creek service area on May 1 and continued until September 30 with Earl F. Stower, Water Resources Technician II, as watermaster. The available supply in the service area was below average during the season.

Wolf Creek. The available water supply of Wolf Creek was sufficient to satisfy all allotments (three priorities) until May 13. The streamflow gradually decreased until only first priority allotments were being served on September 1.

Lights Creek and Tributaries. The available water supply of Lights Creek was sufficient to satisfy all allotments (three priorities) until early May. Surface flow at the county road stopped by the middle of May. The available water supply of Cooks Creek satisfied all allotments until mid-May.

INDIAN CREEK. The available water supply of Indian Creek was sufficient to satisfy all allotments (three priorities) until September 30 except for the period July 1-14 when available water supply dropped to 74 percent of second priorities. Sufficient underflow occurred below the Mill Race Diversion Dam to meet allotments of downstream users.

Special Occurrences

Antelope Lake was drained to eradicate the trash fish in the lake. The draining began July 14 and was completed by October 13. Releases during this period generally ranged from 2 548 to 3 964 litres per second (90 to 140 cfs). Water users on Indian Creek were allowed to use up to their full allotment during this time because existing diversion facilities were inadequate to bypass all of the project water.

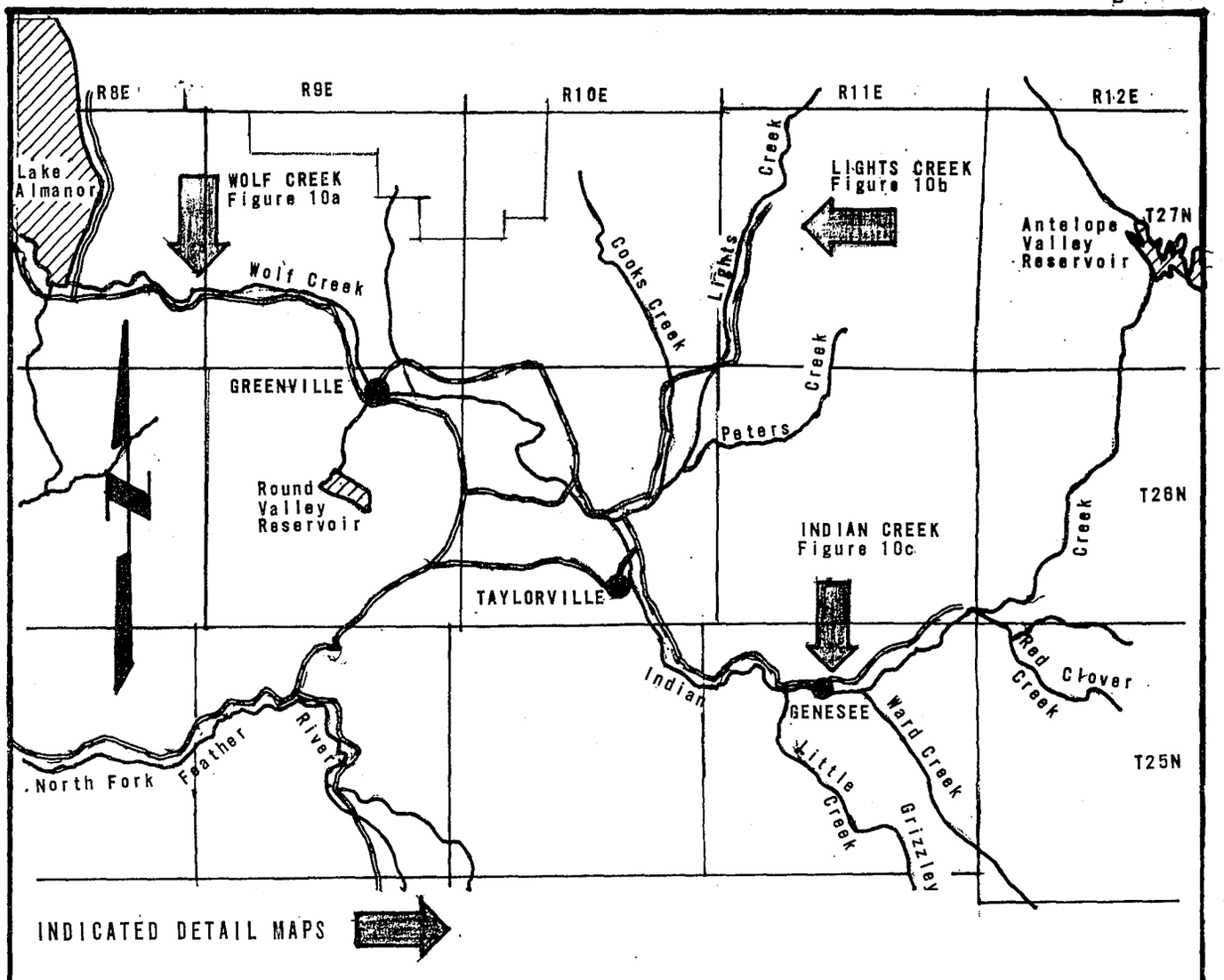
INDIAN CREEK WATERMASTER SERVICE AREA
1976 Daily Mean Discharge

TABLE 15

INDIAN CREEK NEAR TAYLORSVILLE

Day	March		April		May		June		July		August		September		Day
	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	
1	5610	198	3770	133	4500	159	1780	63	1190	42	4500	159	3200	113	1
2	3770	133	3710	131	4760	168	1760	62	1220	43	4760	168	3170	112	2
3	3430	121	3710	131	4810	170	1730	61	1190	42	4590	162	3200	113	3
4	2780	98	3710	131	4810	170	1700	60	1190	42	4560	161	3230	114	4
5	2780	98	3820	135	4640	164	1670	59	1220	43	4470	158	3230	114	5
6	2780	98	3770	133	4250	150	1640	58	1190	42	4300	152	3230	114	6
7	2890	102	3820	135	3960	140	1670	59	1160	41	3370	119	3170	112	7
8	2920	103	3820	135	3850	136	1640	58	1130	40	3290	116	3120	110	8
9	3090	109	3820	135	3790	134	1760	62	1100	39	3290	116	2970	105	9
10	3290	116	3820	135	3680	130	1840	65	1050	37	3290	116	2970	105	10
11	3650	129	3770	133	3680	130	1950	69	1100	39	3400	120	3340	118	11
12	3770	133	3770	133	3570	126	1870	66	1130	40	3340	118	3430	121	12
13	3540	125	3770	133	3260	115	1810	64	1130	40	3290	116	3340	118	13
14	3650	129	3770	133	3030	107	1730	61	1130	40	3480	123	3710	131	14
15	4220	149	3770	133	2860	101	1640	58	1590	56	3820	135	3940	139	15
16	4450	157	3710	131	2630	93	1530	54	3540	125	3820	135	3990	141	16
17	5070	179	3710	131	2490	88	1500	53	4110	145	3710	131	4050	143	17
18	5610	198	3710	131	2380	84	1470	52	4160	147	3770	133	4110	145	18
19	5380	190	3650	129	2320	82	1390	49	4220	149	3650	129	4050	143	19
20	4450	157	3710	131	2290	81	1360	48	4280	151	3620	128	4050	143	20
21	4390	155	3990	141	2240	79	1330	47	4280	151	3540	125	3990	141	21
22	4330	153	4280	151	2180	77	1300	46	4330	153	3480	123	3940	139	22
23	4390	155	4500	159	2120	75	1300	46	4330	153	3480	123	3940	139	23
24	4390	155	4870	172	2100	74	1300	46	4330	153	3480	123	3880	137	24
25	4390	155	5380	190	2040	72	1270	45	4280	151	3400	120	3820	135	25
26	4220	149	5070	179	2010	71	1270	45	4280	151	3370	119	3820	135	26
27	4110	145	4700	166	1930	68	1270	45	4450	157	3370	119	3710	131	27
28	4050	143	4330	153	1900	67	1270	45	4450	157	3340	118	3650	129	28
29	3880	137	4220	149	1870	66	1250	44	4450	157	3310	117	3540	125	29
30	3770	133	4160	147	1840	65	1220	43	4450	157	3230	114	2750	97	30
31	3880	137			1810	64			4450	157	3230	114			31
Mean	3970	140	4020	142	3020	107	1540	54.4	2780	98.1	3660	129	3550	125	Mean
Volume															Volume
hm	10.600		10.400		8.090		3.990		7.440		9.810		9.210		hm
AF	8610		8440		6550		3240		6030		7950		7460		AF

Figure 10



STATE OF CALIFORNIA

THE RESOURCES AGENCY

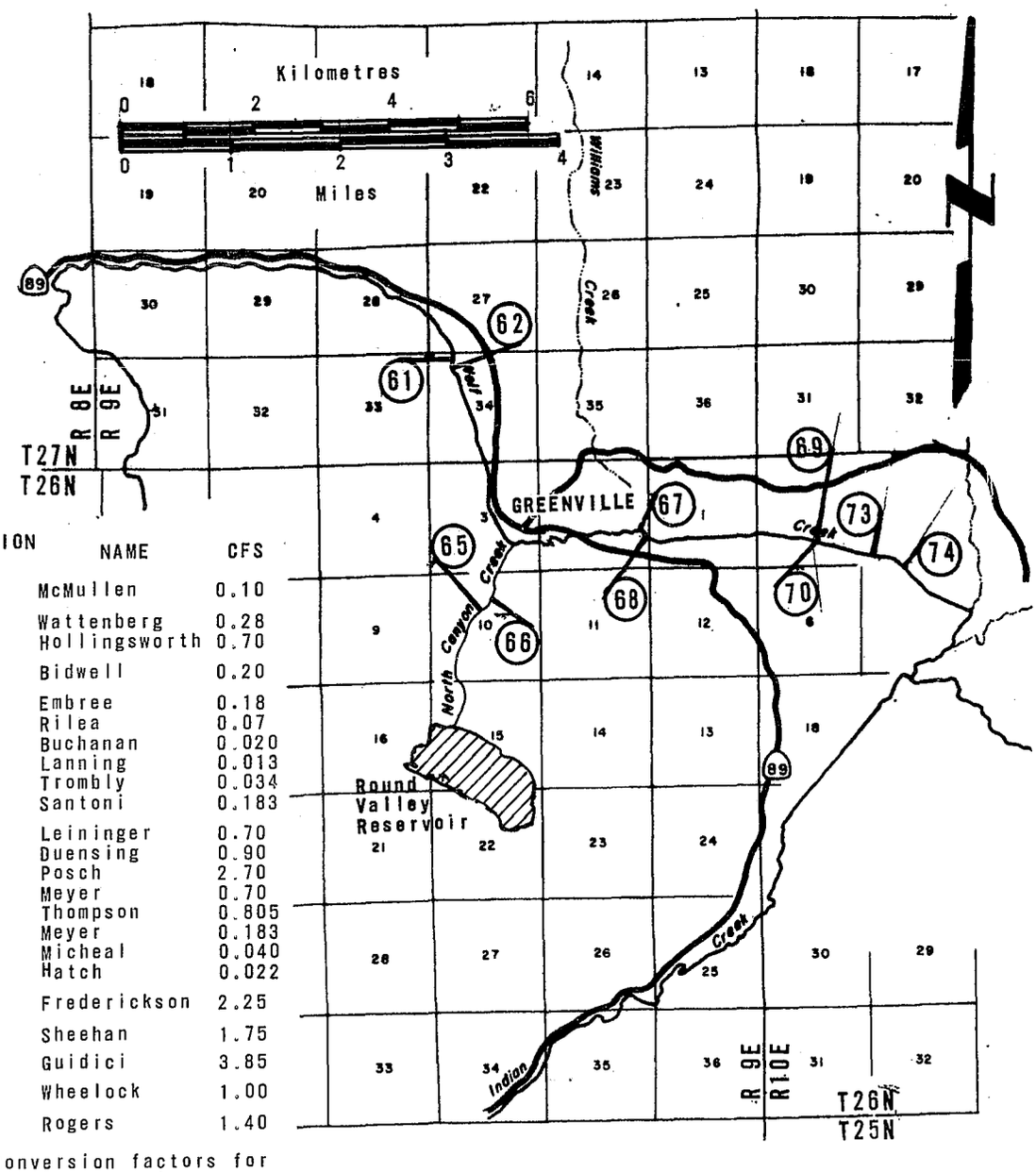
DEPARTMENT OF WATER RESOURCES

CENTRAL DISTRICT

INDEX MAP

DIVERSIONS FROM INDIAN CREEK WATERMASTER SERVICE AREA

Figure 10a



DIVERSION NUMBER	NAME	CFS
61	McMullen	0.10
62	Wattenberg	0.28
	Hollingsworth	0.70
65	Bidwell	0.20
66	Embree	0.18
	Rilea	0.07
	Buchanan	0.020
	Lanning	0.013
	Trombly	0.034
	Santoni	0.183
67	Leininger	0.70
	Duensing	0.90
	Posch	2.70
	Meyer	0.70
	Thompson	0.805
	Meyer	0.183
	Micheal	0.040
	Hatch	0.022
68	Frederickson	2.25
69	Sheehan	1.75
70	Guidici	3.85
73	Wheelock	1.00
74	Rogers	1.40

Conversion factors for SI see page xiv

STATE OF CALIFORNIA

THE RESOURCES AGENCY

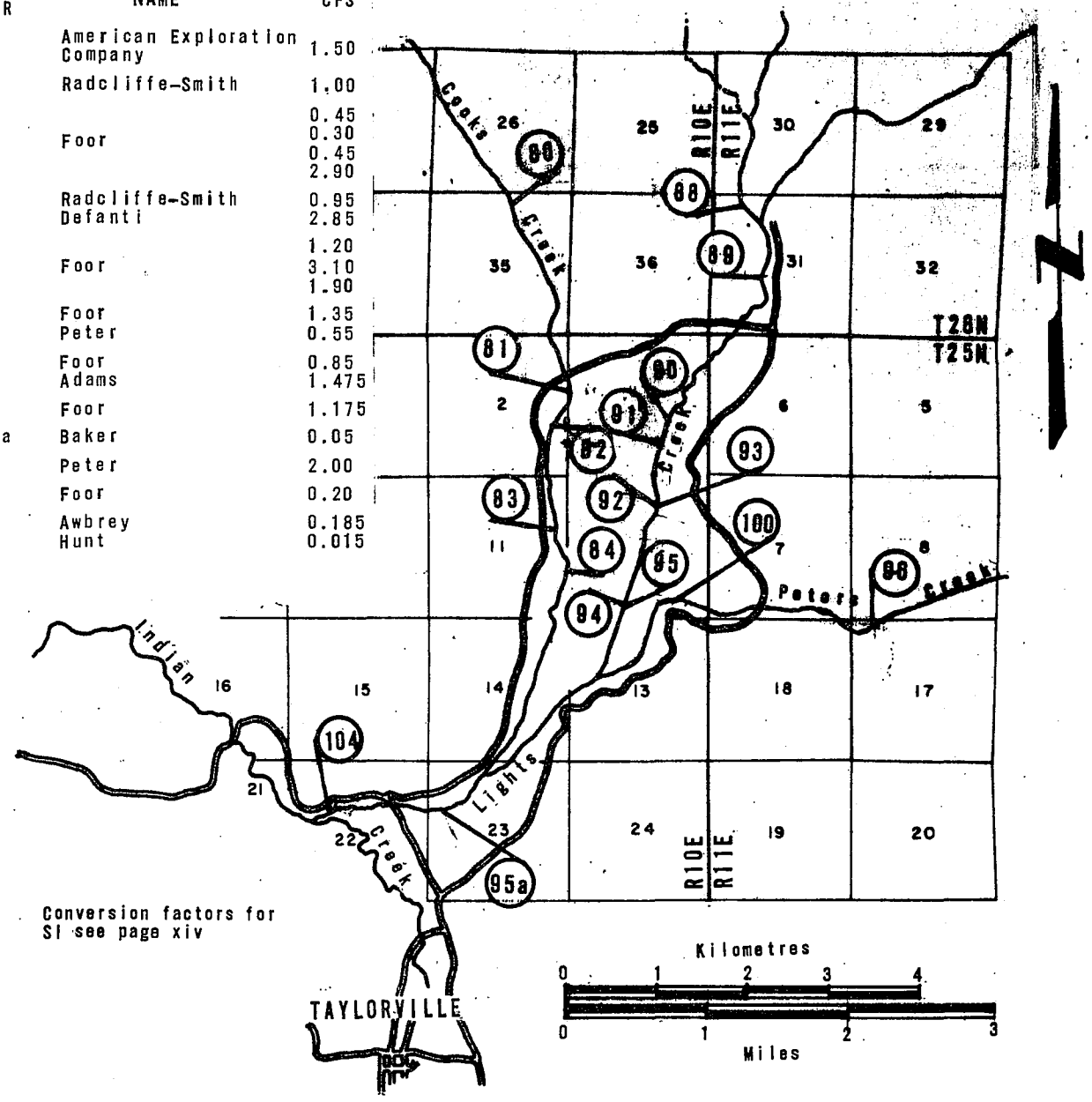
DEPARTMENT OF WATER RESOURCES

CENTRAL DISTRICT

DIVERSIONS FROM WOLF CREEK INDIAN CREEK WATERMASTER SERVICE AREA

Figure 10b

DIVERSION NUMBER	NAME	CFS
80	American Exploration Company	1.50
81	Radcliffe-Smith	1.00
82		0.45
83	Foor	0.30
84		0.45
88		2.90
89	Radcliffe-Smith	0.95
	Defanti	2.85
90		1.20
91	Foor	3.10
92		1.90
93	Foor	1.35
	Peter	0.55
94	Foor	0.85
	Adams	1.475
95	Foor	1.175
95a	Baker	0.05
96	Peter	2.00
100	Foor	0.20
104	Awbrey	0.185
	Hunt	0.015



Conversion factors for SI see page xiv

STATE OF CALIFORNIA

THE RESOURCES AGENCY

DEPARTMENT OF WATER RESOURCES

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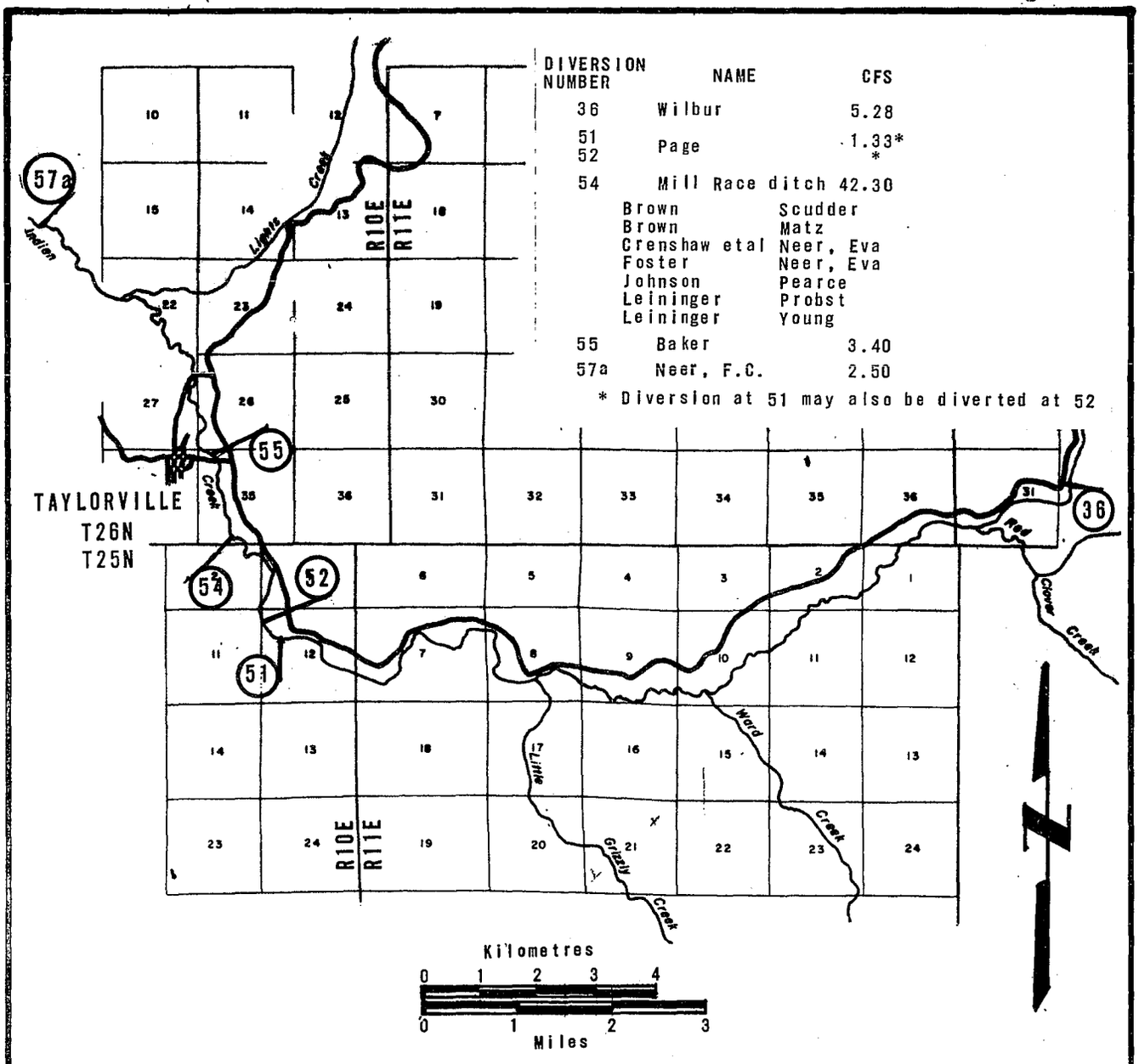
DIVERSIONS FROM LIGHTS CREEK INDIAN CREEK WATERMASTER SERVICE AREA

Figure 10c



Conversion factors for SI see page xiv

STATE OF CALIFORNIA

THE RESOURCES AGENCY

DEPARTMENT OF WATER RESOURCES

CENTRAL DISTRICT

DIVERSIONS FROM

INDIAN CREEK AND UPPER TRIBUTARIES

INDIAN CREEK

WATERMASTER SERVICE AREA

JUNIPER CREEK WATERMASTER SERVICE AREA

The Juniper Creek service area is situated in the northwest part of Lassen County, south and east of the town of Bieber, in Big Valley (see Figure 3).

Basis of Service

The Juniper Creek watermaster service area which consists of Iverson Reservoir, was created on January 14, 1976. On November 24, 1964, water right application 20916 was granted by the Water Resources Control Board for the storage of 2.2 cubic hectometres (1,800 acre-feet) for Iverson Reservoir.

In the matter of application 20916, a stipulation and agreement, dated July 17, 1964 between applicant John McArthur and the Pacific Gas and Electric Company is the basis of watermaster service. Watermaster service is provided between November 1 and May 1 of each year.

1976 Distribution

Watermaster service began in the Juniper Creek watermaster service area on January 14, 1976, and continued until May 1, 1976, with Kenneth E. Morgan, Water Resources Engineering Associate, as watermaster.

A summary of Iverson Reservoir operations is listed below.

The reservoir storage decreased about .002 hm^3 (1.5 A/F) per day due to evaporation and seepage. On March 9 the Iverson Reservoir headgate was opened by the watermaster for releases, as the P. G. and E. rights were not filled. The Iverson Reservoir owners closed the headgate and locked it and forbade the watermaster to release any more water until a clarification in the July 17, 1964 stipulation and agreement had been reached.

No further releases from Iverson Reservoir were made up to the end of the watermaster period on May 1, 1976.

Several meetings took place prior to May 1; however, no clarification was made.

Iverson Reservoir Operations

	Storage		Releases	
Date	hm^3	A/F	hm^3	A/F
1/14/76	.759	615		
			.000	0
2/1/76	.729	591[1/]		
			.000	0
2/27/76	.699	559[1/]		
			.000	0
3/1/76	.878	713		
			.031	25
4/1.76	1.221	990		
			.000	0
5/1/76	1.147	930[1/]		

1/ Difference in storage is evaporation and seepage.

MIDDLE FORK FEATHER RIVER WATERMASTER SERVICE AREA

The Middle Fork Feather River service area is located in and around Sierra Valley, a plateau area on the west slope of the Sierra Nevada Mountains in the eastern portion of Sierra and Plumas Counties.

Major sources of supply for this service area are the Middle Fork Feather River and its tributaries in the Sierra Valley. The area is comprised of five major stream groups. Starting in the northeast corner of the valley and proceeding in a clockwise direction, these are Little Last Chance Creek, Smithneck Creek, Webber Creek and tributaries, West Side Canal, and Fletcher Creek and Spring Channels. The Middle Fork Feather River flows generally north for approximately 24 kilometres (15 miles) through Sierra Valley. It then flows out of the valley in a westerly direction near Beckwourth. The major place of use is in Sierra Valley, which is about 24 km (15 miles) long and 16 km (10 miles) wide. The average elevation of the valley floor is 1 493 metres (4,900 feet).

Maps of the Middle Fork Feather River service area are presented as Figures 11 through 11k, pages 70 through 81.

Basis of Service

The Middle Fork Feather River watermaster service area was created on March 29, 1940, to include, with the exception of certain tributaries and springs, all water rights set forth in Decree No. 3095 entered in the Middle Fork Feather River statutory adjudication proceeding on January 19, 1940, Superior Court, Plumas County.

The decree establishes the number of priority classes for each of the major stream systems within the Middle Fork Feather River service area as follows: Little Last Chance Creek - eight; Smithneck Creek - five; West Side Canal Group - five; Fletcher Creek and Spring Channels - three; Webber Creek and tributaries - six; and Sierra Valley Water Company - one.

The service area has been amended three times to include and exclude certain water rights. Watermaster service has been provided during each irrigation season since the service area was created and annual reports have been prepared to show the work accomplished.

Water Supply

The major water supply in the Middle Fork Feather River service area is derived from snowmelt runoff, with minor flow from springs and from supplemental stored and foreign water.

Natural flows of Little Last Chance Creek are supplemented by reservoir storage provided by Frenchman Dam which was constructed by the Department of Water Resources in 1961. Stored water is released and used as needed under the provisions of an annual contract.

Smithneck Creek flow is normally sufficient to supply all allotments until about the middle of May. It then decreases until about June 1 and only first and second priority allotments are then available for the remainder of the season.

The natural flow of Webber Creek is normally sufficient to supply all allotments until the middle of May. At that time up to 1 700 litres per second (60 cubic feet per second) is diverted from the Little Truckee River to supplement the flow. This imported water is diverted through the Little Truckee Ditch into Onion Creek and then into Webber Creek, via Cold Stream, for use of shareholders in the Sierra Valley Water Company. This supplemental supply decreases rapidly during July, producing only a small quantity during the latter part of the season.

The West Side Canal streams normally supply all allotments until the first part of June. The flow then gradually declines throughout the season.

The flow of Fletcher Creek and Spring Channels normally supplies all allotments until July 1. The flow then gradually declines for the remainder of the season.

Records of the daily mean discharge of Little Truckee Ditch and the Middle Fork Feather River near Portola are presented in Tables 16 and 17, page 69.

Method of Distribution

Wild flooding is employed by the majority of the water users to irrigate their fields. Small diversion dams are placed in the stream channels to divert the water into individual distribution systems. Check dams are constructed in the swales to implement flooding once the water reaches the fields.

1976 Distribution

Watermaster service began March 15 in the Middle Fork Feather River service area and continued until September 30. Joe Nessler, Water Resources Engineering Associate, was Supervising Watermaster during this period. Conrad Lahr, Water Resources Technician II, assisted as watermaster. The available supply in the service area was below average during the season.

Little Last Chance Creek. Frenchman Dam and Reservoir began its fifteenth season of operation. An annual contract concerning storage, distribution, and sale of water was again negotiated with the Last Chance Creek Water District. Delivery and distribution of water was made in accordance with the provisions of the contract and the instructions of the District's Board of Directors.

Smithneck Creek. The available water supply was sufficient to satisfy all allotments (five priorities) until about March 15. A two-week rotation schedule was started March 25 and continued for the remainder of the season.

Webber Creek and Tributaries. The natural flow of Webber Creek was sufficient to supply all allotments (six priorities) until about May 1. It then decreased gradually until first and second priority allotments were being served at the end of the season. Importation of water from the Little Truckee River began on April 19, supplementing the natural flow of Webber Creek to help satisfy all allotments of the Sierra Valley Water Company shareholders (one priority). A total of 7.27 cubic hectometres (5,895 acre-feet) of water was diverted through the Little Truckee Ditch up to September 30. This diversion provided sufficient water until about June 15.

West Side Canal Group. The available water supply in the West Side Canal Group, consisting of Hamlin, Miller, and Turner Creeks, was sufficient to satisfy all allotments (five priorities) until the first of May.

Fletcher Creek and Spring Channels. Ample water was available to satisfy all allotments until April 1. The supply decreased through the remainder of the season until 10 percent of second priority allotments were available on July 1. The flow remained near this rate for the rest of the season.

MIDDLE FORK FEATHER RIVER WATERMASTER SERVICE AREA
1976 Daily Mean Discharge

TABLE 16

LITTLE TRUCKEE DITCH AT HEAD

Day	April		May		June		July		August		September		Day
	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	
1			850	30	1670	59	176	6.2	99	3.5	34	1.2	1
2			878	31	1500	53	161	5.7	119	4.2	34	1.2	2
3			1130	40	1330	47	144	5.1	62	2.2	34	1.2	3
4			1390	49	1270	45	139	4.9	73	2.6	31	1.1	4
5			1390	49	1190	42	99	3.5	56	2.0	39	1.4	5
6			1360	48	1100	39	110	3.9	56	2.0	39	1.4	6
7			1590	56	1050	37	110	3.9	48	1.7	34	1.2	7
8			1610	57	963	34	105	3.7	48	1.7	39	1.4	8
9			1610	57	1220	43	90	3.2	39	1.4	39	1.4	9
10			1670	59	1190	42	99	3.5	42	1.5	34	1.2	10
11			1730	61	1080	38	85	3.0	48	1.7	190	6.7	11
12			1700	60	963	34	85	3.0	42	1.5	130	4.6	12
13			1730	61	850	30	62	2.2	85	3.0	110	3.9	13
14			1730	61	765	27	51	1.8	184	6.5	73	2.6	14
15			1700	60	708	25	39	1.4	634	22	56	2.0	15
16			1700	60	680	24	79	2.8	215	7.6	51	1.8	16
17			1700	60	623	22	119	4.2	125	4.4	48	1.7	17
18			1700	60	566	20	79	2.8	144	5.1	48	1.7	18
19	142*	5.0*	1670	59	538	19	62	2.2	176	6.2	51	1.8	19
20	340	12	1610	57	481	17	51	1.8	125	4.4	51	1.8	20
21	481	17	1640	58	453	16	56	2.0	90	3.2	56	2.0	21
22	538	19	1670	59	425	15	56	2.0	130	4.6	56	2.0	22
23	595	21	1670	59	368	13	73	2.6	110	3.9	62	2.2	23
24	651	23	1700	60	312	11	99	3.5	68	2.4	62	2.2	24
25	396	14	1700	60	312	11	73	2.6	73	2.6	62	2.2	25
26	00	0.0	1700	60	269	9.5	56	2.0	62	2.2	56	2.0	26
27	00	0.0	1700	60	252	8.9	48	1.7	85	3.0	56	2.0	27
28	278	9.8	1700	60	224	7.9	42	1.5	79	2.8	51	1.8	28
29	538	19	1700	60	198	7.0	48	1.7	73	2.6	48	1.7	29
30	708	25	1670	59	184	6.5	48	1.7	51	1.8	42	1.5	30
31			1700	60			51	1.8	39	1.4			31
Mean	389	13.7	1580	55.8	758	26.8	83.9	3.0	106	3.7	57.5	2.0	Mean
Volume													Volume
hm	.400		4.230		1.960		.220		.280		.150		hm
AF		327		3430		1590		182		230		121	AF

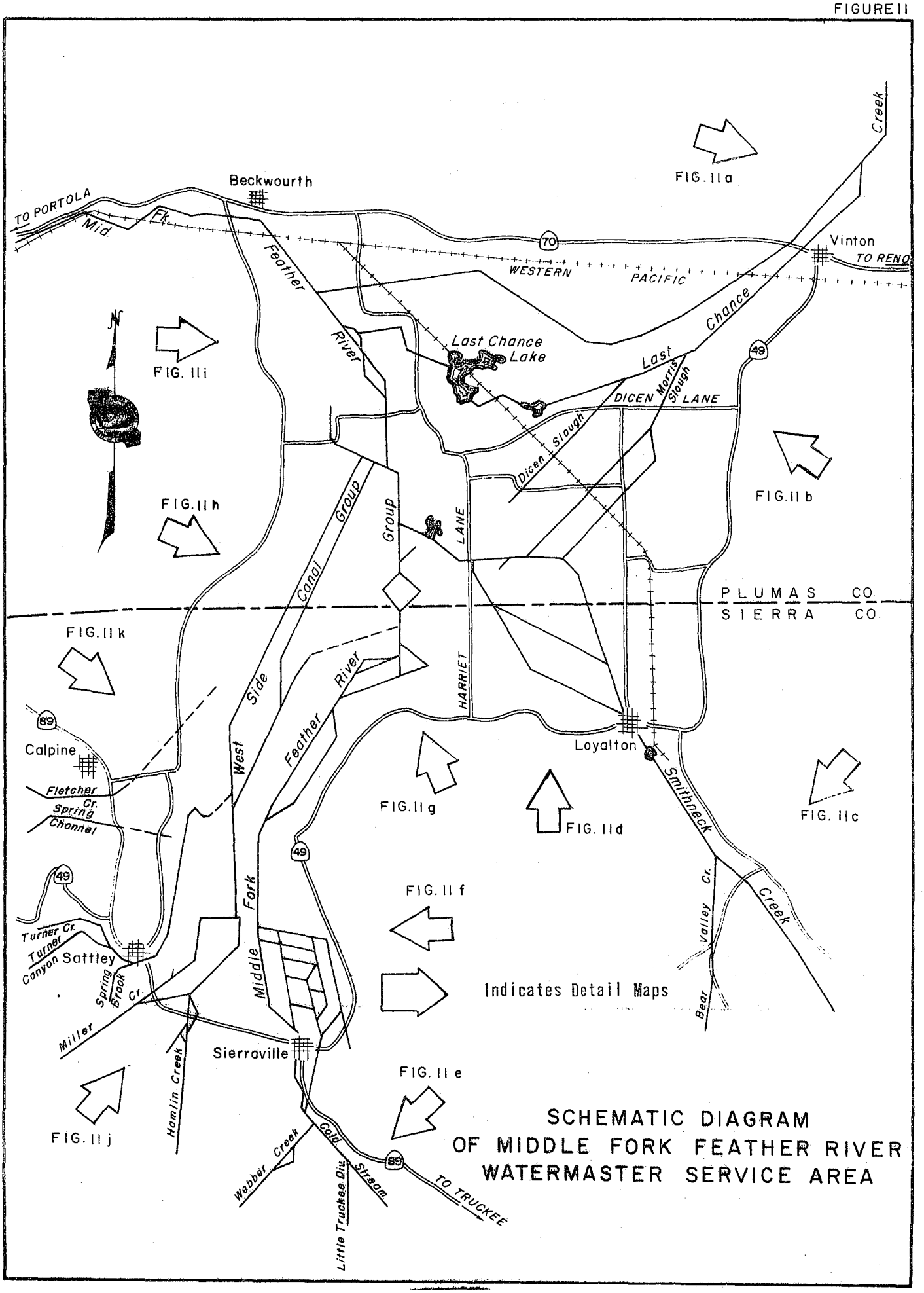
* Beginning of flow

TABLE 17

MIDDLE FORK FEATHER RIVER NEAR PORTOLA

Day	March		April		May		June		July		August		September		Day
	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	
1	4160	147	1610	57	991	35	453	16	283	10	176	6.2	280	9.9	1
2	5580	197	1610	57	906	32	453	16	283	10	227	8.0	312	11	2
3	6600	233	1500	53	793	28	481	17	312	11	280	9.9	280	9.9	3
4	6090	215	1330	47	736	26	218	7.7	368	13	269	9.5	207	7.3	4
5	5010	177	651	23	651	23	340	12	340	12	269	9.5	252	8.9	5
6	4330	153	481	17	595	21	261	9.2	340	12	269	9.5	187	6.6	6
7	4050	143	481	17	510	18	244	8.6	283	10	269	9.5	227	8.0	7
8	3940	139	566	20	510	18	252	8.9	283	10	269	9.5	252	8.9	8
9	3820	135	680	24	453	16	312	11	312	11	269	9.5	280	9.9	9
10	3880	137	793	28	453	16	283	10	283	10	269	9.5	283	10	10
11	4330	153	793	28	425	15	340	12	283	10	269	9.5	396	14	11
12	5040	178	878	31	396	14	1840	65	283	10	252	8.9	312	11	12
13	5210	184	878	31	340	12	566	20	283	10	227	8.0	283	10	13
14	4420	156	850	30	312	11	481	17	283	10	235	8.3	312	11	14
15	3650	129	850	30	340	12	425	15	283	10	269	9.5	283	10	15
16	3170	112	793	28	453	16	396	14	269	9.5	235	8.3	139	4.9	16
17	2970	105	850	30	510	18	481	17	244	8.6	235	8.3	96	3.4	17
18	2830	100	906	32	538	19	793	28	252	8.9	283	10	105	3.7	18
19	2920	103	991	35	566	20	651	23	218	7.7	312	11	96	3.4	19
20	3090	109	963	34	595	21	538	19	218	7.7	283	10	96	3.4	20
21	3260	115	878	31	538	19	425	15	207	7.3	280	9.9	96	3.4	21
22	3230	114	821	29	538	19	283	10	187	6.6	312	11	96	3.4	22
23	3000	106	765	27	481	17	261	9.2	187	6.6	280	9.9	127	4.5	23
24	2660	94	651	23	481	17	396	14	187	6.6	244	8.6	87	3.1	24
25	2550	90	623	22	566	20	396	14	195	6.9	187	6.6	96	3.4	25
26	2120	75	708	25	623	22	340	12	195	6.9	235	8.3	96	3.4	26
27	1670	59	935	33	595	21	312	11	187	6.6	195	6.9	96	3.4	27
28	1590	56	1050	37	566	20	312	11	176	6.2	176	6.2	96	3.4	28
29	1610	57	963	34	538	19	312	11	164	5.8	176	6.2	127	4.5	29
30	1610	57	963	34	510	18	283	10	139	4.9	187	6.6	127	4.5	30
31	1590	56			481	17			150	5.3	244	8.6			31
Mean	3550	125	894	31.6	548	19.4	438	15.5	248	8.7	248	8.8	191	6.7	Mean
Volume															Volume
hm	9.500		2.320		1.470		1.130		.660		.660		.490		hm
AF		7700		1880		1190		919		537		538		401	AF

FIGURE II



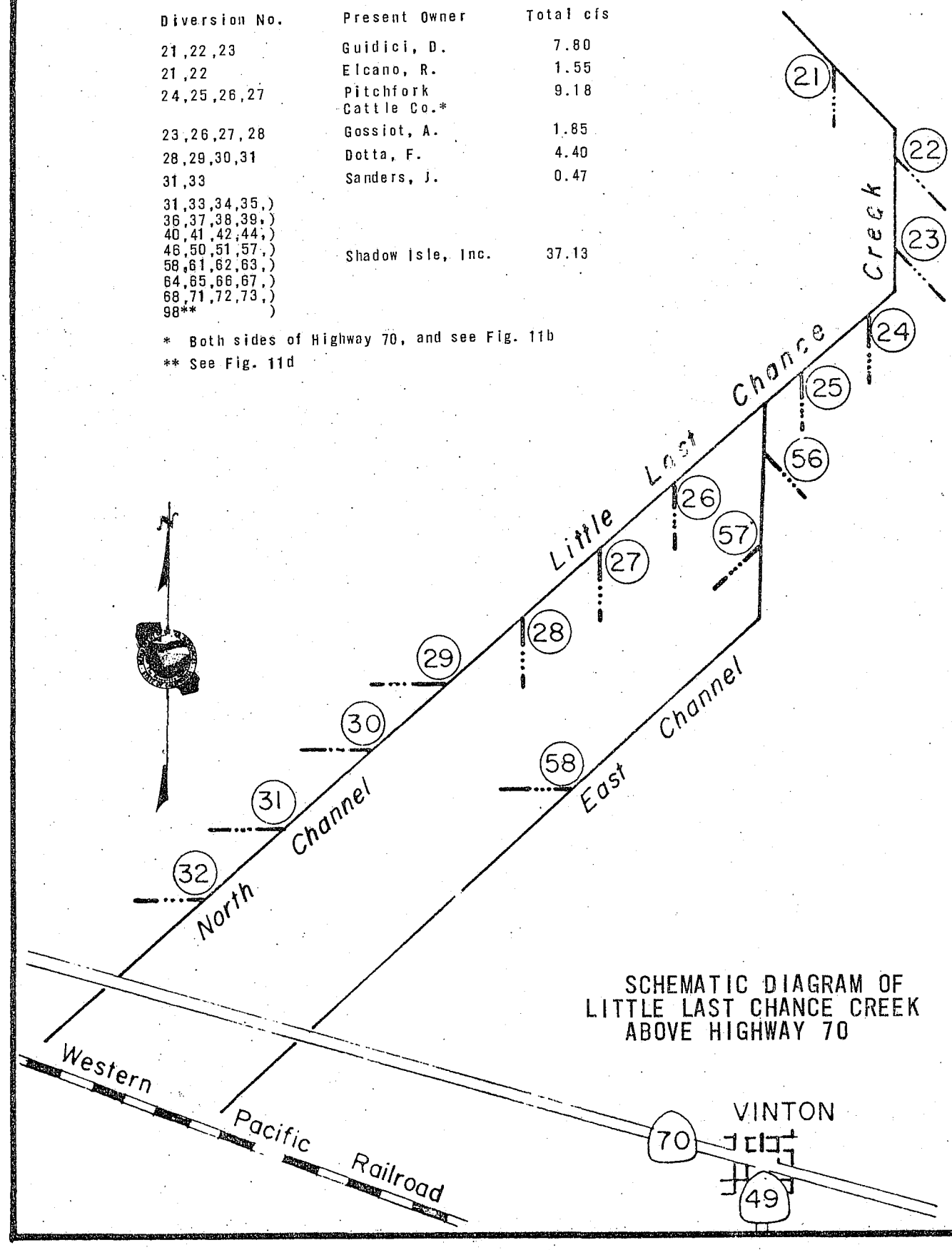
SCHEMATIC DIAGRAM
OF MIDDLE FORK FEATHER RIVER
WATERMASTER SERVICE AREA

ALLOCATIONS FROM LITTLE LAST CHANCE CREEK
ABOVE HIGHWAY 70

Diversion No.	Present Owner	Total cfs
21,22,23	Guidici, D.	7.80
21,22	Elcano, R.	1.55
24,25,26,27	Pitchfork Cattle Co.*	9.18
23,26,27,28	Gossiot, A.	1.85
28,29,30,31	Dotta, F.	4.40
31,33	Sanders, J.	0.47
31,33,34,35,) 36,37,38,39,) 40,41,42,44,) 46,50,51,57,) 58,61,62,63,) 64,65,66,67,) 68,71,72,73,) 98**)	Shadow Isle, Inc.	37.13

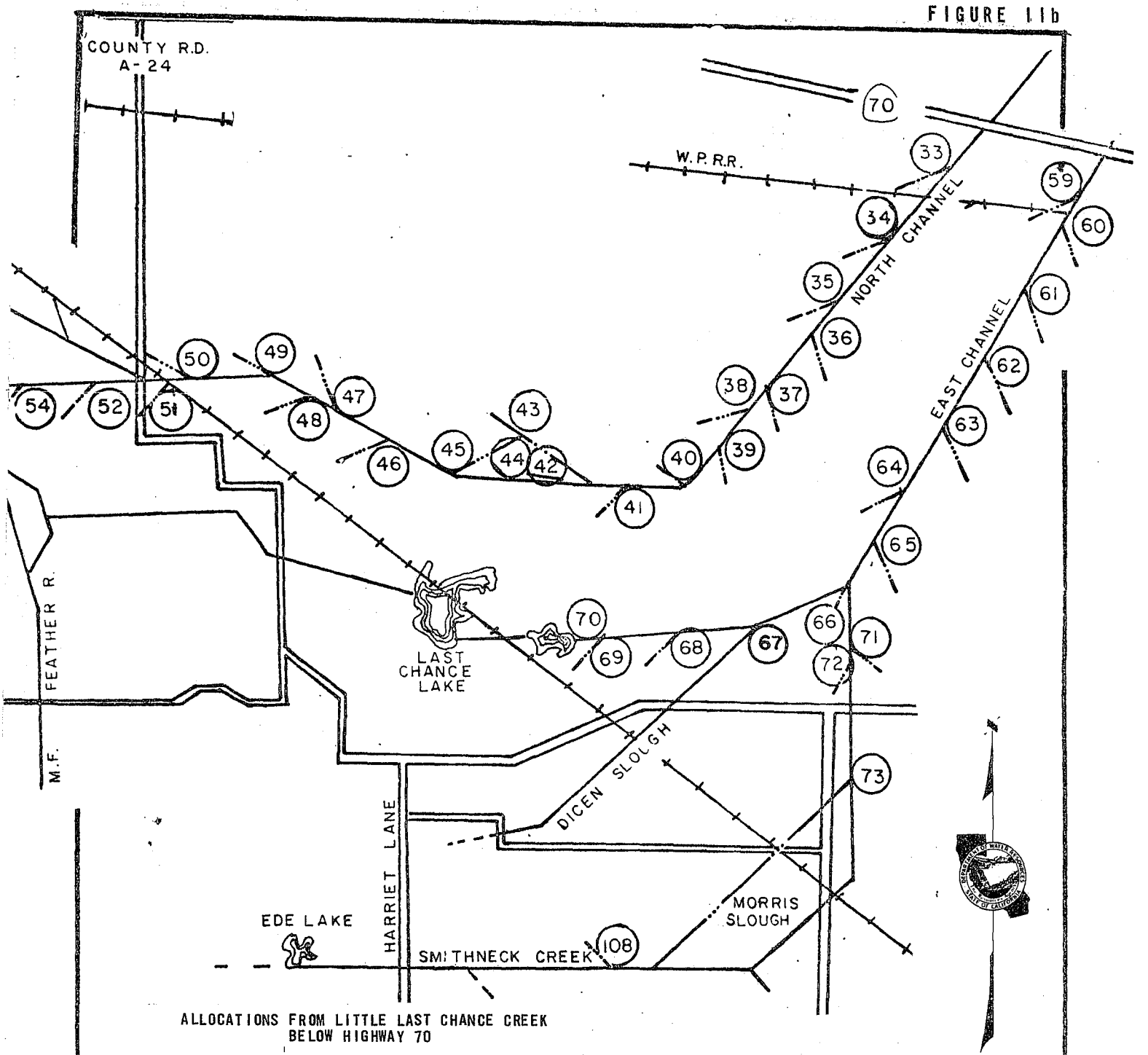
* Both sides of Highway 70, and see Fig. 11b

** See Fig. 11d



SCHEMATIC DIAGRAM OF
LITTLE LAST CHANCE CREEK
ABOVE HIGHWAY 70

FIGURE 11b

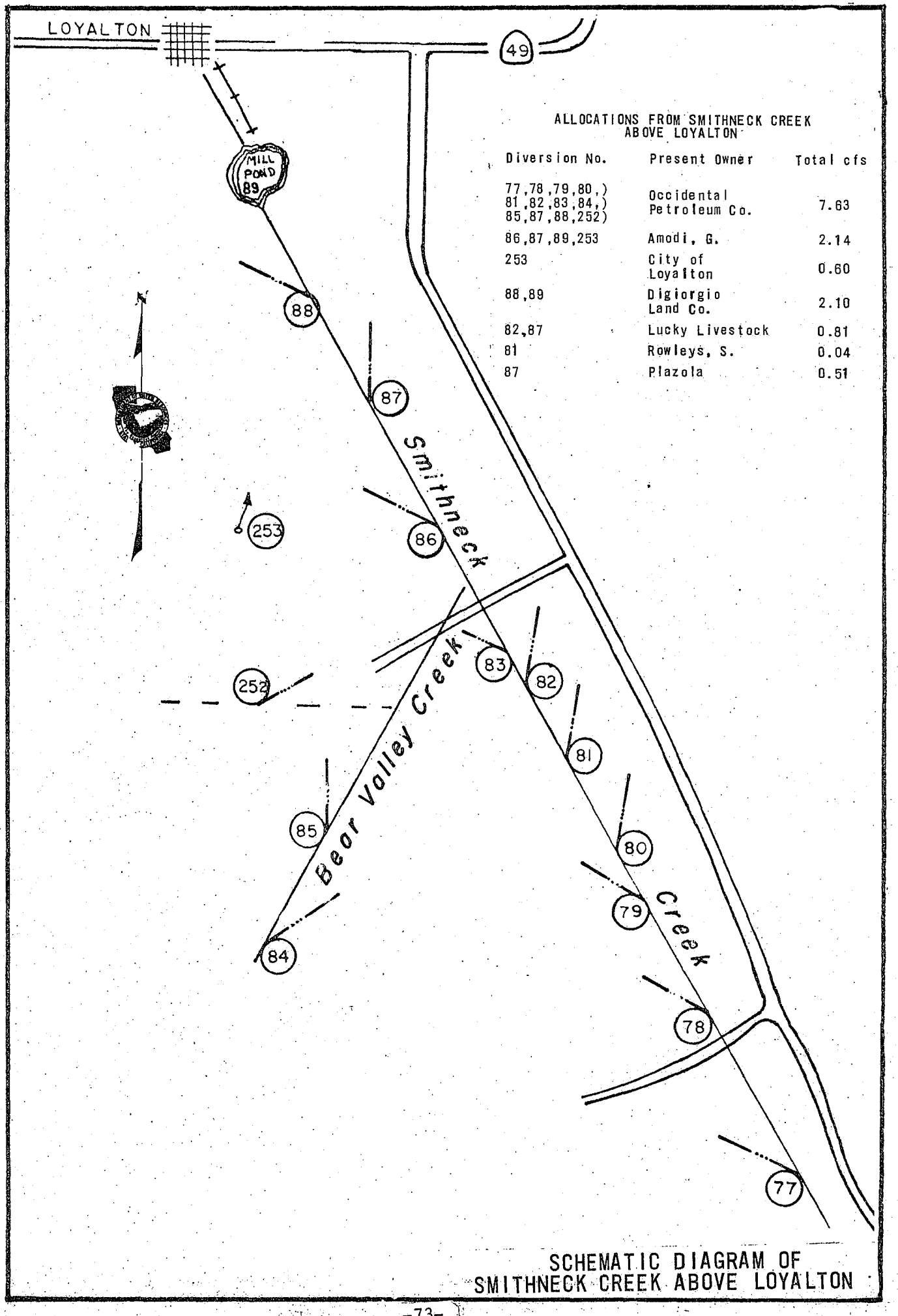


ALLOCATIONS FROM LITTLE LAST CHANCE CREEK
BELOW HIGHWAY 70

Diversion No.	Present Owner	Total cfs
31*,32*,57*,) 58*,59,60)	Ramelli, T.	3.30
57,58,59,60	Ayoob, G.	4.05
43,44,45,67, 68,69,72,79	Roberti, E.	9.14
70	Ramelli, M.	0.55
70	Wiley, V.	0.20
70	Carmicheal, S.	0.10
47,48,49	Overland Inc.	4.45
52,53	Maddalena, L.	1.20
54,55	Noble, P.	0.45
67,72	Lucky Livestock	1.68
67,108	Hage, J.	0.20

* See Fig. 11a for location of diversions 33-42, 46,50,51,61-68,71,72,73,98 (Occidental Petroleum)

SCHEMATIC DIAGRAM OF
LITTLE LAST CHANCE CREEK
BELOW HIGHWAY 70

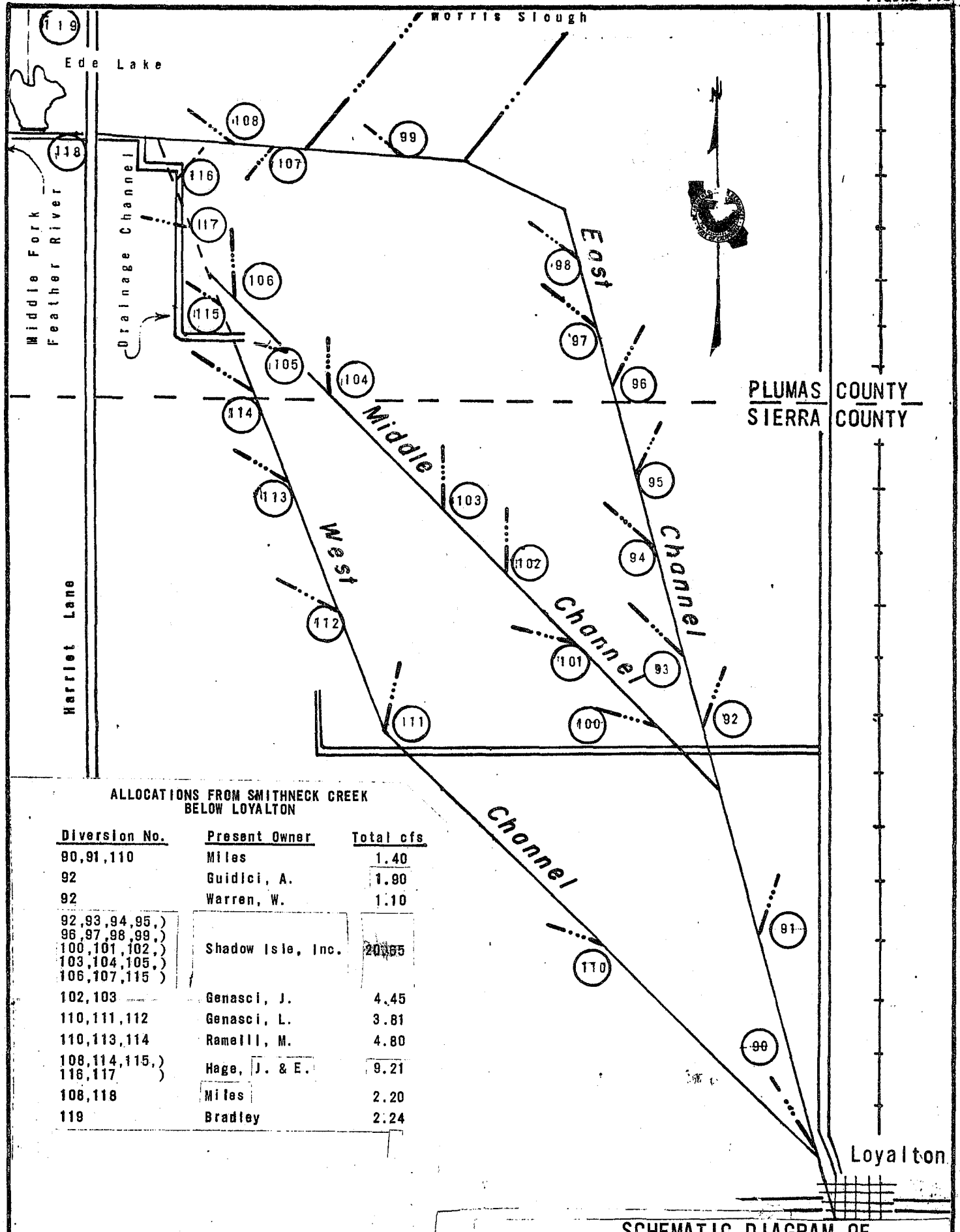


ALLOCATIONS FROM SMITHNECK CREEK ABOVE LOYALTON

Diversion No.	Present Owner	Total cfs
77,78,79,80,) 81,82,83,84,) 85,87,88,252)	Occidental Petroleum Co.	7.63
86,87,89,253	Amodi, G.	2.14
253	City of Loyalton	0.60
88,89	Digiorgio Land Co.	2.10
82,87	Lucky Livestock	0.81
81	Rowleys, S.	0.04
87	Plazola	0.51

SCHEMATIC DIAGRAM OF SMITHNECK CREEK ABOVE LOYALTON

FIGURE 11d



ALLOCATIONS FROM SMITHNECK CREEK BELOW LOYALTON

Diversion No.	Present Owner	Total cfs
90,91,110	Miles	1.40
92	Guidici, A.	1.90
92	Warren, W.	1.10
92,93,94,95,) 96,97,98,99,) 100,101,102,) 103,104,105,) 106,107,115)	Shadow Isle, Inc.	20.65
102,103	Genasci, J.	4.45
110,111,112	Genasci, L.	3.81
110,113,114	Ramelli, M.	4.80
108,114,115,) 116,117)	Hage, J. & E.	9.21
108,118	Miles	2.20
119	Bradley	2.24

SCHEMATIC DIAGRAM OF SMITHNECK CREEK BELOW LOYALTON

FIGURE II.e

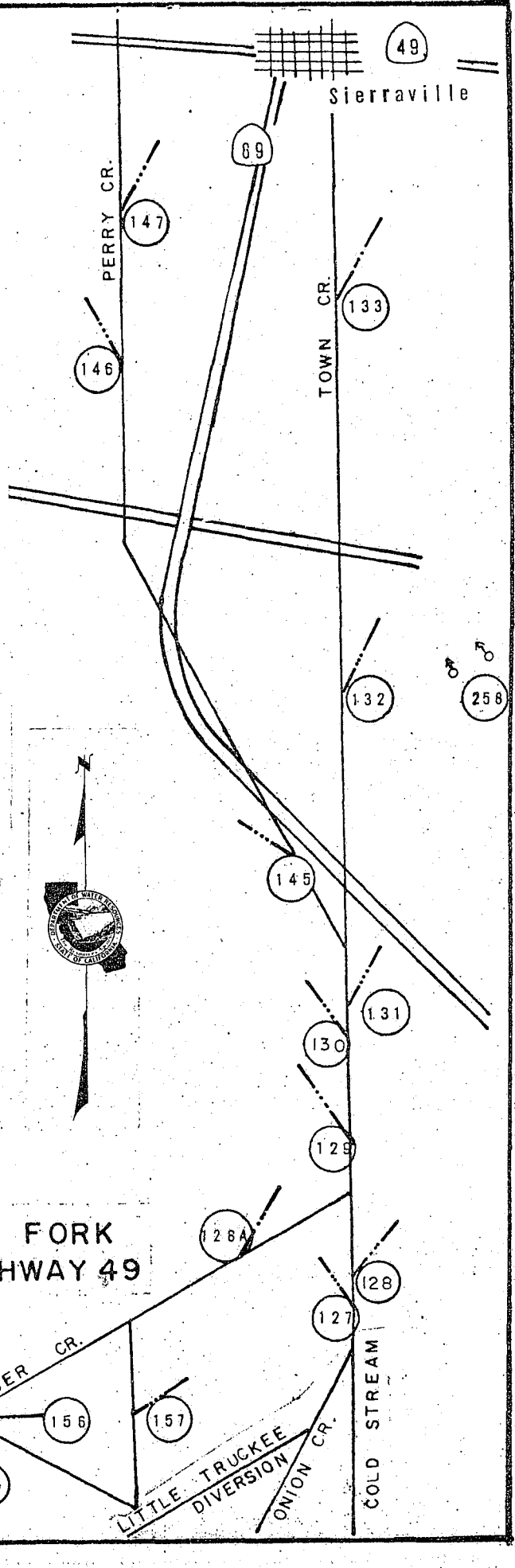
ALLOCATIONS FROM MIDDLE FORK FEATHER RIVER
SOUTH OF HIGHWAY 49

Diversion No.	Present Owner	Total cfs
127	Morgan	0.009
127	Monico	0.111
155	Amodei, J.	2.50
133, 156, 157	McKinney	1.35
128, 128A	Johnson, A.	0.453
128, 128A	Stodiek	0.452
133, 134	Johnson, L.	1.04
134*	Johnson, S.	0.22
129*	Maddalena, G.	2.30
131	Pitchfork Cattle Co.	0.07
131, 132, 145, 258	RST Cattle Co.	2.38
128, 128A	S.F. Bay Girl Scout Council	0.095
130	LaCosta, P.	0.006
130	Dellera, K.	0.025
145	Heisen, A.	0.02
145	Wright, I.	0.10
145	McCaffrey	0.10
145	Scudder, N.	0.04
133	Goodrich, C.	0.02
134	Mello, E.	0.08
134	West, H.	0.03
134	Griffen, T.	0.03
134	Rosocoe, P.	0.01
134	Savage, H&E.	0.01
129, 133**	Webber, G.	2.11
R. R. Springs	Sierraville PUD	0.654

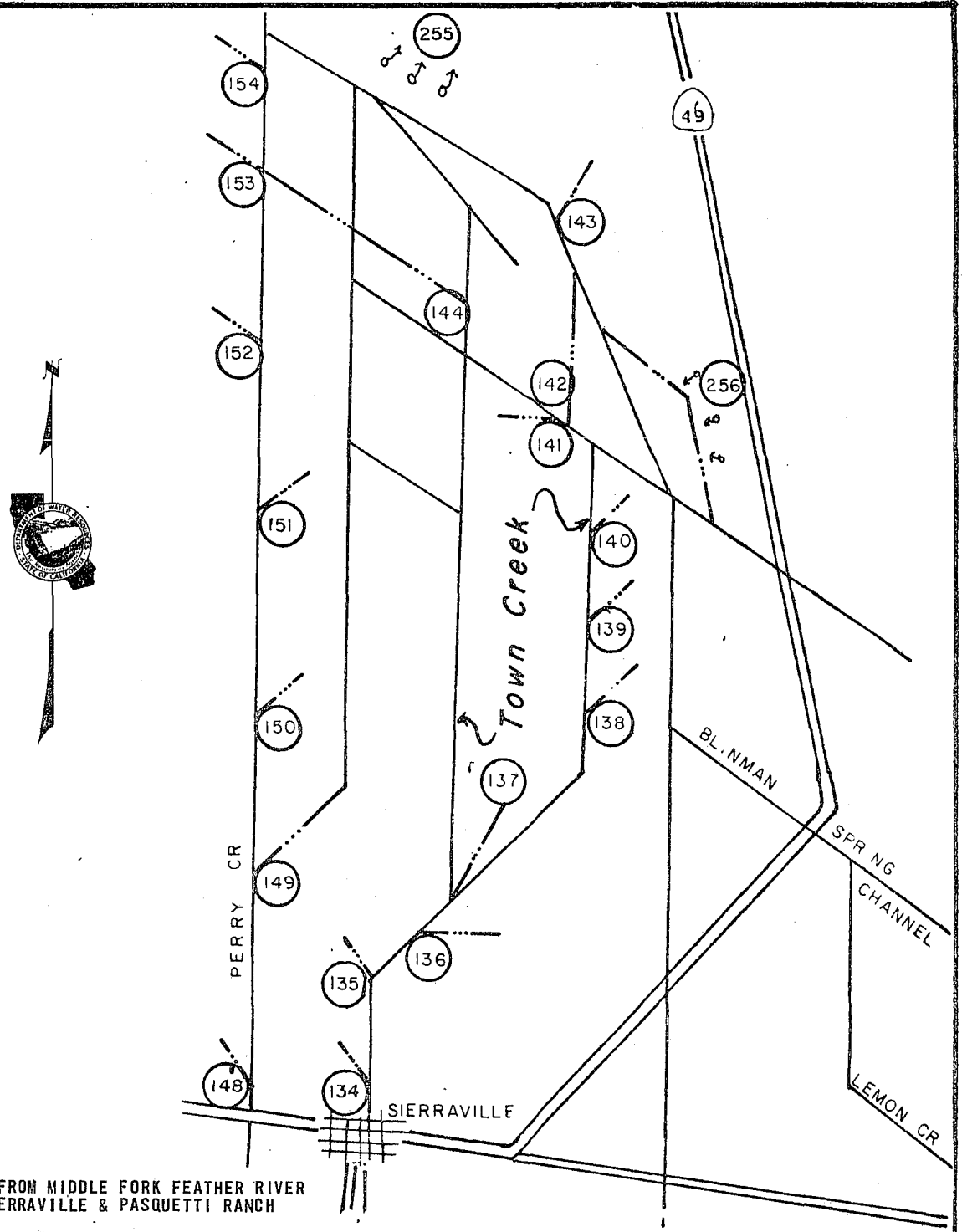
* Both sides of Highway 49

** Other allocations north of Highway 49

Rights under Div. 134, formerly used in Sierraville



SCHEMATIC DIAGRAM OF MIDDLE FORK FEATHER RIVER SOUTH OF HIGHWAY 49

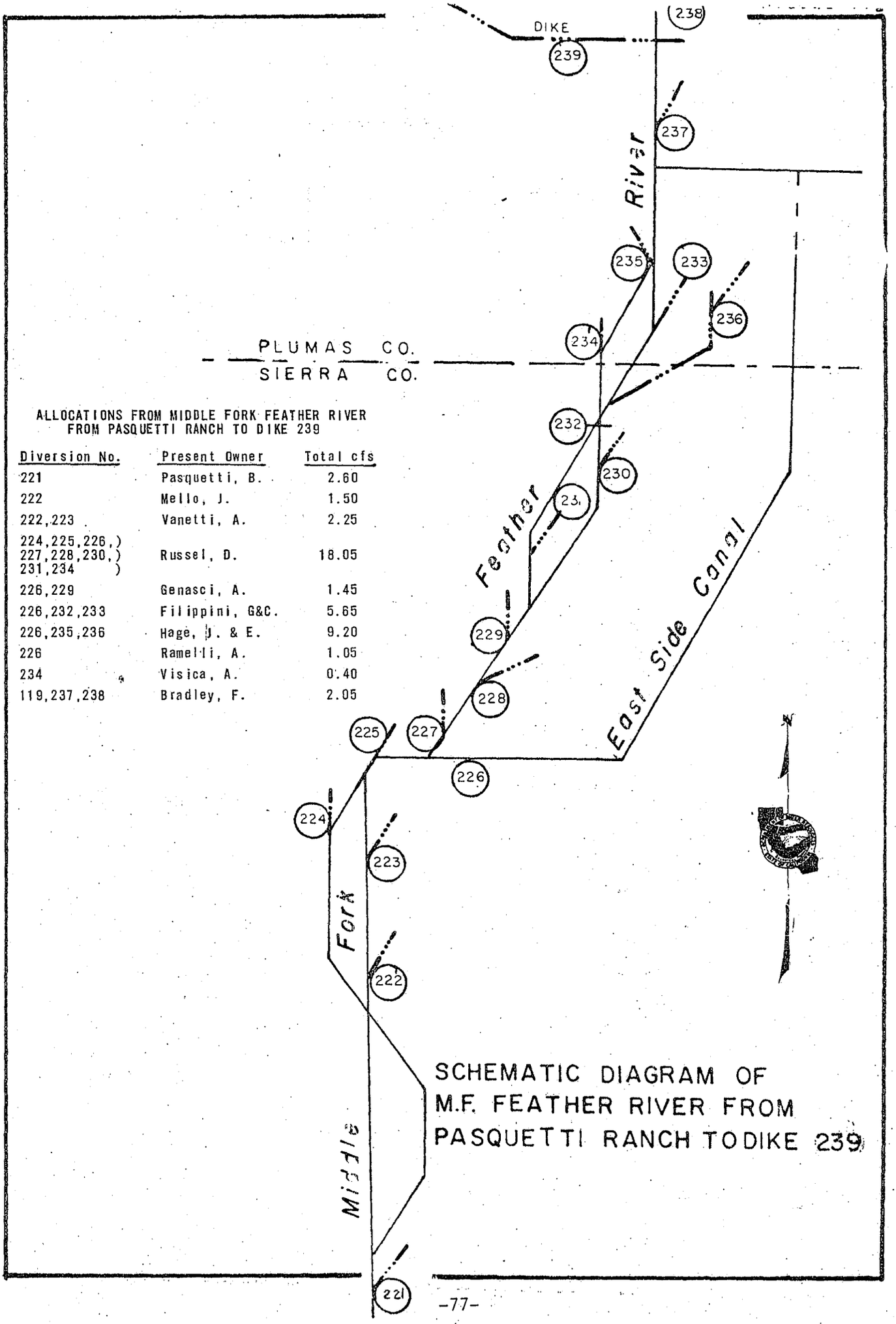


ALLOCATIONS FROM MIDDLE FORK FEATHER RIVER
BETWEEN SIERRAVILLE & PASQUETTI RANCH

Diversion No.	Present Owner	Total cfs
134	Hannon, P.	0.015
134	Snozzi, A.	0.02
135	Carmichael, S.	0.55
137,141,146*,) 147*,149,152)	Webber, G.	13.00
136,137,138,) 139,147*)	Bony, M.	6.85
148	Wilson Bros.	2.00
148,149,150,) 151)	Small, F.	4.90
140,256	Alpers, F.	3.20
142,143,255	Torri, K.	4.00
144,153,154	Mooney, J.	2.00

* See Fig. 11e

SCHEMATIC DIAGRAM OF
MIDDLE FORK FEATHER RIVER
BETWEEN
SIERRAVILLE AND PASQUETTI RANCH

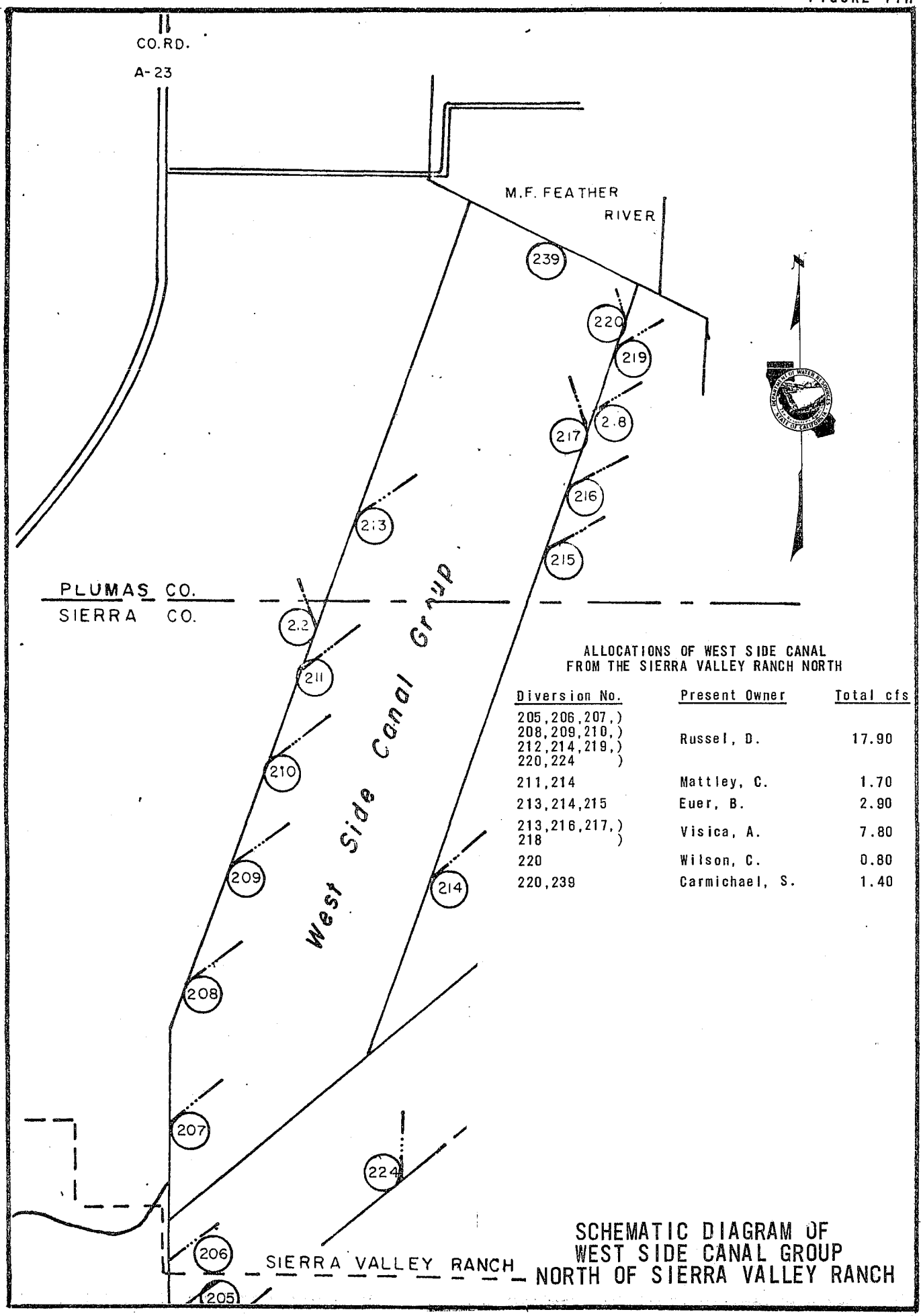


ALLOCATIONS FROM MIDDLE FORK FEATHER RIVER
FROM PASQUETTI RANCH TO DIKE 239

Diversion No.	Present Owner	Total cfs
221	Pasquetti, B.	2.60
222	Mello, J.	1.50
222,223	Vanetti, A.	2.25
224,225,226,) 227,228,230,) 231,234)	Russel, D.	18.05
226,229	Genasci, A.	1.45
226,232,233	Filippini, G&C.	5.65
226,235,236	Hage, J. & E.	9.20
226	Ramelli, A.	1.05
234	Visica, A.	0.40
119,237,238	Bradley, F.	2.05

SCHEMATIC DIAGRAM OF
M.F. FEATHER RIVER FROM
PASQUETTI RANCH TO DIKE 239

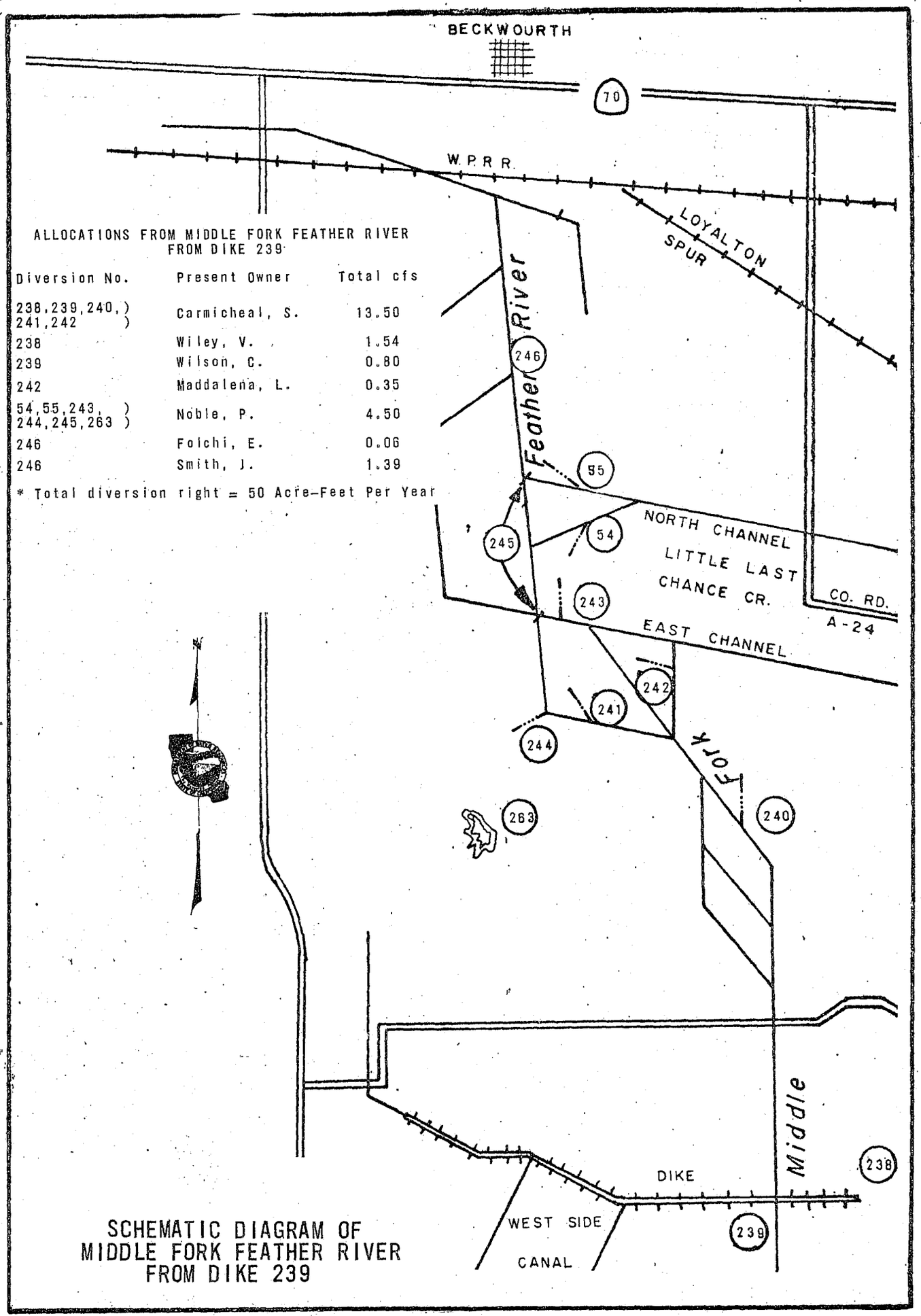
FIGURE 11h



ALLOCATIONS OF WEST SIDE CANAL
FROM THE SIERRA VALLEY RANCH NORTH

Diversion No.	Present Owner	Total cfs
205,206,207,) 208,209,210,) 212,214,219,) 220,224)	Russel, D.	17.90
211,214	Mattley, C.	1.70
213,214,215	Euer, B.	2.90
213,216,217,) 218)	Visica, A.	7.80
220	Wilson, C.	0.80
220,239	Carmichael, S.	1.40

SCHEMATIC DIAGRAM OF
WEST SIDE CANAL GROUP
NORTH OF SIERRA VALLEY RANCH



ALLOCATIONS FROM MIDDLE FORK FEATHER RIVER FROM DIKE 239

Diversion No.	Present Owner	Total cfs
238,239,240,) 241,242)	Carmicheal, S.	13.50
238	Wiley, V.	1.54
239	Wilson, C.	0.80
242	Maddalena, L.	0.35
54,55,243,) 244,245,263)	Noble, P.	4.50
246	Folchi, E.	0.06
246	Smith, J.	1.39

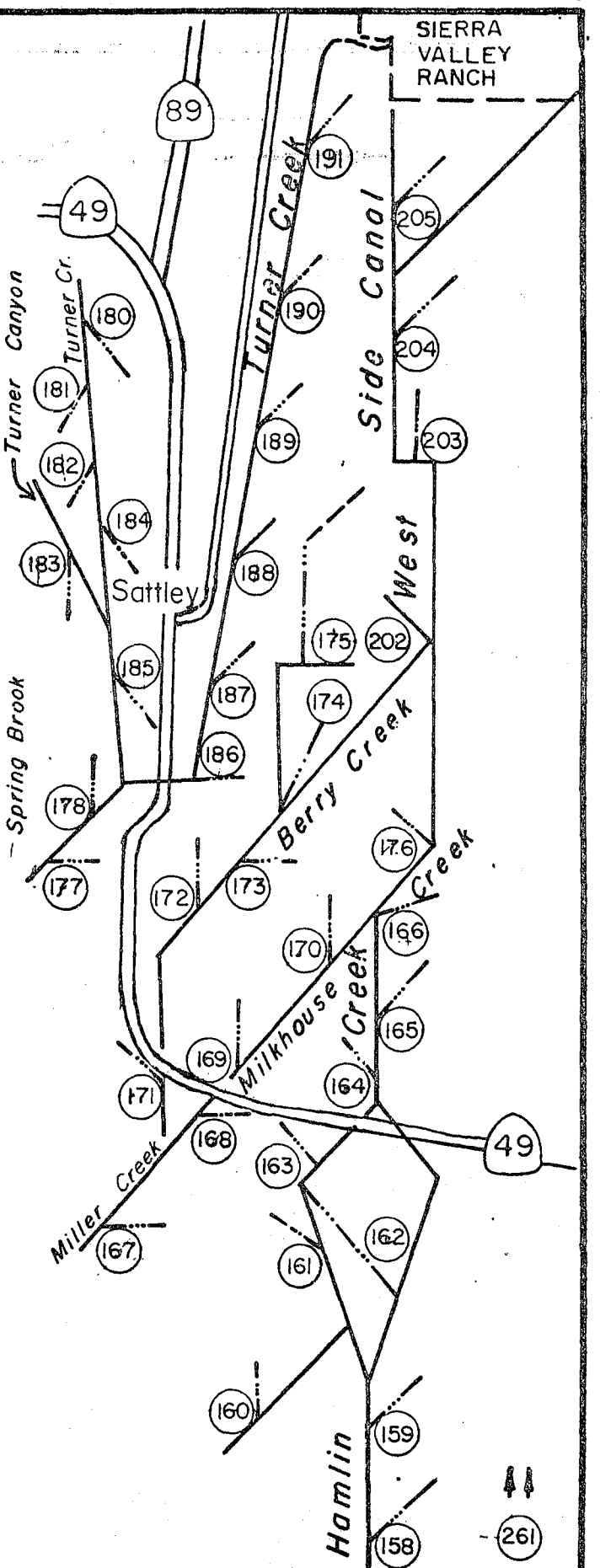
* Total diversion right = 50 Acre-Feet Per Year

SCHEMATIC DIAGRAM OF MIDDLE FORK FEATHER RIVER FROM DIKE 239

FIGURE 11j

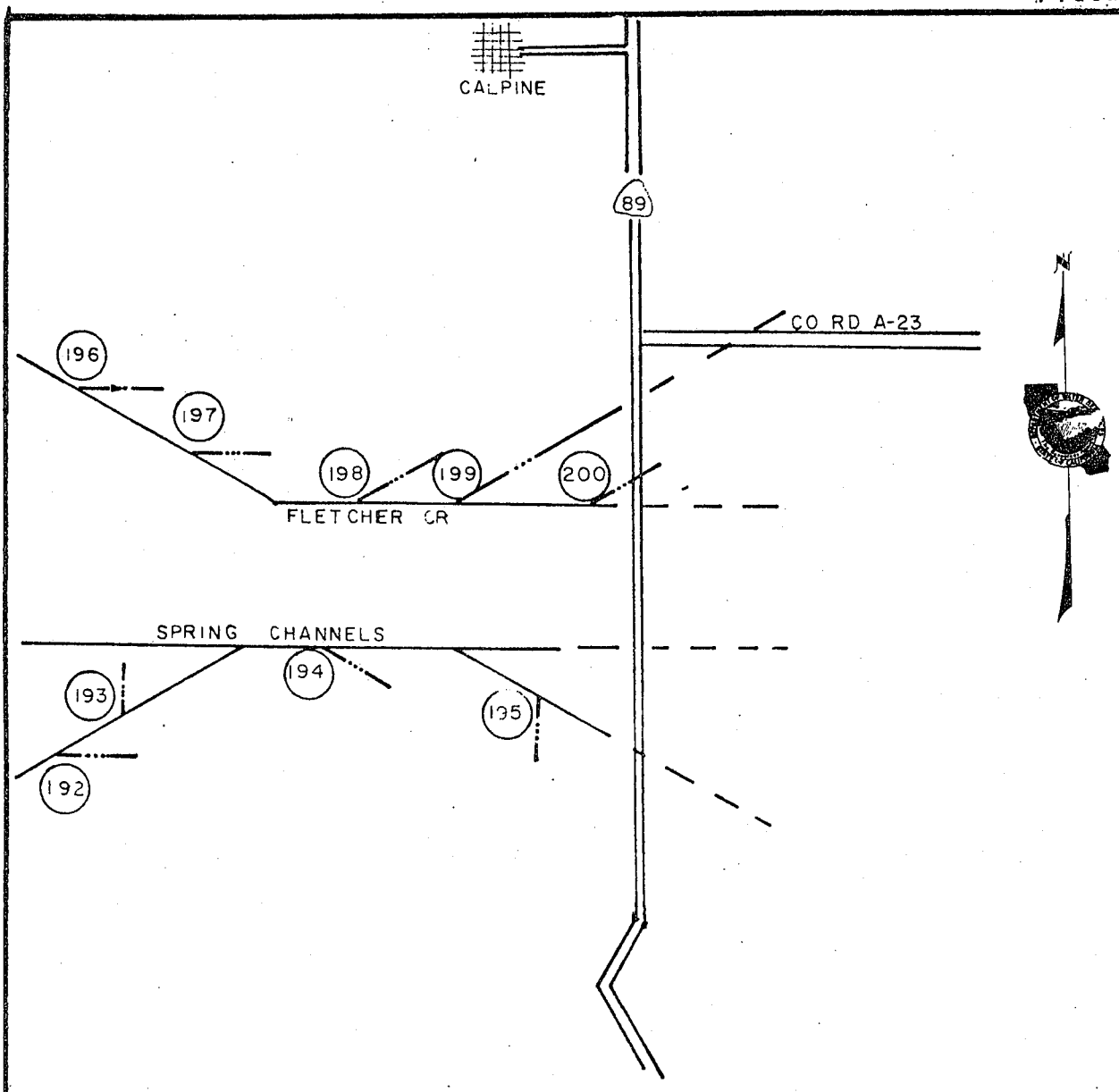
ALLOCATIONS FROM WEST SIDE CANAL GROUP
SOUTH OF SIERRA VALLEY RANCH

Diversion No.	Present Owner	Total cfs
158,159,161,) 162,261)	Maddalena, L.	6.13
160,161,163,) 164,167)	Strang, A&E.	8.55
165,167,168,) 169,170,171,) 173,174,177)	Martinetti, E.	6.33
165,166	Webber, G.	2.60
172,177,178,) 184,185)	Cavitt, J.	4.25
174,202	Tong, J.	2.10
175,184,186,) 187)	Church, G.	5.60
180	Turner, J.	0.02
175,181,182,) 183,184,185,) 187,189,190,) 202)	Turner, F.	10.25
176	Wilson Bros.	1.50
180,188	Dargie, T.	2.90
189	Berutti, J.	2.50
189,191,202,) 204,205)	Van Vleck, G.	6.05
176,203	Mooney, J.	1.50
176	Pasguetti, B.	2.40



SCHEMATIC DIAGRAM OF
WEST SIDE CANAL GROUP
SOUTH OF SIERRA VALLEY RANCH

FIGURE 11k



ALLOCATIONS FROM FLETCHER CREEK
AND SPRING CHANNELS

Diversion No.	Present Owner	Total cfs
196	Sierra Co. Water District	0.56
177,178,192,) 193,194)	Borelli, A.	1.744
192	Scott, F.	0.05
192,193,194	Jinnette, F&W.	0.046
195,199,200	Paulson & Cadenhead	1.428
199	Lukens & Coppla	0.302
199,200	Jaquess, E.	1.32

SCHEMATIC DIAGRAM
FLETCHER CREEK
AND
SPRING CHANNELS

NORTH FORK COTTONWOOD CREEK SERVICE AREA

The North Fork Cottonwood Creek service area is situated in Shasta County near the town of Ono west of Redding. Figure 12, page 85, shows the North Fork Cottonwood Creek stream system including the diversions and roads.

The source of water supply for this service area is the North Fork of Cottonwood Creek and its two major tributaries, Moon Creek and Jerusalem Creek. The North Fork of Cottonwood Creek flows through the service area in a southeasterly direction to its confluence with the other two major forks of Cottonwood Creek and then to the Sacramento River east of the town of Cottonwood. The service area consists of sparsely scattered parcels separated by steep, brushy hills. These lands are at about the 305 metre (1,000-foot) elevation.

Basis of Service

The water rights on this creek system were determined by court reference and set forth in Decree No. 5479, Shasta County Superior Court, dated June 9, 1920. The North Fork Cottonwood Creek watermaster service area was created September 11, 1929; however, service was provided intermittently in accordance with the decree since 1924. All water rights are of equal priority.

Water Supply

Snowmelt contributes to the flow in the North Fork Cottonwood Creek system during the early part of the irrigation season. However, perennial springs provide the major source of supply during the summer and fall months. The flow is normally sufficient to supply all demands. In dry years, however, the available supply may be as low as 30 to 40 percent of the decreed allotments.

A record of the daily mean discharge of North Fork Cottonwood Creek near Igo is presented in Table 18, page 84. This gaging station is downstream from most diversion points on the creek, but gives a general indication of the water supply.

Method of Distribution

The general practice throughout the area is to irrigate by wild flooding. One water user, however, pumps directly from the creek using a sprinkler system to irrigate his crops. Pumping was necessary at this diversion point because the irrigated land was considerably higher in elevation than the creek channel.

1976 Distribution

The watermaster for the North Fork Cottonwood Creek service area was Seth K. Barrett, Water Resources Technician II.

Watermaster service began May 1 and continued until September 30. Even though the dry winter season lessened the stream runoff, there was still adequate supply when combined with the releases from Rainbow Lake to provide at least a continuous small surplus below the lowest diverter at Gas Point Bridge. The rains in August and September contributed greatly to the general condition.

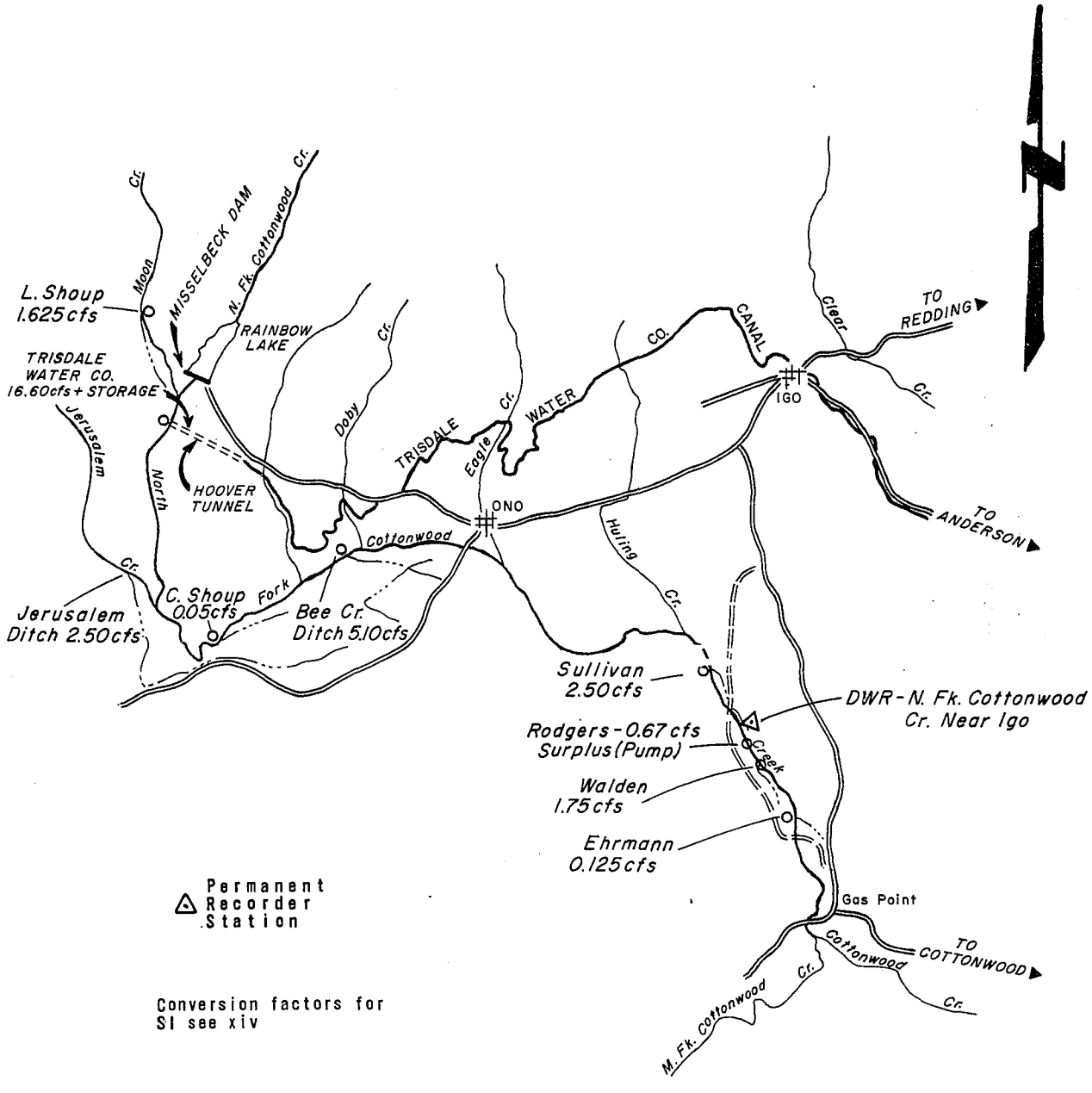
NORTH FORK COTTONWOOD CREEK WATERMASTER SERVICE AREA
1976 Daily Mean Discharge

TABLE 18

NORTH FORK COTTONWOOD CREEK NEAR IGO

Day	March		April		May		June		July		August		September		Day
	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	
1	8520	301	1780	63	2350	83	481	17	368	13	312	11	340	12	1
2	7220	255	1610	57	2270	80	481	17	368	13	312	11	312	11	2
3	8550	302	1590	56	2210	78	425	15	368	13	312	11	312	11	3
4	6940	245	1560	55	2120	75	425	15	368	13	340	12	283	10	4
5	5150	182	1500	53	2010	71	425	15	368	13	312	11	283	10	5
6	4330	153	1730	61	1930	68	425	15	368	13	340	12	283	10	6
7	3850	136	2690	95	1810	64	425	15	368	13	340	12	312	11	7
8	3680	130	9740	344	1730	61	425	15	368	13	340	12	283	10	8
9	3310	117	6260	221	1700	60	425	15	340	12	312	11	275	9.7	9
10	3090	109	5640	199	1640	58	425	15	340	12	312	11	278	9.8	10
11	2920	103	5920	209	1560	55	425	15	340	12	312	11	283	10	11
12	2830	100	5130	181	1440	51	425	15	340	12	312	11	340	12	12
13	2920	103	4470	158	1360	48	425	15	340	12	283	10	312	11	13
14	2830	100	4050	143	1250	44	425	15	312	11	2550	90	396	14	14
15	2720	96	3850	136	1130	40	425	15	312	11	1390	49	396	14	15
16	2630	93	3570	126	1130	40	396	14	312	11	396	14	878	31	16
17	2610	92	3370	119	1050	37	396	14	340	12	396	14	1050	37	17
18	2580	91	3260	115	963	34	396	14	340	12	680	24	85	3.0	18
19	2490	88	3170	112	935	33	396	14	340	12	680	24	850	30	19
20	2440	86	3170	112	793	28	396	14	340	12	425	15	878	31	20
21	2290	81	3140	111	821	29	396	14	340	12	396	14	736	26	21
22	2270	80	3170	112	821	29	396	14	312	11	396	14	651	23	22
23	2210	78	3030	107	821	29	396	14	312	11	396	14	821	29	23
24	2180	77	2890	102	850	30	368	13	312	11	396	14	651	23	24
25	2150	76	2860	101	736	26	368	13	312	11	368	13	566	20	25
26	2100	74	2800	99	708	25	368	13	312	11	368	13	510	18	26
27	2040	72	2610	92	623	22	368	13	283	10	368	13	538	19	27
28	2010	71	2550	90	453	16	368	13	312	11	368	13	1640	58	28
29	1950	69	2520	89	481	17	368	13	312	11	396	14	1100	39	29
30	1900	67	2440	86	566	20	368	13	312	11	368	13	821	29	30
31	1900	67			595	21			283	10	368	13			31
Mean	3370	119	3400	120	1250	44.3	408	14.4	334	11.8	479	16.9	549	19.4	Mean
Volume															Volume
hm	9.040		8.820		3.360		1.060		.890		1.280		1.420		hm
AF	7320		7140		2720		856		724		1040		1150		AF

Figure 12



STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES
NORTHERN DISTRICT

DIVERSIONS FROM NORTH FORK COTTONWOOD CREEK WATERMASTER SERVICE AREA

NORTH FORK PIT RIVER WATERMASTER SERVICE AREA

The North Fork Pit River service area lies along the west slopes of the Warner Mountains in northeastern Modoc County and extends southward from the Oregon border about 73 kilometres (45 miles) to just south of Alturas.

Eight small independent streams draining the west slope of the Warner Mountains and generally following a westerly direction comprise the major source of water supply. Three of these streams, New Pine, Cottonwood, and Davis Creeks, are tributary to Goose Lake. The other five are tributary to the North Fork Pit River. From north to south these are: Linville, Franklin, Joseph, Thoms, and Parker Creeks.

The North Fork Pit River flows in a southerly direction from the south rim of Goose Lake Basin to its confluence with the South Fork Pit River immediately below Alturas. The basins of Goose Lake and the North Fork Pit River may be considered as completely separate, since the lake has not spilled into the river for nearly 100 years.

The place of use in the northern half of the area lies in a relatively long, narrow, sloping strip extending between the east shore of Goose Lake and the foothills of the Warner Mountains. The places of use in the southern half of the area, which are supplied from the North Fork Pit River and its tributaries, are primarily in the narrow valleys bordering the streams. The elevation of the places of use range from about 1 325 metres (4,350 feet) just below Alturas to about 1 585 m (5,200 feet) at the upper portions on some of the creeks.

Maps of the North Fork Pit River watermaster service area and of the separate stream systems within the area are presented as Figures 13 through 13j, pages 96 through 106.

Basis of Service

Table 19, page 88, briefly outlines the five decrees covering the area and presents data relative to the establishment of watermaster service and water rights.

Water Supply

The water supply is derived primarily from snowmelt for all streams in the North Fork Pit River service area except Linville Creek, which, having a relatively small drainage area, is almost entirely spring fed. After mid-June, the rest of the streams also depend on springs, but diminish rapidly until mid-July, after which the flow remains fairly constant. There are several small reservoirs in the area, but they are used essentially as regulatory storage.

Method of Distribution

Distribution is accomplished by diversion structures in the main channels diverting into ditches which convey the water to its place of use. Wild flooding from small feeder ditches is the common method of application. There is, however, increasing use of sprinkler systems, some directly from ditches with supplemental ground water being added as the surface flow diminishes. Subirrigation by the use of large flashboard dams to raise the water level in the channel is practiced along the North Fork Pit River between Parker Creek and Alturas.

1976 Distribution

Watermaster service in the North Fork Pit River service area was begun on March 15 and continued through September 30. Eldon E. Rinehart, Water Resources Engineering Associate, was the watermaster for all the streams in the area except Parker and Shields Creeks, which were handled by L. L. Bates, Water Resources Engineering Associate.

TABLE 19

DECREES AND RELATED DATA - NORTH FORK PIT RIVER SERVICE AREA

Stream	Modoc County Superior Court Decree No.	Date	Type[a]	Service Area Created	No. of Water Right Owners	Total l/s	Total Cfs	Remarks
New Pine Creek	2821	6-14-32	CR	6-22-32	21	628.07	22.18	Decree does not determine town users rights, but by agreement they may divert from 7 a.m. Monday until 7 a.m. Tuesday, further modified to a continuous flow used in rotation.
Cottonwood Creek	2344	5-03-40	CR	12-13-40	5	434.66	15.35	When water for Diversion No. 3 is insufficient to reach the area of use, it is diverted at Diversion No. 4
Davis Creek	2782	6-30-32	CR	7-13-32	19	1 492.31	52.70	4 priorities, 4-1 to 9-15. Some rights vary according to flow available. Most 1st & 2nd priorities are year-round. One second priority right is for 11.33 l/s (0.40 cfs) export for Roberts Creek.
					2[b]			Appropriative Permit 9825 allows diversion from North Fork Davis Creek and License 10549 to divert from Davis Creek, both for the period from 10-1 to 5-1.
Franklin Creek	3118	9-08-33	CR	9-14-33	4	330.18	11.66	4 priorities. The 1st priority and all 2nd priority rights are year-round, except one, which is equal to all the others 41.34 l/s (1.46 cfs), and is for the period 9-15 to 3-31 annually. Third and fourth priorities are for 4-1 to 9-30 each year.
North Fork Pit River	4074	12-14-34	S	12-18-39	10	1 464.84	51.73	5 priorities, 4-1 to 9-30. Dorris Reservoir water diverted through Parker Creek ditch on Parker Creek. 4th and 5th priorities are special class.
Linville	4074	12-14-39	S	12-18-39	3	235.03	8.30	2 priorities.
Joseph	4074	12-14-39	S	12-18-39	6	339.24	11.98	4 priorities, 4-1 to 9-30. Diversions on south side of stream, with the exception of No. 26, are on net consumptive use basis.
Parker	4074	12-14-39	S	12-18-39	7	511.69	18.07	4 priorities, 4-1 to 9-30. Diversion to Dorris Reservoir shown on North Fork Pit River schedule is made at No. 120, Parker Creek Ditch.
Shields	4074	12-14-39	S	12-18-39	5	212.38	7.50	4 priorities, 4-1 to 9-30.
Thoms	4074	12-14-39	S	12-18-39	9	182.36	6.44	3 priorities, 4-1 to 9-30.
						266.18	9.40	(141.58 l/s) 5.0 cfs export to Cedar Creek; and (124.59 l/s) 4.40 cfs export to Stony Canyon.
Gleason	4074	12-14-39	S	12-18-39	4	126.01	4.45	5 priorities.

a/ S-Statutory, CR-Court Reference.
b/ Appropriative rights, junior to the decreed rights.

New Pine Creek. Water is distributed to New Pine Creek water users under two schedules as provided by the court decree. From April 1 through June 30 the proration or correlative system of distribution is used, and from July 1 through September 30 water is distributed on the priority system. During the 1976 season sufficient water was available to fully supply all allotments under the proration system until June 21. After that the flow gradually decreased to 396 litres per second (14 cubic feet per second) on June 30, or enough to meet about 64 percent of the allotments. Under the priority system the streamflow declined from 368 1/s (13 cfs) on July 1 to 147 1/s (5.2 cfs) on September 30, when the flow was sufficient to meet all first priority allotments and 60 percent of the second priority allotments. Due to several rains which occurred during the summer, primarily in August, streamflows on New Pine Creek held up better than average during the latter portion of the season.

Cottonwood Creek. Streamflow on Cottonwood Creek was sufficient to meet first through third priority requirements through June 21. From that date until the end of the watermaster season on September 30, streamflow gradually declined to 82 1/s (2.9 cfs), which was sufficient to meet approximately 60 percent of first priority allotments. Although the maximum flow recorded on Cottonwood was 368 1/s (13 cfs) on May 31, much less than the usual high flows on this stream, streamflows during the latter part of the watermaster season were sustained above average due to several summer rains primarily in August.

Davis Creek. The water supply in Davis Creek was sufficient to satisfy the requirements of all four priority allotments through June 12, when the flow was 1 529 1/s (54 cfs). Thereafter, the streamflow gradually diminished to 178 1/s (6.3 cfs) on September 30, or enough to meet the requirements of the first, second, and about three percent of the third priority allotments. Streamflows toward the latter part of the watermaster season were sustained fairly well due to several summer rains in the Davis Creek watershed area.

Linville Creek. Streamflow in Linville Creek is largely from springs in the watershed; as a result the runoff is remarkably uniform throughout the watermaster season. Available water supply in Linville Creek varied only slightly from the beginning of the season when the flow was 65 1/s (2.3 cfs). Flows throughout the season were sufficient to meet at least 50 percent of the first priority allotments. This is not a high runoff stream, but flows were maintained at 57 1/s (2.0 cfs) or above, except for one day, on July 15, when the recorded flow was 54 1/3 (1.9 cfs).

Franklin Creek. Runoff from Franklin Creek during May and June was much lower than for the two previous years. However, due to several rains during August, flows during the latter part of the watermaster season were sustained at near normal. Flows were sufficient to satisfy requirements of first, second, and third priority allotments through May 19. Thereafter the flow gradually subsided to the end of the season on September 30 when the flow was 62 1/s (2.2 cfs), or enough to satisfy the first, second, and only about seven percent of third priority allotments.

Joseph Creek. Sufficient runoff from Joseph Creek was available to meet first through fourth priority allotments through May 23 when the flow was recorded at 249 1/s (8.8 cfs). From that date the flow decreased gradually to the end of the season when the flow was recorded at 23 1/s (0.8 cfs) on September 30. This latter flow was sufficient to meet only 34 percent of first priority allotments.

Thoms Creek. Runoff from Thoms Creek was adequate to meet all priority

allotments through June 15. The flow continued to decrease to the end of the watermaster season on September 30. On the latter date there was only enough flow to meet approximately ten percent of the first priority allotments.

North Fork Pit River. There was sufficient flow in the North Fork Pit River to meet all allotments until about May 15. Following that date the flow gradually decreased until the end of the watermaster season on September 30, when a flow of 190 l/s (6.7 cfs) was recorded. The latter flow was sufficient to supply about 80 percent of the first priority allotments. Although the total runoff at this station for the season was below normal, several rains during August sustained the flow at about average during the latter portion of the watermaster season.

Parker Creek. The flow in Parker Creek was sufficient to meet both priorities until June 15. The stream then served all first priorities and a decreasing percentage of seconds for the remainder of the season.

Shields Creek. The flow was sufficient to satisfy both priorities until mid-June. From that time until the end of the season the supply decreased, serving all first and approximately 50 percent of second priorities.

NORTH FORK PIT RIVER WATERMASTER SERVICE AREA
1976 Daily Mean Discharge

TABLE 20

NEW PINE CREEK BELOW SCHROEDER'S

Day	April		May		June		July		August		September		Day
	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	
1	144	5.1	595	21	850	30	368	13	227	8.0	167	5.9	1
2	144	5.1	736	26	821	29	368	13	227	8.0	161	5.7	2
3	147	5.2	736	26	793	28	368	13	218	7.7	161	5.7	3
4	156	5.5	736	26	736	26	340	12	218	7.7	156	5.5	4
5	167	5.9	906	32	708	25	340	12	227	8.0	156	5.5	5
6	184	6.5	935	33	680	24	340	12	218	7.7	156	5.5	6
7	198	7.0	963	34	680	24	340	12	218	7.7	156	5.5	7
8	210	7.4	1020	36	680	24	312	11	210	7.4	156	5.5	8
9	210	7.4	1050	37	708	25	312	11	204	7.2	150	5.3	9
10	210	7.4	1100	39	680	24	283	10	198	7.0	150	5.3	10
11	210	7.4	1100	39	680	24	283	10	190	6.7	156	5.5	11
12	204	7.2	1300	46	680	24	278	9.8	190	6.7	150	5.3	12
13	198	7.0	1330	47	680	24	263	9.3	204	7.2	150	5.3	13
14	198	7.0	1390	49	680	24	263	9.3	218	7.7	150	5.3	14
15	204	7.2	1250	44	651	23	263	9.3	218	7.7	150	5.3	15
16	204	7.2	1100	39	651	23	246	8.7	227	8.0	150	5.3	16
17	198	7.0	1100	39	623	22	255	9.0	218	7.7	150	5.3	17
18	198	7.0	1080	38	623	22	246	8.7	218	7.7	150	5.3	18
19	204	7.2	1020	36	623	22	255	9.0	204	7.2	147	5.2	19
20	218	7.7	991	35	623	22	255	9.0	204	7.2	147	5.2	20
21	263	9.3	963	34	623	22	255	9.0	204	7.2	150	5.3	21
22	283	10	963	34	595	21	246	8.7	198	7.0	147	5.2	22
23	312	11	935	33	538	19	246	8.7	198	7.0	147	5.2	23
24	425	15	935	33	510	18	246	8.7	190	6.7	147	5.2	24
25	453	16	963	34	481	17	227	8.0	198	7.0	150	5.3	25
26	425	15	935	33	453	16	218	7.7	190	6.7	147	5.2	26
27	396	14	935	33	425	15	218	7.7	184	6.5	147	5.2	27
28	368	13	906	32	396	14	218	7.7	184	6.5	150	5.3	28
29	368	13	878	31	396	14	218	7.7	184	6.5	147	5.2	29
30	425	15	878	31	396	14	227	8.0	184	6.5	147	5.2	30
31			878	31			218	7.7	176	6.2			31
Mean	251	8.9	987	34.9	622	22.0	275	9.7	205	7.2	152	5.4	Mean
Volume													Volume
hm	.650		2.640		1.610		.740		.550		.390		hm
AF		527		2140		1310		596		444		318	AF

NORTH FORK PIT RIVER WATERMASTER SERVICE AREA
1976 Daily Mean Discharge

TABLE 21

COTTONWOOD CREEK BELOW LARKIN GARDEN DITCH

Day	April		May		June		July		August		September		Day
	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	
1	56	2.0	96	3.4	340	12	105	3.7	85	3.0	96	3.4	1
2	62	2.2	110	3.9	340	12	105	3.7	85	3.0	96	3.4	2
3	73	2.6	125	4.4	340	12	105	3.7	85	3.0	96	3.4	3
4	76	2.7	144	5.1	340	12	105	3.7	85	3.0	96	3.4	4
5	79	2.8	178	6.3	312	11	105	3.7	110	3.9	96	3.4	5
6	79	2.8	215	7.6	275	9.7	108	3.8	105	3.7	96	3.4	6
7	87	3.1	215	7.6	275	9.7	110	3.9	102	3.6	96	3.4	7
8	90	3.2	241	8.5	261	9.2	116	4.1	96	3.4	90	3.2	8
9	82	2.9	227	8.0	261	9.2	116	4.1	87	3.1	76	2.7	9
10	90	3.2	232	8.2	252	8.9	110	3.9	82	2.9	76	2.7	10
11	73	2.6	275	9.7	241	8.5	108	3.8	82	2.9	82	2.9	11
12	65	2.3	275	9.7	241	8.5	105	3.7	82	2.9	79	2.8	12
13	65	2.3	275	9.7	232	8.2	108	3.8	110	3.9	76	2.7	13
14	65	2.3	232	8.2	190	6.7	116	4.1	108	3.8	79	2.8	14
15	70	2.5	241	8.5	161	5.7	108	3.8	190	6.7	79	2.8	15
16	68	2.4	190	6.7	161	5.7	102	3.6	232	8.2	79	2.8	16
17	68	2.4	215	7.6	150	5.3	96	3.4	215	7.6	82	2.9	17
18	65	2.3	215	7.6	144	5.1	90	3.2	198	7.0	82	2.9	18
19	65	2.3	190	6.7	144	5.1	93	3.3	116	4.1	82	2.9	19
20	73	2.6	198	7.0	139	4.9	93	3.3	108	3.8	87	3.1	20
21	96	3.4	190	6.7	150	5.3	96	3.4	105	3.7	85	3.0	21
22	102	3.6	215	7.6	125	4.4	90	3.2	133	4.7	82	2.9	22
23	105	3.7	221	7.8	105	3.7	85	3.0	102	3.6	79	2.8	23
24	125	4.4	215	7.6	90	3.2	85	3.0	102	3.6	79	2.8	24
25	133	4.7	227	8.0	82	2.9	87	3.1	102	3.6	82	2.9	25
26	119	4.2	241	8.5	82	2.9	85	3.0	102	3.6	82	2.9	26
27	102	3.6	252	8.9	96	3.4	85	3.0	102	3.6	85	3.0	27
28	96	3.4	261	9.2	116	4.1	82	2.9	102	3.6	85	3.0	28
29	90	3.2	283	10	110	3.9	82	2.9	102	3.6	82	2.9	29
30	90	3.2	340	12	108	3.8	82	2.9	93	3.3	82	2.9	30
31			368	13			82	2.9	96	3.4			31
Mean	83.9	3.0	223	7.9	195	6.9	98.4	3.5	113	4.0	85.1	3.0	Mean
Volume													Volume
hm	.220		.600		.510		.260		.300		.220		hm
AF		176		483		410		213		245		179	AF

TABLE 22

DAVIS CREEK ABOVE DIVERSION NO. 4

Day	April		May		June		July		August		September		Day
	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	
1	878	31	1020	36	1760	62	850	30	340	12	184	6.5	1
2	850	30	1100	39	1760	62	878	31	340	12	184	6.5	2
3	821	29	1130	40	1730	61	850	30	312	11	181	6.4	3
4	793	28	1130	40	1760	62	850	30	340	12	178	6.3	4
5	793	28	1100	39	1730	61	821	29	340	12	178	6.3	5
6	765	27	1220	43	1670	59	821	29	312	11	176	6.2	6
7	765	27	1250	44	1640	58	793	28	312	11	184	6.5	7
8	736	26	1270	45	1610	57	736	26	283	10	190	6.7	8
9	765	27	1220	43	1590	56	736	26	283	10	195	6.9	9
10	765	27	1250	44	1560	55	708	25	283	10	195	6.9	10
11	765	27	1300	46	1560	55	680	24	261	9.2	198	7.0	11
12	793	28	1330	47	1530	54	651	23	261	9.2	204	7.2	12
13	821	29	1420	50	1420	50	651	23	255	9.0	204	7.2	13
14	850	30	1470	52	1360	48	623	22	255	9.0	201	7.1	14
15	850	30	1500	53	1300	46	595	21	249	8.8	198	7.0	15
16	821	29	1470	52	1220	43	566	20	244	8.6	198	7.0	16
17	793	28	1530	54	1190	42	566	20	227	8.0	195	6.9	17
18	821	29	1530	54	1080	38	538	19	218	7.7	193	6.8	18
19	906	32	1560	55	1080	38	481	17	218	7.7	187	6.6	19
20	935	33	1590	56	1050	37	453	16	215	7.6	181	6.4	20
21	935	33	1560	55	1050	37	425	15	212	7.5	181	6.4	21
22	935	33	1530	54	1020	36	425	15	212	7.5	178	6.3	22
23	935	33	1530	54	963	34	396	14	210	7.4	176	6.2	23
24	963	34	1530	54	963	34	368	13	212	7.5	176	6.2	24
25	963	34	1560	55	935	33	340	12	207	7.3	170	6.0	25
26	935	33	1610	57	935	33	340	12	201	7.1	170	6.0	26
27	935	33	1640	58	935	33	340	12	195	6.9	170	6.0	27
28	935	33	1670	59	906	32	340	12	193	6.8	176	6.2	28
29	906	32	1670	59	878	31	312	11	193	6.8	176	6.2	29
30	935	33	1640	58	850	30	312	11	190	6.7	178	6.3	30
31			1700	60			312	11	187	6.6			31
Mean	855	30.2	1420	50.2	1300	45.9	573	20.2	250	8.8	185	6.5	Mean
Volume													Volume
hm	2.220		3.800		3.370		1.530		.670		.480		hm
AF		1800		3080		2730		1240		543		389	AF

NORTH FORK PIT RIVER WATERMASTER SERVICE AREA
1976 Daily Mean Discharge

TABLE 23

LINVILLE CREEK AT OLD POWERHOUSE

Day	April		May		June		July		August		September		Day
	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	
1			76	2.7	68	2.4	62	2.2	56	2.0	62	2.2	1
2			76	2.7	68	2.4	62	2.2	56	2.0	62	2.2	2
3			76	2.7	68	2.4	62	2.2	56	2.0	62	2.2	3
4			76	2.7	68	2.4	62	2.2	56	2.0	62	2.2	4
5			73	2.6	68	2.4	62	2.2	56	2.0	62	2.2	5
6			73	2.6	68	2.4	62	2.2	56	2.0	62	2.2	6
7	68*	2.4*	73	2.6	65	2.3	62	2.2	56	2.0	62	2.2	7
8	70	2.5	76	2.7	65	2.3	62	2.2	56	2.0	62	2.2	8
9	73	2.6	76	2.7	65	2.3	56	2.0	56	2.0	62	2.2	9
10	76	2.7	79	2.8	65	2.3	56	2.0	56	2.0	62	2.2	10
11	76	2.7	82	2.9	65	2.3	56	2.0	56	2.0	62	2.2	11
12	76	2.7	82	2.9	65	2.3	56	2.0	56	2.0	65	2.3	12
13	76	2.7	82	2.9	65	2.3	56	2.0	56	2.0	65	2.3	13
14	76	2.7	82	2.9	65	2.3	56	2.0	62	2.2	65	2.3	14
15	76	2.7	79	2.8	65	2.3	53	1.9	62	2.2	68	2.4	15
16	76	2.7	79	2.8	65	2.3	56	2.0	62	2.2	68	2.4	16
17	76	2.7	79	2.8	65	2.3	65	2.3	62	2.2	68	2.4	17
18	76	2.7	79	2.8	65	2.3	62	2.2	62	2.2	68	2.4	18
19	76	2.7	79	2.8	65	2.3	56	2.0	62	2.2	70	2.5	19
20	76	2.7	76	2.7	65	2.3	56	2.0	65	2.3	70	2.5	20
21	76	2.7	76	2.7	65	2.3	56	2.0	65	2.3	68	2.4	21
22	76	2.7	76	2.7	65	2.3	56	2.0	65	2.3	68	2.4	22
23	76	2.7	76	2.7	65	2.3	56	2.0	63	2.4	65	2.3	23
24	76	2.7	76	2.7	65	2.3	56	2.0	65	2.3	65	2.3	24
25	76	2.7	76	2.7	65	2.3	56	2.0	62	2.2	65	2.3	25
26	76	2.7	73	2.6	62	2.2	56	2.0	62	2.2	65	2.3	26
27	76	2.7	70	2.5	62	2.2	56	2.0	62	2.2	65	2.3	27
28	76	2.7	70	2.5	62	2.2	56	2.0	62	2.2	65	2.3	28
29	76	2.7	68	2.4	62	2.2	56	2.0	62	2.2	65	2.3	29
30	76	2.7	68	2.4	62	2.2	56	2.0	62	2.2	65	2.3	30
31			68	2.4			56	2.0	62	2.2			31
Mean	75.3	2.7	76.2	2.7	65.2	2.3	58.4	2.1	60.5	2.1	65.0	2.3	Mean
Volume													Volume
hm	.160		.200		.170		.160		.160		.170		hm
AF		127		165		137		127		131		137	AF

* Beginning of record

TABLE 24

FRANKLIN CREEK ABOVE DIVERSIONS

Day	April		May		June		July		August		September		Day
	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	
1	62	2.2	255	9.0	173	6.1	87	3.1	79	2.8	65	2.3	1
2	65	2.3	255	9.0	176	6.2	79	2.8	73	2.6	65	2.3	2
3	79	2.8	255	9.0	164	5.8	79	2.8	73	2.6	70	2.5	3
4	99	3.5	255	9.0	164	5.8	79	2.8	70	2.5	65	2.3	4
5	108	3.8	283	10	156	5.5	70	2.5	70	2.5	65	2.3	5
6	99	3.5	340	12	144	5.1	73	2.6	70	2.5	65	2.3	6
7	122	4.3	396	14	144	5.1	79	2.8	99	3.5	65	2.3	7
8	136	4.8	396	14	150	5.3	79	2.8	119	4.2	65	2.3	8
9	122	4.3	396	14	156	5.5	73	2.6	99	3.5	65	2.3	9
10	122	4.3	396	14	161	5.7	73	2.6	82	2.9	65	2.3	10
11	133	4.7	396	14	136	4.8	73	2.6	70	2.5	73	2.6	11
12	133	4.7	396	14	133	4.7	79	2.8	70	2.5	70	2.5	12
13	136	4.8	368	13	122	4.3	79	2.8	70	2.5	70	2.5	13
14	133	4.7	368	13	119	4.2	73	2.6	99	3.5	70	2.5	14
15	127	4.5	368	13	108	3.8	73	2.6	119	4.2	79	2.8	15
16	122	4.3	340	12	108	3.8	73	2.6	99	3.5	82	2.9	16
17	122	4.3	312	11	108	3.8	79	2.8	82	2.9	73	2.6	17
18	90	3.2	283	10	99	3.5	113	4.0	82	2.9	73	2.6	18
19	122	4.3	283	10	96	3.4	79	2.8	90	3.2	70	2.5	19
20	156	5.5	255	9.0	96	3.4	73	2.6	79	2.8	70	2.5	20
21	161	5.7	227	8.0	108	3.8	73	2.6	73	2.6	73	2.6	21
22	170	6.0	227	8.0	108	3.8	70	2.5	73	2.6	73	2.6	22
23	170	6.0	198	7.0	96	3.4	73	2.6	79	2.8	73	2.6	23
24	198	7.0	198	7.0	65	2.3	73	2.6	82	2.9	70	2.5	24
25	113	4.0	198	7.0	96	3.4	79	2.8	73	2.6	70	2.5	25
26	198	7.0	170	6.0	90	3.2	73	2.6	73	2.6	70	2.5	26
27	198	7.0	161	5.7	90	3.2	73	2.6	73	2.6	73	2.6	27
28	170	6.0	156	5.5	87	3.1	70	2.5	73	2.6	65	2.3	28
29	198	7.0	198	7.0	87	3.1	70	2.5	70	2.5	65	2.3	29
30	198	7.0	170	6.0	87	3.1	70	2.5	70	2.5	62	2.2	30
31			170	6.0			70	2.5	65	2.3			31
Mean	135	4.8	280	9.9	121	4.3	76.6	2.7	81.0	2.9	69.7	2.5	Mean
Volume													Volume
hm	.350		.750		.310		.210		.220		.180		hm
AF		284		607		254		166		176		146	AF

NORTH FORK PIT RIVER WATERMASTER SERVICE AREA
1976 Daily Mean Discharge

TABLE 25

JOSEPH CREEK BELOW COUCH CREEK

Day	April		May		June		July		August		September		Day
	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	
1	218	7.7	283	10	198	7.0	87	3.1	53	1.9	25	0.9	1
2	218	7.7	340	12	195	6.9	87	3.1	45	1.6	25	0.9	2
3	232	8.2	312	11	198	7.0	82	2.9	36	1.3	25	0.9	3
4	249	8.8	312	11	193	6.8	82	2.9	31	1.1	25	0.9	4
5	272	9.6	312	11	184	6.5	82	2.9	34	1.2	25	0.9	5
6	283	10	283	10	184	6.5	79	2.8	45	1.6	25	0.9	6
7	368	13	283	10	181	6.4	76	2.7	53	1.9	25	0.9	7
8	481	17	283	10	181	6.4	73	2.6	45	1.6	25	0.9	8
9	708	25	283	10	181	6.4	70	2.5	36	1.3	25	0.9	9
10	453	16	340	12	181	6.4	65	2.3	31	1.1	25	0.9	10
11	396	14	368	13	181	6.4	65	2.3	34	1.2	19	0.7	11
12	368	13	340	12	181	6.4	65	2.3	34	1.2	25	0.9	12
13	312	11	340	12	170	6.0	62	2.2	36	1.3	22	0.8	13
14	368	13	312	11	164	5.8	62	2.2	73	2.6	22	0.8	14
15	312	11	283	10	161	5.7	65	2.3	113	4.0	25	0.9	15
16	283	10	272	9.6	159	5.6	65	2.3	76	2.7	45	1.6	16
17	249	8.8	283	10	159	5.6	82	2.9	56	2.0	31	1.1	17
18	272	9.6	278	9.8	153	5.4	122	4.3	53	1.9	31	1.1	18
19	283	10	272	9.6	153	5.4	65	2.3	36	1.3	31	1.1	19
20	481	17	263	9.3	153	5.4	53	1.9	34	1.2	28	1.0	20
21	396	14	258	9.1	150	5.3	45	1.6	34	1.2	28	1.0	21
22	481	17	249	8.8	147	5.2	42	1.5	53	1.9	28	1.0	22
23	396	14	249	8.8	136	4.8	45	1.6	62	2.2	28	1.0	23
24	368	13	244	8.6	130	4.6	48	1.7	36	1.3	28	1.0	24
25	340	12	241	8.5	122	4.3	45	1.6	34	1.2	25	0.9	25
26	312	11	241	8.5	119	4.2	36	1.3	34	1.2	25	0.9	26
27	312	11	232	8.2	116	4.1	36	1.3	34	1.2	25	0.9	27
28	283	10	221	7.8	102	3.6	36	1.3	31	1.1	25	0.9	28
29	272	9.6	212	7.5	102	3.6	36	1.3	31	1.1	22	0.8	29
30	283	10	207	7.3	87	3.1	36	1.3	28	1.0	22	0.8	30
31			204	7.2			42	1.5	28	1.0			31
Mean	342	12.1	277	9.8	157	5.6	62.8	2.2	44.2	1.6	26.6	0.9	Mean
Volume													Volume
hm	.890		.740		.410		.170		.120		.070		hm
AF		717		602		331		136		95.9		55.9	AF

TABLE 26

NORTH FORK PIT RIVER BELOW THOMS CREEK

Day	April		May		June		July		August		September		Day
	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	
1	1440	51	1700	60	1270	45	566	20	368	13	312	11	1
2	1390	49	1730	61	1220	43	510	18	340	12	312	11	2
3	1360	48	1760	62	1130	40	510	18	340	12	283	10	3
4	1360	48	1640	58	1160	41	481	17	312	11	275	9.7	4
5	1270	45	1670	59	1130	40	481	17	283	10	269	9.5	5
6	1220	43	1700	60	1050	37	453	16	340	12	261	9.2	6
7	1160	41	1730	61	991	35	481	17	396	14	261	9.2	7
8	1270	45	1670	59	878	31	453	16	425	15	258	9.1	8
9	1330	47	1640	58	821	29	425	15	396	14	255	9.0	9
10	1470	52	1610	57	736	26	396	14	368	13	249	8.8	10
11	1440	51	1560	55	680	24	425	15	340	12	244	8.6	11
12	1420	50	1560	55	680	24	368	13	340	12	241	8.5	12
13	1560	55	1390	49	680	24	340	12	340	12	235	8.3	13
14	1640	58	1270	45	651	23	368	13	368	13	232	8.2	14
15	1560	55	1330	47	623	22	425	15	510	18	229	8.1	15
16	1500	53	1440	51	623	22	481	17	623	22	227	8.0	16
17	1420	50	1390	49	680	24	396	14	566	20	224	7.9	17
18	1500	53	1390	49	708	25	368	13	510	18	221	7.8	18
19	1610	57	1360	48	651	23	340	12	481	17	218	7.7	19
20	1700	60	1360	48	595	21	312	11	425	15	215	7.6	20
21	1780	63	1300	46	566	20	368	13	396	14	212	7.5	21
22	1980	70	1250	44	623	22	340	12	368	13	212	7.5	22
23	2040	72	1300	46	651	23	283	10	368	13	207	7.3	23
24	1930	68	1270	45	595	21	312	11	340	12	210	7.4	24
25	1810	64	1300	46	680	24	368	13	396	14	212	7.5	25
26	1700	60	1300	46	736	26	396	14	340	12	201	7.1	26
27	1590	56	1420	50	765	27	453	16	312	11	198	7.0	27
28	1590	56	1470	52	708	25	481	17	312	11	195	6.9	28
29	1640	58	1390	49	651	23	453	16	283	10	193	6.8	29
30	1640	58	1360	48	623	22	425	15	283	10	190	6.7	30
31			1360	48			396	14	283	10			31
Mean	1540	54.5	1470	52.0	785	27.7	415	14.6	379	13.4	235	8.3	Mean
Volume													Volume
hm	4.000		3.940		2.040		1.110		1.020		.610		hm
AF		3240		3190		1650		900		823		494	AF

NORTH FORK PIT RIVER WATERMASTER SERVICE AREA
1976 Daily Mean Discharge

TABLE 27

THOMS CREEK AT CEDARVILLE-ALTURAS HIGHWAY

Day	April		May		June		July		August		September		Day
	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	
1	425	15	680	24	116	4.1	22	0.8	11	0.4	0.5	0.0	1
2	425	15	765	27	108	3.8	25	0.9	14	0.5	1.7	0.0	2
3	396	14	878	31	102	3.6	34	1.2	14	0.5	0.5	0.0	3
4	396	14	991	35	96	3.4	28	1.0	17	0.6	0.5	0.0	4
5	368	13	991	35	82	2.9	22	0.8	17	0.6	0.5	0.0	5
6	396	14	935	33	93	3.3	22	0.8	19	0.7	0.5	0.0	6
7	368	13	935	33	96	3.4	19	0.7	17	0.6	0.5	0.0	7
8	312	11	935	33	93	3.3	17	0.6	14	0.5	0.5	0.0	8
9	283	10	935	33	110	3.9	19	0.7	14	0.5	0.5	0.0	9
10	312	11	935	33	116	4.1	17	0.6	11	0.4	1.7	0.0	10
11	312	11	906	32	110	3.9	17	0.6	8.5	0.3	2.8	0.1	11
12	278	9.8	850	30	93	3.3	19	0.7	8.5	0.3	1.7	0.0	12
13	272	9.6	793	28	79	2.8	22	0.8	8.5	0.3	1.7	0.0	13
14	258	9.1	765	27	70	2.5	22	0.8	17	0.6	0.5	0.0	14
15	246	8.7	623	22	65	2.3	17	0.6	70	2.5	0.5	0.0	15
16	263	9.3	595	21	59	2.1	17	0.6	51	1.8	1.7	0.0	16
17	272	9.6	538	19	59	2.1	19	0.7	34	1.2	1.7	0.0	17
18	263	9.3	453	16	53	1.9	17	0.6	28	1.0	1.7	0.0	18
19	278	9.8	425	15	51	1.8	17	0.6	25	0.9	0.5	0.0	19
20	312	11	425	15	51	1.8	17	0.6	22	0.8	0.5	0.0	20
21	340	12	453	16	53	1.9	14	0.5	19	0.7	1.7	0.0	21
22	340	12	425	15	51	1.8	14	0.5	17	0.6	0.5	0.0	22
23	368	13	396	14	42	1.5	14	0.5	14	0.5	0.5	0.0	23
24	368	13	340	12	39	1.4	17	0.6	11	0.4	1.7	0.0	24
25	396	14	312	11	36	1.3	14	0.5	8.5	0.3	0.5	0.0	25
26	396	14	283	10	34	1.2	14	0.5	5.6	0.2	0.5	0.0	26
27	425	15	252	8.9	28	1.0	11	0.4	5.6	0.2	1.7	0.0	27
28	453	16	210	7.4	22	0.8	11	0.4	5.6	0.2	1.7	0.0	28
29	481	17	159	5.6	17	0.6	11	0.4	2.8	0.1	1.7	0.0	29
30	538	19	142	5.0	19	0.7	8.5	0.3	2.8	0.1	1.7	0.0	30
31			130	4.6			8.5	0.3	2.8	0.1			31
Mean	351	12.4	595	21.0	68.4	2.4	17.9	0.6	16.8	0.6	1.1	0.0	Mean
Volume													Volume
hm	.910		1.590		.180		.050		.050		.000		hm
AF		738		1290		144		38.9		36.5		2.4	AF

TABLE 28

PARKER CREEK AT FOGARTY RANCH

Day	April		May		June		July		August		September		Day
	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	
1	1640	58	3910	138	850	30	150	5.3	144	5.1	102	3.6	1
2	1500	53	3910	138	821	29	150	5.3	150	5.3	102	3.6	2
3	1760	62	3740	132	906	32	150	5.3	139	4.9	105	3.7	3
4	2520	89	3740	132	793	28	150	5.3	150	5.3	102	3.6	4
5	2890	102	3910	138	708	25	150	5.3	144	5.1	102	3.6	5
6	2520	89	3460	122	680	24	147	5.2	147	5.2	102	3.6	6
7	3090	109	3400	120	680	24	147	5.2	144	5.1	105	3.7	7
8	3120	110	3290	116	680	24	147	5.2	133	4.7	105	3.7	8
9	2580	91	3200	113	765	27	147	5.2	130	4.6	96	3.4	9
10	2520	89	3140	111	906	32	147	5.2	127	4.5	99	3.5	10
11	2410	85	3090	109	878	31	144	5.1	127	4.5	110	3.9	11
12	2270	80	2950	104	708	25	142	5.0	130	4.6	125	4.4	12
13	2040	72	2800	99	680	24	139	4.9	130	4.6	119	4.2	13
14	2120	75	2830	100	538	19	127	4.5	161	5.7	125	4.4	14
15	2210	78	2520	89	453	16	127	4.5	566	20	144	5.1	15
16	1870	66	2270	80	368	13	130	4.6	425	15	159	5.6	16
17	1670	59	2120	75	312	11	150	5.3	238	8.4	159	5.6	17
18	1870	66	1870	66	238	8.4	374	13	255	9.0	147	5.2	18
19	1980	70	1760	62	167	5.9	164	5.8	238	8.4	144	5.1	19
20	3000	106	1670	59	153	5.4	139	4.9	187	6.6	139	4.9	20
21	3140	111	1390	49	153	5.4	130	4.6	164	5.8	136	4.8	21
22	3310	117	1300	46	153	5.4	125	4.4	204	7.2	133	4.7	22
23	3460	122	1250	44	153	5.4	116	4.1	312	11	130	4.6	23
24	4700	166	1160	41	153	5.4	130	4.6	150	5.3	130	4.6	24
25	4190	148	1160	41	153	5.4	144	5.1	144	5.1	133	4.7	25
26	3140	111	1100	39	153	5.4	147	5.2	142	5.0	136	4.8	26
27	2720	96	1080	38	153	5.4	133	4.7	130	4.6	136	4.8	27
28	2580	91	1080	38	153	5.4	136	4.8	116	4.1	139	4.9	28
29	2690	95	991	35	153	5.4	136	4.8	110	3.9	142	5.0	29
30	3140	111	963	34	153	5.4	136	4.8	105	3.7	142	5.0	30
31			1020	36			133	4.7	102	3.6			31
Mean	2620	92.6	2320	82.1	460	16.3	148	5.2	179	6.3	125	4.4	Mean
Volume													Volume
hm	6.800		6.230		1.190		.400		.480		.320		hm
AF		5510		5050		967		321		388		262	AF

NORTH FORK PIT RIVER WATERMASTER SERVICE AREA
1976 Daily Mean Discharge

TABLE 29

SHIELDS CREEK ABOVE PEPPERDINE RANCH

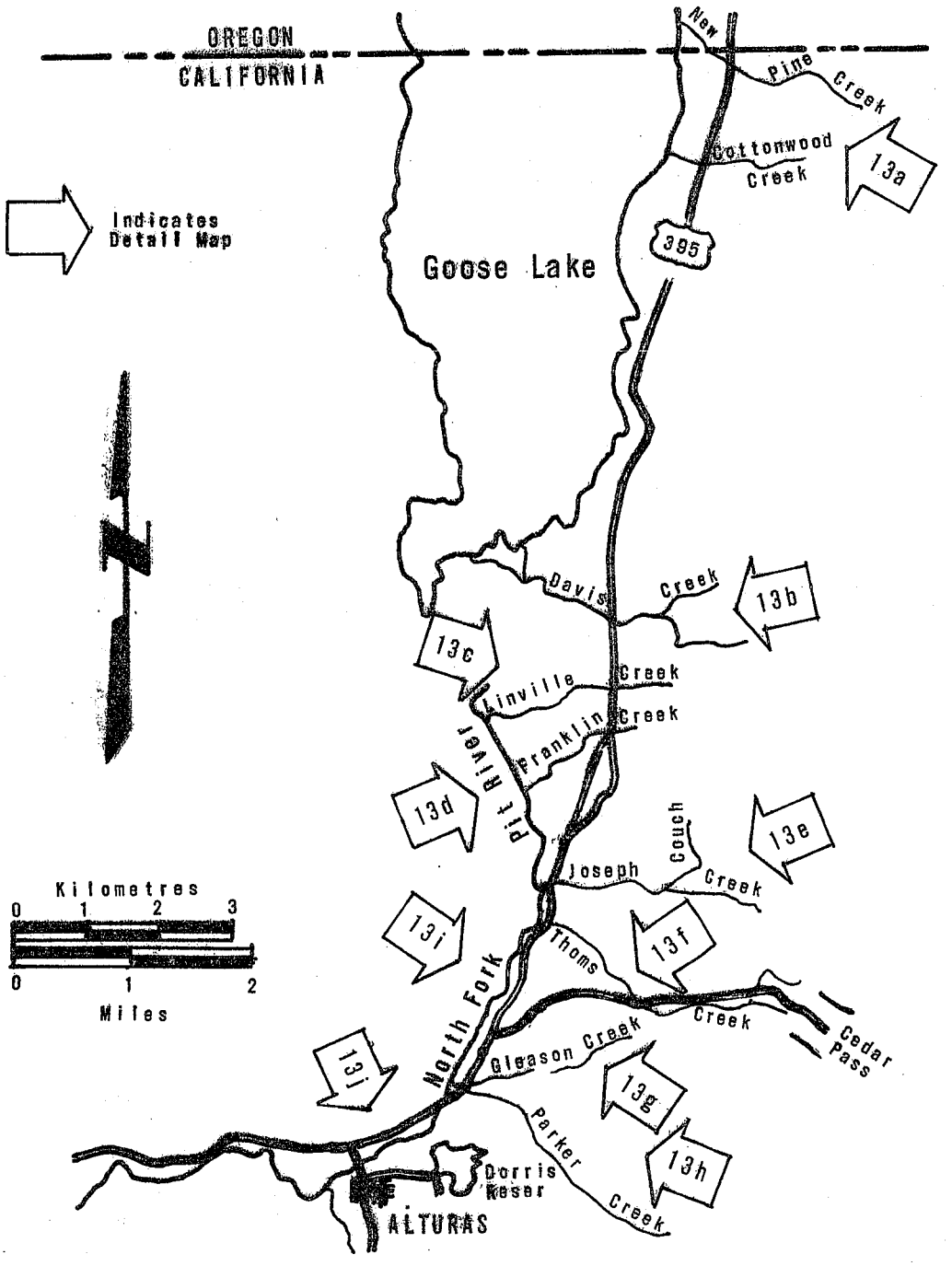
Day	April		May		June		July		August		September		Day
	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	
1	227	8.0	340	12	195	6.9	156	5.5	147	5.2	93	3.3	1
2	227	8.0	340	12	195	6.9	147	5.2	130	4.6	93	3.3	2
3	263	9.3	340	12	190	6.7	147	5.2	130	4.6	93	3.3	3
4	340	12	340	12	190	6.7	147	5.2	130	4.6	56	2.0	4
5	396	14	368	13	190	6.7	147	5.2	122	4.3	76	2.7	5
6	340	12	368	13	181	6.4	147	5.2	122	4.3	76	2.7	6
7	312	11	368	13	190	6.7	147	5.2	122	4.3	73	2.6	7
8	312	11	396	14	190	6.7	147	5.2	122	4.3	73	2.6	8
9	312	11	396	14	195	6.9	147	5.2	116	4.1	68	2.4	9
10	312	11	396	14	204	7.2	147	5.2	116	4.1	68	2.4	10
11	312	11	396	14	195	6.9	142	5.0	116	4.1	68	2.4	11
12	340	12	396	14	190	6.7	142	5.0	116	4.1	62	2.2	12
13	312	11	396	14	190	6.7	142	5.0	110	3.9	62	2.2	13
14	340	12	396	14	181	6.4	136	4.8	116	4.1	62	2.2	14
15	340	12	368	13	181	6.4	130	4.6	136	4.8	76	2.7	15
16	368	13	340	12	181	6.4	122	4.3	116	4.1	76	2.7	16
17	368	13	340	12	176	6.2	130	4.6	110	3.9	73	2.6	17
18	396	14	312	11	176	6.2	142	5.0	110	3.9	73	2.6	18
19	396	14	312	11	167	5.9	122	4.3	105	3.7	73	2.6	19
20	425	15	283	10	167	5.9	122	4.3	105	3.7	73	2.6	20
21	425	15	263	9.3	167	5.9	122	4.3	105	3.7	73	2.6	21
22	453	16	255	9.0	167	5.9	122	4.3	136	4.8	73	2.6	22
23	453	16	249	8.8	161	5.7	122	4.3	116	4.1	73	2.6	23
24	453	16	241	8.5	161	5.7	122	4.3	110	3.9	73	2.6	24
25	396	14	227	8.0	156	5.5	122	4.3	105	3.7	68	2.4	25
26	425	15	218	7.7	156	5.5	122	4.3	105	3.7	68	2.4	26
27	425	15	210	7.4	147	5.2	122	4.3	105	3.7	68	2.4	27
28	425	15	210	7.4	147	5.2	122	4.3	105	3.7	82	2.9	28
29	396	14	204	7.2	147	5.2	122	4.3	99	3.5	73	2.6	29
30	312	11	204	7.2	147	5.2	122	4.3	99	3.5	73	2.6	30
31			204	7.2			122	4.3	99	3.5			31
Mean	360	12.7	312	11.0	176	6.2	134	4.7	116	4.1	73.4	2.6	Mean
Volume													Volume
hm	.930		.840		.460		.360		.310		.190		hm
AF		756		677		370		291		251		154	AF

TABLE 30

PARKER CREEK ABOVE HIGHWAY 395 NEAR ALTURAS

Day	April		May		June		July		August		September		Day
	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	
1													1
2													2
3													3
4													4
5													5
6													6
7													7
8													8
9													9
10													10
11													11
12													12
13													13
14													14
15					NO RECORD AVAILABLE FOR 1976 SEASON								15
16													16
17													17
18													18
19													19
20													20
21													21
22													22
23													23
24													24
25													25
26													26
27													27
28													28
29													29
30													30
31													31
Mean													Mean
Volume													Volume
hm													hm
AF													AF

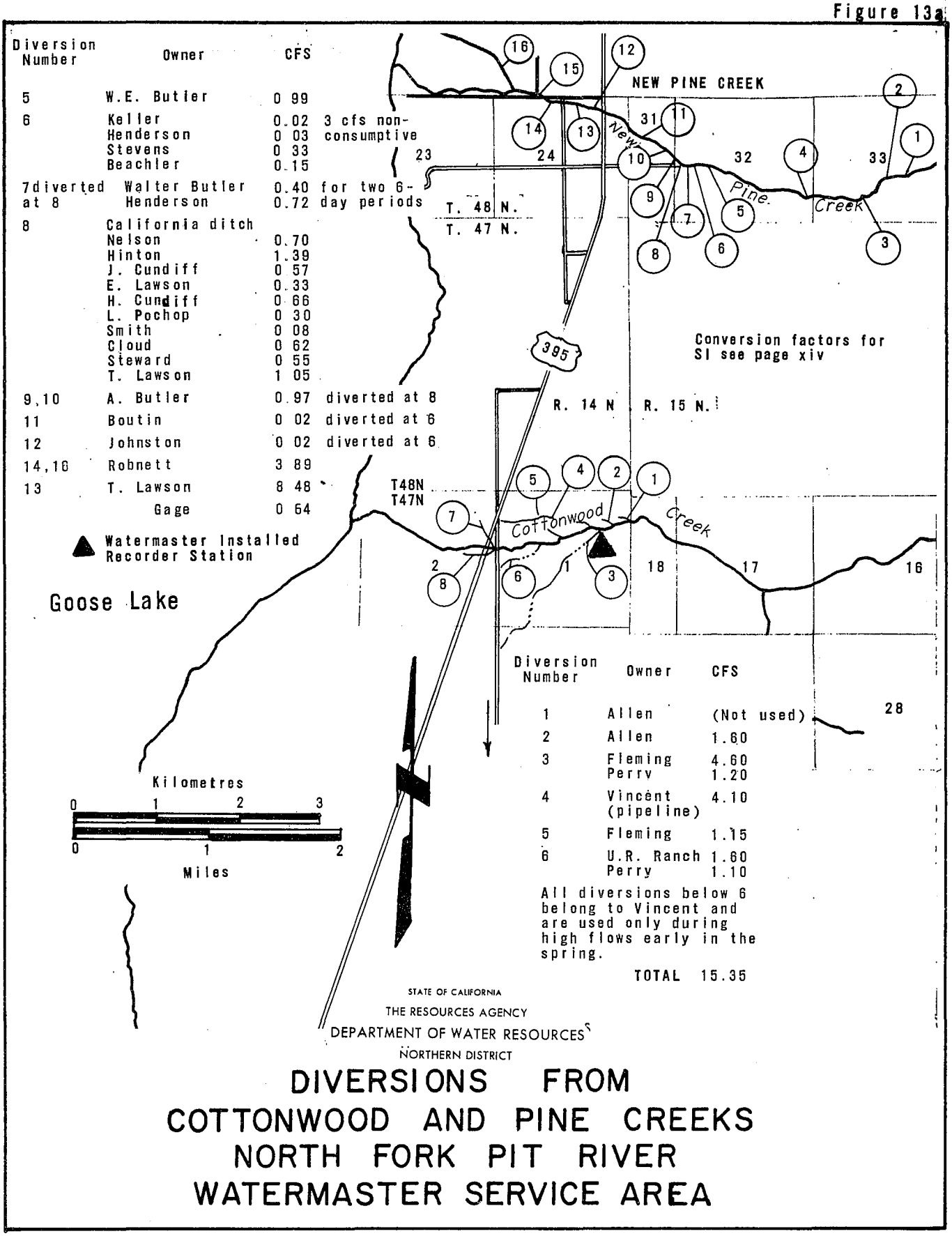
Figure 13



STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES
NORTHERN DISTRICT

NORTH FORK PIT RIVER WATERMASTER SERVICE AREA

Figure 13a



STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES
NORTHERN DISTRICT

DIVERSIONS FROM COTTONWOOD AND PINE CREEKS NORTH FORK PIT RIVER WATERMASTER SERVICE AREA

Figure 13b

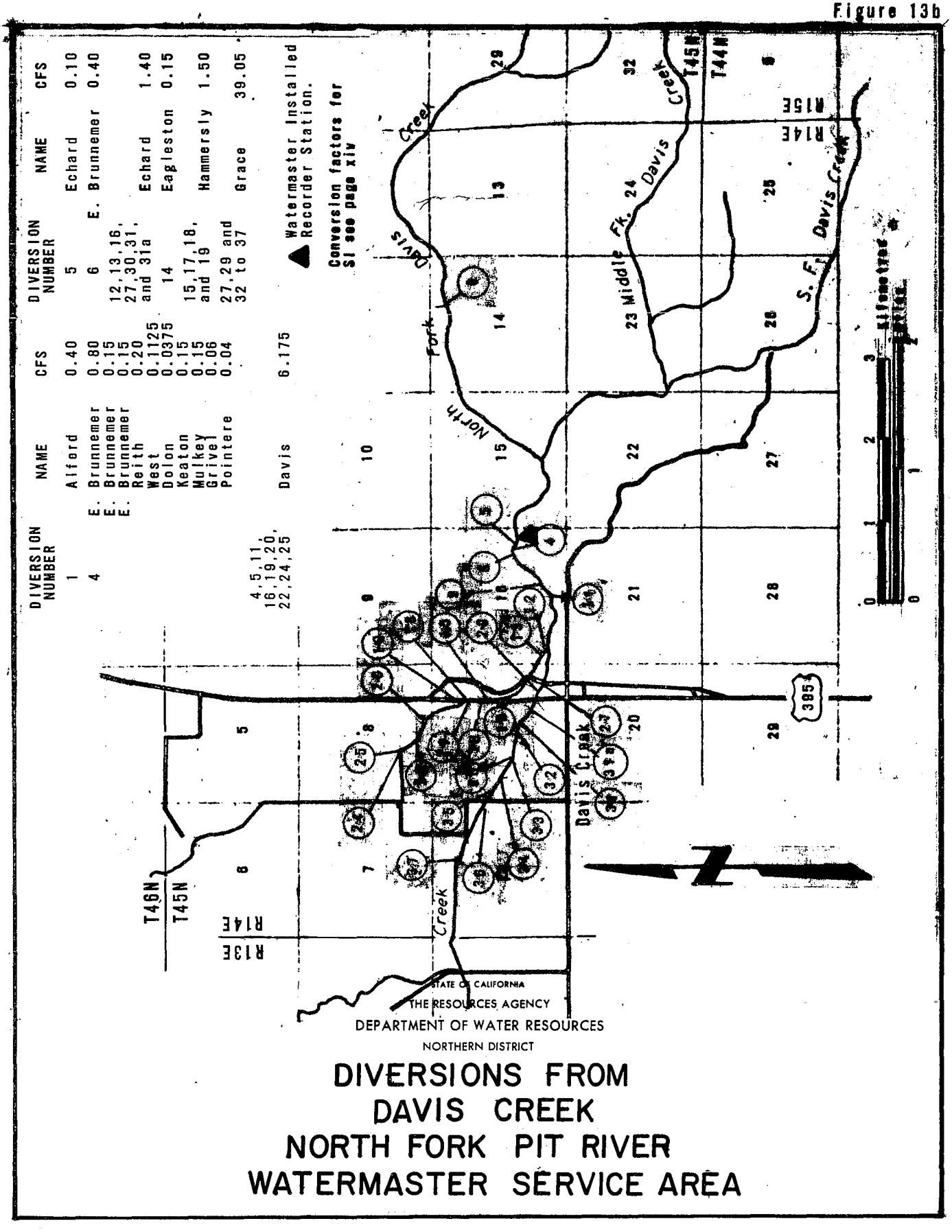
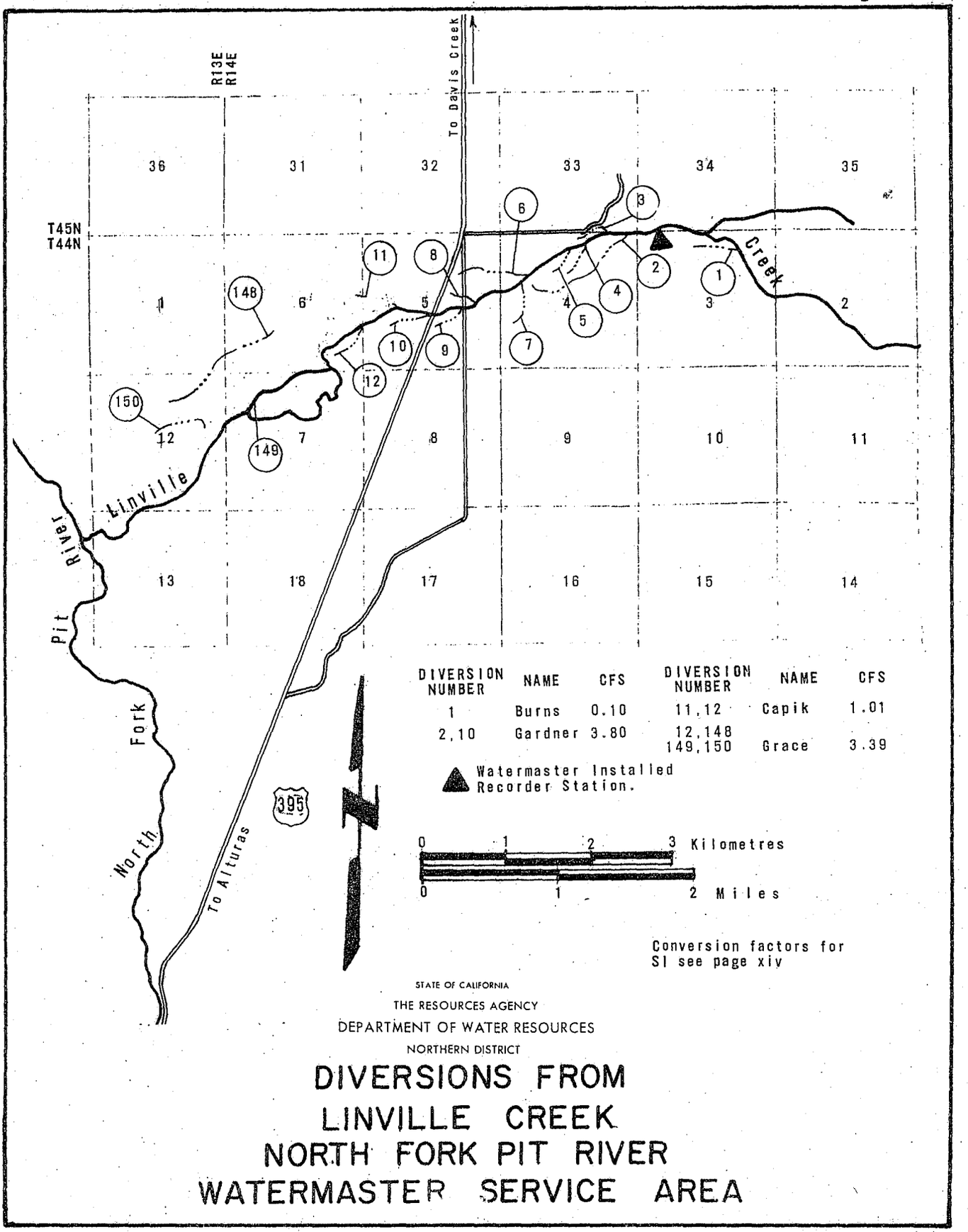

DIVERSION NUMBER
NAME
CFS
1 Alford 0.40
4 E. Brunnemer 0.80
E. Brunnemer 0.15
E. Brunnemer 0.15
Reith 0.20
West 0.1125
Dolon 0.0375
Keaton 0.15
Mulkey 0.15
Grivel 0.06
Pointere 0.04
4,5,11, 16,19,20, 22,24,25 Davis 6.175
DIVERSION NUMBER
NAME
CFS
5 Echard 0.10
6 E. Brunnemer 0.40
12,13,16, 27,30,31, and 31a Echard 1.40
14 Eagleston 0.15
15,17,18, and 19 Hammersly 1.50
27,29 and 32 to 37 Grace 39.05
Watermaster Installed Recorder Station.
Conversion factors for SI see page xiv
North Fork Davis Creek
Middle Fk. Davis Creek
S. Fk. Davis Creek
Davis Creek
T46N
T45N
T44N
R14E
R13E
R15E
395
STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES
NORTHERN DISTRICT
DIVERSIONS FROM
DAVIS CREEK
NORTH FORK PIT RIVER
WATERMASTER SERVICE AREA

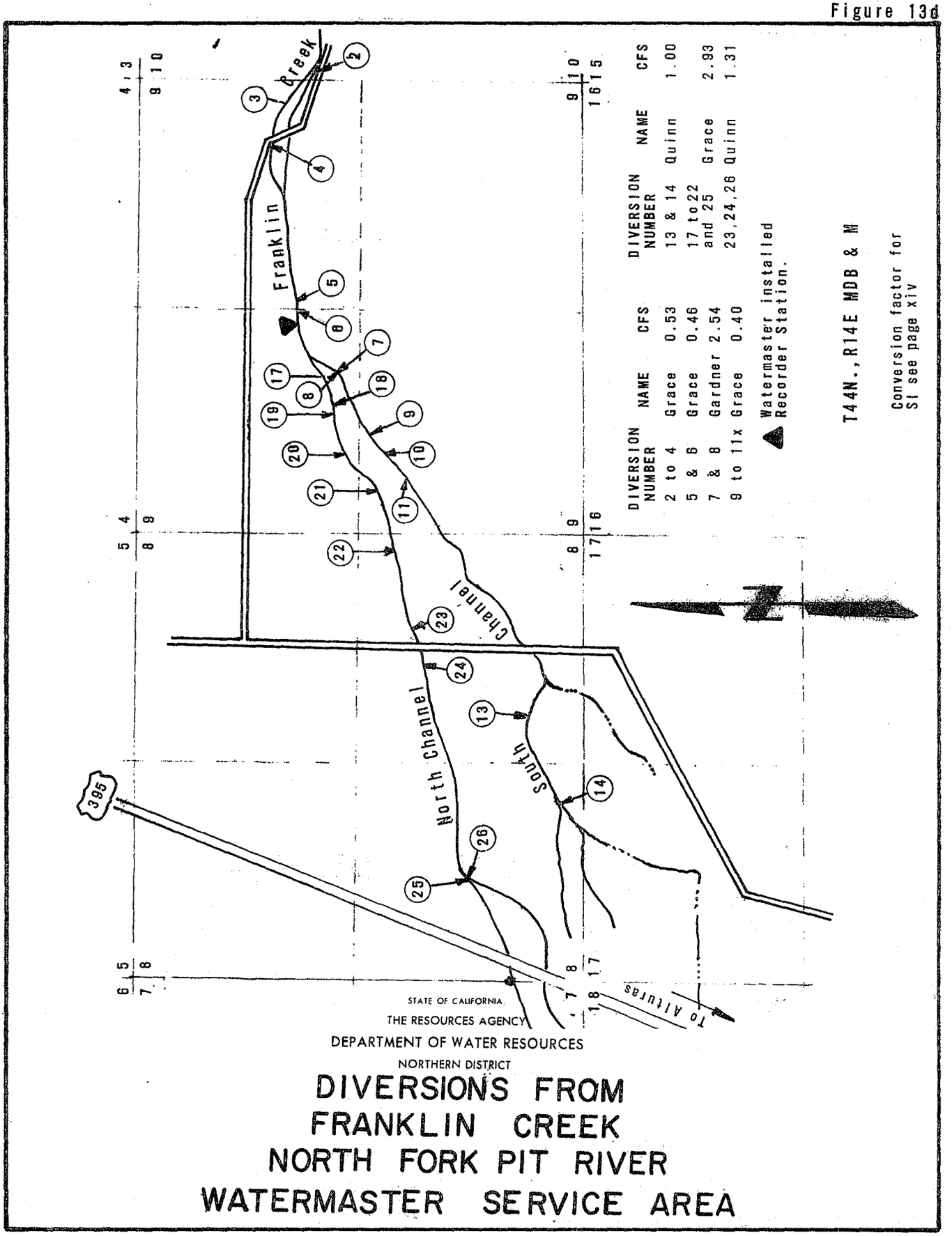
Figure 13c



STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES
NORTHERN DISTRICT

DIVERSIONS FROM LINVILLE CREEK NORTH FORK PIT RIVER WATERMASTER SERVICE AREA

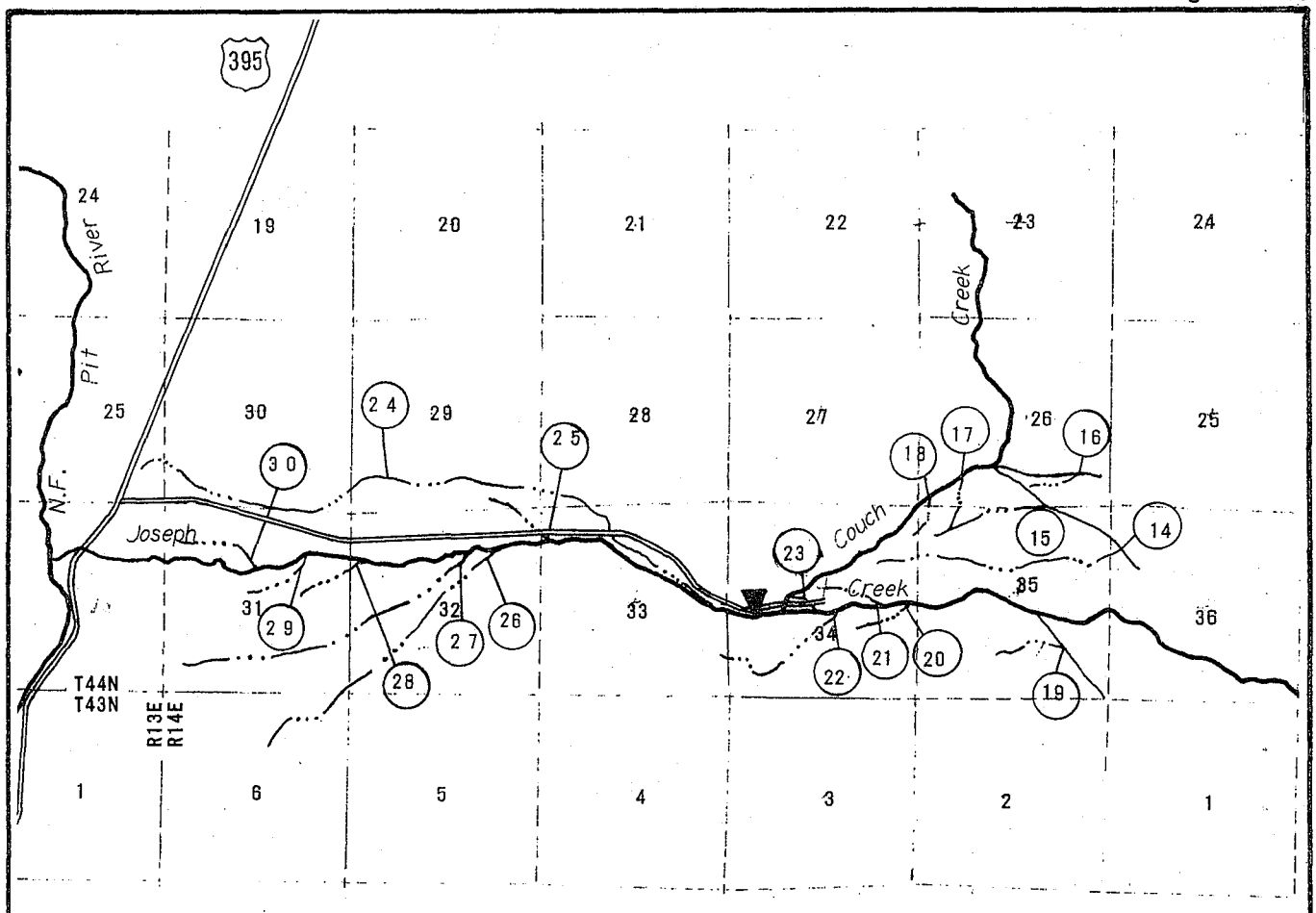
Figure 13d



STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES
NORTHERN DISTRICT

DIVERSIONS FROM FRANKLIN CREEK NORTH FORK PIT RIVER WATERMASTER SERVICE AREA

Figure 13e



DIVERSION NUMBER	NAME	CFS
14 to 18	U.S. Forest Service	1.15*
19	McQueen	0.40
20 to 24	Rice	1.28*
22	Russell	0.40
24	Russell	0.50
24 & 25	Franks	2.53
	Rice	0.87
26	U.S. Indian Service	1.30
27 to 30	Franks	3.55

* net consumptive use

▲ Watermaster Installed Recorder Station.

0 1 2 3 Kilometres

0 1 2 Miles

Conversion factors for SI see page xiv

STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES
NORTHERN DISTRICT

DIVERSIONS FROM JOSEPH CREEK NORTH FORK PIT RIVER WATERMASTER SERVICE AREA

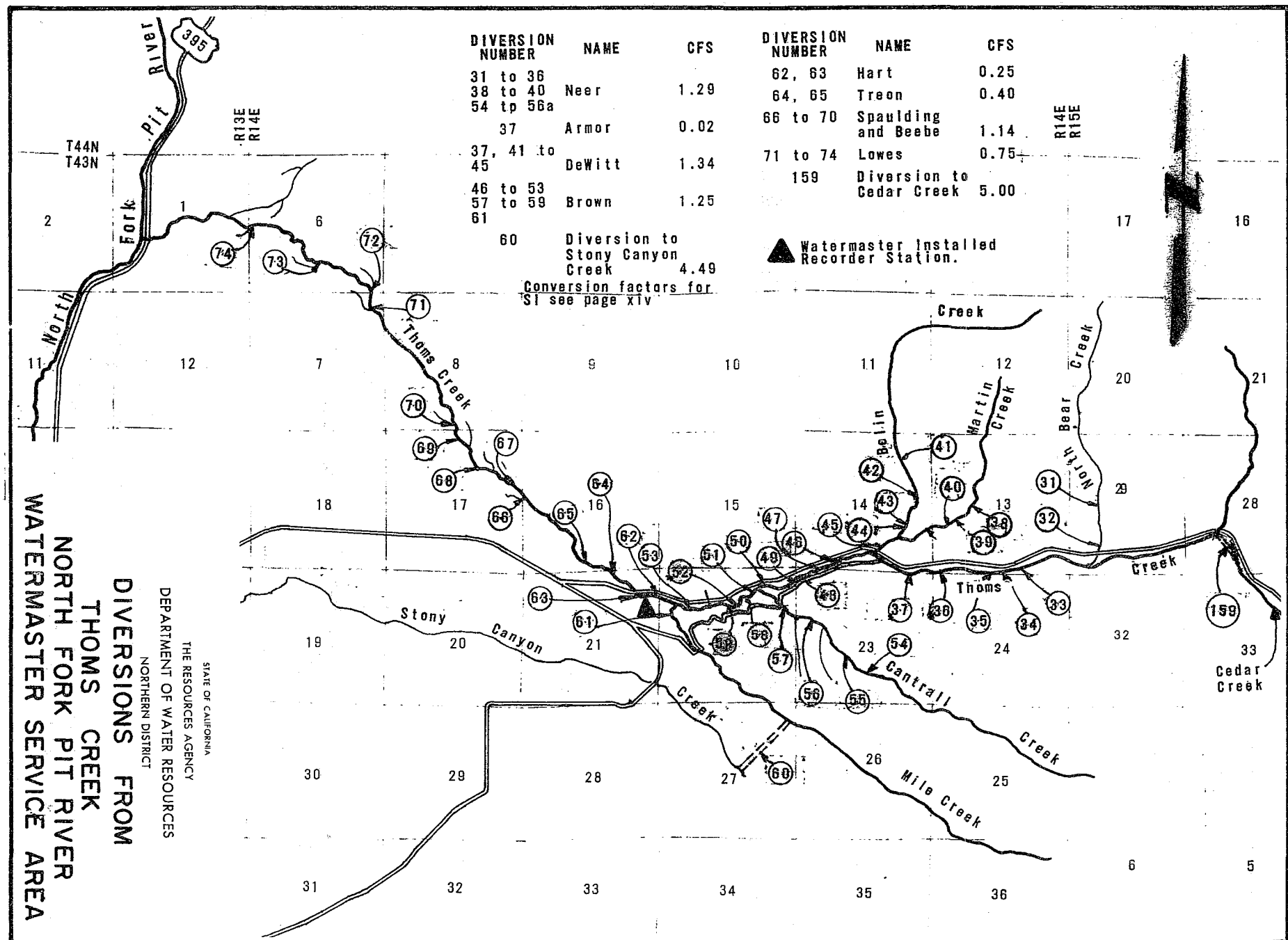

DIVERSIONS FROM
THOMS CREEK
NORTH FORK PIT RIVER
WATERMASTER SERVICE AREA
STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES
NORTHERN DISTRICT
DIVERSION NUMBER
NAME
CFS
31 to 36
38 to 40
54 to 56a
Neer
1.29
37
Armor
0.02
37, 41 to 45
DeWitt
1.34
46 to 53
57 to 59
61
Brown
1.25
60
Diversion to Stony Canyon Creek
4.49
62, 63
Hart
0.25
64, 65
Treon
0.40
66 to 70
Spaulding and Beebe
1.14
71 to 74
Lowes
0.75
159
Diversion to Cedar Creek
5.00
Watermaster Installed Recorder Station.
Conversion factors for SI see page xiv
North Fork Pit River
Thoms Creek
Stony Canyon Creek
Martin Creek
Bear Creek
Cantrall Creek
Mile Creek
Cedar Creek
T44N
T43N
R13E
R14E
R14E
R15E
395

Figure 13f

Figure 13g

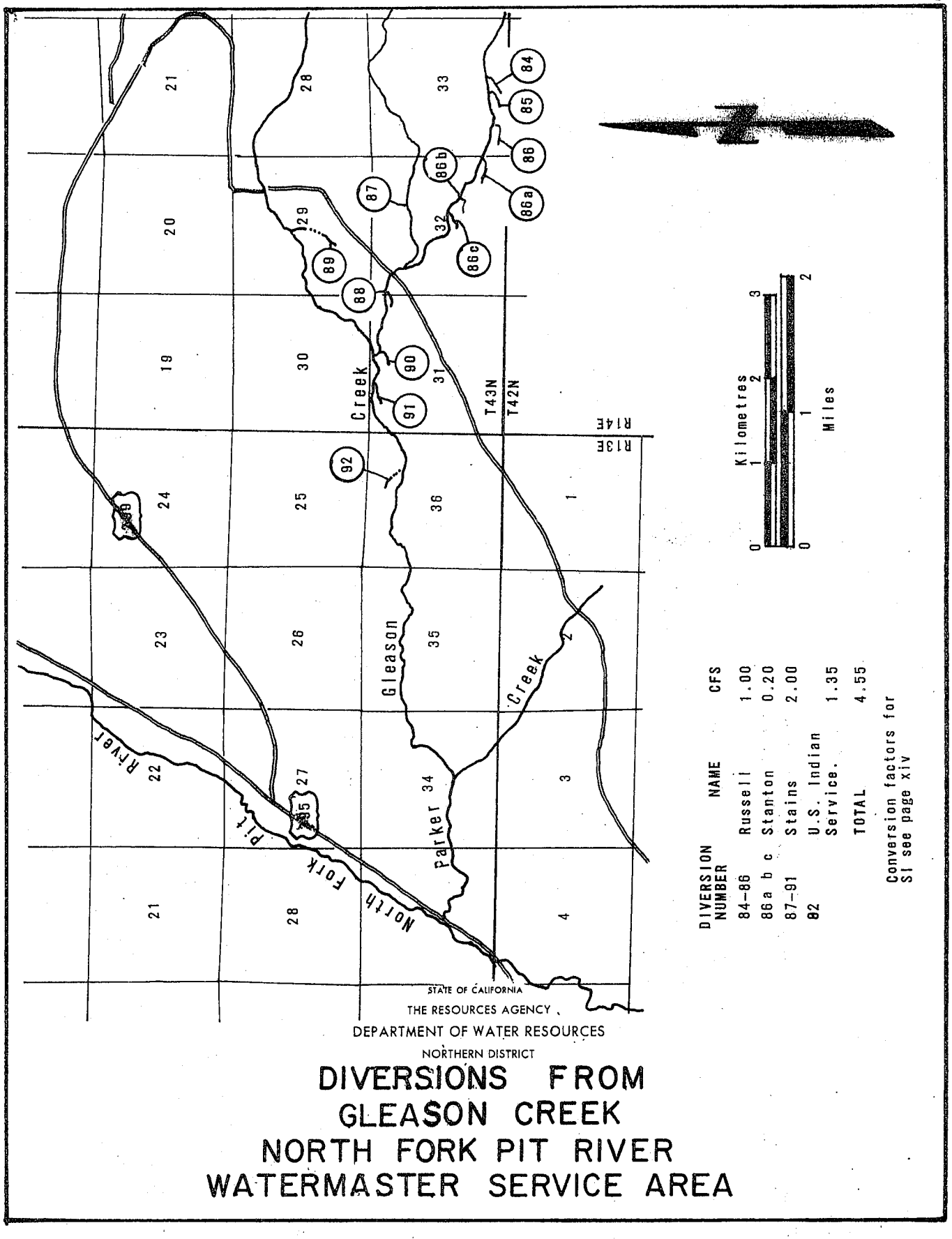

Gleason Creek
North Fork Pit River
Parker Creek
T43N
T42N
R14E
R13E
Kilometres
Miles
DIVERSION NUMBER
NAME
CFS
84-86 Russell 1.00
86a b c Stanton 0.20
87-91 Stains 2.00
82 U.S. Indian Service. 1.35
TOTAL 4.55
Conversion factors for SI see page xiv
STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES
NORTHERN DISTRICT
DIVERSIONS FROM
GLEASON CREEK
NORTH FORK PIT RIVER
WATERMASTER SERVICE AREA

Figure 13h

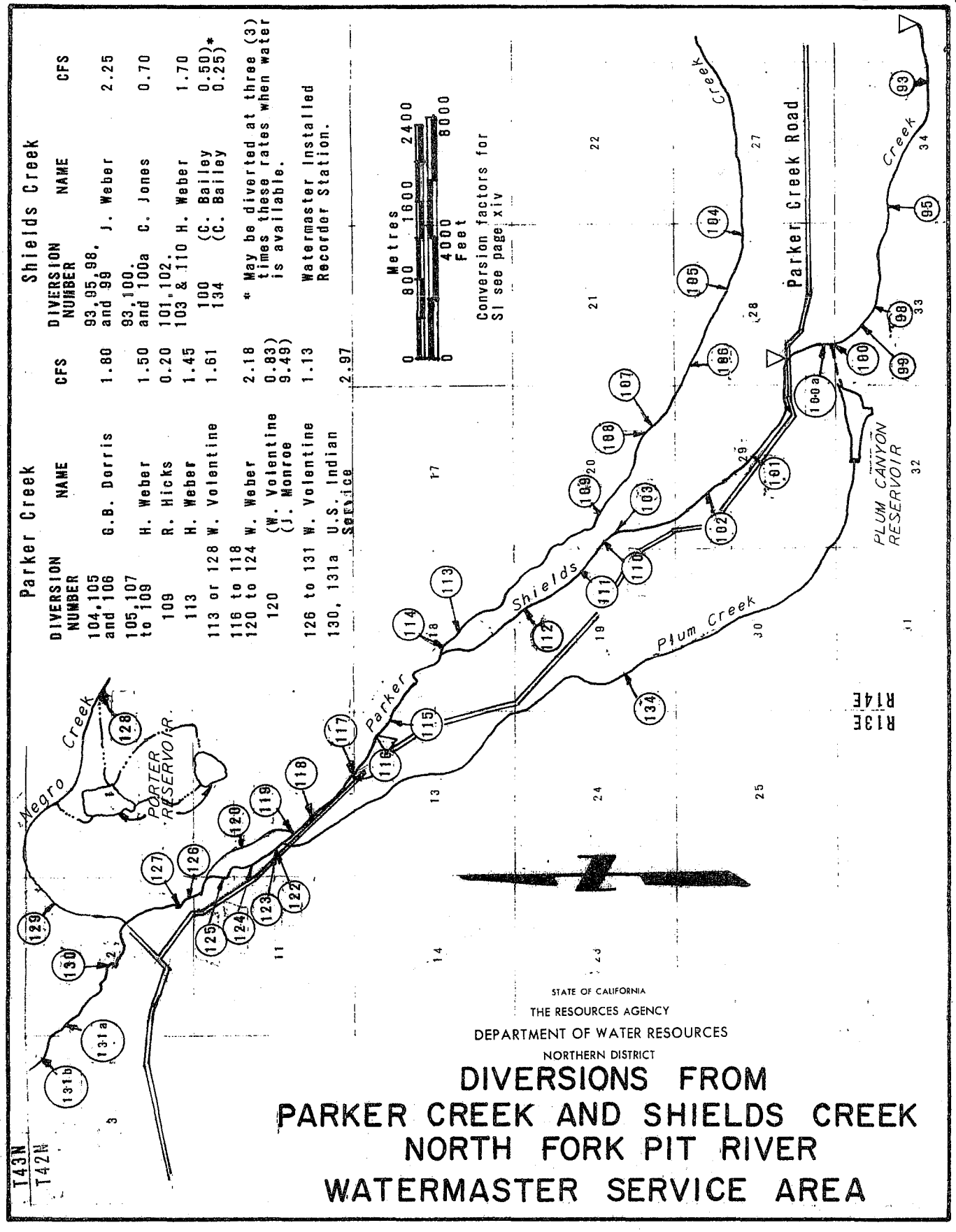

Parker Creek
DIVERSION NUMBER
NAME
CFS
104, 105 and 106
G.B. Dorris
1.80
105, 107 to 109
H. Weber
1.50
109
R. Hicks
0.20
113
H. Weber
1.45
113 or 128
W. Volentine
1.61
116 to 118
120 to 124
W. Weber
2.18
120
(W. Volentine
(J. Monroe
0.83)
9.49)
126 to 131
W. Volentine
1.13
130, 131a
U.S. Indian Service
2.97
Shields Creek
DIVERSION NUMBER
NAME
CFS
93, 95, 98, and 99
J. Weber
2.25
93, 100, and 100a
C. Jones
0.70
101, 102, 103 & 110
H. Weber
1.70
100
(C. Bailey
0.50)*
134
(C. Bailey
0.25)
* May be diverted at three (3) times these rates when water is available.
Watermaster Installed Recorder Station.
Metres
800
1600
2400
0
Feet
4000
8000
0
Conversion factors for SI see page xiv
Negro Creek
PORTER RESERVOIR
Parker
Shields
Plum Creek
Parker Creek Road
PLUM CANYON RESERVOIR
T43N
T42N
R13E
R14E
STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES
NORTHERN DISTRICT
DIVERSIONS FROM
PARKER CREEK AND SHIELDS CREEK
NORTH FORK PIT RIVER
WATERMASTER SERVICE AREA

Figure 13

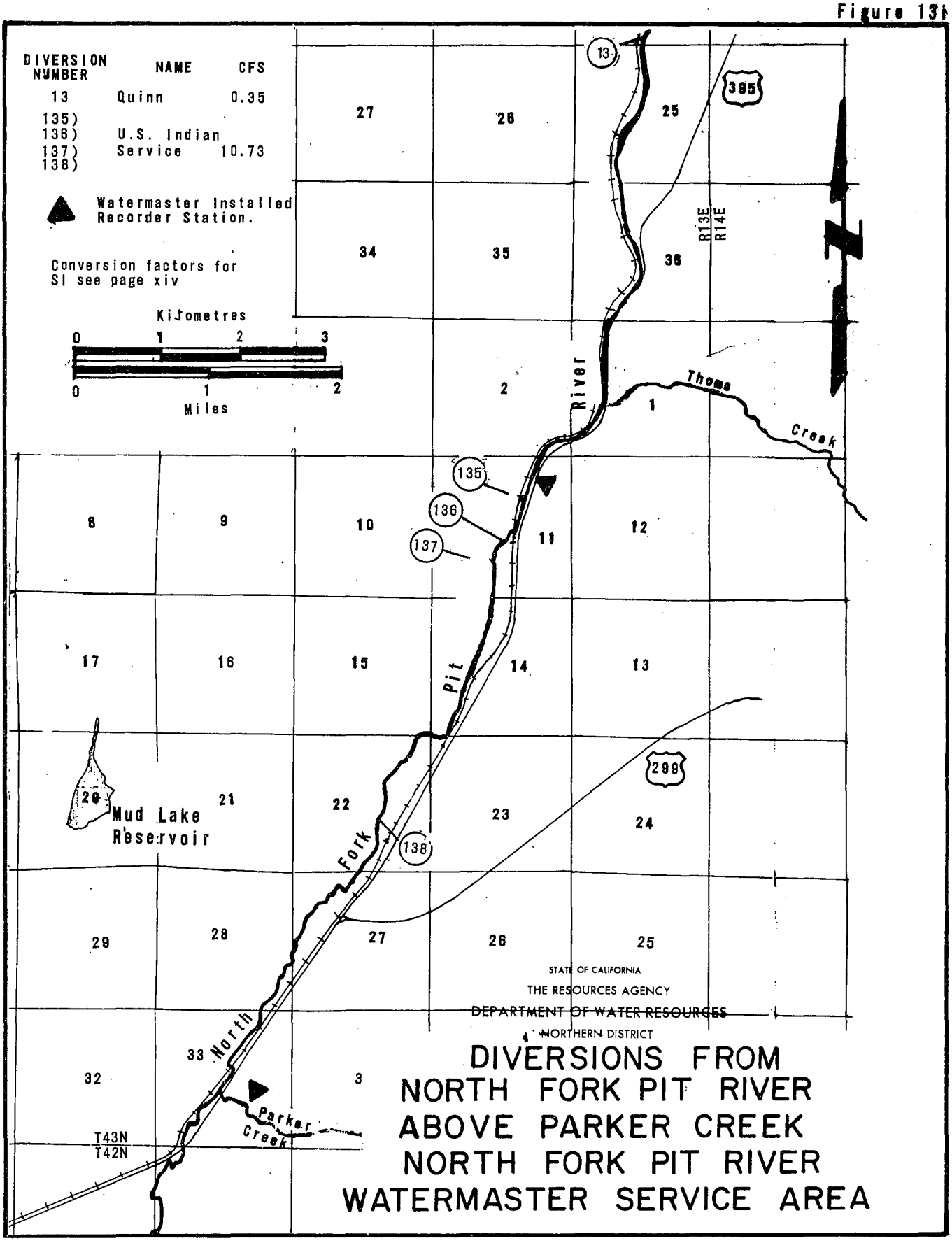
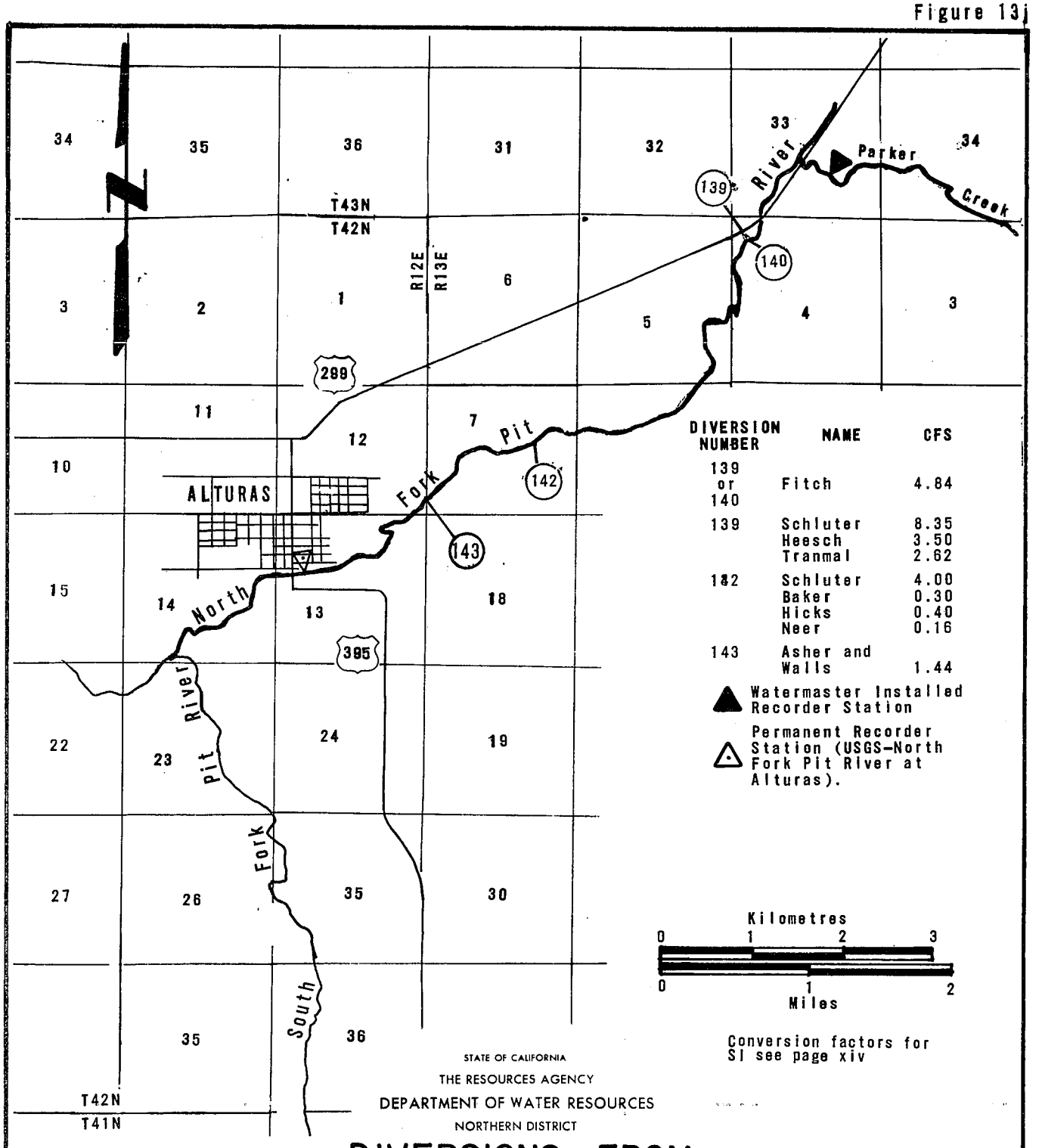

DIVERSION NUMBER
NAME
CFS
13 Quinn 0.35
135) 136) 137) 138) U.S. Indian Service 10.73
Watermaster Installed Recorder Station.
Conversion factors for SI see page xiv
Kilometres
0 1 2 3
0 1 2
Miles
Mud Lake Reservoir
Thoms Creek
Pit River
North Fork
33
Parker Creek
T43N
T42N
R13E
R14E
395
299
STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES
NORTHERN DISTRICT
DIVERSIONS FROM NORTH FORK PIT RIVER ABOVE PARKER CREEK
NORTH FORK PIT RIVER WATERMASTER SERVICE AREA

Figure 13



DIVERSIONS FROM NORTH FORK PIT RIVER PARKER CREEK TO CITY OF ALTURAS NORTH FORK PIT RIVER WATERMASTER SERVICE AREA

SHACKLEFORD CREEK WATERMASTER SERVICE AREA

The Shackleford Creek service area is located in western Siskiyou County near the town of Fort Jones in Scott Valley. The major sources of water supply for this service area are Shackleford Creek, which flows through the central part of Quartz Valley, and its tributary, Mill Creek, which rises east of the headwaters of Shackleford Creek. Evans Creek, a small tributary to Mill Creek, enters from the south.

The service area encompasses the Quartz Valley region of Scott Valley and includes the entire agricultural area within the Shackleford Creek Basin. It is about 3 kilometres (2 miles) wide by 10 km (6 miles) long with the main axis and drainage running from south to north. Elevations on the agricultural area range from about 945 metres (3,100 feet) at the south to about 808 m (2,650 feet) at the confluence of Shackleford Creek and Scott River.

A map of the Shackleford Creek stream system is presented as Figure 14, page 109.

Basis of Service

The Shackleford Creek watermaster service area was created on November 6, 1950. Water is distributed under the provisions of a statutory adjudication which resulted in Decree No. 13775, Siskiyou County Superior Court, dated April 3, 1950.

The allotments are defined in four separate schedules. The Upper Shackleford Creek group and Lower Shackleford Creek group each have seven priority classes and the Upper Mill Creek group and Lower Mill Creek group each have three priority classes.

Along with these schedules of allotments during the irrigation season, the decree defines two storage rights upstream of all other diversions. This stored water is released late in the irrigation season and commingled with the natural flow of Shackleford Creek for use by the owners.

Water Supply

The water supply for Shackleford Creek is derived from snowmelt runoff, springs and seepage, and supplemental stored water released from Cliff Lake and Campbell Lake. These lakes are located near the headwaters of Shackleford Creek.

The watershed of the Shackleford Creek stream system contains about 80 square kilometres (31 square miles), located in the heavily forested, steep, mountainous terrain of the northeasterly slopes of the Salmon Mountains. It varies in elevation from about 2 134 metres (7,000 feet) along its west rim to about 914 m (3,000 feet) at the foot of the slopes bordering Quartz Valley. Snowmelt runoff is normally sufficient to supply all demands until the middle of July. The supply then usually decreases until the first part of August when water is released from Cliff and Campbell Lakes to maintain sufficient flow for second priority allotments in the Shackleford Ditch.

Method of Distribution

Irrigation is accomplished primarily by wild flooding of permanent pasture and alfalfa fields. Water is distributed by ditches and laterals to the places of use. Shackleford Ditch, the largest of these ditches, has a length of about 9 m (6 miles) and a capacity of about 339 litres per second (12 cubic feet per second).

1976 Distribution

Watermaster service began March 16 in the Shackleford Creek service area and continued until September 30. Lester L. Lighthall, Water Resources Technician II, was watermaster during this period.

The available water supply was about normal for the season, with frequent rains in the latter part. Fourth priority water rights were shut off in the middle of July, and, as the flow continued to diminish, third priorities were cut to 30 percent by the first week of August and stayed that way for the remainder of the season.

In the last week of August the Emigrant Creek Ranch started releasing water from Campbell Lake to their Diversion No. 4, Shackleford Ditch.

Figure 14

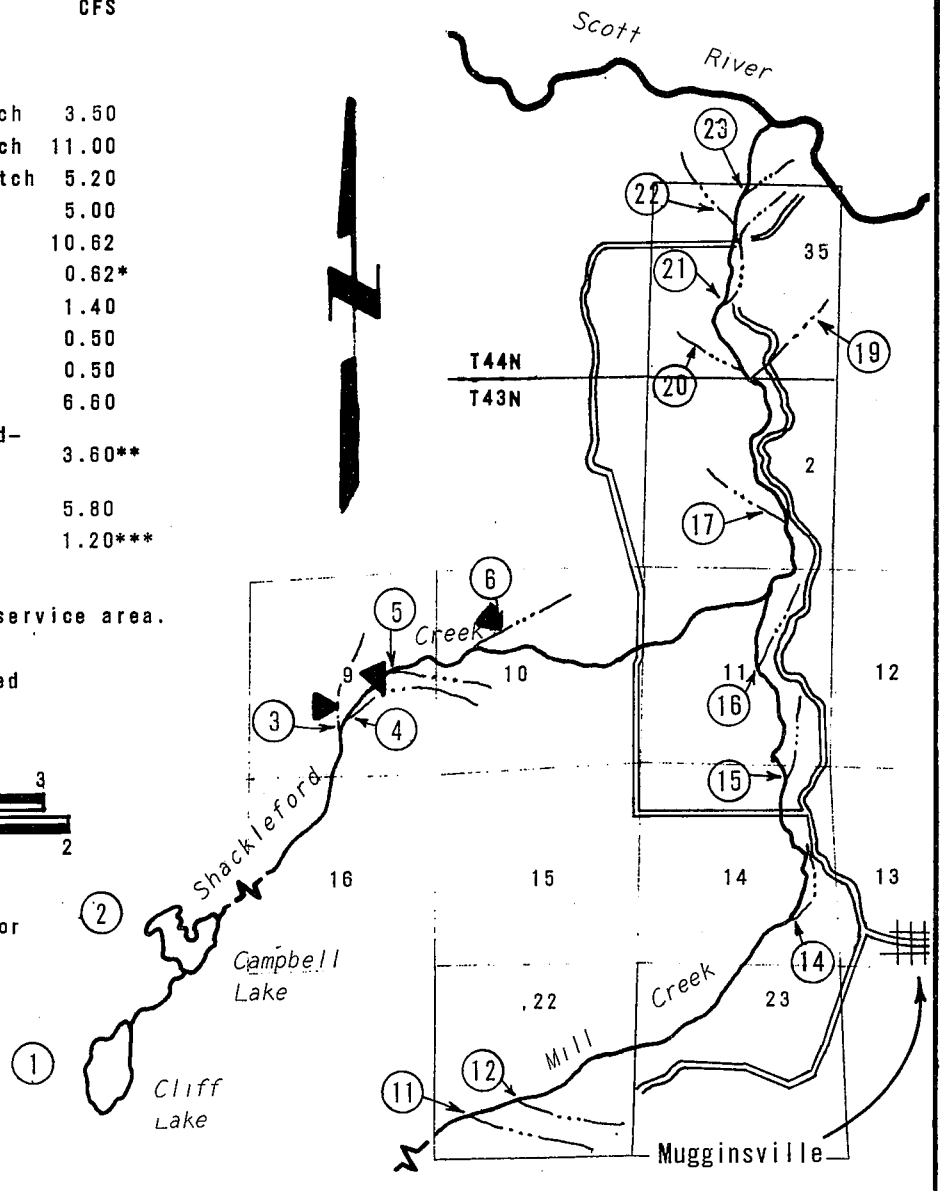
DIVERSION NUMBER	NAME	CFS
1	Cliff Lake	
2	Campbell Lake	
3	R. Eastlick ditch	3.50
4	Shackleford ditch	11.00
5	Howard-Jones ditch	5.20
6	Camp ditch	5.00
11	Eastlick ditch	10.62
12	Couch ditch	0.62*
14	China ditch	1.40
15	Dangel ditch	0.50
16	Denny Bar ditch	0.50
17	Freita ditch	6.60
19	Hammond-Crawford-Lewis ditch	3.60**
20	Burton-Meamber ditch	5.80
22	Burton, W.	1.20***
23	Burton, E.	

* out of 11 or 12
** plus rights not in service area.
*** in either 22 or 23.

▲ Watermaster Installed Recorder Station.

Kilometres 0 1 2 3
Miles 0 1 2

Conversion factors for SI see page xiv



STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES
NORTHERN DISTRICT

DIVERSIONS FROM SHACKLEFORD CREEK AND MILL CREEK SHACKLEFORD CREEK WATERMASTER SERVICE AREA

SHASTA RIVER WATERMASTER SERVICE AREA

The Shasta River service area is situated in the central part of Siskiyou County, south and east of the town of Yreka.

The source of water supply is Shasta River and its several tributaries. The upper reaches of the service area are served by two groups of tributaries. One group, comprising Boles, Beaughan, Carrick, and Jackson Creeks, rises on the northwestern slopes of Mount Shasta. The other group, consisting of Dale and Eddy Creeks, and Shasta River west of U. S. Highway 99, rises on the eastern slopes of the Trinity Mountains. All these streams join the main stem Shasta River above Dwinnell Reservoir near the town of Weed. As the Shasta River flows northward from Dwinnell Reservoir to its confluence with the Klamath River, north of Yreka, it is joined by three major tributaries. Parks Creek, rising on the eastern slopes of the Trinity Mountains, enters from the west near the town of Gazelle. Big Springs Creek, from Big Springs Lake, enters from the east about a mile below Parks Creek. Little Shasta River, rising on the western slopes of the mountainous area between Butte Valley and Shasta Valley, enters from the east near the town of Montague.

The place of use is in Shasta Valley which is approximately 48 kilometres (30 miles) long and 48 km (30 miles) wide. The valley has numerous small, coneshaped, volcanic hillocks scattered throughout its contral portion that produce the effect of dividing the area into a number of distinctively separate parts. Because of these formations, only about 47 000 hectares (141,000 acres) of the approximately 205 000 ha (507,000 acres) within the valley are irrigable. The valley floor elevation averages approximately 914 metres (3,000 feet).

Maps of the major stream systems in the Shasta River service area are presented as Figures 15 through 15i, pages 119 through 128.

Basis of Service

The Shasta River watermaster service area was created on March 1, 1933. The appropriateive water rights on this stream system were determined by a statutory adjudication which resulted in Decree No. 7035, Siskiyou County Superior Court, dated December 29, 1932.

The decree describes the water rights of the entire stream system in alphabetical order of users. The rights supervised by the watermaster are broken down into eight separate schedules. These are: Shasta River above its confluence with Big Springs Creek - 43 priorities; Boles Creek - 20 priorities; Beaughan Creek - 5 priorities; Jackson Creek - 7 priorities; Carrick Creek - 13 priorities; Parks Creek - 25 priorities; Shasta River below its confluence with Big Springs Creek and Big Springs Creek and tributaries - 29 priorities; and Little Shasta River - 7 priorities. Additional schedules include Willow Creek, Yreka Creek, and miscellaneous independent springs, gulches, and sloughs, but these are not included in the service area.

Montague Water Conservation District has appropriative rights for storage of Shasta River and Parks Creek water in Dwinnell Reservoir (Lake Shastina). By agreement with the District, five nearby downstream users receive water from storage in lieu of their decreed continuous flow allotments. The watermaster handles the reservoir releases for these users as well as for the district itself.

A peculiarity of the Shasta River decree is that it defines only appropriative rights and excludes a number of riparian users on the lower Shasta River. Owners of these rights are not subject to watermaster supervision, causing considerable distribution problems during seasons of short water supply.

Water Supply

The water supply for Shasta Valley is derived from snowmelt runoff, springs and underground flow, and occasional summer thundershowers. In several portions of the stream system the springs from underground flow are adequate to supply most allotments throughout the season. Much of the underground flow is derived from the northern slopes of Mount Shasta, which rises to an elevation of 4 317 metres (14,162 feet) at the south end of Shasta Valley. Although the snowpack on Mount Shasta is usually heavy, there is negligble surface runoff.

Parks Creek, Upper Shasta River, and Little Shasta River derive a major portion of their water supply from snowmelt runoff. This flow is usually adequate to supply all allotments until the middle of May.

Beaughan Creek, Carrick Creek, Shasta River from Boles Creek to Dwinell Reservoir, Big Springs, and Lower Shasta River have enough runoff from springs to supply a large percentage of the allotments throughout the season.

Records of the daily mean discharge at several stream gaging stations in the Shasta River service area are presented in Tables 31, 32, 34, 35, 36, and 37; pages 115, 117, and 118. The daily mean storage in Dwinnell Reservoir is presented in Table 33, page 116.

Method of Distribution

Irrigation of permanent pasture and alfalfa lands is accomplished principally by wild flooding. Much of the return water is recaptured and used on lower pasture lands. Sprinkling systems are used for irrigating some alfalfa and grain lands.

Water is diverted primarily by diversion dams and then conveyed by ditch or canal to the place of use. The largest and longest canal in the area is the Edson-Foulke Yreka Ditch, which has a capacity of about 1 699 litres per second (60 cubic feet per second) and a length of about 22 km (14 miles). Water is also supplied into ditch systems by pumped diversions, the three largest belonging to two irrigation districts and a private water users association. Some riparian lands are also served by pump diversions.

Many privately owned storage reservoirs exist in the area. Water storage from these reservoirs is used to supplement continuous-flow allotments.

Because of their large rights, close surveillance of the two public agencies, Grenada and Big Springs Irrigation Districts, and the privately operated Shasta River Water Users Association, is very important, particularly in dry years. Control of releases from Montague Water Conservation District's Dwinnell Reservoir (Lake Shastina) is another responsibility of the watermaster. This includes measurement of deliveries of stored water to users just below the dam.

1976 Distribution

Lester L. Lighthall, Water Resources Technician II, was watermaster in the Shasta River service area from March 1 through September 30.

The available water supply in the service area was generally above average during the season.

Parks Creek. The flow in Parks Creek was sufficient to supply all allotments (25 priorities) until late June. Some water continued to be diverted into the Yreka Ditch until late July. The first priority allotments of 170 l/s (6 cfs) were available throughout the entire irrigation season.

Water users downstream from the lowest first priority diversion received a portion of their allotments during the latter part of the season from return flow and from water rising in the gravel streambed.

Upper Shasta River. During early spring, enough water was available to satisfy all allotments (eight priorities). As the flow decreased, the following levels of priority allotments were met: June 12 - all of fourth priority; June 22 - all of third priority (Yreka Ditch main allotment); and July 26 (the seasonable low) - 27 percent of third priority.

Shasta River from Boles Creek to Dwinnell Reservoir. Boles Creek and this portion of the Shasta River were operated as one stream, under a long-standing oral agreement among the water right owners. The water is distributed on a correlative, equal-priority basis. By July 26 all water right owners were reduced to 75 percent of their allotments.

Beaughan Creek. The flow of Beaughan Creek was sufficient to satisfy most demands (five priorities) for the entire season. The creek is routed through a mill pond owned by the International Paper Company which uses approximately 35 percent of the flow for industrial purposes.

Carrick Creek. The water supply in Carrick Creek was adequate to satisfy all allotments (13 priorities) during the entire irrigation season.

Little Shasta River. Enough water was available in Little Shasta River to satisfy all fifth priority allotments (seven priorities) until mid-June, at which time full regulation became necessary to adequately distribute this priority. The flow continued to decrease to 30 percent of fifth priority allotments by mid-July. It then stayed constant for the remainder of the season.

The daily mean discharge of Little Shasta River near Montague is presented in Table 35, page 117. This runoff is augmented by rising water along the river channel, and by substantial inflow from Cleland Springs, a tributary approximately 3 km (2 miles) below the stream gaging station. Therefore, considerably more water was available for distribution at downstream diversion points than is reported in the discharge table.

Dwinnell Reservoir. Releases from Dwinnell Reservoir to the Montague Water Conservation District commenced on April 5 and continued into October. Reservoir operation data for the 1976 season are shown in Tables 33 and 34, pages 116 and 117.

By agreement with the Montague Water Conservation District, water users on Shasta River below Dwinnell Reservoir received stored water from the reservoir on demand in lieu of their natural flow rights. The agreement allotment totals and the amount delivered to each user this season are shown in the tablulation on the following page.

Big Springs. The flow of Big Springs was sufficient to satisfy 100 percent of third priority allotments through the first half of the season. As usual during July, August, and September, the flow in Big Springs increased due to snowmelt from higher elevations on Mount Shasta, percolating into the ground and reappearing as surface flow at Big Springs Lake. As a result, the Big Springs Irrigation District, a third priority water right owner, had its full allotment available throughout the season.

Lower Shasta River. The water supply in Lower Shasta River was sufficient to satisfy all allotments (29 priorities) during the entire season.

DELIVERIES TO NATURAL FLOW WATER RIGHT OWNERS
BELOW DWINNELL RESERVOIR - 1976

Name of Water Right Owner	Allotment in		Allotment Delivered From Dwinnell Reservoir		
	hm^{3*}	A/F	hm^{3*}	A/F	; % of Allotment
Lake Shastina Properties Flying L Ranch	0.24	198	0.13	108	54.5
Ross Park Homes, Inc.	0.57	464	0.57	464	100
J. N. Taylor	1.48	1,200	1.48	1,200	100
Lake Shastina Properties Hole-in-the-Ground Ranch	0.74	596	0.74	596	100
Lake Shastina Properties Seldom Seen Ranch	1.14	924	1.14	924	100
Totals	4.17	3,382	4.06	3,292	97.3

* Square hectometres

SHASTA RIVER WATERMASTER SERVICE AREA
1976 Daily Mean Discharge

TABLE 31

SHASTA RIVER AT EDGEWOOD

Day	April		May		June		July		August		September		Day
	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	
1	1470	52	906	32	680	24	312	11	396	14	340	12	1
2	1470	52	1020	36	595	21	312	11	425	15	340	12	2
3	1390	49	1130	40	708	25	312	11	396	14	340	12	3
4	1270	45	1130	40	765	27	340	12	453	16	340	12	4
5	1220	43	1160	41	680	24	340	12	396	14	368	13	5
6	1560	55	1160	41	595	21	368	13	425	15	368	13	6
7	3230	114	1160	41	510	18	368	13	425	15	396	14	7
8	4810	170	1160	41	510	18	340	12	396	14	368	13	8
9	2780	98	1870	66	510	18	340	12	396	14	368	13	9
10	3030	107	2210	78	538	19	340	12	368	13	368	13	10
11	3260	115	2290	81	566	20	368	13	396	14	368	13	11
12	2440	86	2150	76	566	20	340	12	396	14	368	13	12
13	2150	76	2100	74	566	20	227	8.0	368	13	368	13	13
14	1930	68	2290	81	538	19	215	7.6	850	30	368	13	14
15	1810	64	2150	76	510	18	215	7.6	850	30	396	14	15
16	1670	59	1950	69	453	16	198	7.0	680	24	453	16	16
17	1470	52	1810	64	425	15	227	8.0	538	19	396	14	17
18	1470	52	1730	61	396	14	261	9.2	538	19	396	14	18
19	1330	47	1560	55	368	13	261	9.2	538	19	425	15	19
20	1220	43	1390	49	368	13	261	9.2	481	17	396	14	20
21	991	35	1220	43	396	14	340	12	425	15	396	14	21
22	935	33	1080	38	425	15	283	10	510	18	396	14	22
23	935	33	1020	36	396	14	241	8.5	595	21	396	14	23
24	1050	37	991	35	368	13	241	8.5	538	19	396	14	24
25	1160	41	991	35	368	13	241	8.5	481	17	396	14	25
26	1080	38	935	33	340	12	241	8.5	453	16	396	14	26
27	935	33	850	30	340	12	227	8.0	396	14	396	14	27
28	850	30	850	30	340	12	215	7.6	396	14	425	15	28
29	765	27	765	27	340	12	198	7.0	396	14	396	14	29
30	765	27	736	26	312	11	215	7.6	368	13	425	15	30
31			736	26			198	7.0	340	12			31
Mean	1680	59.4	1370	48.4	482	17.0	277	9.8	471	16.6	385	13.6	Mean
Volume													Volume
hm	4.360		3.670		1.250		.740		1.260		1.000		hm
AF		3530		2970		1010		601		1020		808	AF

TABLE 32

PARKS CREEK ABOVE EDSON-FOULKE YREKA DITCH

Day	April		May		June		July		August		September		Day
	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	
1	340	12	1440	51	595	21	187	6.6	201	7.1	68	2.4	1
2	340	12	1530	54	566	20	181	6.4	139	4.9	65	2.3	2
3	396	14	1420	50	623	22	181	6.4	105	3.7	65	2.3	3
4	396	14	1440	51	566	20	170	6.0	110	3.9	65	2.3	4
5	481	17	1560	55	510	18	164	5.8	130	4.6	65	2.3	5
6	453	16	1470	52	453	16	153	5.4	108	3.8	68	2.4	6
7	651	23	1640	58	425	15	150	5.3	99	3.5	68	2.4	7
8	1020	36	1950	69	396	14	150	5.3	93	3.3	68	2.4	8
9	878	31	2240	79	396	14	150	5.3	87	3.1	68	2.4	9
10	793	28	2240	79	396	14	144	5.1	85	3.0	68	2.4	10
11	736	26	1950	69	368	13	170	6.0	82	2.9	65	2.3	11
12	651	23	1870	66	368	13	181	6.4	79	2.8	65	2.3	12
13	566	20	2070	73	340	12	150	5.3	73	2.6	65	2.3	13
14	566	20	1930	68	283	10	139	4.9	130	4.6	65	2.3	14
15	566	20	1670	59	272	9.6	130	4.6	207	7.3	68	2.4	15
16	510	18	1560	55	261	9.2	119	4.2	110	3.9	68	2.4	16
17	481	17	1420	50	261	9.2	144	5.1	93	3.3	70	2.5	17
18	453	16	1300	46	249	8.8	144	5.1	96	3.4	68	2.4	18
19	481	17	1160	41	238	8.4	139	4.9	90	3.2	68	2.4	19
20	680	24	963	34	232	8.2	130	4.6	76	2.7	68	2.4	20
21	736	26	963	34	249	8.8	144	5.1	73	2.6	68	2.4	21
22	765	27	935	33	249	8.8	159	5.6	73	2.6	68	2.4	22
23	850	30	878	31	227	8.0	153	5.4	73	2.6	68	2.4	23
24	963	34	850	30	218	7.7	153	5.4	73	2.6	68	2.4	24
25	935	33	793	28	212	7.5	150	5.3	70	2.5	68	2.4	25
26	821	29	765	27	201	7.1	144	5.1	70	2.5	68	2.4	26
27	765	27	765	27	193	6.8	133	4.7	70	2.5	68	2.4	27
28	736	26	708	25	187	6.6	130	4.6	70	2.5	68	2.4	28
29	765	27	651	23	181	6.4	133	4.7	70	2.5	70	2.5	29
30	963	34	623	22	181	6.4	133	4.7	70	2.5	70	2.5	30
31			651	23			125	4.4	68	2.4			31
Mean	658	23.2	1340	47.2	330	11.6	149	5.3	96.3	3.4	67.5	2.4	Mean
Volume													Volume
hm	1.710		3.580		.860		.400		.260		.170		hm
AF		1380		2900		693		324		209		142	AF

SHASTA RIVER WATERMASTER SERVICE AREA
October 1, 1975 through September 30, 1976 (in acre-feet)

TABLE 33
DAILY MEAN STORAGE IN DWINNELL RESERVOIR

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Day
1	23,222	22,998	26,270	29,180	30,752	31,632	32,240	31,520	26,330	20,751	14,864	12,144	1
2	23,082	23,096	26,345	29,240	30,768	31,680	32,240	31,360	26,135	20,548	14,804	11,910	2
3	22,830	23,194	26,450	29,315	30,800	31,728	32,256	31,200	26,000	20,324	14,624	11,740	3
4	22,690	23,320	26,600	29,360	30,848	31,760	32,272	31,040	25,850	20,016	14,456	11,530	4
5	22,550	23,390	26,705	29,435	30,864	31,792	32,272	30,768	25,640	19,960	14,324	11,350	5
6	22,410	23,432	26,885	29,510	30,880	31,840	32,224	30,512	25,505	19,771	14,212	11,210	6
7	22,354	23,488	27,020	29,570	30,880	31,872	32,384	30,304	25,310	19,596	14,124	11,030	7
8	22,312	23,572	27,125	29,680	30,880	31,968	32,868	30,160	25,070	19,400	14,047	10,920	8
9	22,256	23,675	27,230	29,744	30,880	32,000	33,140	30,080	24,905	19,190	13,904	10,780	9
10	22,200	23,810	27,350	29,824	30,880	32,032	33,208	29,952	24,755	18,952	13,794	10,650	10
11	22,172	23,915	27,455	29,920	30,880	32,048	33,480	29,888	24,575	18,756	13,673	10,520	11
12	22,158	24,050	27,575	29,968	30,912	32,080	33,531	29,824	24,380	18,616	13,585	10,340	12
13	22,130	24,170	27,680	30,032	30,928	32,096	33,548	29,680	24,200	18,434	13,442	10,220	13
14	22,102	24,275	27,770	30,112	30,928	32,112	33,531	29,540	24,050	18,182	13,398	10,080	14
15	22,074	24,500	27,845	30,160	30,928	32,128	33,446	29,450	23,820	17,961	13,376	9,980	15
16	22,046	24,755	27,920	30,208	30,960	32,160	33,378	29,345	23,628	17,766	13,354	9,890	16
17	22,046	25,025	28,010	30,256	30,960	32,176	33,310	29,225	23,418	17,571	13,332	9,800	17
18	22,046	25,160	28,100	30,304	30,960	32,192	33,259	29,090	23,250	17,402	13,310	9,740	18
19	22,060	25,310	28,175	30,352	31,008	32,208	33,174	28,940	23,040	17,194	13,277	9,660	19
20	22,060	25,370	28,250	30,416	31,040	32,240	33,004	28,790	22,830	16,999	13,241	9,560	20
21	22,074	25,460	28,325	30,480	31,040	32,240	32,885	28,640	22,676	16,817	13,178	9,480	21
22	22,088	25,550	28,400	30,496	31,040	32,240	32,784	28,475	22,550	16,616	13,068	9,400	22
23	22,102	25,625	28,475	30,544	31,040	32,240	32,688	28,250	22,410	16,460	13,046	9,310	23
24	22,130	25,700	28,550	30,592	31,072	32,240	32,640	27,995	22,270	16,268	12,991	9,240	24
25	22,200	25,775	28,625	30,640	31,120	32,240	32,512	27,800	22,060	16,100	12,936	9,150	25
26	22,312	25,865	28,700	30,672	31,200	32,240	32,384	27,575	21,850	15,908	12,837	9,082	26
27	22,396	25,955	28,775	30,688	31,296	32,224	32,224	27,350	21,668	15,740	12,771	9,010	27
28	22,452	26,060	28,880	30,704	31,360	32,208	32,064	27,140	21,444	15,560	12,694	8,929	28
29	22,592	26,105	28,970	30,720	31,520	32,192	31,840	26,930	21,262	15,344	12,562	8,848	29
30	22,690	26,180	29,030	30,736		32,192	31,680	26,720	20,982	15,200	12,507	8,767	30
31	22,872		29,120	30,752		32,192		26,540		14,960	12,353		31

Conversion factor — 1 Acre-Foot = 1 233.5 metres

SHASTA RIVER WATERMASTER SERVICE AREA
1976 Daily Mean Discharge

TABLE 34

DWINNELL RESERVOIR

Day	April		May		June		July		August		September		Day
	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	
1			1610	57	1980	70	2270	80	1930	68	1730	61	1
2			1610	57	1930	68	2290	81	1810	64	2040	72	2
3			1670	59	1840	65	2290	81	1950	69	2150	76	3
4			1810	64	1760	62	2010	71	1900	67	2240	79	4
5	227	8.0*	2040	72	1700	60	2010	71	1810	64	2210	78	5
6	906	32	2150	76	1590	56	2040	72	1640	58	2040	72	6
7	935	33	2100	74	1640	58	1930	68	1470	52	2010	71	7
8	708	25	1870	66	1590	56	1870	66	1330	47	1810	64	8
9	453	16	1900	67	1670	59	1950	69	1300	46	1640	58	9
10	453	16	1900	67	1780	63	1950	69	1300	46	1640	58	10
11	481	17	1810	64	1810	64	1950	69	1270	45	1640	58	11
12	708	25	1610	57	1810	64	1930	68	1190	42	1590	56	12
13	935	33	1530	54	1810	64	1900	67	1250	44	1470	52	13
14	1100	39	1950	69	1870	66	1930	68	1220	43	1470	52	14
15	1250	44	1870	66	1840	65	1980	70	935	33	1390	49	15
16	1270	45	1810	64	1730	63	1980	70	680	24	1190	42	16
17	1270	45	1670	59	1760	62	2010	71	680	24	963	34	17
18	1250	44	1670	59	1670	59	1980	70	736	26	821	29	18
19	1390	49	1670	59	1610	57	1980	70	736	26	821	29	19
20	1560	55	1700	60	1590	56	1950	69	736	26	906	32	20
21	1500	53	1700	60	1590	56	1950	69	850	30	906	32	21
22	1390	49	1760	62	1500	53	1930	68	906	32	906	32	22
23	1220	43	2010	71	1640	58	1930	68	736	26	878	31	23
24	1050	37	2150	76	1760	62	1930	68	680	24	850	30	24
25	1220	43	2150	76	1900	67	1930	68	651	23	850	30	25
26	1420	50	2150	76	1950	69	1930	68	736	26	821	29	26
27	1440	51	2150	76	1980	70	1950	69	793	28	850	30	27
28	1590	56	2150	76	2100	74	1900	67	793	28	821	29	28
29	1610	57	2150	76	2040	72	1950	69	765	27	821	29	29
30	1640	58	2100	74	2240	79	1980	70	991	35	821	29	30
31			1980	70			2040	72	1330	47			31
Mean	966	34.1	1880	66.5	1790	63.2	1990	70.2	1130	40.0	1340	47.4	Mean
Volume													Volume
hm	2.500		5.050		4.640		5.320		3.030		3.480		hm
AF	2030		4090		3760		4310		2460		2820		AF

* Beginning of Record

TABLE 35

LITTLE SHASTA RIVER NEAR MONTAGUE

Day	March		April		May		June		July		August		September		Day
	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	
1	538	19	793	28	1810	64	1080	38	340	12	368	13	159	5.6	1
2	481	17	821	29	1870	66	991	35	340	12	275	9.7	159	5.6	2
3	396	14	906	32	1840	65	963	34	340	12	241	8.5	156	5.5	3
4	396	14	1080	38	1700	60	935	33	340	12	210	7.4	153	5.4	4
5	368	13	1270	45	1760	62	878	31	312	11	198	7.0	153	5.4	5
6	453	16	1220	43	1810	64	821	29	312	11	210	7.4	153	5.4	6
7	481	17	1300	46	1950	69	793	28	312	11	198	7.0	150	5.3	7
8	623	22	1590	56	1950	69	736	26	312	11	195	6.9	147	5.2	8
9	850	30	1330	47	2040	72	708	25	312	11	184	6.5	144	5.1	9
10	1100	39	1190	42	2120	75	708	25	312	11	176	6.2	144	5.1	10
11	963	34	1050	37	2040	72	680	24	283	10	170	6.0	144	5.1	11
12	680	24	935	33	2010	71	651	23	312	11	170	6.0	144	5.1	12
13	623	22	906	32	2070	73	623	22	312	11	170	6.0	144	5.1	13
14	680	24	963	34	2100	74	595	21	283	10	275	9.7	144	5.1	14
15	821	29	1100	39	1980	70	566	20	283	10	340	12	147	5.2	15
16	1250	44	878	31	1900	67	538	19	283	10	340	12	170	6.0	16
17	1610	57	850	30	1840	65	510	18	280	9.9	255	9.0	150	5.3	17
18	1610	57	878	31	1780	63	510	18	280	9.9	252	8.9	147	5.2	18
19	1100	39	991	35	1730	61	481	17	278	9.8	232	8.2	147	5.2	19
20	963	34	1250	44	1640	58	453	16	266	9.4	193	6.8	144	5.1	20
21	963	34	1300	46	1590	56	453	16	266	9.4	178	6.3	139	4.9	21
22	963	34	1330	47	1500	53	453	16	261	9.2	252	8.9	139	4.9	22
23	821	29	1470	52	1470	52	425	15	255	9.0	269	9.5	136	4.8	23
24	793	28	1700	60	1440	51	425	15	244	8.6	195	6.9	136	4.8	24
25	708	25	1560	55	1390	49	396	14	235	8.3	178	6.3	136	4.8	25
26	651	23	1390	49	1300	46	396	14	235	8.3	173	6.1	136	4.8	26
27	595	21	1360	48	1220	43	368	13	235	8.3	170	6.0	133	4.7	27
28	595	21	1360	48	1160	41	368	13	232	8.2	170	6.0	136	4.8	28
29	651	23	1360	48	1100	39	368	13	229	8.1	167	5.9	133	4.7	29
30	821	29	1560	55	1050	37	340	12	221	7.8	161	5.7	130	4.6	30
31	935	33			1100	39			201	7.1	161	5.7			31
Mean	790	27.9	1190	42.0	1690	59.5	607	21.4	281	9.9	217	7.7	145	5.1	Mean
Volume															Volume
hm	2.120		3.080		4.520		1.570		.750		.580		.380		hm
AF	1710		2500		3660		1270		609		471		305		AF

SHASTA RIVER WATERMASTER SERVICE AREA
1976 Daily Mean Discharge

TABLE 36

SHASTA RIVER AT MONTAGUE-GRENADA HIGHWAY BRIDGE

Day	April l/s	April cfs	May l/s	May cfs	June l/s	June cfs	July l/s	July cfs	August l/s	August cfs	September l/s	September cfs	Day
1	↑ **		↑		1130	40	396	14	906	32	1190	42	1
2					1130	40	481	17	2660	94	1100	39	2
3					1420	50	623	22	2460	87	963	34	3
4					1270	45	651	23	2270	80	878	31	4
5					1160	41	566	20	1980	70	651	23	5
6					1130	40	595	21	2120	75	765	27	6
7					878	31	566	20	2490	88	963	34	7
8					793	28	566	20	2660	94	793	28	8
9					1130	40	510	18	1560	55	765	27	9
10					1100	39	481	17	1360	48	821	29	10
11					1050	37	340	12	1360	48	1100	39	11
12					1160	41	453	16	1640	58	1470	52	12
13					1160	41	566	20	1100	39	1780	63	13
14					1130	40	566	20	2150	76	1760	62	14
15					963	34	651	23	↑	**	1670	59	15
16			↓	**	850	30	651	23			2460	87	16
17			2180	77*	991	35	1130	40			2660	94	17
18			1700	60	651	23	765	27			2630	93	18
19			1530	54	566	20	793	28			2410	85	19
20			1470	52	651	23	1130	40			2150	76	20
21			1390	49	595	21	595	21			1670	59	21
22			1390	49	623	22	538	19			2490	88	22
23			1190	42	765	27	425	15			1760	62	23
24			1160	41	623	22	340	12			2720	96	24
25			1080	38	623	22	510	18			3230	114	25
26			878	31	481	17	510	18			3370	119	26
27			765	27	425	15	425	15			2950	104	27
28			1470	52	453	16	283	10		**	2950	104	28
29			1050	37	425	15	595	21	2460	87	3230	114	29
30	↓		1080	38	368	13	765	27	2210	78	2720	96	30
31			1190	42			510	18	1700	60			31
Mean			630	22.2	856	30.2	580	20.5	1070	37.7	1870	66.0	Mean
Volume hm					2.220		1.550				4.840		Volume hm
AF					1800		1260				3920		AF

OVER 100 CFS (April 1 – May 16)

OVER 100 CFS (May 17 – August 14)

OVER 100CFS (August 15 – August 28)

* Beginning of Record

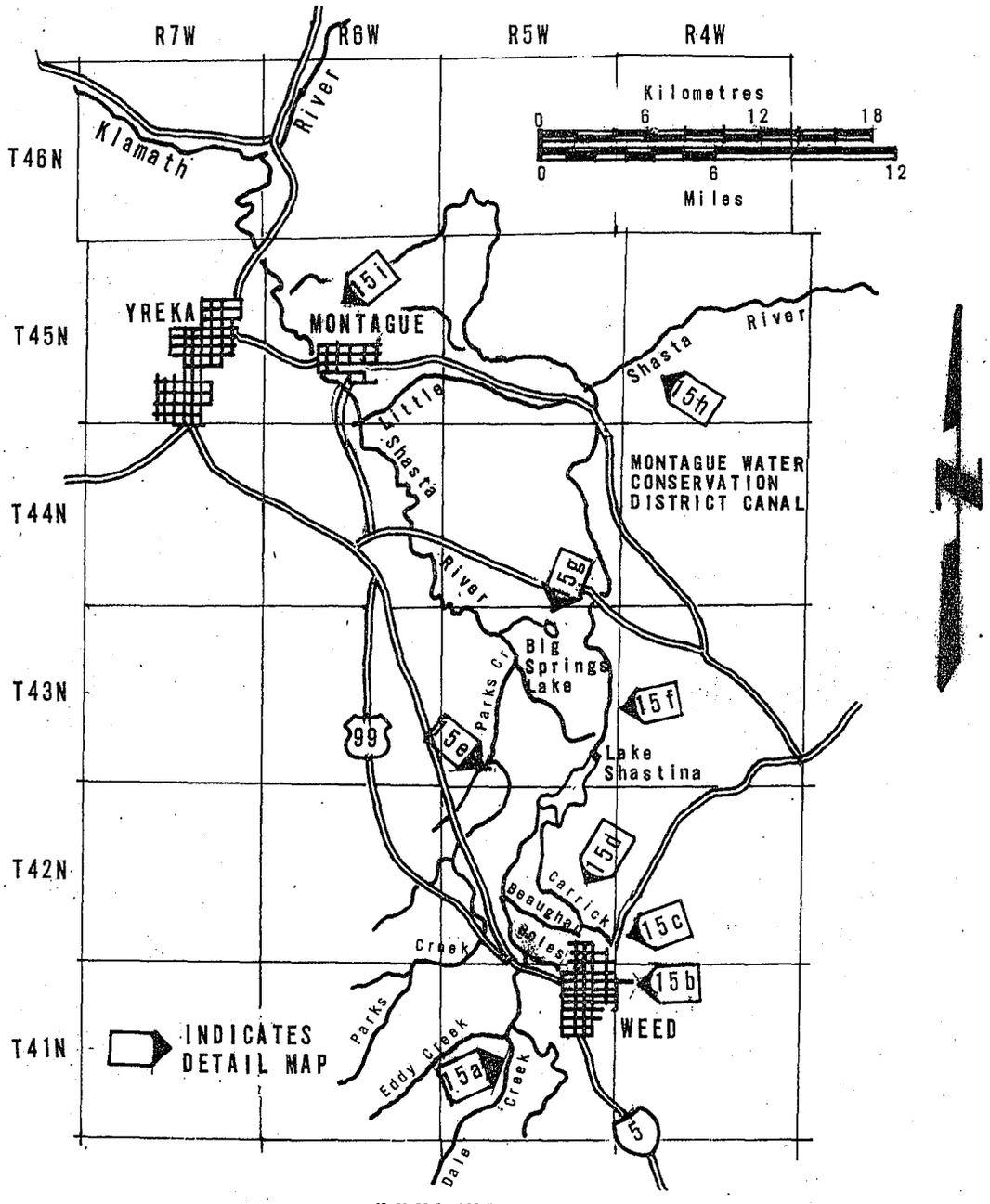
** Mean daily flow from April 1 to May 16 and August 15 to August 28 was in excess of 2 831.7 l/s (100 cfs)

TABLE 37

SHASTA RIVER NEAR YREKA

Day	March l/s	March cfs	April l/s	April cfs	May l/s	May cfs	June l/s	June cfs	July l/s	July cfs	August l/s	August cfs	September l/s	September cfs	Day
1	14470	511	5520	195	2660	94	1670	59	708	25	736	26	1900	67	1
2	12520	442	5440	192	2550	90	1470	52	651	23	2180	77	1390	49	2
3	10930	386	4640	164	2660	94	1760	62	736	26	2520	89	1390	49	3
4	10110	357	3820	135	2830	100	1590	56	566	20	2610	92	1330	47	4
5	9120	322	3430	121	2860	101	1590	56	793	28	2490	88	1050	37	5
6	8180	289	3260	115	2610	92	1590	56	765	27	2380	84	1020	36	6
7	7960	281	3510	124	2970	105	1530	54	765	27	2660	94	1190	42	7
8	8270	292	4900	173	3260	115	1530	54	566	20	2750	97	1220	43	8
9	8810	311	6430	227	3480	123	1470	52	481	17	2320	82	935	33	9
10	8180	289	6340	224	4080	144	1730	61	425	15	1900	67	906	32	10
11	7650	270	4620	163	3960	140	1810	64	396	14	1440	51	1100	39	11
12	6880	243	4360	154	3790	134	1810	64	340	12	1590	56	1500	53	12
13	6680	236	3850	136	3430	121	1760	62	312	11	1590	56	1700	60	13
14	6910	244	3480	123	2890	102	1930	68	453	16	2240	79	1950	69	14
15	6740	238	3140	111	2890	102	2010	71	481	17	3770	133	1810	64	15
16	6910	244	3120	110	2970	105	1700	60	623	22	4160	147	2350	83	16
17	7250	256	2970	105	2380	84	1470	52	793	28	3740	132	2800	99	17
18	7250	256	2860	101	2070	73	1330	47	1360	48	3400	120	2970	105	18
19	7080	250	2970	105	2010	71	991	35	821	29	4500	159	2690	95	19
20	6510	230	2660	94	1930	68	765	27	1160	41	4420	156	2440	86	20
21	6430	227	2970	105	1780	63	1050	37	1130	40	4160	147	2410	85	21
22	6370	225	2830	100	1870	66	1930	68	793	28	3990	141	1980	70	22
23	6120	216	2630	93	1760	62	1420	50	538	19	5470	193	2440	86	23
24	5810	205	2890	102	1590	56	1050	37	510	18	5100	180	2320	82	24
25	5520	195	2970	105	1470	52	991	35	425	15	4870	172	3290	116	25
26	5300	187	2970	105	1330	47	1050	37	566	20	4280	151	3540	125	26
27	4960	175	3090	109	1250	44	821	29	453	16	4130	146	3030	107	27
28	4810	170	3000	106	1560	55	736	26	340	12	3710	131	3030	107	28
29	4700	166	2780	98	1900	67	765	27	227	8.0	2800	99	2920	103	29
30	4330	153	2950	104	1530	54	623	22	368	13	2610	92	3140	111	30
31	4080	144			1870	66			595	21	2410	85			31
Mean	7320	258	3680	130	2460	86.8	1400	49.4	617	21.8	3130	110	2060	72.7	Mean
Volume hm	19.600		9.540		6.580		3.620		1.650		8.370		5.330		Volume hm
AF	15900		7730		5330		2940		1340		6780		4320		AF

Figure 15



STATE OF CALIFORNIA
THE RESOURCES AGENCY
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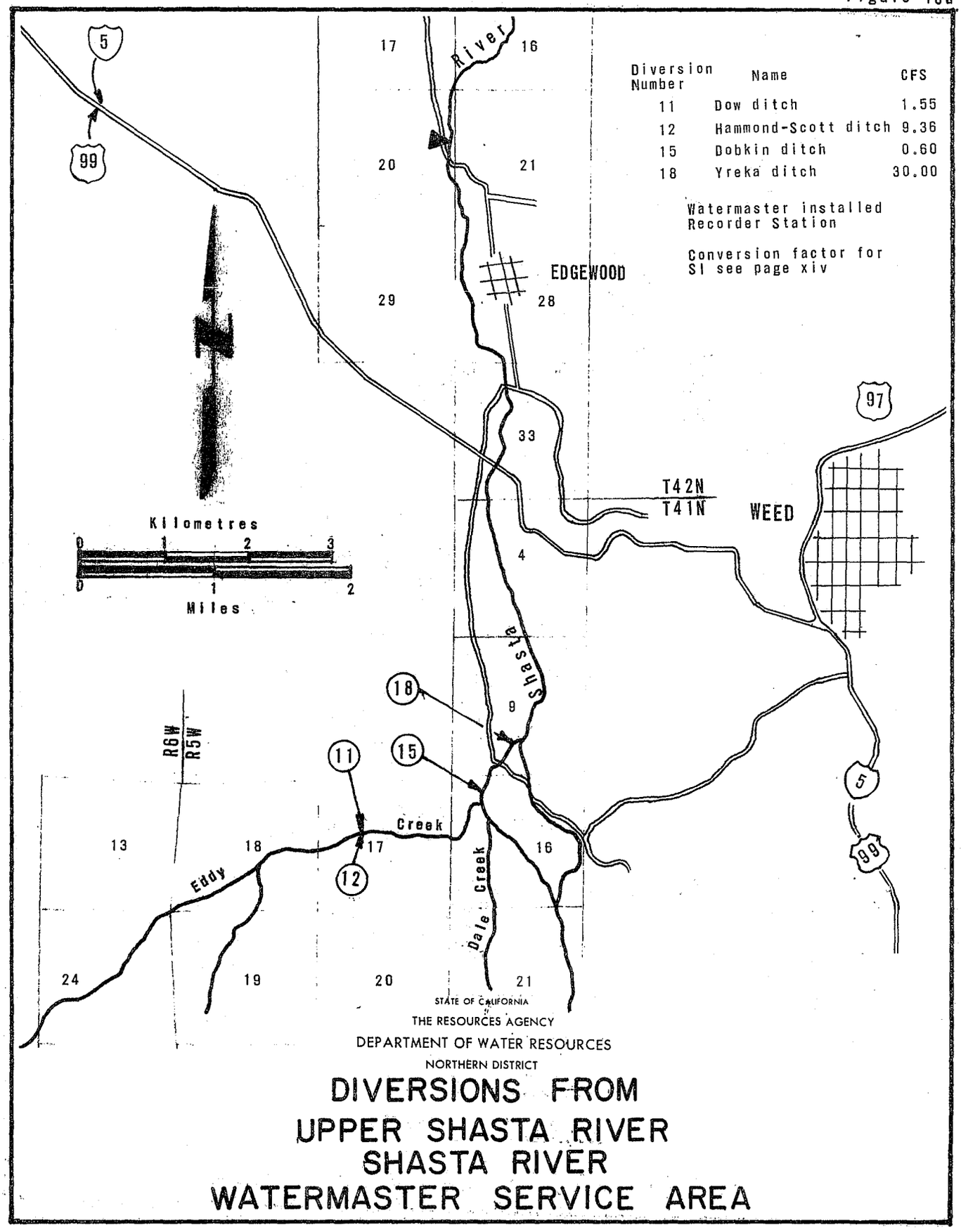
NORTHERN DISTRICT

INDEX SHEET
SHASTA RIVER
WATERMASTER SERVICE AREA

Figure 15a



STATE OF CALIFORNIA
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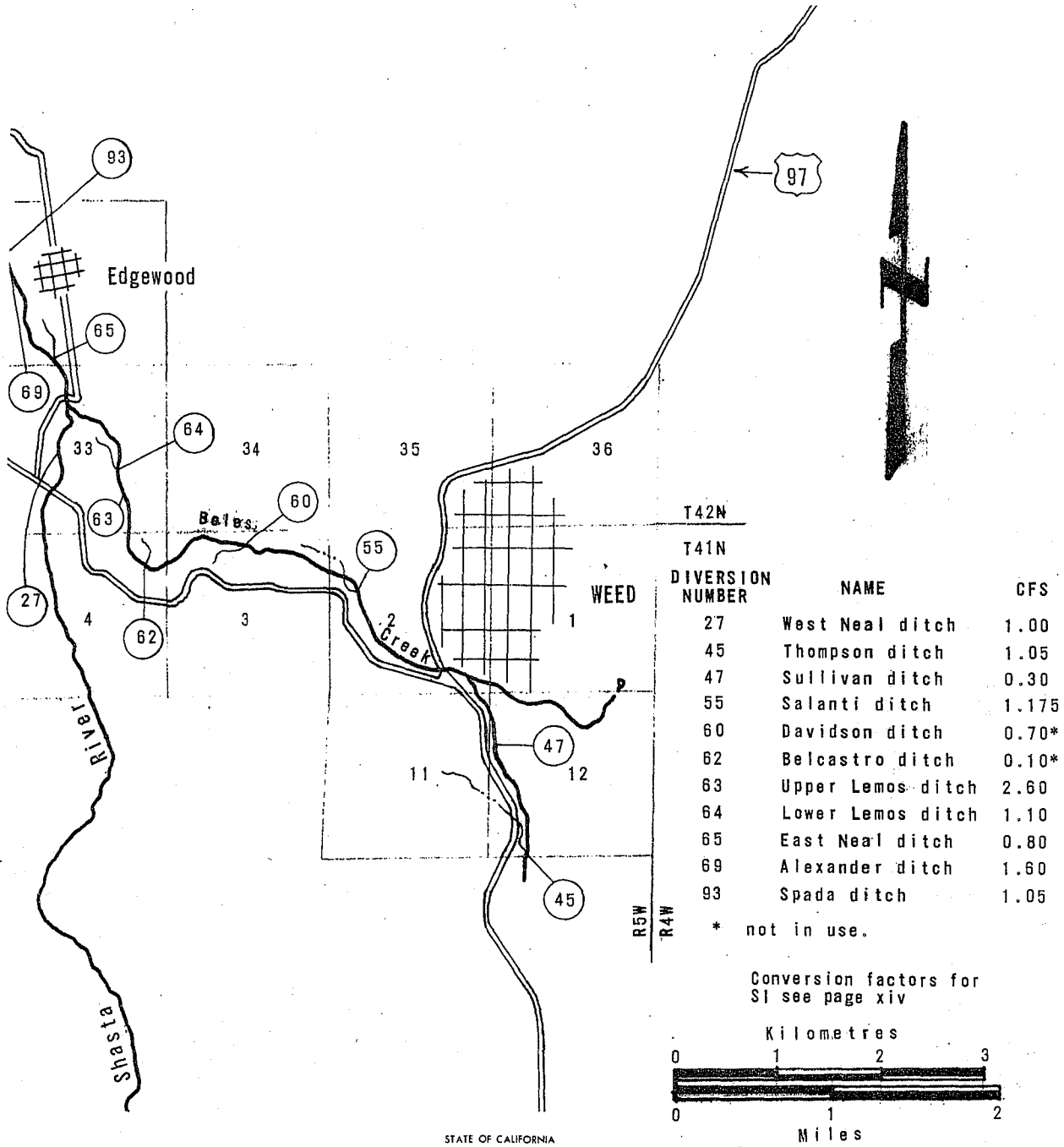
DEPARTMENT OF WATER RESOURCES
NORTHERN DISTRICT

DIVERSIONS FROM UPPER SHASTA RIVER SHASTA RIVER WATERMASTER SERVICE AREA

Figure 15b



STATE OF CALIFORNIA
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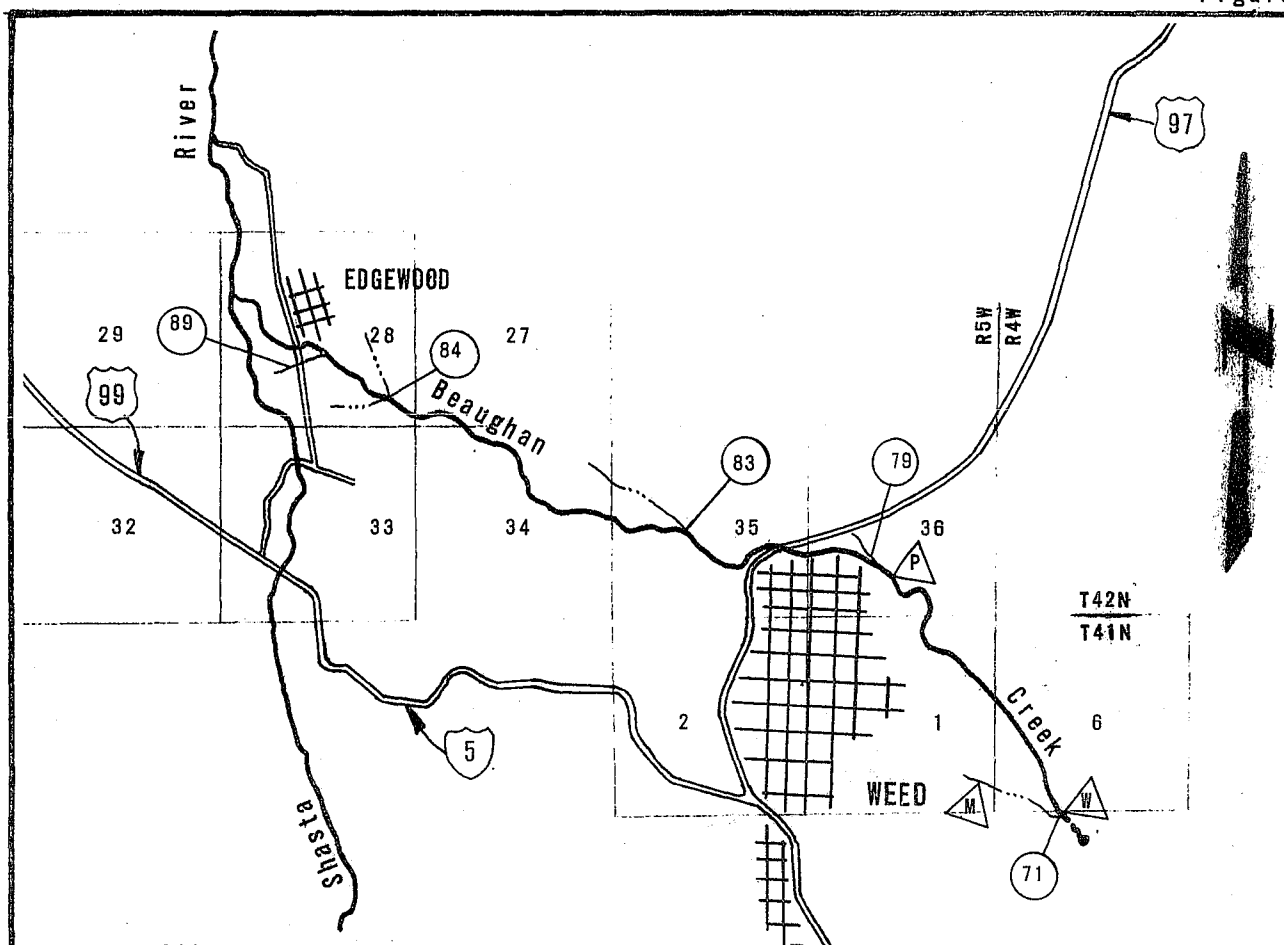
NORTHERN DISTRICT

DIVERSIONS FROM BOLES CREEK AND SHASTA RIVER SHASTA RIVER WATERMASTER SERVICE AREA

Figure 15c



DIVERSION NUMBER	NAME	CFS
71-78	Int. Paper Co.	4.07
79	Linville	0.70
83	Belcastro	0.55
84-87	Jackson	3.87
89	Ordway	0.40

W Watermaster Installed Weir.

P Watermaster Installed Parshall Flume.

M I.P. Co. Meter.

Kilometres 0 1 2 3

0 1 2 Miles

Conversion factors for SI see page xiv

STATE OF CALIFORNIA
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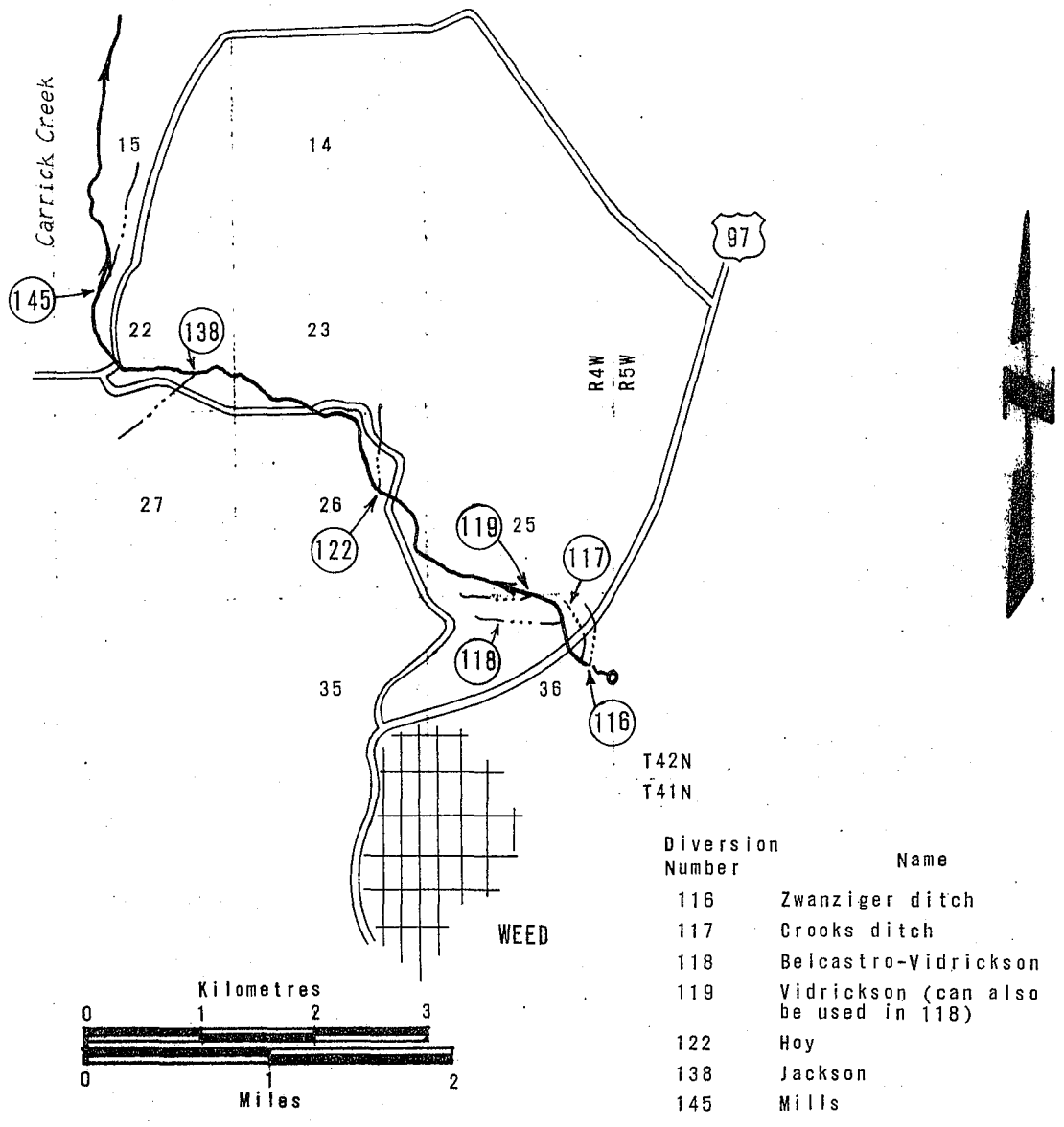
DIVERSIONS FROM BEAUGHAN CREEK SHASTA RIVER WATERMASTER SERVICE AREA

Figure 15d



Diversion Number	Name	CFS
116	Zwanziger ditch	2.20
117	Crooks ditch	2.20
118	Belcastro-Vidrickson	0.40
119	Vidrickson (can also be used in 118)	0.40
122	Hoy	0.86
138	Jackson	1.20
145	Mills	1.10

Conversion factor for SI see page xiv

STATE OF CALIFORNIA
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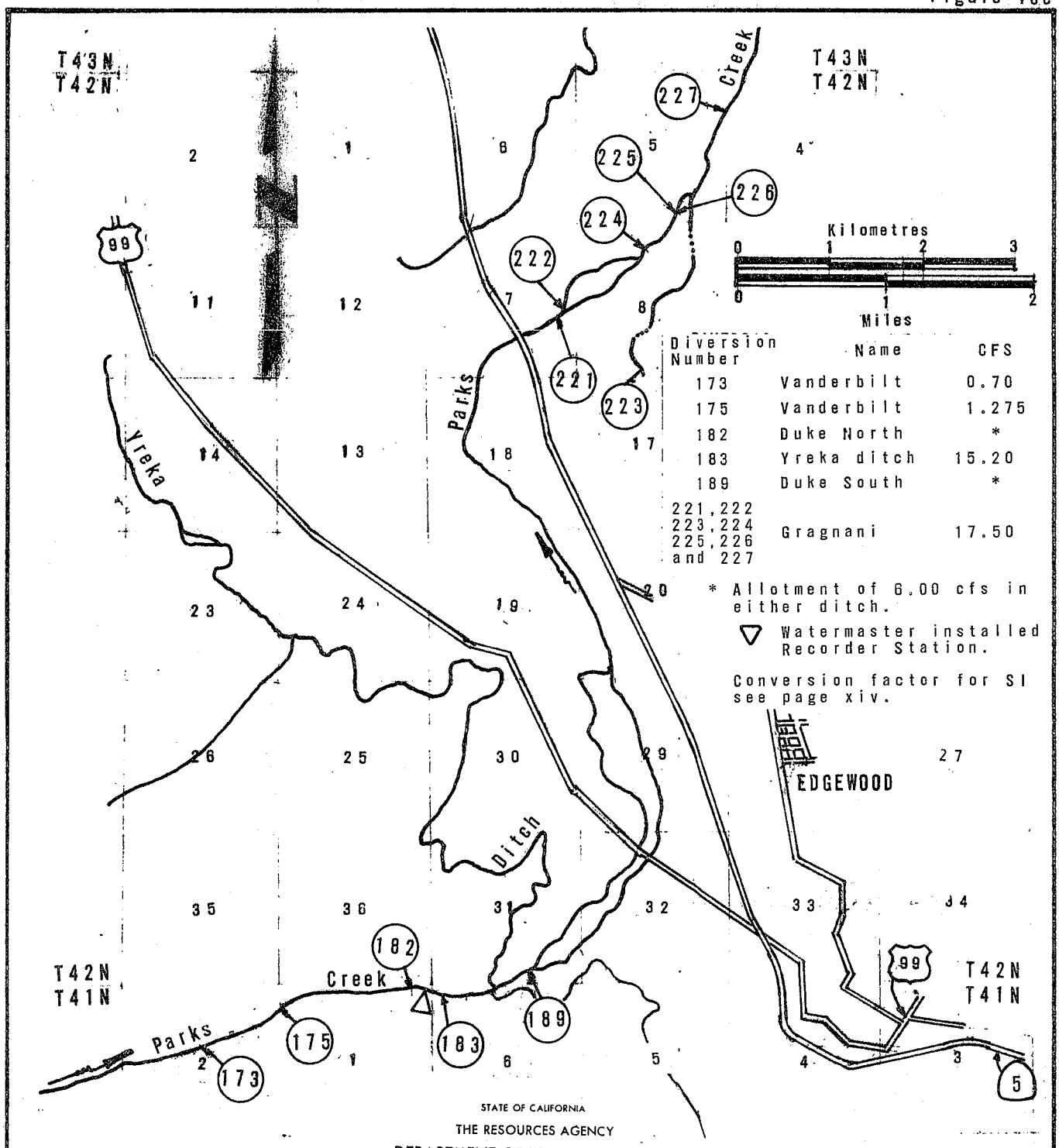
DIVERSIONS FROM CARRICK CREEK SHASTA RIVER WATERMASTER SERVICE AREA

Figure 15e



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DIVERSIONS FROM PARKS CREEK SHASTA RIVER WATERMASTER SERVICE AREA

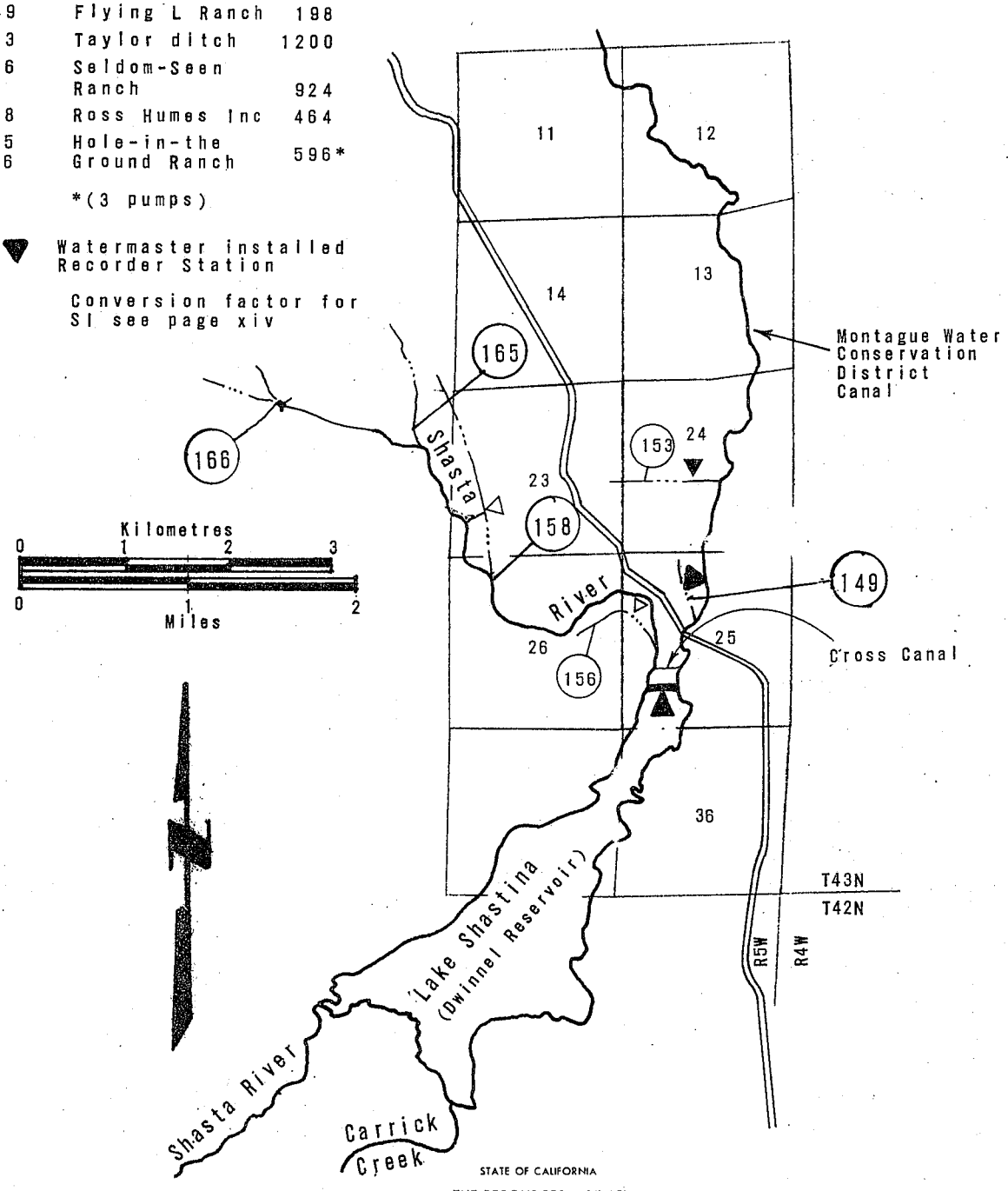
Figure 15f

Diversion Number	Name	Ac/Ft
149	Flying L Ranch	198
153	Taylor ditch	1200
156	Seldom-Seen Ranch	924
158	Ross Humes Inc	464
165 166	Hole-in-the Ground Ranch	596*

*(3 pumps)

▼ Watermaster installed Recorder Station

Conversion factor for SI see page xiv



STATE OF CALIFORNIA
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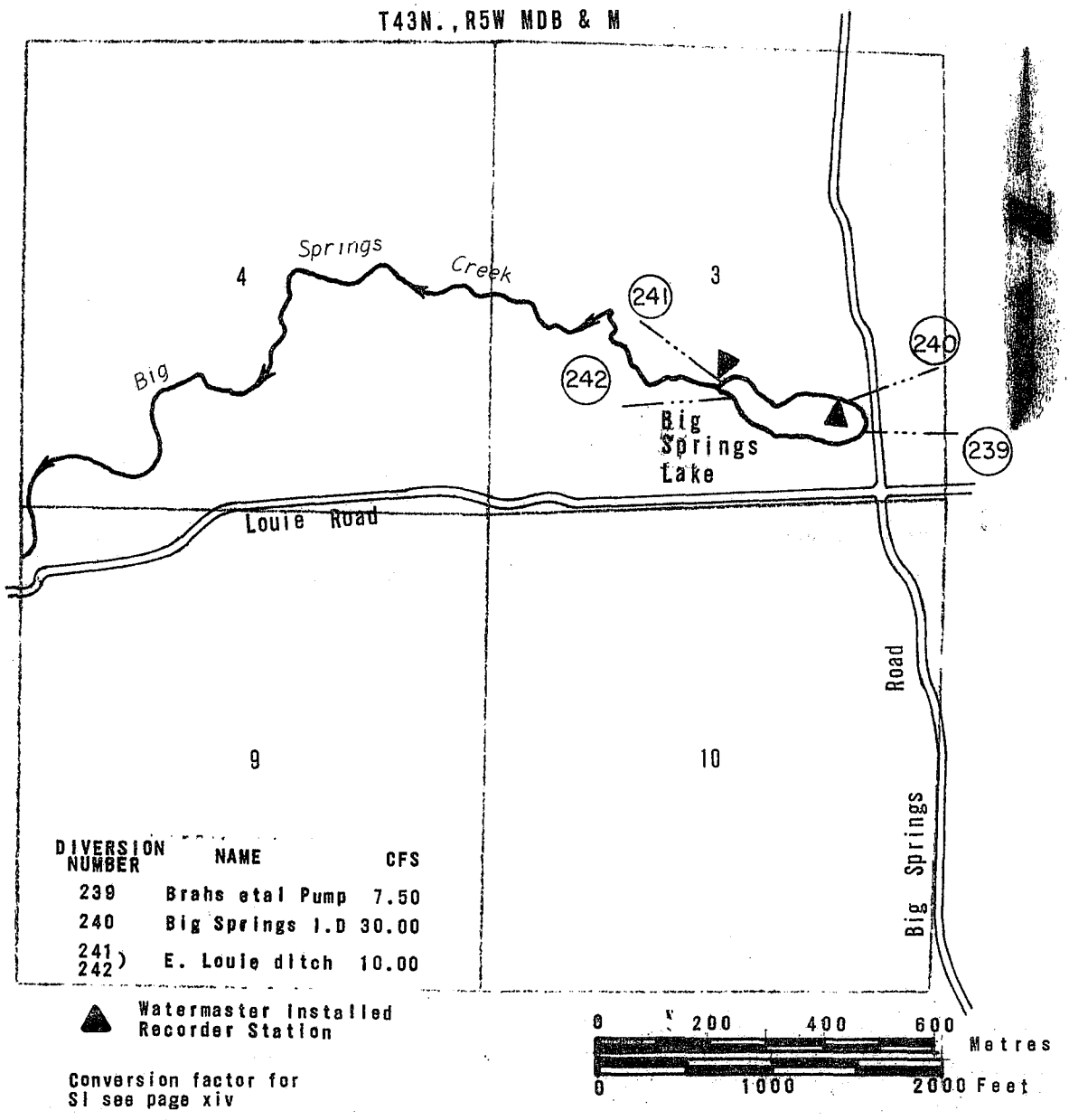
NORTHERN DISTRICT

DIVERSIONS FROM SHASTA RIVER, PRIOR RIGHTS BELOW LAKE SHASTINA, SHASTA RIVER WATERMASTER SERVICE AREA

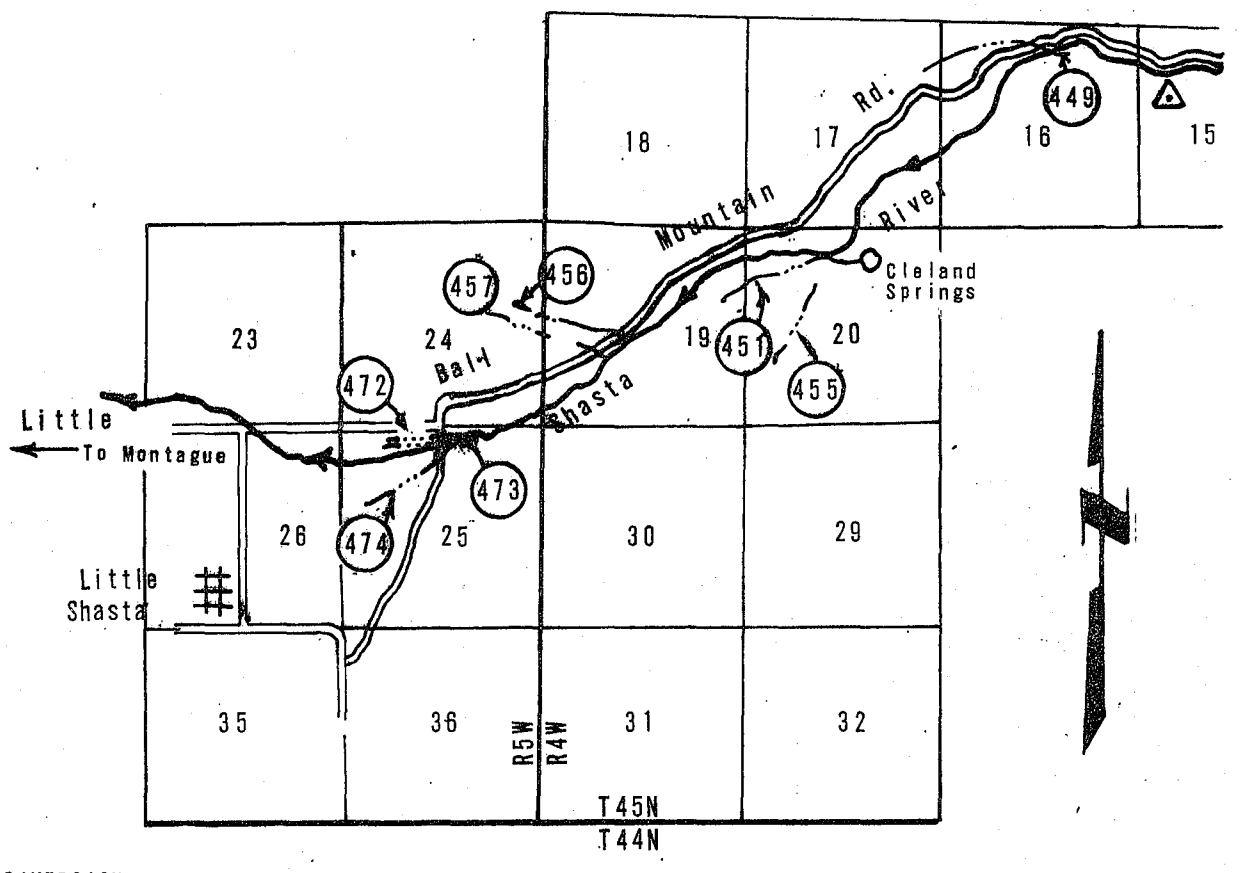
Figure 15g



STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES
NORTHERN DISTRICT

DIVERSIONS FROM BIG SPRINGS LAKE SHASTA RIVER WATERMASTER SERVICE AREA

Figure 15h



DIVERSION NUMBER	NAME	CFS
449	Harp Ditch	0.80
451	Terwilliger Ditch	1.12
455	Martin Ditch	6.00
456	Dimmick Ditch	0.12
457	S & T Ditch	6.60
472	M & L Ditch	19.80
473	BMS Ditch	7.19
474	HHP Ditch	15.00

▽ Permanent Recorder Station

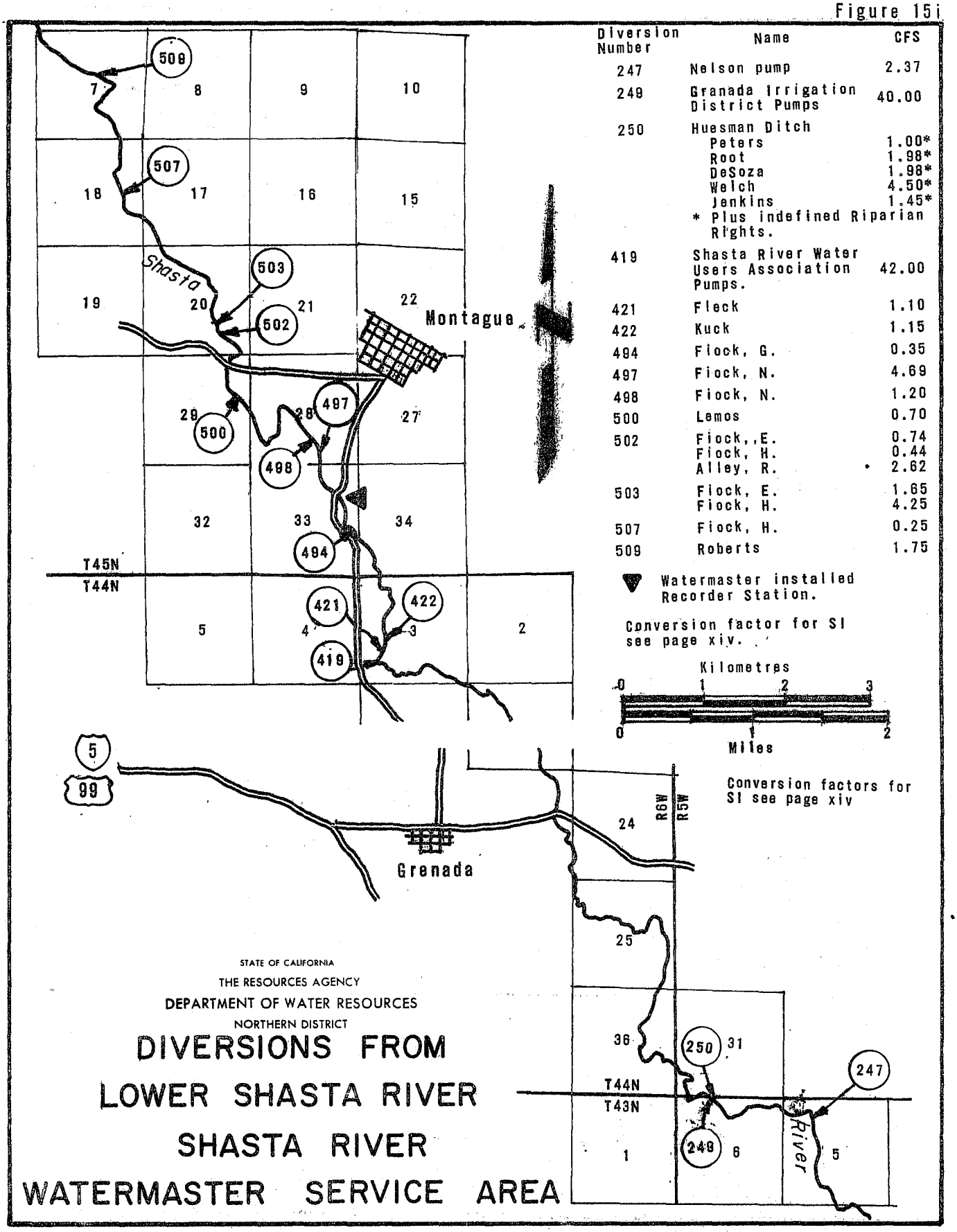
Kilometres
0 1 2 3
0 1 2
Miles

Conversion factors for SI see page xiv

STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES
NORTHERN DISTRICT

DIVERSIONS FROM LITTLE SHASTA RIVER SHASTA RIVER WATERMASTER SERVICE AREA

Figure 15j



Diversion Number	Name	CFS
247	Nelson pump	2.37
249	Granada Irrigation District Pumps	40.00
250	Huesman Ditch	
	Peters	1.00*
	Root	1.98*
	DeSoza	1.98*
	Welch	4.50*
	Jenkins	1.45*
	* Plus indefined Riparian Rights.	
419	Shasta River Water Users Association Pumps.	42.00
421	Fleck	1.10
422	Kuck	1.15
494	Flock, G.	0.35
497	Flock, N.	4.69
498	Flock, N.	1.20
500	Lemos	0.70
502	Flock,,E.	0.74
	Flock, H.	0.44
	Alley, R.	2.62
503	Flock, E.	1.65
	Flock, H.	4.25
507	Flock, H.	0.25
509	Roberts	1.75

▼ Watermaster installed Recorder Station.

Conversion factor for SI see page xiv.

Kilometres 0 1 2 3

Miles 0 1 2

Conversion factors for SI see page xiv

STATE OF CALIFORNIA
THE RESOURCES AGENCY
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DIVERSIONS FROM LOWER SHASTA RIVER SHASTA RIVER WATERMASTER SERVICE AREA

SOUTH FORK PIT RIVER WATERMASTER SERVICE AREA

The South Fork Pit River service area is located primarily in southeastern Modoc County, with a small portion extending into northeastern Lassen County, Figures 16 through 16e, pages 133 through 138, show the South Fork and its tributaries, with roads, etc.

The major source of water for this service area is the South Fork Pit River and its tributaries which rise on the western slopes of the Warner Mountains. The river flows in a westerly direction, entering South Fork Valley near Likely. It then flows north through the valley to its confluence with the North Fork Pit River just south of Alturas. The South Fork Pit River is joined from the east by Fitzhugh Creek near the middle of the valley and by Pine Creek near Alturas.

The major area of water use is in South Fork Valley between Likely and Alturas. South Fork Valley is about 26 kilometres (16 miles) long and 5 km (3 miles) wide, with the valley floor lying at an elevation of about 1 372 metres (4,500 feet). The valley is bounded on both sides by a rocky plateau that separates it from the surrounding mountains.

Basis of Service

The Pine Creek agreement established water rights on Pine Creek November 22, 1933, and this stream system was added to the South Fork Pit River area on January 12, 1935. Pine Creek Reservoir, a small reservoir above all diversions, was originally used for power generation. This reservoir, now a recreation site, has a small water right but is not in the service area.

A large reservoir, West Valley Reservoir, was built in 1937 to increase the supply and extend the season for irrigation in the South Fork Irrigation District. The water rights for use from West Valley Reservoir total 2 815 cubic hectometres (23,100 acre-feet).

The South Fork Pit River decree and the Pine Creek agreement establish two priorities on the respective systems.

Water Supply

The water supply for Pine Creek is derived mostly from snowmelt runoff. Therefore, runoff is usually small in the early spring, increases to a peak in May as temperatures rise, and then gradually decreases throughout the remainder of the season. Water users supplement their irrigation supplies from other sources whenever possible.

The water supply for Fitzhugh Creek consists of snowmelt runoff early in the season and supplemental water diverted from Mill Creek above Jess Valley later in the season. Surplus water from Fitzhugh Creek is diverted into the Payne and French Reservoirs through Payne-French Ditch (Diversion 136) until about June, when the diversion is adjusted to allow sufficient flow to supply downstream allotments. By July the creek has normally receded until only first priority allotments are available.

Payne Ditch (Diversion 1) is opened to import water from Mill Creek to Fitzhugh Creek when the snow has melted enough to allow access. This imported water is rediverted from North Fork Fitzhugh Creek through the Bowman Ditch to the Bowman Ranch. Return flow from Bowman Ranch to the creek is rediverted through Diversion 136.

The water supply for the South Fork Pit River is derived primarily from snowmelt runoff, supplemented by water released from West Valley Reservoir. A number of streams, which rise at high elevations, collect at the mouth of Jess Valley to form the South Fork Pit River. West Valley Reservoir is located on West Valley Creek which enters the river below Jess Valley.

Most of the water users on the South Fork Pit River, except those in Jess

Valley, are in the South Fork Irrigation District. The District stores water in West Valley Reservoir and releases it to the South Fork Pit River as a supplemental supply when the natural flow becomes insufficient to meet demands. This usually occurs during the middle of June. Reservoir releases, together with the natural flow, are distributed by the watermaster in cooperation with the board of directors of the irrigation district. Except for extremely dry years, natural flow, combined with stored water, is sufficient to supply all demands for water on the South Fork Pit River throughout the irrigation season.

Records of the daily mean discharge of the several stream gaging stations in the area are presented in Tables 38 through 41, pages 131 and 132.

Method of Distribution

Irrigation of the lands along tributary streams is accomplished by flooding through use of small lateral ditches. The water is distributed on a continuous-flow basis to each user through gravity-flow diversion systems. In some cases, rotation is practiced among several users.

Most irrigation in the South Fork Pit River area is by the check and border method. The lands receive water essentially on demand by supplementing natural flow with releases from West Valley Reservoir. However, irrigation must be coordinated between the various ranches to eliminate large peak demands from the reservoir and to use the return flow as much as possible. Actual distribution varies each year as there is no specific irrigation schedule in use.

1976 Distribution

Watermaster service began March 19 and continued until October 5. L. L. Bates, Water Resources Engineering Associate, served as watermaster for this season.

The precipitation recorded at the Alturas gage was 151 millimetres (5.95 inches) for the period of July 1975 through June 1976. This was half the 70-year average of 315 mm (12.41 inches).

Pine Creek. The flow remained low early in the season due to cold weather. There was sufficient water until haying ended, then regulation was very demanding. From July until irrigation was finished, approximately 25 percent of priorities were served.

Fitzhugh Creek. The first and second priorities were filled until May 15. All first and a decreasing percentage of seconds were served until June 25. From June 25 until the end of the season there was an average of 30 percent first priorities available.

South Fork Pit River. West Valley Reservoir reached its maximum storage of 21.39 hm^3 (17,340 acre-feet) on May 26. A meeting was held with all users and by careful use there was sufficient water for the final irrigation. Figure 16e shows the reservoir storage for 1976.

SOUTH FORK PIT RIVER WATERMASTER SERVICE AREA
1976 Daily Mean Discharge

TABLE 38

SOUTH FORK PIT RIVER NEAR LIKELY

Day	March		April		May		June		July		August		September		Day
	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	
1	425	15	425	15	5100	180	4530	160	3570	126	3460	122	2580	91	1
2	510	18	340	12	6230	220	3820	135	4190	148	3460	122	3200	113	2
3	623	22	340	12	6060	214	3480	123	4250	150	3570	126	3310	117	3
4	595	21	425	15	6030	213	3090	109	4220	149	3480	123	3400	120	4
5	481	17	708	25	6430	227	2780	98	4220	149	2610	92	4020	142	5
6	453	16	680	24	6540	231	2460	87	4130	146	2520	89	4450	157	6
7	368	13	623	22	6260	221	2460	87	3510	124	2460	87	4450	157	7
8	229	8.1	821	29	6060	214	2460	87	2800	99	2440	86	4390	155	8
9	312	11	736	26	6290	222	2830	100	2610	92	2380	84	4300	152	9
10	453	16	708	25	6880	243	3430	121	2610	92	2290	81	4280	151	10
11	566	20	680	24	7760	274	3620	128	2630	93	2270	80	4360	154	11
12	368	13	736	26	7930	280	3200	113	2660	94	2440	86	4300	152	12
13	425	15	680	24	7870	278	3000	106	2580	91	2290	81	4250	150	13
14	793	28	651	23	7840	277	2660	94	2520	89	2520	89	4160	147	14
15	1360	48	821	29	7420	262	2410	85	2440	86	3000	106	3600	127	15
16	1760	62	793	28	6680	236	2120	75	2520	89	2920	103	2890	102	16
17	1440	51	736	26	6230	220	2180	77	2010	71	2690	95	3120	110	17
18	935	33	963	34	5950	210	3090	109	1760	62	2720	96	2660	94	18
19	595	21	651	23	5410	191	2890	102	1930	68	2690	95	1730	61	19
20	453	16	935	33	4790	169	2780	98	2010	71	2550	90	1670	59	20
21	425	15	1670	59	4360	154	2950	104	2070	73	2440	86	1530	54	21
22	368	13	2010	71	3940	139	3200	113	2010	71	2520	89	1330	47	22
23	340	12	2440	86	3510	124	2890	102	1950	69	2800	99	1470	52	23
24	340	12	2950	104	3230	114	2610	92	2010	71	2440	86	1530	54	24
25	368	13	3480	123	3230	114	2440	86	1810	64	2320	82	1470	52	25
26	340	12	2890	102	3710	131	2290	81	1730	61	2100	74	1420	50	26
27	425	15	3000	106	4670	165	2580	91	1780	63	1930	68	1420	50	27
28	595	21	3570	126	5440	192	3170	112	2150	76	1900	67	1420	50	28
29	651	23	3740	132	5240	185	3030	107	2830	100	1900	67	1440	51	29
30	680	24	4390	155	5150	182	2970	105	2970	105	1930	68	1440	51	30
31	481	17			5300	187			3000	106	1950	69			31
Mean	586	20.7	1450	51.3	5730	202	2910	103	2690	95.1	2550	90.0	2850	101	Mean
Volume															Volume
hm	1.570		3.770		15.300		7.550		7.210		6.820		7.390		hm
AF		1270		3050		12400		6120		5840		5530		5990	AF

TABLE 39

WEST VALLEY CREEK BELOW WEST VALLEY RESERVOIR

Day	March		April		May		June		July		August		September		Day
	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	
1			00	0.0*	2180	77	1190	42	3030	107	2550	90	2100	74	1
2			00	0.0	2180	77	935	33	3710	131	2490	88	3030	107	2
3			00	0.0	1610	57	736	26	3680	130	2490	88	3030	107	3
4			00	0.0	1160	41	566	20	3620	128	2070	73	2970	105	4
5			00	0.0	1160	41	566	20	3620	128	1700	60	3570	126	5
6			00	0.0	1160	41	566	20	3620	128	1700	60	4220	149	6
7			00	0.0	680	24	566	20	2970	105	1700	60	4220	149	7
8			00	0.0	00	0.0	566	20	2380	84	1700	60	4190	148	8
9			00	0.0	00	0.0	566	20	2380	84	1700	60	4020	142	9
10			00	0.0	00	0.0	566	20	2380	84	1670	59	3990	141	10
11			00	0.0	00	0.0	566	20	2380	84	1670	59	3940	139	11
12			00	0.0	00	0.0	566	20	2380	84	1670	59	3850	136	12
13			00	0.0	00	0.0	566	20	2380	84	1640	58	3770	133	13
14			00	0.0	00	0.0	566	20	2380	84	1640	58	3770	133	14
15			00	0.0	00	0.0	566	20	2350	83	1640	58	2660	94	15
16			00	0.0	00	0.0	566	20	2350	83	1640	58	1900	67	16
17			68	2.4	00	0.0	708	25	1300	46	1610	57	1840	65	17
18			68	2.4	00	0.0	1500	53	850	30	1610	57	1530	54	18
19			00	0.0	00	0.0	1500	53	1100	39	1610	57	906	32	19
20			283	10	00	0.0	1500	53	1440	51	1610	57	906	32	20
21			736	26	00	0.0	1500	53	1440	51	1610	57	821	29	21
22			963	34	00	0.0	1470	52	1440	51	1610	57	821	29	22
23			1330	47	00	0.0	1470	52	1440	51	1590	56	821	29	23
24			1300	46	00	0.0	1470	52	1440	51	1590	56	793	28	24
25			1300	46	00	0.0	1470	52	1440	51	1590	56	793	28	25
26			1300	46	396	14	1470	52	1420	50	1590	56	793	28	26
27			1610	57	1220	43	1810	64	1420	50	1590	56	765	27	27
28			2240	79	1900	67	2460	87	1420	50	1590	56	765	27	28
29			2210	78	1900	67	2460	87	2580	91	1560	55	708	25	29
30			2210	78	1900	67	2460	87	2580	91	1560	55	623	22	30
31					1900	67			2580	91	1560	55			31
Mean			521	18.4	624	22.0	1120	39.4	2240	79.2	1730	61.0	2270	80.2	Mean
Volume															Volume
hm			1.350		1.670		2.890		6.000		4.630		5.890		hm
AF				1090		1350		2340		4870		3750		4770	AF

* Beginning of Record

SOUTH FORK PIT RIVER WATERMASTER SERVICE AREA
1976 Daily Mean Discharge

TABLE 40

FITZHUGH CREEK BELOW DIVERSION NO. 137

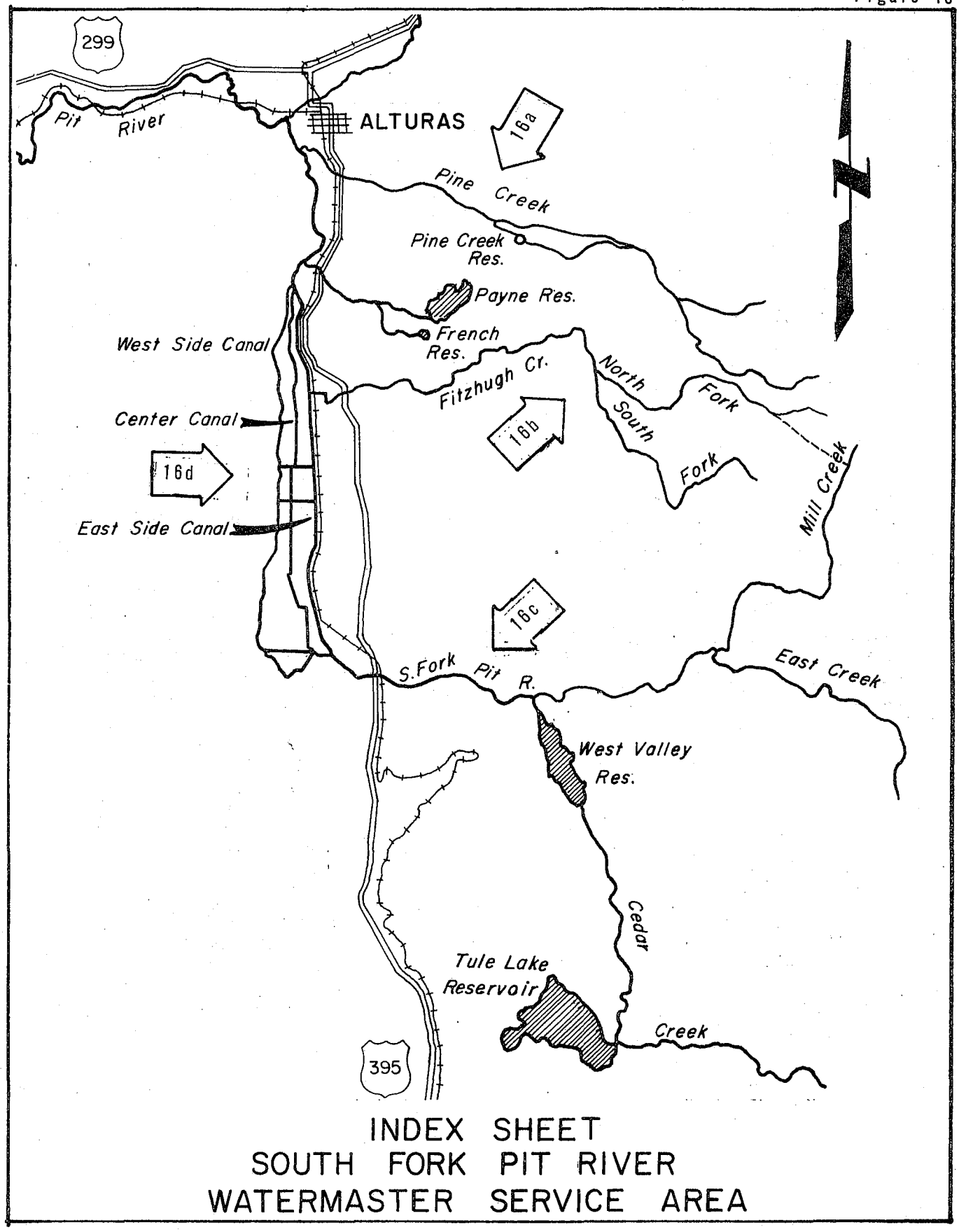
Day	April		May		June		July		August		September		Day
	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	
1	85	3.0	793	28	252	8.9	48	1.7	34	1.2	17	.6	1
2	85	3.0	935	33	215	7.6	53	1.9	105	3.7	19	.7	2
3	85	3.0	850	30	215	7.6	42	1.5	51	1.8	19	.7	3
4	113	4.0	878	31	224	7.9	48	1.7	45	1.6	19	.7	4
5	113	4.0	850	30	215	7.6	51	1.8	39	1.4	22	.8	5
6	113	4.0	765	27	187	6.6	36	1.3	45	1.6	25	.9	6
7	113	4.0	708	25	193	6.8	25	.9	42	1.5	22	.8	7
8	142	5.0	680	24	187	6.6	25	.9	39	1.4	22	.8	8
9	142	5.0	651	23	204	7.2	22	.8	31	1.1	25	.9	9
10	142	5.0	651	23	283	10	22	.8	28	1.0	28	1.0	10
11	142	5.0	651	23	340	12	19	.7	25	.9	31	1.1	11
12	170	6.0	595	21	229	8.1	22	.8	19	.7	31	1.1	12
13	170	6.0	510	18	224	7.9	22	.8	25	.9	28	1.0	13
14	178	6.3	510	18	187	6.6	22	.8	42	1.5	28	1.0	14
15	187	6.6	510	18	164	5.8	19	.7	215	7.6	34	1.2	15
16	204	7.2	453	16	159	5.6	25	.9	204	7.2	70	2.5	16
17	198	7.0	396	14	159	5.6	51	1.8	85	3.0	59	2.1	17
18	229	8.1	340	12	147	5.2	110	3.9	73	2.6	39	1.4	18
19	261	9.2	340	12	130	4.6	105	3.7	79	2.8	34	1.2	19
20	261	9.2	425	15	130	4.6	45	1.6	53	1.9	31	1.1	20
21	312	11	396	14	147	5.2	36	1.3	42	1.5	31	1.1	21
22	283	10	396	14	198	7.0	31	1.1	42	1.5	28	1.0	22
23	312	11	312	11	170	6.0	31	1.1	252	8.9	28	1.0	23
24	425	15	283	10	142	5.0	25	.9	79	2.8	31	1.1	24
25	538	19	278	9.8	125	4.4	28	1.0	48	1.7	31	1.1	25
26	368	13	269	9.5	96	3.4	22	.8	31	1.1	31	1.1	26
27	312	11	244	8.6	53	1.9	17	.6	28	1.0	28	1.0	27
28	269	9.5	252	8.9	51	1.8	17	.6	28	1.0	31	1.1	28
29	269	9.5	229	8.1	42	1.5	19	.7	25	.9	31	1.1	29
30	453	16	229	8.1	39	1.4	25	.9	19	.7	31	1.1	30
31			269	9.5			22	.8	19	.7			31
Mean	222	7.9	505	17.8	170	6.0	35.4	1.3	61.4	2.2	30.5	1.1	Mean
Volume													Volume
hm	.580		1.350		.440		.090		.160		.080		hm
AF		467		1100		358		76.9		133		64.1	AF

TABLE 41

PINE CREEK NEAR ALTURAS

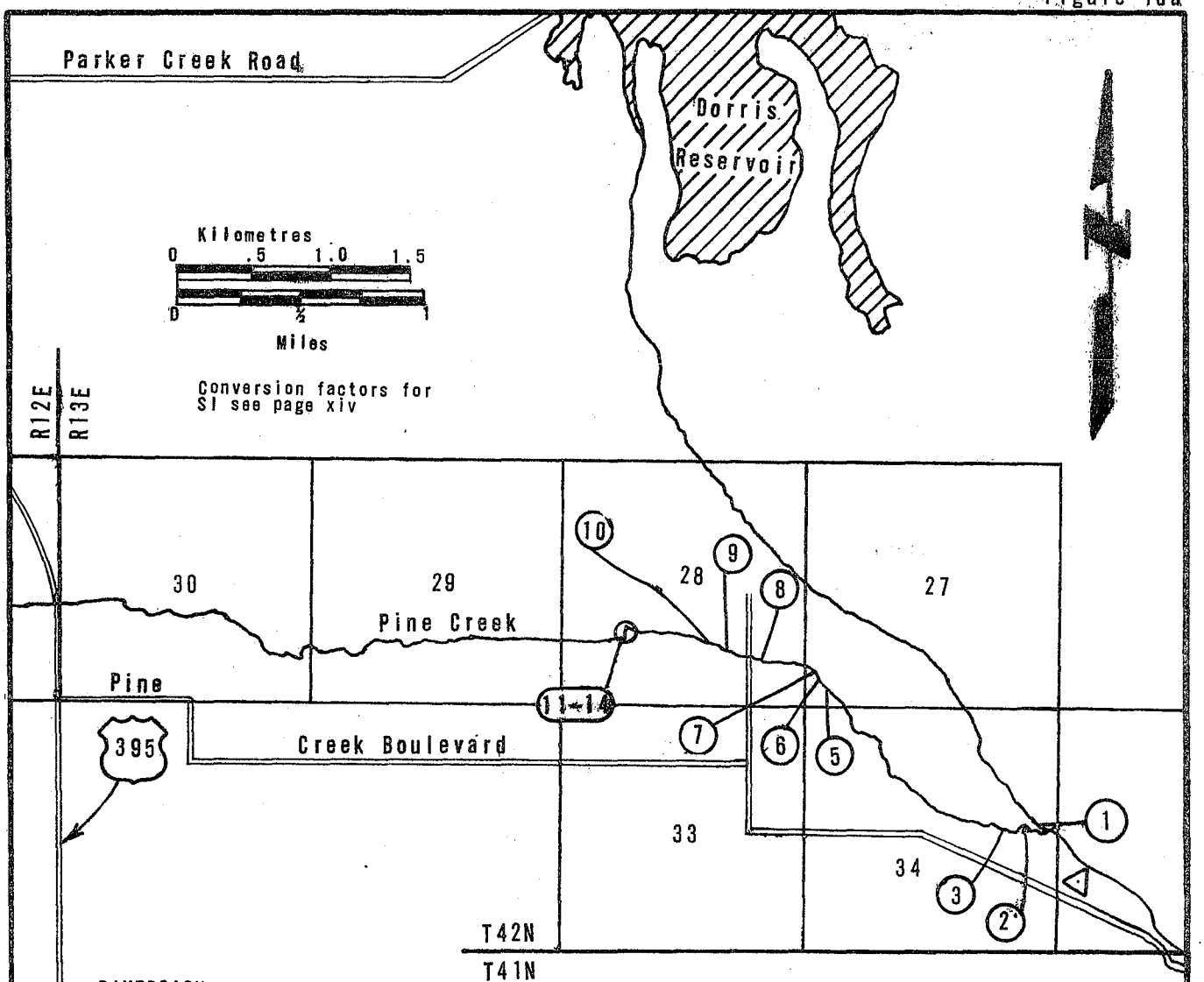
Day	March		April		May		June		July		August		September		Day
	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	
1	736	26	368	13	765	27	1250	44	680	24	453	16	312	11	1
2	680	24	368	13	878	31	1190	42	680	24	453	16	312	11	2
3	566	20	368	13	906	32	1160	41	680	24	425	15	340	12	3
4	510	18	396	14	935	33	1100	39	651	23	453	16	312	11	4
5	510	18	425	15	991	35	1050	37	651	23	425	15	312	11	5
6	481	17	425	15	991	35	1020	36	623	22	425	15	312	11	6
7	396	14	425	15	1050	37	991	35	623	22	425	15	312	11	7
8	425	15	481	17	1130	40	1080	38	595	21	396	14	312	11	8
9	538	19	453	16	1250	44	1080	38	595	21	396	14	312	11	9
10	736	26	453	16	1440	51	1190	42	566	20	396	14	312	11	10
11	708	25	453	16	1590	56	1080	38	566	20	368	13	340	12	11
12	510	18	453	16	1700	60	1080	38	538	19	340	12	340	12	12
13	510	18	453	16	1980	70	1080	38	538	19	340	12	312	11	13
14	680	24	453	16	2240	79	1080	38	538	19	396	14	312	11	14
15	765	27	453	16	2150	76	1080	38	510	18	481	17	340	12	15
16	708	25	425	15	2270	80	963	34	510	18	425	15	340	12	16
17	595	21	425	15	2210	78	1080	38	538	19	396	14	340	12	17
18	510	18	453	16	2040	72	1080	38	566	20	396	14	312	11	18
19	396	14	453	16	1930	68	963	34	510	18	396	14	312	11	19
20	368	13	481	17	1810	64	963	34	481	17	368	13	312	11	20
21	368	13	510	18	1640	58	1080	38	453	16	368	13	312	11	21
22	368	13	538	19	1530	54	1190	42	453	16	396	14	312	11	22
23	368	13	538	19	1530	54	793	28	453	16	425	15	312	11	23
24	340	12	623	22	1440	51	793	28	453	16	368	13	312	11	24
25	340	12	736	26	1390	49	793	28	453	16	340	12	312	11	25
26	340	12	651	23	1330	47	765	27	425	15	340	12	312	11	26
27	340	12	595	21	1270	45	765	27	425	15	340	12	312	11	27
28	340	12	510	18	1330	47	765	27	425	15	340	12	312	11	28
29	340	12	566	20	1300	46	736	26	425	15	340	12	312	11	29
30	340	12	651	23	1300	46	708	25	425	15	340	12	312	11	30
31	368	13			1330	47			425	15	312	11			31
Mean	490	17.3	486	17.2	1470	52.0	998	35.2	531	18.7	389	13.7	318	11.2	Mean
Volume															Volume
hm	1.310		1.260		3.940		2.590		1.420		1.040		.820		hm
AF		1060		1020		3200		2100		1150		844		667	AF

Figure 16



INDEX SHEET
SOUTH FORK PIT RIVER
WATERMASTER SERVICE AREA

Figure 16a



DIVERSION NUMBER	NAME	CFS
1	Rice	3.00
	Stevens	3.35
	Wall	0.10
	Quinn	0.70
	Sullivan	0.70
	Ebbe	0.70
2,3,6, 7,8,9	Rice	4.85

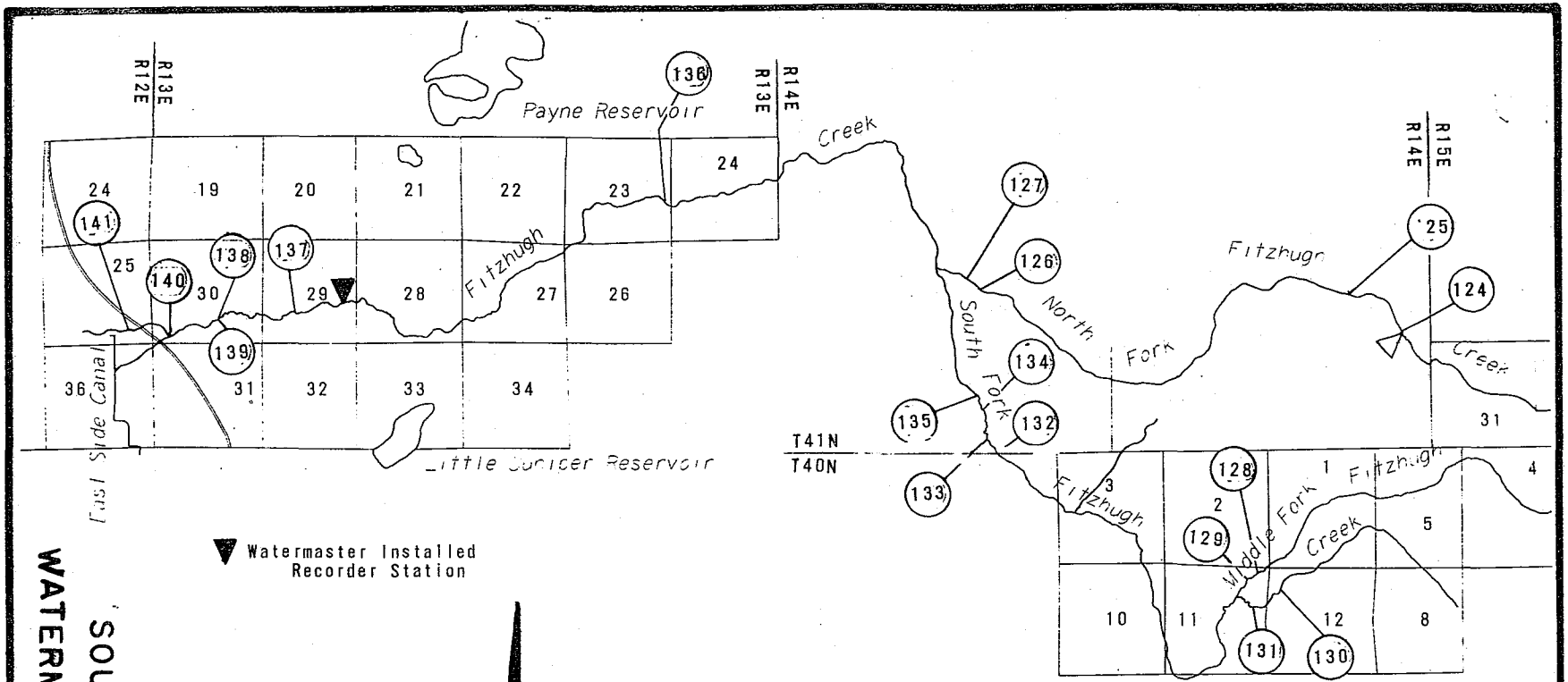
DIVERSION NUMBER	NAME	CFS
5	Weber Bros.	8.17
	Younger	4.42
	Swanson	1.37
10	Swanson	3.60
11-14	Swanson	3.04

Note: Pine Creek
1. Channel capacity below No. 5 is about 20 cfs.
2. Surplus Pine Creek flow is diverted into Dorris Reservoir.

▽ Permanent Recorder Station

STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES
NORTHERN DISTRICT

DIVERSIONS FROM PINE CREEK SOUTH FORK PIT RIVER WATERMASTER SERVICE AREA



DIVERSION NUMBER	NAME	CFS
1	Jobe	2.34
124	Jobe	0.60*
125	Swanson	1.60
126–127	Weber Bros.	0.50
128–131	Cantrall	1.20
132–135	Weber Bros., Swanson	0.70
136	Massae	**
137–141	Bell	5.00
142	Pit River Ranch	5.40

* plus imported water from Mill Creek.

** Surplus water plus water from Bowman Drain due to imported water from Mill Creek.

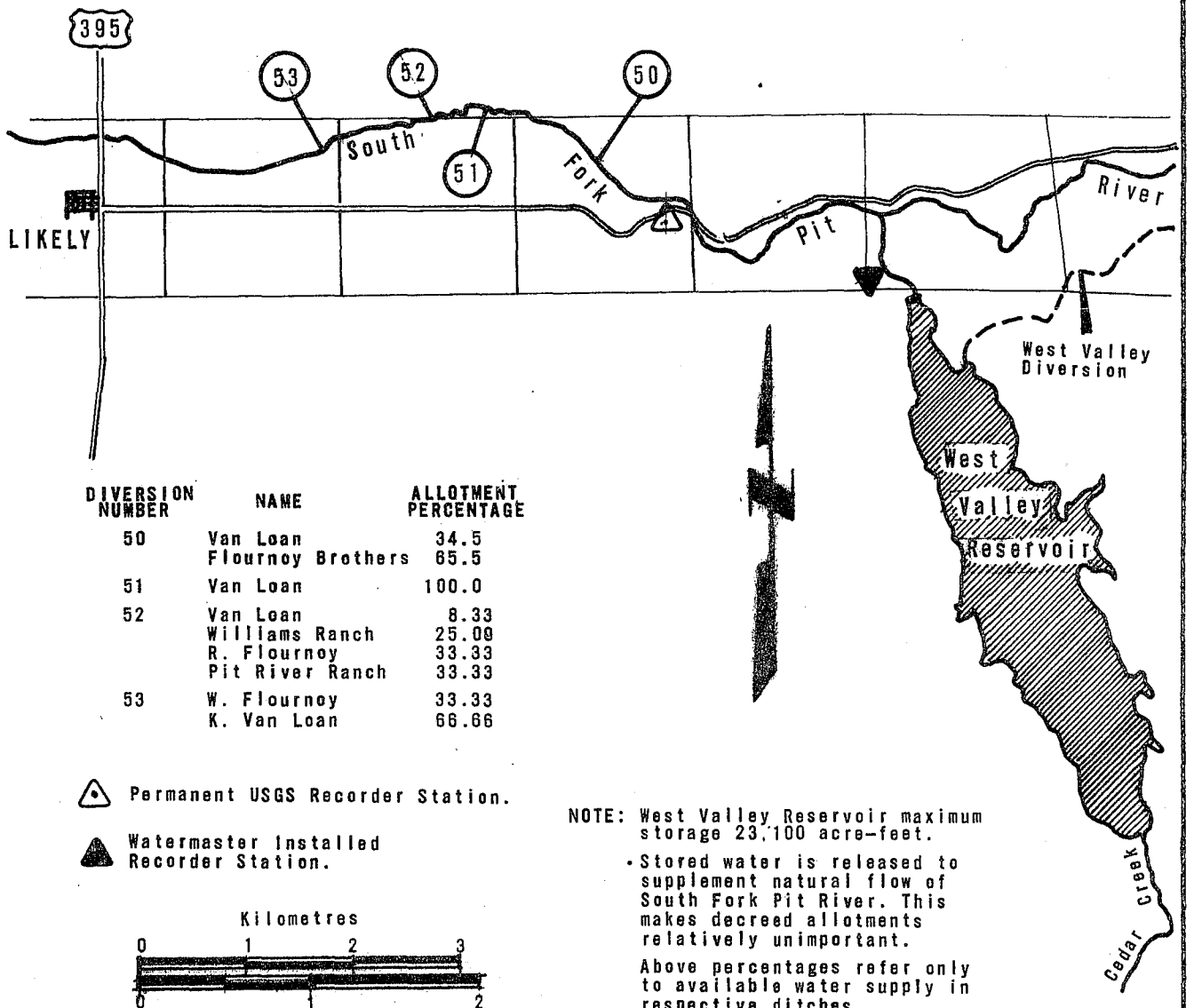
Conversion factors for SI see page xiv

STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES
NORTHERN DISTRICT

DIVERSIONS FROM FITZHUGH CREEK SOUTH FORK PIT RIVER WATERMASTER SERVICE AREA

Figure 16b

Figure 16c



DIVERSION NUMBER	NAME	ALLOTMENT PERCENTAGE
50	Van Loan	34.5
	Flournoy Brothers	65.5
51	Van Loan	100.0
52	Van Loan	8.33
	Williams Ranch	25.00
	R. Flournoy	33.33
	Pit River Ranch	33.33
53	W. Flournoy	33.33
	K. Van Loan	66.66

△ Permanent USGS Recorder Station.

▲ Watermaster Installed Recorder Station.

Kilometres
0 1 2 3
0 1 2
Miles

NOTE: West Valley Reservoir maximum storage 23,100 acre-feet.

- Stored water is released to supplement natural flow of South Fork Pit River. This makes decreed allotments relatively unimportant.

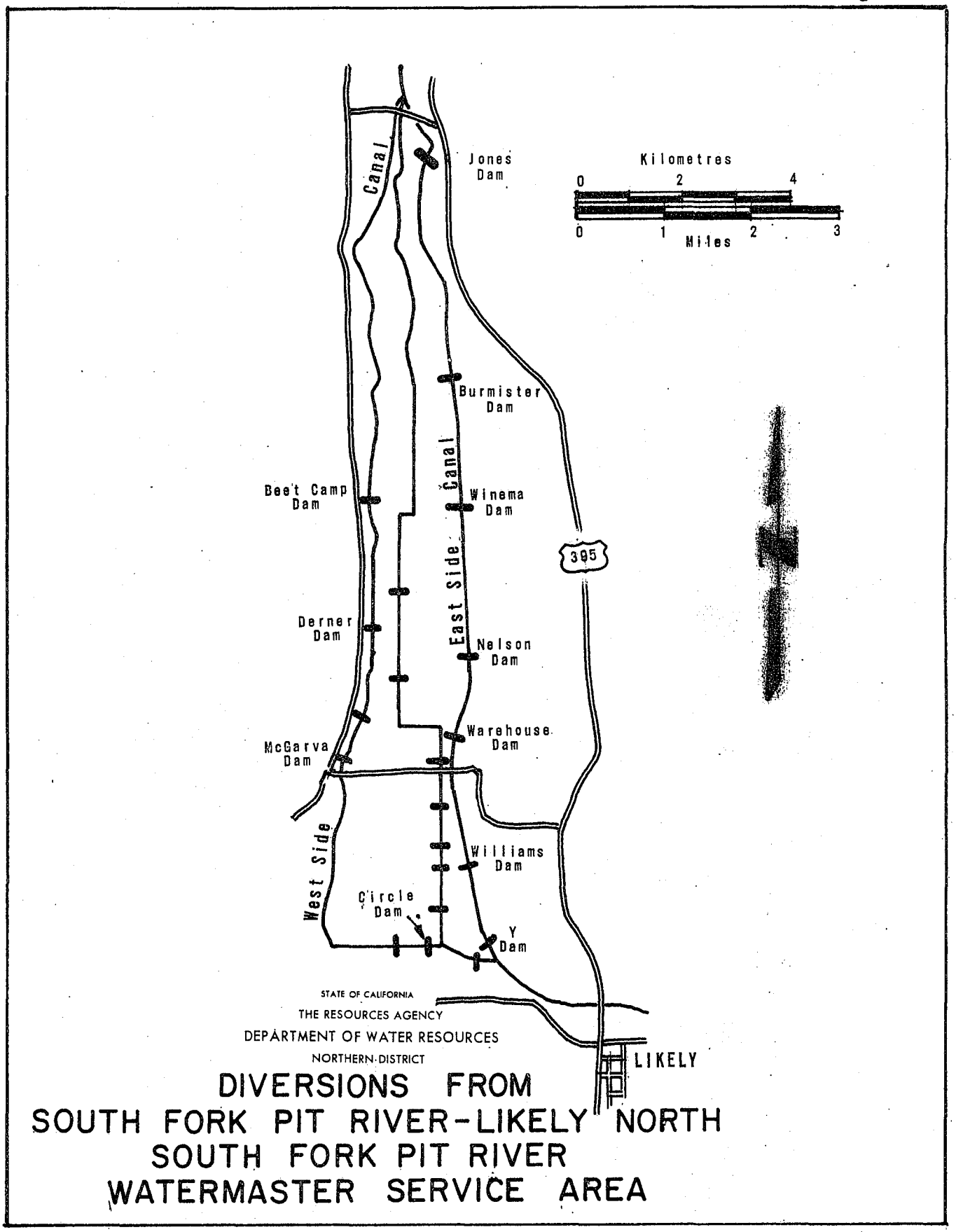
Above percentages refer only to available water supply in respective ditches.

Conversion factor for SI see page xiv

STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES
NORTHERN DISTRICT

DIVERSIONS FROM SOUTH FORK PIT RIVER–LIKELY EAST SOUTH FORK PIT RIVER WATERMASTER SERVICE AREA

Figure 16d



STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES
NORTHERN DISTRICT

DIVERSIONS FROM SOUTH FORK PIT RIVER-LIKELY NORTH SOUTH FORK PIT RIVER WATERMASTER SERVICE AREA

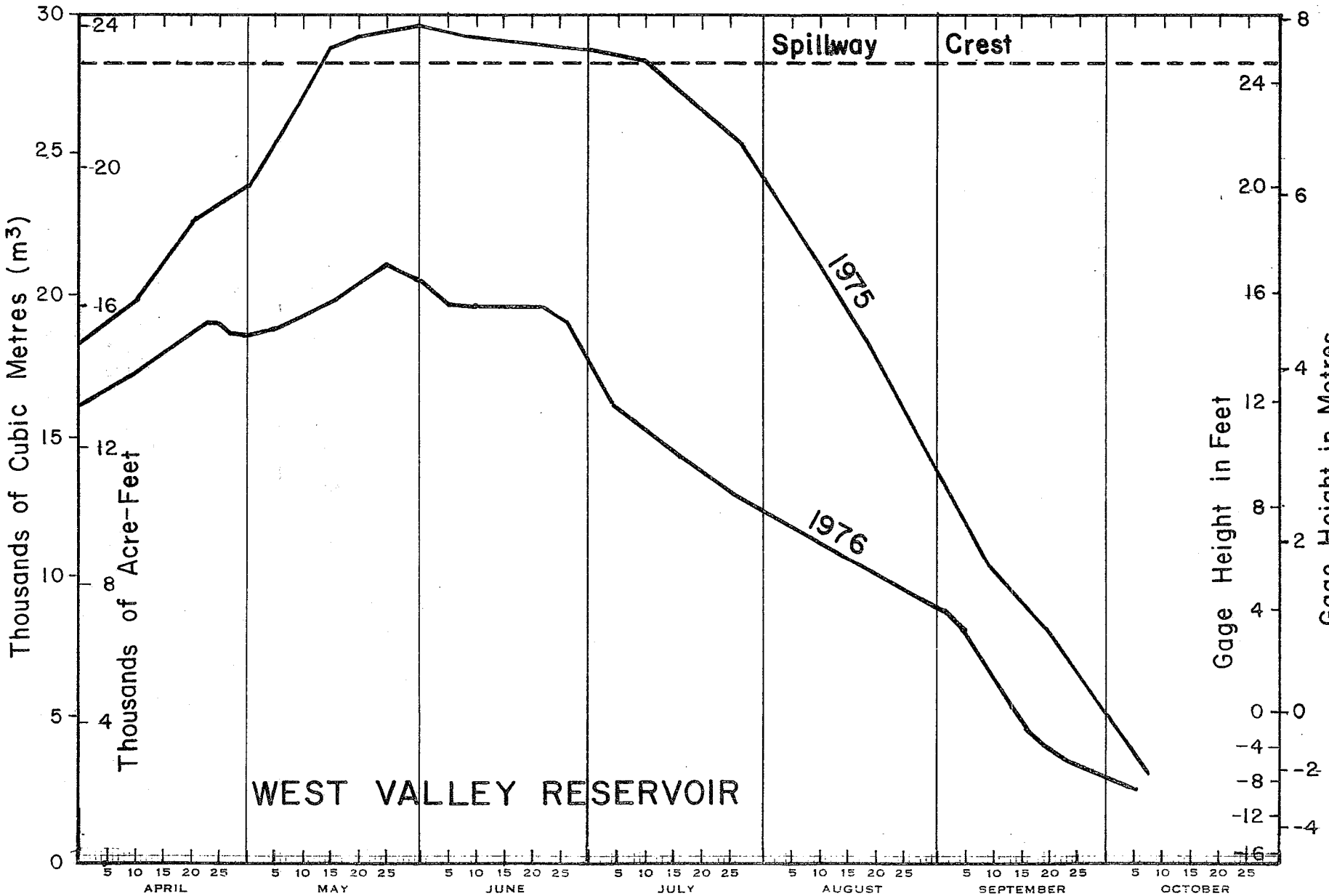

Spillway Crest
1975
1976
WEST VALLEY RESERVOIR
Thousands of Cubic Metres (m³)
Thousands of Acre-Feet
Gage Height in Feet
Gage Height in Metres
APRIL
MAY
JUNE
JULY
AUGUST
SEPTEMBER
OCTOBER

Figure 16a

SURPRISE VALLEY WATERMASTER SERVICE AREA

The Surprise Valley service area is situated in extreme eastern Modoc County, east of the Warner Mountains. Figure 17, page 149, shows the service area, the streams serving it, and the towns and roads of the valley.

Ten individual stream systmes rising on the eastern slope of the Warner Mountains supply water to the area. These streams are fed by snowmelt runoff and traverse a fast, precipitous course down the eastern slope of the Warner Mountains to the valley floor where numerous scattered diversion ditches convey water to the irrigated lands.

Basis of Service

The Surprise Valley watermaster service area was created January 10, 1939, including Mill, Soldier, Pine, Cedar, Deep, Owl, Rader, and Emerson Creeks, all of which previously had watermaster service individually. Service was started on Eagle Creek at that time. Bidwell Creek was added to the service area March 16, 1960. Each of the 10 stream systems are under separate decrees. See Table 41, page 140, for specific data regarding the decrees and water rights on the individual creeks.

Water Supply

The water supply is derived almost entirely from snowmelt runoff, with only minor spring-fed flows occurring in the latter part of the season. Due to the steep eastern slope of the Warner Mountains, there are no known economically justified storage sites on the service area streams. Because of the lack of such regulatory storage, the available water supply at any specific diversion point may vary considerably within a few hours. An extreme diurnal temperature variation causes extensive variation in snowmelt runoff. This problem is further aggravated by the relatively short, steep drainage area. In addition, occasional summer thundershowers may cause a creek to discharge a flow of mammoth proportions for several hours. These flashes are apt to cause considerable damage in the form of washouts and debris deposition and are of such short duration that no beneficial use can be made of the water.

Records of the daily mean dishcarge at several stream gaging stations within the service area are presented in Tables 43 through 54, pages 143 through 148.

Method of Distribution

The continuous-flow method of distribution is employed on most creeks; however, in a few instances the available water supply is rotated among the users in accordance with either decree schedules or by mutual agreement.

Alfalfa and meadow hay, the major crops grown in the valley, are irrigated by sprinklers and wild flooding, although some lands depend upon subsurface irrigation. A few of these systems work by gravity, but most employ pumps with the surface water supplemented by deep wells. Many additional acres have been put into production during the past few years through the use of deep wells. Only surface water supplies are under state watermaster service.

To facilitate distribution of irrigation water, construction of permanent diversion dams, headgages, and measuring devices has been stressed during recent years. Although these structures do not solve the problems of discharge variation and debris deposition, they do provide significant assistance in solving water measurement and distribution problems. The individual streams and locations of the diversions are shown on Figures 17 through 17j, pages 149 through 161.

TABLE 42

DECREES AND RELATED DATA - SURPRISE VALLEY STREAMS

Stream	Modoc County Superior Court Decree No.	Date	Type[a]	Service Area Created	No. of Water Right Owners	Total l/s	Total Cfs	Remarks
Bidwell	6420	1-13-60	S	3-16-60[b]	46	1 804.92	63.74	(Schedule 3) 3 priorities March 15-July 19. (Schedule 4) 5 priorities July 10-September 30. If no water passing Diversion No. 23 September 30-March 14, 1st priority provisions of Schedule 4 apply.
Mill	3024	12-19-31	CR	12-30-31	38	1 051.41	37.13	One priority on Brown Creek, tributary to Rutherford Creek, 7 priorities on Rutherford Creek, tributary to Mill Creek, 4 priorities on Mill Creek, 1st and 2nd for year-round use, 3rd and 4th April through September.
Soldier	2045	11-28-28	CR	9-11-29	13 4[c]	948.62 123.74	33.50 4.37	Starting March 19 each year, lower users receive water for 4 13-day periods alternating with upper users who receive water for 4 10-day periods, ending June 19. 7 priorities during lower users periods, 8 during upper users periods and 12 for rest of the year. Appropriative License 1566, 1613, 1648, and 1850.
Pine	3391	12-07-36	CR	1-13-37	5 1[c]	[d] 2.26	[d] 0.08	One full rotation totalling 0.85 hm^3 (693 AF). Rotation continues until flow decreases to 113.27 l/s (4 cfs), then all water goes to Cal-Vada Ranch until flow decreases to 45.31 l/s (1.60 cfs), then all water goes to the R. Bordwell Ranch.
Cedar	1206 2343 [d]	5-22-01 2-15-23	CA CA	9-11-29	12	818.36	28.90[d]	Water rights established by these two decrees and an agreement signed by all users. No. 1206 set 1st and 2nd priorities; No. 2443 3rd priority and agreement the 4th. 818.36 l/s (28.90 cfs) includes 141.58 l/s (5.00 cfs) imported from Thoms Creek on west slope of Warner Mountains.
Deep	3101	1-25-34	CR	12-29-34	11	831.67	29.37	Schedule 2 establishes 5 priorities, year-round.
Owl	2410	5-29-29	CA	9-11-29	8 1[c]	1 180.82	41.70	21 priorities; all year-round but 8th, under which each of 3 owners receives his allotment for an 8-day period. Appropriative License No. 2842, 15.29 l/s (0.54 cfs).
Rader	3626	6-04-37	CR	6-12-37	6	594.66	21.00	7 priorities. 7th is for surplus water. Diversions No. 1, 3, 6, and 7 have seasonal limitations.
Eagle	2304 3284	4-05-26 11-05-37	CA CR	1-10-39	36	865.65	30.57	Decree No. 3284 added rights in all priority classes, and established 4 classes. 127.42 l/s (4.50 cfs) right of Betford Corp. is for use March 1 to July 1. Eagleville 'town users', Schedule 2 may divert through Gee & Grider ditches March 16 to October 14 each year. Set 1st priority rights of Gee & Grider ditches, Par. XVII & XVIII, for use April 15 to October 1.
Emerson	2840	3-25-30	CR	4-11-30	10	698.01	24.65	4 priorities, 1st is for year-round use, others April 1 to September 30.

a/ S-Statutory, CR-Court Reference, CA-Court Adjudication.
b/ Added to existing Surprise Valley service area.
c/ Appropriative rights junior to the decreed rights.
d/ See remarks.

Although the Owl Creek Flood Control and Water Conservation District did not become official until August 7, 1961, the district's diversion and distribution project was completed in February, 1961. The project reduced the number of diversions from 17 to 2 and the number of ditches from 17 to 8. This makes distribution easier and more equitable. The users say that they receive twice as much water as they did before the project. It is possible to divert and distribute 2 265 litres per second (80 cubic feet per second in the lower seven ditches.

1976 Distribution

Watermaster service began in the Surprise Valley service area on March 19 and continued until September 30. Charles G. Hodge, Water Resources Technician II, was watermaster during this period.

Streams in both the northern and southern halves of the valley had approximately 87 percent of normal runoff. Very good crop yields were experienced throughout the valley, especially by ranchers who supplement their irrigation by pumping ground water.

Bidwell Creek. The July 1 streamflow was adequate to supply 38 percent of first priorities on Schedule 3. When Schedule 4 became effective July 10, streamflow was adequate to supply the first and second priorities only. Streamflow gradually diminished until September 30 at which time 13 percent of second priority was available.

Mill Creek. Average flow for April was adequate to supply first, second, and 50 percent of third priorities. Fourth priority water rights were filled May 1 until May 20, after which the flow diminished until July 14, when only second priority was available. Very close regulation was required after mid-July for the rest of the season. There was approximately 75 percent of first priorities on September 30.

Soldier Creek. All diversions were closely regulated during the rotation periods (March 19 to June 19) as the water supply was inadequate to satisfy all allotments. There was flow in the East Channel for the lower users rotation from May 4 to May 17 only. Upper users had third and partial fourth priority for their sixth rotation. On June 19, when the season outside the general irrigation season began, there was supply for first and partial second priorities until July 10 when first only could be filled. After July 10, partial first priority was filled; at the end of September, 50 percent of first priority was available.

Pine Creek. The stream system was regulated according to rotation schedule (an accumulative flow basis). On May 15 the flow dropped below 113 l/s (4 cfs), ending the rotation schedule. All water was turned into the Cressler Ditch on May 17. This diversion continued until June 14, then was turned to Track No. 74. The stream was dry June 28 through September 30.

Cedar Creek. Flow was very low most of April, but increased to 50 percent of second priority by the first of May, dropped to 15 percent May 23, and supplied only first priority by June 1. All water went to No. 1 diversion for the rest of the season. Warrens and Wiley supplemented their allotments with water imported from Thoms Creek.

Deep Creek. The flow in North Deep Creek was never enough to completely fill first priority; all water in Company Ditch (North Deep Creek) has only one diversion and one priority. Flow in South Deep Creek was adequate to fill first and second priorities from April 20 to May 1. Partial third priorities were filled May 1 to May 15. Flow receded fast with only partial first priorities filled through September 30.

Owl Creek. The flow during the month of April fluctuated between the ninth and fourteenth priorities. All priorities were filled May 1 to June 2, after

which there was a steady recession. The first special No. 8 priority was filled July 8 through July 15; on July 17 a cloudburst completely filled all the diversions structures with sand and gravel. The north diversion structure had no water the rest of the season. All water went to the Cook and Stiner Ditches until mid-September, then all water went down-channel.

Rader Creek. The water supply was adequate to fill first, second, and a small amount of third priorities during April. All six priorities were filled most of the month of May, after which there was a steady recession until July 17, when a cloudburst destroyed the station and filled both upper diversion structures with debris. Flow for August and September fluctuated between first and second priorities.

Eagle Creek. Streamflow supplied partial first priority until April 1, then increased to partial third on April 24. This lasted until early July with a steady recession serving first and second priorities throughout the season.

Emerson Creek. Flow supplied first and partial second priorities during April, increased to partial third priority May 2. Partial fourth priority was filled May 12 to May 20 only, with a steady recession to September 30.

SURPRISE VALLEY WATERMASTER SERVICE AREA
1976 Daily Mean Discharge

TABLE 43

BIDWELL CREEK NEAR FORT BIDWELL

Day	March		April		May		June		July		August		September		Day
	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	
1	263	9.3	368	13	1610	57	1330	47	453	16	252	8.9	153	5.4	1
2	255	9.0	396	14	2150	76	1250	44	425	15	227	8.0	147	5.2	2
3	340	12	396	14	2180	77	1190	42	396	14	224	7.9	147	5.2	3
4	278	9.8	510	18	2150	76	1100	39	396	14	207	7.3	142	5.0	4
5	510	18	708	25	2380	84	1020	36	368	13	218	7.7	139	4.9	5
6	368	13	765	27	2210	78	935	33	340	12	218	7.7	142	5.0	6
7	246	8.7	765	27	2040	72	963	34	340	12	212	7.5	142	5.0	7
8	201	7.1	850	30	2350	83	906	32	340	12	195	6.9	133	4.7	8
9	238	8.4	765	27	2720	96	906	32	312	11	184	6.5	130	4.6	9
10	283	10	736	26	2800	99	906	32	312	11	178	6.3	130	4.6	10
11	340	12	680	24	2920	103	878	31	312	11	173	6.1	142	5.0	11
12	340	12	651	23	2720	96	878	31	312	11	170	6.0	136	4.8	12
13	312	11	595	21	2690	95	850	30	283	10	167	5.9	130	4.6	13
14	312	11	623	22	2830	100	821	29	283	10	249	8.8	125	4.4	14
15	312	11	680	24	2970	105	765	27	269	9.5	368	13	139	4.9	15
16	368	13	623	22	2660	94	736	26	261	9.2	396	14	144	5.1	16
17	566	20	566	20	2380	84	765	27	280	9.9	278	9.8	144	5.1	17
18	623	22	538	19	2210	78	765	27	396	14	252	8.9	136	4.8	18
19	510	18	538	19	2070	73	708	25	283	10	229	8.1	133	4.7	19
20	425	15	765	27	1870	66	736	26	266	9.4	207	7.3	133	4.7	20
21	396	14	963	34	1760	62	793	28	252	8.9	193	6.8	133	4.7	21
22	396	14	1050	37	1640	58	765	27	238	8.4	198	7.0	133	4.7	22
23	396	14	1020	36	1670	59	651	23	249	8.8	215	7.6	130	4.6	23
24	396	14	1560	55	1700	60	595	21	261	9.2	187	6.6	127	4.5	24
25	368	13	1730	61	1640	58	566	20	227	8.0	181	6.4	130	4.6	25
26	340	12	1250	44	1590	56	538	19	210	7.4	178	6.3	130	4.6	26
27	312	11	991	35	1610	57	510	18	207	7.3	176	6.2	125	4.4	27
28	312	11	850	30	1730	61	481	17	204	7.2	173	6.1	133	4.7	28
29	312	11	906	32	1530	54	481	17	204	7.2	164	5.8	133	4.7	29
30	312	11	1100	39	1420	50	453	16	201	7.1	164	5.8	127	4.5	30
31	368	13			1500	53			210	7.4	164	5.8			31
Mean	355	12.5	798	28.2	2120	74.8	808	28.5	293	10.4	213	7.5	136	4.8	Mean
Volume hm	.950		2.070		5.680		2.090		.790		.570		.350		Volume hm
AF		770		1680		4600		1700		636		462		285	AF

SURPRISE VALLEY WATERMASTER SERVICE AREA
1976 Daily Mean Discharge

TABLE 44

MILL CREEK ABOVE ALL DIVERSIONS

Day	April		May		June		July		August		September		Day
	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	
1	229	8.1	906	32	510	18	221	7.8	79	2.8	51	1.8	1
2	235	8.3	1020	36	481	17	212	7.5	70	2.5	51	1.8	2
3	244	8.6	1020	36	481	17	195	6.9	70	2.5	51	1.8	3
4	312	11	1080	38	453	16	190	6.7	70	2.5	48	1.7	4
5	368	13	1130	40	425	15	190	6.7	73	2.6	45	1.6	5
6	368	13	1080	38	425	15	173	6.1	79	2.8	48	1.7	6
7	396	14	1020	36	396	14	167	5.9	73	2.6	48	1.7	7
8	396	14	1220	43	396	14	161	5.7	70	2.5	45	1.6	8
9	368	13	1390	49	425	15	147	5.2	65	2.3	45	1.6	9
10	340	12	1560	55	425	15	136	4.8	62	2.2	45	1.6	10
11	312	11	1560	55	396	14	130	4.6	62	2.2	48	1.7	11
12	312	11	1470	52	368	13	122	4.3	62	2.2	45	1.6	12
13	312	11	1390	49	340	12	110	3.9	59	2.1	45	1.6	13
14	312	11	1560	55	340	12	102	3.6	93	3.3	45	1.6	14
15	312	11	1640	58	340	12	87	3.1	136	4.8	62	2.2	15
16	283	10	1530	54	340	12	87	3.1	102	3.6	59	2.1	16
17	272	9.6	1390	49	340	12	102	3.6	82	2.9	59	2.1	17
18	263	9.3	1190	42	340	12	147	5.2	82	2.9	51	1.8	18
19	252	8.9	991	35	312	11	105	3.7	73	2.6	51	1.8	19
20	340	12	906	32	312	11	102	3.6	70	2.5	48	1.7	20
21	368	13	736	26	340	12	93	3.3	65	2.3	45	1.6	21
22	396	14	708	25	312	11	87	3.1	70	2.5	45	1.6	22
23	453	16	680	24	283	10	82	2.9	79	2.8	42	1.5	23
24	765	27	680	24	272	9.6	82	2.9	70	2.5	42	1.5	24
25	736	26	651	23	263	9.3	82	2.9	70	2.5	42	1.5	25
26	566	20	623	22	252	8.9	79	2.8	65	2.3	42	1.5	26
27	510	18	623	22	244	8.6	73	2.6	62	2.2	42	1.5	27
28	425	15	595	21	235	8.3	70	2.5	59	2.1	42	1.5	28
29	425	15	566	20	229	8.1	70	2.5	53	1.9	42	1.5	29
30	651	23	566	20	235	8.3	70	2.5	51	1.8	42	1.5	30
31			566	20			70	2.5	51	1.8			31
Mean	384	13.6	1030	36.5	350	12.4	121	4.3	72.3	2.6	47.5	1.7	Mean
Volume													Volume
hm	1.000		2.770		.910		.320		.190		.120		hm
AF		806		2240		736		263		157		99.7	AF

TABLE 45

SOLDIER CREEK ABOVE ALL DIVERSIONS

Day	April		May		June		July		August		September		Day
	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	
1	153	5.4	935	33	215	7.6	96	3.4	56	2.0	36	1.3	1
2	161	5.7	850	30	207	7.3	93	3.3	53	1.9	34	1.2	2
3	173	6.1	850	30	195	6.9	87	3.1	56	2.0	34	1.2	3
4	312	11	736	26	190	6.7	85	3.0	56	2.0	31	1.1	4
5	481	17	793	28	176	6.2	85	3.0	56	2.0	31	1.1	5
6	340	12	651	23	176	6.2	79	2.8	56	2.0	31	1.1	6
7	396	14	850	30	170	6.0	73	2.6	56	2.0	31	1.1	7
8	368	13	821	29	164	5.8	70	2.5	51	1.8	31	1.1	8
9	278	9.8	935	33	176	6.2	65	2.3	48	1.7	31	1.1	9
10	218	7.7	935	33	170	6.0	62	2.2	48	1.7	31	1.1	10
11	207	7.3	765	27	159	5.6	62	2.2	45	1.6	31	1.1	11
12	184	6.5	708	25	159	5.6	56	2.0	45	1.6	31	1.1	12
13	184	6.5	793	28	147	5.2	56	2.0	39	1.4	31	1.1	13
14	232	8.2	708	25	142	5.0	53	1.9	70	2.5	45	1.6	14
15	218	7.7	595	21	139	4.9	51	1.8	252	8.9	142	5.0	15
16	161	5.7	595	21	133	4.7	53	1.9	139	4.9	102	3.6	16
17	142	5.0	538	19	130	4.6	62	2.2	85	3.0	56	2.0	17
18	153	5.4	510	18	130	4.6	147	5.2	79	2.8	56	2.0	18
19	173	6.1	481	17	125	4.4	85	3.0	79	2.8	53	1.9	19
20	425	15	481	17	125	4.4	73	2.6	73	2.6	51	1.8	20
21	278	9.8	425	15	139	4.9	65	2.3	70	2.5	51	1.8	21
22	340	12	396	14	139	4.9	62	2.2	62	2.2	48	1.7	22
23	510	18	396	14	125	4.4	56	2.0	56	2.0	48	1.7	23
24	1020	36	340	12	125	4.4	56	2.0	53	1.9	45	1.6	24
25	680	24	340	12	119	4.2	53	1.9	51	1.8	45	1.6	25
26	538	19	312	11	119	4.2	51	1.8	51	1.8	39	1.4	26
27	453	16	280	9.9	116	4.1	48	1.7	48	1.7	39	1.4	27
28	453	16	283	10	110	3.9	45	1.6	45	1.6	36	1.3	28
29	595	21	258	9.1	102	3.6	45	1.6	39	1.4	36	1.3	29
30	793	28	244	8.6	102	3.6	45	1.6	39	1.4	36	1.3	30
31			258	9.1			53	1.9	39	1.4			31
Mean	354	12.5	583	20.6	147	5.2	67.2	2.4	64.8	2.3	45.1	1.6	Mean
Volume													Volume
hm	.920		1.560		.380		.180		.170		.120		hm
AF		743		1260		310		146		141		94.6	AF

SURPRISE VALLEY WATERMASTER SERVICE AREA
1976 Daily Mean Discharge

TABLE 46

PINE CREEK AT DIVISION OF NORTH AND SOUTH CHANNELS

Day	April		May		June		July		August		September		Day
	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	
1	119	4.2	680	24	22	0.8	00	0.0	00	0.0	00	0.0	1
2	110	3.9	651	23	19	0.7	00	0.0	00	0.0	00	0.0	2
3	161	5.7	538	19	19	0.7	00	0.0	00	0.0	00	0.0	3
4	283	10	481	17	19	0.7	00	0.0	00	0.0	00	0.0	4
5	340	12	481	17	19	0.7	00	0.0	00	0.0	00	0.0	5
6	312	11	368	13	17	0.6	00	0.0	00	0.0	00	0.0	6
7	312	11	453	16	17	0.6	00	0.0	00	0.0	00	0.0	7
8	312	11	396	14	17	0.6	00	0.0	00	0.0	00	0.0	8
9	241	8.5	368	13	17	0.6	00	0.0	00	0.0	00	0.0	9
10	218	7.7	340	12	14	0.5	00	0.0	00	0.0	00	0.0	10
11	198	7.0	312	11	14	0.5	00	0.0	00	0.0	00	0.0	11
12	187	6.6	269	9.5	11	0.4	00	0.0	00	0.0	00	0.0	12
13	170	6.0	244	8.6	11	0.4	00	0.0	00	0.0	00	0.0	13
14	198	7.0	116	4.1	8.5	0.3	00	0.0	00	0.0	00	0.0	14
15	193	6.8	93	3.3	8.5	0.3	00	0.0	00	0.0	00	0.0	15
16	142	5.0	68	2.4	8.5	0.3	00	0.0	00	0.0	00	0.0	16
17	119	4.2	36	1.3	5.6	0.2	00	0.0	00	0.0	00	0.0	17
18	125	4.4	34	1.2	5.6	0.2	00	0.0	00	0.0	00	0.0	18
19	142	5.0	34	1.2	5.6	0.2	00	0.0	00	0.0	00	0.0	19
20	425	15	31	1.1	5.6	0.2	00	0.0	00	0.0	00	0.0	20
21	538	19	31	1.1	5.6	0.2	00	0.0	00	0.0	00	0.0	21
22	481	17	28	1.0	2.8	0.1	00	0.0	00	0.0	00	0.0	22
23	708	25	28	1.0	2.8	0.1	00	0.0	00	0.0	00	0.0	23
24	1560	55	28	1.0	2.8	0.1	00	0.0	00	0.0	00	0.0	24
25	510	18	25	0.9	2.8	0.1	00	0.0	00	0.0	00	0.0	25
26	340	12	25	0.9	2.8	0.1	00	0.0	00	0.0	00	0.0	26
27	269	9.5	25	0.9	2.8	0.1	00	0.0	00	0.0	00	0.0	27
28	232	8.2	22	0.8	00	0.0	00	0.0	00	0.0	00	0.0	28
29	340	12	22	0.8	00	0.0	00	0.0	00	0.0	00	0.0	29
30	425	15	22	0.8	00	0.0	00	0.0	00	0.0	00	0.0	30
31			22	0.8			00	0.0	00	0.0			31
Mean	324	11.4	203	7.2	9.7	0.3	00	0.0	00	0.0	00	0.0	Mean
Volume													Volume
hm	.840		.540		.030		.000		.000		.000		hm
AF		680		439		20.4		.0		.0		.0	AF

TABLE 47

CEDAR CREEK NEAR CEDARVILLE

Day	March		April		May		June		July		August		September		Day
	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	
1	1100	39	1160	41	1080	38	651	23	312	11	235	8.3	156	5.5	1
2	1080	38	1130	40	1130	40	651	23	312	11	212	7.5	153	5.4	2
3	1020	36	1190	42	1100	39	623	22	312	11	227	8.0	153	5.4	3
4	991	35	1250	44	1100	39	623	22	312	11	218	7.7	153	5.4	4
5	963	34	1270	45	1100	39	595	21	283	10	212	7.5	150	5.3	5
6	963	34	1250	44	1080	38	595	21	280	9.9	207	7.3	150	5.3	6
7	991	35	1270	45	1080	38	566	20	278	9.8	201	7.1	147	5.2	7
8	1050	37	1250	44	1080	38	566	20	263	9.3	195	6.9	142	5.0	8
9	1080	38	1220	43	1100	39	566	20	258	9.1	187	6.6	136	4.8	9
10	1130	40	1190	42	1100	39	566	20	252	8.9	181	6.4	142	5.0	10
11	1130	40	1160	41	1050	37	566	20	246	8.7	178	6.3	153	5.4	11
12	1080	38	1130	40	1020	36	538	19	246	8.7	176	6.2	153	5.4	12
13	1080	38	1190	39	991	35	538	19	244	8.6	170	6.0	150	5.3	13
14	1080	38	1130	40	963	34	538	19	235	8.3	210	7.4	201	7.1	14
15	1100	39	1130	40	906	32	510	18	227	8.0	396	14	425	15	15
16	1190	42	1080	38	878	31	510	18	229	8.1	340	12	312	11	16
17	1330	47	1050	37	850	30	510	18	244	8.6	252	8.9	283	10	17
18	1390	49	1050	37	850	30	481	17	368	13	238	8.4	283	10	18
19	1270	45	1050	37	850	30	481	17	275	9.7	232	8.2	278	9.8	19
20	1250	44	1130	40	821	29	481	17	244	8.6	215	7.6	232	8.2	20
21	1220	43	1130	40	793	28	453	16	232	8.2	204	7.2	181	6.4	21
22	1220	43	1160	41	765	27	453	16	224	7.9	229	8.1	139	4.9	22
23	1250	44	1160	41	765	27	453	16	227	8.0	235	8.3	113	4.0	23
24	1250	44	1300	46	736	26	396	14	221	7.8	207	7.3	87	3.1	24
25	1220	43	1220	43	736	26	368	13	212	7.5	195	6.9	62	2.2	25
26	1190	42	1100	39	736	26	368	13	204	7.2	195	6.9	45	1.6	26
27	1190	42	1020	36	708	25	340	12	193	6.8	195	6.9	31	1.1	27
28	1130	40	963	34	708	25	340	12	187	6.6	195	6.9	19	0.7	28
29	1130	40	963	34	680	24	312	11	187	6.6	184	6.5	11	0.4	29
30	1130	40	1020	36	680	24	312	11	190	6.7	178	6.3	5.6	0.2	30
31	1190	42			651	23			198	7.0	164	5.8			31
Mean	1140	40.3	1140	40.3	906	32.0	498	17.6	248	8.8	215	7.6	155	5.5	Mean
Volume															Volume
hm	3.060		2.960		2.430		1.290		.660		.580		.400		hm
AF		2480		2400		1970		1050		539		466		325	AF

SURPRISE VALLEY WATERMASTER SERVICE AREA
1976 Daily Mean Discharge

TABLE 48

NORTH DEEP CREEK ABOVE ALL DIVERSIONS

Day	April		May		June		July		August		September		Day
	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	
1	127	4.5	212	7.5	93	3.3	48	1.7	17	0.6	11	0.4	1
2	122	4.3	212	7.5	93	3.3	36	1.3	11	0.4	11	0.4	2
3	136	4.8	212	7.5	87	3.1	31	1.1	42	1.5	11	0.4	3
4	136	4.8	207	7.3	73	2.6	28	1.0	28	1.0	11	0.4	4
5	136	4.8	207	7.3	59	2.1	22	0.8	22	0.8	11	0.4	5
6	136	4.8	207	7.3	53	1.9	22	0.8	17	0.6	11	0.4	6
7	170	6.0	212	7.5	48	1.7	22	0.8	11	0.4	11	0.4	7
8	190	6.7	212	7.5	48	1.7	22	0.8	11	0.4	11	0.4	8
9	176	6.2	221	7.8	59	2.1	22	0.8	11	0.4	11	0.4	9
10	161	5.7	229	8.1	73	2.6	22	0.8	11	0.4	11	0.4	10
11	156	5.5	221	7.8	53	1.9	22	0.8	11	0.4	17	0.6	11
12	150	5.3	212	7.5	42	1.5	22	0.8	11	0.4	17	0.6	12
13	142	5.0	198	7.0	36	1.3	17	0.6	11	0.4	11	0.4	13
14	150	5.3	190	6.7	36	1.3	17	0.6	31	1.1	22	0.8	14
15	150	5.3	170	6.0	36	1.3	17	0.6	142	5.0	68	2.4	15
16	136	4.8	156	5.5	31	1.1	11	0.4	36	1.3	31	1.1	16
17	127	4.5	156	5.5	36	1.3	28	1.0	28	1.0	17	0.6	17
18	127	4.5	150	5.3	31	1.1	116	4.1	102	3.6	17	0.6	18
19	136	4.8	142	5.0	36	1.3	28	1.0	102	3.6	17	0.6	19
20	170	6.0	122	4.3	28	1.0	22	0.8	73	2.6	11	0.4	20
21	184	6.5	122	4.3	42	1.5	22	0.8	53	1.9	11	0.4	21
22	190	6.7	108	3.8	53	1.9	17	0.6	36	1.3	11	0.4	22
23	207	7.3	108	3.8	28	1.0	17	0.6	31	1.1	11	0.4	23
24	238	8.4	108	3.8	28	1.0	17	0.6	22	0.8	11	0.4	24
25	238	8.4	102	3.6	36	1.3	11	0.4	17	0.6	11	0.4	25
26	212	7.5	102	3.6	42	1.5	11	0.4	17	0.6	11	0.4	26
27	184	6.5	102	3.6	31	1.1	11	0.4	17	0.6	11	0.4	27
28	170	6.0	102	3.6	28	1.0	11	0.4	17	0.6	8.5	0.3	28
29	170	6.0	93	3.3	28	1.0	11	0.4	11	0.4	8.5	0.3	29
30	184	6.5	93	3.3	28	1.0	11	0.4	11	0.4	8.5	0.3	30
31			102	3.6			11	0.4	11	0.4			31
Mean	164	5.8	161	5.7	47.0	1.7	23.8	.8	31.6	1.1	14.9	.5	Mean
Volume													Volume
hm	.420		.430		.120		.060		.080		.040		hm
AF		344		349		98.7		51.5		68.6		31.3	AF

TABLE 49

SOUTH DEEP CREEK ABOVE ALL DIVERSIONS

Day	April		May		June		July		August		September		Day
	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	
1	73	2.6	453	16	147	5.2	36	1.3	31	1.1	19	0.7	1
2	65	2.3	510	18	139	4.9	36	1.3	28	1.0	17	0.6	2
3	73	2.6	481	17	130	4.6	36	1.3	70	2.5	17	0.6	3
4	93	3.3	453	16	125	4.4	36	1.3	56	2.0	17	0.6	4
5	93	3.3	481	17	108	3.8	28	1.0	42	1.5	17	0.6	5
6	93	3.3	453	16	99	3.5	28	1.0	45	1.6	17	0.6	6
7	193	6.8	453	16	90	3.2	28	1.0	36	1.3	17	0.6	7
8	193	6.8	453	16	90	3.2	28	1.0	31	1.1	17	0.6	8
9	181	6.4	481	17	108	3.8	28	1.0	31	1.1	11	0.4	9
10	173	6.1	510	18	108	3.8	25	0.9	31	1.1	11	0.4	10
11	153	5.4	510	18	99	3.5	25	0.9	28	1.0	19	0.7	11
12	142	5.0	453	16	90	3.2	25	0.9	31	1.1	17	0.6	12
13	142	5.0	453	16	76	2.7	31	1.1	28	1.0	17	0.6	13
14	193	6.8	396	14	70	2.5	31	1.1	68	2.4	17	0.6	14
15	204	7.2	340	12	68	2.4	31	1.1	246	8.7	90	3.2	15
16	181	6.4	312	11	56	2.0	36	1.3	42	1.5	31	1.1	16
17	173	6.1	283	10	56	2.0	70	2.5	36	1.3	31	1.1	17
18	181	6.4	255	9.0	56	2.0	164	5.8	68	2.4	28	1.0	18
19	193	6.8	238	8.4	51	1.8	25	0.9	116	4.1	28	1.0	19
20	312	11	227	8.0	51	1.8	22	0.8	76	2.7	28	1.0	20
21	312	11	210	7.4	56	2.0	22	0.8	56	2.0	28	1.0	21
22	340	12	201	7.1	56	2.0	22	0.8	147	5.2	28	1.0	22
23	368	13	210	7.4	45	1.6	22	0.8	108	3.8	28	1.0	23
24	510	18	218	7.7	42	1.5	25	0.9	70	2.5	25	0.9	24
25	453	16	218	7.7	42	1.5	19	0.7	42	1.5	25	0.9	25
26	340	12	210	7.4	42	1.5	19	0.7	28	1.0	25	0.9	26
27	283	10	201	7.1	36	1.3	19	0.7	19	0.7	25	0.9	27
28	275	9.7	193	6.8	36	1.3	19	0.7	19	0.7	22	0.8	28
29	312	11	173	6.1	36	1.3	19	0.7	19	0.7	22	0.8	29
30	368	13	164	5.8	36	1.3	22	0.8	19	0.7	22	0.8	30
31			173	6.1			25	0.9	19	0.7			31
Mean	222	7.8	334	11.8	75.2	2.7	32.9	1.2	54.8	1.9	24.2	.9	Mean
Volume													Volume
hm	.580		.900		.190		.090		.150		.060		hm
AF		467		726		158		71.4		119		50.8	AF

SURPRISE VALLEY WATERMASTER SERVICE AREA
1976 Daily Mean Discharge

TABLE 50

OWL CREEK BELOW ALLEN-ARRECHE DITCH

Day	April		May		June		July		August		September		Day
	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	
1	218	7.7	963	34	1050	37	396	14	73	2.6	85	3.0	1
2	224	7.9	1080	38	963	34	368	13	68	2.4	85	3.0	2
3	229	8.1	1190	42	793	28	340	12	102	3.6	79	2.8	3
4	232	8.2	1300	46	765	27	340	12	184	6.5	73	2.6	4
5	238	8.4	1250	44	736	26	312	11	278	9.8	59	2.1	5
6	244	8.6	1050	37	736	26	283	10	164	5.8	51	1.8	6
7	249	8.8	1130	40	708	25	283	10	96	3.4	51	1.8	7
8	255	9.0	1190	42	680	24	278	9.8	87	3.1	51	1.8	8
9	258	9.1	1270	45	708	25	263	9.3	79	2.8	48	1.7	9
10	263	9.3	1440	51	651	23	278	9.8	73	2.6	45	1.6	10
11	269	9.5	1610	57	651	23	238	8.4	73	2.6	48	1.7	11
12	275	9.7	1560	55	623	22	232	8.2	73	2.6	51	1.8	12
13	278	9.8	1440	51	623	22	218	7.7	73	2.6	51	1.8	13
14	283	10	1440	51	595	21	207	7.3	176	6.2	85	3.0	14
15	283	10	1700	60	595	21	204	7.2	108	3.8	425	15	15
16	340	12	1640	58	651	23	204	7.2	119	4.2	198	7.0	16
17	348	12	1530	54	680	24	736	26	252	8.9	142	5.0	17
18	396	14	1250	44	708	25	878	31	215	7.6	85	3.0	18
19	453	16	1130	40	736	26	283	10	190	6.7	85	3.0	19
20	481	17	1080	38	793	28	1020	36	159	5.6	85	3.0	20
21	453	16	963	34	793	28	708	25	142	5.0	85	3.0	21
22	425	15	1020	36	736	26	278	9.8	340	12	85	3.0	22
23	453	16	1050	37	651	23	595	21	207	7.3	85	3.0	23
24	453	16	1130	40	623	22	481	17	153	5.4	79	2.8	24
25	453	16	1250	44	566	20	159	5.6	136	4.8	73	2.6	25
26	453	16	1270	45	538	19	210	7.4	130	4.6	68	2.4	26
27	368	13	1440	51	510	18	96	3.4	125	4.4	62	2.2	27
28	340	12	1420	50	453	16	87	3.1	108	3.8	62	2.2	28
29	396	14	1220	43	453	16	85	3.0	99	3.5	56	2.0	29
30	623	22	1100	39	425	15	85	3.0	102	3.6	56	2.0	30
31			1100	39			85	3.0	96	3.4			31
Mean	341	12.0	1260	44.7	673	23.8	330	11.7	138	4.9	86.6	3.1	Mean
Volume													Volume
hm	.880		3.390		1.740		.880		.370		.220		hm
AF		716		2740		1410		716		300		182	AF

TABLE 51

RADER CREEK ABOVE ALL DIVERSIONS

Day	April		May		June		July		August		September		Day
	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	
1	85	3.0	396	14	453	16	238	8.4	79	2.8	56	2.0	1
2	85	3.0	425	15	425	15	224	7.9	76	2.7	53	1.9	2
3	85	3.0	510	18	396	14	212	7.5	153	5.4	51	1.8	3
4	90	3.2	510	18	396	14	198	7.0	116	4.1	45	1.6	4
5	90	3.2	453	16	396	14	187	6.6	170	6.0	42	1.5	5
6	96	3.4	368	13	396	14	178	6.3	82	2.9	39	1.4	6
7	96	3.4	453	16	368	13	170	6.0	79	2.8	34	1.2	7
8	96	3.4	538	19	340	12	170	6.0	76	2.7	31	1.1	8
9	96	3.4	651	23	368	13	159	5.6	73	2.6	28	1.0	9
10	96	3.4	680	24	340	12	150	5.3	65	2.3	25	0.9	10
11	99	3.5	765	27	340	12	142	5.0	62	2.2	25	0.9	11
12	99	3.5	708	25	312	11	142	5.0	59	2.1	22	0.8	12
13	99	3.5	680	24	312	11	125	4.4	56	2.0	22	0.8	13
14	99	3.5	651	23	312	11	113	4.0	85	3.0	22	0.8	14
15	102	3.6	651	23	312	11	105	3.7	113	4.0	22	0.8	15
16	102	3.6	651	23	312	11	96	3.4	85	3.0	85	3.0	16
17	102	3.6	651	23	340	12	708	25	85	3.0	51	1.8	17
18	105	3.7	566	20	340	12	736	26	82	2.9	42	1.5	18
19	105	3.7	595	21	340	12	255	9.0	79	2.8	45	1.6	19
20	150	5.3	595	21	340	12	227	8.0	70	2.5	48	1.7	20
21	159	5.6	538	19	340	12	198	7.0	70	2.5	51	1.8	21
22	150	5.3	566	20	312	11	170	6.0	255	9.0	53	1.9	22
23	170	6.0	566	20	283	10	142	5.0	85	3.0	56	2.0	23
24	198	7.0	566	20	269	9.5	113	4.0	79	2.8	53	1.9	24
25	178	6.3	538	19	269	9.5	85	3.0	73	2.6	51	1.8	25
26	159	5.6	566	20	269	9.5	85	3.0	70	2.5	51	1.8	26
27	159	5.6	595	21	249	8.8	85	3.0	70	2.5	48	1.7	27
28	150	5.3	566	20	249	8.8	79	2.8	68	2.4	45	1.6	28
29	159	5.6	595	21	249	8.8	79	2.8	65	2.3	42	1.5	29
30	178	6.3	538	19	249	8.8	79	2.8	62	2.2	42	1.5	30
31			510	18			79	2.8	59	2.1			31
Mean	121	4.3	569	20.1	329	11.6	185	6.5	87.4	3.1	43.1	1.5	Mean
Volume													Volume
hm	.310		1.520		.850		.500		.230		.110		hm
AF		255		1230		691		401		190		90.4	AF

SURPRISE VALLEY WATERMASTER SERVICE AREA
1976 Daily Mean Discharge

TABLE 52

EAGLE CREEK AT EAGLEVILLE

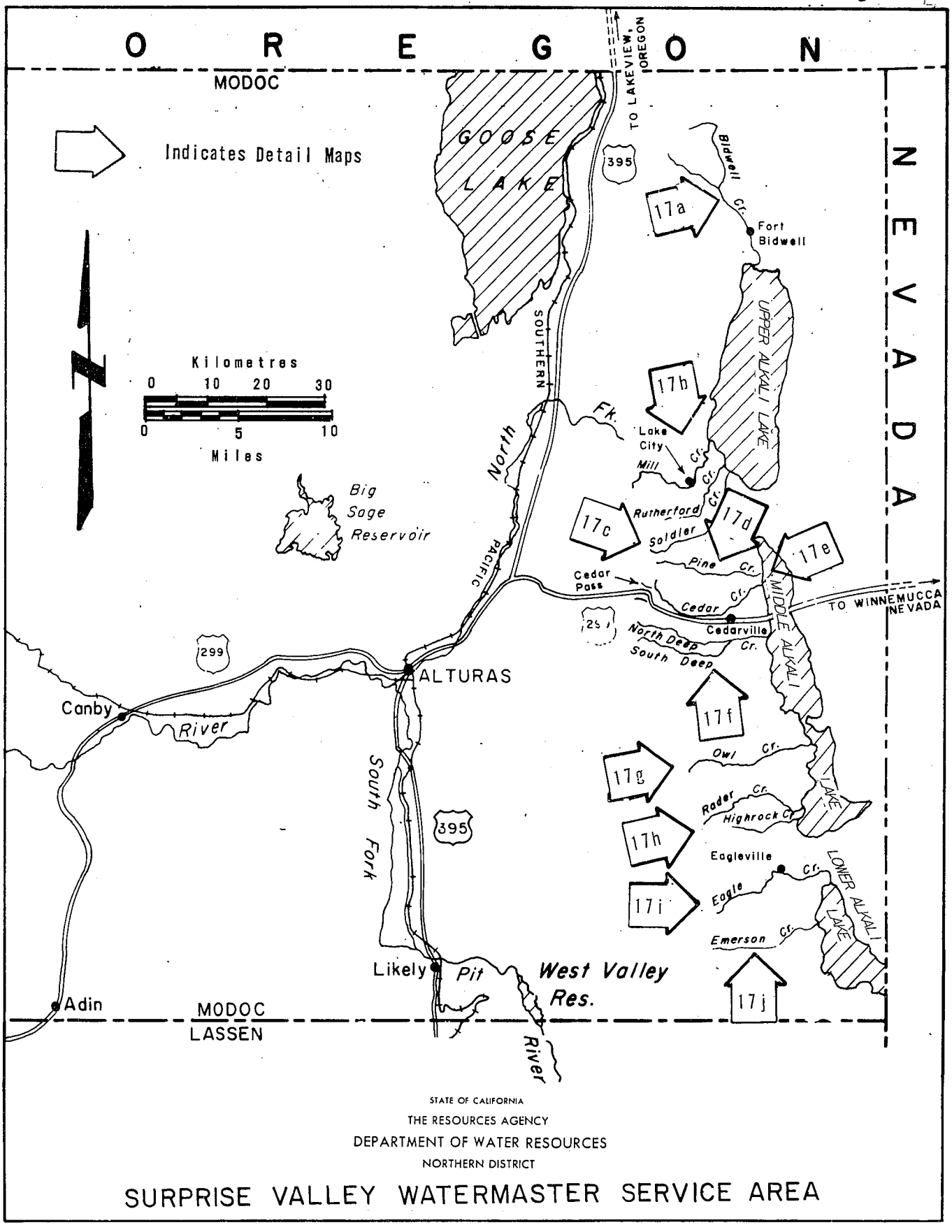
Day	April		May		June		July		August		September		Day
	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	
1	62	2.2	453	16	312	11	368	13	147	5.2	102	3.6	1
2	68	2.4	340	12	340	12	312	11	110	3.9	96	3.4	2
3	59	2.1	396	14	425	15	283	10	147	5.2	87	3.1	3
4	62	2.2	368	13	538	19	283	10	201	7.1	82	2.9	4
5	59	2.1	312	11	566	20	283	10	181	6.4	85	3.0	5
6	48	1.7	278	9.8	538	19	283	10	161	5.7	102	3.6	6
7	62	2.2	283	10	623	22	283	10	142	5.0	105	3.7	7
8	68	2.4	312	11	510	18	283	10	119	4.2	99	3.5	8
9	76	2.7	396	14	510	18	283	10	105	3.7	93	3.3	9
10	62	2.2	566	20	453	16	283	10	90	3.2	70	2.5	10
11	59	2.1	623	22	453	16	280	9.9	108	3.8	93	3.3	11
12	62	2.2	510	18	425	15	280	9.9	102	3.6	93	3.3	12
13	62	2.2	538	19	510	18	258	9.1	99	3.5	93	3.3	13
14	68	2.4	680	24	453	16	244	8.6	201	7.1	113	4.0	14
15	76	2.7	566	20	510	18	238	8.4	201	7.1	113	4.0	15
16	90	3.2	538	19	623	22	238	8.4	187	6.6	113	4.0	16
17	96	3.4	510	18	566	20	258	9.1	170	6.0	108	3.8	17
18	90	3.2	340	12	566	20	238	8.4	176	6.2	105	3.7	18
19	108	3.8	312	11	623	22	176	6.2	170	6.0	99	3.5	19
20	156	5.5	312	11	736	26	232	8.2	161	5.7	99	3.5	20
21	164	5.8	340	12	736	26	368	13	125	4.4	93	3.3	21
22	173	6.1	340	12	623	22	229	8.1	167	5.9	93	3.3	22
23	181	6.4	368	13	566	20	195	6.9	198	7.0	87	3.1	23
24	340	12	368	13	510	18	164	5.8	184	6.5	79	2.8	24
25	340	12	340	12	368	13	122	4.3	176	6.2	79	2.8	25
26	278	9.8	425	15	425	15	122	4.3	150	5.3	79	2.8	26
27	252	8.9	510	18	340	12	110	3.9	147	5.2	90	3.2	27
28	252	8.9	538	19	396	14	105	3.7	139	4.9	90	3.2	28
29	312	11	510	18	793	28	99	3.5	122	4.3	99	3.5	29
30	340	12	396	14	623	22	96	3.4	116	4.1	99	3.5	30
31			312	11			99	3.5	113	4.0			31
Mean	138	4.9	422	14.9	522	18.4	229	8.1	149	5.3	94.9	3.4	Mean
Volume													Volume
hm	.360		1.130		1.350		.610		.400		.250		hm
AF		289		916		1100		497		323		199	AF

TABLE 53

EMERSON CREEK ABOVE ALL DIVERSIONS

Day	April		May		June		July		August		September		Day
	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	
1	241	8.5	396	14	453	16	190	6.7	110	3.9	65	2.3	1
2	269	9.5	453	16	453	16	190	6.7	82	2.9	62	2.2	2
3	241	8.5	453	16	425	15	173	6.1	144	5.1	65	2.3	3
4	241	8.5	453	16	396	14	153	5.4	125	4.4	62	2.2	4
5	255	9.0	453	16	368	13	144	5.1	96	3.4	62	2.2	5
6	255	9.0	425	15	340	12	139	4.9	96	3.4	65	2.3	6
7	269	9.5	425	15	340	12	130	4.6	90	3.2	62	2.2	7
8	312	11	453	16	340	12	139	4.9	90	3.2	62	2.2	8
9	283	10	510	18	368	13	139	4.9	82	2.9	56	2.0	9
10	283	10	538	19	340	12	139	4.9	70	2.5	56	2.0	10
11	283	10	566	20	340	12	130	4.6	70	2.5	82	2.9	11
12	283	10	623	22	312	11	125	4.4	65	2.3	82	2.9	12
13	269	9.5	850	30	312	11	116	4.1	65	2.3	105	3.7	13
14	283	10	821	29	312	11	116	4.1	116	4.1	125	4.4	14
15	269	9.5	765	27	340	12	110	3.9	181	6.4	173	6.1	15
16	255	9.0	765	27	312	11	110	3.9	144	5.1	139	4.9	16
17	241	8.5	736	26	312	11	153	5.4	116	4.1	125	4.4	17
18	241	8.5	680	24	312	11	153	5.4	130	4.6	125	4.4	18
19	241	8.5	651	23	278	9.8	130	4.6	116	4.1	116	4.1	19
20	269	9.5	595	21	278	9.8	130	4.6	110	3.9	116	4.1	20
21	283	10	566	20	283	10	110	3.9	105	3.7	110	3.9	21
22	312	11	538	19	278	9.8	96	3.4	144	5.1	105	3.7	22
23	340	12	510	18	263	9.3	90	3.2	125	4.4	105	3.7	23
24	396	14	510	18	249	8.8	90	3.2	110	3.9	105	3.7	24
25	396	14	510	18	249	8.8	90	3.2	90	3.2	102	3.6	25
26	340	12	510	18	249	8.8	76	2.7	82	2.9	102	3.6	26
27	312	11	510	18	227	8.0	70	2.5	82	2.9	102	3.6	27
28	283	10	510	18	218	7.7	65	2.3	76	2.7	99	3.5	28
29	283	10	481	17	207	7.3	70	2.5	70	2.5	99	3.5	29
30	340	12	481	17	198	7.0	65	2.3	65	2.3	99	3.5	30
31			481	17			70	2.5	65	2.3			31
Mean	286	10.1	555	19.6	312	11.0	120	4.2	101	3.6	94.6	3.3	Mean
Volume													Volume
hm	.740		1.490		.810		.320		.270		.250		hm
AF		600		1210		655		259		218		199	AF

Figure 17



STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES
NORTHERN DISTRICT

SURPRISE VALLEY WATERMASTER SERVICE AREA

DIVERSION NUMBER	NAME	CFS March 15 to July 9	CFS July 10 to Sept 30
4	Fort Bidwell Cattle Production Company	4.71	4.71
5	G. Peterson	0.38	0.35
	C. Bucher	0.45	0.35
	J. Moore	0.07	0.07
6	J. Moore	0.18	0.18
7	G. Peterson	0.50	0.40**
8	Fort Bidwell Cattle Production Company	7.25	7.25
	Town Users	0.05	0.05
9	J. McAuliffe	7.63	7.63
	Town Users	0.22	0.17
10	F. Carey	6.13	6.13
	C. Bucher	0.70	0.70*
	P. Peterson	0.44	0.44
	Town Users	0.26	0.26
11	C. Bucher	0.38	**
12	U.S. Indian Service	0.46	0.20
	Town Users	0.26	0.26
13	Fee Ranch Inc.	5.24	5.24
	Town Users	0.44	0.44

DIVERSION NUMBER	NAME	CFS March 15 to July 9	CFS July 10 to Sept 30
15	Fee Ranch Inc.	8.94	8.94
	L. Sagehorn	4.94	4.94*
	J. O'Callaghan	2.88	2.88*
	G. Toney	0.42	0.42*
	Town Users	0.03	0.03
17	E. Kober	0.05	0.05
19	J.F. Cole	4.26	4.26
20	L. Sagehorn	1.10	1.10
	F. Carey	0.95	0.95*
21	L. Sagehorn	1.39	1.39
	F. Carey	0.48	0.48
22	J. O'Callaghan	0.38	0.38
23	L. Sagehorn	1.79	1.79
X	L. Sagehorn	If flow is less than 3.82 cfs deficiency is made up by additional diversions through (15) if Fee Ranch Inc. allot. is satisfied.	

Reservation Creek–U.S. Indian Service Entire Flow.

NOTE: Diversions (1),(2) and (3) are not shown as they are not part of the Watermaster Service Area.

* Includes 0.10 cfs stockwater right not to be diverted from creek.

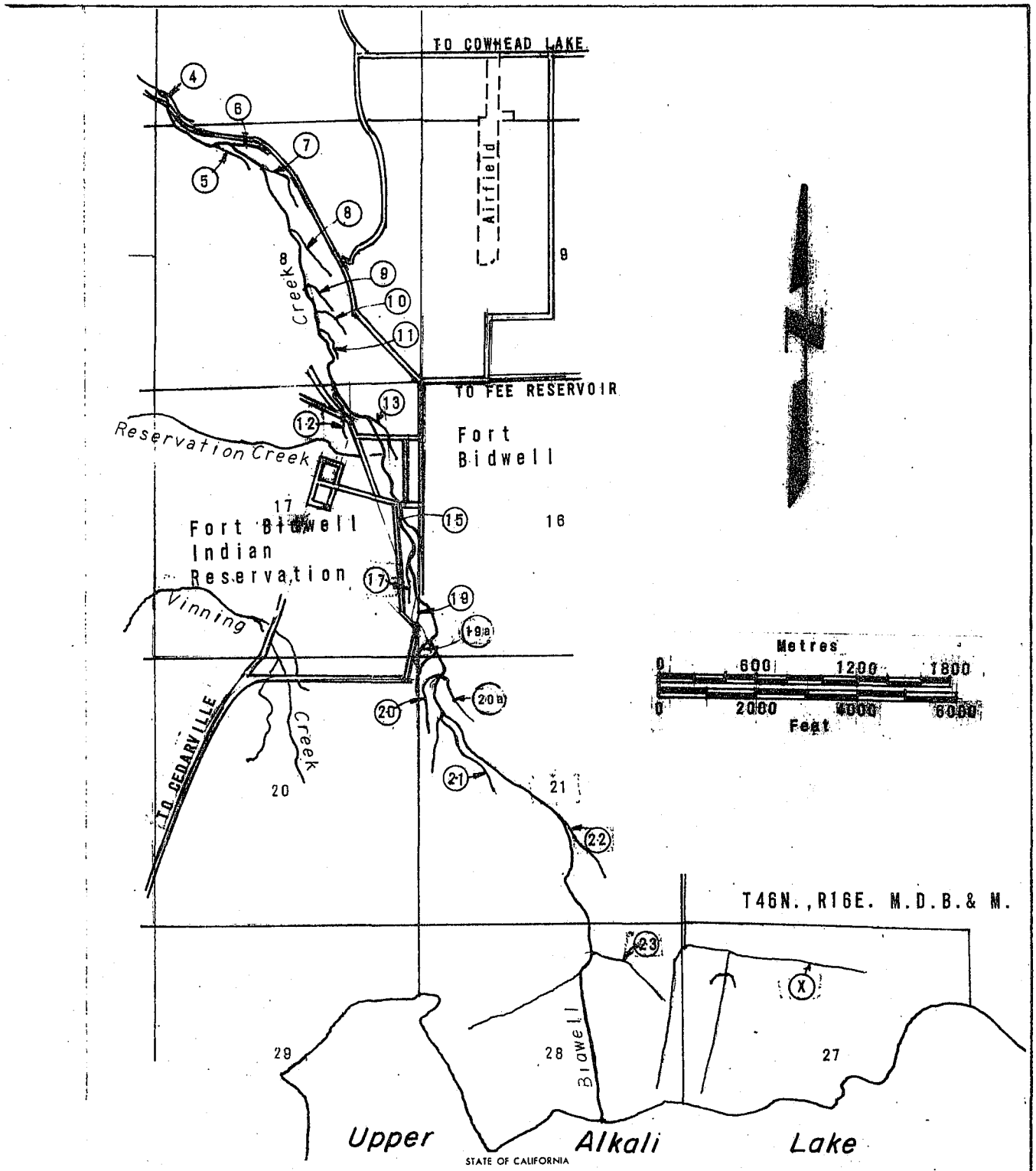
** Two 30 Hour periods of 2.00 cfs.

Conversion factors for SI see page xiv

STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES
NORTHERN DISTRICT

DIVERSIONS FROM BIDWELL CREEK
SURPRISE VALLEY WATERMASTER SERVICE AREA

Figure 17a



STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES
NORTHERN DISTRICT

DIVERSIONS FROM BIDWELL CREEK
SURPRISE VALLEY WATERMASTER SERVICE AREA

DIVERSION NUMBER	NAME	CFS
2	C. Dixon	0.38
	H. Smith	0.24
3	N. Bettendorff	1.38
	R. McDaniels	0.13
	Domestic Users	0.06
4	R. Dreyer	0.07
	J. Fogerty	0.25
	M. Larson	0.26
5	C. Dixon	0.18
11,12,13, 15,28	Town Users	1.92
17	N. Bettendorff	2.01
18	Town Users	0.33
20	V. Wimer	1.85
24	T. Dunton	1.45
26	E. Darst	1.85
29A,30 to 34	Town Users	1.63

DIVERSION NUMBER	NAME	CFS
Channel	Cockrells Inc	10.30
Channel	G.W. Warrens	1.85
44,45,46	W. Gorzell	0.80
47	M. Toney	0.01
	W. Gorzell	0.575
	C. Gorzell	0.275
	N. Bettendorff	0.30
48	F. Hedgpeth	0.60
48 and 49	M. Toney	1.64
54	Cockrells Inc	0.40
55,56,& 57	Cockrells Inc	0.75)*
58	Cockrells Inc	0.10)*
58 and 59	W. Odbert	0.90)*
59A	Cockrells Inc	0.35)*
61	G.W. Warrens	0.65
62	S. Burger	1.65**
Channel of Rutherfords Creek	Cockrells Inc	0.70
		37.13

* Water derived from Hay Collecting Ditch to be deducted from Decreed amount of direct diversion from Rutherford Creek.

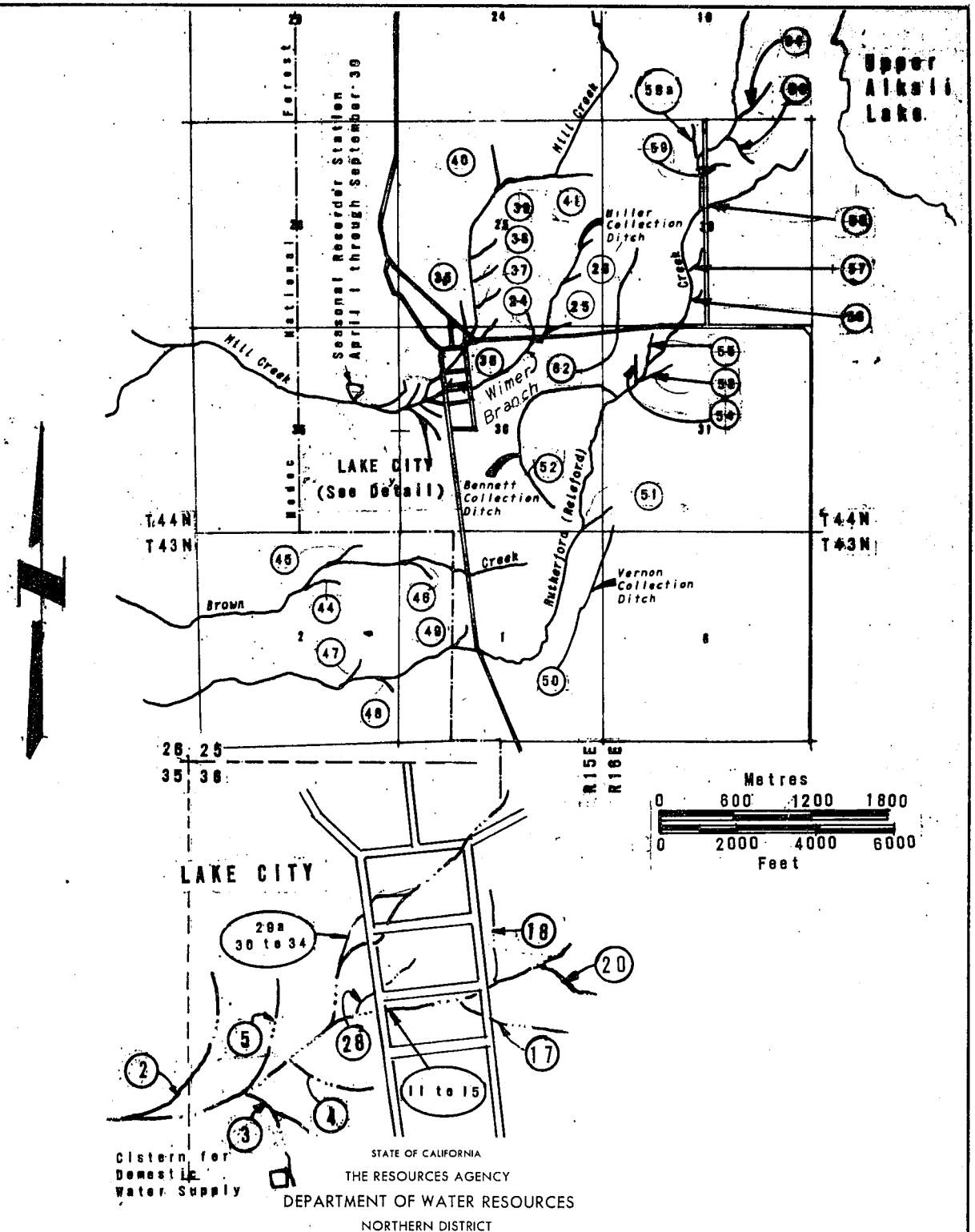
** Not under Watermaster report.

Conversion factors for SI see page xiv

STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES
NORTHERN DISTRICT

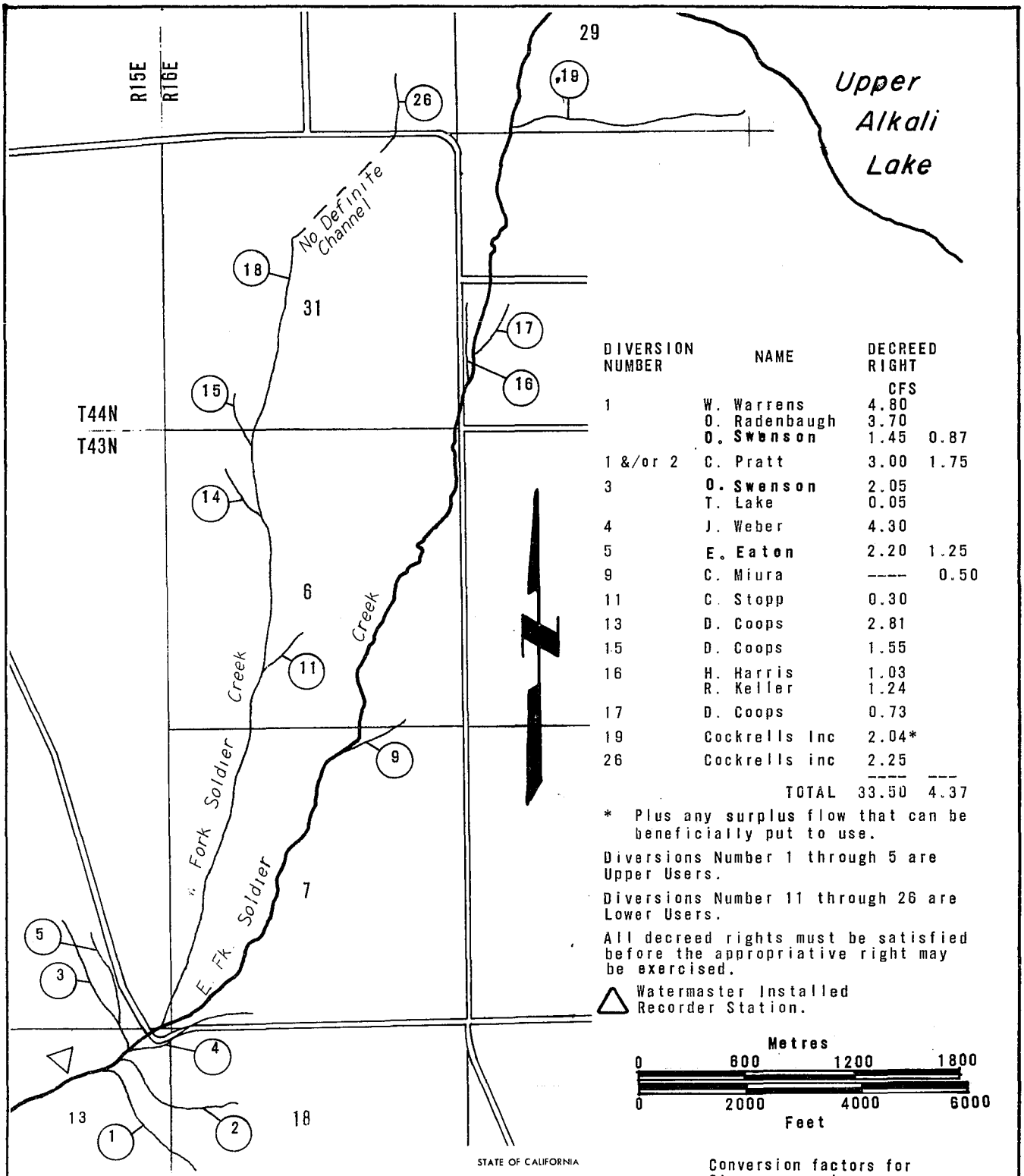
DIVERSIONS FROM MILL CREEK, BROWN CREEK AND RUTHERFORD (Releford) CREEK SURPRISE VALLEY WATERMASTER SERVICE AREA

Figure 17b



DIVERSIONS FROM
MILL CREEK, BROWN CREEK AND
RUTHERFORD (Releford) CREEK
SURPRISE VALLEY WATERMASTER SERVICE AREA

Figure 17c



DIVERSION NUMBER	NAME	DECREED RIGHT CFS	
1	W. Warrens	4.80	
	O. Radenbaugh	3.70	
	O. Swenson	1.45	0.87
1 &/or 2	C. Pratt	3.00	1.75
3	O. Swenson	2.05	
	T. Lake	0.05	
4	J. Weber	4.30	
5	E. Eaton	2.20	1.25
9	C. Miura	----	0.50
11	C. Stopp	0.30	
13	D. Coops	2.81	
15	D. Coops	1.55	
16	H. Harris	1.03	
	R. Keller	1.24	
17	D. Coops	0.73	
19	Cockrells Inc	2.04*	
26	Cockrells inc	2.25	
	TOTAL	33.50	4.37

* Plus any surplus flow that can be beneficially put to use.

Diversions Number 1 through 5 are Upper Users.

Diversions Number 11 through 26 are Lower Users.

All decreed rights must be satisfied before the appropriative right may be exercised.

△ Watermaster Installed Recorder Station.

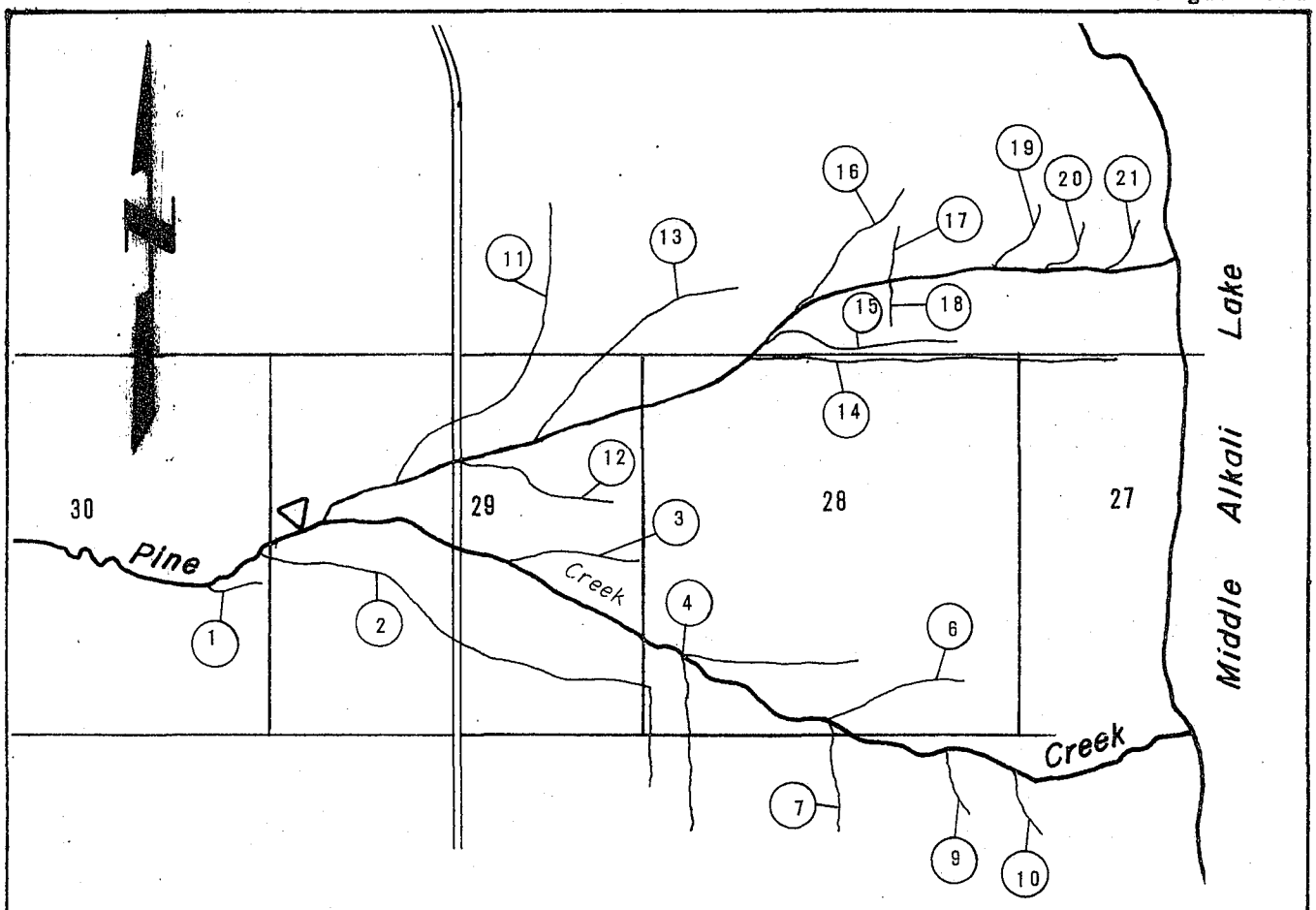
Metres
0 600 1200 1800
0 2000 4000 6000
Feet

Conversion factors for SI see page xiv

STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES
NORTHERN DISTRICT

DIVERSIONS FROM SOLDIER CREEK SURPRISE VALLEY WATERMASTER SERVICE AREA

Figure 17d



ROTATIONS ALLOTMENTS	NAMES	ACRE / FEET
1,11, 13–21	W. Baker	345.5
3,14	C. Maex	60.0
3, 6–10	C. Hill	206.6
2,4	R. Bordwell	78.4
12	C. Hill	2.5
	TOTAL	603.0 *

* Total of 1st and 2nd Rotation.

▽ Watermaster Installed Recorder Station.

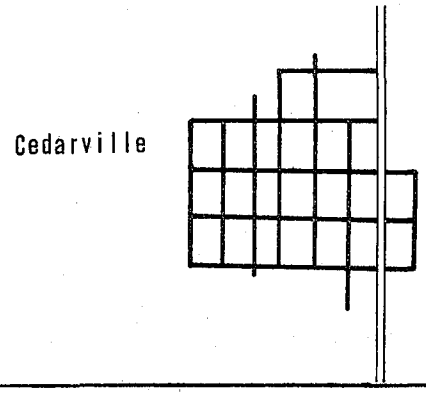
SCALE ONE MILE

0 ½ 1

0 0.50 1.00 0.50

KILOMETRES

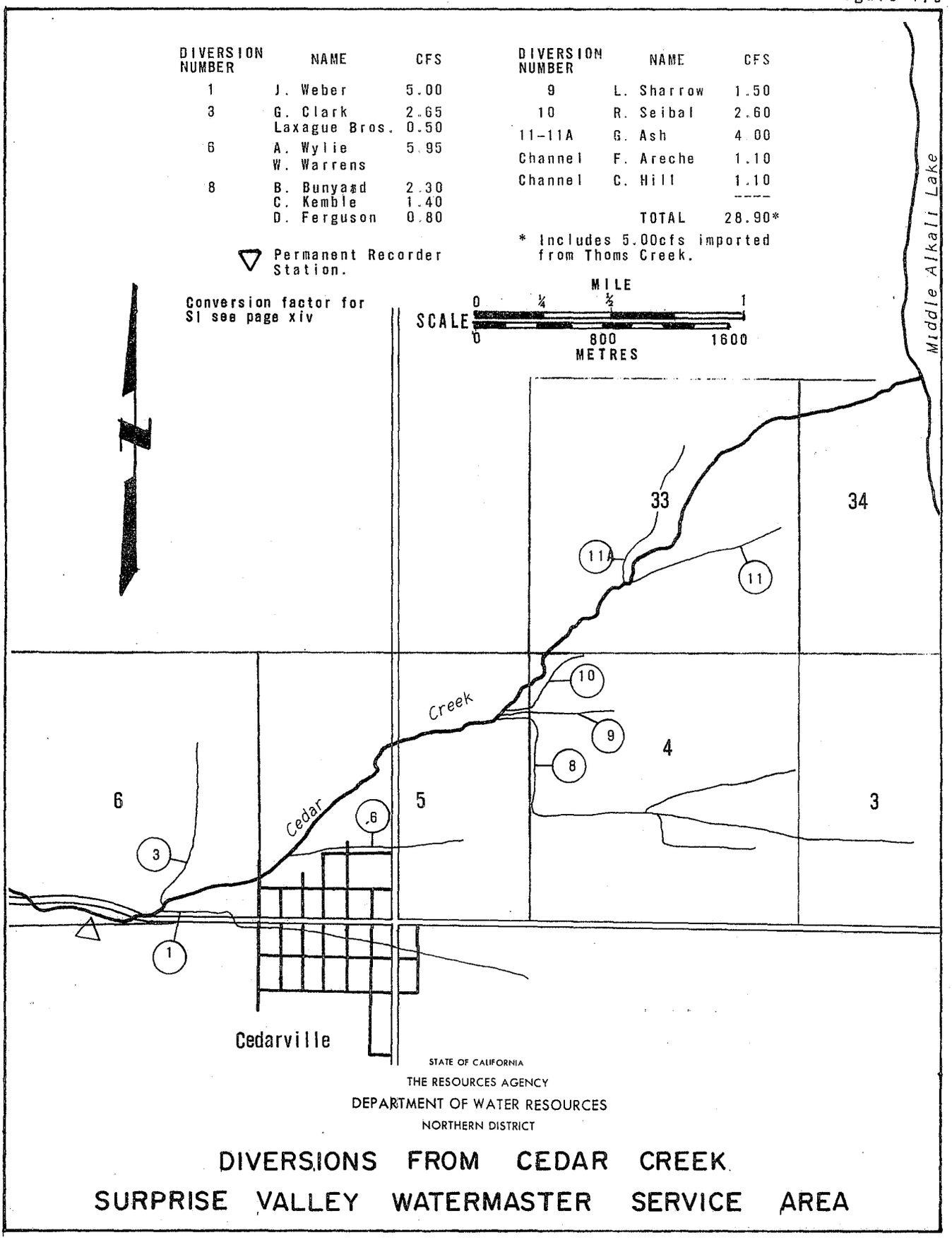
Conversion factors for SI see page xiv



STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES
NORTHERN DISTRICT

DIVERSIONS FROM PINE CREEK SURPRISE VALLEY WATERMASTER SERVICE AREA

Figure 17e



STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES
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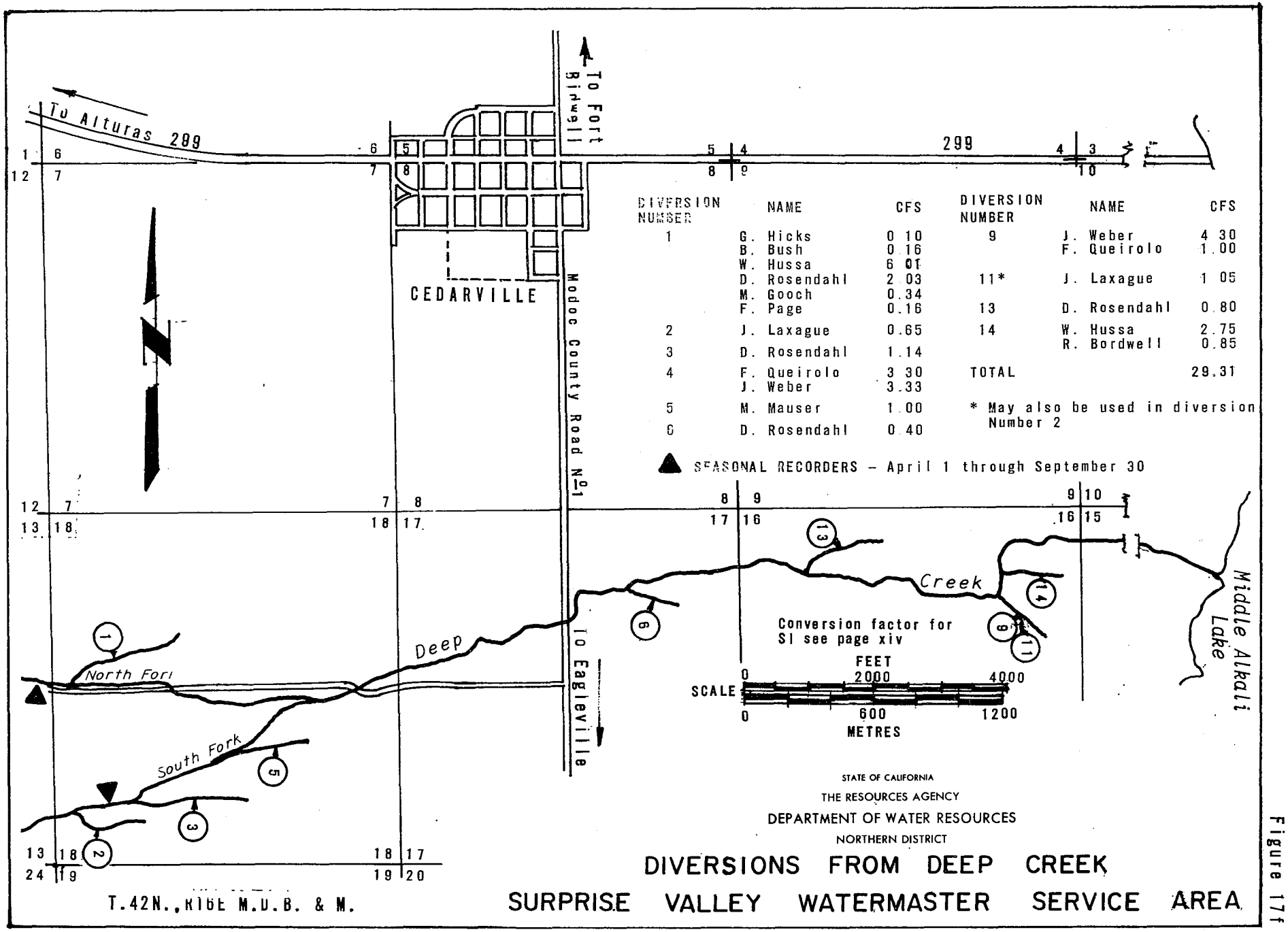
DIVERSIONS FROM CEDAR CREEK
SURPRISE VALLEY WATERMASTER SERVICE AREA



DIVERSION NUMBER	NAME	CFS	DIVERSION NUMBER	NAME	CFS
1	G. Hicks	0.10	9	J. Weber	4.30
	B. Bush	0.16		F. Queirolo	1.00
	W. Hussa	6.01			
	D. Rosendahl	2.03	11*	J. Laxague	1.05
	M. Gooch	0.34			
	F. Page	0.16	13	D. Rosendahl	0.80
2	J. Laxague	0.65	14	W. Hussa	2.75
3	D. Rosendahl	1.14		R. Bordwell	0.85
4	F. Queirolo	3.30	TOTAL		29.31
	J. Weber	3.33			
5	M. Mauser	1.00	* May also be used in diversion Number 2		
6	D. Rosendahl	0.40			

STATE OF CALIFORNIA
THE RESOURCES AGENCY
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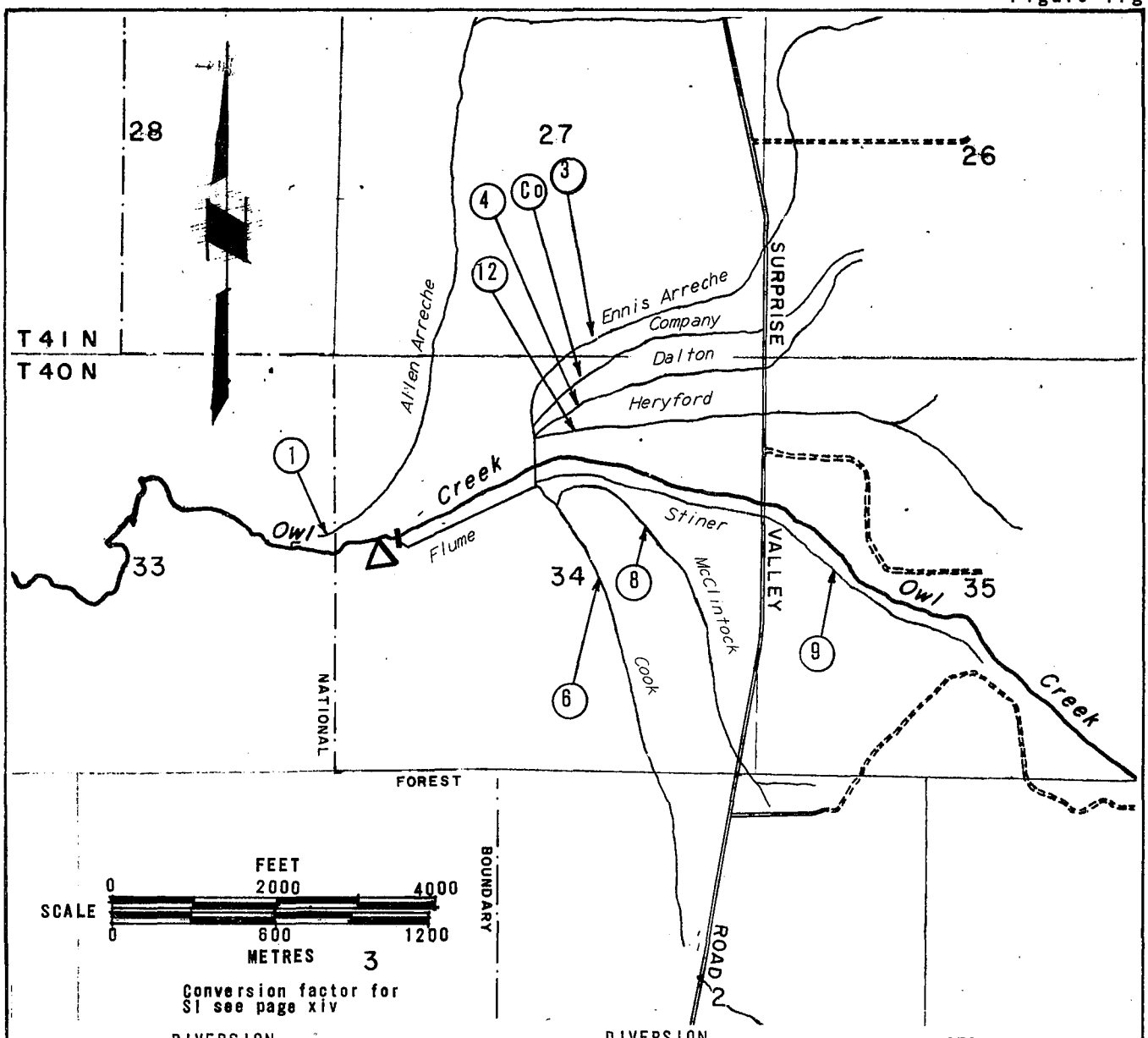
DIVERSIONS FROM DEEP CREEK SURPRISE VALLEY WATERMASTER SERVICE AREA

Figure 17f

Figure 17g



DIVERSION NUMBER	NAME	CFS	DIVERSION NUMBER	NAME	CFS
1	W. Cockrell	2.47	5	S. Stevenson	1.26
	J. Stevenson	1.81		J. Bandy	1.81
3	E. Davis	1.16		H. Stanley	0.99
	J. Stevenson	2.25	6 & 8	Cockrell's Inc.	17.62
			9	E. Berryessa	3.71
△ Watermaster Installed Recorder Station.			12	E. Berryessa	5.48
				TOTAL	41.70

STATE OF CALIFORNIA
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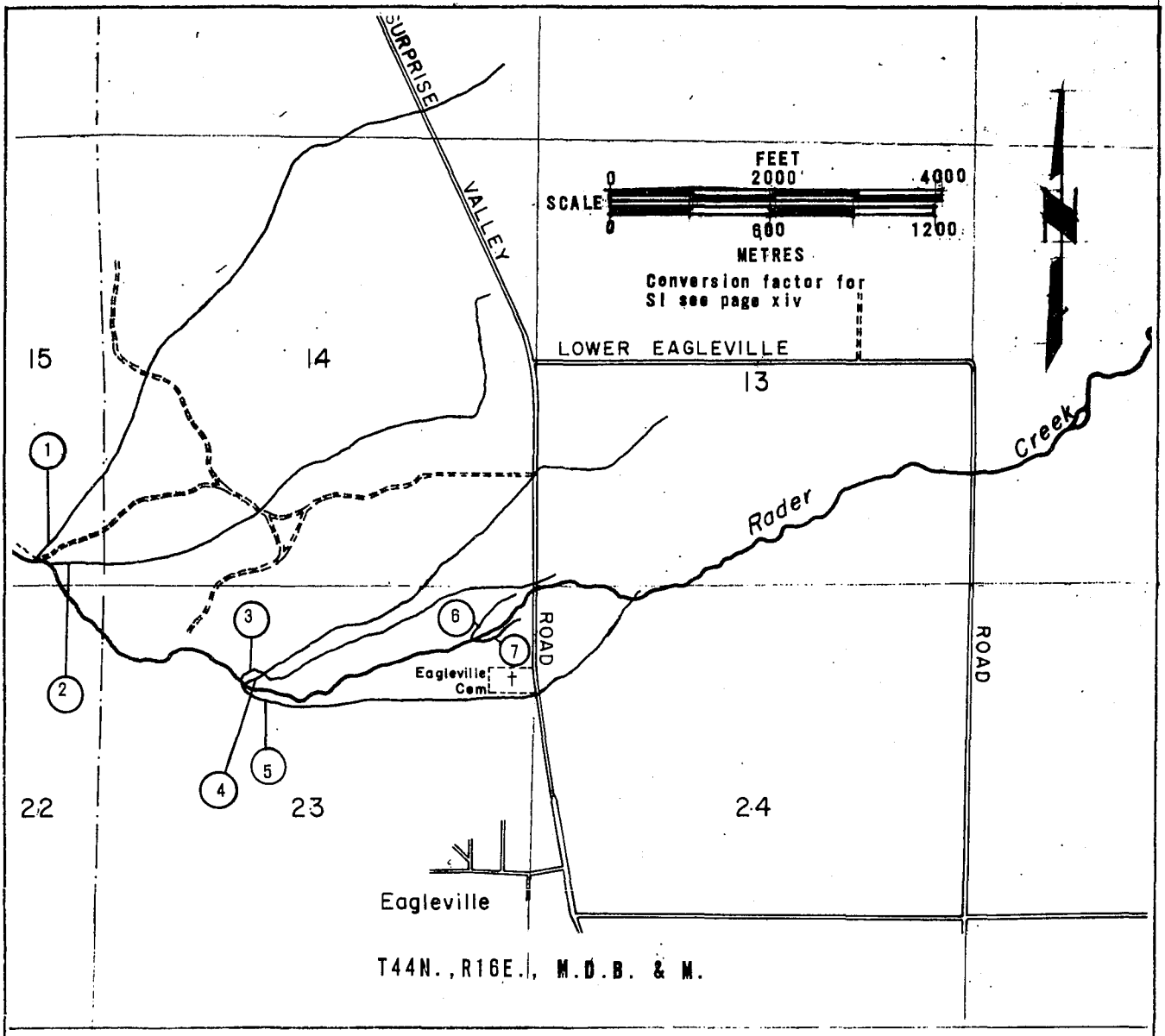
DIVERSIONS FROM OWL CREEK
SURPRISE VALLEY WATERMASTER SERVICE AREA

Figure 17h



DIVERSION NUMBER	NAME	CFS	DIVERSION NUMBER	NAME	CFS
1	L. Cockrell	1/7 of total flow from May 20, until water will not reach place of use.	4	White Pine Lumber Co	9.00
			5	White Pine Lumber Co	2.35
			6	C. Minnette	0.08
2	Lazy S.J. Ranch Inc	3.50	7	R. Reeves	0.08
3	K. Minto	2.39			TOTAL 21.00

STATE OF CALIFORNIA
THE RESOURCES AGENCY
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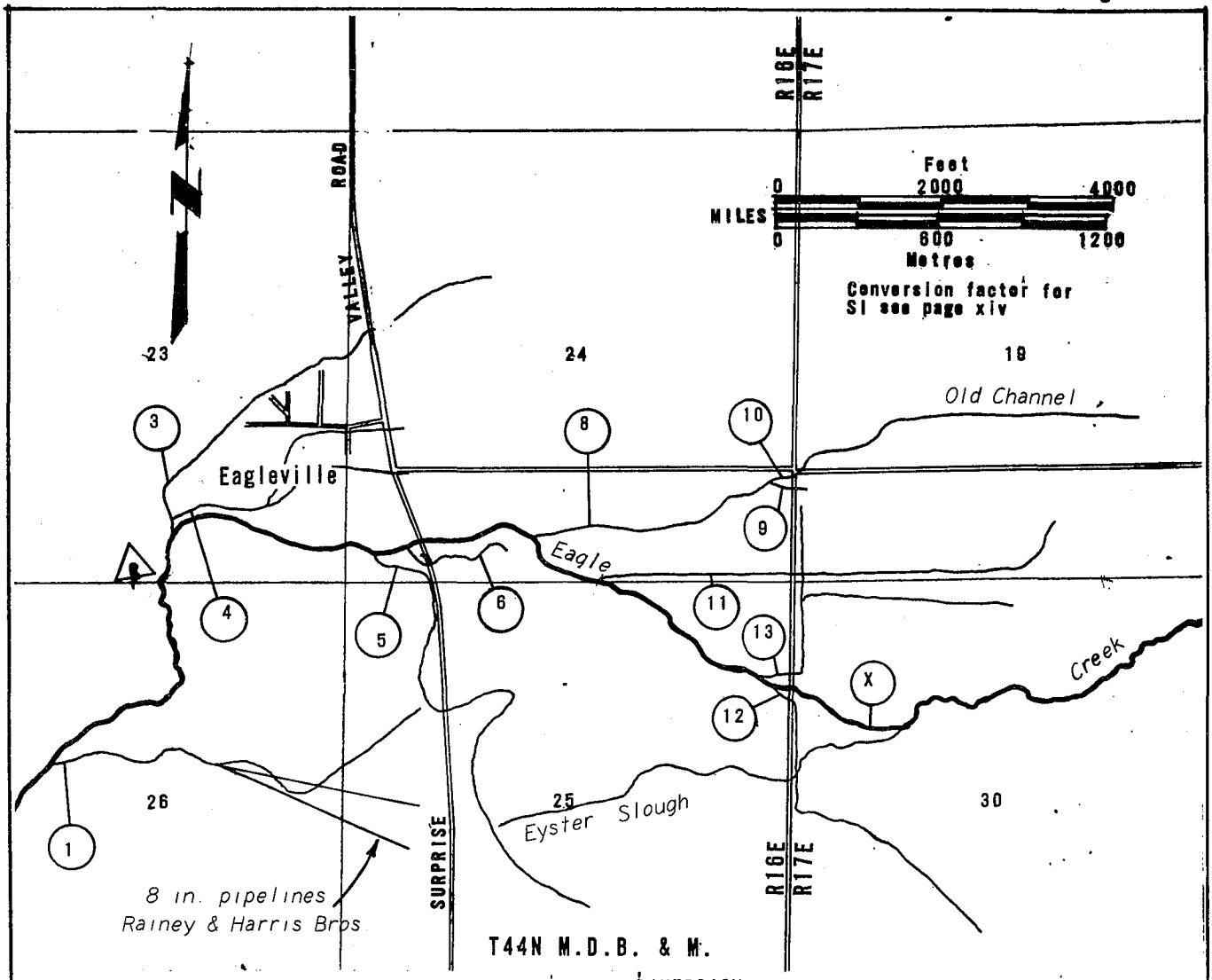
DIVERSIONS FROM RADER CREEK
SURPRISE VALLEY WATERMASTER SERVICE AREA

Figure 17i



DIVERSION NUMBER	NAME	CFS
1	Harris Brothers	0.41
	R. Morgan	0.36
	C. Rainey	0.51
3	13 Town Users	0.98
	White Pine Lumber Co	5.00
4	15 Town Users	1.36
	White Pine Lumber Co	1.20
5	Harris Brothers	0.50
6 & 8	White Pine Lumber Co	2.65
9	Lazy S J Ranch Inc	0.15

DIVERSION NUMBER	NAME	CFS
10	M. Stevenson	3.15*
11	White Pine Lumber Co	0.55
	Lazy S. J. Ranch Inc	1.95
	J. Grove	0.20
12	J. Grove	0.70
	M. Miura	1.20
13	J. Grove	2.00
X	Harris Brothers	6.70**

* (minus any water received from Prior collecting ditch)

**(any water over 0.7 cfs from Eyster Slough must be deducted from this)

STATE OF CALIFORNIA
THE RESOURCES AGENCY
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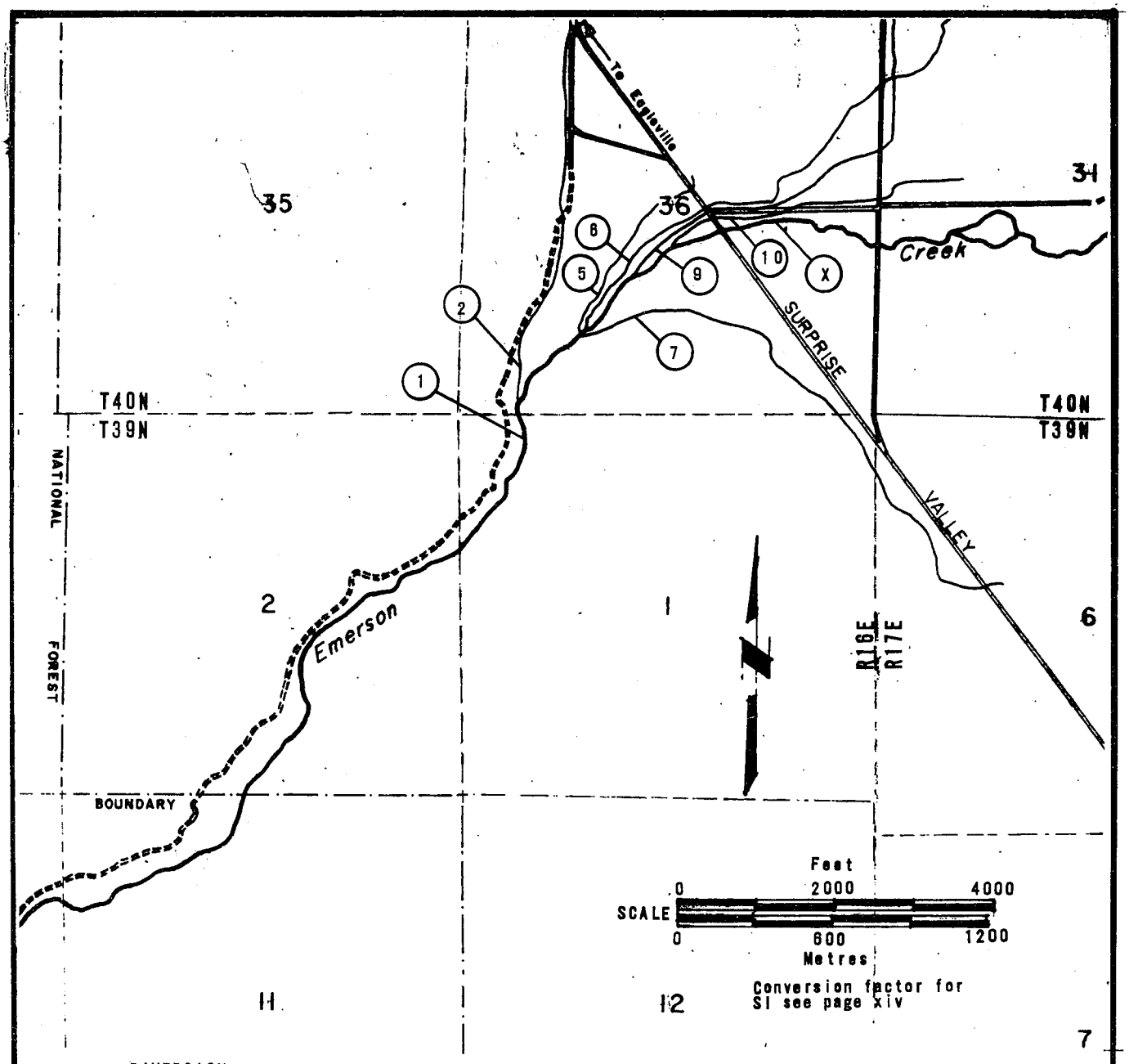
DIVERSIONS FROM EAGLE CREEK
SURPRISE VALLEY WATERMASTER SERVICE AREA

Figure 17



DIVERSION NUMBER	NAME	CFS	DIVERSION NUMBER	NAME	CFS
1	C. Maney	2.00	7	E. Berryessa	5.00
2	Harris Brothers	2.00	9	W. Warrens	1.60
	D. Romagnoli	0.20	10	J. Espil	1.80
5	J. Biconda	3.30	X	D. Grove	5.75
6	Lazy S J Ranch Inc	0.60			
	J. Miura	2.25			TOTAL 24.65

STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES
NORTHERN DISTRICT

DIVERSIONS FROM EMERSON CREEK
SURPRISE VALLEY WATERMASTER SERVICE AREA

SUSAN RIVER WATERMASTER SERVICE AREA

The Susan River service area is situated in southern Lassen County in the vicinity of Susanville. The primary area of water use is in Honey Lake Valley between Susanville and the northwest shore of Honey Lake, a distance of about 40 kilometres (25 miles). The valley floor is at an elevation of about 1 219 metres (4,000 feet). The source of supply is composed of three stream systems: the Susan River, Baxter Creek, and Parker Creek, with their respective tributaries.

The Susan River originates on the east slope of the Sierra Nevada immediately east of Lassen National Park at an elevation of about 2 408 m (7,900 feet). Its channel runs easterly from Silver Lake through McCoy Flat Reservoir, the town of Susanville, and then to Honey Lake.

The Susan River has four major tributaries: Piute Creek, entering from the north at Susanville; Gold Run and Lassen Creeks, entering from the south between Susanville and Johnstonville; and Willow Creek, entering from the north above Standish. Gold Run and Lassen Creeks rise on the north slope of Diamond Mountain at an elevation of about 2 316 m (7,600 feet). The watersheds of Piute and Willow Creeks are on the south slopes of Round Valley Mountain at lower elevations.

A short distance below its confluence with Willow Creek, the Susan River divides into three channels: Tanner Slough Channel on the north, Old Channel in the middle, and Dill Slough Channel on the south. Hartson Slough and Whitehead Slough divert from Dill Slough on its south bank farther downstream.

The Baxter Creek stream system is in Honey Lake Valley on the east slope of the Sierra Nevada, about 16 kilometres (10 miles) southeast of Susanville. The principal creeks in the system are: Baxter Creek, which rises in the extreme western portion of the basin and flows in an easterly direction, and Elesian, Sloss, and Bankhead Creeks, tributaries of Baxter Creek from the south.

Parker Creek is also in Honey Lake Valley on the east slope of the Sierra Nevada, about 24 km (15 miles) southeast of Susanville. It rises on the east slope of Diamond Mountain and flows in an easterly direction for about 8 km (5 miles) into Honey Lake.

Maps of the Susan River service area, showing the stream systems, diversions, etc., are presented as Figures 18 through 18f, pages 169 through 177.

Basis of Service

The waters of Susan River and its tributaries are distributed in accordance with the water rights defined in Decree No. 4573, Lassen County Superior Court, entered on April 18, 1940. Schedule 3 of the decree defines the rights to the use of water from Willow Creek in Willow Creek Valley, Lower Willow Creek, and the Susan River delta below the Colony Dam. Schedule 4 of the decree defines the rights to the use of water from Gold Run, Piute, Hills, Holtzclaw, and Lassen Creeks above their confluence with the Susan River. Schedules 5 and 6 of the decree define the rights to the use of water from the Susan River exclusive of its tributaries. The decree establishes three priority classes each on Susan River and Gold Run Creek, two on Willow Creek, and one each on Piute and Hills Creeks.

The water of Baxter Creek and its tributaries is distributed in accordance with the water rights defined in the statutory adjudication as set forth in Decree No. 8174, Lassen County Superior Court, dated December 15, 1955. Schedule 3 of the decree defines the rights to the use of water from Sloss and Bankhead Creeks and Schedule 4 the rights to the use of water from Baxter and Elesian Creeks. The

Baxter Creek rights are divided into five priority classes.

The water of Parker Creek and its tributaries is distributed in accordance with the water rights defined by a statutory adjudication as set forth in Decree No. 8175, Lassen County Superior Court, dated December 15, 1955. Schedule 3 of the decree defines the rights to the use of water from Parker Creek, with four priority classes.

The Susan River watermaster service area was created by order of the Division of Water Resources on November 10, 1941. The Baxter and Parker Creek stream systems were added to the Susan River service area on February 16, 1956.

Water Supply

The water supply in the Susan River service area is obtained from two major sources, snowmelt runoff and springs. Snowpack on the Willow Creek Valley and Piute Creek watersheds, which embrace more than one-half of the Susan River stream system, melts early in the spring and is usually depleted by May 1. Irrigation requirements from this portion of the stream system are then almost entirely dependent on the flow of springs that are relatively constant throughout the year.

Under average flow conditions, Lassen, Gold Run, Baxter, and Parker Creeks and the Susan River above Susanville are sustained by snowmelt runoff until early June. The flow from perennial springs in this portion of the system is comparatively small.

The Lassen Irrigation Company stores supplemental water in Hog Flat and McCoy Flat Reservoirs, on the headwaters of the Susan River. This stored water is released into the Susan River Channel and commingled with the natural flow, usually during June and July. It is then rediverted into Lake Leavitt for further distribution by the irrigation company.

Records of daily mean discharge of the several stream gaging stations in the service area are presented in Tables 54 through 58, pages 166 through 168.

Method of Distribution

Irrigation in the Susan River service area is accomplished by placing dams in the main channels, thus raising the water level for subsequent diversion into canals and ditches. These diversion dams are relatively large on the Susan River Channel and generally much smaller on the various creeks. Wild flooding is the most common method of irrigation in practice. Portions of the irrigated lands have been leveled, permitting a more efficient use of water by using border checks and furrows. Subirrigation occurs in some areas incidental to surface irrigation or as a result of seepage from ditches and creek channels.

The Lassen Irrigation Company is allowed to use its three reservoirs, McCoy Flat, Hog Flat and Lake Leavitt, to store water as follows: (a) between March 1 and July 1 when the flow in the river just above its confluence with Willow Creek is more than 566 litres per second (20 cubic feet per second), and (b) at all other times when the flow at the same point is 142 l/s (5 cubic feet per second) in spite of the allotments outlined in Schedules 3, 6, and users of third priority class in Schedule 5 of the Susan River decree.

1976 Distribution

Watermaster service began in the Susan River service area on March 1 and continued until October 2, including construction work, with Virgil Buechler, Water Resources Technician II, as watermaster.

The available water supply throughout the service area was far below average. The total precipitation for the Honey Lake Valley area July 1975 to June 1976 averaged 108 millimetres (4.26 inches). The surrounding mountains had very little snowpack. The Susan River runoff into McCoy Flat Reservoir was only 1.42 cubic hectometres (1,150 acre-feet).

The ranchers in the area reported about 50 percent of normal hay crops. The irrigated pasture and range land had poor growth, forcing some ranchers to sell their entire cattle herds.

Parker Creek. First priority water rights were served for a short period this spring and then the creek dried up entirely.

Baxter Creek. Baxter Creek runoff was extremely low, supplying only first priority for a very short time. On April 15, the earliest day of record, the entire creek flow of 28 l/s (1 cfs) at Diversion #75 was diverted into the Long Ditch as provided in the decree for stockwater. Stockwater was difficult to maintain for the balance of the season.

Lassen-Holtzclaw Creeks. The flows to the Tangeman Ranch, which has first priority, never exceeded the upper user's 113 l/s (4 cfs), so no regulation was required.

Hills Creek. Water reached the automatic divide, Diversion #220, for a short period in the spring, providing very little storage in the Emerson Reservoir. The creek dried up early in the summer.

Gold Run Creek. The flows started out at 113 l/s (4 cfs) in March and gradually increased to a peak of 510 l/s (18 cfs) on April 24. The flow then receded gradually to first priority of 37 l/s (1.30 cfs) on June 15, and then fluctuated between 42 l/s and 21 l/s (1.5 and 0.75 cfs) for the remainder of the season.

Piute Creek. The available water supply, which is spring fed, was sufficient to satisfy all allotments during the year.

Willow Creek. The flow in Willow Creek was sufficient to supply all allotments throughout the season. Eagle Lake level was high due to previous wet years which forced the springs tributary to Willow Creek to increase.

Susan River. There was an insufficient water supply in the Susan River to fill any of the allotments of Schedule 6 or third priority of Schedule 5. The daily mean flows were: January, 453 l/s (16.0 cfs); February, 699 l/s (24.7 cfs); March 1 214 l/s (42.9 cfs) (63 percent of second priority of Schedule 5). The flows then gradually decreased to 142 l/s (5 cfs) on June 15, which supplied only first priority water rights for the remainder of the season.

Lassen Irrigation Company Reservoirs. The Susan River decree allows the Lassen Irrigation Company's McCoy Flat and Lake Leavitt Reservoirs to store surplus water during the winter and spring months. Once filled, or when a shortage occurs among downstream water right owners, the natural flow in the Susan River above McCoy Flat Reservoir must be released.

The storage elevation of these reservoirs did not increase a tenth of a foot. The total inflow of 1.42 hm^3 (1,150 acre-feet) was used in evaporation and seepage loss. The carryover of the 30 percent of the capacity was released during the period April 4 through May 11, when the storage was depleted. A total of 3.78 hm^3 (3,065 acre-feet) was delivered to Lake Leavitt during the season. This, along with Lake Leavitt's carryover storage, lasted until June 15, providing one irrigation to the Lassen Irrigation District shareholders.

Lower Susan River. Schedule 3 averaged 481 l/s (17 cfs) the entire season, which satisfied all of the first and second priorities. Most of this water was supplied by excess flows in Willow Creek.

Special Occurrences

A trial watermaster distribution of the new decree of Willow Ranch Creek at Doyle was initiated. A 229 millimetre (9-inch) Parshall with a recorder was installed at the lower diversion, and a weir with recorder was installed at the lower

diversion, and a weir with recorder was installed above the upper diversions. At the end of summer the users and watermaster agreed that watermaster service was not needed at this time.

A concrete automatic divide weir was installed on the Beckett-Bradshaw division off of the A & B Canal.

A 2.44 m (8-foot) concrete Parshall with recorder was installed in the Lassen Irrigation District's A & B Canal into Lake Leavitt.

Litigation was started by Lassen Irrigation District against Robert Beckett to obtain a right-of-way to maintain the A & B Canal and Beckett's diversion.

A recorder station was installed on the Susan River above McCoy Reservoir.

A recorder station was installed on Baxter Creek at the Long Ditch.

SUSAN RIVER WATERMASTER SERVICE AREA
1976 Daily Mean Discharge

TABLE 54

SUSAN RIVER AT SUSANVILLE

Day	March		April		May		June		July		August		September		Day
	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	
1	2120	75	1020	36	4560	161	238	8.4	136	4.8	190	6.7	136	4.8	1
2	1440	51	906	32	4470	158	246	8.7	144	5.1	167	5.9	130	4.6	2
3	1250	44	850	30	4360	154	229	8.1	150	5.3	159	5.6	125	4.4	3
4	1080	38	878	31	4250	150	207	7.3	153	5.4	136	4.8	133	4.7	4
5	991	35	1330	47	4130	146	184	6.5	153	5.4	133	4.7	133	4.7	5
6	935	33	1440	51	3990	141	181	6.4	133	4.7	125	4.4	119	4.2	6
7	935	33	1440	51	3910	138	212	7.5	130	4.6	136	4.8	119	4.2	7
8	1190	42	1560	55	3770	133	207	7.3	110	3.9	133	4.7	119	4.2	8
9	1250	44	1500	53	3570	126	227	8.0	108	3.8	130	4.6	122	4.3	9
10	1250	44	1440	51	3230	114	269	9.5	110	3.9	130	4.6	125	4.4	10
11	1250	44	1730	61	2210	78	368	13	108	3.8	130	4.6	150	5.3	11
12	1050	37	1760	62	1220	43	263	9.3	119	4.2	136	4.8	142	5.0	12
13	963	34	1670	59	991	35	227	8.0	122	4.3	125	4.4	150	5.3	13
14	1020	36	1590	56	821	29	193	6.8	119	4.2	181	6.4	144	5.1	14
15	1160	41	1590	56	736	26	150	5.3	119	4.2	210	7.4	201	7.1	15
16	1300	46	1470	52	623	22	159	5.6	119	4.2	201	7.1	227	8.0	16
17	1640	58	1420	50	538	19	147	5.2	130	4.6	187	6.6	215	7.6	17
18	1760	62	1360	48	510	18	173	6.1	122	4.3	210	7.4	210	7.4	18
19	1390	49	1300	46	453	16	144	5.1	133	4.7	244	8.6	207	7.3	19
20	1190	42	1330	47	368	13	130	4.6	150	5.3	215	7.6	195	6.9	20
21	1160	41	1330	47	368	13	130	4.6	90	3.2	164	5.8	190	6.7	21
22	1190	42	1220	43	368	13	139	4.9	110	3.9	144	5.1	195	6.9	22
23	1250	44	1190	42	368	13	142	5.0	113	4.0	164	5.8	187	6.6	23
24	1330	47	1300	46	396	14	142	5.0	119	4.2	176	6.2	173	6.1	24
25	1270	45	1250	44	396	14	139	4.9	110	3.9	176	6.2	207	7.3	25
26	1130	40	3090	109	312	11	139	4.9	105	3.7	167	5.9	210	7.4	26
27	1080	38	4050	143	246	8.7	142	5.0	102	3.6	144	5.1	207	7.3	27
28	1020	36	4560	161	244	8.6	144	5.1	113	4.0	144	5.1	195	6.9	28
29	1020	36	4560	161	232	8.2	144	5.1	122	4.3	130	4.6	207	7.3	29
30	991	35	4530	160	221	7.8	136	4.8	130	4.6	136	4.8	210	7.4	30
31	1050	37			238	8.4			125	4.4	133	4.7			31
Mean	1210	42.9	1820	64.3	1680	59.3	185	6.5	123	4.3	160	5.6	169	6.0	Mean
Volume															Volume
hm	3.250		4.720		4.500		.480		.330		.430		.440		hm
AF	2640		3830		3650		389		267		347		356		AF

SUSAN RIVER WATERMASTER SERVICE AREA
1976 Daily Mean Discharge

TABLE 55

GOLD RUN CREEK NEAR SUSANVILLE

Day	April		May		June		July		August		September		Day
	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	
1	99	3.5	340	12	93	3.3	56	2.0	14	0.5	39	1.4	1
2	93	3.3	340	12	93	3.3	39	1.4	14	0.5	39	1.4	2
3	116	4.1	312	11	85	3.0	36	1.3	17	0.6	39	1.4	3
4	184	6.5	312	11	85	3.0	36	1.3	17	0.6	39	1.4	4
5	221	7.8	312	11	56	2.0	34	1.2	17	0.6	39	1.4	5
6	156	5.5	312	11	56	2.0	34	1.2	17	0.6	39	1.4	6
7	142	5.0	283	10	51	1.8	31	1.1	17	0.6	39	1.4	7
8	116	4.1	312	11	85	3.0	31	1.1	17	0.6	39	1.4	8
9	116	4.1	312	11	105	3.7	28	1.0	17	0.6	39	1.4	9
10	147	5.2	312	11	193	6.8	28	1.0	17	0.6	39	1.4	10
11	147	5.2	255	9.0	102	3.6	25	0.9	17	0.6	39	1.4	11
12	147	5.2	241	8.5	85	3.0	22	0.8	18	0.6	39	1.4	12
13	113	4.0	241	8.5	82	2.9	19	0.7	25	0.9	39	1.4	13
14	116	4.1	241	8.5	79	2.8	17	0.6	45	1.6	39	1.4	14
15	156	5.5	241	8.5	76	2.7	17	0.6	53	1.9	39	1.4	15
16	116	4.1	241	8.5	73	2.6	17	0.6	45	1.6	39	1.4	16
17	99	3.5	241	8.5	70	2.5	17	0.6	42	1.5	39	1.4	17
18	99	3.5	241	8.5	68	2.4	17	0.6	48	1.7	39	1.4	18
19	181	6.4	241	8.5	65	2.3	17	0.6	45	1.6	39	1.4	19
20	255	9.0	238	8.4	59	2.1	17	0.6	42	1.5	39	1.4	20
21	312	11	227	8.0	56	2.0	17	0.6	42	1.5	39	1.4	21
22	312	11	227	8.0	53	1.9	17	0.6	42	1.5	39	1.4	22
23	368	13	198	7.0	51	1.8	17	0.6	42	1.5	39	1.4	23
24	510	18	170	6.0	48	1.7	17	0.6	42	1.5	39	1.4	24
25	453	16	142	5.0	45	1.6	17	0.6	42	1.5	39	1.4	25
26	312	11	113	4.0	42	1.5	17	0.6	42	1.5	39	1.4	26
27	255	9.0	113	4.0	39	1.4	17	0.6	42	1.5	39	1.4	27
28	238	8.4	102	3.6	36	1.3	17	0.6	42	1.5	39	1.4	28
29	184	6.5	99	3.5	34	1.2	17	0.6	42	1.5	39	1.4	29
30	241	8.5	96	3.4	34	1.2	14	0.5	42	1.5			30
31			96	3.4					42	1.5			31
Mean	200	7.1	231	8.1	71.4	2.5	22.9	.8	32.8	1.2	38.3	1.4	Mean
Volume													Volume
hm	.520		.620		.183		.060		.090		.100		hm
AF		420		501		148		49.8		71.1		80.4	AF

TABLE 56

SUSAN RIVER BELOW JOHNSTONVILLE BRIDGE

Day	April		May		June		July		August		September		Day
	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	
1	765	27	595	21	85	3.0	1220	43	21	0.7	56	2.0	1
2	765	27	595	21	56	2.0	566	20	21	0.7	56	2.0	2
3	765	27	623	22	28	1.0	85	3.0	21	0.7	56	2.0	3
4	736	26	623	22	14	0.5	21	0.7	21	0.7	56	2.0	4
5	765	27	595	21	14	0.5	623	22	21	0.7	56	2.0	5
6	821	29	595	21	14	0.5	28	1.0	21	0.7	56	2.0	6
7	878	31	651	23	14	0.5	14	0.5	21	0.7	56	2.0	7
8	765	27	595	21	14	0.5	7.0	0.2	21	0.7	56	2.0	8
9	765	27	623	22	14	0.5	7.0	0.2	21	0.7	56	2.0	9
10	708	25	595	21	14	0.5	7.0	0.2	21	0.7	56	2.0	10
11	878	31	595	21	14	0.5	7.0	0.2	21	0.7	56	2.0	11
12	935	33	566	20	14	0.5	7.0	0.2	21	0.7	56	2.0	12
13	765	27	481	17	14	0.5	7.0	0.2	21	0.7	56	2.0	13
14	680	24	142	5.0	14	0.5	7.0	0.2	28	1.0	56	2.0	14
15	736	26	142	5.0	14	0.5	7.0	0.2	56	2.0	56	2.0	15
16	680	24	142	5.0	14	0.5	7.0	0.2	56	2.0	56	2.0	16
17	680	24	142	5.0	14	0.5	7.0	0.2	56	2.0	56	2.0	17
18	680	24	142	5.0	14	0.5	7.0	0.2	56	2.0	56	2.0	18
19	651	23	142	5.0	21	0.7	113	4.0	56	2.0	56	2.0	19
20	708	25	142	5.0	56	2.0	21	0.7	56	2.0	56	2.0	20
21	765	27	142	5.0	85	3.0	21	0.7	56	2.0	56	2.0	21
22	708	25	142	5.0	85	3.0	21	0.7	56	2.0	56	2.0	22
23	680	24	142	5.0	283	10	21	0.7	56	2.0	56	2.0	23
24	651	23	142	5.0	906	32	21	0.7	56	2.0	56	2.0	24
25	680	24	113	4.0	821	29	21	0.7	56	2.0	56	2.0	25
26	651	23	113	4.0	651	23	21	0.7	56	2.0	56	2.0	26
27	850	30	113	4.0	765	27	21	0.7	56	2.0	56	2.0	27
28	850	30	113	4.0	425	15	21	0.7	56	2.0	56	2.0	28
29	765	27	85	3.0	142	5.0	21	0.7	56	2.0	56	2.0	29
30	680	24	85	3.0	85	3.0	21	0.7	56	2.0	56	2.0	30
31			85	3.0			21	0.7	56	2.0			31
Mean	747	26.4	322	11.4	157	5.5	96.9	3.4	40.8	1.4	56.6	2.0	Mean
Volume													Volume
hm	1.940		.863		.410		.260		.110		.150		hm
AF		1570		700		330		210		88.6		119	AF

SUSAN RIVER WATERMASTER SERVICE AREA
1976 Daily Mean Discharge

TABLE 57

WILLOW CREEK NEAR SUSANVILLE

Day	March		April		May		June		July		August		September		Day
	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	
1	963	34	538	19	510	18	312	11	283	10	340	12	368	13	1
2	1100	39	453	16	481	17	312	11	283	10	312	11	368	13	2
3	1050	37	510	18	481	17	312	11	283	10	340	12	340	12	3
4	1050	37	481	17	453	16	312	11	283	10	368	13	368	13	4
5	1020	36	425	15	425	15	312	11	283	10	368	13	368	13	5
6	1050	37	425	15	425	15	312	11	283	10	368	13	368	13	6
7	1100	39	396	14	396	14	283	10	283	10	340	12	396	14	7
8	1100	39	396	14	425	15	283	10	283	10	368	13	396	14	8
9	1080	38	425	15	453	16	312	11	312	11	368	13	368	13	9
10	1050	37	481	17	453	16	312	11	283	10	340	12	368	13	10
11	708	25	566	20	453	16	283	10	283	10	340	12	396	14	11
12	538	19	595	21	425	15	312	11	283	10	312	11	396	14	12
13	510	18	595	21	396	14	312	11	283	10	312	11	425	15	13
14	510	18	481	17	368	13	312	11	283	10	312	11	566	20	14
15	623	22	425	15	368	13	340	12	283	10	312	11	906	32	15
16	821	29	425	15	340	12	368	13	312	11	312	11	1020	36	16
17	793	28	481	17	340	12	368	13	312	11	312	11	1050	37	17
18	878	31	566	20	340	12	368	13	340	12	312	11	1050	37	18
19	1080	38	566	20	340	12	340	12	312	11	368	13	1020	36	19
20	1080	38	595	21	340	12	340	12	312	11	368	13	991	35	20
21	1080	38	538	19	340	12	340	12	312	11	368	13	963	34	21
22	1020	36	510	18	312	11	312	11	312	11	425	15	935	33	22
23	991	35	453	16	312	11	312	11	312	11	453	16	935	33	23
24	963	34	425	15	312	11	312	11	312	11	481	17	935	33	24
25	963	34	481	17	312	11	283	10	312	11	481	17	878	31	25
26	963	34	510	18	340	12	312	11	312	11	481	17	793	28	26
27	963	34	566	20	312	11	312	11	312	11	538	19	850	30	27
28	906	32	538	19	340	12	312	11	312	11	623	22	906	32	28
29	481	17	510	18	340	12	283	10	312	11	510	18	906	32	29
30	453	16	510	18	340	12	283	10	312	11	453	16	878	31	30
31	510	18			340	12			312	11	396	14			31
Mean	884	31.2	496	17.5	381	13.5	316	11.1	300	10.6	386	13.6	684	24.1	Mean
Volume															Volume
hm	2.370		1.280		1.020		.820		.800		1.040		1.770		hm
AF		1920		1040		827		663		651		839		1440	AF

TABLE 58

OPERATION OF McCOY AND HOG FLAT RESERVOIRS

Day	McCoy Flat Res. Inflow from Susan River				McCoy Flat Res. Releases to Susan River				Hog Flat Res. Releases to Susan River		Transfer of Lassen Irrig. Dist. Water from McCoy Flat and Hog Flat Res. to Lake Leavitt				Day
	April		May		April		May		April		April		May		
	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	l/s	cfs	
1			538	19			3430	121					3120	110	1
2			708	25			3340	118					3120	110	2
3			708	25			3230	114					3120	110	3
4	198	7.0[1]	708	25			3120	110	227	8.0[3]			2950	104	4
5	201	7.1	708	25			3060	108	453	16			2830	100	5
6	204	7.2	736	26			2970	105	453	16			2750	97	6
7	207	7.3	651	23			2890	102	453	16			2610	92	7
8	212	7.5	566	20			2750	97	425	15			2350	83	8
9	215	7.6	566	20			2580	91	396	14			2270	80	9
10	221	7.8	566	20			2040	72	510	18			2100	74	10
11	198	7.0	481	17			708	25[2]	680	24			1700	60	11
12	176	6.2	368	13					595	21			651	23[5]	12
13	156	5.5	283	10					538	19					13
14	198	7.0	227	8.0					481	17					14
15	176	6.2	201	7.1					425	15					15
16	56	2.0	142	5.0					396	14					16
17	79	2.8	42	1.5					340	12					17
18	99	3.5	34	1.2					340	12					18
19	176	6.2	28	1.0[2]					340	12					19
20	249	8.8							312	11					20
21	283	10							14	0.5					21
22	283	10							14	0.5					22
23	312	11							28	1.0					23
24	425	15			425	15[1]			28	1.0					24
25	708	25			2950	104			28	1.0	1640	58[3]			25
26	566	20			2950	104			56	2.0	1930	68			26
27	481	17			3310	117			56	2.0	2320	82			27
28	481	17			3650	129			42	1.5[4]	2580	91			28
29	453	16			3600	127			28	1.0	2890	102			29
30	425	15			3480	123					2950	104			30
31															31
Mean	275	9.7	435	15.4	2909	103	2738	96.6	295	10.4	2385	84.2	2464	86.9	Mean
Volume															Volume
hm	.640		.710		1.760		2.600		.660		1.240		2.550		hm
AF		522		578		1430		2110		536		1000		2070	AF

1/ Beginning of Record
2/ End of Record
3/ Beginning of Releases
4/ End of Releases
5/ End of Flow

Figure 18

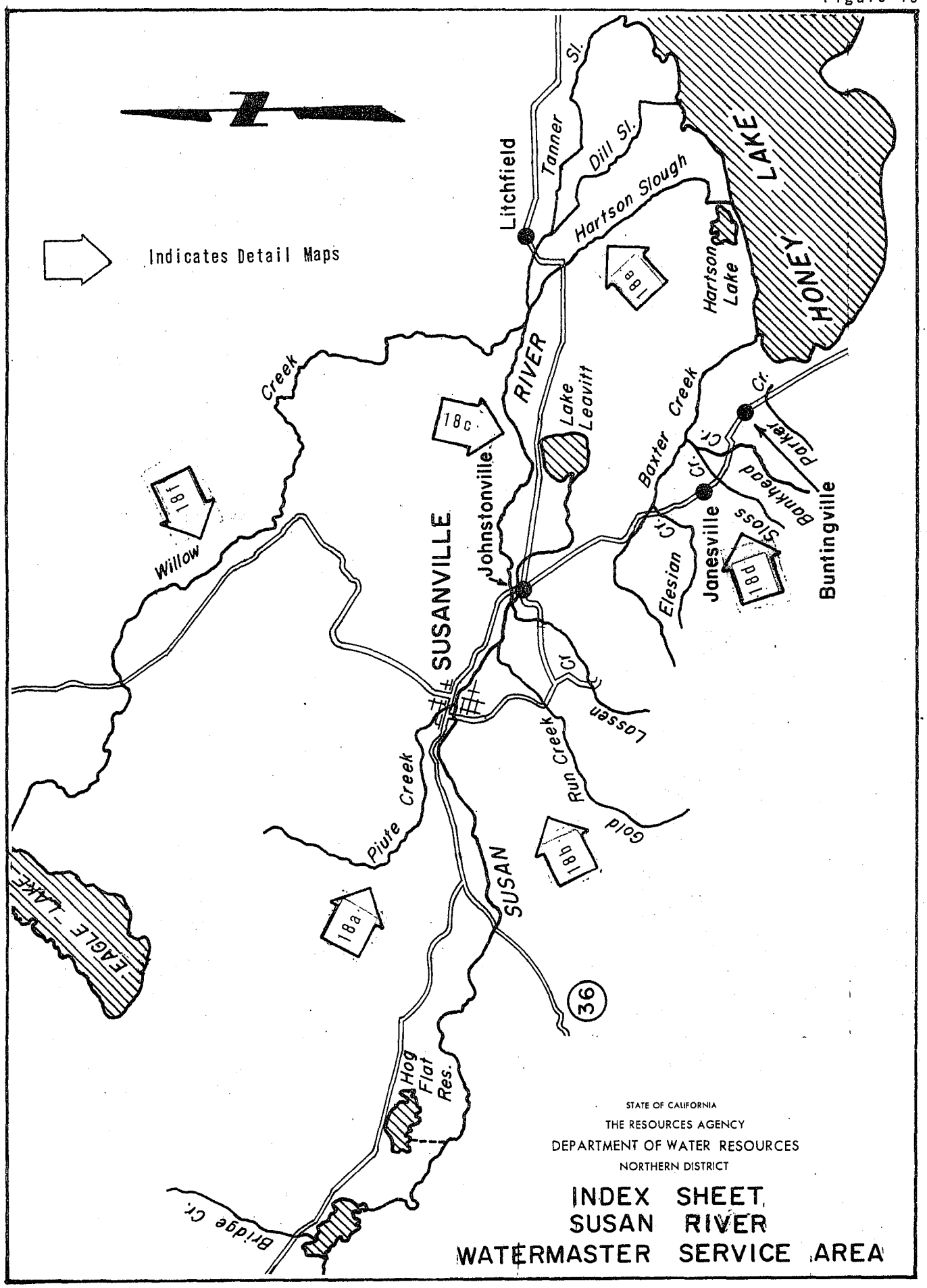
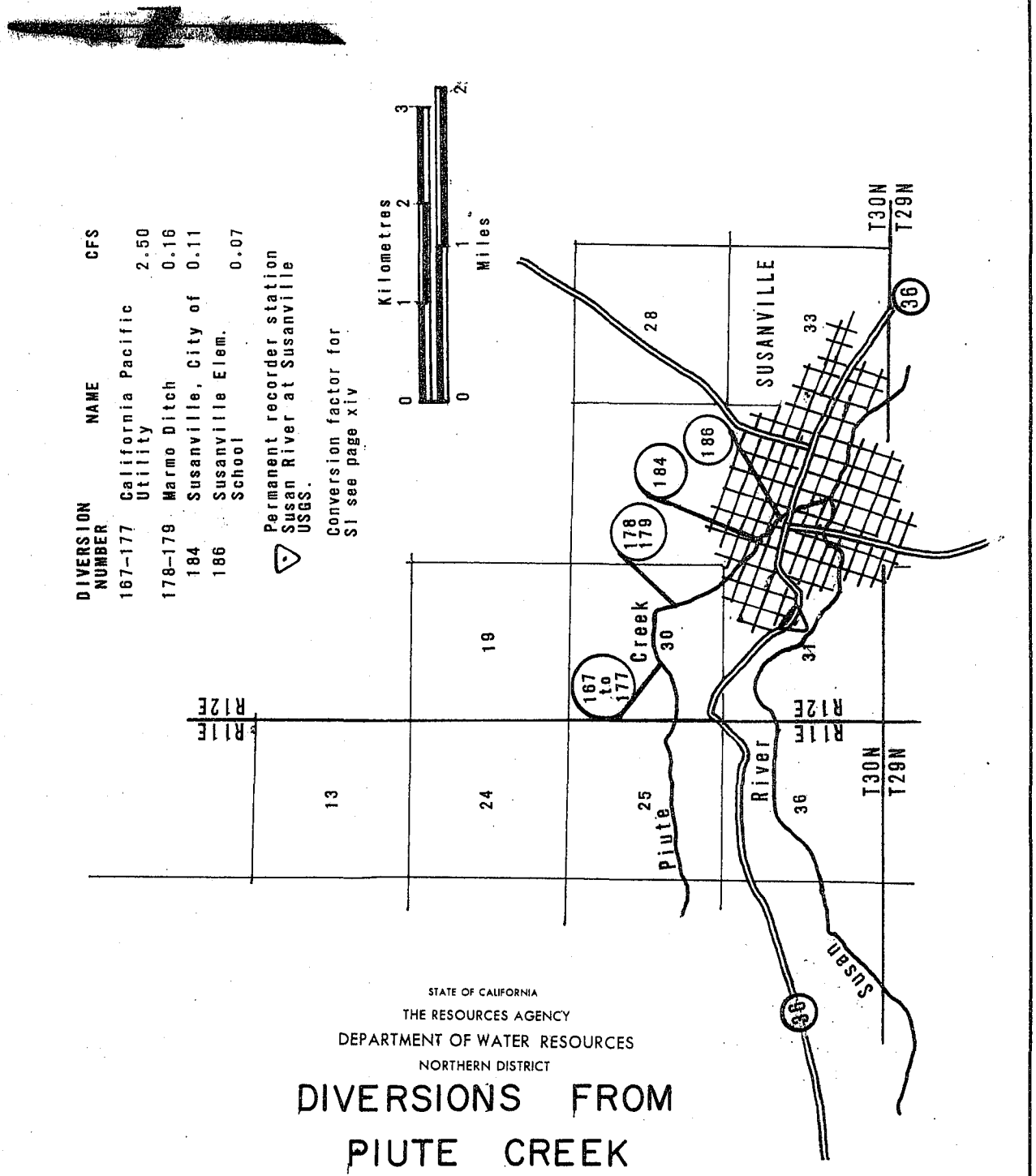

Indicates Detail Maps
Litchfield
Tanner
Dill Sl.
Hartson Slough
LAKE
HONEY
Hartson Lake
18b
Creek
18c
RIVER
Lake Leavitt
Baxter Creek
Cr.
Cr.
Parker
Bonkhead
Sloss
Buntingville
Willow
18f
Johnstonville
SUSANVILLE
Cr.
Elesian
Janesville
18d
Cr.
Lassen
Run Creek
Gold
Piute Creek
18b
SUSAN
18a
EAGLE LAKE
36
Hog Flat Res.
Bridge Cr.
STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES
NORTHERN DISTRICT
INDEX SHEET
SUSAN RIVER
WATERMASTER SERVICE AREA

Figure 18a



STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES
NORTHERN DISTRICT

DIVERSIONS FROM PIUTE CREEK SUSAN RIVER WATERMASTER SERVICE AREA

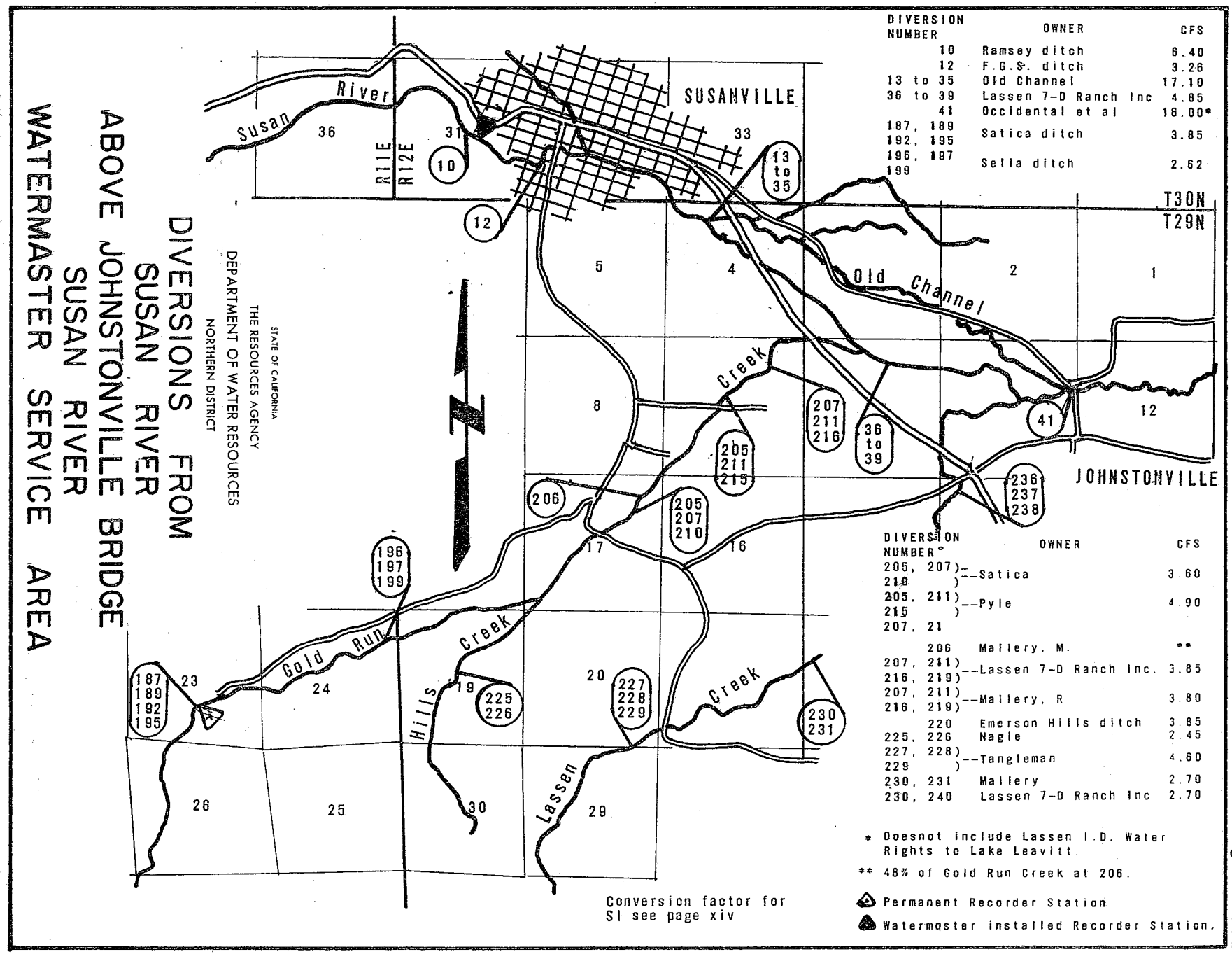
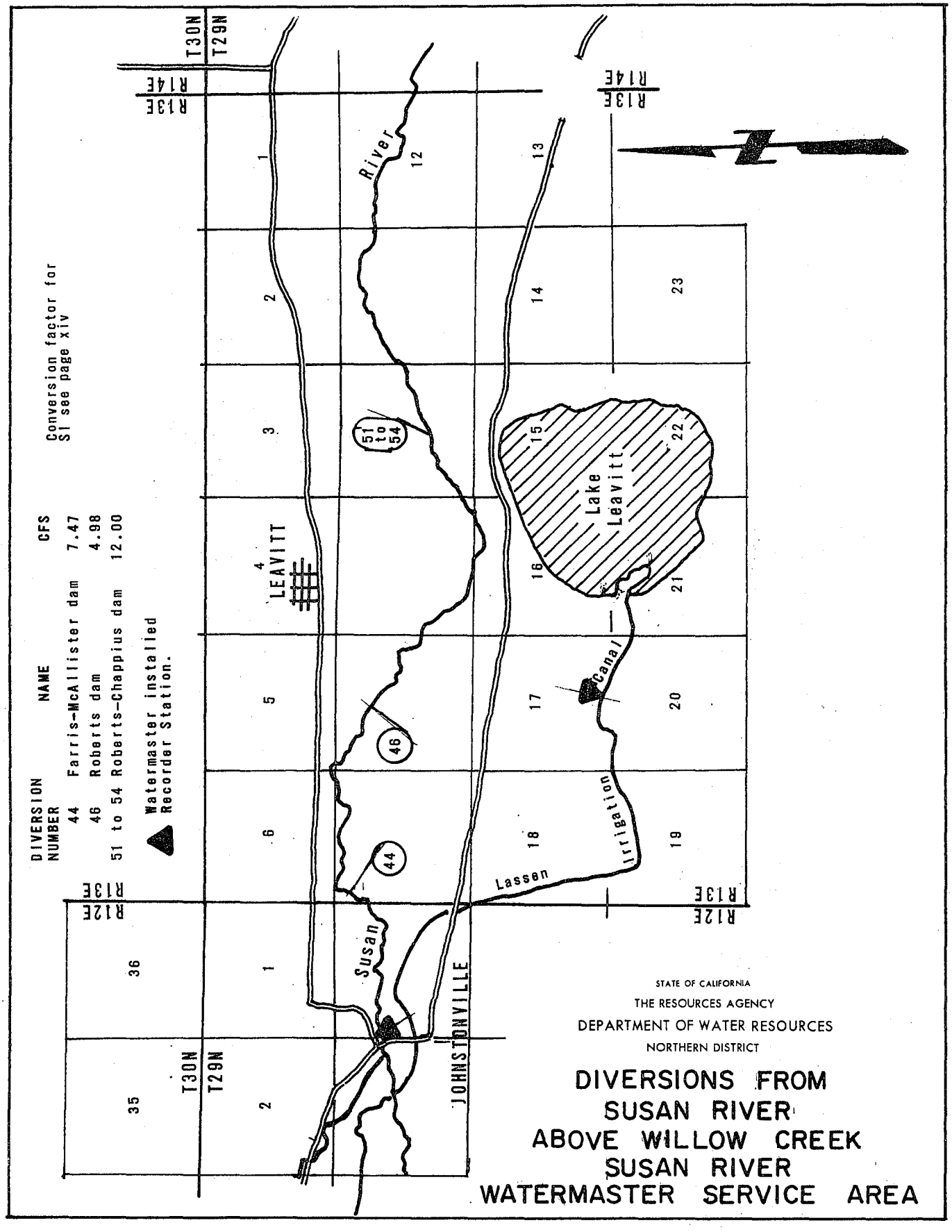
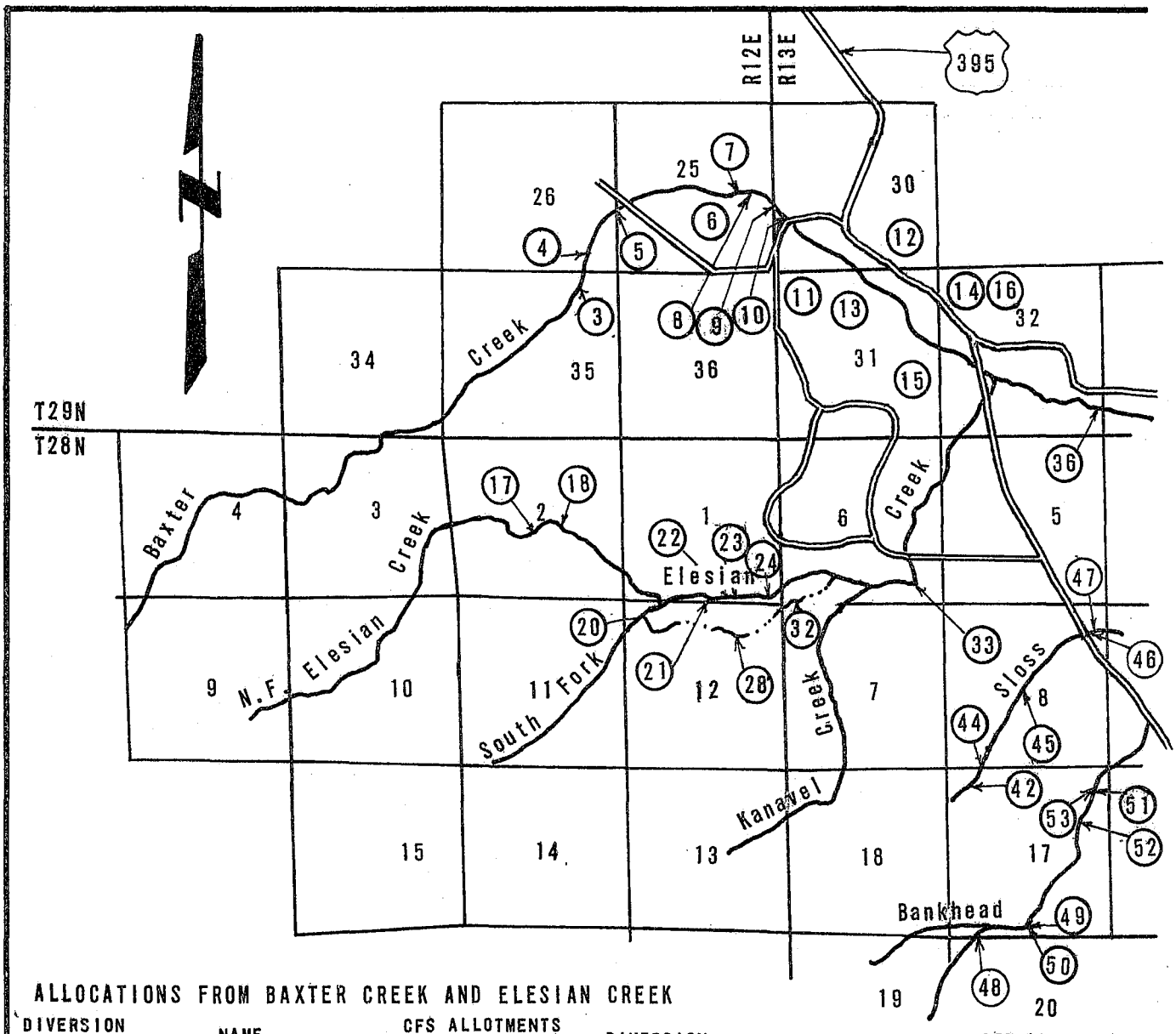

DIVERSIONS FROM
SUSAN RIVER
ABOVE JOHNSTONVILLE BRIDGE
SUSAN RIVER
WATERMASTER SERVICE AREA
STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES
NORTHERN DISTRICT
SUSANVILLE
JOHNSTONVILLE
Susan River
Old Channel
Gold Run Creek
Hills Creek
Lassen Creek
R11E
R12E
T30N
T29N
DIVERSION NUMBER | OWNER | CFS
10 | Ramsey ditch | 6.40
12 | F.G.S. ditch | 3.26
13 to 35 | Old Channel | 17.10
36 to 39 | Lassen 7-D Ranch Inc | 4.85
41 | Occidental et al | 16.00*
187, 189, 192, 195, 196, 197, 199 | Satica ditch | 3.85
Sella ditch | 2.62
DIVERSION NUMBER | OWNER | CFS
205, 207, 210 | Satica | 3.60
205, 211, 215 | Pyle | 4.90
207, 211 | Mallery, M. | **
206 | Lassen 7-D Ranch Inc. | 3.85
207, 211, 216, 219 | Mallery, R | 3.80
207, 211, 216, 219 | Emerson Hills ditch | 3.85
220 | Nagle | 2.45
225, 226 | Tangleman | 4.60
227, 228, 229 | Mallery | 2.70
230, 231 | Lassen 7-D Ranch Inc | 2.70
230, 240
* Doesnot include Lassen I.D. Water Rights to Lake Leavitt.
** 48% of Gold Run Creek at 206.
Permanent Recorder Station
Watermaster installed Recorder Station.
Conversion factor for SI see page xiv

Figure 18b

Figure 18c


T30N
T29N
R14E
R13E
R12E
River
Lake Leavitt
LEAVITT
JOHNSTONVILLE
Susan
Lassen
Canal
Irrigation
51 to 54
46
44
Conversion factor for SI see page xiv
DIVERSION NUMBER
NAME
CFS
44 Farris-McAllister dam 7.47
46 Roberts dam 4.98
51 to 54 Roberts-Chappius dam 12.00
Watermaster installed Recorder Station.
STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES
NORTHERN DISTRICT
DIVERSIONS FROM SUSAN RIVER ABOVE WILLOW CREEK
SUSAN RIVER WATERMASTER SERVICE AREA



ALLOCATIONS FROM BAXTER CREEK AND ELESIAN CREEK

DIVERSION NUMBER	NAME	CFS ALLOTMENTS First	Second	Third
3,4,5	Dickson	2.50		
6,7,8,10	Gray Eagle Corp	0.68		0.20
11	Burnett, Baker			0.20
8,9,10,12	Mallery	2.80		0.43
8,12,13,14,15,16	Mallery	2.52		0.97
16	Gray Eagle Corp	0.10		0.42
17,18	Bronsom	0.16		
17,21,26,27	Bass	4.10		
17,22,23,24,28,32,33	Bridges	2.82		
17,22,23,24,28,32,33	Kanaval	4.58		
36,39	Peterson			1.42
70	Ahern	0.02		

DIVERSION NUMBER	NAME	CFS ALLOTMENTS First	Second	Third
71,72	A & K Company	0.02		1.69
75,77,79,80	Blickenstaff			0.64
78	U.S. Hertz Inc.			1.05
81,83	Blickenstaff			2.88
73,75	Garza	0.89		0.28
74,76	Hemphill	0.98		
		0.98		
75,77	Dieter	1.55		0.40
75,77,80	Dieter			0.30
77,79	Mulroney	0.90		0.90
78	Mulroney			0.67
78	Cummings			0.15
81,83	Blankenship			0.50
84,90	Dow			1.80
85,89	Marsters, Mc Donald			1.60

Figure 18d

ALLOCATIONS FROM SLOSS AND BANKHEAD CREEKS

DIVERSION NUMBER	NAME	CFS ALLOTMENTS First	Second	Third
42	Mossman	0.02		
44	Doyle	0.002		
45	Snipes			0.08
46	Grover	0.10	1.10	
46,47	Petersen	0.10	1.10	
48,49,50	Row	0.02	0.13	
51	de Recher	0.08		
52,53,55	White			0.48
58,62	Ashmore	0.04	0.49	
63,65	Dew	0.20		2.63
66,67	Myers	0.06	0.20	

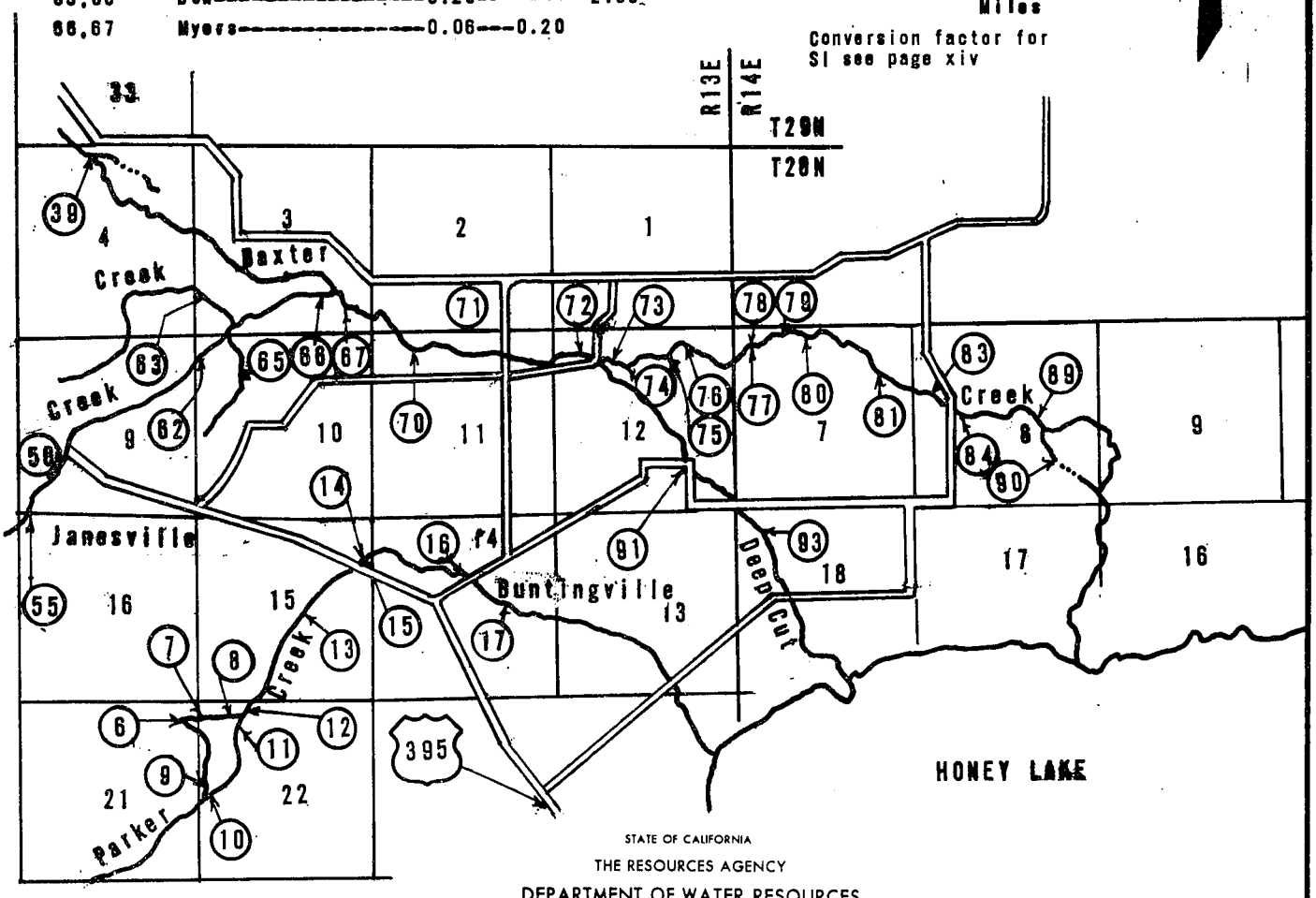
DIVERSIONS FROM PARKER CREEK

DIVERSION NUMBER	NAME	CFS
6 to 12	Butler	0.88
13 to 15	Hoffman	0.26
15	Flux	1.38
16 & 17	Bailey	2.00

Kilometres 0 1 2 3

Miles 0 1 2

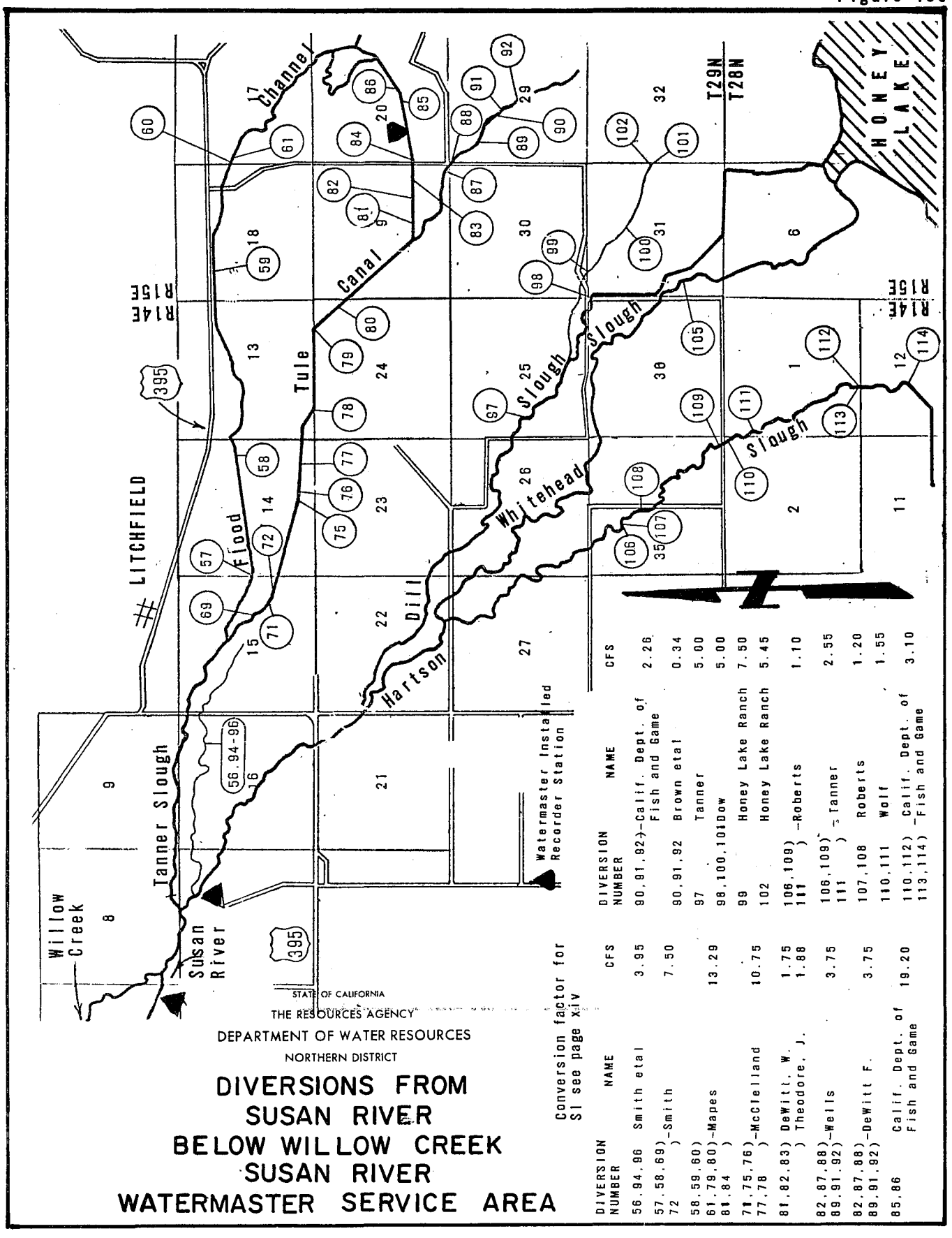
Conversion factor for SI see page xiv



STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES
NORTHERN DISTRICT

DIVERSIONS FROM BAXTER CREEK AND PARKER CREEK SUSAN RIVER WATERMASTER SERVICE AREA

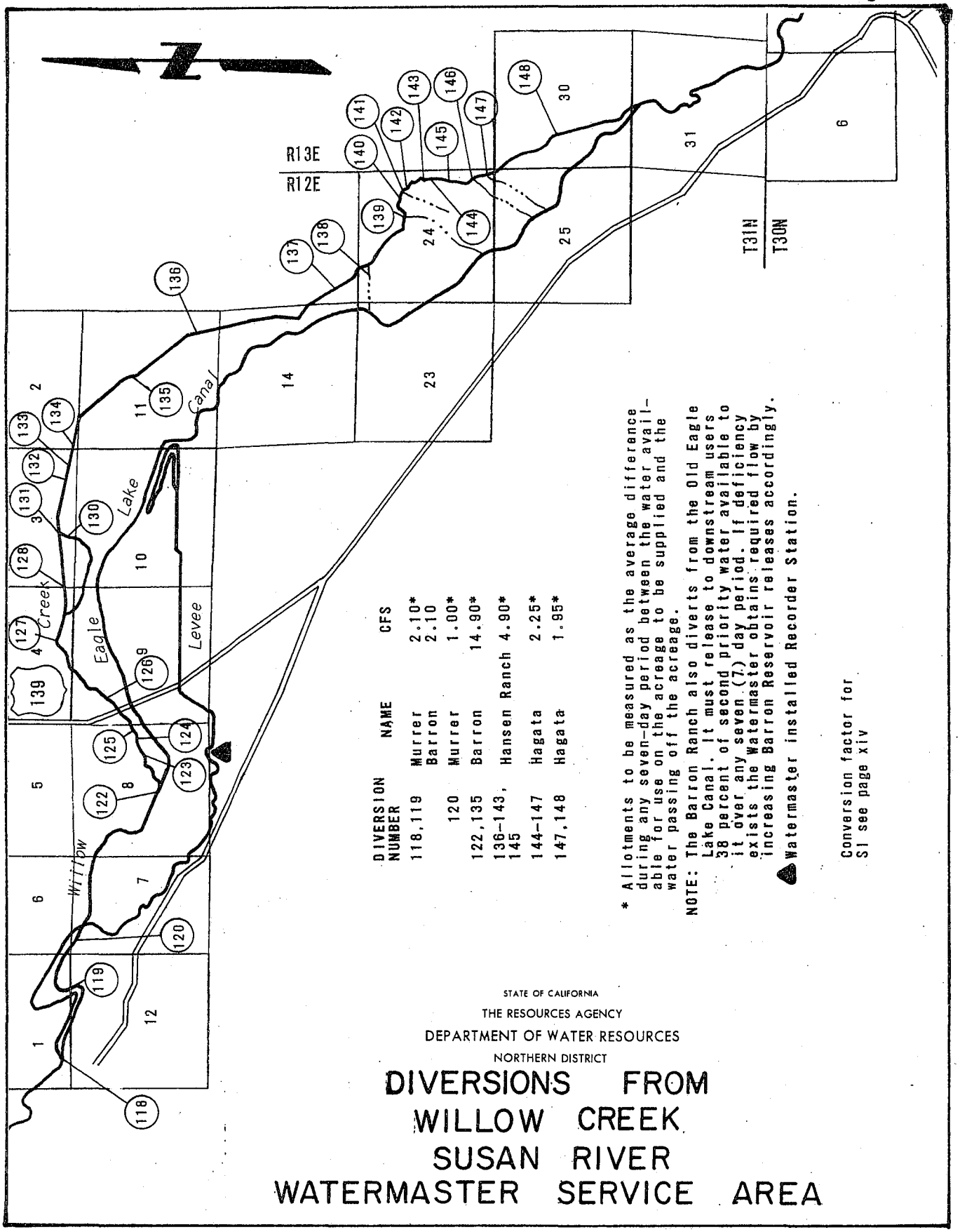
Figure 18e



DIVERSION NUMBER	NAME	CFS
56,94,96	Smith etal	3.95
57,58,69) 72)	-Smith	7.50
58,59,60) 61,79,80) 81,84)	-Mapes	13.29
71,75,76) 77,78)	-McClelland	10.75
81,82,83))	DeWitt, W. Theodore, J.	1.75 1.88
82,87,88) 89,91,92)	-Wells	3.75
82,87,88) 89,91,92)	-DeWitt F.	3.75
85,86	Calif. Dept. of Fish and Game	19.20

DIVERSION NUMBER	NAME	CFS
90,91,92	-Calif. Dept. of Fish and Game	2.26
90,91,92	Brown etal	0.34
97	Tanner	5.00
98,100,101	Dow	5.00
99	Honey Lake Ranch	7.50
102	Honey Lake Ranch	5.45
106,109) 111)	-Roberts	1.10
106,109) 111)	-Tanner	2.55
107,108	Roberts	1.20
110,111	Wolf	1.55
110,112) 113,114)	Calif. Dept. of Fish and Game	3.10

Figure 18f


R13E
R12E
T31N
T30N
Willow Creek
Eagle Lake
Levee
Canal
DIVERSION NUMBER
NAME
CFS
118,119 Murrer 2.10*
Barron 2.10
120 Murrer 1.00*
122,135 Barron 14.90*
136-143, 145 Hansen Ranch 4.90*
144-147 Hagata 2.25*
147,148 Hagata 1.95*
* Allotments to be measured as the average difference during any seven-day period between the water available for use on the acreage to be supplied and the water passing off the acreage.
NOTE: The Barron Ranch also diverts from the Old Eagle Lake Canal. It must release to downstream users 38 percent of second priority water available to it over any seven (7) day period. If deficiency exists the watermaster obtains required flow by increasing Barron Reservoir releases accordingly.
Watermaster installed Recorder Station.
Conversion factor for SI see page xiv
STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES
NORTHERN DISTRICT
DIVERSIONS FROM WILLOW CREEK SUSAN RIVER WATERMASTER SERVICE AREA

WILLOW CREEK WATERMASTER SERVICE AREA

The Willow Creek service area is situated in Siskiyou County, about 10 miles northeast of Montague. A map showing the Willow Creek stream system, the diversions, and the principal roads in the area is presented in Figure 19, page 180. Willow Creek is the major source of water supply and rises on the west slope of the 2 377 metres (7,800-foot) Willow Creek Mountain east of the service area. It then flows in a northwesterly direction through about 18 kilometres (11 miles) of rolling hills to its confluence with the Klamath River. The service area is about 13 km (8 miles) long by 1.6 km (1 mile) wide and varies in elevation between about 792 and 1 219 m (2,600 and 4,000 feet).

Basis of Service

Willow Creek has had a long history of litigation. However, the present basis of service might be said to have been initiated in 1949 when a civil suit was referred to the Department of Public Works, Division of Water Resources, to act as referee. The matter was never finalized by a decree. The issues involved were reopened in 1971, and by Decree No. 24482, dated April 28, 1972, the Siskiyou County Superior Court appointed the Department of Water Resources to supervise distribution of water in accordance with an earlier agreement between the users defining their respective rights. Accordingly, the Willow Creek watermaster service area was created on June 22, 1972, and service began on July 1, 1972.

There are three water users in the service area. Distribution is on a fractional basis until the flow drops to a specified amount below the upper two users. At that time, the total flow is rotated between the upper two users.

Water Supply

The main source of water supply of the Willow Creek stream system is from the melting of snow which accumulates at high elevations on the drainage area during the winter months. The spring flow from the melting snow begins late in March or early April and is almost entirely gone prior to June 1. Thereafter the flow decreases rapidly until about July 1. From that date up to the time fall rains begin, the flow remains at a more or less sustained low-flow stage sufficient for domestic and stock watering purposes on the two upper ranches only.

Method of Distribution

Both sprinkler and flood irrigation are used in the Willow Creek service area. The upper water user has the option of using gravity diversions for either flood or sprinkler irrigation. The middle user relies entirely on runoff from the upper user's flood irrigation. Diversion is accomplished by diverting water into the ditches by temporary rock or gravel dams. The lower user in the area utilizes both flood and sprinkler irrigation during the early season when the supply is abundant. As the supply dwindles, the remaining water is pumped from a sump to the sprinkler system.

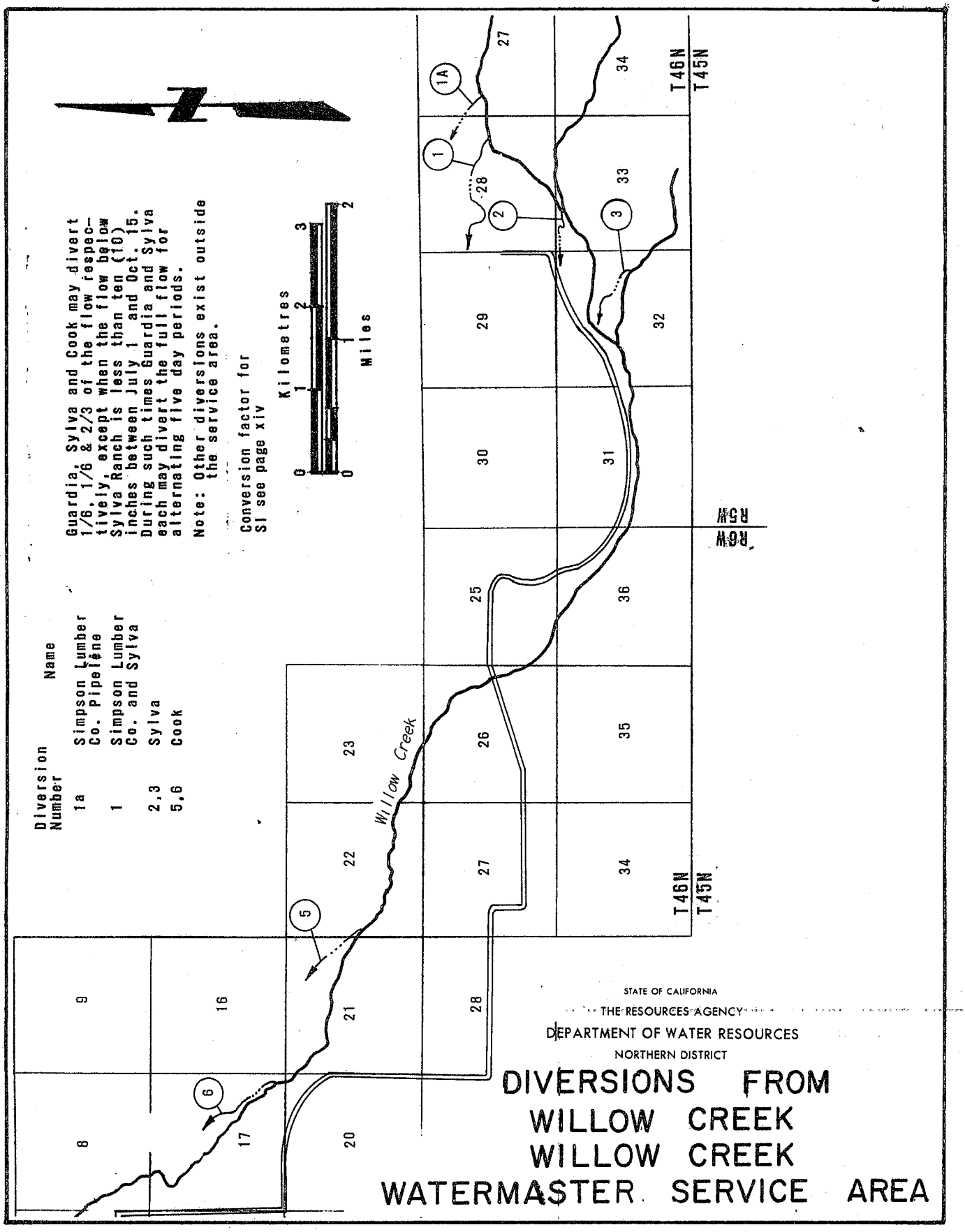
1976 Distribution

Watermaster service in the Willow Creek service area began on April 1 and continued until September 30. Lester L. Lighthall, Water Resources Technician II was watermaster during this period.

Since watermaster service began in 1972 on this creek, there are no records for a basis of comparison of this year's water supply with an average. However, the water users indicated that the supply was above average.

There was sufficient water to distribute to all three users according to their fractional allotments until the middle of August when distribution was started on a 5-day rotation between the two upper users, since the lower user could no longer put his allotment to beneficial use. This rotation was continued for the remainder of the season.

Figure 19


Diversion Number
Name
1a Simpson Lumber Co. Pipeline
1 Simpson Lumber Co. and Sylva
2,3 Sylva
5,6 Cook
Guardia, Sylva and Cook may divert 1/6, 1/6 & 2/3 of the flow respectively, except when the flow below Sylva Ranch is less than ten (10) inches between July 1 and Oct. 15. During such times Guardia and Sylva each may divert the full flow for alternating five day periods.
Note: Other diversions exist outside the service area.
Conversion factor for SI see page xiv
Kilometres
Miles
Willow Creek
T46N
T45N
R6W
R5W
STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES
NORTHERN DISTRICT
DIVERSIONS FROM WILLOW CREEK
WILLOW CREEK WATERMASTER SERVICE AREA