

**Basin Management Objective
Butte County
Inventory Unit – NORTH YUBA
California Water Service Co., Oroville District**

Butte County Water Advisory Committee Member – Toni Ruggle

Contact Information

Phone Number: (530) 533-4034

Email Address: truggle@calwater.com

Description of the North Yuba Inventory Unit –

The North Yuba Inventory Unit (IU) covers about 47,500 acres in the southeastern portion of Butte County. It is bordered by the Feather River to the north and west, Yuba County to the south, and foothills to the east. In the northern portion of the IU, in areas surrounding Oroville, the land use is primarily urban. In the central and southern portions of the IU, the land uses are a mix of rural residential and agricultural. Agricultural land use is fairly diverse and consists of a combination of rice, orchards, grain, pasture, and field crops. The primary source of agricultural water in the North Yuba IU is groundwater. In a normal water year, about 25% of the North Yuba IU is in summer agricultural production supported by groundwater. Groundwater is also used as a municipal water source for portions of Oroville. *The North Yuba IU is not divided into sub-inventory units.*

Management Objective –

To maintain sufficient volumes of groundwater in storage within all aquifer systems to provide an adequate and affordable domestic water supply of adequate quality for consumption, including periods of extended drought and to assure that groundwater in storage is not depleted over time. It is the intent of this management objective to assure a sustainable domestic water supply now and into the future and to assure the water supply can be utilized without injuring groundwater quality or inducing land subsidence. The management objective is also to assure an adequate supply for groundwater from the Laguna Formation for all domestic users in the Inventory Unit.

Geologic Formations Identified In Sub-Inventory Unit –

Geologic formations in the North Yuba Inventory Unit, from youngest (shallowest) to oldest (deepest), include:

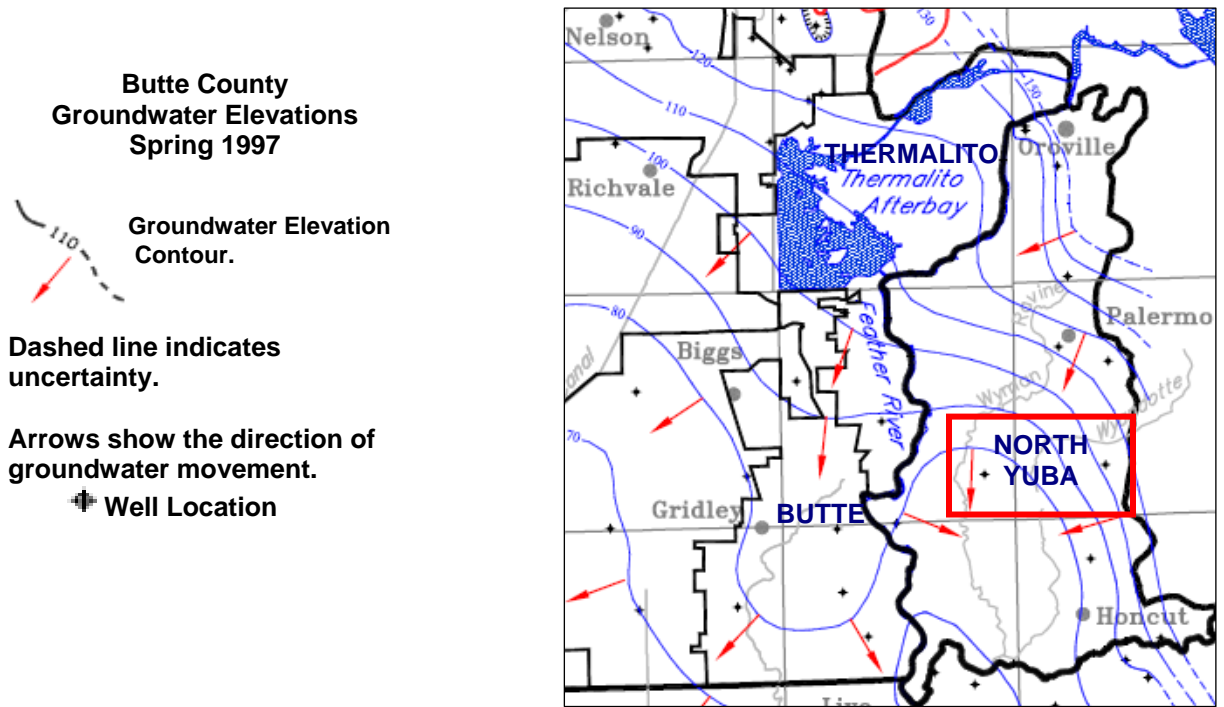
- Quaternary Alluvium
- Modesto Formation
- Riverbank Formation
- Laguna Formation

Fresh Water-bearing Units. In the Sacramento Valley Region of Butte County, fresh groundwater-bearing units include, from youngest (shallowest) to oldest (deepest), the Modesto, Riverbank, Laguna, Tehama and Tuscan Formations. Those included in the North Yuba Inventory Unit are:

- Modesto Formation
- Riverbank Formation
- Laguna Formation

Groundwater Flow in the North Yuba Sub-Inventory Unit –

The below figure is a cropped segment of a map prepared by DWR Northern District. It shows the groundwater elevation contours in your sub-inventory unit with arrows indicating the direction of groundwater movement. This graphic indicates that the regional pattern of spring groundwater movement in the northern portion of the North Yuba IU is to the west and south, away from the foothills and parallel to the Feather River. In the central and southern portions of the North Yuba IU, the groundwater flow tends to converge toward the south-central area of the inventory unit, away from the Feather River and foothill areas. Groundwater movement away from the Feather River in this area indicates that the river is contributing surface water to the recharge of the aquifer system.



1991 DWR groundwater contour map

BMO Key Wells Selected for Groundwater Level Monitoring –

Wells used for groundwater level measurements within the California Water Service Company Oroville service area, and have been assigned arbitrary well numbers in the interest of safety. The Alert Stages for wells CWS01, CWS02, CWS03 were calculated using the static water levels for the years 1980 through 2007, months April and October. This information mirrors and reflects the historically data prior to 1980.

SPRING

Well ID	Aquifer System	Well Type	Stage 1 & 2Alerts**		Stage 3Alerts**	
			Elev. (ft)	Depth (ft)	Elev. (ft)	Depth (ft)
CWS-01	Laguna formation	Domestic	125.60	34.40	120.60	39.40
CWS-02	Laguna formation	Domestic	144.19	33.81	139.19	38.81
CWS-03	Laguna formation	Domestic	124.47	70.53	119.47	75.53
17N03E03D01	Modesto Formation	Irrigation	69.56	27.44	64.56	32.44
19N04E31F01	Laguna/Lower Tuscan	Domestic	118.77	139.93	113.77	144.93

FALL

Well ID	Aquifer System	Well Type	Stage 1 & 2Alerts**		Stage 3Alerts**	
			Elev. (ft)	Depth (ft)	Elev. (ft)	Depth (ft)
CWS-01	Laguna formation	Domestic	123.30	36.70	118.30	41.70
CWS-02	Laguna formation	Domestic	136.74	41.26	131.74	46.26
CWS-03	Laguna formation	Domestic	119.50	75.50	114.50	80.50
17N03E03D01	Modesto Formation	Irrigation	65.16	31.84	60.16	36.84
19N04E31F01	Laguna/Lower Tuscan	Domestic	115.06	143.64	110.06	148.64

BMO Key Wells Selected for Groundwater Quality Monitoring–

In 2007 water quality samples were taken as per EPA & DHS guidelines and requirements for wells within the service area. No water quality issues or violations were found. Criteria for the BMO process will be determined prior to the submission of the 2008 BMOs.

BMO Key Well(s) Selected for Land Subsidence Monitoring–

None in this inventory unit.

BMO Alert Stage Definitions and Compliance Methodologies–

The North Yuba Inventory Unit will use the following guidelines in the management of the groundwater resources. The groundwater level and land subsidence management objectives are intended to trigger predetermined voluntary Ground Water Management Actions, as defined in the accompanying cover report, to remedy declining ground water levels that are not recovering to compliance levels for each index well. The groundwater quality BMO management actions will be defined in 2008.

Groundwater Levels – Specific Depth

The methodology for establishing the groundwater level Basin Management Objective in the North Yuba Sub-Inventory Unit was to utilize the spring

groundwater levels data from the wells identified above. From this data the average spring groundwater level was calculated.

Stage 1: The first year that spring groundwater levels fall five feet below the average spring groundwater level established for each respective well.

Stage 2: Stage 2 is reached if spring groundwater levels, for a second consecutive year, remain five feet below the average groundwater level established for each respective well.

Stage 3: Stage 3 is reached if the spring groundwater levels fall ten feet below the average spring groundwater level established for the well.

Groundwater Quality –

In 2007 water quality samples were taken as per EPA & DHS guidelines and requirements. No water quality issues or violations were found. In 2008 water samples will be conducted as per EPA & DHS guidelines. For 2008 we will sample and test quarterly for the physical parameters of Ph and Temperature, as well as bacteriological sampling.

Land Subsidence –

No equipment available for measurements in this Sub-inventory unit.

Future Monitoring Recommendations –

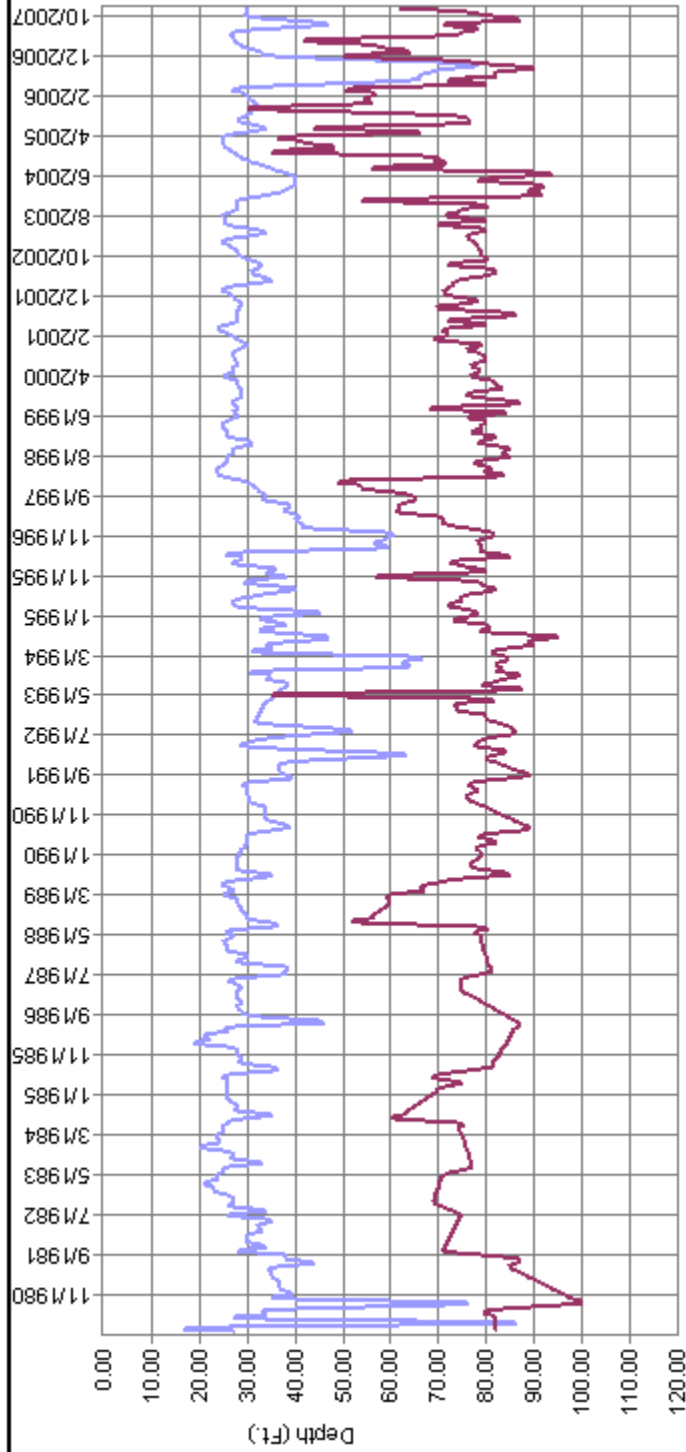
Initiate data collection for development of groundwater quality management objective in 2008. Possibly secure funding for the installation of an extensometer to monitor land subsidence in the Rancho Esquon Sub-Inventory Unit. Explore options for installing multi-completion monitoring wells to more accurately measure aquifer specific water quality and levels.

Supporting Data –

Hydrographs depicting yearly spring level measurements, including 2007 data, with established alert levels.

WATER LEVEL GRAPHIC

District: OROVILLE CWS01 from the year 1980 to 2007 As Of: 1/30/2008
Critical Pumping Level: 100

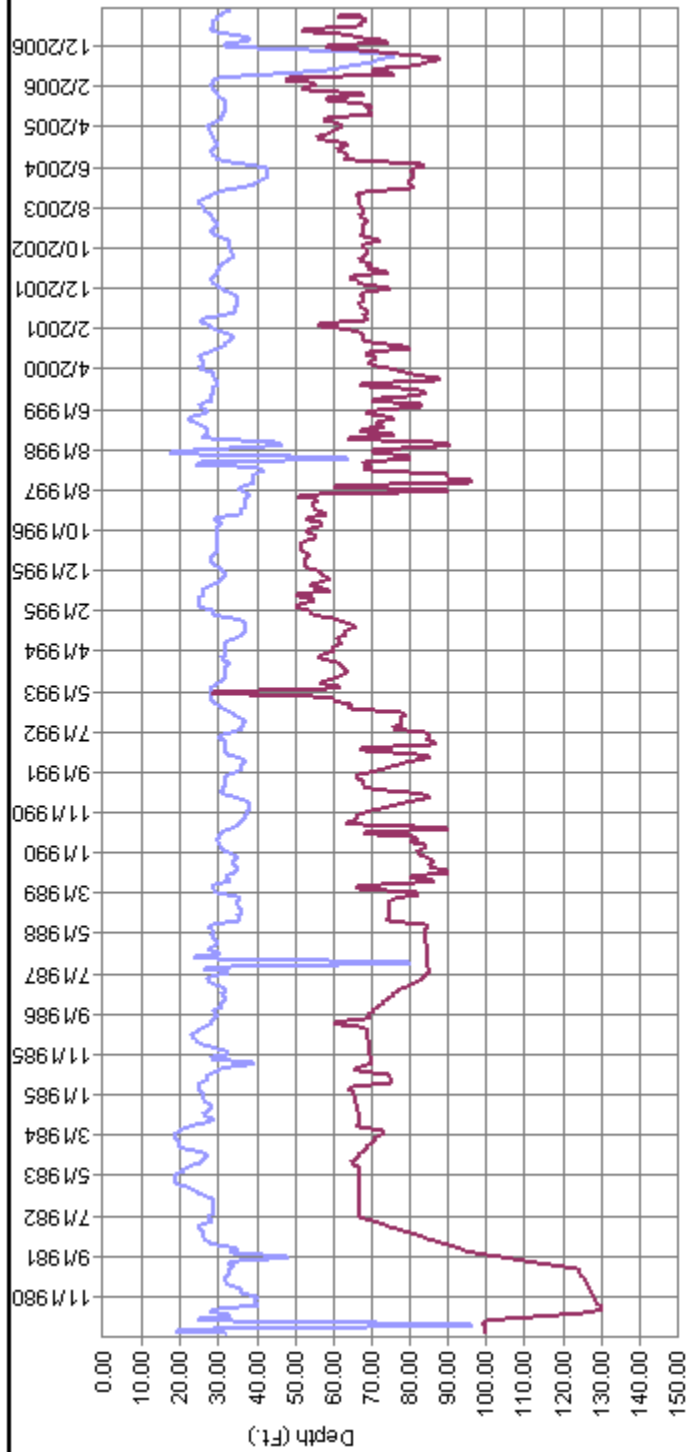


— Distance to Water Static

— Distance to Water Pumping

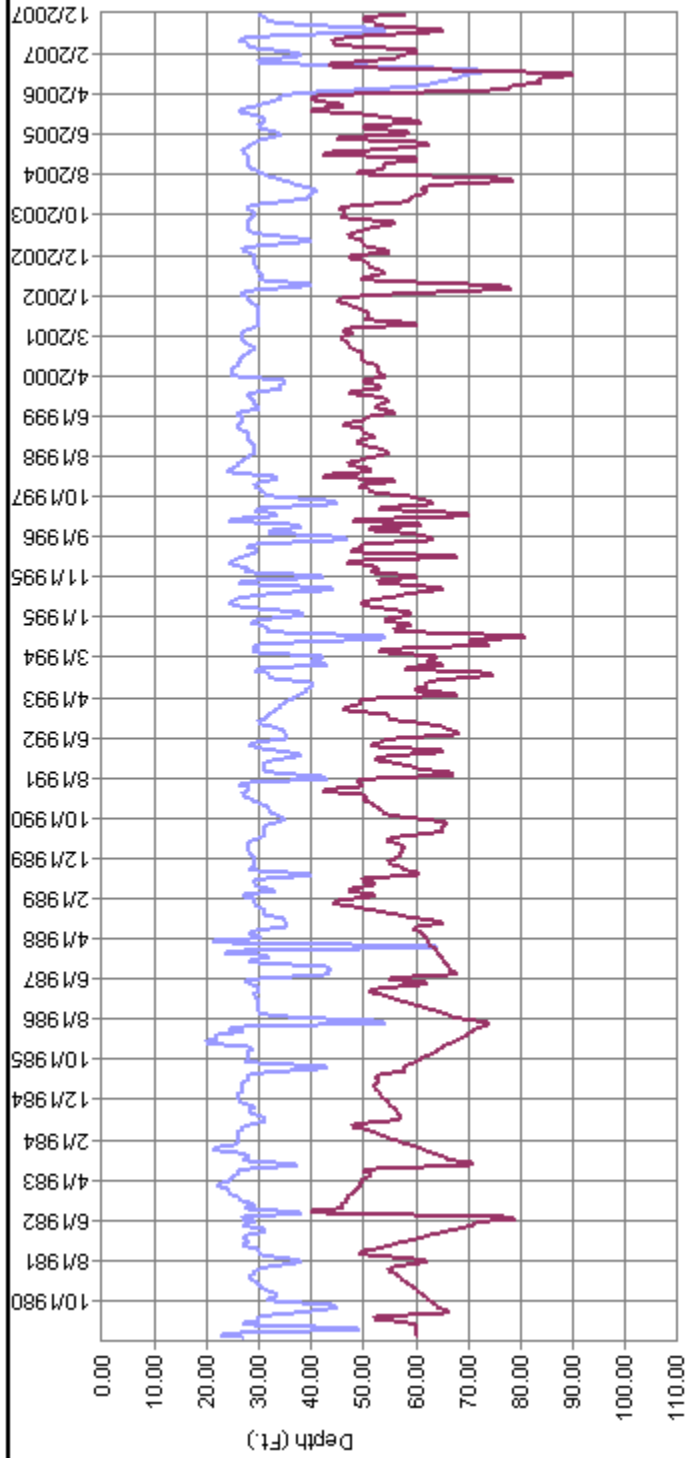
WATER LEVEL GRAPHIC

District: OROVILLE CWS 02 from the year 1980 to 2007 As Of: 1/30/2008
Critical Pumping Level: 154



WATER LEVEL GRAPHIC

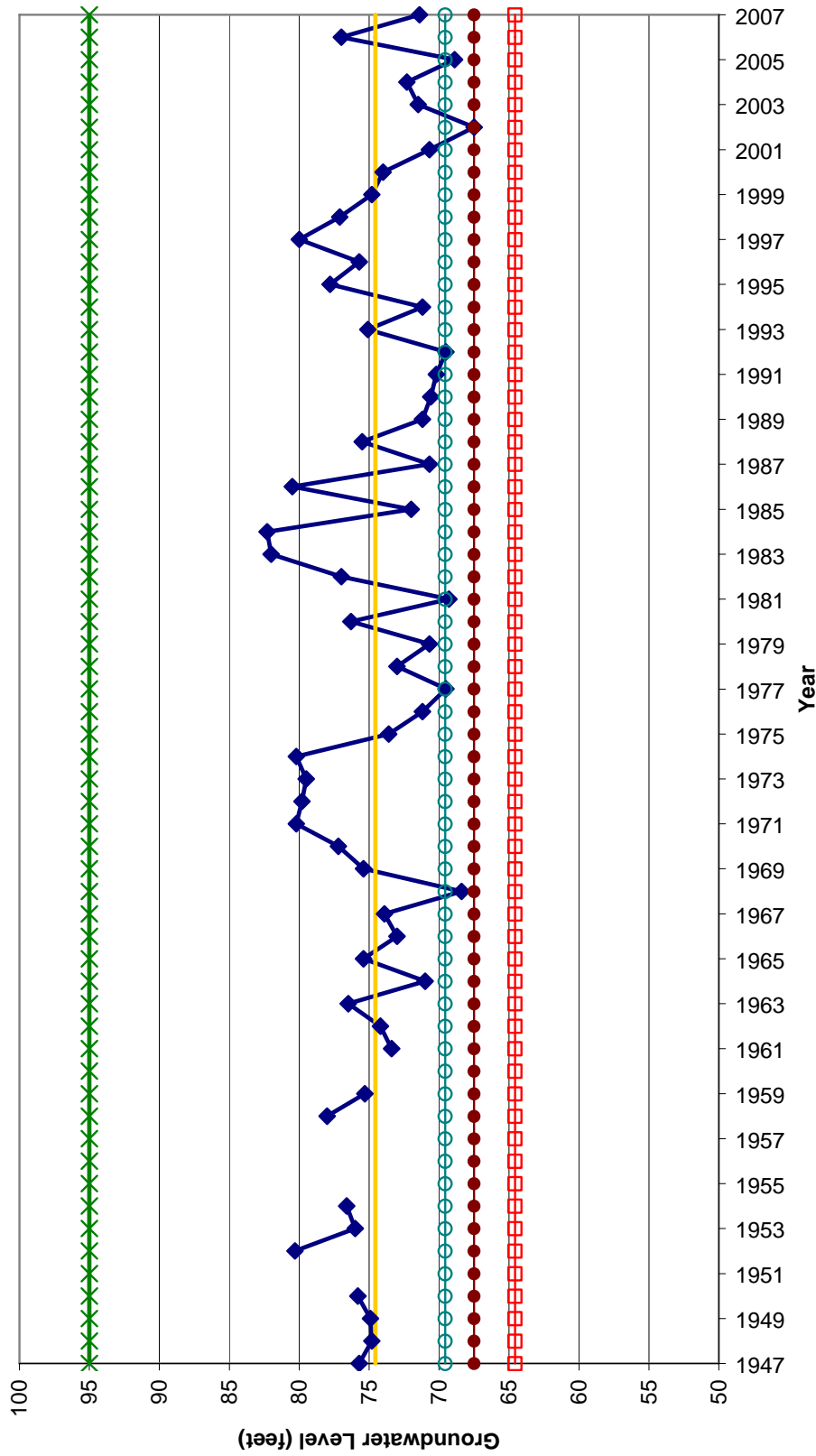
District: OROVILLE CWS 03 from the year 1980 to 2007 As Of: 1/30/2008
Critical Pumping Level: 96



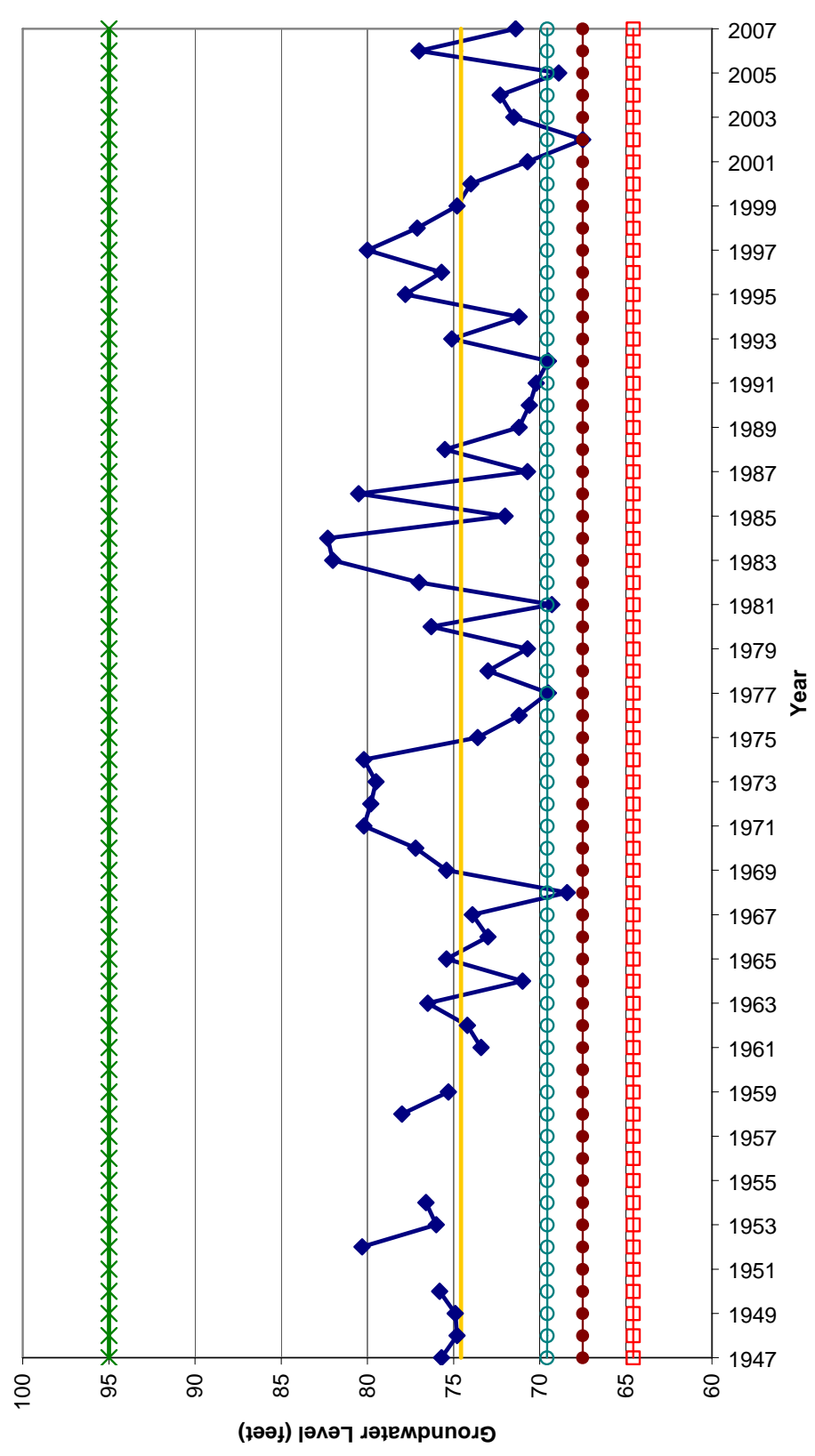
— Distance to Water Static

— Distance to Water Pumping

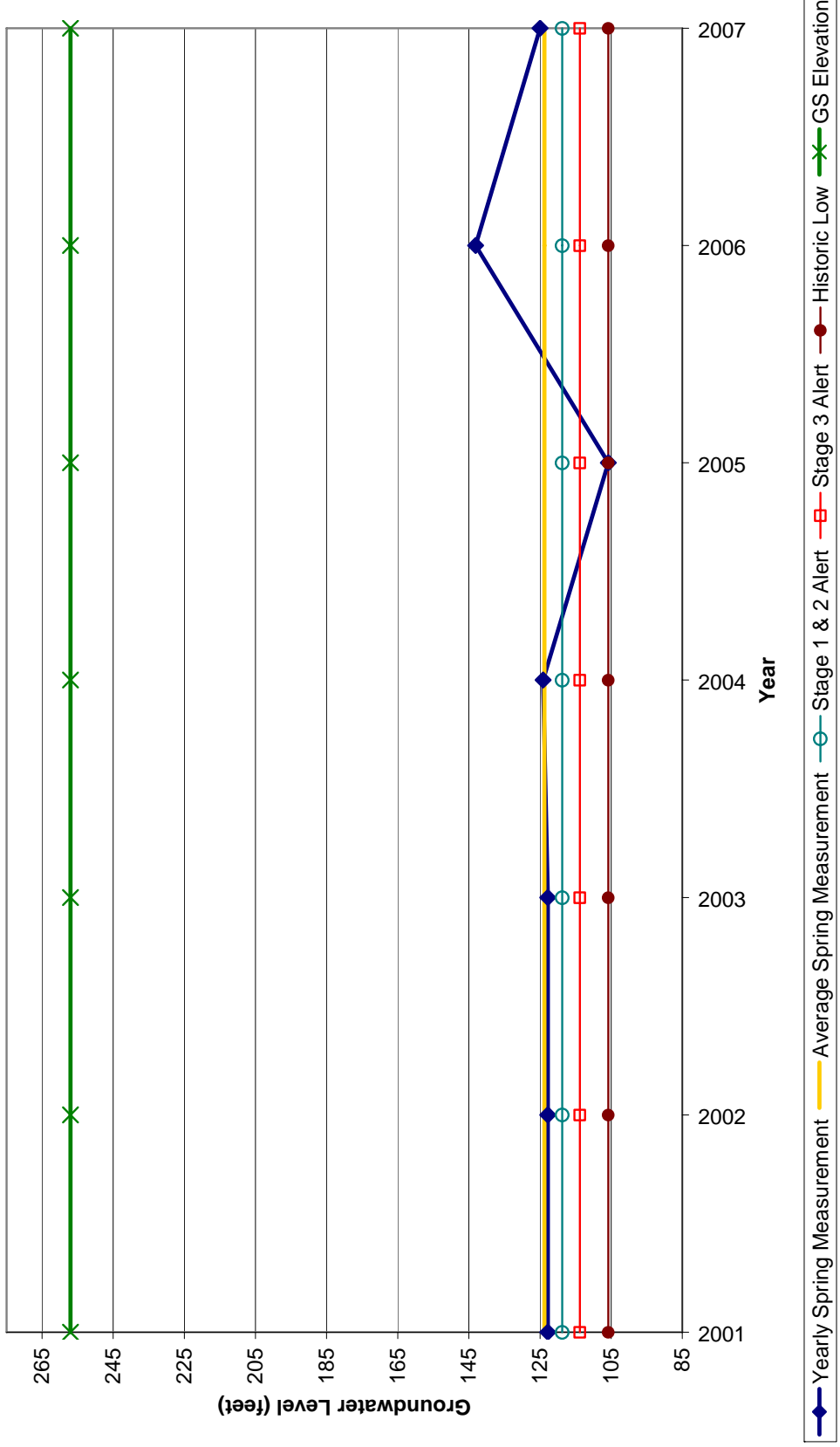
Spring Groundwater Levels
North Yuba - 17N03E03D01



Fall Groundwater Levels
North Yuba - SWN 17N03E2001



Spring Groundwater Levels
North Yuba - 19N04E31F001



**Fall Groundwater Levels
North Yuba - SWN 19N04E31F001**

