Executive Summary

ES.1. Introduction

The Big Valley Groundwater Sustainability Agencies (GSAs) are developing this Groundwater Sustainability Plan (GSP) after exhausting its administrative challenges to the California Department of Water Resources (DWR) determination that Big Valley qualifies as a medium-priority basin. Development of this GSP by the GSAs, in partnership with the Big Valley Advisory Committee and members of the community, does not constitute agreement with DWR's classification as a medium-priority basin – nor does it preclude the possibility of other actions by the GSAs or by individuals within the basin seeking regulatory relief.

The Big Valley Groundwater Basin (BVGB or Basin) is one of many small, isolated basins in the north-eastern volcanic region of California and has been assigned number 5-004 according to the California Department of Water Resources (DWR) Bulletin 118 (2016). The basin boundary was drawn by DWR using a 1:250,000 scale geologic map and does not contain accurate detail in places. The GSAs submitted a basin boundary modification request in 2016 which was denied by DWR. The GSAs have plans to submit another request in the future.

The Basin, shown on **Figure ES-1**, encompasses an area of approximately 144 square miles with Modoc County comprising 40 square miles (28%) on the north and Lassen County comprising 104 square miles (72%) on the south. The Basin includes the towns of Adin and Lookout in Modoc County and the towns of Bieber and Nubieber in Lassen County. The Ash Creek State Wildlife Area is located in both counties and occupies 22.5 square miles in the center of the basin in the marshy/swampy areas along Ash Creek.

Lassen County and Modoc County each formed a separate Groundwater Sustainability Agency (GSA) for its respective portion of the Basin and the counties are working together to manage the Basin under a single Groundwater Sustainability Plan (GSP). The counties assumed this responsibility because there were no other agencies with the authority and ability to take on the task of developing a GSP. The purpose of the GSP is to develop quantifiable management criteria that accounts for the interests of the Basin's beneficial groundwater uses and users and identifies projects and management actions to ensure sustainability.

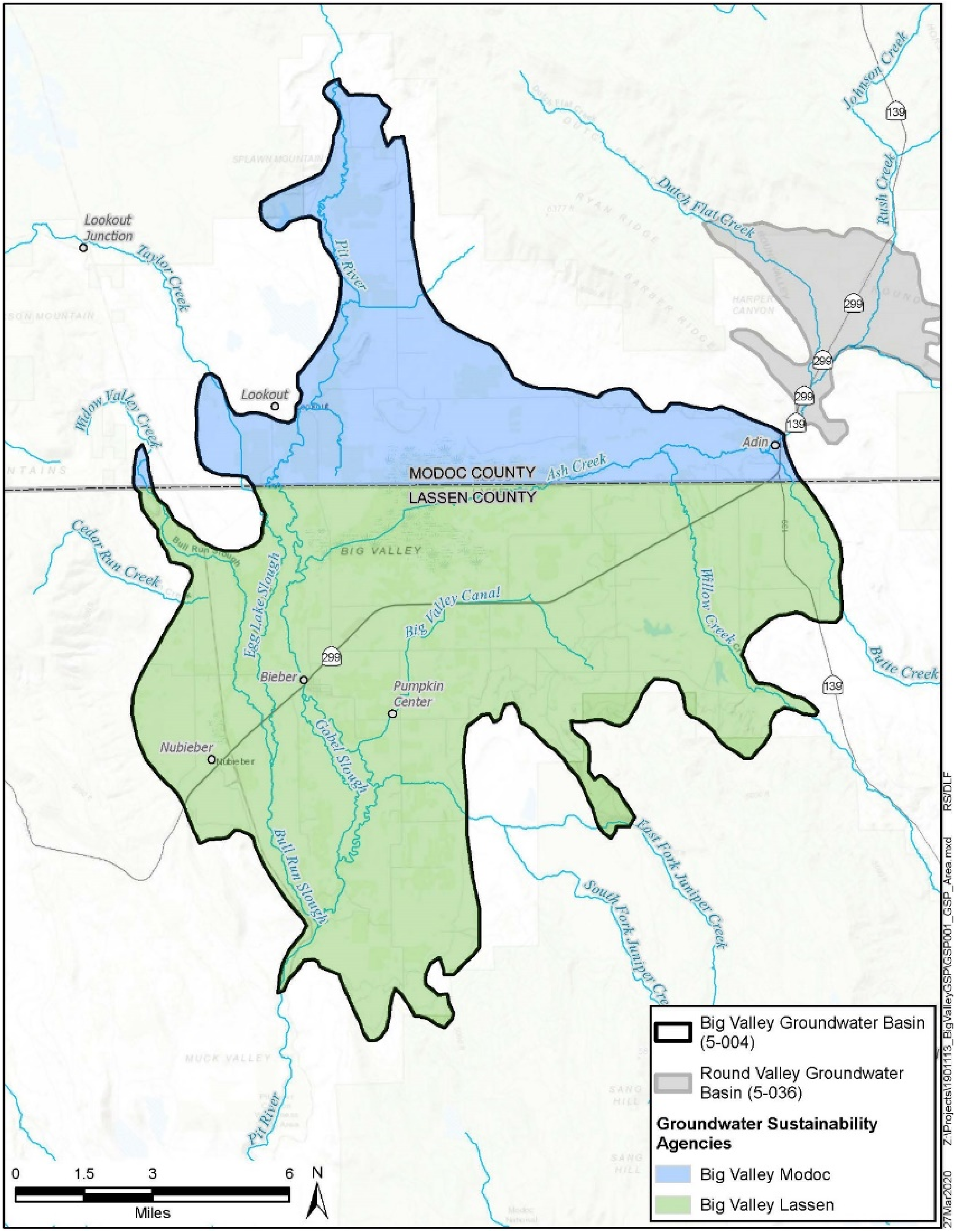

Figure ES-1 Groundwater Sustainability Agencies in Big Valley Groundwater Basin

ES.2. Administrative Information

Agency Information (Ch1-2)

The two Big Valley GSAs were established for the entire Big Valley Groundwater Basin to jointly develop, adopt, and implement a single mandated GSP for the BVGB pursuant to SGMA and other applicable provisions of law.

In 2019, the two GSAs established the Big Valley Groundwater Basin Advisory Committee (BVAC) through a Memorandum of Understanding (MOU), included as **Appendix 2B**. The plan manager is from Lassen County and can be contacted at:

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ES.3. Plan Area

The Big Valley Groundwater Basin is a broad, flat plain extending about 13 miles north to south and 15 miles east to west; located within Modoc and Lassen Counties and is approximately 92,000 acres (144 square miles). BVGB was most recently described by the DWR in the 2003 update of Bulletin 118 (DWR 2003):

"The basin is bounded to the north and south by Pleistocene and Pliocene basalt and Tertiary pyroclastic rocks of the Turner Creek Formation, to the west by Tertiary rocks of the Big Valley Mountain volcanic series, and to the east by the Turner Creek Formation.

In addition to the GSAs, several other agencies have water management authority or planning responsibilities in the Basin. A map of the jurisdictional areas within the Basin is shown on **Figure ES-2**. Agencies with water management responsibilities include: Regional Water Management Group (RWMG), Lassen-Modoc County Flood Control and Water Conservation District (LMFCWCD or District), Lassen County Waterworks District #1, and Adin Community Services District. The RWMG developed the Upper Pit Integrated Regional Water Management Plan (IRWMP), which is managed by the North Cal-Neva Resource Conservation and Development Council (NCNRCD). The RWMG is comprised of 28 stakeholders, including NCNRCD, community organizations; environmental stewards; water purveyors; numerous local, county, state, and federal agencies; industry; the University of California; and the Pit River Tribe. The LMFCWCD covers all of the Lassen County portion of the Basin and a much of the Modoc County portion, extending from the common boundary northward beyond Canby and Alturas. Lassen County Waterworks District #1 provides water and sewer services to Bieber, and Adin Community Services District provides wastewater services to Adin.

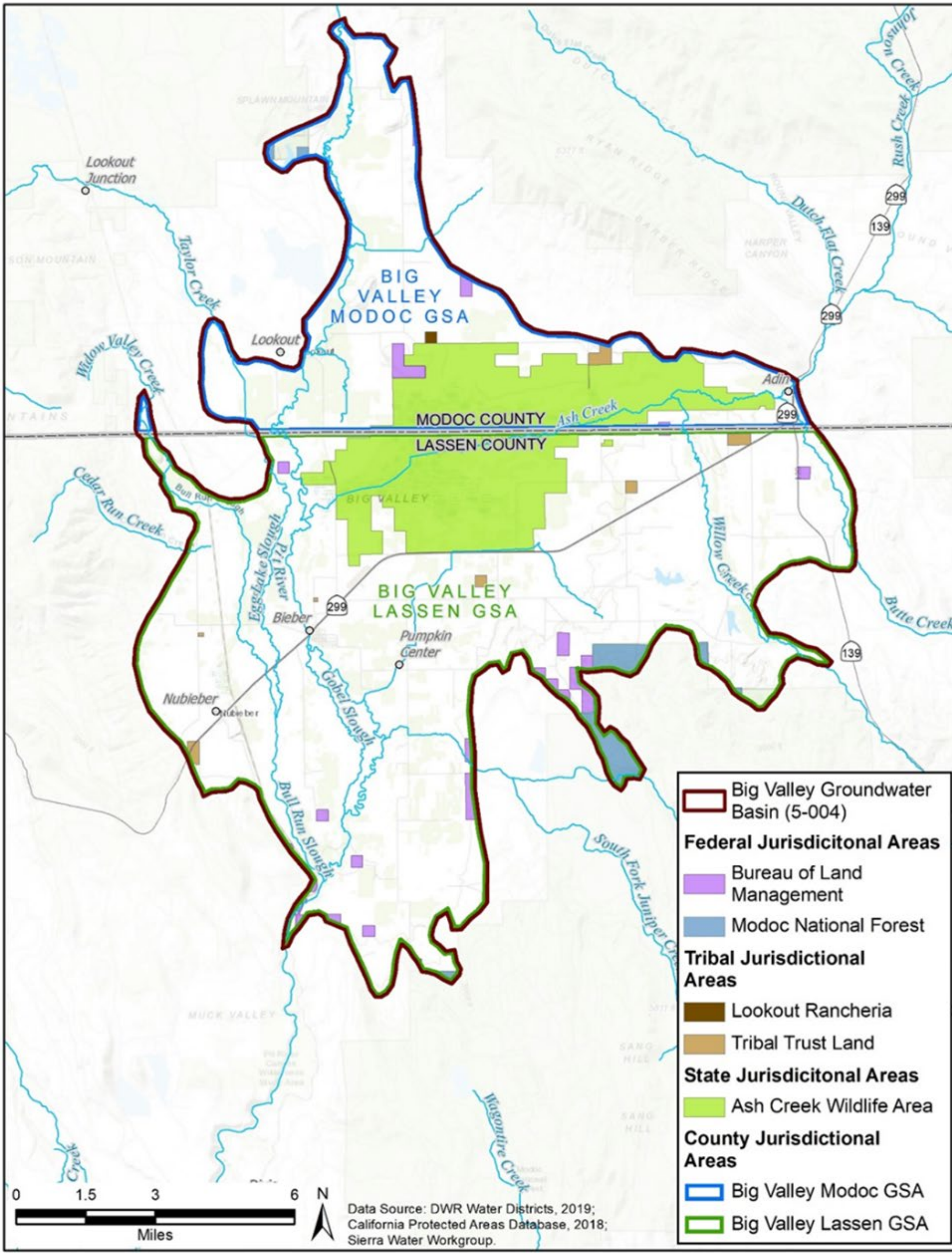

Figure ES-2 Jurisdictional Areas

Land use in the BVGB is organized into the same water use sectors identified in Article 2 of the GSP emergency regulations (DWR, 2016a). These DWR-identified water use sectors are detailed below with the addition of Domestic as a sector. Domestic is added because of the wide-spread reliance on groundwater for household purposes in Big Valley. **Figure ES-3** shows the 2016 DWR distribution of land uses and **Table ES-1** summarizes the acreages of each use.

Table ES-1 2016 Land Use Summary by Water Use Sector

Water Use Sector	Acres	Percent of Total
Urban	250	<1%
Industrial	196	<1%
Agricultural	22,246	24%
Managed Wetlands	14,583	16%
Managed Recharge	-	0%
Native Vegetation and Domestic	54,792	60%
Total	**92,067**	**100%**

The best available information about the number, distribution, and types of wells in Big Valley come from well completion reports (WCRs) maintained by DWR[1]. A tabulation of wells was provided by DWR in 2015 and an update was provided in 2017. The most recent catalog of WCRs was provided through their website (DWR, 2018) as a statewide map layer. This data includes an inventory and statistics about the number of wells in each section[2] under three categories: domestic, production, or public supply. **Table ES-2** shows the number of wells in the BVGB for each county from these data.

Table ES-2 Well Inventory in the BVGB

WCR 2018 DWR Map Layer			DWR 2015/2017 WCR Inventory		
Type of Well [a]	Lassen County Total Wells	Modoc County Total Wells	Proposed Use of Well [b]	Lassen County Total Wells	Modoc County Total Wells
Domestic	136	81	Domestic	142	79
Production	177	76	Irrigation	157	65
			Stock	11	5
			Industrial	6	0
Public Supply	5	1	Public	5	1
Subtotal (476)	**318**	**158**	**Subtotal (471)**	**321**	**150**
			Monitor	55	0
			Test	25	29
			Other	7	2
			Unknown	27	7
Total (476)	**318**	**158**	**Total (623)**	**435**	**188**

Source:
[a] DWR 2018 Statewide Well Completion Report Map Layer; downloaded April 2019.
[b] DWR Well Completion Report Inventories from DWR data provided to the counties in 2015 and 2017

[1] All water well drillers with a C57 drilling license in California are required to submit a well completion report to DWR whenever a well is drilled, modified, or destroyed.
[2] A section is defined through the public land survey system as a one mile by one mile square of land.

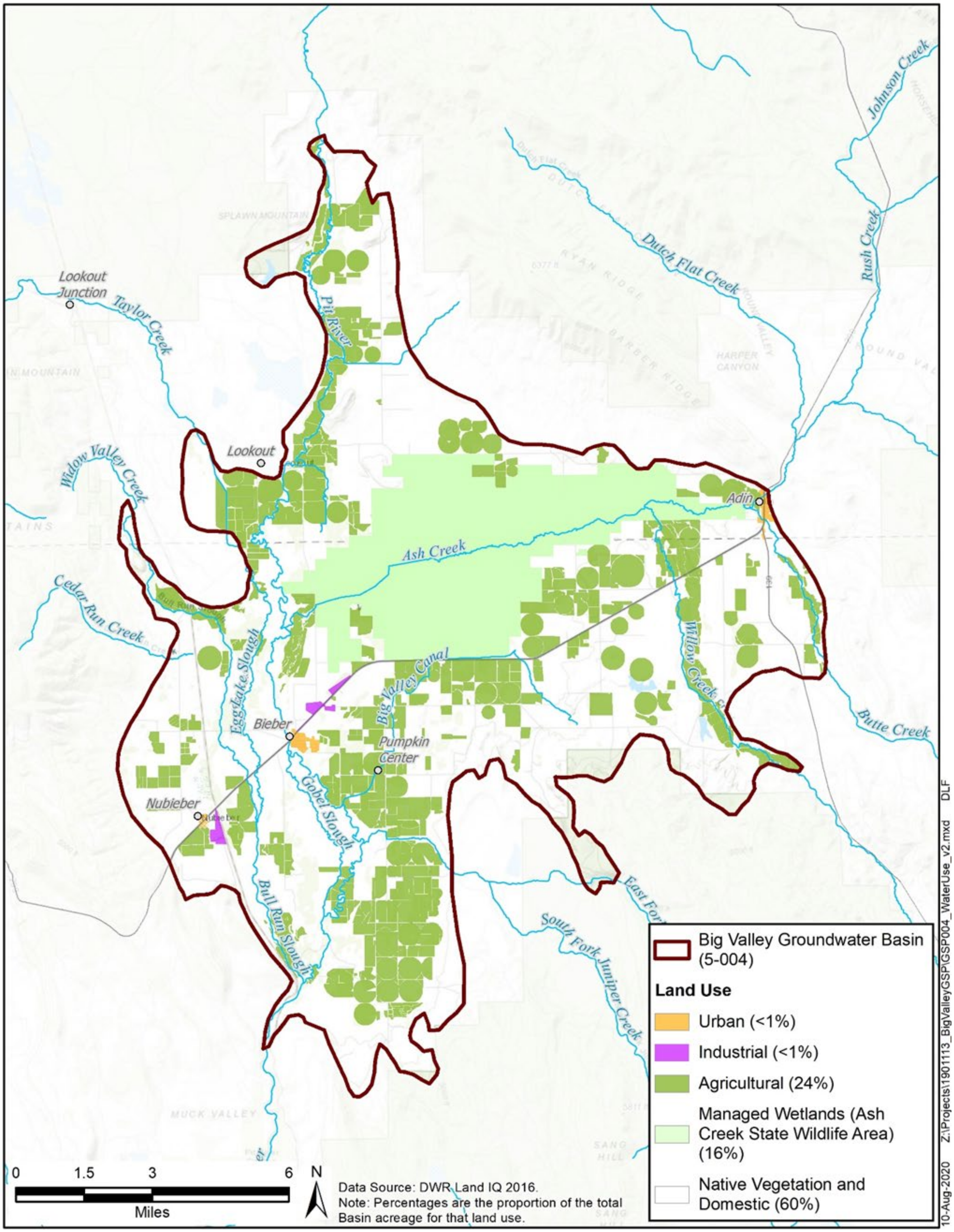

Figure ES-3 Land Use by Water Use Sector

Several existing monitoring, management, and/or regulatory programs are underway within the BVGB, including:

- CASGEM program. Each county has an approved CASGEM monitoring plan which provides for monitoring twice a year (spring and fall) at 21 wells. Five additional monitoring well clusters (4 wells per cluster were drilled in 2019-2020 (total of 20 new wells).
- LMFCWCD installs and manages flow meters throughout the basin.
- Groundwater quality monitoring has been performed under various programs with the SWRCB, DWR, and the United States Geological Survey (USGS). The SWRCB has compiled the data from these programs and made it available on their Groundwater Ambient Monitoring and Assessment (GAMA) Groundwater Information System website (SWRCB 2019). Two current programs monitor groundwater quality on an ongoing basis, including the SWRCB Division of Drinking Water (DDW) and Regional Water Quality Control Board (RWQCB) requirements for monitoring of the closed landfill at Bieber and other cleanup sites.
- Surface water monitoring has been historically performed by streamflow gages constructed and monitored within the BVGB, but active, maintained streamflow gages in BVGB are limited.
- The Big Valley Water Users Association (BVWUA) employs a watermaster service to measure diversions from the Pit River for submittal to the SWRCB. Ash Creek and Willow Creek diversions are monitored by the Modoc County watermaster department, for both the Lassen and Modoc portions of the streams.
- The National Oceanic and Atmospheric Administration (NOAA) had two stations located in the Basin: Bieber 4 NW and Adin RS. Both of these stations are no longer active, thus only provide historic data. The closest California Irrigation Management Information System (CIMIS) station, number 43, is in McArthur, CA, and measures a number of climatic factors that allow a calculation of daily reference evapotranspiration for the area.
- Subsidence monitoring is available in the BVGB at a single continuous global positioning satellite station (P347) on the south side of Adin. In addition, DWR has provided data processed from inferometric synthetic aperture radar (InSAR) collected by the European Space Agency.
- Two water management plans exist that cover the BVGB: the Lassen County Groundwater Management Plan (LCGMP) and the Upper Pit River IRWMP.
- Groundwater regulatory programs: Water Quality Control Plan for the Sacramento River and San Joaquin River Basins; Lassen County Water Well Ordinance; Modoc County Water Well Requirements; California DWR Well Standards; and the Title 22 Drinking Water Program.

ES.4. Basin Setting

Hydrogeologic Conceptual Model (Chapter 4)

A hydrogeologic conceptual model (HCM) is a description of the physical characteristics of a groundwater basin related to the hydrology, geology, and defines the principal aquifer(s). Stakeholders have expressed concern about the uncertainty of the HCM. This HCM is based on the available information, data, and analyses.

Figure ES-4 shows that the topography of BVGB is relatively flat within the central area with increasing elevations along the perimeter, particularly in the eastern portions where Willow and Ash Creeks enter the Basin. This low relief in the Basin results in a meandering river morphology and widespread flooding during large storm events. The Basin is underlain by a thick sequence of sediment derived from the surrounding mountains of volcanic rocks and is interbedded with lava flows and water-lain tuffs. The volcanic material is variable in composition and is Miocene to Holocene age (23 million to several hundred years ago). The compositions of the lava flows are primarily basalt[3] and basaltic andesite[4], while pyroclastic[5] ash deposits are rhyolitic[6] composition. In general, the basin boundary drawn by DWR can be described as the contact between the valley alluvial deposits and the surrounding mountains of volcanic rocks. Although these mountains are outside of the groundwater basin, they capture and accumulate precipitation, which produces runoff that flows into BVGB. Moreover, DWR (1963) suggested that these mountains serve as "upland recharge areas" and provide subsurface recharge to BVGB via fractures in the rock.

Very little geological correlation could be made across each cross section of the subsurface which is likely to be related to the concurrent block faulting and volcanic and alluvial depositional input from various highland areas flowing into Big Valley. A single principal aquifer will be used for this GSP because distinct, widespread confining beds were not identified in the subsurface, which, if present, would create multiple aquifers.

The Pliocene-Pleistocene age (5.3 million to 12 thousand years ago) Bieber Formation (TQb), shown in **Figure ES-5**, is the main formation of aquifer material defined within BVGB, extending to depths of 1,000 feet or more. The formation was deposited in a lacustrine (lake) environment and is comprised of unconsolidated to semi-consolidated layers of interbedded clay, silt, sand, gravel, and diatomite. The coarse-grained deposits (gravel & sand) are aquifer material[7] and are part of the Big Valley principal aquifer. As described above and below, aquifer conditions vary greatly throughout the Basin.

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[3] Basalt is an extrusive (volcanic) rock with relatively low silica content and high iron and magnesium content.
[4] Andesite is an extrusive rock with intermediate silica content and intermediate iron and magnesium content.
[5] Pyroclastic rocks are formed during a volcanic eruptions, typically not from lava flows, but from material (clasts) ejected from the eruption such as ash, blocks, or "bombs".
[6] Rhyolitic rocks are extrusive with relatively high silica content and low iron and magnesium. Rhyolites are the volcanic equivalent of granite.
[7] Meaning they contain porous material with recoverable water.

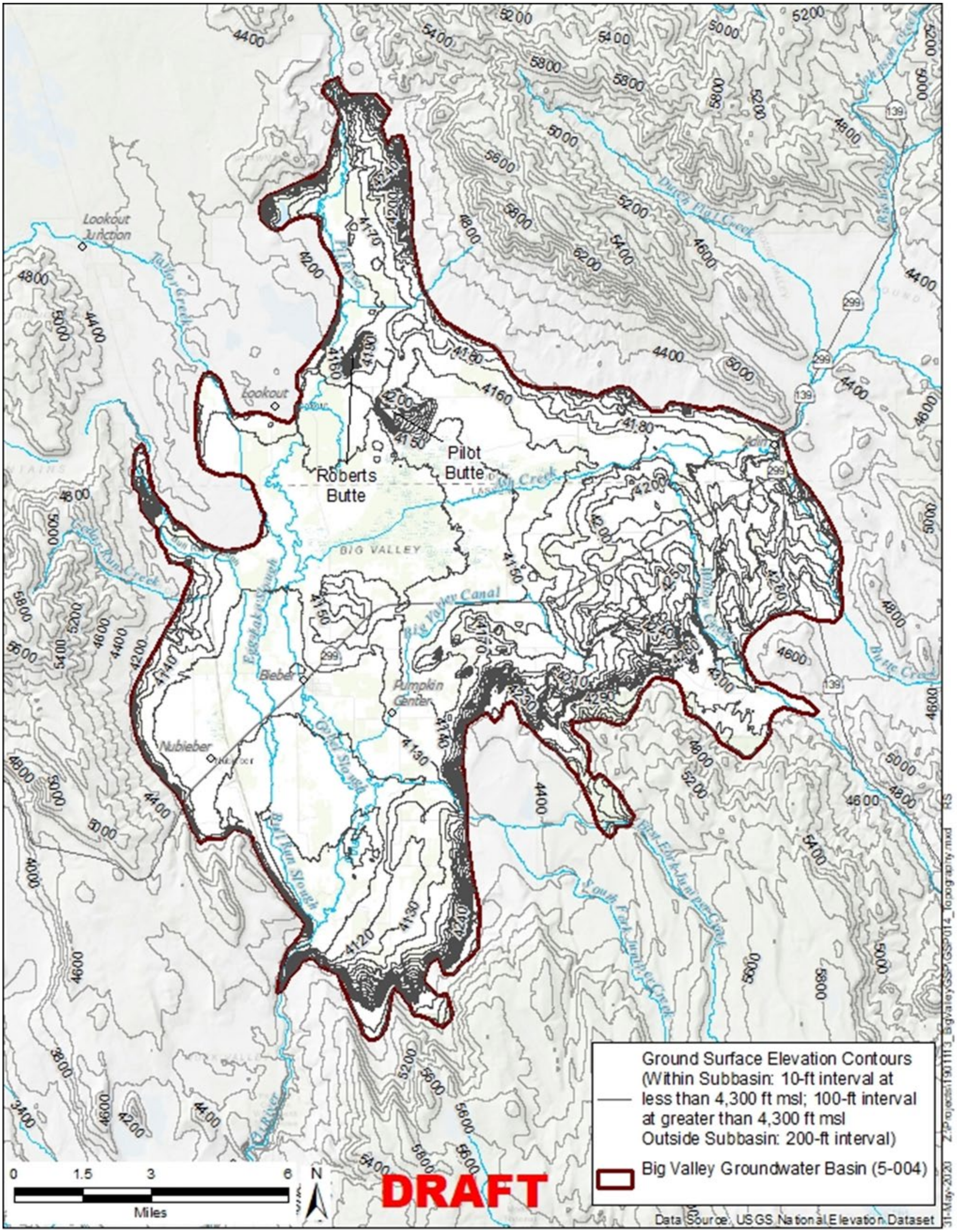

Figure ES-4 Topography

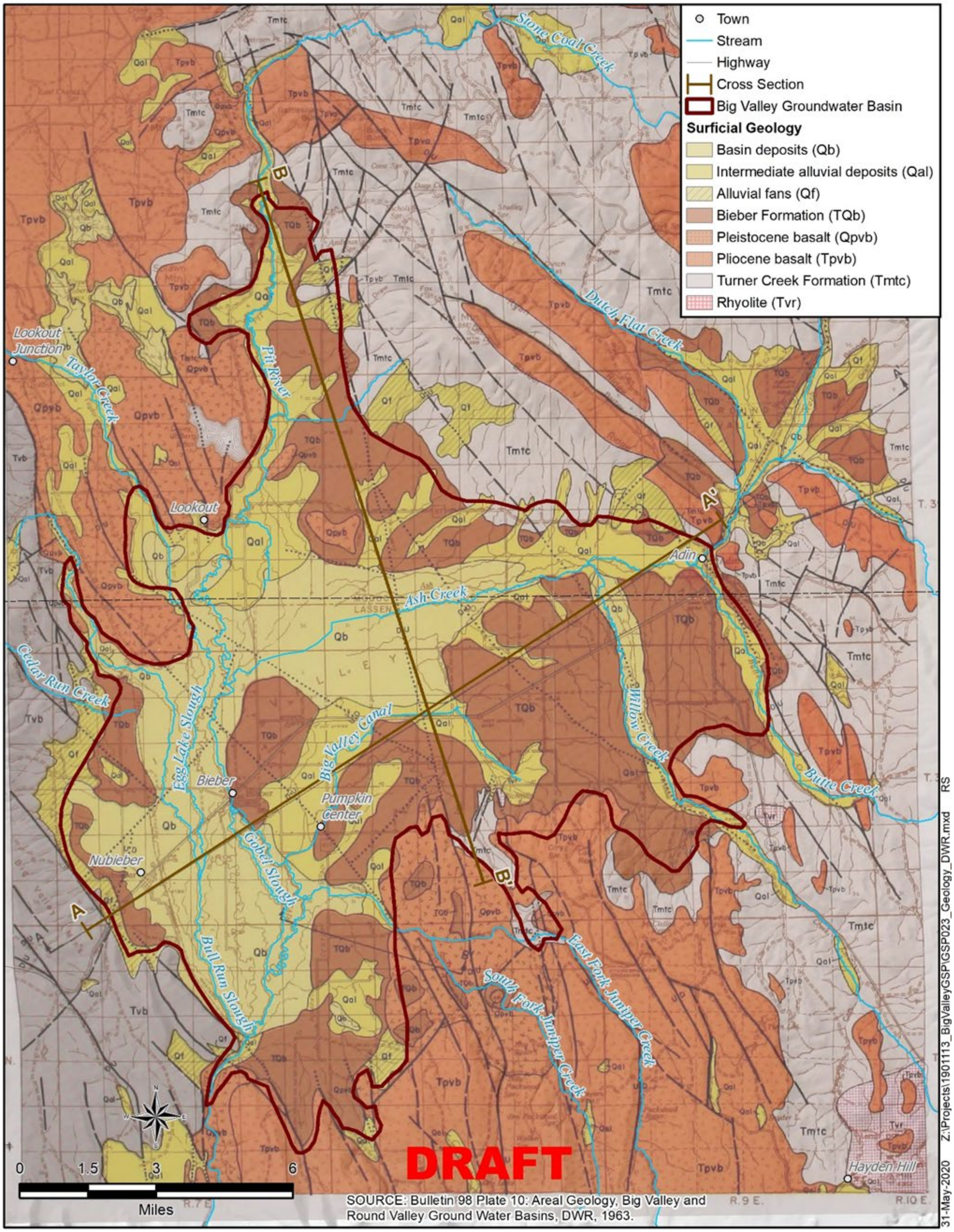

Figure ES-5 DWR 1963 Local Geologic Map

The "physical bottom" of BVGB is difficult to define. The "physical bottom" is described as where the porous sediments contact the underlying bedrock and the "effective bottom" as the depth below which water is unusable because it is brackish or saline. The base of the aquifer system is likely variable across BVGB due to the concurrent volcanism and horst/graben faulting of the bedrock. With limited scientific evidence to clearly define a physical or effective bottom of the aquifer, an approach to define a practical bottom is being used to satisfy the GSP Regulations which require an aquifer bottom to be defined (§ 354.14(a)(1)). For this GSP, the "practical bottom" of the aquifer is set at 1200 feet, encompasses the levels where groundwater can be accessed and monitored for beneficial use.

The NRCS Hydrologic Soils Group (HSG) classifications provide an indication of soil infiltration potential and ability to transmit water under saturated conditions, based on hydraulic conductivities of shallow, surficial soils. **Figure ES-6** shows the distribution of the hydrologic soil groups, where higher conductivities (greater infiltration) are labeled as Group A and lowest conductivities (lower infiltration) as Group D. According to this HSG dataset, Group A (high infiltration) soils are not present in BVGB, and only a tiny area (<0.1%) of Group B soil (moderate infiltration) is located on the western edge of the basin at the top of Bull Run Slough near Kramer Reservoir. The remainder of the Basin is shown with hydrologic soils Groups C and D, slow to very slow infiltration rates (Group C at 30% and Group D at 58% of Basin area). Most of the Ash Creek Wildlife Area is underlain by the dual hydrologic group C/D (11% of Basin area).

Groundwater Conditions (Chapter 5)

Historic groundwater elevations are available from a total of 22 wells in Big Valley, six located in Modoc County and sixteen in Lassen County as shown on **Figure ES-7** and listed in **Table ES-3.** In addition to these 22 wells, five well clusters were constructed in late 2019 and early 2020 to support the GSP. Their locations are also shown on **Figure ES-7**. Each cluster consists of a deep well (200-500 feet) and three shallow wells (60-100 feet). These wells were drilled to explore the geology, with the deep wells providing water level information for the main portion of the principal aquifer at those locations.

Figure ES-8 and **Figure ES-9** show hydrographs for the two wells with the longest monitoring records along with background colors representing the Water Year (WY) type: wet, normal, dry, and critical dry. These WY types are developed from the Sacramento River Index (SRI), which is calculated from annual runoff of the Sacramento River Watershed, of which the Pit River is a tributary. The records for these two wells illustrate that some areas of the Basin have fluctuated more and have shown a measurable decline since about 2000, while other areas have experienced little to no change in water levels.

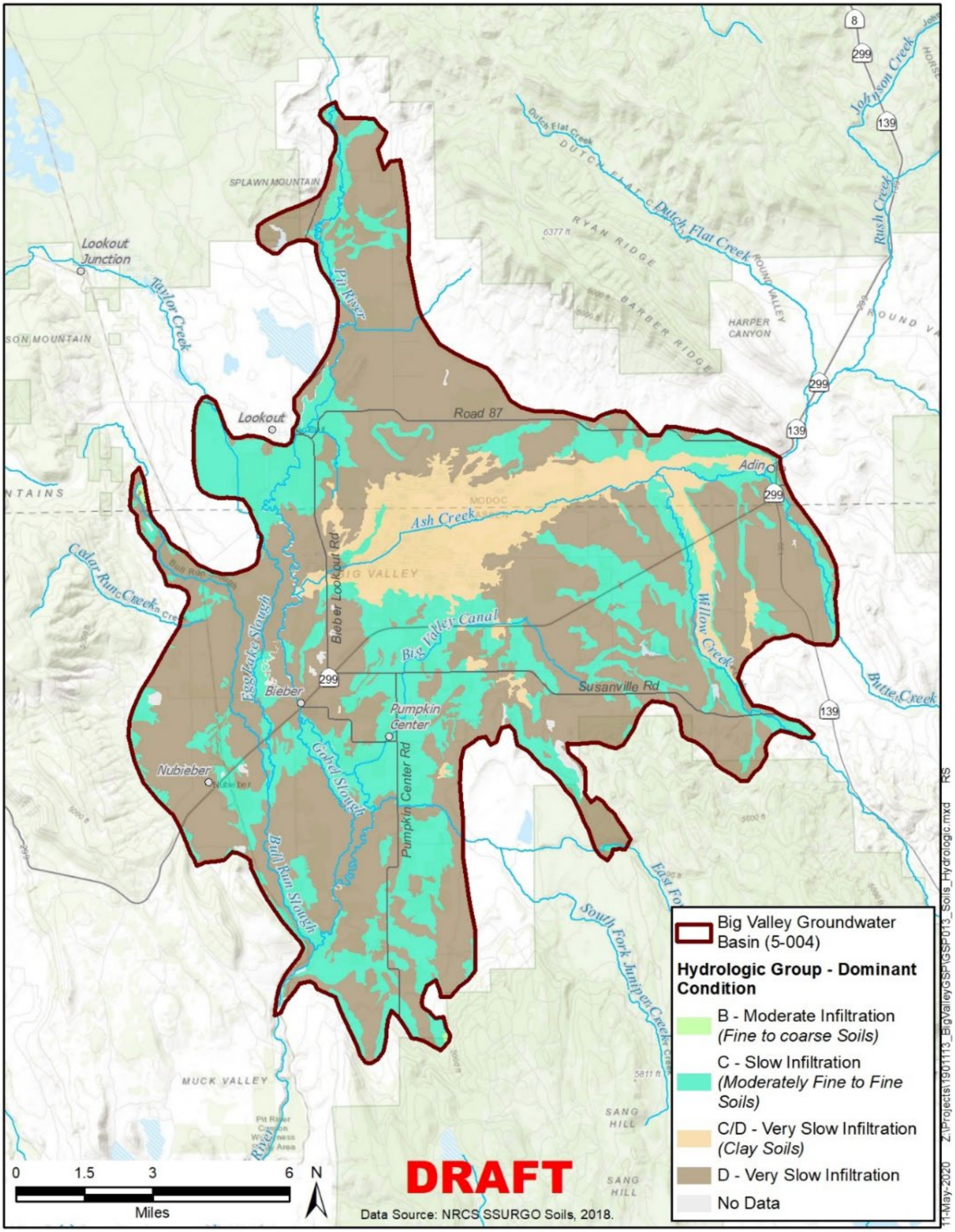

Figure ES-6 Hydrologic Soils Groups Classifications

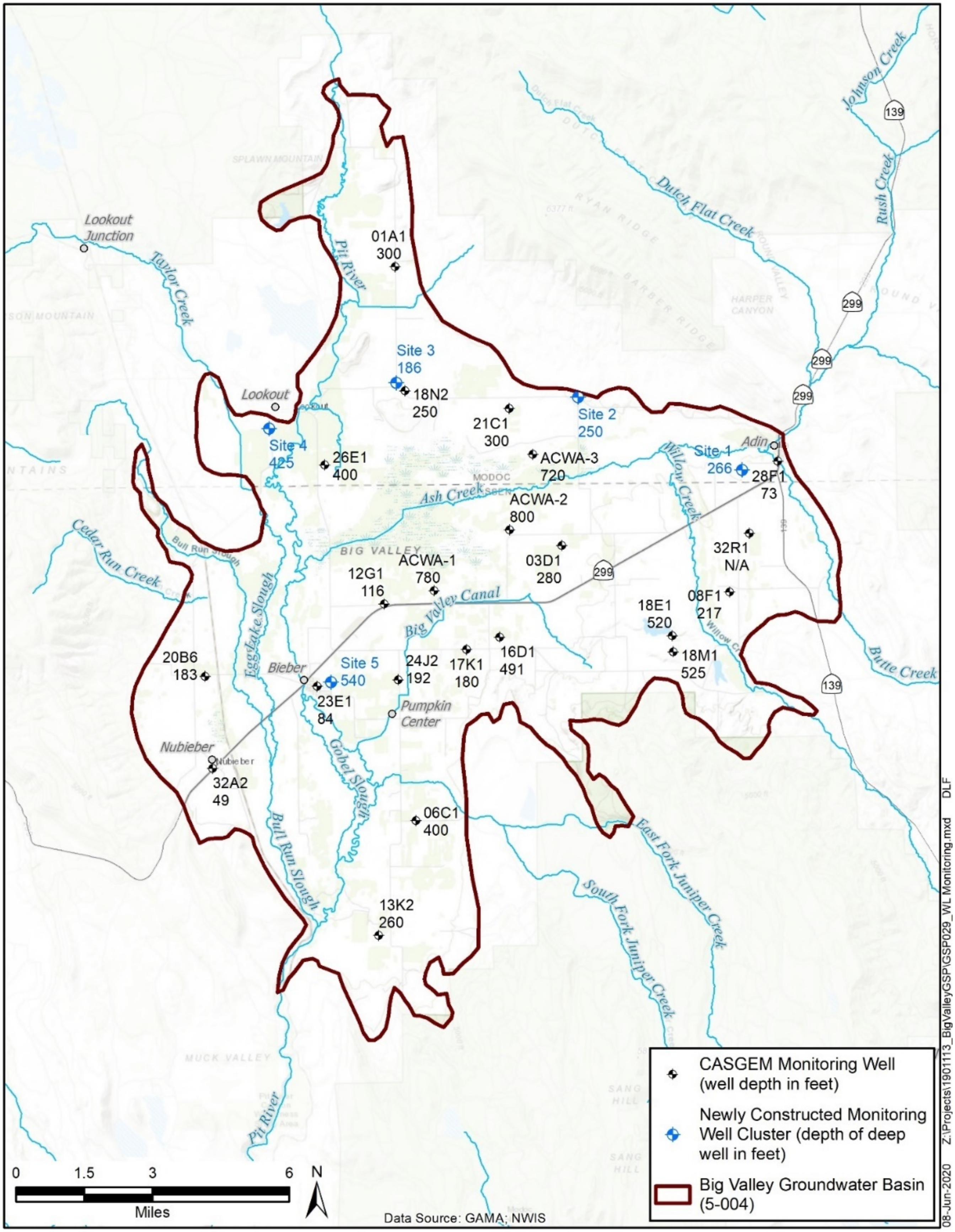

Figure ES-7 Water Level Monitoring

Table ES-3 Historic Water Level Monitoring Wells

Well Name	State Well Number	CASGEM ID	County	Well Use	Well Depth (feet bgs)	Ground Elevation (feet msl)	Reference Point Elevation (feet msl)	Period of Record Start Year	Period of Record End Year	Number of Measure-ments	Minimum Groundwater Elevation (feet msl)	Maximum Groundwater Elevation (feet msl)
18E1	38N09E18E001M	411356N1209900W001	Lassen	Irrigation	520	4248.40	4249.50	1981	2019	73	4198.20	4234.10
23E1	38N07E23E001M	411207N1211395W001	Lassen	Residential	84	4123.40	4123.40	1979	2020	81	4070.40	4109.10
260	39N07E26E001M	411911N1211354W001	Modoc	Irrigation	400	4133.40	4135.00	1979	2020	79	4088.90	4131.30
01A1	39N07E01A001M	412539N1211050W001	Modoc	Stockwatering	300	4183.40	4184.40	1979	2020	81	4035.40	4163.90
03D1	38N08E03D001M	411647N1210358W001	Lassen	Irrigation	280	4163.40	4163.40	1982	2020	71	4076.60	4148.60
06C1	37N08E06C001M	410777N1210986W001	Lassen	Irrigation	400	4133.40	4133.90	1982	2016	69	4066.20	4126.80
08F1	38N09E08F001M	411493N1209656W001	Lassen	Other	217	4253.40	4255.40	1979	2020	83	4167.90	4229.50
12G1	38N07E12G001M	411467N1211110W001	Lassen	Residential	116	4143.38	4144.38	1979	1993	28	4130.98	4138.68
13K2	37N07E13K002M	410413N1211147W001	Lassen	Irrigation	260	4127.40	4127.90	1982	2018	70	4061.90	4109.70
16D1	38N08E16D001M	411359N1210625W001	Lassen	Irrigation	491	4171.40	4171.60	1982	2020	74	4078.73	4162.40
17K1	38N08E17K001M	411320N1210766W001	Lassen	Residential	180	4153.30	4154.30	1957	2020	146	4115.08	4150.00
18M1	38N09E18M001M	411305N1209896W001	Lassen	Irrigation	525	4288.40	4288.90	1981	2020	74	4192.30	4232.70
18N2	39N08E18N002M	412144N1211013W001	Modoc	Residential	250	4163.40	4164.40	1979	2020	80	4136.60	4160.20
20B6	38N07E20B006M	411242N1211866W001	Lassen	Residential	183	4126.30	4127.30	1979	2019	80	4076.94	4116.60
21C1	39N08E21C001M	412086N1210574W001	Modoc	Irrigation	300	4161.40	4161.70	1979	2020	79	4082.10	4148.50
24J2	38N07E24J002M	411228N1211054W001	Lassen	Irrigation	192	4138.40	4139.40	1979	2019	77	4056.70	4137.70
28F1	39N09E28F001M	411907N1209447W001	Modoc	Residential	73	4206.60	4207.10	1982	2020	76	4194.57	4202.10
32A2	38N07E32A002M	410950N1211839W001	Lassen	Other	49	4118.80	4119.50	1959	2020	133	4106.70	4118.80
32R1	39N09E32R001M	411649N1209569W001	Lassen	Irrigation	unknown	4243.40	4243.60	1981	2020	64	4161.20	4205.50
ACWA-1	38N08E07A001M	411508N1210900W001	Lassen	Irrigation	780	4142.00	4142.75	2016	2020	8	4039.15	4126.35
ACWA-2	39N08E33P002M	411699N1210579W001	Lassen	Irrigation	800	4153.00	4153.20	2016	2020	8	4126.40	4139.35
ACWA-3	39N08E28A001M	411938N1210478W001	Modoc	Irrigation	720	4159.00	4159.83	2016	2020	7	4136.23	4150.58

source: https://sgma.water.ca.gov/webgis/?appid=SGMADataViewer

bgs = below ground surface

msl = above mean sea level

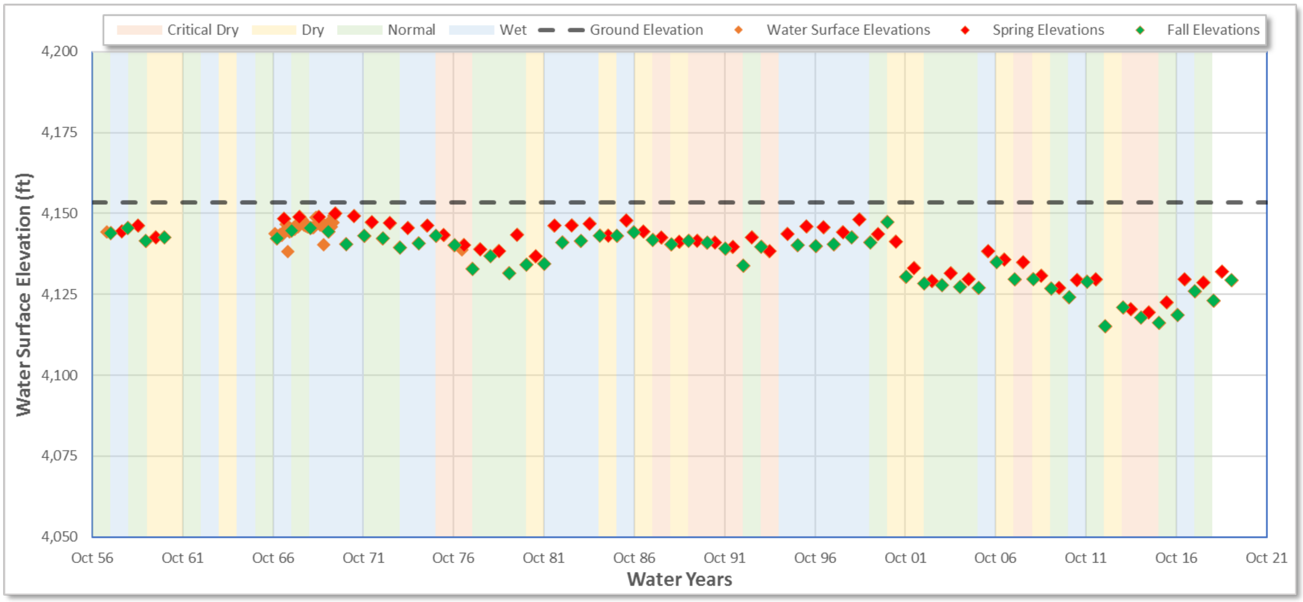

Figure ES-8 Hydrograph of Well 17K1

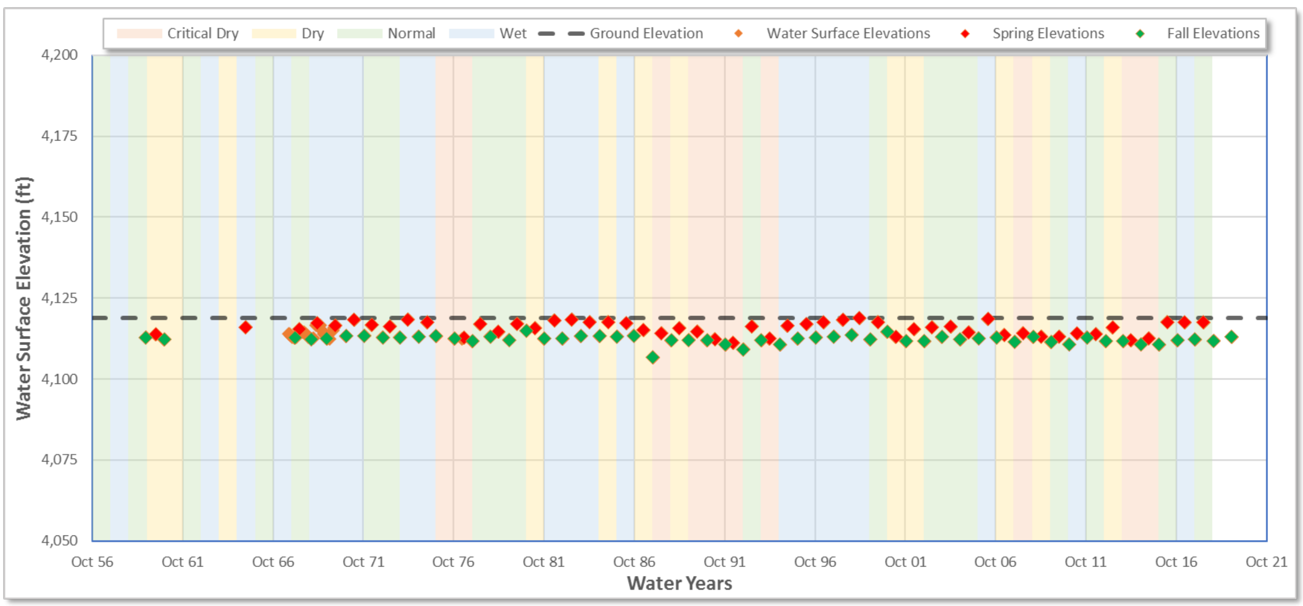

Figure ES-9 Hydrograph of Well 32A2

In order to determine the annual and seasonal change in groundwater storage, groundwater elevation surfaces[8] were developed for spring and fall for each year between 1983 and 2018. **Figure ES-10** shows this information graphically, along with the annual precipitation from the McArthur station. This graph shows that groundwater storage generally declines during dry years and stays stable or increases slightly during normal or wet years. During the period from 1983 to 2000, groundwater levels dipped, then returned to the same levels. After 2000, groundwater storage has generally declined.

[8] Groundwater elevation surfaces are developed from the known groundwater elevations at wells throughout the Basin and then estimating/interpolating elevations at intermediate locations via a mathematical method known as kriging. The kriging elevation surface is based on a grid covering the entire basin that has interpolated groundwater elevation values for each node of the grid.

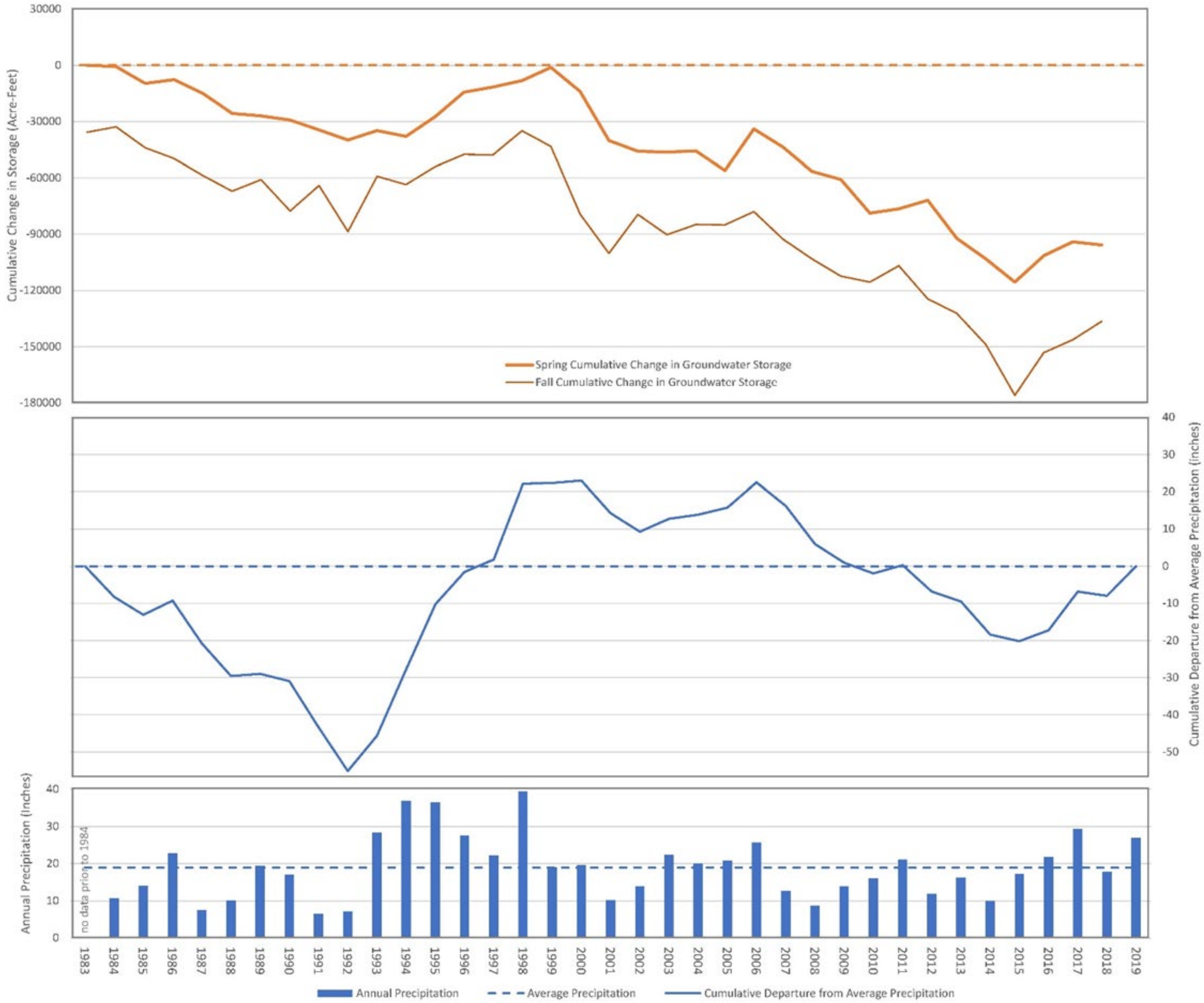

Figure ES-10 Cumulative Change in Groundwater Storage and Precipitation

Groundwater in the BVGB is generally of good to excellent quality. (DWR 1963, USBR 1979) Previous reports have noted the potential for elevated concentrations of arsenic, boron, fluoride, iron, manganese, and sulfate (DWR 1963, USBR 1979). All of these constituents are naturally occurring and in these historic reports, they indicate that most of these constituents are associated with the localized area of hot springs along the south central perimeter of the Basin.

Subsidence was recognized as an important consideration in the 2007 Groundwater Management Plan (GMP) for Lassen County overall (Brown and Caldwell 2007) but was not identified as a specific issue for Big Valley. **Figure ES-11** is a map of InSAR[9] data for the 4.3-year period between June 2015 and

[9] Interferometric Synthetic Aperture Radar (InSAR) is a satellite-based technology that can detect differences in land elevation over time.

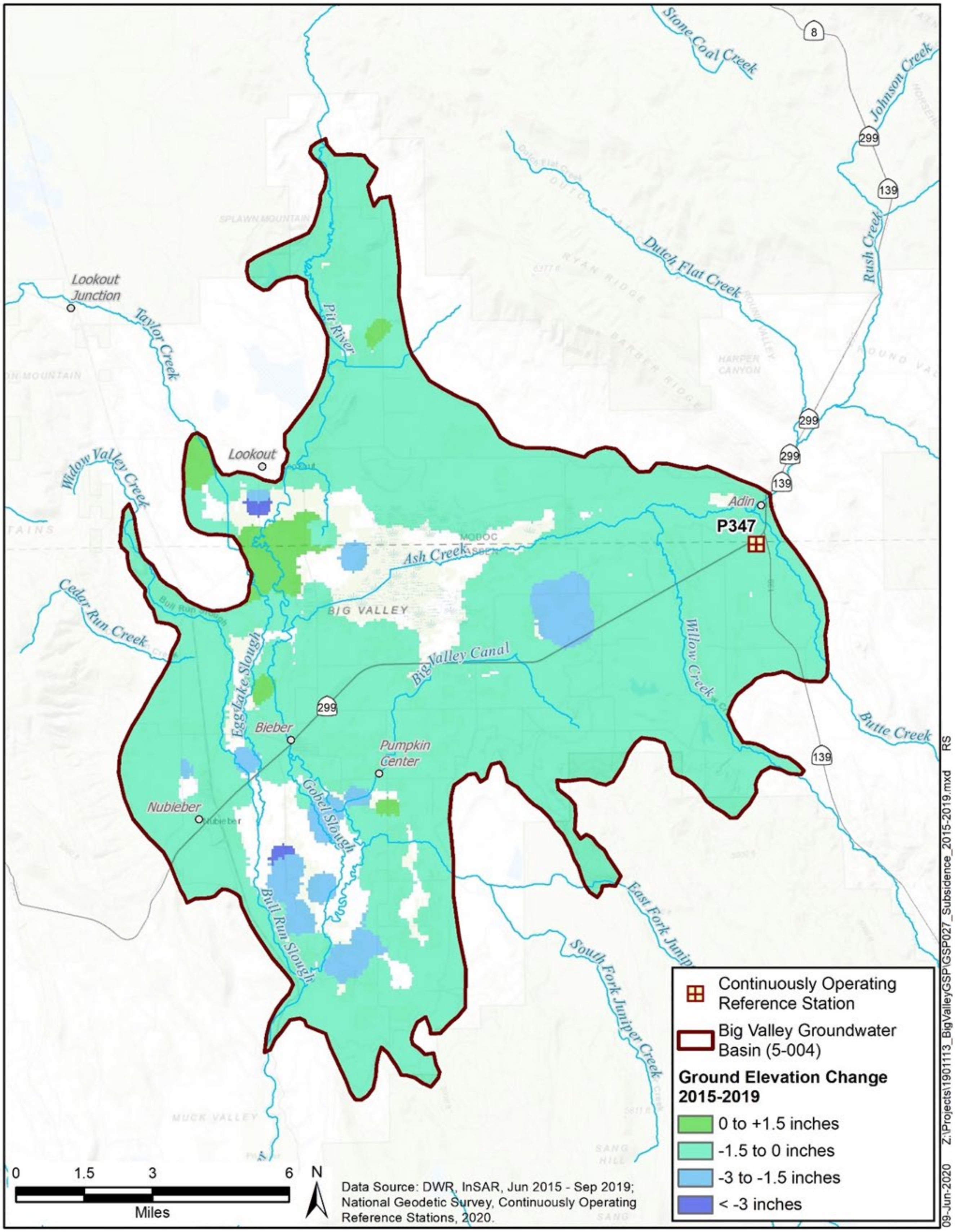

Figure ES-11 InSAR Change in Ground Elevation 2015-2019

September 2019. Most of the surveyed area shows displacement between 0 and -1 inches (downward) throughout Big Valley. This widespread, small displacement is likely due to natural geologic forces (sediment consolidation, tectonic shift). Maximum displacement in the Basin is -3.3 inches (downward), or -0.77 inches per year over the 4.3-year period, but these areas will require further study to determine if this displacement is related to groundwater extraction (subsidence) or natural processes.

Interconnected surface water refers to surface water that is “hydraulically connected at any point by a continuous saturated zone to the underlying aquifer and the overlying surface water is not completely depleted” (DWR 2016). Interconnected streams can be gaining (groundwater flowing into the stream) or losing (surface water flowing out of the stream to become groundwater). The flow directions from the groundwater contours can indicate whether the stream is gaining or losing, as shown on **Figure ES-12**, which delineates the major surface water bodies that may be interconnected with the groundwater aquifer.

SGMA defines a groundwater dependent ecosystem (GDE) as “ecological communities or species that depend on groundwater emerging from aquifers or on groundwater occurring near the ground surface” (DWR 2016). GDEs are considered a beneficial user of groundwater. GDEs for the Basin were determined based on “natural communities commonly associated with groundwater” data made available by DWR and the Nature Conservancy. This data was overlain with depth to groundwatger contours to isolate only those areas with groundwater less than 10 feet. This depth was used based on the maximum rooting depth of plant species found in Big Valley. Based on this analysis, potential GDEs are shown on **Figure ES-13**.

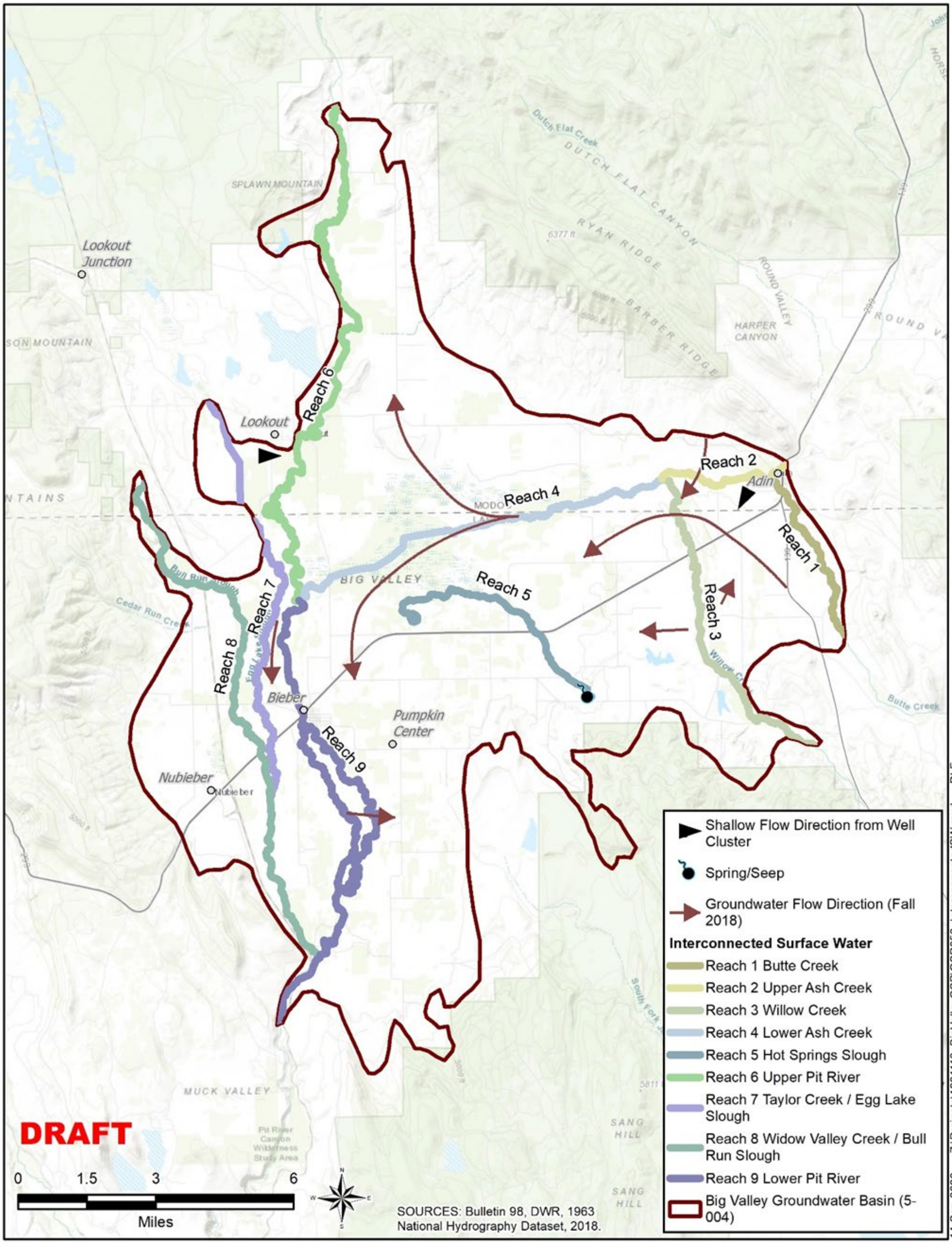

Figure ES-12 Interconnected Surface Water

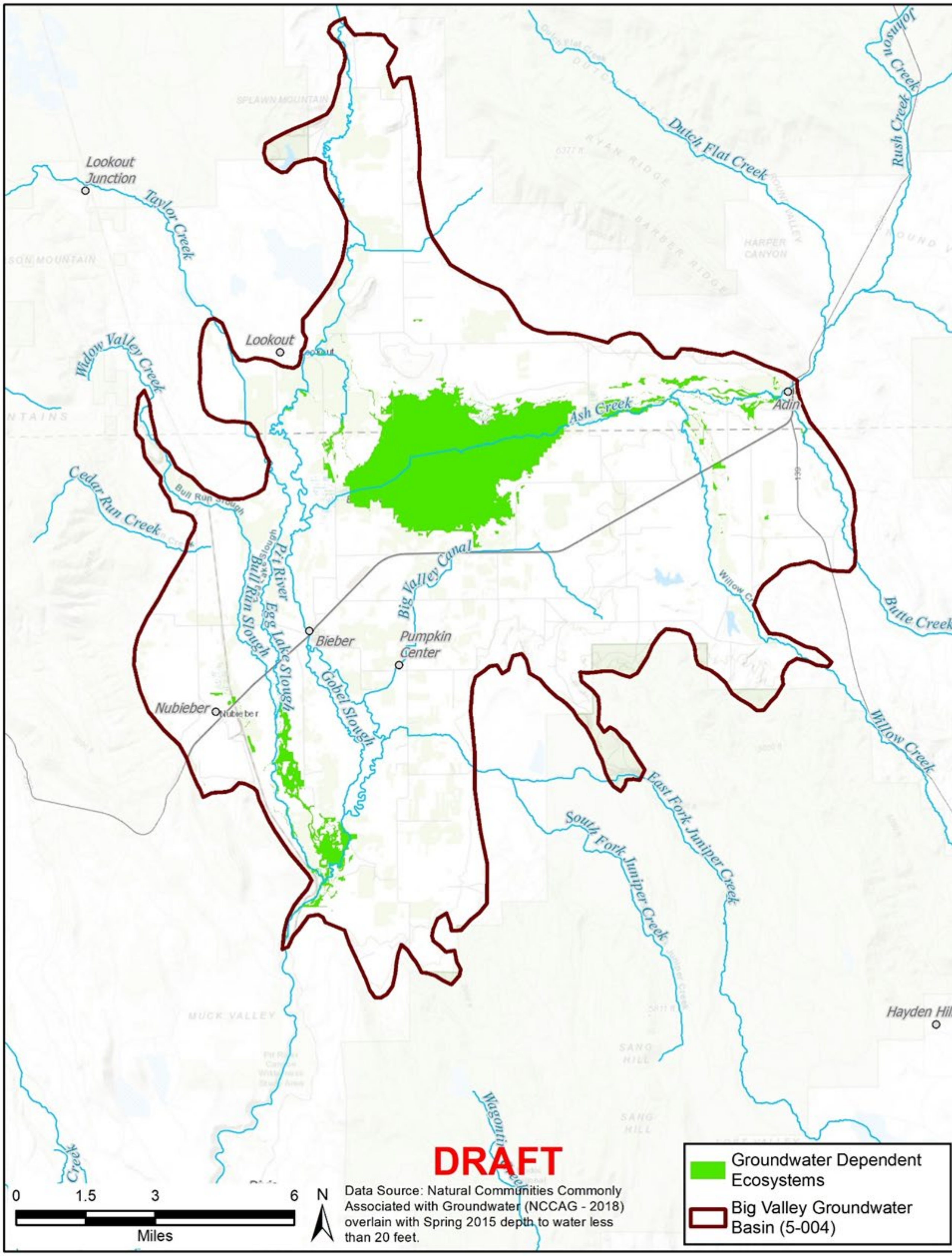

Figure ES-13 Potential Groundwater Dependent Ecosystems

Water Budget (Chapter 6)

A historic water budget was developed for the 1982-2018 timeframe. **Figure ES-14** shows the overall water budget, and **Figure ES-15** shows just the groundwater system budget. From this water budget analysis, a rough estimate for the sustainable yield is about 39,400 acre-feet per year, and average annual overdraft is 5,200 acre-feet. As required by the regulations, a future water budget was also developed using 50 years of historic climatic and hydrologic data as a projection of the future condition. **Figure ES-16** shows the historic and projected future water budget. **Figure ES-17** shows the same projection, but with climate change factors provided by DWR.

TOTAL BASIN WATER BUDGET — Acre-Feet

item	Flow Type	Origin/ Destination	Component	
(1)	Inflow	Into Basin	Precipitation on Land System	136,801
(14)	Inflow	Into Basin	Precipitation on Reservoirs	501
(13)	Inflow	Into Basin	Stream Inflow	371,148
(27)	Inflow	Into Basin	Subsurface Inflow	1
(32)	Inflow	*(1)+(14)+(13)+(27)*	*Total Inflow*	*508,451*
(5)	Outflow	Out of Basin	Evapotranspiration	154,040
(24)	Outflow	Out of Basin	Stream Evaporation	385
(23)	Outflow	Out of Basin	Reservoir Evaporation	722
(19)	Outflow	Out of Basin	Conveyance Evaporation	46
(18)	Outflow	Out of Basin	Stream Outflow	358,486
(29)	Outflow	Out of Basin	Subsurface Outflow	-
(33)	Outflow	*(5)+(24)+(23)+(19)+(18)+(29)*	*Total Outflow*	*513,678*
(34)	Storage Change	(32)-(33)	Change in Total System Storage	(5,227)

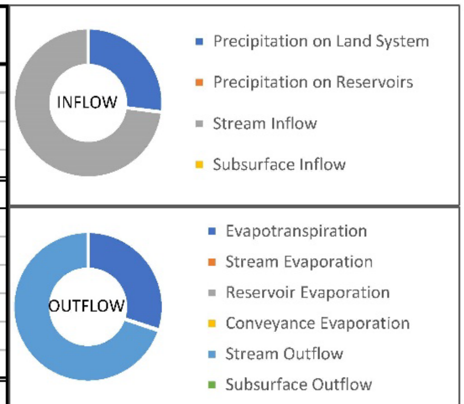

Figure ES-14 Average Total Basin Water Budget 1984-2018

GROUNDWATER SYSTEM — Acre-Feet

item	Flow Type	Origin/ Destination	Component	
(8)	Inflow	Between Systems	Recharge of Applied Water	13,133
(9)	Inflow	Between Systems	Recharge of Precipitation	1,601
(10)	Inflow	Between Systems	Managed Aquifer Recharge	-
(21)	Inflow	Between Systems	Groundwater Gain from Stream	24,037
(22)	Inflow	Between Systems	Groundwater Gain from Reservoir	596
(20)	Inflow	Between Systems	Conveyance Seepage	27
(27)	Inflow	Into Basin	Subsurface Inflow	1
(28)	Inflow	*(8)+(9)+(10)+(21)+(22)+(20)+(27)*	*Total Inflow*	*39,395*
(3)	Outflow	Between Systems	Groundwater Extraction	44,622
(15)	Outflow	Between Systems	Groundwater Loss to Stream	-
(16)	Outflow	Between Systems	Groundwater Loss to Reservoir	-
(29)	Outflow	Out of Basin	Subsurface Outflow	-
(30)	Outflow	*(3)+(15)+(16)+(29)*	*Total Outflow*	*44,622*
(31)	Storage Change	(28)-(30)	Change in Groundwater Storage	(5,227)

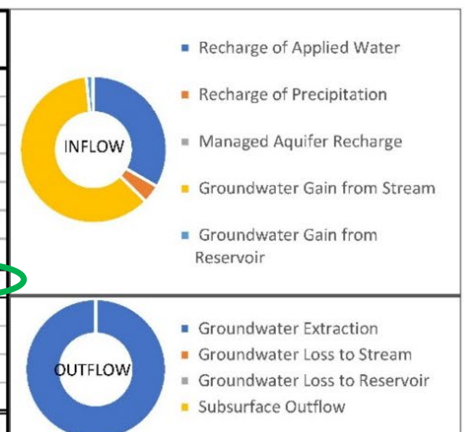

Figure ES-15 Average Groundwater System Water Budget 1984-2018

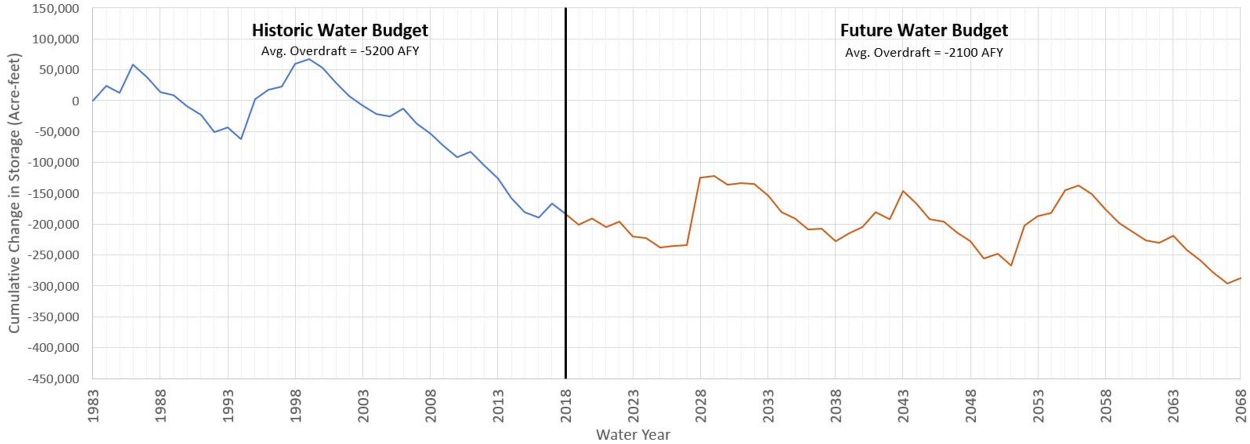

Figure ES-16 Cumulative Groundwater Change in Storage 1984 to 2068 (Future Baseline)

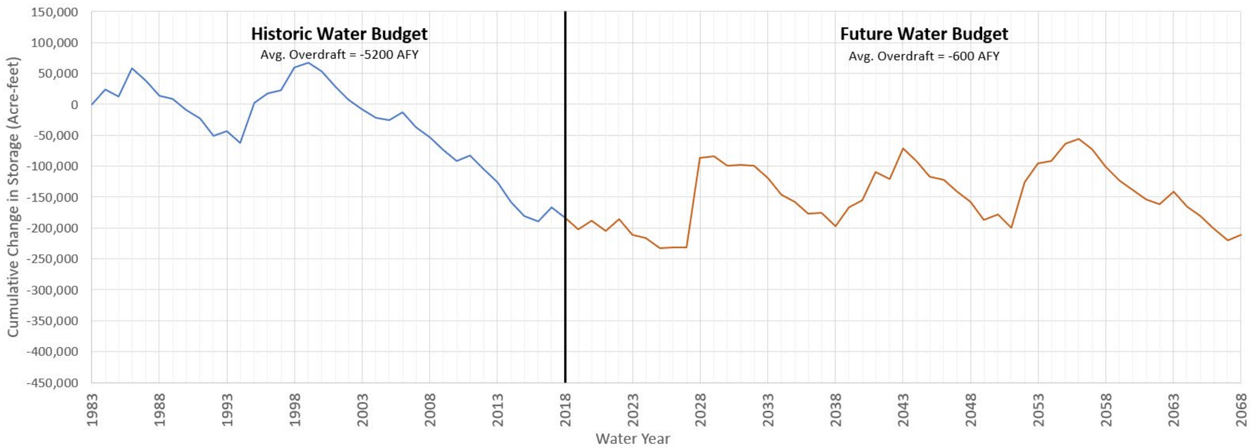

Figure ES-17 Cumulative Groundwater Change in Storage 1984 to 2068 (Future with Climate Change)

ES.5. Sustainable Management Criteria

Sustainability Goal

Undesirable Results and Thresholds

ES.6. Monitoring Networks

ES.7. Projects and Management Actions

ES.8. Implementation

Implementation Plan

Notice and Communications

Interagency Agreements