

1 **DRAFT**

2 **Section 1 & 2: Introduction & Description of Plan Area**
3 **Groundwater Sustainability Plan for**
4 **Sonoma Valley Groundwater Subbasin**
5

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46 2-1 Summary of Land Use Surveys

47

- 128 • Business community
- 129 • Agricultural interest (surface water or groundwater user)
- 130 • At-large community representative (hydrologist/geologist preference)
- 131 • At-large community representative

132

133 The role of the Advisory Committee in the GSP development process is to work towards
134 consensus and incorporate community and stakeholder interests into recommendations to the
135 GSA Board on GSP development and SGMA implementation. Advisory Committee members
136 also report to, and seek input, from their larger constituency groups on key components and
137 proposals related to GSP development. The Advisory Committee makes written
138 recommendations to the GSA Board that reflect the outcome of Committee discussions. To
139 ensure that all viewpoints are heard and considered by the Board, Advisory Committee reports
140 to the GSA Board identify areas of agreement and disagreement among the Committee.

141

142 **GSA Coordination**

143 Implementation of SGMA in the Sonoma Valley Subbasin is closely coordinated with
144 neighboring GSAs in Petaluma Valley and the Santa Rosa Plain, as well as local agencies with
145 land use responsibilities including the City of Sonoma and the County of Sonoma. In addition to
146 closely coordinating on managing and monitoring along shared basin boundaries, resources are
147 leveraged and shared by the three existing GSAs in Sonoma County to maximize efficiencies,
148 including shared templates and methodologies for certain GSP components, outreach
149 resources, grant opportunities, and the development of data management system tools and
150 technologies.

151

152 Contact information for the Sonoma Valley GSA is:

153

154 Sonoma Valley Groundwater Sustainability Agency
155 404 Aviation Boulevard, Santa Rosa California 95406
156 www.sonomavalleygroundwater.org (707) 524-8378

157

158 GSA Administrator: Ann DuBay, Community & Government Affairs Manager, Sonoma County
159 Water Agency

160

161 GSA Plan Manager: Jay Jasperse, Chief Engineer and Director of Groundwater Management,
162 Sonoma County Water Agency

163

164 **2.0 Description of Plan Area (Reg. 354.8 b)**

165

166 This section provides a description of the Plan Area, including the Subbasin's general physical
167 setting and jurisdictional areas, topography and surface water features, land use characteristics,

168 water source types and uses, existing monitoring and management programs, applicable land
169 use plans, and the well permitting process. The numbers in parenthesis in each sub-heading
170 indicate the applicable SGMA regulation.
171

172 **2.1 General Setting and Jurisdictional Areas (Reg. 354.8 b)**

173
174 The Plan Area for this GSP is the entire Sonoma Valley Subbasin, which lies within a northwest
175 trending structural depression in the Coast Ranges immediately north of San Pablo Bay and is
176 one of three coastal alluvial subbasins of the Napa-Sonoma Valley Groundwater Basin in the
177 San Francisco Bay Hydrologic Region. It is generally bounded on the west by the Sonoma
178 Mountains and on the east by the Mayacamas Mountains. As shown on **Figure 2-1**, the
179 approximately 44,000-acre Subbasin extends from San Pablo Bay northward to about 2 miles
180 south of the town of Kenwood and incorporates the City of Sonoma and communities of El
181 Verano, Boyes Hot Springs and Glen Ellen. As shown in **Figure 2-2**, the principal stream draining
182 the subbasin is Sonoma Creek, which is tidally influenced from approximately Schellville
183 downstream to its mouth at San Pablo Bay. The Subbasin is located within the Sonoma Creek
184 watershed and is a subset of the larger watershed.
185

186 Neighboring groundwater basins and subbasins are also shown on **Figure 2-1** and include the
187 Petaluma Valley Basin (designated as basin 2-001 by DWR), Kenwood Valley Basin (designated
188 as basin 2-019 by DWR), and the Napa-Sonoma Lowlands Subbasin (designated as basin 2-
189 002.03 by DWR). The Petaluma Valley Basin is a medium-priority basin that lies to the west and
190 abuts southwestern portions of the Sonoma Valley Subbasin. The Petaluma Valley GSA formed
191 in June 2017 and is responsible for implementing SGMA in the Petaluma Valley Basin. The
192 Kenwood Valley Basin is a very low priority basin that lies to the north of the Sonoma Valley
193 Subbasin. The Napa-Sonoma Lowlands is currently a very low priority basin located in Napa
194 County that occupies lowland areas northeast of San Pablo Bay and shares a boundary with the
195 Sonoma Valley Subbasin in the Carneros area and within the low-lying tidal marshlands along
196 the margin of San Pablo Bay. DWR's 2018 Draft Basin Prioritization proposes a change in
197 priority from very low to medium for the Napa-Sonoma Lowlands subbasin.
198

199 Available technical information related to the hydrologic connection between the Sonoma
200 Valley Subbasin and adjacent basins and subbasins is included in Section 3 (Basin Setting) and
201 provisions for coordinating with applicable GSAs and other local agencies within neighboring
202 basins are described in Section 7 (Implementation Plan).
203

204 While the Plan Area and jurisdiction of the Sonoma Valley GSA is limited to the Bulletin 118
205 Subbasin, technical studies (including monitoring and groundwater flow modeling) indicate that
206 contributing watershed areas outside of the Bulletin 118 Subbasin are hydrologically connected
207 and represent important sources of inflow (both in the form of surface streamflows and
208 subsurface inflows) to the Bulletin 118 Subbasin. In recognition of the hydrologic connection

209 with the contributing watershed areas, available data and information from these areas are
210 also included in this GSP. Distinctions between metrics and features associated with the
211 Bulletin 118 Subbasin and contributing watershed areas are clearly indicated or displayed in
212 relevant sections and figures.

213
214 Local agencies with water supply, water management, or land use responsibilities within the
215 Subbasin include the Sonoma Valley GSA, City of Sonoma, VOMWD, North Bay Water District,
216 Sonoma RCD, Sonoma Water, and County of Sonoma. **Figure 2-3** shows the jurisdictional
217 boundaries of these local agencies, state and federal lands, and protected lands within the
218 Subbasin. State lands include the Sonoma Developmental Center and properties within tidal
219 marshlands in the southern portions of the Subbasin managed by the California Department of
220 Fish and Wildlife. Federal lands are also present within tidal marshlands in the southern
221 portions of the Subbasin and are managed by the U.S. Fish and Wildlife Service. Other
222 protected lands located within the Subbasin and contributing watershed areas and shown on
223 **Figure 2-3** include city parks and fields, county regional parks and preserves, special district
224 properties and preserves, state parks and preserves, and non-profit preserves.

226 2.2 General Land Use Characteristics (Reg. 354.8 b)

227
228 Land uses within the Subbasin are shown on **Figures 2-4, a, b, and c**. Existing conditions
229 correlate most closely with the DWR 2012 land use survey (**Figure 2-4b**), which indicates the
230 land uses within the Subbasin are primarily agriculture (44 percent) and native vegetation or
231 water (43 percent), with residential, commercial and industrial land uses composing
232 approximately 13 percent of the land uses (primarily along the Highway 12 corridor and within
233 the City of Sonoma). The majority of the native vegetation is located in the lower portions of
234 the Subbasin along the tidal marshlands and in the upper portions of the Subbasin near Glen
235 Ellen. Throughout the last several decades, the primary agricultural crop has been vineyards for
236 wine production. Pastures, grains and hay, and dairies are also important land use categories,
237 with a total area comparable to irrigated agriculture. The urban and residential areas in the
238 Subbasin include the City of Sonoma, several unincorporated communities, and areas of rural
239 and semi-rural residential development.

240
241 Land use mapping over the past several decades provides a measure of the more significant
242 growth and land use changes in the Subbasin, which most notably includes increases in
243 irrigated agriculture and residential and commercial land uses (**Table 2-1 and Figure 2-4**). In
244 the Subbasin, lands used for irrigated agriculture increased from 14 percent in 1974 to about 23
245 percent in 2012. For the period 1974–1993 combined residential, commercial, and industrial
246 uses constituted about 8 percent of the Subbasin. After 1993, these uses increased to about 13
247 percent of the Subbasin. Native vegetation, which decreased from 54 percent in 1974 to 38
248 percent in 1993, increased to 43 percent in 2012, mostly owing to the restoration of tidal
249 marshlands of southern Sonoma Valley that has replaced non-irrigated agriculture.

250

251 **2.3 Water Source Types and Water Use Sectors (Reg. 354.8 b)**

252

253 This GSP recognizes that the efficient use and conjunctive management of the various available
254 water sources is integral to achieving sustainable groundwater management in the Subbasin.

255 The Subbasin has four primary water source types: groundwater, imported surface water, local
256 surface water, and recycled water. An overview of the spatial distribution of the reliance on
257 the four primary water source types by primary water use sectors in the Subbasin is shown on
258 **Figure 2-5** and provided below. Additional details on water uses associated with the Subbasin
259 water budget are described in Section 3 (Basin Setting) and additional information on the
260 availability and feasibility for future uses is included in Section 6 (Projects and Actions).

261

262 **Groundwater**

263 Groundwater produced from wells located in the Subbasin represents the largest source of
264 supply utilized in Sonoma Valley (nearly two-thirds of all water demands are estimated to be
265 met by local groundwater for the Subbasin and contributing watershed areas [Sonoma Water,
266 2014]). **Figure 2-6** presents a map showing the approximate density of water wells within the
267 Subbasin, based on available data from DWR (note to reader: this map will be updated and
268 refined with local information from Permit Sonoma and other well databases). These
269 groundwater resources are relied upon to varying degrees by rural and urban residents,
270 vineyards and wineries, dairies, and other businesses and also support streamflows and
271 ecosystems present in Sonoma Valley. Groundwater represents the primary, or in some cases
272 only available, source of supply for agriculture, rural residents, mutual water companies,
273 irrigated park lands, golf courses, and other commercial businesses located outside of the City
274 of Sonoma and VOMWD service areas. Local groundwater represents an important
275 supplemental source of supply for both the City of Sonoma and VOMWD, which operate
276 municipal wellfields within the Subbasin and contributing watershed areas.

277

278 **Imported Surface Water**

279 Imported water consists of Russian River surface water sourced from tSonoma Water's
280 production facilities near Forestville that is delivered via aqueduct to the City of Sonoma and
281 VOMWD within the Subbasin, as shown on **Figure 2-5**). Imported water represents the primary
282 source of water for urban residents and businesses that are served by the City of Sonoma and
283 VOMWD. These two systems collectively serve approximately 75% of the population in
284 Sonoma Valley and delivered approximately 3,500 AF of imported water in Water Year 2015,
285 representing approximately one-quarter of the total water demands in the Subbasin and
286 contributing watershed areas (City of Sonoma and VOMWD 2015 UWMPs).

287

288 Local Surface Water

289 Local surface water from Sonoma Creek and its tributaries represents an important source of
290 supply for some water users. Information on the approximate amounts of surface water is
291 available through reported surface water diversions filed with the California State Water
292 Resources Control Board. These local surface water diversions are estimated to represent less
293 than 10% of the total water demands in the Subbasin and contributing watershed areas
294 (Sonoma Water, 2014) and are primarily relied upon for agricultural purposes and for supplying
295 drinking water to the Sonoma Developmental Center facilities.

296

297 Recycled Water

298 Recycled water is treated to tertiary standards at the Sonoma Valley Wastewater Treatment
299 Plant and is used for crop and landscape irrigation in lieu of using groundwater or imported
300 water. Recycled water deliveries are estimated to represent less than 10% of the total water
301 demands in the Subbasin and contributing watershed areas (Sonoma Water, 2014) and are
302 primarily relied upon for agricultural purposes to irrigate vineyards, dairies, and pasturelands in
303 southern Sonoma Valley in the areas shown on **Figure 2-5**. Deliveries of recycled water to
304 irrigate some playing fields and parks within the City of Sonoma has also recently commenced.
305 A significant portion of the total recycled water available from the Sonoma Valley Wastewater
306 Treatment Plant is currently being delivered for wetlands enhancement at the Napa Sonoma
307 Salt Marsh Restoration Project located outside of the Subbasin.

308

309 2.4 Existing Monitoring Programs and Networks (Reg. 354.8 c, d, e)

310

311 Existing monitoring programs and networks within the Subbasin have been developed and
312 implemented by many agencies, organizations and volunteers for a variety of purposes. This
313 section provides a description of the existing monitoring programs and networks. An
314 assessment of the existing monitoring networks and programs for their suitability to comply
315 with DWR's GSP Regulations, including identification of data gaps, is described in Section 5 of
316 this GSP (Proposed Monitoring Program).

317

318 Groundwater Level Monitoring

319 Numerous organizations within the Subbasin and contributing watershed areas collect
320 groundwater-level measurements, including: DWR, Sonoma Water, City of Sonoma, VOMWD,
321 local volunteers and many operators of small mutual water systems. Permit Sonoma also
322 collects groundwater level data on certain commercial and high-capacity water wells.
323 Groundwater levels are measured from a combination of private wells, dedicated monitoring
324 wells and inactive and active public water supply wells. The groundwater-level monitoring
325 network expanded significantly under the voluntary Sonoma Valley Groundwater Management
326 Program (GMP) through public outreach and education to private well owners who volunteered
327 to have their wells monitored. In addition, several dedicated monitoring wells were

328 constructed with state-funding made available through the Sonoma Valley GMP. The majority
329 of wells monitored in the program are voluntary private domestic and agricultural wells, with a
330 smaller but significant portion of publicly owned water supply wells and dedicated monitoring
331 wells. In addition, the SWRCB GeoTracker program provides groundwater level monitoring data
332 on soil and groundwater cleanup sites in the Subbasin.

333
334 Groundwater level monitoring is generally conducted twice a year, in the spring and fall, at 158
335 groundwater level monitoring program wells within the Subbasin and contributing watershed
336 areas, as shown on **Figure 2-7a**. A subset of the wells is monitored on a more frequent basis,
337 including continuous monitoring using pressure transducers. The 158 wells in the existing
338 monitoring program were subdivided according to their well-screen depth or total depth,
339 where known, into the following categories:

- 340
- 341 • 200-feet deep or less (67 wells);
 - 342 • 200 to 500 feet deep (47 wells);
 - 343 • greater than 500 feet deep (33 wells); and
 - 344 • unknown well-screen and depth (11 wells).
- 345

346 DWR has measured groundwater levels in a network of wells within the Subbasin for decades.
347 Most of these wells were incorporated into DWR's monitoring network between the mid-
348 1950's and 1981. Measurements are generally collected from these wells semiannually in the
349 spring and fall, although a subset of wells are monitored on a monthly basis.

350
351 Since 2004, Permit Sonoma has administered the Use Permit Groundwater Monitoring
352 Program, which requires the measurement and reporting of groundwater-levels on a quarterly
353 or monthly basis for commercial and industrial projects requiring a use permit and using over
354 0.5 afy of water.

355
356 The DWR CASGEM program is a state program to compile groundwater level monitoring data
357 statewide from local monitoring programs. A subset of the Subbasin groundwater level
358 monitoring data is reported to the CASGEM program.

359 360 **Groundwater Quality Monitoring**

361 Groundwater quality data has been collected through many different programs and initiatives
362 described below. The synthesis and evaluation of results from the below water quality
363 monitoring programs are described in Section 3 (Basin Setting).

364 365 **Public Water Supply Well Monitoring**

366 The SWRCB's Division of Drinking Water (DDW) monitors public water system wells for
367 California Code of Regulations Title 22 requirements relative to levels of organic and inorganic
368 compounds such as metals, microbial compounds and radiological analytes. Data is available for

369 active and inactive drinking water sources, for water systems that serve the public, and wells
370 defined as serving 15 or more connections, or more than 25 people per day. In the Subbasin,
371 DDW wells were monitored for Title 22 requirements, including pH, alkalinity, bicarbonate,
372 calcium, magnesium, potassium, sulfate, barium, copper, iron, zinc, and nitrate.

373

374 [GeoTracker Groundwater Ambient Monitoring and Assessment Program](#)

375 Established in 2000, the Groundwater Ambient Monitoring and Assessment (GAMA) Program
376 monitors groundwater quality throughout the state of California. GAMA is intended to create a
377 comprehensive groundwater monitoring program throughout California and increase public
378 availability and access to groundwater quality and contamination information. GAMA receives
379 data from a variety of monitoring entities including DWR, USGS, and the State Water Resources
380 Control Board (SWRCB).

381

382 [Water Data Library \(WDL\)](#)

383 DWR's monitors groundwater quality data and reports the results through the Water Data
384 Library (WDL). Samples are collected from a variety of well types including irrigation, stock,
385 domestic, and some public supply wells. Wells are not regularly sampled, and most wells have
386 only one or two days'-worth of sampling measurements and large temporal gaps between the
387 results. Constituents most frequently monitored include dissolved chloride, sodium, calcium,
388 boron, magnesium, and sulfate. Measurements taken include conductance, pH, total alkalinity
389 and hardness (more than 1,000 total samples per parameter). Additional dissolved nutrients,
390 metals, and total dissolved solids (TDS) are also sampled but have fewer sample results
391 available (one to 1,000 samples per parameter).

392

393 [Sonoma Valley Salt and Nutrient Management Plan](#)

394 For the Sonoma Valley Salt and Nutrient Management Plan (SNMP), 47 wells that are currently
395 monitored by DWR, CDPH, and SVGMP are included in the SNMP monitoring program. Wells
396 will be monitored on the same schedule as their current monitoring, and results are reported
397 through the Geotracker database system to the Regional Water Board every three years in an
398 SNMP Groundwater Monitoring Report. Parameters to be monitored include electrical
399 conductivity (EC), TDS and nitrate.

400

401 [U.S. Geological Survey National Water Information System](#)

402 Special studies conducted by the USGS within the Sonoma Valley Subbasin have included the
403 collection and analysis of groundwater quality data. Water quality analyses have included
404 major ions, trace elements, nutrients, and stable isotopes (oxygen-18 and deuterium), tritium,
405 the radioactive isotope of carbon (carbon-14) and the stable isotope carbon-13. Data collected
406 by the USGS through these studied is available on the National Water Information System
407 (NWIS) database (<https://waterdata.usgs.gov/nwis>).

408

409 **Climate Monitoring**

410 Climate-related monitoring stations in the Subbasin and contributing watershed areas provide
411 part of the information necessary for forecasting weather conditions, flood preparedness,
412 drought preparedness, water supply planning, and for determining the Subbasin water budget.
413 Climate monitoring stations may include sensors to collect data on rainfall, air temperature,
414 relative humidity, wind speed and direction, solar radiation, soil temperature and moisture.
415 Climate data is collected by many stakeholders in the Subbasin, as shown on **Figure 2-7b**,
416 including data collected at four locations through the Western Weather Group
417 (<http://www.westernwx.com/sonoma/>) and rainfall data collected under the Community
418 Collaborative Rain, Hail & Snow Network (CoCoRAS -
419 <https://www.cocorahs.org/ViewData/CountyDailyPrecipReports.aspx?state=CA&county=SN>) at
420 five locations. Additionally, in response to the 2017 wildfires, Sonoma Water has lead the
421 deployment of four additional rain gauges within the Subbasin and contributing watershed
422 areas (<https://sonoma.onerain.com/home.php>).

423
424 The primary weather station in the Sonoma Valley Subbasin which has been used to calculate
425 mean annual rainfall is Climate Station Sonoma. C (National Climatic Data Center #8351,
426 Sonoma). The station is located approximately 0.5 miles northwest of the Sonoma Post Office
427 on Broadway. Data is available from 1953 to the present at this station.

428
429 Local agencies are also working collaboratively with the National Oceanic and Atmospheric
430 Administration (NOAA) and the USGS to develop better information on weather conditions,
431 weather and river level forecasting and climate change.

432
433 The California Irrigation Monitoring Information System (CIMIS), operated by DWR, maintains a
434 climate station in the Carneros area in Napa County. The Carneros station (CIMIS Station 109) is
435 about 1,000 feet east of the subbasin boundary and has been in operation since 3/11/1993. The
436 station measures ET_o, precipitation, solar radiance, vapor pressure, temperature, relative
437 humidity, dewpoint, windspeed and wind direction, and soil temperature.

438 **Surface Water Monitoring**

439
440 Existing continuous surface water monitoring locations in the Subbasin and contributing
441 watershed areas are shown on **Figure 2-7c** and include three stream gaging stations operated
442 by the USGS, eight gauges operated by Trout Unlimited, and one gauge operated by One Rain,
443 on behalf of Sonoma Water. For the USGS gauges, data collection began in 1955 at the Agua
444 Caliente gauge with a data gap between 1981 and 2001, 2008 at the Kenwood gauge and 2016
445 at the Nathanson gauge. Data collection for the Trout Unlimited and OneRain gauges began in
446 2017 and 2018, respectively.

447
448 Synoptic streamflow measurements (seepage runs) were conducted on Sonoma Creek and its
449 tributaries in 2003 and 2010 by the USGS and from 2014 to the present by the Sonoma Ecology

450 Center. These seepage runs consist of a series of streamflow measurements made at multiple
451 sites over a short time period (e.g., single day to several days) along Sonoma Creek and its
452 tributaries to quantify streamflow gains and losses for a specific time period. The seepage runs
453 provide insights into stream reaches that rely on shallow groundwater to support streamflows
454 and areas where surface water from streams provide a source of recharge to the groundwater
455 system, as well as how these conditions can vary seasonally. Measurements have been
456 collected at between approximately 50 to 70 sites on a semiannual basis and at approximately
457 15 to 20 sites on a monthly to bimonthly basis.

458

459 [Land Surface Subsidence Monitoring](#)

460 In the Sonoma Valley, global positioning system (GPS) stations monitored by the University
461 NAVSTAR Consortium's (UNAVCO) Plate Boundary Observatory (PBO) program are currently
462 used as an indicator for subsidence. There are currently no regularly scheduled theodolite or
463 total station surveys and no extensometers in the Sonoma Valley.

464

465 The UNAVCO PBO network consists of a network of about 1,100 continuous GPS and
466 meteorology stations in the western U.S. used to monitor multiple pieces of information,
467 including subsidence. There are two stations in the Subbasin and one in the upper watershed:
468 (1) P200, located on Highway 12 at Sonoma Creek; (2) P199, located along Rogers Creek near
469 Temelec, and (3) located on the ridgetop just south of Sugarloaf Ridge State Park.

470

471 **2.5 Existing Management Programs and Studies (Reg. 354.8 c, d, e)**

472

473 There are many existing and previous water management programs, studies and initiatives that
474 cover the Sonoma Valley Subbasin that have been developed for a variety of purposes by
475 multiple agencies and organizations. This section summarizes those deemed most relevant to
476 groundwater management planning and indicates the type of information and details from
477 these plans that is incorporated into subsequent sections of this GSP.

478

479 **Sonoma Valley Groundwater Management Program**

480 The current trend in declining groundwater levels was recognized in a 2006 USGS study funded
481 by Sonoma Water. This study formed the basis of the 2007 Sonoma Valley Groundwater
482 Management Program (GMP) and Plan, developed for the Sonoma Creek Watershed under the
483 leadership of a Basin Advisory Panel (BAP), comprised of a diverse group of local stakeholders.
484 The GMP was prepared under the authority of the Groundwater Management Act, California
485 Water Code (Water Code) § 10750 *et seq.*, originally enacted as Assembly Bill (AB) 3030 in 1992
486 to encourage voluntary, non-regulatory groundwater management at the local level.

487

488 The GMP aimed to locally and voluntarily manage, protect, and enhance groundwater
489 resources for all beneficial uses in a sustainable, environmentally sound, economical and

490 equitable manner for generations to come. This plan identified a range of voluntary water
491 management actions, including groundwater recharge, groundwater banking, increased water
492 use efficiency, and greater use of recycled water to reduce demand for groundwater. Key
493 information, tools and outcomes from these previous groundwater management planning
494 activities include:

- 495
- 496 • Technical information on the Basin hydrology, hydrogeologic framework, water
497 chemistry and source, surface water and groundwater interaction monitoring, and
498 records of groundwater levels, including historical trends and documentation of
499 groundwater depletion in southern Sonoma Valley.
- 500 • Significant expansion of monitoring activities.
- 501 • Initiation of studies and pilot programs for groundwater banking and stormwater
502 recharge.
- 503 • Development of a MODFLOW groundwater flow model of surface water and
504 groundwater systems in the Basin and contributing watershed area.
- 505 • Initial scoping of projects and actions needed to address ongoing groundwater depletion
506 and sustain groundwater resources in Sonoma Valley.
- 507 • Engagement of local stakeholders in local groundwater planning and management.
- 508

509 Prior to being discontinued in 2017, the Basin Advisory Panel and Technical Advisory Committee
510 developed the [Insights and Recommendations, Sonoma Valley Groundwater Conditions and
511 Management document](#) for the Sonoma Valley GSA to consider in developing this GSP.

512

513 **Bay Area Integrated Regional Water Management Plan**

514 In November 2002, California voters approved Proposition 50, the Water Security, Clean
515 Drinking Water, Coastal and Beach Protection Act of 2002. The Act encourages regional
516 cooperation in water resources planning by providing grant funding for projects identified in a
517 regional plan, referred to as an Integrated Regional Water Management Plan (IRWMP). DWR
518 designed the IRWM planning process to be consistent with the California Water Plan, a
519 statewide water resources planning document that is updated periodically and intends that
520 IRWM Plans and future updates of the California Water Plan, be integrated further in the
521 future.

522

523 The Bay Area IRWMP defines the Bay Area region according to the San Francisco Bay Regional
524 Water Quality Control Board's (Region 2) jurisdiction, which includes the Sonoma Valley
525 Subbasin. This region includes all or major portions of the nine counties which surround the
526 Bay. The Bay Area IRWMP is a living document and involves a diverse group of water supply,
527 water quality, wastewater, stormwater, flood management, watershed and habitat agencies,
528 local governments, environmental groups, business groups, and community-based
529 organizations.

530 Stakeholders from the nine counties developed four Functional Areas in order to identify
531 specific needs and challenges related to each specific Functional area, describe water
532 management strategies to address these needs, and develop a list of potential strategies and
533 implementation projects that maximize benefits and enhance opportunities for regional
534 cooperation within a given functional area. The four Functional Areas are:

535

- 536 • Water Supply and Water Quality
- 537 • Wastewater and Recycled Water
- 538 • Flood Protection and Stormwater Management
- 539 • Watershed Management-Habitat Protection and Restoration

540

541 For more information on the Bay Area IRMWP visit <http://bayaireairwmp.org>.

542

543 **Urban Water Management Planning**

544 Urban Water Management Plans (UWMPs) are prepared every five years by
545 California's urban water suppliers to support long-term resource planning and ensure adequate
546 water supplies are available to meet existing and future water demands. Every urban water
547 supplier that either provides over 3,000 acre-feet of water annually or serves more than 3,000
548 or more customers is required to assess the reliability of its water sources over a 20-year
549 planning horizon considering normal, dry and multiple dry years. The plans are submitted to
550 DWR, which then reviews the submitted plans to make sure they have completed the
551 requirements identified in the [Urban Water Management Planning \(UWMP\) Act](#) (Division 6 Part
552 2.6 of the Water Code §10610 - 10656).

553

554 Within the Subbasin, UWMPs are prepared by Sonoma Water (as a wholesaler) and the City of
555 Sonoma and Valley of the Moon Water District (as water retailers). The three UWMPs were last
556 completed in 2015 and will be updated in 2020. The Plans discuss and describe:

557

- 558 • Existing water supplies and infrastructure;
- 559 • Projected water demands over the next 25 years, based on population growth;
560 projections, land use designations and growth policies in city and county general plans;
- 561 • Projected water supplies available over the next 25 years, the reliability of that supply,
562 and general plans for water supply projects;
- 563 • Current and planned water conservation activities;
- 564 • A water shortage contingency analysis; and
- 565 • A comparison of water supply and water demand over the next 25 years under different
566 hydrological assumptions (normal year, single dry year, four consecutive dry years).

567

568 As local groundwater makes up a portion of the urban water supply within the Subbasin, the
569 UWMPs also discuss and describe groundwater production facilities, historical and projected
570 groundwater use and the conditions of the groundwater basin. Thus, UWMPs serve as a routine

571 mechanism for local urban water providers to coordinate and plan for future urban
572 groundwater use. The most recent projections for future urban groundwater use are
573 incorporated into Section 3 (Basin Setting). However, it is noted that UWMPs do not consider
574 rural residential, agriculture and small municipal/mutual water systems.

575

576 In addition to the UWMPs required by the state, local urban water providers perform other
577 water supply planning activities related to groundwater, including development of water
578 master plans, preparation of water-supply assessments for larger proposed developments
579 (more than 500 dwelling units or equivalent), updates of city and county General Plans, and
580 other activities. Information regarding some of these activities is summarized below:

581

582 • A Water Master Plan has been developed by the City of Sonoma in 2011 and a
583 [Groundwater Master Plan](#) was developed by VOMWD in 1998.

584

585 • Sonoma Water has developed a Water Supply Strategies Action Plan in coordination
586 with its water contractors to increase water supply system reliability, resiliency and
587 efficiency in the face of limited resources, regulatory constraints and climate change
588 uncertainties. The Water Supply Strategies Action Plan is currently being updated and
589 will incorporate SGMA-related requirements and initiatives. The most recent version is
590 available at <http://www.scwa.ca.gov/water-supply-strategy/>.

591

592 • Beginning with passage of SB 610 in 2002, water supply assessments must be furnished
593 to local governments for inclusion in any environmental documentation for certain
594 projects that are subject to the California Environmental Quality Act (CEQA). The water
595 supply assessments are required to determine water supply sufficiency for a 20-year
596 projection in addition to the demand of existing and other planned future uses.

597

598 **Water Conservation Programs**

599 Numerous regional and local water conservation programs are operational in the Plan Area.

600

601 The Sonoma-Marín Saving Water Partnership represents 10 water utilities in Sonoma and Marin
602 counties that are signatories to the California Urban Water Conservation Council (CUWCC) and
603 have joined to create a regional approach to water use efficiency. Within the Subbasin, these
604 utilities include the City of Sonoma, VOMWD and Sonoma Water. Each of these member
605 utilities have water conservation programs to assist their communities reduce water use.
606 Water conservation and water-use efficiency program elements specific to the Sonoma-Marín
607 Saving Water Partnership include:

608

609 • Establishing a conservation coordinator, water waste prohibition, assistance and water
610 loss control programs (audits, leak detection and repair).

611 • Urban water metering and conservation pricing (tiered structure).

- 612 • Developing and maintaining public information and school education programs on
613 water and conservation.
- 614 • Specific urban residential programs for indoor (high efficiency toilets, fixtures, and
615 washers) and outdoor landscaping assistance, surveys and retrofits for increasing
616 conservation.
- 617 • Specific industrial and large landscape assistance, surveys and retrofits for increasing
618 conservation.
- 619 • Rebate programs for high-efficiency appliances and fixtures.
- 620 • Qualified water efficient landscaper training that provides education on proper plant
621 selection for local climates, irrigation system design and maintenance, and irrigation
622 system programming and operation.
- 623 • Online water wise gardening website which offers a Mediterranean and native plant list,
624 design and garden installation tips, and irrigation system design and maintenance
625 information.
- 626 • Green business program that provides businesses with water and energy conservation
627 information and incentives, to reduce waste and prevent pollution.

628

629 More information is available at <http://www.savingwaterpartnership.org/>.

630

631 The State Legislature adopted the "[Water Conservation in Landscaping Act of 2006](#)" (AB 1881)
632 requiring the Department of Water Resources to update the [State Model Water Efficient
633 Landscape Ordinance](#). All local land use agencies were required to adopt the model ordinance
634 or develop an ordinance that is at least as effective by January 1, 2010. The county and cities
635 have developed individual water efficient landscape ordinances. The new water efficient
636 landscape ordinances require a landscape plan check for certain projects, as described in the
637 ordinance. It includes requirements for landscape water budgets, landscape and irrigation
638 design, and irrigation scheduling.

639

640 The Sonoma RCD, Napa RCD, and the USDA Natural Resources Conservation Service developed
641 the LandSmart program to promote productive lands and thriving streams through planning
642 and on-the-ground implementation on beneficial management practices. The program is
643 applicable to a variety of agricultural lands. LandSmart Plans are developed by the agricultural
644 producer, either independently, through workshops, or through one-on-one assistance from an
645 RCD. Producers can also seek certification from the RCD's certification team once plans are
646 complete. Plan templates and guidance materials are designed to assess current practices and
647 identify recommendations for other practices that would benefit natural resources such as
648 water quantity and quality. Practices are prioritized and tracked over time. Information on
649 LandSmart™ is available at: www.LandSmart.org.

650

651 Members of Wine Institute and the California Association of Winegrape Growers introduced
652 the Code of Sustainable Winegrowing Practices Self-Assessment Workbook in 2002 to promote

653 environmental stewardship and social responsibility in the California wine industry. The
654 [workbook](#) is a self-assessment tool for California's vintners and growers and provides practical
655 information on how to conserve natural resources, protect the environment and enhance
656 relationships with employees, neighbors and local communities. The workbook addresses
657 criteria for measuring performance, including Vineyard Water Management and Winery Water
658 Conservation and Quality. More information on sustainable winegrowing practices is available
659 at <http://www.sustainablewinegrowing.org/>. Additionally, the Sonoma County Winegrowers
660 have developed a Sustainability Certification Program for vineyards, which includes water
661 conservation assessments.

662

663 **Climate Change Studies and Planning**

664 Projected changes in climate include increased variability in precipitation and rises in air
665 temperature, resulting in a shorter wet season, longer dry season, more droughts and more
666 extreme high flows. To face these potential changes in climate local organizations are working
667 with federal and state partners, including the USGS, DWR, NOAA, and the U.S. Army Corps of
668 Engineers to advance the science in our region in an effort to plan for and adapt to predicted
669 changes. Local agencies have also partnered to form the Sonoma County Regional Climate
670 Protection Authority and developed a [Regional Climate Action Plan](#). Findings and results from
671 these efforts are described in Section 3 (Basin Setting) and incorporated into future model
672 projections in this GSP.

673

674 **Groundwater Banking Feasibility Study**

675 Due to uncertainties in the reliability of regional future water supplies (both surface water and
676 groundwater), the Water Agency, City of Sonoma, and other local partners, including the cities
677 of Rohnert Park and Cotati, Valley of the Moon Water District, and the Town of Windsor (study
678 participants) have conducted a feasibility study for a regional groundwater banking program
679 (Groundwater Banking Feasibility Study) to investigate the viability of enhancing the
680 conjunctive management of surface water and groundwater resources (GEI, 2013). The
681 feasibility study report is available at:

682 [http://www.scwa.ca.gov/files/docs/water-resources/groundwater//banking/SRP-
683 SVGroundwaterBankingFeasibilityFINAL130625REDUCED_ADA.pdf](http://www.scwa.ca.gov/files/docs/water-resources/groundwater//banking/SRP-SVGroundwaterBankingFeasibilityFINAL130625REDUCED_ADA.pdf)

684 Conceptually, the groundwater banking program would involve the diversion and transmission
685 of surplus Russian River water produced at existing drinking water production facilities during
686 wet weather conditions (i.e., the winter and spring seasons) for storage in aquifers beneath the
687 Santa Rosa Plain and/or Sonoma Valley. The stored water would then be available for
688 subsequent recovery and use during dry weather conditions (i.e., the summer and fall seasons)
689 or emergency situations. The Groundwater Banking Feasibility Study provided an evaluation of
690 the regional needs and benefits, source water availability and quality, regional hydrogeologic
691 conditions, and alternatives for groundwater banking.

692

693 Based on the findings from the study, pilot studies to further assess the technical feasibility of
694 Aquifer Storage and Recovery (ASR) as a method for groundwater banking were recommended
695 and currently are being pursued in Sonoma Valley, where a pilot project was completed in Fall
696 of 2018 in the City of Sonoma. The overall objective of the pilot project is to verify and
697 empirically determine specific hydrogeologic and water-quality factors. If the project is
698 successful, next steps are a technical and economic viability assessment of ASR technology in
699 the region. If deemed feasible, the pilot project results could be used to complete
700 environmental documentation and design for a full scale or permanent ASR project in the
701 region. Results from the pilot project will also provide information on the technical feasibility
702 for ASR in Sonoma Valley to other local agencies, including the
703 Valley of the Moon Water District and the Sonoma Valley GSA.

704

705 **Sonoma Valley Salt and Nutrient Plan**

706 The SWRCB adopted a Recycled Water Policy in February 2009. The purpose of the Policy is to
707 increase the use of recycled water in a manner that implements state and federal water quality
708 laws. The Recycled Water Policy requires that Salt and Nutrient Management Plans (SNMP) be
709 completed by 2014 to facilitate basin-wide management of salts and nutrients from all sources,
710 to optimize recycled water use while protecting groundwater supply and beneficial uses,
711 agricultural beneficial uses, and human health.

712

713 The Sonoma Valley County Sanitation District prepared a salt and nutrient management plan
714 for the Subbasin, which was approved by the San Francisco Bay Regional Board in 2015.

715 Components of the SNMP include:

716

- 717 • Water recycling goals and objectives
- 718 • Salt and nutrient source identification
- 719 • Basin loading - assimilative capacity estimates
- 720 • Anti-degradation analysis
- 721 • Implementation measures
- 722 • Basin-wide water quality monitoring
- 723 • Consideration of emerging constituents of concern

724

725 The SNMP concluded that basin-wide levels of salts (specifically TDS levels) and nutrients
726 (specifically nitrate values) generally are below Water Quality Objectives and are projected to
727 increase very slowly over time. The contribution of future projected recycled water levels
728 within the Subbasin was estimated to be a minor component of projected increases. A
729 groundwater quality-monitoring program is included as part of SNMP implementation.

730

731 **Stormwater Management Planning**

732 In three of its flood zones, Sonoma Water conducted scoping studies to identify opportunities
733 to alleviate flooding, while possibly recharging groundwater aquifers or providing other

734 benefits. The “Stormwater Management-Groundwater Recharge” studies assessed the
735 feasibility of projects in Laguna-Mark West watershed, the Sonoma Valley watershed and the
736 Upper Petaluma River watershed. Information and results from these studies have informed
737 the development of a Storm Water Resources Plan (SWRP). SWRPs are required by Senate Bill
738 985 (Pavley, 2014) in order to be eligible to seek funding from any future state bond measures
739 for storm water projects. A SWRP is a non-regulatory, watershed-based and stakeholder-driven
740 plan that builds on local storm water management objectives and identifies and prioritizes
741 projects that capture, treat or reuse storm water and dry weather runoff. These projects must
742 provide at least two benefits which may include environmental enhancement, flood protection,
743 groundwater recharge, water quality improvement and/or recreational opportunities.
744

745 Sonoma Water, with support from a Technical Advisory Committee, collaboratively developed
746 the Southern Sonoma County Storm Water Resources Plan covering the Petaluma River and the
747 Sonoma Creek watersheds (including the Subbasin). Through the planning process, over 60
748 projects were identified and submitted by proponents for consideration and inclusion. The
749 resulting plan provides a framework for submitting, quantifying, scoring, and ranking future
750 projects in an objective and data driven format.
751

752 **Water Quality Regulatory Programs**

753 The California legislature assigned primary responsibility for protecting and enhancing
754 California’s surface water and groundwater quality to the State Water Resources Control Board
755 (SWRCB), and the nine regional water quality control boards (Regional Water Boards; or
756 RWQCB).
757

758 The State Water Board provides state-level coordination for the water quality control program
759 by establishing statewide policies and plans for implementing state and federal laws and
760 regulations. The regional water boards adopt and implement water quality control plans (basin
761 plans), recognizing the unique characteristics of each region’s natural surface water and
762 groundwater quality, actual and potential beneficial uses, and surface water and groundwater
763 quality problems. Article 3 of Chapter 4 of the Porter-Cologne Act directs regional water boards
764 to adopt, review, and revise basin plans, and provides specific guidance on factors which must
765 be considered in adoption of surface water and groundwater quality objectives and
766 implementation measures. The San Francisco Bay Regional Water Quality Control Board
767 (SFRWQCB) implements water quality regulations in the Subbasin and contributing watershed
768 areas, including establishing Total Maximum Daily Loads for pathogens and sediment in
769 Sonoma Creek and adopting General Waste Discharge Requirements (WDRs) for Vineyard
770 Discharges. The WDRs for Vineyard Discharges require development of a farm plan, that
771 outlines BMPs implemented to reduce sediment and stormwater runoff and monitoring and
772 reporting.
773

774 **2.6 General Plan and Related Land Use Planning**

775
776 Existing city and county planning activities that are directly or indirectly linked with water
777 supply and groundwater management include general plans and specific plans, in addition to
778 the UWMPs described above. Under SGMA, cities and counties retain their land use
779 authorities, however in recognizing the linkages between land use and water management,
780 SGMA does require increased coordination between land use planners and GSAs. At a
781 minimum, cities and counties must now refer proposed general plan changes to GSAs, and
782 similarly GSPs must account for “the most recent planning assumptions stated in local general
783 plans of jurisdictions overlying the basin” (CWC §10726.9).

784
785 The City of Sonoma and Sonoma County general plans and specific plans provide growth
786 estimates based on build out of land use designations that are used in the UWMPs and in this
787 GSP to project future water demands, and are incorporated into the sustainable management
788 criteria and metrics, including measurable objectives and interim milestones, the sustainability
789 goal, proposed projects and management actions. Projections of future groundwater
790 availability and planned projects and actions needed for sustaining groundwater resources in
791 the Subbasin will be shared with city and county planners for incorporation into their respective
792 land-use planning and decision-making.

793
794 In addition to coordinating on activities within the Subbasin, coordination and information
795 sharing between the GSA and land use planning agencies will be needed for the contributing
796 watershed areas located outside of the GSA’s jurisdiction. These areas primarily fall within the
797 purview of the County General Plan.

798
799 **General Plans**

800 Counties and cities are required to develop and adopt comprehensive general plans to guide
801 future local physical development, as required in California State
802 Government Code Title 7, Division 1, Article 5, Section 65300 et seq. Each general plan must
803 contain a statement of policies, including maps or diagrams and text, setting forth objectives,
804 principles, standards and plan proposals. City general plans are focused on providing guidance
805 on growth and development in the urban setting, while the county general plan focuses on the
806 unincorporated areas of the county. Developing and updating general plans involves significant
807 community involvement through workshops, hearings, and public review of draft plans and
808 policies.

809
810 The seven mandatory elements of a general plan are Land Use, Circulation, Housing,
811 Conservation, Open Space, Noise and Safety, although the degree of specificity and level of
812 detail varies dependent upon local circumstances and programmatic needs.

813 The Conservation element of a general plan is typically where water resources are addressed,
814 although other water related topics may also be addressed in other elements.

815
816 Land use elements must reflect the content of the other general plan elements and must
817 account for “rivers, creeks, streams, flood corridors, riparian habitats, and land that may
818 accommodate floodwater for purposes of groundwater recharge and stormwater
819 management...” as identified in the conservation element (Gov. Code § 65302(d)(3)). The
820 housing elements must be updated on a five-year cycle to correspond with state regional
821 housing needs allocations (Gov. Code § 65584 (b)).

822
823 The Sonoma Valley Subbasin includes areas covered by the County of Sonoma’s general plan
824 and the City of Sonoma’s general plan within the City’s jurisdictional areas (the northern
825 portions of the City of Sonoma are outside the Subbasin).

826
827 **Sonoma County General Plan 2020**

828 The Sonoma County General Plan 2020 contains Land Use, Circulation, Housing, Conservation,
829 Open Space, Noise, and Safety elements in addition to the following four optional elements:
830 Agricultural Resources, Air Transportation, Water Resources, and Public Facilities and Services.
831 The Water Resources Element was developed and included in the Sonoma County General Plan
832 2020 in recognition of the importance of water resources within unincorporated areas of the
833 county. The main purpose of the Water Resources Element is to ensure that Sonoma County’s
834 water resources are sustained and protected. To achieve this main purpose, the Water
835 Resources Element states that water resource management should consider the amount of
836 quality water that can be used without exceeding the replenishment rates over time or causing
837 long term declines or degradation in available surface water or groundwater resources.

838
839 The Water Resources Element includes goals, objectives and policies for water quality,
840 groundwater, public water systems, conservation & reuse, importing & exporting, and
841 watershed management. These goals, objectives and policies include supporting local
842 groundwater studies and management programs, encouraging activities that protect natural
843 groundwater recharge areas. The Water Resources
844 Element for the Sonoma County General Plan 2020 can be reviewed at
845 <http://www.sonoma-county.org/prmd/gp2020/wre.pdf>.

846
847 The Water Resources Element goals related to groundwater include:
848 • Protect, restore, and enhance the quality of surface and groundwater resources to meet
849 the needs of all reasonable beneficial uses.
850 • Manage groundwater as a valuable and limited shared resource.
851 • Assure that new proposals for surface and groundwater imports and exports are
852 consistent with Sonoma County’s ability to sustain an adequate supply of high quality
853 water for all its water uses and dependent natural resources.
854 • Improve understanding, valuation and sound management of the water resources in
855 Sonoma County’s diverse watersheds.

856
857 Other water related topics incorporated in the Sonoma County General Plan 2020 include water
858 availability as a factor in Land Use Map densities that is addressed in the Land Use Element.
859 Land use designations based on the County’s General Plan 2020 are shown on **Figure 2-8**. The
860 Open Space and Resource Conservation Element addresses riparian corridors, wetlands, wildlife
861 protection, tree protection, fishery resources and other biotic resources, water-oriented
862 recreation, soil erosion, forestry, and mineral resources. The Public Facilities and Services
863 Element addresses connections to public water systems. The Public Safety Element addresses
864 flood hazards, fire suppression, and hazardous materials. The process for updating the Sonoma
865 County General Plan 2020 is planned to begin in 2019.

866 867 [City of Sonoma General Plan](#)

868 City General Plans guide growth and development in the urban community, and typically
869 involve an urban growth boundary. The UWMPs and General Plans are clearly linked: UWMPs
870 calculate future water demand based on growth and development projected in the General
871 Plan.

872
873 The City of Sonoma’s 2020 General Plan Update (2006) contains Community Development,
874 Environmental Resources, Local Economy, Circulation, Public Safety, Noise and Housing
875 Elements. Each element contains goals, policies and implementation measures that set a
876 course for future land use in the city. Goals summarize how development and future growth
877 should be directed to achieve the general plan vision by identifying physical, economic and/or
878 social ends that the community wishes to achieve.

879
880 The Community Development Element defines the planned growth within the City, which is
881 controlled by City’s Growth Management Ordinance. The Growth Management Ordinance
882 limits residential construction in Sonoma to an average of 88 units per year based, in part, on
883 water supply availability. A policy related to groundwater to “protect Sonoma Valley watershed
884 resources, including surface and groundwater supplies and quality” is included within the
885 Environmental Resources Element.

886 887 [Specific Area Plans](#)

888 Specific area plans are planning documents that guide the development of a geographic area
889 within the county. Any new developments or subdivisions within the defined area must be
890 consistent with the general plan and specific plan. The Springs Specific Plan is currently being
891 developed by Permit Sonoma and will be the primary planning document and reference guide
892 for future development in the Springs area of the Subbasin, which covers approximately 178
893 acres within portions of the unincorporated communities of Agua Caliente, Feters Hot Springs,
894 and Boyes Hot Springs. Growth and land use criteria from the Springs Specific Plan will be
895 incorporated into the GSP.

896

897

898 **2.7 Well and Project Permitting Policies and Procedures**

899

900 Sonoma County Permit and Resource Management Department (Permit Sonoma) is the local
901 agency responsible for administering permits for wells within both unincorporated and
902 incorporated areas of the Subbasin. Permit Sonoma is also responsible for permitting certain
903 development projects in unincorporated areas.

904 **Well Permitting**

905 Water wells are permitted through a ministerial process following the Sonoma County Well
906 Ordinance, most recently updated by Permit Sonoma in 2015, that contains regulations and
907 requirements for constructing wells to prevent groundwater contamination from the surface,
908 and between multiple water bearing zones in (Ordinance 25B). The ordinance includes
909 standards for well construction, abandonment, destruction, setbacks, prohibitions, and water
910 treatment for contaminated wells. It also addresses permit requirements, inspections,
911 reporting, enforcement provisions, and alternate construction methods. The well construction
912 standard does not regulate flow volumes or rates, nor does it evaluate water availability or local
913 hydrogeology.

914

915 Additionally, the County commissioned a pilot study of 3 areas it determined to have relatively
916 scarce groundwater in other areas of the County. The study examined climate, land use and the
917 depths of wells drilled over time (Kleinfelder, 2003). Based on this pilot study, Permit Sonoma
918 established countywide permit requirements and guidelines for performing pump tests on new
919 water-wells in water scarce areas. The study also recommended further studies of these water
920 scarce areas.

921

922 Sonoma County municipal code water well requirements are available on the web at:
923 https://library.municode.com/ca/sonoma_county/codes/code_of_ordinances?nodeId=CH25B
924 [WAWECOST](#) and the Groundwater Availability Map is located at: [http://www.sonoma-](http://www.sonoma-county.org/prmd/gisdata/pdfs/grndwater_avail_b_size.pdf)
925 [county.org/prmd/gisdata/pdfs/grndwater avail b size.pdf](http://www.sonoma-county.org/prmd/gisdata/pdfs/grndwater_avail_b_size.pdf)

926

927 **Project Permitting**

928 Permit Sonoma reviews all development proposals within unincorporated areas that will rely on
929 wells for water supply, including wineries, subdivision and cannabis permits. Permits for
930 agricultural development projects are processed through the Sonoma County Agricultural
931 Commissioner. Permit Sonoma uses a four-tier groundwater classification system map, based
932 on geologic information and water yields, to designate general areas of groundwater availability
933 (**Figure 2-9**), for reviewing certain development and building permit applications. Class 1 areas
934 are Major Groundwater Basins; Class 2 areas are Major Natural Recharge Areas; Class 3 areas
935 are Marginal Groundwater Availability Areas; and Class 4 areas are Areas with Low or Highly
936 Variable Water Yield. The Class 1 and Class 2 groundwater availability areas generally correlate,

937 but do not completely correspond, with DWR’s Bulletin 118 basin boundaries. Discretionary
 938 applications in Class 3 and 4 areas and in SGMA medium and high priority basin, including the
 939 Sonoma Valley Subbasin, are required to include hydrogeologic reports to establish that
 940 groundwater quality and quantity are adequate and will not be adversely impacted by the
 941 cumulative developments and uses allowed in the area. In addition, discretionary applications
 942 in Class 4 areas are required to complete an aquifer pumping test to establish the availability of
 943 an adequate water supply. The aim is to avoid causing or exacerbating an overdraft condition
 944 in a groundwater basin or subbasin. Since 2004, Permit Sonoma has required groundwater-
 945 level measurement and volume reporting from water wells on a quarterly or monthly basis as
 946 standard conditions of approval for commercial and industrial projects requiring a use permit
 947 and using more than 0.5 afy of water. Projects in southern Sonoma Valley are also generally
 948 required to perform and report water quality monitoring due to concerns with elevated salinity
 949 in that area. For projects where significant impacts are identified, Permit Sonoma may require
 950 demonstration of zero or de minimis net water use through onsite water conservation,
 951 rainwater or surface water storage, groundwater recharge, and/or offsite mitigation.
 952

953 **2.8 Additional GSP Elements (Reg. 354.8 (g))**

954
 955 The GSP Regulations require that the Plan Area section include a description of any of the
 956 additional GSP elements from Water Code 1027.4 that the GSA determines to be appropriate.
 957 *It is anticipated that many, if not all the below elements will be addressed in subsequent*
 958 *sections of the GSP. Once those sections are complete, this section will be updated to indicate*
 959 *where the specific descriptions are located.* The additional GSP elements listed in Water Code
 960 1027.4 are:

- 961
 962 (a) Control of saline water intrusion.
 963 (b) Wellhead protection areas and recharge areas.
 964 (c) Migration of contaminated groundwater.
 965 (d) A well abandonment and well destruction program.
 966 (e) Replenishment of groundwater extractions.
 967 (f) Activities implementing, opportunities for, and removing impediments to, conjunctive
 968 use or underground storage.
 969 (g) Well construction policies.
 970 (h) Measures addressing groundwater contamination cleanup, groundwater recharge, in-
 971 lieu use, diversions to storage, conservation, water recycling, conveyance, and extraction
 972 projects.
 973 (i) Efficient water management practices, as defined in Section 10902, for the delivery of
 974 water and water conservation methods to improve the efficiency of water use.
 975 (j) Efforts to develop relationships with state and federal regulatory agencies.
 976 (k) Processes to review land use plans and efforts to coordinate with land use planning
 977 agencies to assess activities that potentially create risks to groundwater quality or quantity.

978 (l) Impacts on groundwater dependent ecosystems.