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City of Sebastopol

Agenda Report Reviewed by:
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Meeting Date: Meeting of April 4, 2017
To: Mayor and City Council
From: Kenyon Webster, Planning Director
Dana Morrison, Assistant Planner
Subject: Annual Level of Service Report (2016)
Funding: Currently Budgeted:___ Yes ___ No _X__N/A

Introduction

The City's Growth Management Ordinance requires the provision of an annual Level of Service (LOS) Report to the City Council. The Governor's Office of Planning and Research requires jurisdictions to submit a General Plan progress report to their office annually.

The LOS Report includes information on the status of the General Plan and progress of its implementation, as well as the status of LOS standards for City services. It also provides an annual update on City park issues, as well as annual Planning Department information.

General Plan Annual Report

The LOS Report provides an update on the General Plan and related matters.

General Plan Update: The City initiated the General Plan Update and retained De Novo Planning Group to lead the process in 2014. A General Plan Advisory Committee (GPAC) began its work in 2014 and concluded in late 2015 with the recommendation of a preliminary draft General Plan. A new Housing Element was placed on an expedited track and adopted in March 2015.

In 2016 the formal draft for the General Plan and the Environmental Impact Report were prepared. It was reviewed by the Planning Commission and they recommended approval to the City Council. At their November 15, 2016 meeting the Council approved the General Plan and Environmental Impact Report. The General Plan was adopted on November 15, 2016.

City Population:

The Sebastopol population was estimated to be 7,527, as of January 1, 2016, according to the California State Department of Finance. This is an increase of 25 persons from 7,502 in 2015.

LOS Update

The LOS Report includes an update on Planning projects, annual housing totals, and the status of City services, which include: water, wastewater, drainage, parks, fire, police, schools, and traffic. Land Use Policy 3-1 of the 2016 General Plan sets forth standards for each of these services.

City policies require that the LOS Report advise the City Council if any of the standards have not been fulfilled, and to include mitigation measures or actions necessary to achieve compliance. If the City Council determines that it is not feasible within the fiscal resources or regulatory authority of the City to meet the standards or guidelines, the additional residential dwelling unit allocations for the next calendar year shall be suspended for a period of 60 days. This would give the City Council time to adopt a moratorium to restrict issuance of further residential dwelling unit allocation until the LOS can be improved or met.

Review: The following is an analysis of the state of various City services as it relates to LOS.

Water

Standard: The General Plan requires a fire flow standard of 1,000 gallons per minute.

Present Situation: Sebastopol is dependent on our municipal wells for water to supply customers. The City does not have a backup system nor does it have a connection to other water systems in the area, which makes it critical that the City's water system is maintained and closely monitored.

The Engineering Division produces an annual report, which includes statistics for water production, usage, and wastewater flow (attached). The report also contains information about groundwater levels in City wells. The report shows an increase of 2.7 percent in total annual water production, from 296 million gallons in 2015, to 304 million gallons in 2016. The prolonged dry weather conditions statewide led the State to declare a drought emergency, and Sebastopol implemented emergency voluntary water conservation requirements in August, 2014. However, water demand remains significantly lower than when production peaked at 500 million gallons in 2004.

The City currently has electronic data loggers in every City well and a continuous water level monitoring program, which enables close monitoring of water levels. The data loggers for each well were replaced in spring 2014. The City has retained the services of consultants to oversee the monitoring of ground water levels, maintain the monitoring equipment, supplement it with hand measurements when needed, and prepare quarterly reports. The City received four (4) such reports during 2016, please find them attached.

The State adopted new emergency requirements in 2014 in an effort to mitigate the effects of years of drought conditions and include:

- A prohibition on irrigating turf or ornamental landscapes during and 48 hours following measureable precipitation;
- Operators of hotels and motels must provide guests with the option of choosing not to have towels and linens laundered daily, and prominently display notice of this option; and
- A prohibition on restaurants and other food establishments from serving water to customers except on request.

California obtains between a third and half of its fresh drinking water from groundwater aquifers accumulated in subsurface basins formed by underlying geologic formations. It has long been recognized that the ability of these aquifers to continue to provide sustainable water supply is critical to the water needs of California as a whole. The Sustainable Groundwater Management Act became law in 2014 (known as SGMA, but pronounced "sigma") with the final version of the accompanying regulations issued within the last year. SGMA sets goals for developing Groundwater Sustainability Plans (GSP) for each basin in order to provide a framework to preserve, recharge, and nurture these groundwater basin aquifers. The GSP is to be developed and managed by a newly established Groundwater Sustainability Agency (GSA).

Sebastopol obtains 100% of its municipal water supply from groundwater via multiple producing wells. SGMA stipulates that GSA members must be local government entities, and either provide/supply water, or regulate water, or have land use responsibilities.

The collaborative regional effort to get set for Sustainable Groundwater Management Act (SGMA) compliance has been progressing. Recent efforts have had as their focus both the prospective GSA governance arrangement, and program financing and cost estimates.

The work Group recommendations are that the GSA entities form a GSA for the SRP that would be a Joint Powers Authority (JPA). The basic proposal is for a two-tier set-up, with a governing Board supported by a second tier Advisory Committee. The governing Board would have as its members one representative each from the county, SCWA, SRCD, each of the four cities, and a single seat for the PUC/Mutuals for a total of 9 Board seats. The expectation would be that each member entity appoint both a serving Board member, and an alternate.

The SGMA Workgroup is also developing a budget for a JPA and looking at various funding mechanisms available. State grant money has paid a great part of expense to date. The financial effort is looking at developing a sustainable revenue stream, and at gap funding to bridge between GSA formation and the advent of revenue generation.

The estimated water demand from projects currently approved by the City but not yet constructed is 4.6 million gallons per year. This represents the equivalent of approximately 1.5% of total production in 2016. The water demand for projects pending approval is estimated at an additional 0 million gallons per year, which can be accommodated.

Determination: The standard has been met.

Recommendation: Continue to monitor City wells and diligently address contamination issues.

The City should continue aggressive efforts to promote water conservation and policy efforts for additional conservation measures, since conservation is one way to help ensure that there is an adequate water supply, as well as saving energy and reducing greenhouse gas emissions.

The City has experienced water supply challenges in the past decade due to mechanical and water quality issues. Considerable resources have been necessary to address these issues, and it will be important to continue to ensure that adequate financial and staff resources are available for the water system.

Waste Water

Standard: The General Plan requires a reservation of five (5) percent of wastewater treatment capacity, or 0.042 million gallons per day.

Present Situation: Wastewater service is critical to the City, and public health concerns related to wastewater was one of the compelling reasons that the City incorporated in 1902.

The City operates a sanitary sewer system in a service area that covers 1.85 square miles. The sewer system consists of 29.6 miles of gravity sewers (approximately 750 line segments), 10.5 miles of lower laterals (approximately 2,800 laterals), 749 manholes, 2.7 miles of force mains, and two (2) lift stations: The Morris Street Lift Station and the Valley View Lift Station. The sewer mains range in diameter from six (6) inches to twenty-one (21) inches in diameter.

The attached Engineering Division annual report provides wastewater statistics. Treatment entitlement capacity is 0.84 million gallons per day. Average Daily Dry Weather Flow (ADDWF), as measured at the Morris Street Pump Station, was approximately 0.448 million gallons per day (mgd) in 2016, which equates to approximately 53% of the City's treatment entitlement. This is a ~4% percent increase from 2015 when ADDWF was measured at 0.413 million gallons per day. ADDWF remains considerably lower than it was 10 years ago and illustrates declining water usage.

Sebastopol's ability to accommodate future development is limited by our entitlement in the Sub-regional Water Reclamation System. To estimate the treatment capacity available for future development, we calculate estimated flows from current project commitments. Table 4 (attached) provides information about estimated future water and sewer demand attributable to currently Approved Projects and Projects Pending in the planning process.

Projected sewer demand (ADDWF) for Approved Projects is 0.008 mgd.
Projected sewer demand (ADDWF) for Applications Pending is 0.028 mgd.
Reserve capacity is 0.042 mgd.

Adding 2016 flows, approved and pending projects, and reserve capacity equals 0.526 mgd. Subtracting this from treatment allowance, leaves 0.314 mgd of capacity. This represents 37% of treatment capacity and would be equivalent to projected flows from 2,000 new single-family homes (assumes sewer flow from a typical single-family residential unit is 157 gpd). This is substantial remaining capacity.

The City has an updated Sewer System Management Plan (SSMP) to address strict new regulatory requirements. It is intended to be a compendium of the policies, procedures, and activities that are included in the planning, management, operation, and maintenance of the City sanitary sewer system. The SSMP is intended to meet the requirements of the State Water Resources Control sanitary sewer system General Waste Discharge Requirements (GWDR). There are substantial maintenance needs, in addition to demanding training and reporting requirements.

Determination: The standard has been met.

Recommendation: Continue to monitor the sewer system to provide wastewater service, promote water conservation, meet regulatory requirements and comply with the legal cap on the volume of wastewater that can be sent to the sub-regional treatment plant.

Drainage

The City owns and operates a storm water conveyance system located primarily within public streets, roads, and lands. The majority of this system flows in an easterly direction and discharges into the Laguna de Santa Rosa. A small portion on the western portion of the City drains to Atascadero Creek.

In 2016 the public works department identify that the Calder Creek storm drain culverts have been impacted by silt build up reducing their capacity by 30%. The City is exploring options for the removal and remediation of the silt buildup. The project is currently not funded.

The City currently has a Low Impact Development (LID) program, which imposes new, demanding application requirements on a wide range of development projects, and requires that site planning address storm water control and mitigation. This program regulates both storm water and non-storm water discharges into the City's drainage system with the intent to reduce storm water pollution and protect the water quality of local creeks and waterways, as well as to promote groundwater recharge.

LID Best Management Practices (BMPs) treat storm water as a resource to be preserved and maintained. BMPs focus on retention and infiltration of rainfall to maintain a natural water balance. Slowing the movement of water reduces problems with erosion and increases the chance for onsite filtration and purification of storm water. This is often accomplished by using vegetated areas and the natural purification of soil and plants.

The City does not have an established revenue source for the operation and improvement of its storm water facilities or for programs, such as LID. This is a challenge for the City with increasing regulatory requirements. Some jurisdictions have approved local tax measures to specifically fund these types of activities, which the City should consider.

Parks

Standard: The 2016 General Plan requires one (1) acre of parkland for each 200 residents (which equates to five (5) acres for every 1,000 residents). Developed parkland is calculated at 100% of acreage and dedicated open space areas owned by the City or subject to permanent open space easement are calculated at 25% of acreage.

Annual Review of Parks, Trails, and Open Space Acquisition: Community Services and Facilities Policy CSF 2-3 of the 2016 General Plan requires the provision of an annual report to the City Council and Planning Commission on the status of parks, trails, and open space acquisition and development. The City Council is regularly provided with information and updates on a variety of parks issues and projects. These periodic updates and the following information are intended to satisfy this requirement.

Present Situation: The 2016 General Plan establishes that the City requires five (5) acres of developed parks for each 1,000 residents. While Ragle Park is immediately adjacent to Sebastopol, readily accessible, and used by residents, it was not included in this calculation of the parkland ratio in that parks within City limits are only counted. Additionally, the Laguna Wetlands Preserve is counted at 25% of acreage.

Under the new General Plan methodology, there are a total of 23.6 acres of developed parkland, and 89.7 acres of dedicated open space in Sebastopol. The most recent addition of

parkland was the completion of the Skategarden Expansion Project, which added an additional 0.5 acres to the City's total developed parkland. With the new 25% calculation for open space parks, this adds an additional 22.4 acres to the City's parkland total, for a total 'counted' parkland of 46.0 acres. The total parkland ratio is 6.1 acres for each 1,000 residents, which means that the City has met the parkland General Plan standard.

Determination: With the adjustment to the General Plan, allowing the inclusion of a portion of dedicated open space to be counted towards the overall parkland calculation, at a rate of 25% of acreage, has allowed the City to meet the General Plan standard.

Recommendation: There is a continuing need to establish and maintain priorities for park improvements, given limited resources. Maintenance of existing facilities should be a high priority and there is a need to provide additional revenue for park maintenance. The Management Plan identified the need for a higher level of maintenance for the Laguna Wetlands Preserve. The City Council responded to this need by adding an additional landscaper position in the Public Works Department. There are also major capital improvement needs for the Laguna Wetlands Preserve, and for Ives Park. The City currently has an adopted Ives Park Renovation Master Plan, which would cost over $4 million to implement; Laguna Preserve improvements would likely cost over $800,000.

Fire Department

Standard: Per National Fire Protection Agency (NFPA) 1720, Standard for Volunteer Firefighters, volunteer staffed fire departments, shall have a maximum response time of nine (9) minutes and assemble 15 firefighters on the scene of structure fires 90% of the time.

Present Situation: The average response time is 6:00 minutes for 80% of calls, and 7:00 minutes for 100% of calls. This represents an increase from the LOS Standard of 2015, when the response time was 4:55 minutes for 80% of calls. The average response time in 2014 was 4:45 minutes and 2013 was 4:48 minutes. There is currently a volunteer staff of 30 members, 24 active members and six (6) reserve members. The Department is still recruiting new firefighters. This is an area of major concern with increased response times. The Department is offering additional paid fire shifts, Monday through Friday, where the highest percentage of emergency calls for service happen during weekdays, 7am-5pm. The Department is also reviewing its current budget and is looking at the possibility of hiring full-time firefighters to support the increased emergency calls for service and response times.

The Sebastopol Fire Department responded to 1,056 calls for service in 2016, a small decrease of 15 from 1,071 calls for service in 2015. Calls for service in 2014 were 1,055 and 2012 were 926. The four-year average is 1,027 calls for service. Over 60% of our calls for service are medical related. The Department continues to anticipate increased calls for service.

Calls for Service: 2012-2015

2012	2013	2014	2015	2016
926	861	1,055	1,071	1,056

The City currently has a fire protection rating from the Insurance Services Office (ISO), of Class 3. Only 5.0% of the fire departments in the nation have Class 3 or better rating, which speaks to the outstanding level of service provided by the City's volunteer and professional fire staff.

Capital Equipment needs are a continuing concern. Fire Inspection and Prevention Programs and Public Emergency Planning are two other areas where services could be enhanced. Another ongoing issue for the Fire Department is the difficulty of recruiting new volunteer firefights as the community demographics change to an older population with fewer young families, and particularly in light of the high housing costs, which inhibits younger individuals and families from moving into the City.

The Department reduced the hiring age from 21 to 18, and has opened up the boundaries of either living near or working in the City. This change has benefited the Department, as younger volunteers and those that do not live in the City have been added to the roster.

The City should continue to offer incentives for citizens to volunteer as firefighting staff and to retain those already volunteering. Since 2005, the department has provided a modest monetary benefit program to the volunteer firefighters based on their number of emergency responses. This program has increased the average number of firefighters per call by 25%. The program, SAFER (Staffing for Adequate Fire and Emergency Response), is 100% funded by FEMA and the Department of Homeland Security. Unfortunately, the FEMA SAFER Grant ended last year. The Fire Department Chief has adjusted this year's budget to continue this important incentive for volunteers. Traffic conditions and congestion have also had an impact on response times. The Department is also continuing to look for ways to lessen the number of callouts to false alarms and unwarranted requests for calls for service. The Department added a False Alarm or "Nuisance" call to the User Fee Schedule of $1450.00 per incident in hopes that this would reduce the number of false alarms from businesses that have historically been repeat offenders.

The new General Plan adopted the National Response Standard. The NFPA has adopted Standard 1720, Standard for Volunteer Firefighters. This standard stipulates that volunteer staffed fire departments, serving an urban area (1,000 + persons per square mile), shall have a maximum response time of nine (9) minutes and assemble 15 firefighters on the scene of structure fires 90% of the time. The department assembled an average of 17 staff on fires 90% of the time, and was under nine (9) minutes, as stated in NFPA 1720. The 17 staff members assembled resulted from 11 Sebastopol staff and six (6) automatic Mutual Aid staff from Graton and Gold Ridge Fire Protection Districts. The Sebastopol Fire Department is well within compliance of the new NFPA Standard.

Determination: Response time and assembled firefighters are in Compliance and Standard has been met.

Recommendation: The situation should continue to be monitored.

Police Services

Standard: The General Plan requires a response time of three (3) minutes for 70 percent of calls.

Present Situation: The Police Departments consists of 14 full time sworn officers, which included the Police Chief, Police Captain, four (4) Sergeants, and eight (8) Officers. The Police Department had eight (8) civilian support staff, which included a part-time (50 percent time) Dispatch and Records Supervisor, five (5) fulltime Dispatchers, one (1) per-diem Dispatcher, and one (1) part-time (75 percent time) Police Aide, who primarily deals with parking enforcement, civilian fingerprinting, and animal control. The Police Department also has nine (9) Reserve Police Officers, 16 Community Service Volunteers, and eight (8) Police Explorers.

The Police Department handled 14,670 incidents in 2016. The average response time to all emergencies was 4:10 minutes. The Department indicated the General Plan standard is met. Police Department staffing was reduced in 2016 with one (1) sergeant out on leave due to a work-related injury. The Department indicated that due to more complex investigative and reporting requirements, time spent on regular patrol and traffic control has declined.

Determination: The standard has been met.

Recommendation: Maintain and if feasible, increase current Police Department staffing levels and continue seeking grants to enhance service, per the recommendation of the Police Chief.

Schools

Standard: The Sebastopol Union School District and the West Sonoma County High School District (High School District) establish their own standards for school class size and the requisite amount of square footage of play area per student.

Present Situation: Sebastopol schools are under the jurisdiction of the Sebastopol Union School District and the High School District. Sebastopol is also home to two (2) charter schools that are not affiliated with either school district.

Sebastopol Union School District: There are currently two (2) elementary schools under the jurisdiction of the school district: Park Side (Kindergarten to 5th Grade) and Brook Haven (Kindergarten to 8th Grade).

The Sebastopol Independent Charter School (Kindergarten to 8th Grade) is also part of the Sebastopol Union School District and is located at 200 Main Street, where it holds a Use Permit. Operations were restructured in 2011, which resulted in Kindergarten through 2nd Grade classes being relocated to the Brook Haven campus and 3rd Grade through 8th Grade classes remaining at the main campus on South Main Street. The Independent Charter School is currently planning to move to a new campus in the district, just outside City limits near Gravenstein Highway North.

District-Wide Enrollment: 2011-2016

2011	2012	2013	2014	2015	2016
1,021	871	877	856	796	812

2016 Enrollment Levels by Sebastopol Union School District Schools

School	Total Enrollment
Park Side	266
Brook Haven	256
Sebastopol Independent Charter School: Grades K to 8	290

Total 2016 enrollment in the Sebastopol Union School District increased by 16 students from 2015. This is a relatively small increase, and totals are still below enrollment totals from 2014 and earlier.

Sebastopol Area Charter Schools: There are also two (2) charter schools located in Sebastopol that are not part of the Sebastopol Union School District or the High School District: The REACH Charter School and Sun Ridge Charter School.

The REACH Charter School (Kindergarten to 8th Grade) is an integrated liberal arts school, which is located at 7285 Hayden Avenue, a site that was formerly home to Pine Crest Elementary School, which closed in 2011. The school had a total 2016 enrollment of 95 students, which is seven (7) less than the total enrollment in 2015. Total enrollment is not counted towards Sebastopol Union School District enrollment.

Sun Ridge Charter School (Kindergarten to 8th Grade) is part of the Twin Hills Union School District and also operates at the former Pine Crest Elementary School site. Sun Ridge also has a campus at 487 Watertrough Road, which is home to Kindergarten classes and a farm. Sun Ridge Charter School had a total 2016 enrollment of 283 students, which is an increase of 13 students from 2015, when total enrollment was 270 students. Total enrollment is not counted towards Sebastopol Union School District enrollment.

West Sonoma County High School District: The High School District operates two (2) schools in Sebastopol: Analy High School and Laguna High School (the Community Day School is closed). The High School District also operates three (3) schools in greater West Sonoma County: El Molino High School, Nuevo Leon High School, and the Russian River Ramparts Independent Study program.

Total Enrollment for High Schools in Sebastopol: 2011-2016

2011	2012	2013	2014	2015	2016
1,383	1,445	1,459	1,461	1,393	1,284

2016 Enrollment by Grade

School	9th Grade	10th Grade	11th Grade	12th Grade	Total
Analy High	300	296	276	328	1,200
Laguna High	0	10	33	41	84
Community Day School	0	0	0	0	0

Total high school enrollment decreased by 109 students from 2015 to 2016.

Total enrollment decreased by 93 students in 2016 in Sebastopol, which includes both the Sebastopol Union School District and the High School District.

The Board of Education and District Administration of the West Sonoma County High School District prepared an Enrollment Projection Study to understand the long-term effects of declining enrollment in December 2013. The Enrollment Projection Study determined that enrollment for resident students will continue to decline over the next 10 years but did offer some mitigation options that include:

- Offering an innovative approach that tailors instructional approaches to the individual student by blending classroom instruction, online courses, independent study, community college study, and community-based learning.
- Developing programs to attract transfer students to West County such as career technical education programs or programs in the arts.

- Increasing the percentage of students who complete course sequences and experiences that make them ready for a career or college after high school.

Determination: The Sebastopol Union School District has experienced declining enrollment, which has resulted in school closures in recent years and could lead to the closure of another school. This could result in a further enrollment decline within the High School District in coming years.

Recommendation: The City should support policies in the draft General Plan and adopted Housing Element to encourage more family housing. However, even with some additional housing development, young families will face substantial affordability and availability challenges in the Sebastopol housing market, which along with other demographic trends, appears to likely continue declining enrollment.

Traffic

The new General Plan eliminated the prior plan's Level of Service (LOS) standard, as a metric that did appropriately express the City's policy intent.

Present Situation: The General Plan Update provided comprehensive data on current traffic conditions. This included preliminary analysis of the feasibility to change the one-way street system. Initial analysis indicated that the conversion could be workable. However, considerable additional analysis would be needed and costs would be substantial, if feasible. The conversion may not improve traffic flow but could have other benefits. The updated General Plan calls for continued evaluation of the benefits and feasibility of a two-way street system on some or all of SR 116. A comprehensive 2-way street analysis for SR 116 is called for in collaboration with Caltrans. The new General Plan also calls for review of by-pass or reliever routes in collaboration with other agencies.

Vehicle access is critical to the operation of a modern city. Most people in Sebastopol travel by vehicle and many more in the surrounding market area have no other viable transportation option. Pavement conditions in Sebastopol are an ongoing concern with conditions continuing to decline. Deferred maintenance will result in much higher long-term costs, especially given that Federal and State funding for street maintenance has declined. Additional local funding is highly desirable. The updated General Plan calls for the City to provide high quality regular maintenance for existing and future transportation facilities including street, sidewalks and paths by continually seeking opportunities to fund maintenance of and improvement to the circulation network through active pursuit of a wide range of grant sources.

The improvement of Gravenstein Highway South is a continuing objective. There are several sections that lack curb, gutter, sidewalk, street trees, and street furniture. The undergrounding of overhead utilities would also be desirable. The updated General Plan calls for the installation of a traffic signal or roundabout at the Gravenstein Highway South/Fircrest Avenue intersection, and at five (5) other locations in the City.

The improvement of Sebastopol Avenue and South Main Street is another objective. The City embarked on the Downtown Core Streetscape Project in early 2016 to address the aesthetics of the streetscape throughout the Downtown Core. However, the Streetscape Project was funded by the City's Redevelopment Agency and ultimately terminated, as a result of the State dissolution of redevelopment agencies throughout California. To date no replacement funding has been identified.

The City Council authorized a contract for the Wayfinding Sign Project in 2015 which includes auto and pedestrian wayfinding signs, as well as design for new gateway signs and identification signs for major City facilities, including parks and buildings. At their December 15, 2016 meeting the City Council approved the revised project design. Implementation funding will be considered in the 2017-18 Capital Improvement Plan.

Caltrans is currently in the process of completing their replacement of the Highway 12 Bridge. The bridge is now wider and slightly higher. Construction of the bridge is expected to be complete in spring 2017.

Determination: No inconsistencies with the General Plan were identified.

Recommendation: There are numerous circulation maintenance and improvement needs, which far exceed existing City resources. Substantial revenue enhancements for street maintenance and improvements should be explored. Routine paving and maintenance have been underfunded. Sidewalks could also benefit from additional maintenance, as well as addressing gaps in the sidewalk system. The improvement of Sebastopol Avenue and Gravenstein Highway South should be major long-term capital improvement objectives.

Residential Dwelling Allocation

Standard: The updated General Plan establishes an annual residential development limit of 50 units, which is double the allocation of the 1994 General Plan. Certain types of residential development, such as second units, are exempt, while affordable housing units and downtown units are not subject to the 50-unit annual limit.

Present Situation: The Growth Management Program is intended to preserve the small town character of Sebastopol, and manage infrastructure limitations, such as sewage treatment capacity, water supply, and roadway constraints. The Growth Management Plan is in the process being amended to meet the standards of the newly adopted General Plan. The following table outlines dwelling unit allocations based on the 2016 General Plan.

Allocation: Availability Calendar 2016

Total Permit and Approval Activity During 2016	**10**
Permits issued for exempt units during 2016	7
Permits issued for exempt Category C units during 2016	0
Permits issued for exempt Category D units during 2016	0
Existing residential units annexed during 2016 (Category C)	0
Out-of-service-area agreements approved during 2016 (Category D)	0
Number of Units Removed	0
Permits issued for other non-exempt units during 2016	3
Non-exempt allocations reserved during 2016 for future use	0
Subtotal of Nonexempt Allocations Issued or Reserved in 2016	**3**
Base year dwelling unit allocations available on 1/1/2016	50
Total non-exempt allocations issued or reserved in 2016	3
Total Carryover Available from 2016	**47**
New Base Year 2016 Allocations Available 1/1/2017	50
Total Allocations Available 1/1/2017	**97**

The following unit types are exempt from the annual limit per the Zoning Ordinance:

- Affordable Housing Units
- Second Dwelling Units
- Replacement Residential Structures
- Single-Family Residences (On Existing Lots of Record as of November 1994)
- Homeless Shelters
- Single Room Occupancy Residences
- Community Care/Healthcare Facilities
- Category C Units (Conform to the Zero Net Flow of the Growth Management Ordinance)
- Category D Units (Conform to the Zero Net Flow of the Growth Management Ordinance)

Second units are exempt from annual and total build-out allocations per State regulations, and are not included in any of the housing allocations tables. Seven (7) permits were issued for second units in 2016.

Replacement residences are also exempt from the annual allocation limit. No Building Permits were issued for replacement residences in 2016. New residences constructed on existing lots of record as of November 1994 are exempt as well. No Building Permits were issued for this type of development in 2016.

In 2016 permits were issued for two (2) single family residences, and one (1) permit was issued for the addition of a single-family residence to the rear of an existing commercial property. This resulted in use of 3 allocations, leaving 97 to carry over to 2017.

Allocation: Aging Analysis

The City Council modified the Growth Management Ordinance to limit the term of unused annual growth management allocations, however with the new General Plan allocations reset to 50 in 2016. At present there are 97 total allocations available for use in 2017.

There has been very low housing development activity in Sebastopol over the past few years, with only three (3) allocations for non-exempt units in 2016 and only one (1) for 2015. A maximum of 97 allocations are available for new, non-exempt Building Permits in 2017. It may be a number of years before the limit of the program is approached based on the generally low rate of development experienced in recent years. However, a few large projects could cause the City to reach the limit more quickly. The limits of the program also have implications regarding housing needs and the housing production goals set by the State of California.

Determination: The standard has been met.

Recommendation: Continue to monitor the use of Growth Management Allocations. A key limiting factor for residential development is wastewater treatment capacity. At this time, there is substantial remaining capacity.

Housing Activity Report

Annual Housing Activity Report

Policy H-1 of the 2015-2023 Housing Element requires the City to prepare an Annual Report that describes activities undertaken in support of the City's housing objectives. This section is

intended to fulfill that objective. The City needs a total of 156 housing units for the 2015-2023 Housing Element period according to the Association of Bay Area Governments (ABAG) 'fair share' calculations. This is a reduction from the previous goal of 176 housing units, and thus likely more achievable.

The Housing Element also includes a number of goals, policies, and actions, which are required to achieve consistency with State law and will involve amendment of the Zoning Ordinance. Planning Department staff prepared multiple Zoning Ordinance amendments to fulfil the mandatory Housing Element requirements, which the Planning Commission reviewed and recommended for approval at their March 22, 2016 meeting. The City Council took final action on the amendments in 2016. Additional amendments are in progress in 2017.

There was also an increase in housing development activity in 2016. The Planning Department approved seven (7) applications for second units. Also in 2016, the Design Review Board approved:

- one (1) application for to construct a single-family residence,
- one (1)application for the addition of a single family dwelling to the rear of an existing commercial property,
- the creation of 11 apartment units (1-2 bedrooms) above a commercial space, and
- the creation of a three (3) bedroom apartment above a commercial space, and a three (3) bedroom single-family residence with garage; on the same lot.

The City has also reviewed a preliminary review and discussed a development plan proposal from a developer who is interested in developing 10 affordable single-family residences at 7950 Bodega Avenue. Construction is also continuing on the previously-approved mixed-use development at 961 Gravenstein Highway South, which will include commercial spaces and eight (8) condominiums. This increase in housing development and general interest in the Sebastopol housing market in part supports Housing Element Policy C-4:

New Housing Production

- Policy C-4: *The City will encourage development of new housing to meet a range of income levels, including market-rate housing, and a variety of housing and sizes and types.*

Planning Department

The Planning Department provides planning and environmental review assistance to the City Council, Planning Commission, Design Review Board, Public Arts Committee, Complete Streets Advisory Committee, Sebastopol residents, as well as the real estate, development, and construction industries.

This Planning Department is divided into two functional units: Current Planning and Development Review, and Advanced Planning. The Planning Department has just three (3) staff persons: Planning Director, Assistant Planner, and Senior Administrative Assistant.

Planning Department Permit Activity

Application Type	06	07	08	09	10	11	12	13	14	15	16
Use Permit	12	7	6	7	8	12	17	31	10	20	5
Design Review (DRB)	23	13	13	10	7	8	10	11	11	8	15
Design Review (Staff)	4	0	1	3	0	3	2	5	4	7	1
Variance	6	0	0	0	0	0	0	0	2	3	0

Tree Removal Permit	22	16	12	14	9	12	10	13	12	19	21
Administrative Sign Review	11	13	8	12	11	10	9	27	19	20	24
Preliminary Review	6	1	1	0	0	1	1	0	1	2	3
Annexation / Pre-Zone	1	0	0	0	1	0	0	0	0	1	0
Rezone/Text Amendment	1	0	1	0	0	0	0	0	0	1	3
General Plan Amendment	0	0	0	0	0	0	0	0	0	0	0
Minor Subdivision	4	0	2	0	1	0	0	0	0	0	0
Major Subdivision	3	0	1	0	0	0	0	0	0	0	0
Lot Line Adjustment/Certificate of Compliance	2	1	0	21	0	1	2	0	1	3	0
Environmental Review: Negative Declaration	1	1	1	0	1	1	0	2	0	0	0
Appeal	4	2	2	0	0	5	2	2	1	2	4
ABC Transfer/ Admin. Alcohol Use Permit	X	X	X	X	X	X	X	X	7	3	5
Antenna Use Permit	X	X	X	X	X	X	X	X	6	1	1
Temporary Use Permit	X	X	X	X	X	X	X	X	12	10	12
Zoning Determination	X	X	X	X	X	X	X	X	1	0	2
Village Building Convergence	X	X	X	X	X	X	X	X	1	0	0
Administrative Permit Review	X	X	X	X	X	X	X	X	4	12	6
Time Extension (Staff)	X	X	X	X	X	X	X	X	1	1	1
Film Permit	X	X	X	X	X	X	X	X	X	2	2
Public Art Review	X	X	X	X	X	X	X	X	X	1	1
Total	100	53	48	77	38	53	53	91	93	126	106

'X' means that the permit type was not specifically identified in pervious LOS Reports.

The Design Review Board (DRB) denied the following applications: Minor Sign Review - 1
The Tree Board denied the following applications: Tree Removal Permit - 0
The City Council denied the following applications: Appeal - 3
The Planning Commission denied the following applications: Appeal - 1

The following applications were withdrawn:

- Temporary Use Permit: 1
- Tree Removal Permit: 2

The following applications are pending as of January 2017:

- Public Art Review: 1
- Preliminary Review: 1
- Temporary Use Permit with City Council Review: 1

Administrative Level Review

Planning Department staff approved the following applications administratively:

- Administrative Permit Review: 6
- ABC License Transfer/ Alcohol Use Permit (<50 seats): 5
- Design Review: 1
- Film Permit: 2
- Administrative Sign Review: 24
- Temporary Use Permit: 12
- Time Extension: 1

- Tree Removal Permit: 21
- Zoning Determination: 2

Notable 2016 Accomplishments

- Completion and adoption of the General Plan update.
- Processing of the Climate Action 2020 Plan.
- Completion of the Skategarden Expansion Project.
- Adoption of the identified mandatory Housing Element Zoning Ordinance revisions.
- Selection of Ned Kahn for a major public art project.

Expected Special 2017 Planning Department Activities

- Annexation of the Village Park/Tomodachi Park property.
- Revision and adoption of updates to the Accessory Dwelling Unit Ordinance in accordance with State Law.
- Initiation of possible Voluntary Collection Agreement for Transient Occupancy Taxes with Airbnb.
- Revision and adoption of numerous updates to the Zoning Ordinance.

Environmental Issues:

Reduction of greenhouse gases is a stated goal of the City of Sebastopol. As a responsible environmental steward the City of Sebastopol is committed to policies and programs that conserve and use natural resources wisely. Since solar photovoltaic technology and equipment have become reasonably available the City requires that new commercial or residential buildings, and specific alterations, additions and remodels require the installation of a photovoltaic energy generation system.

At the time of submittal of a building permit application for a new commercial building or addition over 1,800 square feet or alterations, remodel or repairs over 50 percent or more of the structure or new residential building or residential addition, alteration, remodel or repairs of 75 percent or more of the structure, an applicant is required to submit plans and specifications for a solar photovoltaic system included in the submittal application.

The City of Sebastopol's projected future growth has led to concern over the City's sewage treatment capacity share in the Santa Rosa Subregional Sewerage System. At the same time, the City depends solely upon the underground water supply and wishes to conserve that finite resource. Therefore, the City requires that water saving devices which can be, shall be, incorporated into all new construction, and in remodeling of existing kitchens and bathrooms, and that the use of such devices will help conserve water and preserve the City's sewage treatment capacity.

The City of Sebastopol encourages sound land use that promotes proactive, forward-thinking environmental protection, it is considered a cornerstone of Sebastopol's identity. The City requires the implementation of policies and actions to provide for progressive, effective and forward-thinking strategies to protect the natural environment and promote sustainability to the greatest extent feasible.

Other environmental protections of note within the updated General Plan:

1. Protect and Enhance Sebastopol's ecosystem and natural habitats.
2. Protect and enhance water resources in local creeks, riparian habitat, wetlands, the Laguna De Santa Rosa Watershed, Atascadero Creek, and aquatic habitat.
3. Proactively manage, protect, and restore the Laguna De Santa Rosa.
4. Protect, manage, and enhance groundwater as a valuable and limited shared resource.
5. Conserve, protect and enhance trees and native vegetation.
6. Improve air quality in Sebastopol and reduce air quality impacts from future development.
7. Reduce emissions of greenhouse gasses from City operations and community sources.
8. Promote conservation of energy and other natural resources.
9. Ensure the provision and preservation of diverse and accessible open spaces throughout the City.

Future Issues

The LOS Report has identified a number of important issues, which have been discussed and addressed in the new General Plan, along with a number of other issues. Ongoing and focused attention on conservative financial management, attention to the needs of essential City functions and services, realistic priority-setting, and promotion of economic development to strengthen the local economy are merited to ensure that core services and community assets can be maintained at an acceptable level.

CITY OF SEBASTOPOL
WATER PRODUCTION AND USAGE, AND WASTEWATER STATISTICS FOR ANNUAL LEVEL OF SERVICE REPORT CALENDAR YEAR 2016

February 27, 2017

This report is prepared annually by the Public Works Department, to accompany the Planning Department's Annual Level of Service Report.

The report includes statistics showing trends in water production, water consumption, and wastewater flows for the preceding ten years. Beginning in 2009, these annual reports also include information on groundwater levels in our City wells.

This portion of the report will summarize data obtained during 2016. Tables and Figures referenced in the summary are attached at the back of the document.

PART 1 – WATER PRODUCTION AND USAGE

Table 1 shows annual water production statistics for the past ten years, along with the ten-year average.

Total Annual Production from all wells increased from 296 million gallons in 2015 to 304 million gallons in 2016, an increase of about 3%. The prolonged dry weather conditions statewide led the State to declare a drought emergency, and Sebastopol implemented emergency voluntary water conservation requirements in August, 2014. However, water demand remains significantly lower than when production peaked at 500 million gallons in 2004.

Population is reported by the State Department of Finance on January 1 of each year. The population figures used in this report match the DOF's most current population estimates, based on a 2000 benchmark. The population figure increased by 20, from 7,507 (2015) to 7,527 as of January 1, 2016.

Overall **Per Capita Production** is a calculated average of all water produced divided by population. Per Capita Production increased 3% from 108 gallons/person/day (2015) to 111 gallons/person/day in 2016.

Rainfall received during 2016 was 41.98 inches, above Mean Seasonal Precipitation for Sebastopol (35 inches per year).

Figure 1 shows some of this information in Graphic form.

Water Consumption

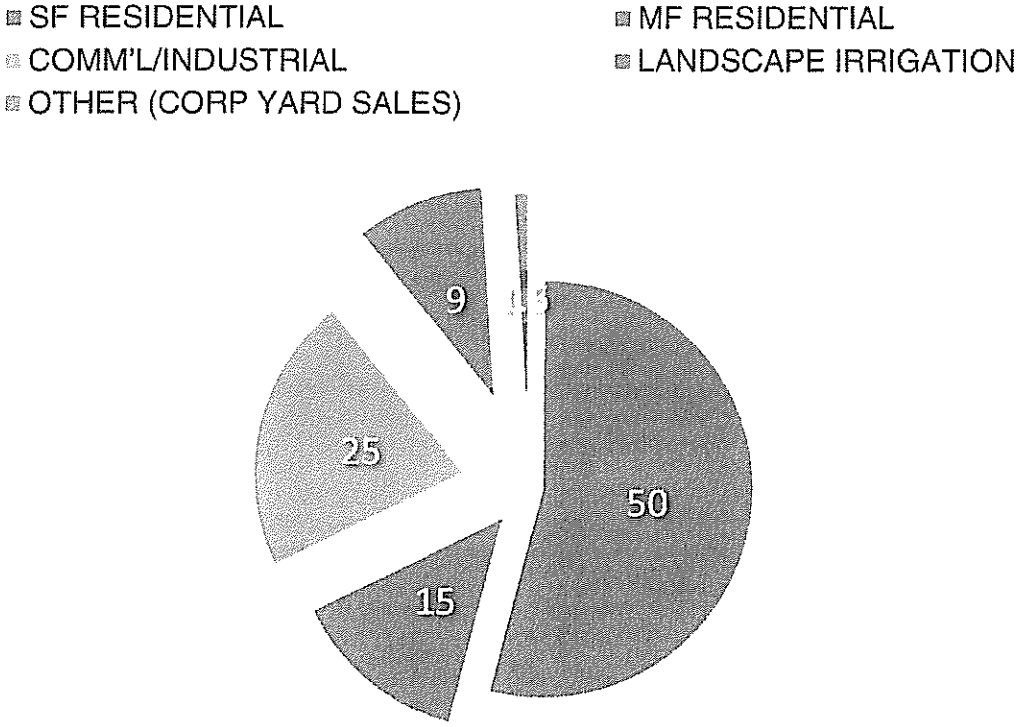
Water consumption by our residents and other users is tracked by monitoring billing records.

Table 2 shows the contribution of various classes of customers to total water sales in Sebastopol over the past 10 years. Figure 2 shows this information in graphic form.

The chart below shows the contribution of various classes of customers to total water sales in Sebastopol during Calendar Year 2016. The distribution of water usage between various classes has not changed appreciably over the past years.

Water Usage by Customer Class

Residential: Together, single-family and multi-family residential usage account for 65% of all water used in Sebastopol in 2016. Though *water produced* in 2016 for all uses averaged 104 gallons/person/day, actual billing records show that residential customers



in Sebastopol use substantially less water on a per capita basis. Per capita *residential usage* was 67 gallons per day in 2016, down from 68 gallons per day in 2015.

Commercial and Institutional: 25% of water sold in 2016 was to commercial and institutional customers (churches, schools, government buildings, etc.). Usage in this customer class remained about the same as a percentage of total use.

Irrigation: Irrigation meters are required for all new multi-family and commercial uses, government and institutional buildings and City parks. Beginning in the summer of 2006 upgrades to our billing software allowed us to begin tabulating irrigation meters separately from their associated domestic meters. In 2016, separately metered irrigation usage was 26.6 million gallons. This represents about 9% of all water sold. This amount decreased 1% from 2015, presumably in part due to the emergency water conservation requirements and rate increases.

Corporation Yard Sales: The City maintains a potable water-filling stand at the Corporation Yard. Customers for water dispensed at the stand include private contractors and water haulers, and individuals. By far the vast majority of water sold at the Corporation Yard, over 80 % is purchased by potable water haulers to provide potable water to rural-residential customers in County areas around Sebastopol. The remainder is sold to haulers for dust control on construction projects inside and out of town, including Sonoma County Farm Trails for performing dust control at the annual Gravenstein Apple Fair. About 5% is purchased by individual self-haul customers for refilling of storage tanks, and for irrigation on rural properties. Historically, sales of water at the Corp Yard ranges from about 0.3% to a little over 1% of all water sold. In 2016, about 4.2 million gallons were sold from the Corp Yard stand, or about 1.5% of all water produced. This was about 12% higher than in 2015.

Future Water Demand

The estimated water demand from projects currently approved by the City but not yet constructed is 4.6 million gallons per year. This represents the equivalent of approximately 1.5% of total production in 2016. The water demand for projects pending approval is estimated at an additional 0 million gallons per year. This is equivalent to an additional 0% of 2016 annual production. Table 4 shows projects included in these calculations.

Groundwater Levels

Sebastopol is dependent on our municipal wells for water to supply our customers. During Fiscal Year 2013/14, the City budgeted funds to replace data-loggers (transducers) in all of our City wells. The project was completed in Spring, 2014. The City has retained the services of our consultants at PES to oversee the monitoring of ground water levels, maintain the monitoring equipment, supplement it with hand measurements when needed, and to prepare quarterly reports. The City received four reports during 2016, for the first, second, third and fourth quarters. These are attached. This information will also be uploaded to the Public Works Department web page at a future date.

Groundwater Management

California obtains between a third and half of its fresh drinking water from groundwater aquifers accumulated in subsurface basins formed by underlying geologic formations. It has long been recognized that the ability of these aquifers to continue to provide sustainable water supply is critical to the water needs of California as a whole. The Sustainable Groundwater Management Act became law in 2014 (known as SGMA, but pronounced "sigma") with the final version of the accompanying regulations issued within the last year. SGMA sets goals for developing Groundwater Sustainability Plans (GSP) for each basin in order to provide a framework to preserve, recharge, and nurture these groundwater basin aquifers. The GSP is to be developed and managed by a newly established Groundwater Sustainability Agency (GSA).

Sebastopol obtains 100% of its municipal water supply from groundwater via multiple producing wells. SGMA stipulates that GSA members must be local government entities, and either provide/supply water, or regulate water, or have land use responsibilities.

The collaborative regional effort to get set for Sustainable Groundwater Management Act (SGMA) compliance has been progressing. Recent efforts have had as their focus both the prospective GSA governance arrangement, and program financing and cost estimates.

The work Group recommendations are that the GSA entities form a GSA for the SRP that would be a Joint Powers Authority (JPA). The basic proposal is for a two-tier set-up, with a governing Board supported by a second tier Advisory Committee. The governing Board would have as its members one representative each from the county, SCWA, SRCD, each of the four cities, and a single seat for the PUC/Mutuals for a total of 9 Board seats. The expectation would be that each member entity appoint both a serving Board member, and an alternate.

The SGMA Workgroup is also developing a budget for a JPA and looking at various funding mechanisms available. State grant money has paid a great part of expense to date. The financial effort is looking at developing a sustainable revenue stream, and at gap funding to bridge between GSA formation and the advent of revenue generation.

PART 2 – WASTEWATER

Sebastopol maintains a sanitary sewer collection system and pumping stations that transfer wastewater from Sebastopol to the Sub-regional Water Reclamation System Treatment Plant operated by the City of Santa Rosa on Llano Road. As a partner in the Subregional system, Sebastopol has an entitlement to treatment capacity up to 840,000 gallons, or 0.84 million gallons per day (mgd) Average Daily Dry Weather Flow. Average Daily Dry Weather Flow (ADDWF) is computed using metered wastewater flows through the Morris Street Lift Station during the dry-weather months of each year (typically between May and September) with the lowest rainfall.

Average Daily Dry Weather Flow

Table 3, Average Daily Dry Weather Flow at Morris Street Lift Station, shows current and past years' ADDWF, Population, Percent of Treatment Capacity Used, Per Capita Sewer Flows and Annual Rainfall.

Figure 3 shows ADDWF, compared to Treatment Capacity Entitlement, annual rainfall and average rainfall in graphic form.

For 2016, Average Daily Dry Weather Flow (ADDWF) was 0.0.448 mgd, or about 53% of our treatment entitlement. This was a increase of about 4% in ADDWF from 2015.

Sewer Flows, Project Commitments and Treatment Capacity

Sebastopol's ability to accommodate future development is limited by our entitlement in the Sub-regional Water Reclamation System. To estimate the treatment capacity available for future development, we calculate estimated flows from current project commitments. Table 4 provides information about estimated future water and sewer demand attributable to currently Approved Projects and Projects Pending in the planning process.

Projected sewer demand (ADDWF) for Approved Projects is 0.008 mgd.
Projected sewer demand (ADDWF) for Applications Pending is 0.028 mgd.

Using these figures, we can compare current and future flows to treatment capacity as shown in the following table:

Wastewater Treatment Capacity Based on Current Year Statistics

	MGD
Average Daily Dry Weather Flow, 2016 (Table 3)	0.448
Treatment Capacity Reserve per General Plan (5% of entitlement)	0.042
Estimated Flows from Approved Projects (Table 4)	+0.008
Subtotal – Treatment Capacity Used, Reserved and Committed	0.498

Current Capacity Entitlement in Sub-regional Treatment System	0.840
Less Treatment Capacity Used, Reserved and Committed	-0.498
Remaining Treatment Capacity Available for future Growth	0.342
Less Treatment Capacity Demand from Pending Applications (Table 2B)	-0.000
Remainder Available for New Projects	0.342

0.342 mgd represents approximately 41% of our total treatment capacity and would be equivalent to projected flows from 2,178 new single-family homes (assumes sewer flow from a typical single-family residential unit is 157 gpd).

PART 3 – MEETING OUR CONSERVATION GOALS

Water demand in any given year may vary due to a number of factors including weather patterns, the economy in general and rate increases. However, water usage is also affected by changing land use patterns, conservation efforts, rate increases and changes in the public attitude towards the need to conserve resources. In 2008, the City Council Water Subcommittee established a voluntary reduction goal of 15% from the past ten-year average usage by Sebastopol's Customers. In the reports for calendar years 2009-2011, that goal was met and exceeded. In August 2014, in response to the Governor's statewide drought declaration, the City adopted emergency regulations and voluntary water conservation requirements, and asked our customers to aim for a 20% voluntary reduction in water usage. Overall in 2016, water usage increased by about 13% from the previous year of 2015.

Attachments:

TABLES FOR ANNUAL LEVEL OF SERVICE REPORT FOR 2015

Table 1	Water Production
Figure 1	Water Production, Population and Rainfall (Graph)
Table 2	Water Sales by Customer Class
Figure 2	Water Sales by Customer Class (Graph)
Table 3	Average Daily Dry Weather Flows at Morris Street Lift Station
Figure 3	Average Daily Dry Weather Flow v. Treatment Capacity (Graph)
Table 4	Estimated Sewer and Water Demand from Future Development

GROUNDWATER LEVEL DATA TRANSMITTALS (PES Environmental, Inc.)

- 2016 1st Quarter, April 8, 2016
- 2016 2nd Quarter; August 30, 2016
- 2016 3rd Quarter; November 1, 2016
- 2016 4th Quarter; January 27, 2017

Updated February 2017
for 2016 LOS Report

APPROVED PROJECTS

TABLE 4

PROJECT INFORMATION

Project Name	Street Address	Single Family Residential Units	Multi-Family Residential Units	Motel Rooms	Office, Commercial, Industrial(See Notes)	ESTIMATED WATER DEMAND Single-family Residential at 270 gallons/day	Multi-family Residential at 175 gallons/day	Commercial/ Office at 0.134 gallons/square foot/day (Winery @ 10 gallons	Motel rooms at 80 gallons/room /day	TOTAL ANNUAL WATER DEMAND (gallons)
Oak Grove Subdivision	7801 Stefenoni	1				98,550	0	0	0	98,550
Woodland Estates	7401-7440 Giusti	6				591,300	0	0	0	591,300
Schoch Minor Subdivision	763 First Street	4				394,200	0	0	0	394,200
Doughty CCC	327 Murphy	1				98,550	0	0	0	98,550
Sharrocks Minor Subdivision	931 Litchfield	2				197,100	0	0	0	197,100
Zimpher Minor Subdivision	Norlee Street	1				98,550	0	0	0	98,550
Clarke Minor Subdivision						0	0	0	0	0
House	911 Litchfield	1				98,550	0	0	0	98,550
House	921 Litchfield	1				98,550	0	0	0	98,550
Waters Minor Subdivision	7846 Washington Avenue	2				197,100	0	0	0	197,100
Grav. Hwy. S. Mixed Use	961 Grav Hwy South	8			620	788,400	0	30,324	0	818,724
House	7584 Washington	1				98,550	0	0	0	98,550
						0	0	0	0	
Mixed-use	7631 Healdsburg	1	1		1,592	98,550		77,865	0	176,415
Unit	7147 Burnett		1			0	63,875	0	0	63,875
Accessory unit	570 Ellis Court		1			0	63,875	0	0	63,875
House, accessory unit	7424 Calder	1	1			98,550	63,875	0	0	162,425
Accessory unit	920 Grav. South		1			0	63,875	0	0	63,875
Accessory unit	7864 Swartz		1				63,875			
Accessory unit	7821 Covert Lane		1				63,875			
Accessory unit	7451 Huntley Avenue		1				63,875			
Accessory unit	1041 McFarlane		1			0	63,875	0	0	63,875
Mixed-use project	845 Grav. North		11		10,645	0	702,625	520,647	0	1,223,272
Hotel Sebastopol	6828 Depot Street			66		0	0	0	1,927,200	0
French Garden Hotel	8060 Bodega Avenue			18		0	0	0	525,600	0
										0
Subtotal Approved		*30*	*20*	*84*	*12,857*	*2,956,500*	*1,213,625*	*628,836*	*2,452,800*	*4,607,336*
Add 5% for Irrigation										**4,837,703**
PROJECTS PENDING										
						0	0	0	0	0
						0	0	0	0	0
						0	0	0	0	0
						0	0	0	0	0
Subtotal Pending		*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Add 5% for irrigation										**0**
Total Approved and Pending										**4,837,703**

ASSUMPTIONS

ESTIMATED SEWER DEMAND						
Single-family Residential at 157 gallons per day	Multi-family Residential at 102 gallons per day	Commercial/Office at 0.134 gallons per square foot per day,	Motel rooms at 80 gallons/room/day	TOTAL ANNUAL SEWER DEMAND (gallons)	TOTAL SEWER DEMAND IN MGD	Notes
57,305	0	0	0	57,305		
343,830	0	0	0	343,830		
229,220	0	0	0	229,220		
57,305	0	0	0	57,305		
114,610	0	0	0	114,610		
57,305	0	0	0	57,305		
0	0	0	0	0		
57,305	0	0	0	57,305		
57,305	0	0	0	57,305		
114,610	0	0	0	114,610		
458,440	0	30,324	0	488,764		Res New:Net Incrse to Comm=620sf
57,305	0	0	0	57,305		
0	0		0	0		
57,305		77,865	0	135,170		
0	37,230	0	0	37,230		
0	37,230	0	0	37,230		
57,305	37,230	0	0	94,535		
0	37,230	0	0	37,230		
	37,230					
	37,230					
	37,230					
0	37,230	0	0	37,230		
0	409,530	520,647	0	930,177		
0	0	0	########	0		
0	0	0	525,600	0		
1,719,150	*707,370*	*628,836*	*#######*	*2,943,666*	0.0081	
0	0	0	0	0		
0	0	0	0	0		
0	0	0	0	0		
0	0	0	0	0		
0	*0*	*0*	*0*	**0**	0.0000	
				2,943,666	0.0081	

TABLE 2
ESTIMATED WATER AND SEWER DEMAND FROM APPROVED AND PENDING PROJECTS



SEWER DEMAND (Ref. Sewer Master Plan, Coastland Engineering, 2006

Residential (1)	157 gallons per unit per day
Commercial/Office/Retail (2)	0.134 gallons per day/square foot*
Industrial (2)	0.42 gallons per day/square foot*
Motel	80 gallons per room per day

WATER DEMAND (Ref. Water Master Plan, Coastland Engineering, 2006

Residential	270 gallons per day, per unit
Commercial/Office	0.134 gallons per day/square foot
Industrial	0.42 gallons per day/square foot
Irrigation Meters (3)	Assume additional 5% of total.
Motel	80 gallons per room per day

(1) This figure is conservative in that it is used here for all residential units regardless of size. For multi-family developments, irrigation is metered and separately.

(2) This is based on Master Plans assumption that 100% of water goes to sewer for these uses. Irrigation is metered separately.

(3) Demand figures are included here for projects that were completed and placed online prior to January 2017

Water Production

Calendar Year	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	10-Year Average
Total Annual Production (mg)	392	412	362	338	339	367	376	333	296	304	352
Average Day (mg)	1.1	1.1	1	0.9	0.9	1	1	0.9	0.8	0.8	1
Population (State DOF, Jan. 1)	7712	7680	7734	7943	7423	7405	7445	7440	7507	7527	7582
Average Production Per Capita Per Day (gallons)	139	147	128	117	125	136	138	123	108	111	127
Maximum Month (mg)	49	37	41	39	38	45	40	43	35	40	41
Maximum Day (mg)	2.6	1.7	2.1	1.7	1.6	1.8	1.5	2.1	1.3	1.4	1.8
Average Day in Maximum Mo. (mg)	1.6	1.2	1.4	1.3	1.3	1.5	1.3	1.4	1.2	1.3	1.4
Maximum Well Capacity (gpm)	2,900	3,400	2,200	2,200	2,200	2,550	1,800	1,800	2,257	2,257	2,356
% Total Production to Max Production	25.72%	23.05%	31.31%	29.23%	29.32%	27.38%	39.74%	35.20%	24.94%	26%	29.19%
Amount of Water Billed (mg)	365	377	344	313	309	338	350	311	277	286	327
Un-metered Water Usage (mg)	1.7	1.6	2.5	2.9	5.2	2.1	3	1.5	0	0	2.1
Total Reported Use	366.7	378.6	346.5	315.9	314.2	340.1	353	313	277	286.1	329.1
Unaccounted- for Water (mg)	25.3	33.4	15.5	22.1	24.8	26.9	23	20	16	18	22.5
Unaccounted- for Water, % of Total Production	6.45%	8.11%	4.28%	6.54%	7.32%	7.33%	6.12%	6.01%	6.42%	5.93%	6.45%
Rainfall (inches)	23.12	23.12	22.91	50.8	28.07	43.3	11.83	38.63	15.01	41.98	29.88

Table 2
WATER SALES by CUSTOMER CLASS
(In Million Gallons)

YEAR	Single Family Residential	Multi-Family Residential	Total Residential Water Sales	Commercial / Institutional	Landscape Irrigation	Corp Yard
2007	200.7	47.6	248.3	80.4	33.6	2.8
2008	207.6	47.3	254.9	79.7	39.2	3.4
2009	185.4	53.4	238.8	71.2	31.3	3.1
2010	170.3	46.6	216.9	66.8	27.7	1.7
2011	171.5	45	216.5	66.4	24.7	1
2012	188.8	47.1	235.2	71.5	28.5	2.1
2013	190.2	46.8	237	74.5	36.4	1.7
2014	166.9	42.5	209	66.2	30.5	3.1
2015	146.2	39.9	186.1	59.9	27.4	3.7
2016	141.8	42.9	184.7	70.6	26.6	4.2

YEAR	TOTAL WATER SALES ALL USES	Population per State Department of Finance	Residential Water Sold - Gallons per Person per Day	All Water Sold - Gallons per Person per Day
2007	365.1	7,723	88	130
2008	377.2	7,680	91	135
2009	344.4	7,734	85	122
2010	313.1	7,943	75	108
2011	308.7	7,423	80	114
2012	338	7,405	87	125
2013	349.7	7,445	87	129
2014	311.2	7,440	77	115
2015	277.1	7,507	68	108
2016	286.1	7,527	67	111

Table 3
Average Daily Dry Weather Flo
ws at Morris Street Lift Station

Calendar Year	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
Dry Weather Flow (MGD) [1]										
May						0.489				0.454
June	0.597	0.501	0.471	0.388					0.41	0.463
July	0.479	0.503	0.427	0.336	0.515	0.465	0.467	0.428	0.404	0.438
August	0.435	0.507	0.424	0.337	0.516	0.47	0.461	0.43	0.419	0.443
September		0.453				0.48	0.467			0.449
October										0.469
Average Daily Dry Weather Flow (MGD)	0.504	0.491	0.441	0.354	0.519	0.474	0.464	0.432	0.411	0.448
Treatment Capacity Used [2]	60%	58%	53%	42%	62%	56%	55%	51%	49%	53%
Population [3]	7,712	7,680	7,734	7,943	7,423	7,405	7,445	7,440	7,507	7,527
Per Capita ADDWF(GPD) [4]	65	64	57	45	70	64	60	58	55	60
Rainfall (Inches)	23.12	23.12	22.91	50.8	28.07	43.3	11.83	38.63	15.01	41.98

PES Environmental, Inc.
Engineering & Environmental Services

April 8, 2016

954.001.03.002

Richard Emig
City of Sebastopol
Public Works Department
714 Johnson Street
Sebastopol, California 95472

Re: Groundwater Level Data Transmittal
First Quarter 2016
City of Sebastopol
Sebastopol, California

Dear Mr. Emig:

This data transmittal has been prepared by PES Environmental, Inc. (PES) on behalf of the City of Sebastopol (City) to summarize the results of the groundwater level monitoring program performed in the first quarter of 2016 (January through March). The following sections of this transmittal summarize the activities performed and data collected for the subject monitoring period.

GROUNDWATER LEVEL MONITORING PROGRAM

The activities performed for the monitoring period (January through March) included: (1) recording groundwater levels in five City production wells; (2) summarizing regional precipitation data; (3) performing a site inspection with manual depth-to-water measurements; and (4) preparing groundwater level hydrographs.

Groundwater Level Measurements

Groundwater level data collected for the fourth quarter included groundwater elevations from five City production wells: inactive municipal Well #5, and active municipal Wells #4[1], #6, #7, and #8. These wells are equipped with Solinst Inc., electronic submersible

[1] Well #4 was temporarily shut-off on February 16, 2016 for maintenance servicing and was subsequently restarted on March 29, 2016. The transducer/data logger system was removed from the well during this period and reinstalled on April 6, 2016.

"LT Edge Levellogger" absolute (i.e., un-vented) pressure transducers and data logger systems. Additionally, a Solinst Inc., "LT Edge Barologger" is installed within Well #4 to provide baseline data for barometric compensation. The pressure transducers/data loggers were programmed to record pressure-head measurements at 15-minute intervals. Pressure-head measurements stored in each data logger were transmitted to PES' office via telemetry stations installed within the respective pump houses. The pressure-head measurements were then barometrically compensated and correlated to manual groundwater level measurements that were obtained via an electronic water level sounder on April 6, 2016. The respective manual groundwater level measurements on April 6, 2016 for Wells #5, #6, #7, and #8 were 40.3, 64.7, 109.2, and 259.5 feet below top of casing[2]. Due to data transmission errors with the telemetry system, pressure-head data is not available at Well #7 for the following brief periods: January 13, 2016; and March 13 through 15, 2016. Due to well maintenance and removal of the pressure transducer at Well #4, data is not available at this location from February 16, 2016 through April 5, 2016.

Precipitation Data

Daily precipitation records maintained by the National Oceanic and Atmospheric Administration are summarized on Table 1. The precipitation data (reported in total inches per day) were measured at the Sonoma County Airport, Santa Rosa, California (Station ID: USW00023213). As indicated in Table 1, a total of 21.72 inches of rain were recorded during the subject monitoring period, comprising of 10.87, 0.74, and 10.11 inches in January, February, and March, respectively.

Groundwater Level Hydrographs

Following conversion of the pressure-head measurements to depth-to-groundwater levels, groundwater level hydrographs were prepared for each of the five City wells (Plates 1 through 5). To facilitate groundwater trend analysis, groundwater data from the previous quarter (October through December 2015) is included on Plates 1 through 5. During the subject monitoring period (January through March), observed groundwater levels generally exhibit a trend of recovery, which appear to correlate with increased seasonal precipitation. From mid-February through March, groundwater levels at Well #8 exhibit a decline, which may be attributed to increased water production from this supply well.

[2] Wells #7 and #8 were actively pumping during collection of manual groundwater level measurements.

CLOSURE

PES appreciates the opportunity to be of service to the City and in providing assistance with the subject Groundwater Level Monitoring Program. Should you have any questions regarding this information, please call PES at (415) 899-1600.

Yours very truly,

PES ENVIRONMENTAL, INC.

Peter D. Gorman, P.G., C.HG.
Associate Hydrogeologist

Carl J. Michelsen, P.G., C.HG.
Principal Geochemist

cc: Henry Mikus – City of Sebastopol
Dante Del Prete – City of Sebastopol

Attachments: Table 1 – Summary of Precipitation Totals
Plate 1 – Groundwater Level Hydrograph, Municipal Well #4
Plate 2 – Groundwater Level Hydrograph, Municipal Well #5
Plate 3 – Groundwater Level Hydrograph, Municipal Well #6
Plate 4 – Groundwater Level Hydrograph, Municipal Well #7
Plate 5 – Groundwater Level Hydrograph, Municipal Well #8

TABLES

Table 1
Summary of Precipitation Totals
Sonoma County Airport
Santa Rosa, California

Day	Daily Precipitation Totals (inches)		
	Jan-2016	Feb-2016	Mar-2016
1	--	--	T
2	T	0.01	0.07
3	0.32	0.02	0.15
4	0.40	--	0.28
5	1.04	--	2.33
6	2.55	--	0.73
7	0.12	--	0.24
8	0.05	--	0.01
9	0.31	--	0.27
10	T	--	2.62
11	0.01	--	1.28
12	0.10	--	0.32
13	0.82	--	0.82
14	0.61	--	--
15	0.27	--	--
16	0.50	--	--
17	1.17	0.45	--
18	0.01	0.15	--
19	1.51	0.11	--
20	--	--	0.67
21	0.08	--	0.32
22	0.52	--	--
23	0.11	--	--
24	--	--	--
25	0.04	--	--
26	--	T	--
27	--	--	--
28	0.06	--	T
29	0.26	--	--
30	0.01	na	--
31	--	na	--
Total (inches)	10.87	0.74	10.11
Total Precipitation (in inches) for January through March: 21.72			

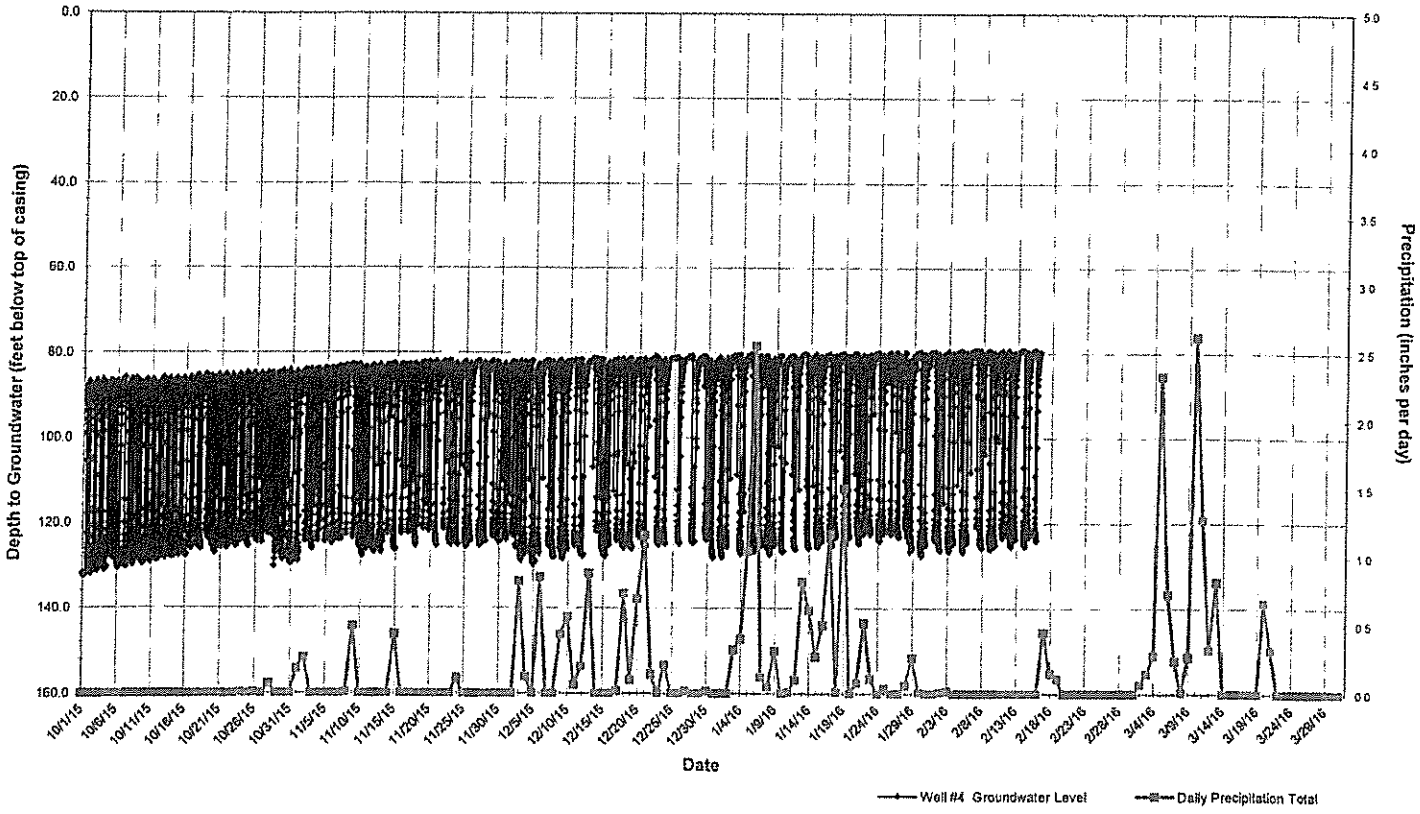
Notes:

Source of Data: National Oceanic and Atmospheric Administration (NOAA)
Preliminary Record of Climatological Observations for Sonoma County Airport - Cooperative Station Network (Station ID: USW00023213)
-- = No measureable/reported precipitation
T = Trace precipitation event
na = Not Applicable

PLATES

PES Environmental, Inc.

Plate 1
Groundwater Level Hydrograph - Well #4
City of Sebastopol Municipal Wellfield
Sebastopol, California



PES Environmental, Inc.

Plate 2
Groundwater Level Hydrograph - Well #5
City of Sebastopol Municipal Wellfield
Sebastopol, California

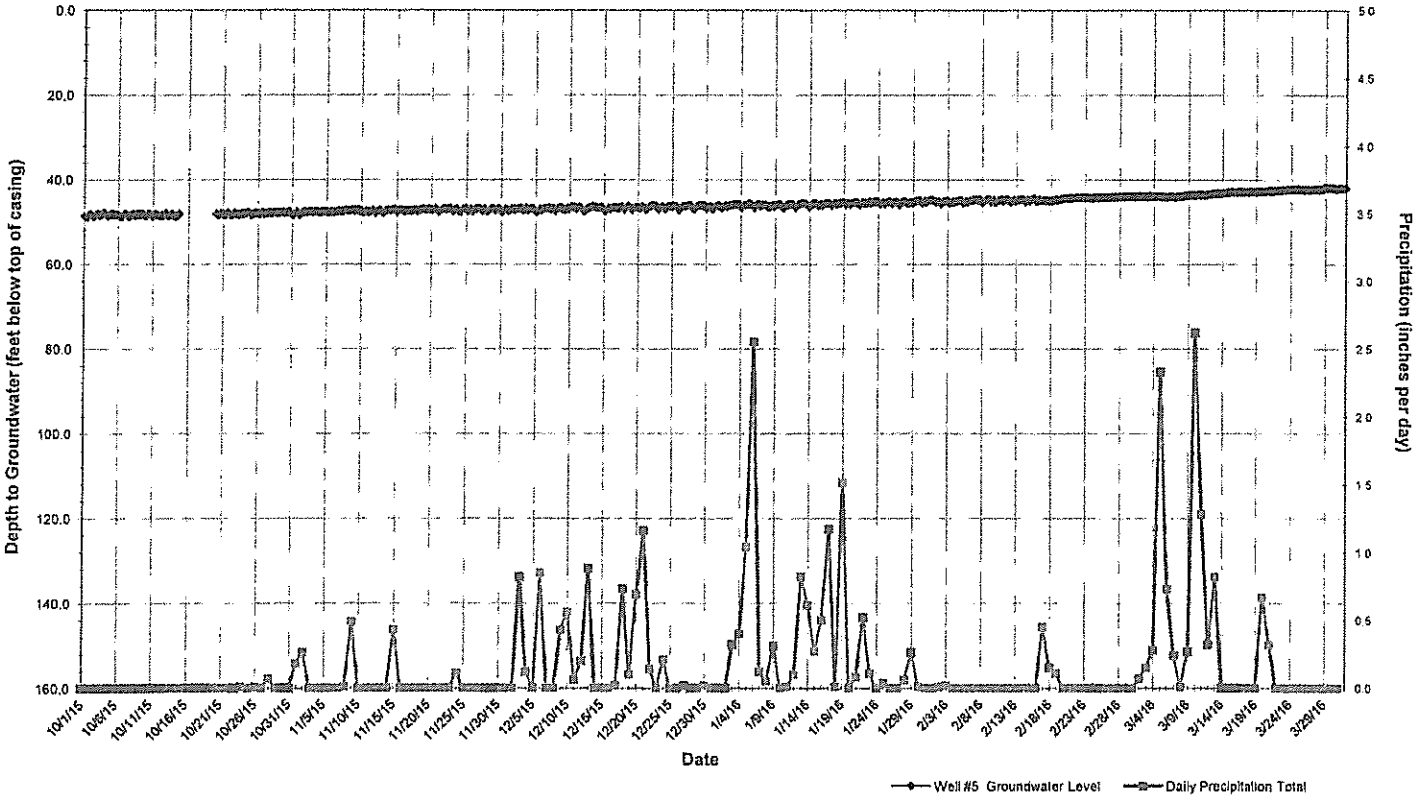


Plate 3
Groundwater Level Hydrograph - Well #6
City of Sebastopol Municipal Wellfield
Sebastopol, California

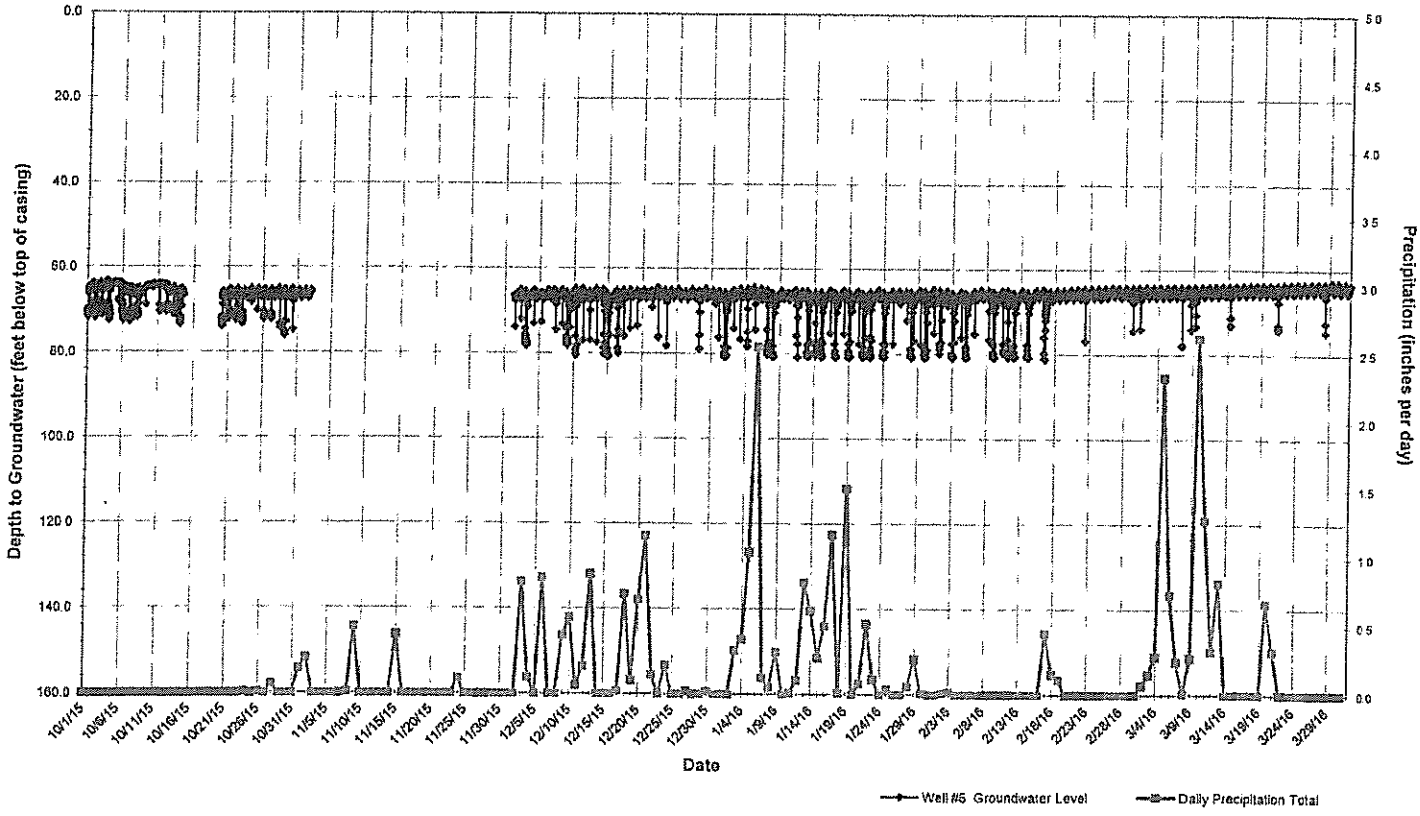


Plate 4
Groundwater Level Hydrograph - Well #7
City of Sebastopol Municipal Wellfield
Sebastopol, California

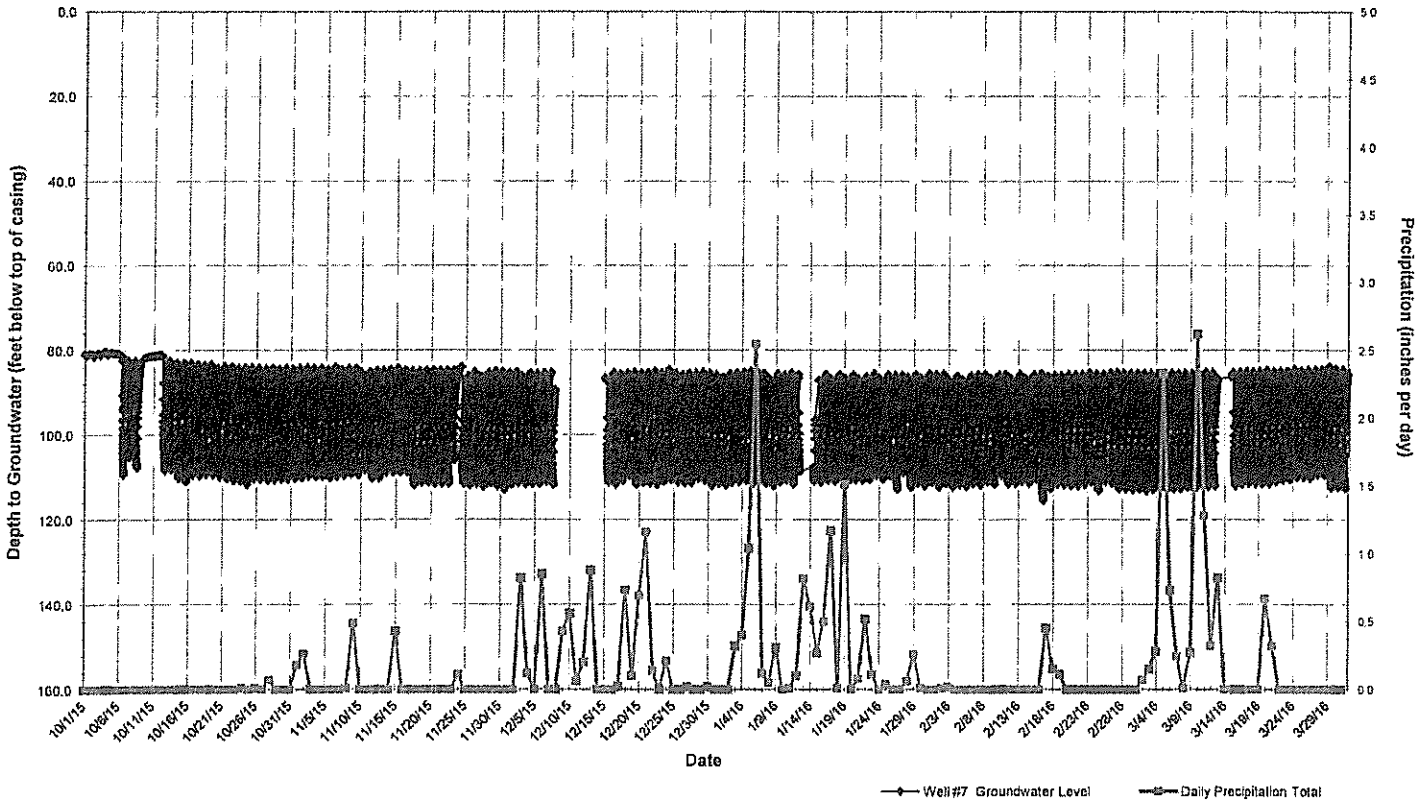
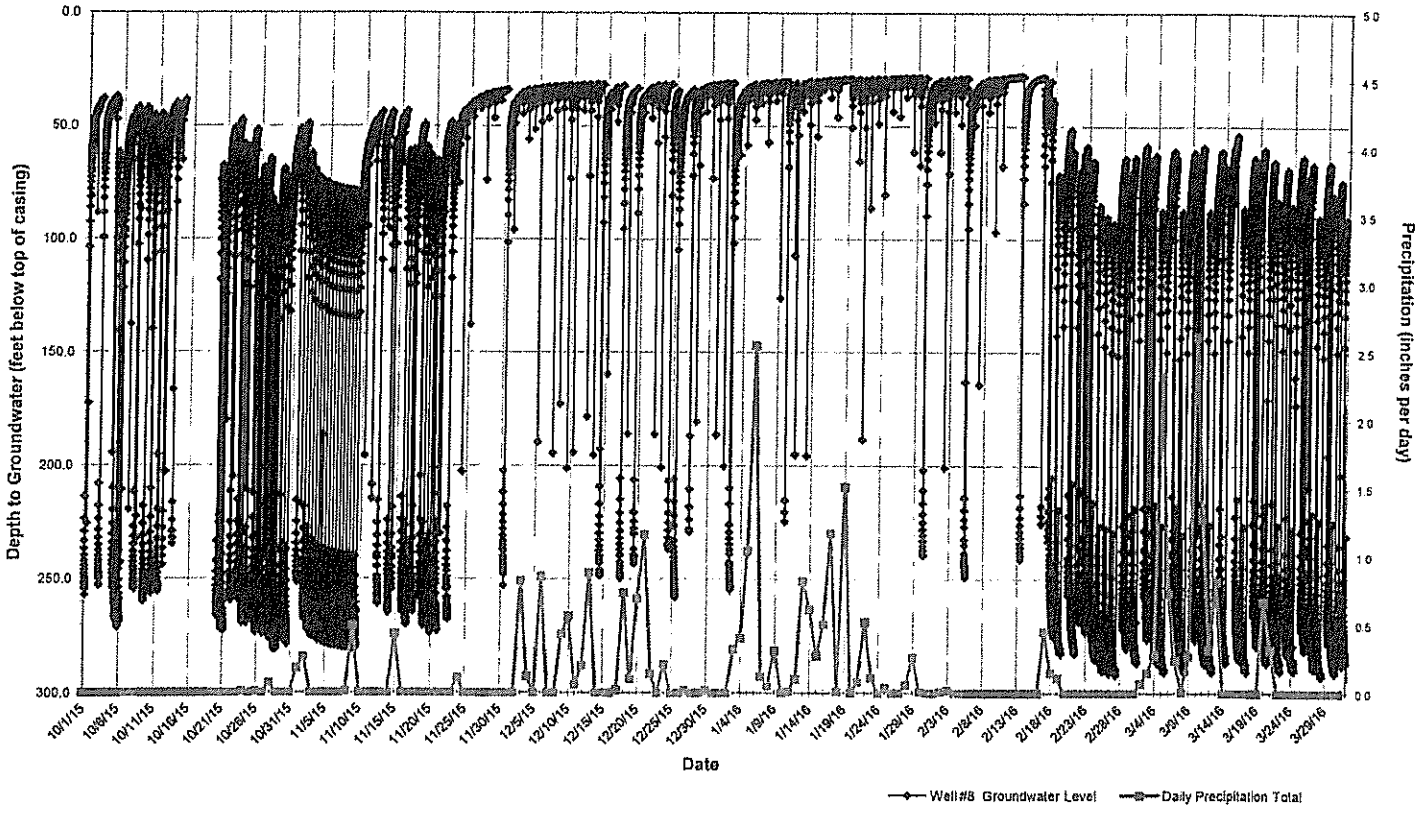


Plate 5
Groundwater Level Hydrograph - Well #8
City of Sebastopol Municipal Wellfield
Sebastopol, California



PES Environmental, Inc.
Engineering & Environmental Services

August 30, 2016

954.001.03.002

Richard Emig
City of Sebastopol
Public Works Department
714 Johnson Street
Sebastopol, California 95472

Re: Groundwater Level Data Transmittal
Second Quarter 2016
City of Sebastopol
Sebastopol, California

Dear Mr. Emig:

This data transmittal has been prepared by PES Environmental, Inc. (PES) on behalf of the City of Sebastopol (City) to summarize the results of the groundwater level monitoring program performed in the second quarter of 2016 (April through June). The following sections of this transmittal summarize the activities performed and data collected for the subject monitoring period.

GROUNDWATER LEVEL MONITORING PROGRAM

The activities performed for the monitoring period (April through June) included: (1) recording groundwater levels in five City production wells; (2) summarizing regional precipitation data; (3) performing a site inspection with manual depth-to-water measurements; and (4) preparing groundwater level hydrographs.

Groundwater Level Measurements

Groundwater level data collected for the second quarter included groundwater elevations from five City production wells: inactive municipal Well #5, and active municipal Wells #4[1], #6, #7, and #8. These wells are equipped with Solinst Inc., electronic submersible

[1] Well #4 was temporarily shut-off on February 16, 2016 for maintenance servicing and was subsequently restarted on March 29, 2016. The transducer/data logger system was removed from the well during this period and reinstalled on August 3, 2016.

"LT Edge Levellogger" absolute (i.e., un-vented) pressure transducers and data logger systems. Additionally, a Solinst Inc., "LT Edge Barologger" is installed within Well #4 to provide baseline data for barometric compensation. The pressure transducers/data loggers were programmed to record pressure-head measurements at 15-minute intervals. Pressure-head measurements stored in each data logger were scheduled to transmit data to PES' office via telemetry stations installed within the respective pump houses; however, the telemetry modems required re-programming and the pressure-head measurements were manually downloaded on August 3, 2016. The pressure-head measurements were then barometrically compensated and correlated to manual groundwater level measurements that were obtained via an electronic water level sounder on April 6, 2016. The respective manual groundwater level measurements on April 6, 2016 for Wells #5, #6, #7, and #8 were 40.3, 64.7, 109.2, and 259.5 feet below top of casing[2]. Due to data equipment errors, pressure-head data is not available at Well #5 for June 18 through 30, 2016. Due to well maintenance and removal of the pressure transducer at Well #4, data is not available at this location from February 16, 2016 through June 30, 2016.

Precipitation Data

Daily precipitation records maintained by the National Oceanic and Atmospheric Administration are summarized on Table 1. The precipitation data (reported in total inches per day) were measured at the Sonoma County Airport, Santa Rosa, California (Station ID: USW00023213). As indicated in Table 1, a total of 1.84 inches of rain were recorded during the subject monitoring period, comprised of 1.35, 0.30, and 0.19 inches in April, May, and June, respectively.

Groundwater Level Hydrographs

Following conversion of the pressure-head measurements to depth-to-groundwater levels, groundwater level hydrographs were prepared for each of the five City wells (Plates 1 through 5). To facilitate groundwater level trend analysis, groundwater level data from the previous quarter (January through March 2016) is included on Plates 1 through 5. During the subject monitoring period (April through June), observed groundwater levels generally exhibit a trend of decline, which appear to correlate with the seasonal decrease in precipitation.

[2] Wells #7 and #8 were actively pumping during collection of manual groundwater level measurements.

CLOSURE

PES appreciates the opportunity to be of service to the City and in providing assistance with the subject Groundwater Level Monitoring Program. Should you have any questions regarding this information, please call PES at (415) 899-1600.

Yours very truly,

PES ENVIRONMENTAL, INC.

Peter D. Gorman, P.G., C.HG.
Associate Hydrogeologist

Carl J. Michelsen, P.G., C.HG.
Principal Geochemist

cc: Henry Mikus – City of Sebastopol
Dante Del Prete – City of Sebastopol

Attachments: Table 1 – Summary of Precipitation Totals
Plate 1 – Groundwater Level Hydrograph, Municipal Well #4
Plate 2 – Groundwater Level Hydrograph, Municipal Well #5
Plate 3 – Groundwater Level Hydrograph, Municipal Well #6
Plate 4 – Groundwater Level Hydrograph, Municipal Well #7
Plate 5 – Groundwater Level Hydrograph, Municipal Well #8

TABLES

Table 1
Summary of Precipitation Totals
Sonoma County Airport
Santa Rosa, California

Day	Daily Precipitation Totals (inches)		
	Apr-2016	May-2016	Jun-2016
1	--	--	--
2	--	--	--
3	--	--	--
4	--	T	--
5	--	0.02	--
6	--	0.06	--
7	--	0.11	--
8	0.05	0.09	--
9	0.29	--	--
10	0.04	--	--
11	--	--	--
12	--	--	--
13	0.20	--	--
14	0.01	--	--
15	--	--	--
16	--	--	0.01
17	--	--	0.14
18	--	--	0.04
19	--	--	--
20	--	T	--
21	0.03	0.02	--
22	0.70	--	--
23	--	--	--
24	--	--	--
25	--	--	--
26	--	--	--
27	0.03	--	--
28	--	--	--
29	--	--	--
30	--	--	--
31	na	--	na
Total (inches)	1.35	0.30	0.19
Total Precipitation (in inches) for April through June: 1.84			

Notes:

Source of Data: National Oceanic and Atmospheric Administration (NOAA) Preliminary Record of Climatological Observations for Sonoma County Airport - Cooperative Station Network (Station ID: USW00023213)
-- = No measureable/reported precipitation
T = Trace precipitation event
na = Not Applicable

PLATES

PES Environmental, Inc.

Plate 1
Groundwater Level Hydrograph - Well #4
City of Sebastopol Municipal Wellfield
Sebastopol, California

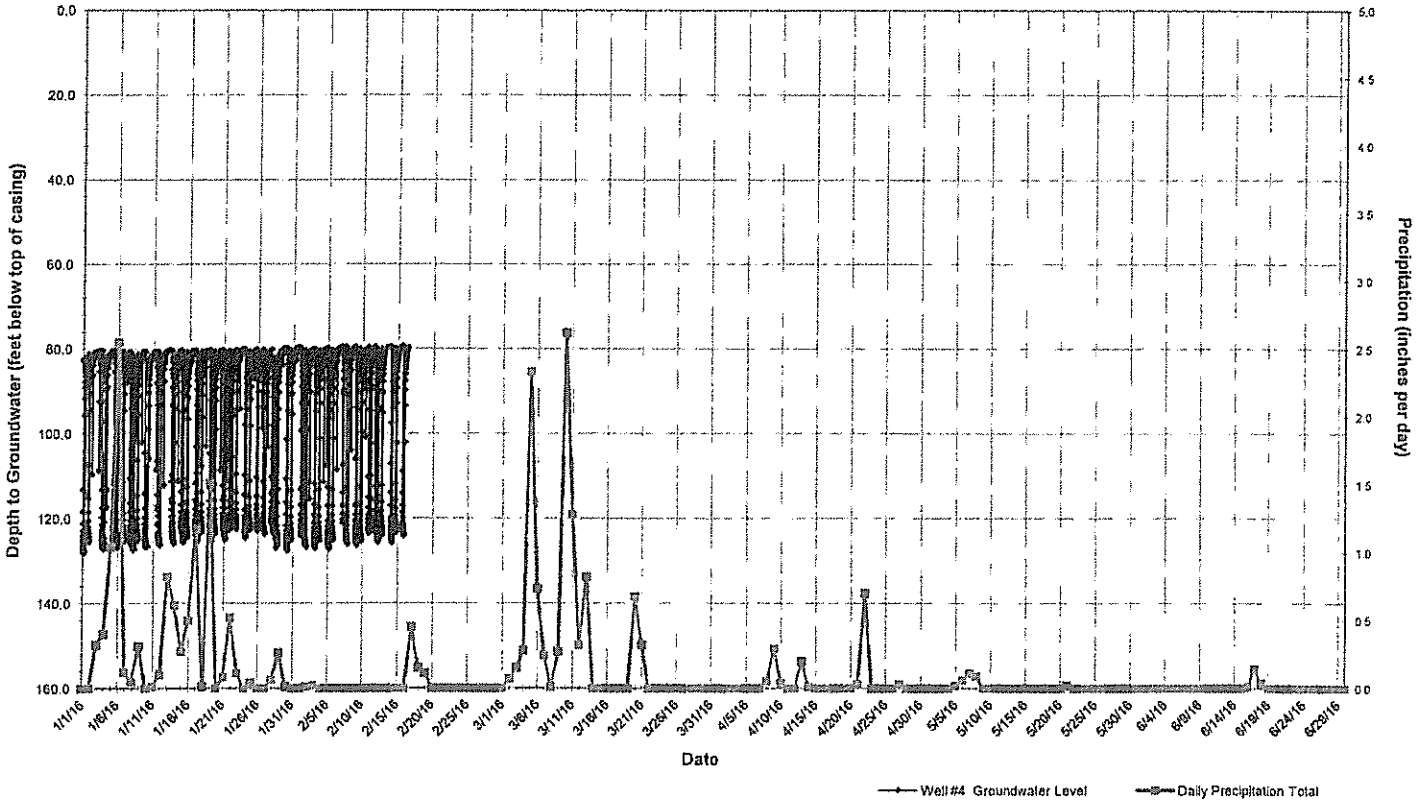


Plate 2
Groundwater Level Hydrograph - Well #5
City of Sebastopol Municipal Wellfield
Sebastopol, California

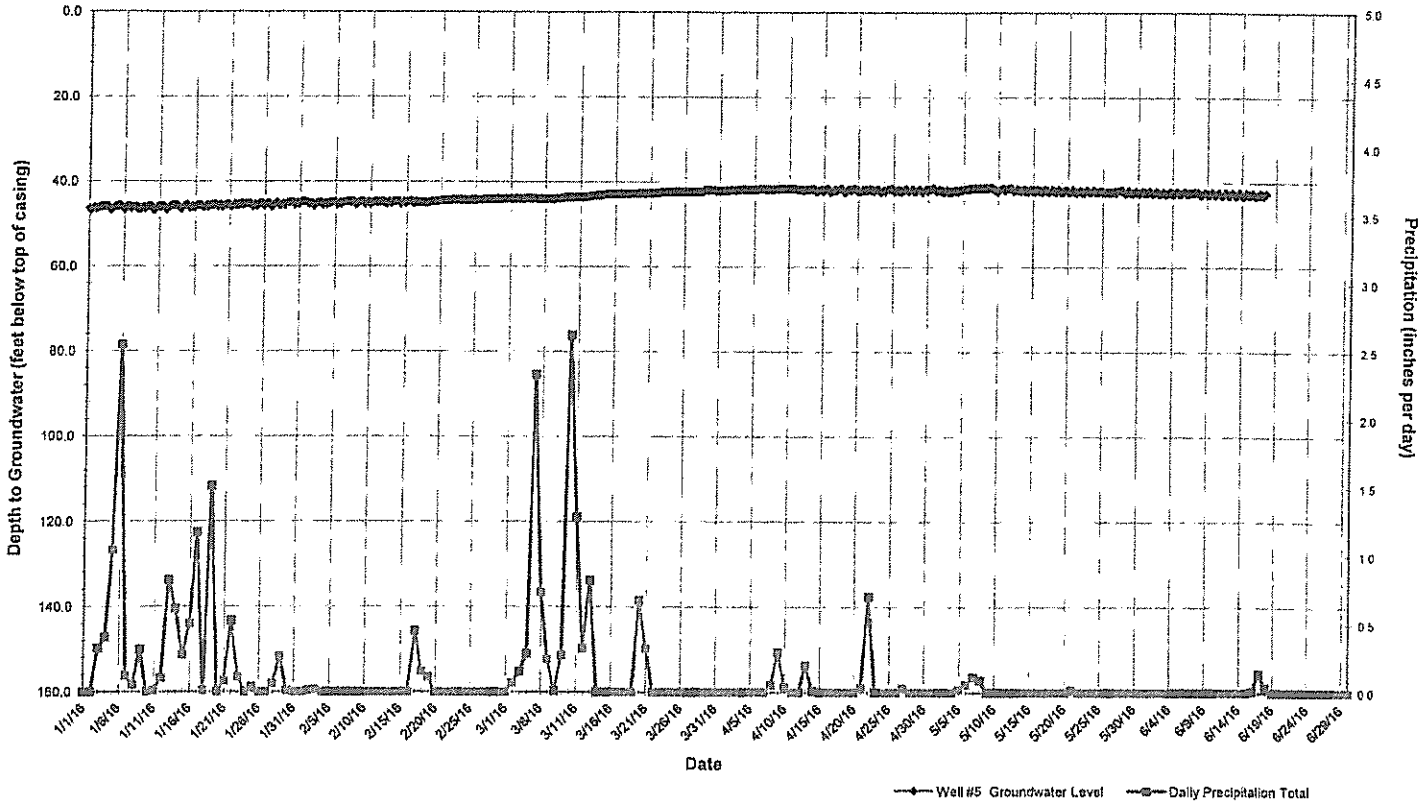


Plate 3
Groundwater Level Hydrograph - Well #6
City of Sebastopol Municipal Wellfield
Sebastopol, California

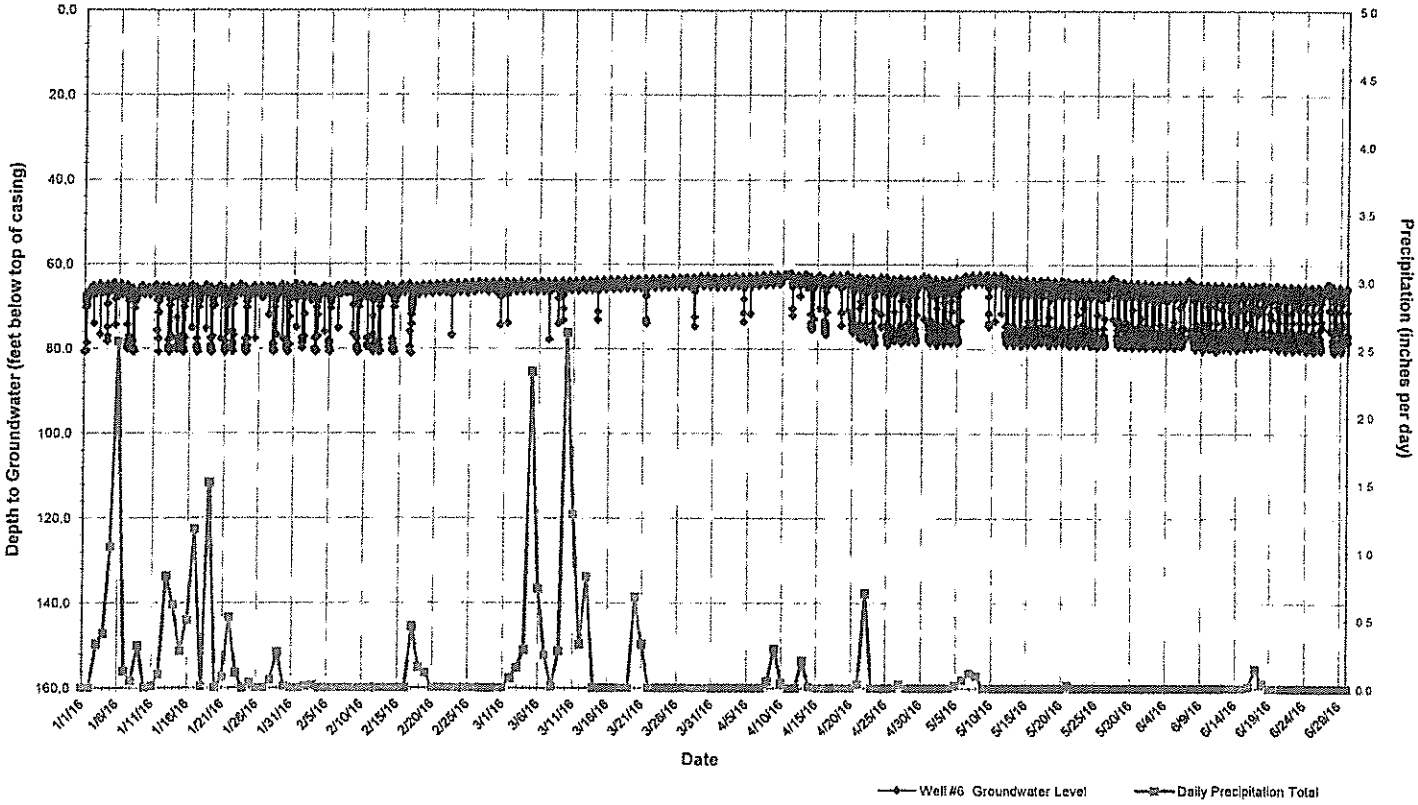


Plate 4
Groundwater Level Hydrograph - Well #7
City of Sebastopol Municipal Wellfield
Sebastopol, California

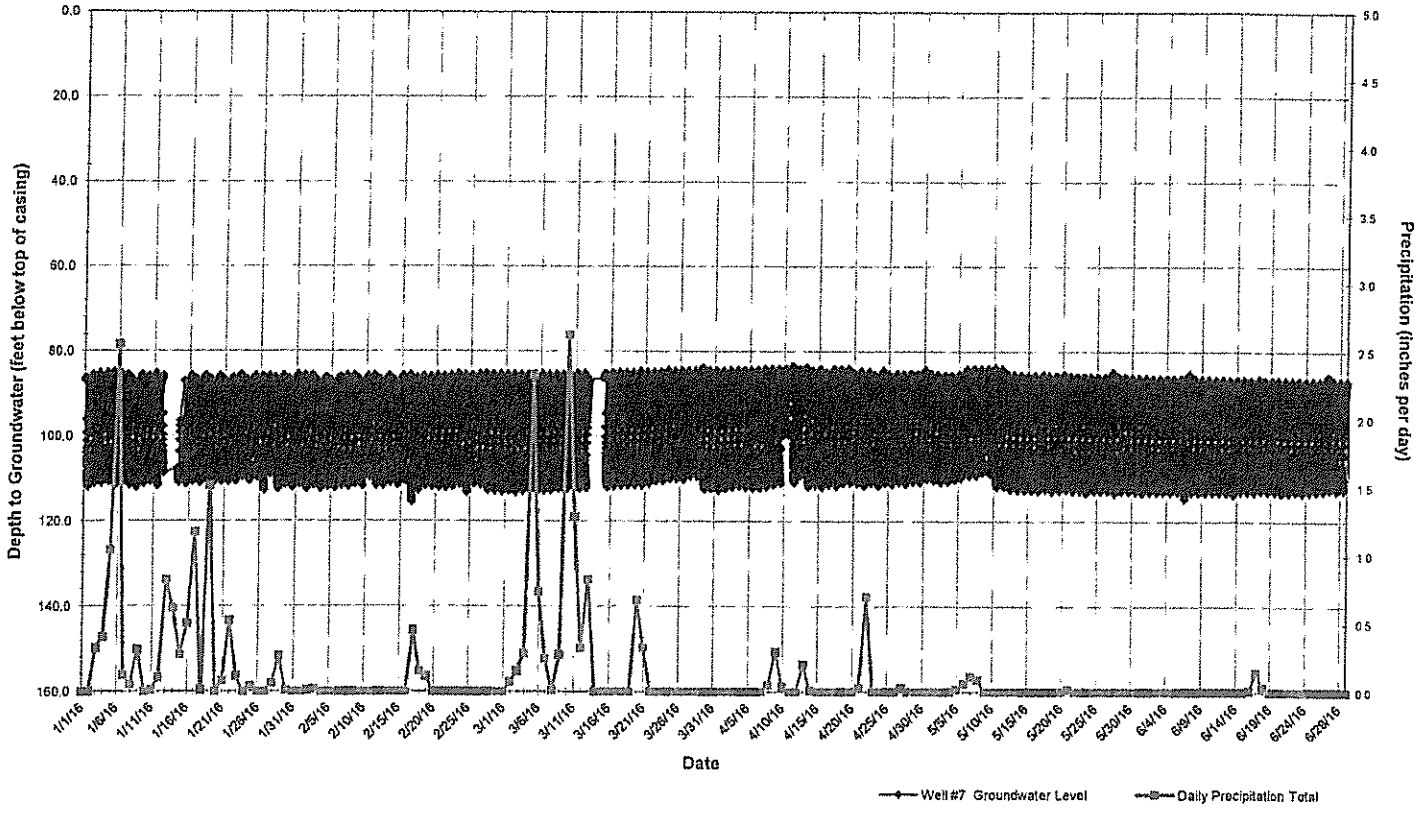
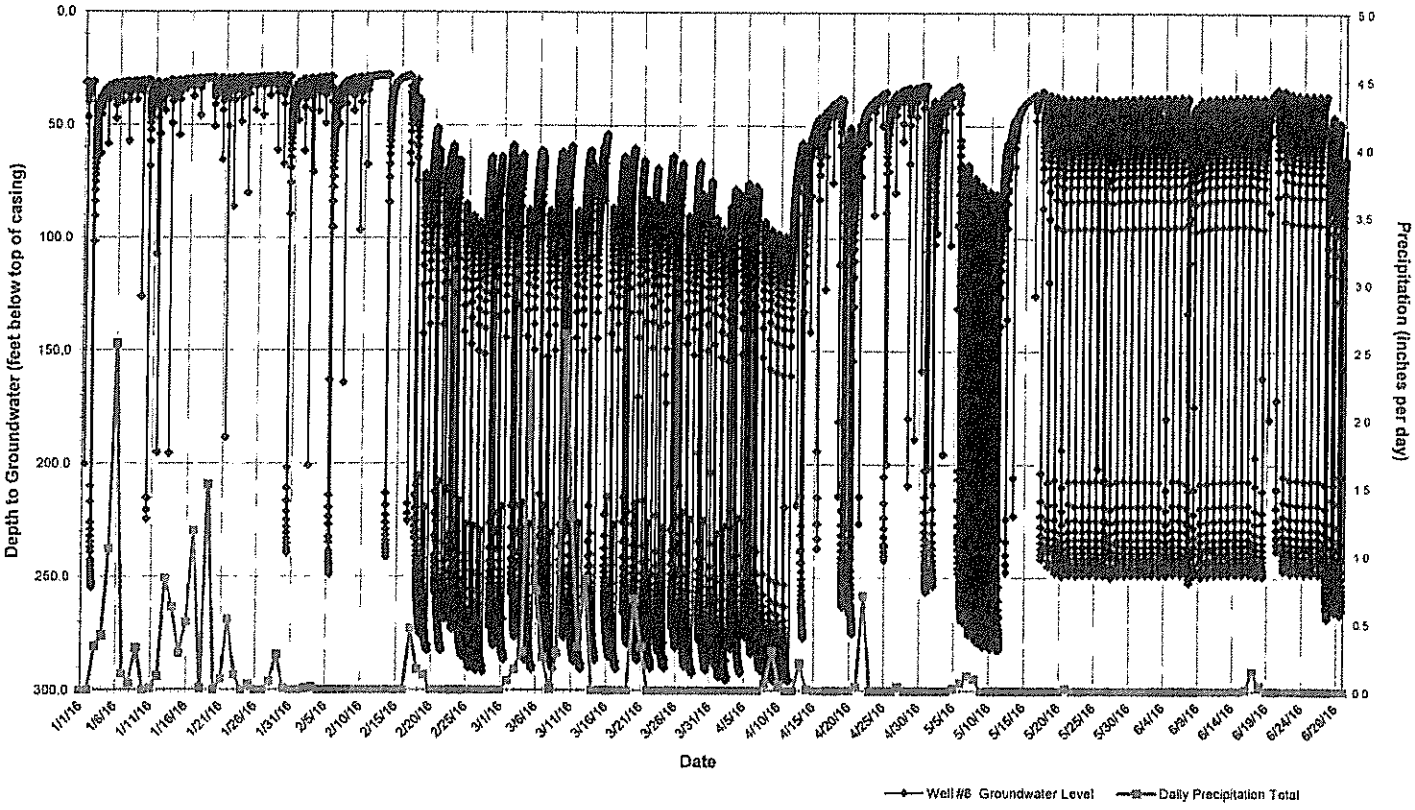


Plate 5
Groundwater Level Hydrograph - Well #8
City of Sebastopol Municipal Wellfield
Sebastopol, California



PES Environmental, Inc.
Engineering & Environmental Services

November 1, 2016

954.001.03.002

Richard Emig
City of Sebastopol
Public Works Department
714 Johnson Street
Sebastopol, California 95472

Re: Groundwater Level Data Transmittal
Third Quarter 2016
City of Sebastopol
Sebastopol, California

Dear Mr. Emig:

This data transmittal has been prepared by PES Environmental, Inc. (PES) on behalf of the City of Sebastopol (City) to summarize the results of the groundwater level monitoring program performed in the third quarter of 2016 (July through September). The following sections of this transmittal summarize the activities performed and data collected for the subject monitoring period.

GROUNDWATER LEVEL MONITORING PROGRAM

The activities performed for the monitoring period (July through September) included: (1) recording groundwater levels in five City production wells; (2) summarizing regional precipitation data; (3) performing a site inspection with manual depth-to-water measurements; and (4) preparing groundwater level hydrographs.

Groundwater Level Measurements

Groundwater level data collected for the third quarter included groundwater elevations from five City production wells: inactive municipal Well #5, and active municipal Wells #4[1], #6, #7, and #8. These wells are equipped with Solinst Inc., electronic submersible

[1] Well #4 was temporarily shut-off on February 16, 2016 for maintenance servicing and was subsequently restarted on March 29, 2016. Since this time, the transducer/data logger system has recorded anomalous/erroneous data, and the equipment will be serviced during Fourth Quarter 2016.

"LT Edge Levellogger" absolute (i.e., un-vented) pressure transducers and data logger systems. Additionally, a Solinst Inc., "LT Edge Barologger" is installed within Well #4 to provide baseline data for barometric compensation. The pressure transducers/data loggers are programmed to record pressure-head measurements at 15-minute intervals. Pressure-head measurements stored in each data logger were manually downloaded on September 29, 2016. The pressure-head measurements were then barometrically compensated and correlated to manual groundwater level measurements that were obtained via an electronic water level sounder on September 29, 2016. The respective manual groundwater level measurements on September 29, 2016 for Wells #5, #6, and #8 were 41.7, 67.8, and 65.5 feet below top of casing[2]. Due to data equipment errors, pressure-head data is not available at Well #5 for June 18 through September 30, 2016. Due to well maintenance and removal of the pressure transducer at Well #4, data is not available at this location from for the subject monitoring period.

Precipitation Data

Daily precipitation records maintained by the National Oceanic and Atmospheric Administration are summarized on Table 1. The precipitation data (reported in total inches per day) were measured at the Sonoma County Airport, Santa Rosa, California (Station ID: USW00023213). As indicated in Table 1, no measurable precipitation was recorded during the subject monitoring period.

Groundwater Level Hydrographs

Following conversion of the pressure-head measurements to depth-to-groundwater levels, groundwater level hydrographs were prepared for each of the five City wells (Plates 1 through 5). To facilitate groundwater level trend analysis, groundwater level data from the previous quarter (April through June 2016) is included on Plates 1 through 5. During the subject monitoring period (July through September), observed groundwater levels generally exhibit a trend of slight decline, which appear to correlate with the seasonal decrease in precipitation and associated groundwater recharge.

[2] Manual groundwater level measurements could not be obtained from Well #4 (sounding tube not accessible) and Well #7 (well was pumping and depth-to-groundwater was greater than the cable length of 150 feet.

CLOSURE

PES appreciates the opportunity to be of service to the City and in providing assistance with the subject Groundwater Level Monitoring Program. Should you have any questions regarding this information, please call PES at (415) 899-1600.

Yours very truly,

PES ENVIRONMENTAL, INC.

Peter D. Gorman, P.G., C.HG.
Associate Hydrogeologist

Carl J. Michelsen, P.G., C.HG.
Principal Geochemist

cc: Henry Mikus – City of Sebastopol
Dante Del Prete – City of Sebastopol

Attachments: Table 1 – Summary of Precipitation Totals
Plate 1 – Groundwater Level Hydrograph, Municipal Well #4
Plate 2 – Groundwater Level Hydrograph, Municipal Well #5
Plate 3 – Groundwater Level Hydrograph, Municipal Well #6
Plate 4 – Groundwater Level Hydrograph, Municipal Well #7
Plate 5 – Groundwater Level Hydrograph, Municipal Well #8

TABLES

Table 1
Summary of Precipitation Totals
Sonoma County Airport
Santa Rosa, California

Day	Daily Precipitation Totals (inches)		
	Jul-2016	Aug-2016	Sep-2016
1	--	--	--
2	--	--	--
3	--	--	--
4	--	T	--
5	--	--	--
6	--	--	--
7	--	--	--
8	--	--	--
9	--	--	--
10	--	--	--
11	--	--	--
12	--	--	T
13	--	--	--
14	--	--	--
15	--	--	--
16	--	--	--
17	--	--	--
18	--	--	--
19	--	--	--
20	--	--	--
21	--	--	--
22	--	--	--
23	--	--	--
24	--	T	--
25	T	--	--
26	--	--	--
27	--	--	--
28	--	--	--
29	--	--	--
30	--	--	--
31	--	--	na
Total (inches)	0.00	0.00	0.00
Total Precipitation (in inches) for July through September: 0.00			

Notes:

Source of Data: National Oceanic and Atmospheric Administration (NOAA) Preliminary Record of Climatological Observations for Sonoma County Airport - Cooperative Station Network (Station ID: USW00023213)
-- = No measureable/reported precipitation
T = Trace precipitation event
na = Not Applicable

PLATES

Plate 1
Groundwater Level Hydrograph - Well #4
City of Sebastopol Municipal Wellfield
Sebastopol, California

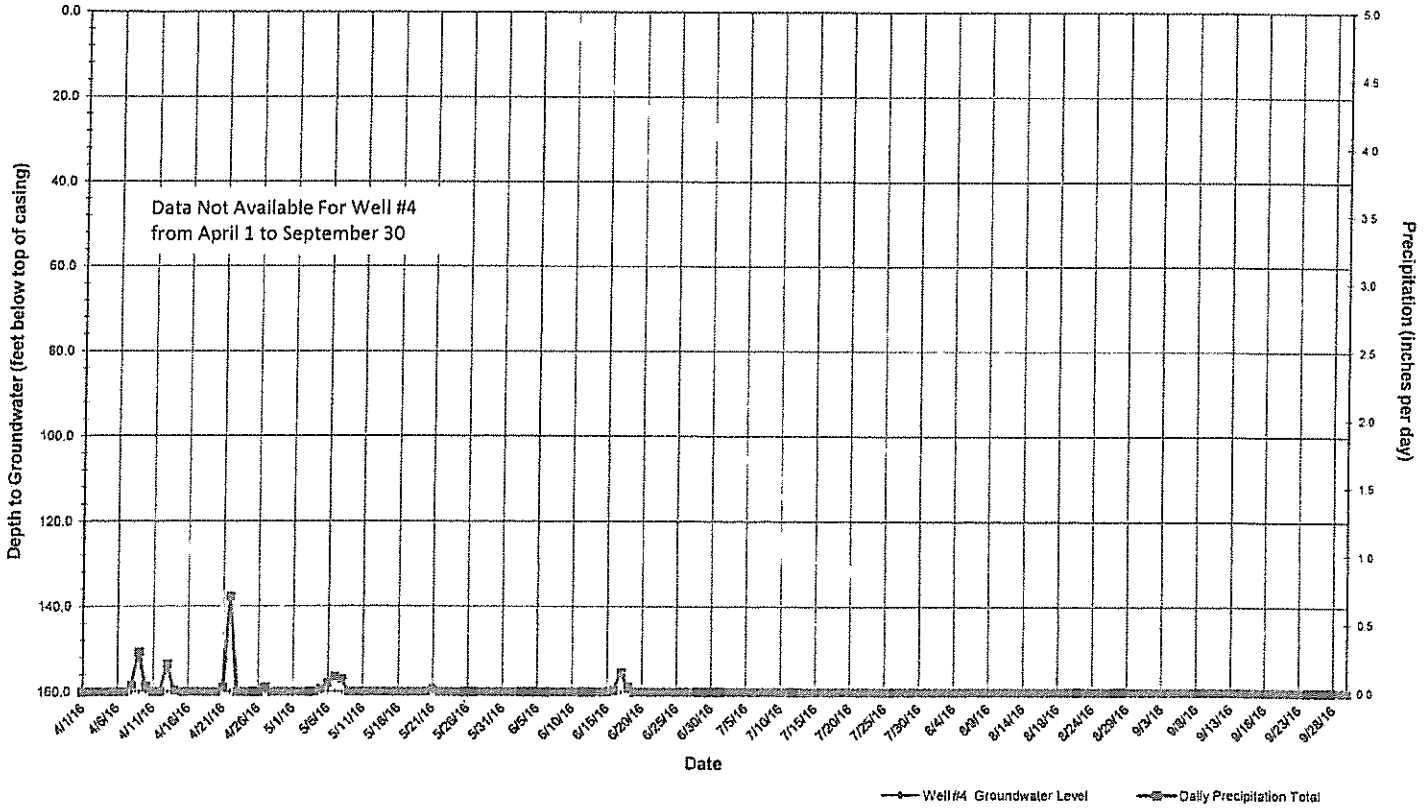
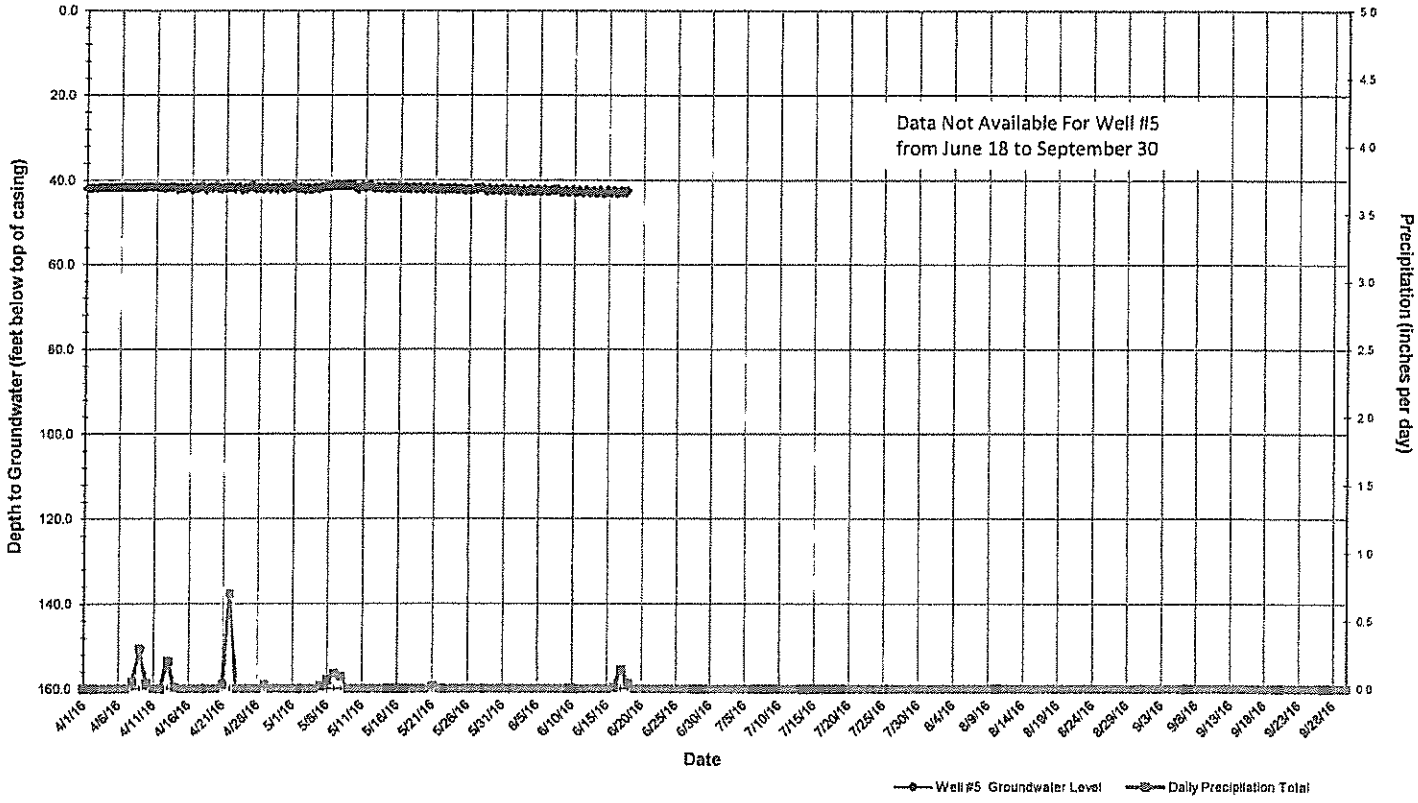


Plate 2
Groundwater Level Hydrograph - Well #5
City of Sebastopol Municipal Wellfield
Sebastopol, California



PES Environmental, Inc.

Plate 3
Groundwater Level Hydrograph - Well #6
City of Sebastopol Municipal Wellfield
Sebastopol, California

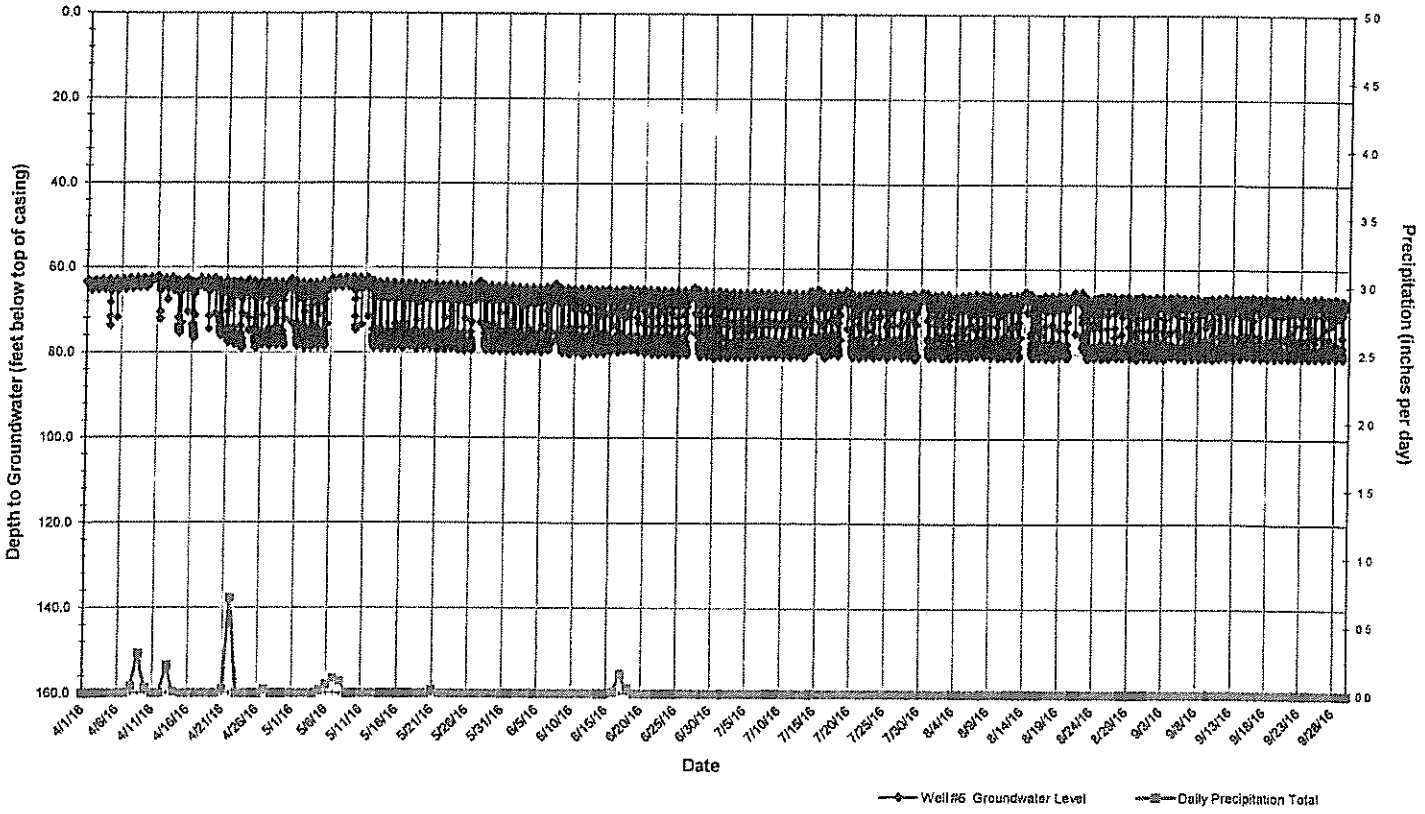


Plate 4
Groundwater Level Hydrograph - Well #7
City of Sebastopol Municipal Wellfield
Sebastopol, California

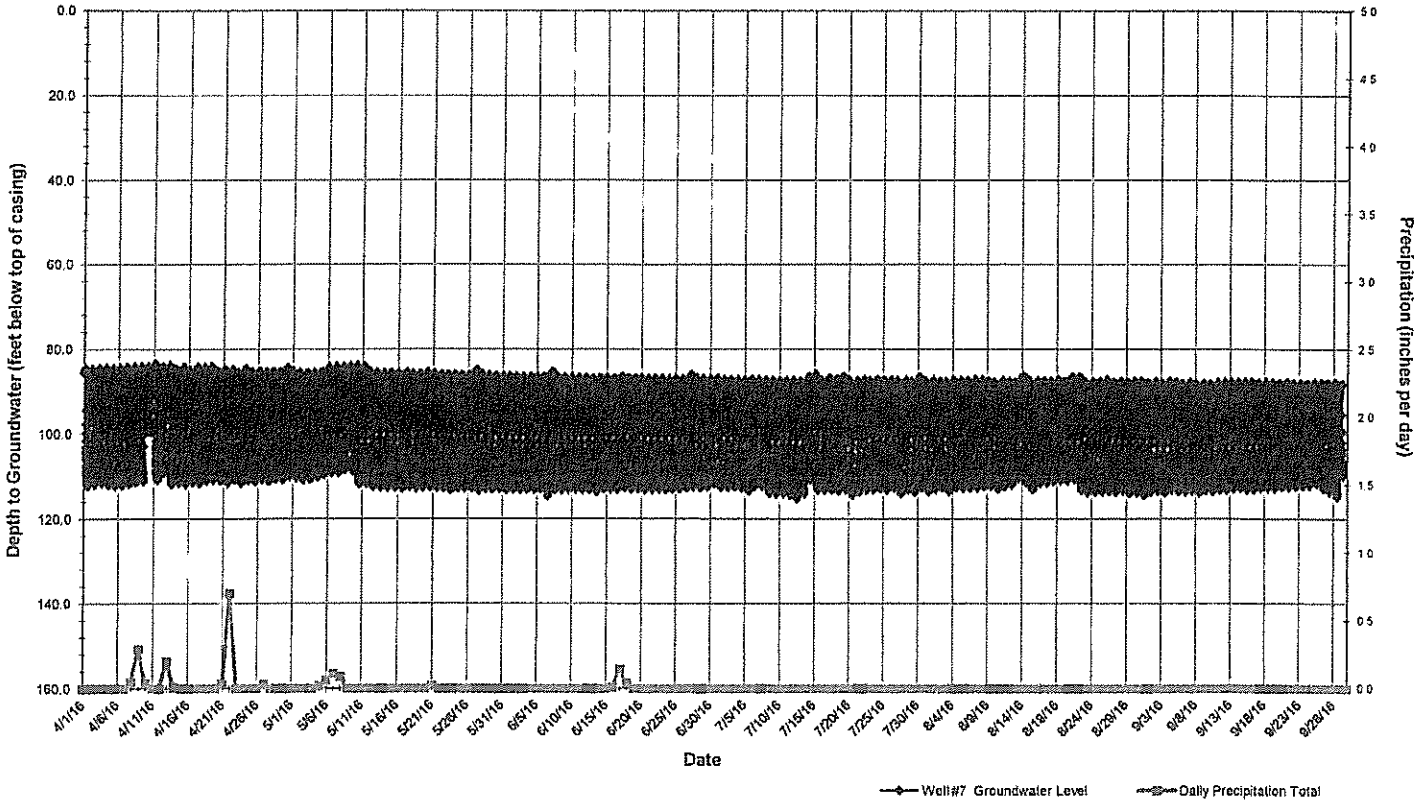
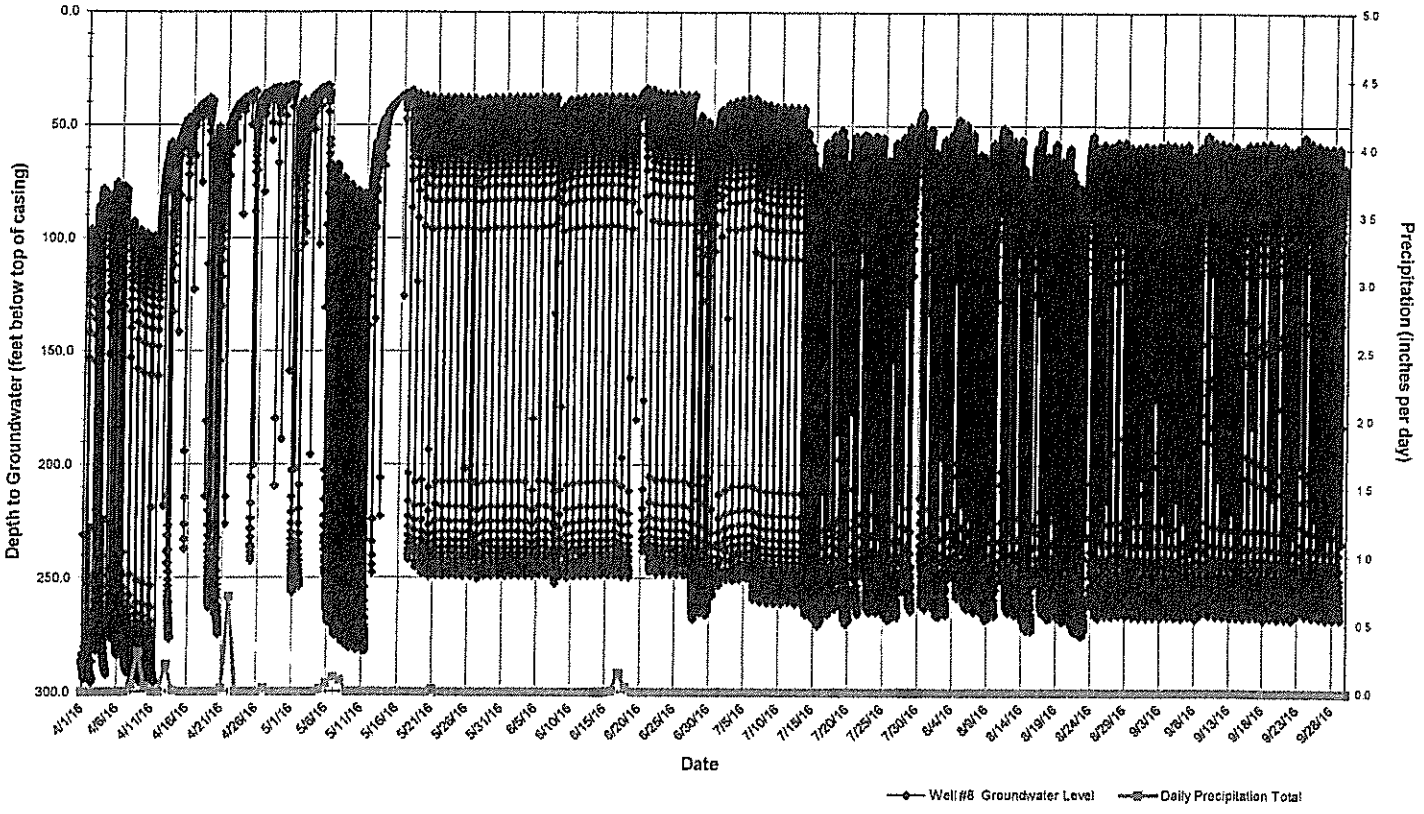


Plate 5
Groundwater Level Hydrograph - Well #8
City of Sebastopol Municipal Wellfield
Sebastopol, California



PES Environmental, Inc.
Engineering & Environmental Services

January 27, 2017

954.001.03.002

Richard Emig
City of Sebastopol
Public Works Department
714 Johnson Street
Sebastopol, California 95472

Re: Groundwater Level Data Transmittal
Fourth Quarter 2016
City of Sebastopol
Sebastopol, California

Dear Mr. Emig:

This data transmittal has been prepared by PES Environmental, Inc. (PES) on behalf of the City of Sebastopol (City) to summarize the results of the groundwater level monitoring program performed in the fourth quarter of 2016 (October through December). The following sections of this transmittal summarize the activities performed and data collected for the subject monitoring period.

GROUNDWATER LEVEL MONITORING PROGRAM

The activities performed for the monitoring period (October through December) included: (1) recording groundwater levels in five City production wells; (2) summarizing regional precipitation data; (3) performing a site inspection with manual depth-to-water measurements; (4) reprogramming telemetry equipment; and (5) preparing groundwater level hydrographs.

Groundwater Level Measurements

Groundwater level data collected for the fourth quarter included groundwater elevations from five City production wells: inactive municipal Well #5, and active municipal Wells #4, #6, #7, and #8. These wells are equipped with Solinst Inc., electronic submersible "LT Edge Levellogger" absolute (i.e., un-vented) pressure transducers and data logger systems. Additionally, a Solinst Inc., "LT Edge Barologger" is installed within Well #4 to provide baseline data for barometric compensation. The pressure transducers/data loggers

were initially programmed to record pressure-head measurements at 15-minute intervals. As further described below, the pressure transducers/data loggers were reprogrammed to record data at variable frequencies based on the status of the well (i.e., inactive or active).

Pressure-head measurements stored in each data logger were transmitted to PES' office via telemetry stations installed within the respective pump houses. The pressure-head measurements were then barometrically compensated and correlated to manual groundwater level measurements that were obtained via an electronic water level sounder on December 21, 2016. The respective manual groundwater level measurements on December 21, 2016 for Wells #5, #6, #7, and #8 were 45.9, 66.9, 111.65, and 32.8 feet below top of casing[1].

The pressure transducer and modem from Well #5 was temporarily removed on August 3, 2016 for reprogramming. Subsequently, all equipment (i.e., telemetry systems and pressure transducers) from all five pump houses were removed on November 14, 2016. Maintenance and reprogramming of the equipment included: (1) updating telemetry and datalogger software/firmware; (2) adjusting telemetry modem settings to minimize communications with the cellular network and reduce data usage; and (3) reducing the data recordation frequencies to 20-minute intervals for active wells and 60-minute intervals for inactive wells. Following equipment reprogramming and bench-testing, the telemetry systems and pressure transducers were reinstalled on December 21, 2016.

Precipitation Data

Daily precipitation records maintained by the National Oceanic and Atmospheric Administration are summarized on Table 1. The precipitation data (reported in total inches per day) were measured at the Sonoma County Airport, Santa Rosa, California (Station ID: USW00023213). As indicated in Table 1, a total of 18.42 inches of rain were recorded during the subject monitoring period, comprising of 7.57, 4.10, and 6.75 inches in October, November, and December, respectively.

Groundwater Level Hydrographs

Following conversion of the pressure-head measurements to depth-to-groundwater levels, groundwater level hydrographs were prepared for each of the five City wells (Plates 1 through 5). To facilitate groundwater level trend analysis, groundwater level data from the previous quarter (July through September 2016) is included on Plates 1 through 5. During the subject monitoring period (October through December), observed groundwater levels generally exhibit a trend of stability and slight recovery, which appear to correlate with the seasonal increase in precipitation and associated groundwater recharge.

[1] Manual groundwater level measurements could not be obtained from Well #4 (sounding tube not accessible).

CLOSURE

PES appreciates the opportunity to be of service to the City and in providing assistance with the subject Groundwater Level Monitoring Program. Should you have any questions regarding this information, please call PES at (415) 899-1600.

Yours very truly,

PES ENVIRONMENTAL, INC.

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cc: Henry Mikus – City of Sebastopol
Dante Del Prete – City of Sebastopol

Attachments: Table 1 – Summary of Precipitation Totals
Plate 1 – Groundwater Level Hydrograph, Municipal Well #4
Plate 2 – Groundwater Level Hydrograph, Municipal Well #5
Plate 3 – Groundwater Level Hydrograph, Municipal Well #6
Plate 4 – Groundwater Level Hydrograph, Municipal Well #7
Plate 5 – Groundwater Level Hydrograph, Municipal Well #8

TABLES

Table 1
Summary of Precipitation Totals
Sonoma County Airport
Santa Rosa, California

Day	Daily Precipitation Totals (inches)		
	Oct-2016	Nov-2016	Dec-2016
1	--	0.01	--
2	0.15	--	--
3	0.12	--	--
4	--	--	--
5	--	0.02	--
6	--	0.06	--
7	--	--	0.66
8	--	--	0.57
9	--	--	0.47
10	--	--	0.64
11	--	T	--
12	--	T	--
13	0.09	--	0.13
14	0.54	--	0.86
15	0.66	0.01	2.57
16	0.14	--	--
17	0.04	--	--
18	--	0.01	--
19	--	2.63	--
20	--	0.30	--
21	--	--	--
22	--	0.34	--
23	--	0.03	0.85
24	1.76	--	--
25	0.85	--	--
26	--	0.54	--
27	0.40	0.05	--
28	0.99	0.09	--
29	0.28	--	--
30	1.21	0.01	--
31	0.34	na	T
Total (inches)	7.57	4.10	6.75
Total Precipitation (in inches) for October through December: 18.42			

Notes:

Source of Data: National Oceanic and Atmospheric Administration (NOAA) Preliminary Record of Climatological Observations for Sonoma County Airport - Cooperative Station Network (Station ID: USW00023213)
-- = No measureable/reported precipitation
T = Trace precipitation event
na = Not Applicable

PLATES

Plate 1
Groundwater Level Hydrograph - Well #4
City of Sebastopol Municipal Wellfield
Sebastopol, California

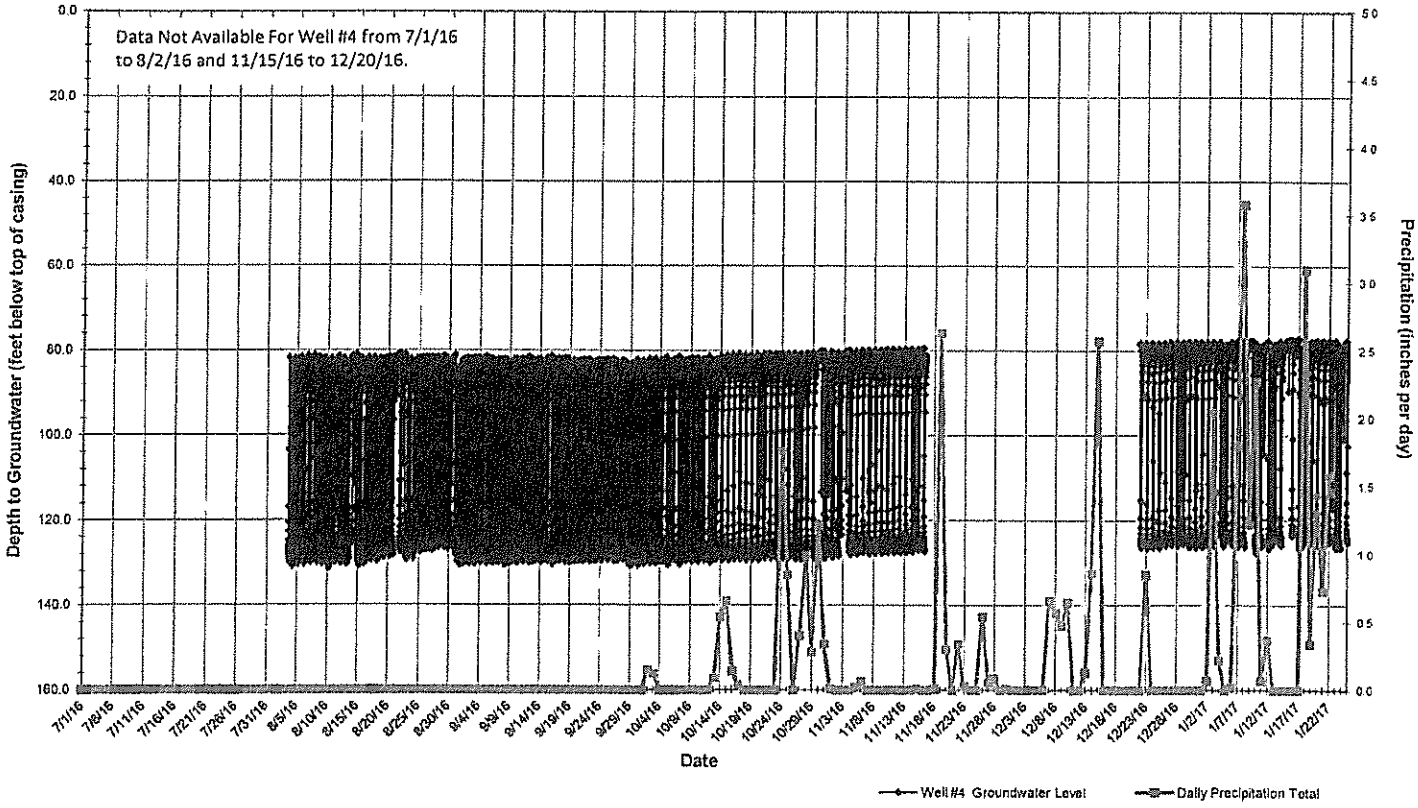


Plate 2
Groundwater Level Hydrograph - Well #5
City of Sebastopol Municipal Wellfield
Sebastopol, California

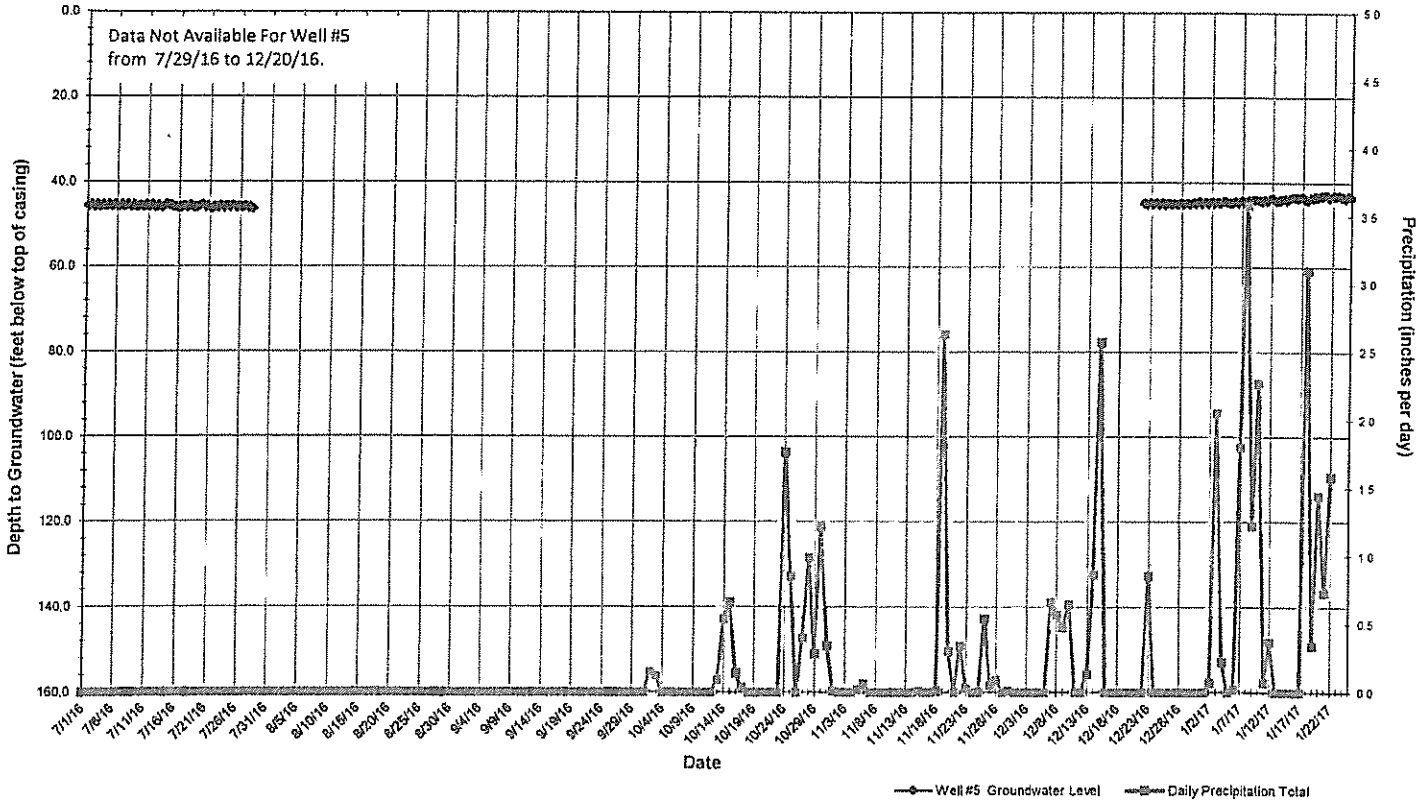


Plate 3
Groundwater Level Hydrograph - Well #6
City of Sebastopol Municipal Wellfield
Sebastopol, California

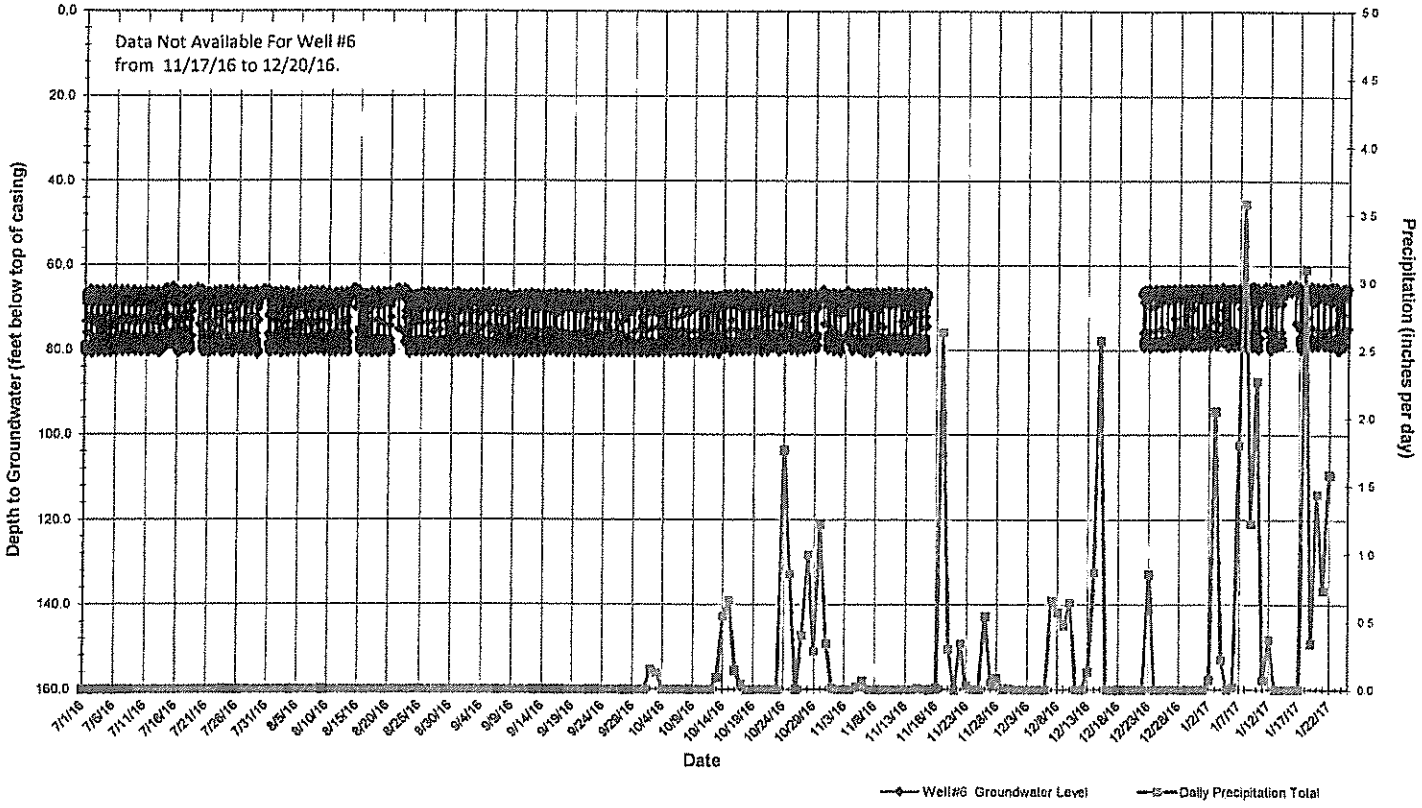


Plate 4
Groundwater Level Hydrograph - Well #7
City of Sebastopol Municipal Wellfield
Sebastopol, California

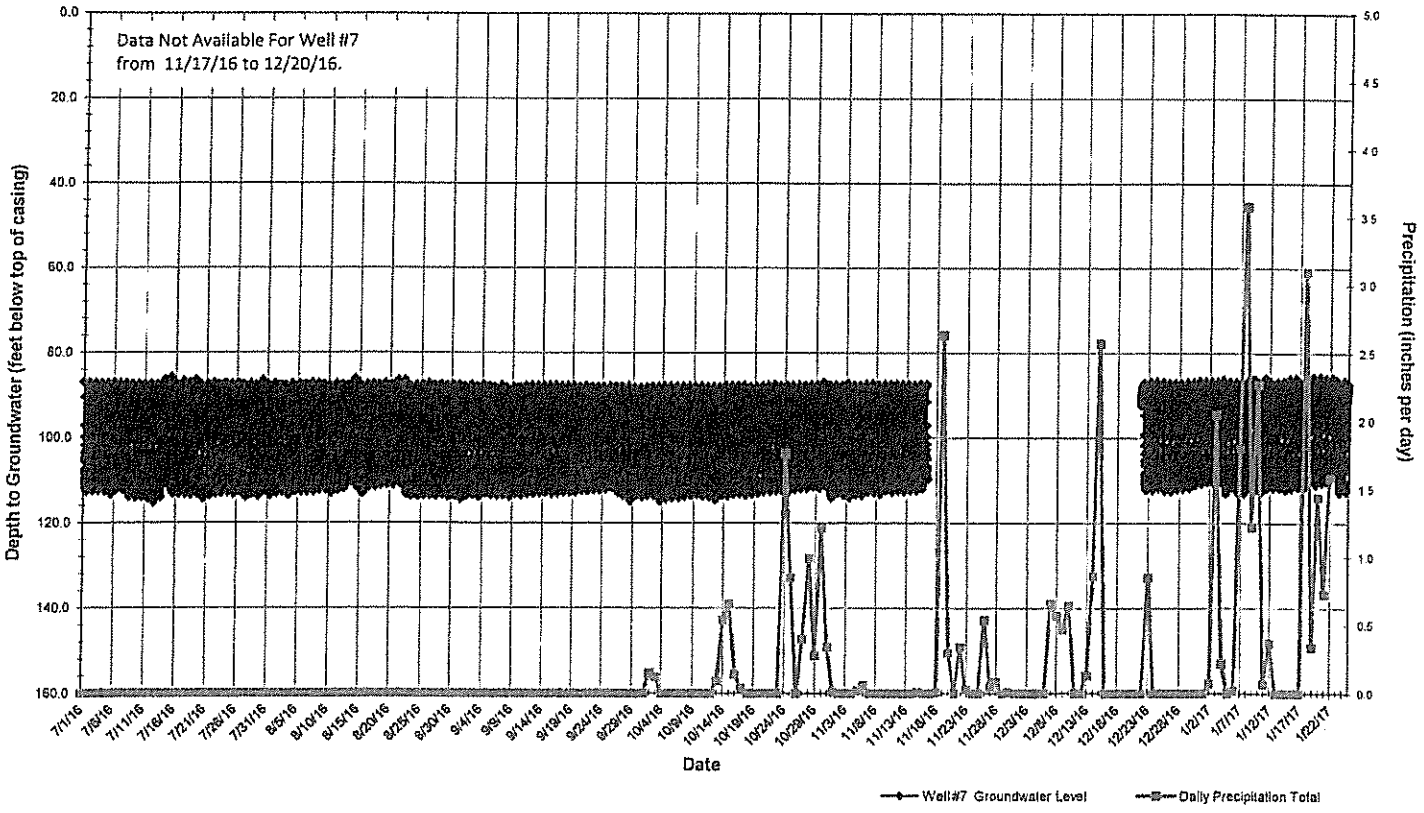


Plate 5
Groundwater Level Hydrograph - Well #8
City of Sebastopol Municipal Wellfield
Sebastopol, California

