Appendix F – Phase I Environmental Site Assessment (Econ)

ATTACHMENT 10A

PHASE I
ENVIRONMENTAL SITE ASSESSMENT
ROSELAND CREEK COMMUNITY PARK
1400 BURBANK AVENUE
APN 125-331-001
SANTA ROSA, CALIFORNIA

241 Main Street
Sebastopol, CA 95472

A Report Prepared for:

THE CITY OF SANTA ROSA
SANTA ROSA, CA 95403

PHASE I ENVIRONMENTAL SITE ASSESSMENT
ROSELAND CREEK COMMUNITY PARK
1400 BURBANK AVENUE
APN 125-331-001
SANTA ROSA, CALIFORNIA

February 19, 2010

Prepared by:

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1.0 SUMMARY

ECON has completed this Phase I Environmental Site Assessment (Phase I ESA) for the City of Santa Rosa in accordance with the ASTM E 1527-05 guidance and according to "all appropriate inquiry into the previous ownership and uses of the Property with good commercial and customary practice" as defined in CERCLA, 42 USC 9601 (35) (B). The property, APN 125-331-001 located at 1400 Burbank Avenue in Santa Rosa, California, (hereafter referred to as the Site), is a 5.6-acre former orchard with a single-family residence and a barn. The Site is used as a residence and for periodic storage of construction related equipment and supplies.

A thorough Site survey, a complete review of regulatory agency records, a review of local historical resources, and interviews with interested parties and enforcement officials has revealed no evidence of Recognized Environmental Conditions in connection with the Site except for the following:

1. Releases from a group of facilities to the north of the Site, known as the McMinn Avenue Site, have been identified as a State superfund site. The investigations for the McMinn Site included multiple facilities along Sebastopol Road from Highway 101 to Kenmore Lane, and have defined the extent of contamination and identified responsible sources. Soil and groundwater is contaminated with petroleum hydrocarbons and Halogenated Volatile Organic Compounds (HVOCs). Contamination of groundwater has been found in shallow and deeper water bearing zones (NCRWQCB 2000). According to a February 14, 2002 Remedial Investigation Report prepared by PES Environmental, Inc., the Site is not located within any identified plumes of contamination. Groundwater samples collected from the domestic well on February 11, 2010 did not contain detectable concentrations of petroleum hydrocarbons or HVOCs.

2. A Refuse dump on the northwest side of Roseland Creek and north of the house contains glass containers and household debris including some automotive parts. ECON did not see evidence of recent dumping however refuse dump presents a material threat of a potential release of hazardous substances or petroleum products.

2.0 INTRODUCTION

2.1 Purpose

The purpose of this Phase I ESA was to assess "the presence or likely presence of any hazardous substance or petroleum products on a property under conditions that indicate an existing release, a past release, or a material threat of a release or any hazardous substances, or petroleum products into structures on the property or into the ground, groundwater, or surface water of the property." The term includes hazardous substances or petroleum products even under conditions in compliance with laws. The term is not intended to include *de minimis* conditions that generally do not present a material risk of harm to public health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies (ASTM Designation: E 1527-05, §1.1.1) and according to "all appropriate inquiry into the previous ownership and uses of the Property with good commercial and customary practice" as defined in CERCLA, 42 USC 9601 (35) (B).

2.2 Scope of Services

ECON has been requested to perform this Phase I ESA by Marc Richardson, Assistant City Manager for the City of Santa Rosa. The scope and format of services completed complies with ASTM Designation: E 1527-05.

The scope of services for this Phase I ESA consisted of several tasks, including:

i) A reconnaissance of the Site and its vicinity;
ii) A compilation of the Site history, including the review of previous environmental reports (if available);
iii) A file review at relevant agencies (if needed);
iv) An agency list search of facilities with recorded environmental issues within the radii required by ASTM E Practice 1527-05;
vii) A summary of findings and conclusions.

As per ASTM Practice E 1527-05, exceptions, additions *or deletions* to this standard are listed. They include:

i) Neither a title report nor a chain of title was made available for review.

2.3 Significant Assumptions

Statements and conclusions made in this report are based on the writer's visual perception and experience, and are to be considered and interpreted in their entirety. This report merely documents readily observable conditions based upon the writer's knowledge of construction, real estate, and environmental issues.

ECON has retained the services of Environmental Data Resources, Inc. (EDR) to search public agency records at the federal, state, and local levels for cases, which could impact the Site. The accuracy of government databases or the reports of private database vendors are assumed to be correct and complete, but cannot be extensively verified or guaranteed beyond field observations or after the date of the search inquiry (February 9, 2010). It is also assumed that regulatory agency files reviewed by ECON are current and complete. Interviews with major service vendors were not performed.

It also should be recognized that not all aspects of environmental inspections and laboratory analysis are exact sciences. Although a number of theoretical methods of analysis have been developed, there is always a certain degree of uncertainty associated with environmental assessments. The recommendations herein are based on an assumption of normal and acceptable risks, and the client needs to recognize and accept this risk to avoid impractical, unusual, or normally unwarranted response actions, responsibilities, and expenses.

2.4 Limitations and Exceptions

This inspection and report are limited in scope to the visual observations existing at the time of the inspections, and the public records available for review at that time. No special tests were conducted on any building element, and no building elements were removed to reveal any underlying potential conditions. No inaccessible areas were inspected. These areas include those located underground, behind walls or shafts, above finished ceilings, behind furniture, under vehicles or mobile homes, covered by vegetation/landscaping, under floor coverings, and those hidden by material storage.

2.5 User Reliance

The service provided for this assessment is for the benefit of the City of Santa Rosa, and is not transferable without assignment of reliance from ECON.

3.0 SITE DESCRIPTION

3.1 Location and Legal Description

The Site, 1400 Burbank Avenue, APN No. 125-331-001 is located in the Roseland District of Santa Rosa, California, (Plate 1). The 5.6-acre Site is roughly rectangular in shape and is covered with annual grasses, oak woodland, and riparian vegetation. It is bordered on the north by a 2.6 acre rural residential property; on the east side by five single-family residences; on the south by a 1.37-acre rural residential property; and on the west side by Burbank Avenue. Roseland Creek abuts the north boundary of the Site and crosses the northwest corner of the site (Plate 2)

3.2 Description of Structures, Roads, Other Improvements on the Site

The Site consists of three distinct areas; a riparian zone, a residential area, and a pasture area. The riparian zone surrounds Roseland Creek which flows from the northeast corner of the Site, along the eastern half of the northern boundary then turns southeast and flows off of the Site near the southwest corner. Dense riparian vegetation surrounds the creek and covers the northwest corner of the Site (Photos 1, 2, and 3, Appendix A).

The residential area lies east of the creek between the riparian zone and the pasture area. It consists of two primary structures; a single-family residence, and a barn (Photos 4, 5, 6 and 7, Appendix A). There are also several smaller structures including two chicken coops, a well house, and a car port. Access to the residential area is provided by a gravel drive which enters the Site at the southwest corner, runs along the southern boundary and turns north between the house and the barn. An unused concrete and steel bridge crosses Roseland Creek about 125-feet north of the house (Photo 8, Appendix A). The residential area also includes an unpaved area between the barn and the southern boundary that the owner uses for the storage of construction materials and equipment (Photos 9 and 10, Appendix A).

The pasture area is to the east of the residential area. It occupies about two-thirds of the total area of the Site. The western half of the pasture area is covered with annual grasses and a few young oak trees (Photo 11, Appendix A). The eastern half is more wooded and includes several large mature oaks (Photo 12, Appendix A).

3.3 Current Uses of the Adjacent Properties

Adjacent properties are used for residential purposes except for the land to the west of Burbank Avenue which is currently vacant. The following table summarizes occupancy on adjacent sites.

Adjacent Properties

Direction	Business/Operation
North	Two residences, a small mechanics shop, a greenhouse, and commercial garden on one lot
South	Residence and two large storage buildings
East	Five single-family residences
West	Vacant land
Northwest	Vacant land
Northeast	Single-family residences
Southeast	Single-family residences
Southwest	Vacant land

4.0 USER PROVIDED INFORMATION

The "user" is defined by ASTM Designation: E 1527-05 (Section 3.3.42) as the party seeking to use Practice E 1527 to perform an environmental site assessment of the Site. A user may include, without limitation, a purchaser of property, an owner of property, a lender, or a property manager. The City of Santa Rosa, as represented by Marc Richardson, is the user of this assessment.

4.1 Title Records

Neither a title search nor a chain of title was provided by the City of Santa Rosa.

4.2 Environmental Liens or Activity Use Limitations

The City of Santa Rosa is not aware of any environmental cleanup liens against the Site that are filed or recorded under Federal, Tribal, State, or local law.

4.3 Specialized Knowledge

The City of Santa Rosa does not have any specialized knowledge or experience related to the Site or nearby properties. The City of Santa Rosa is not involved in the same line of business as the current or former occupants of the Site or adjacent properties and therefore has no specialized knowledge of the chemicals and processes that may be used by these types of business.

4.4 Commonly Known or Reasonably Ascertainable Information

The City of Santa Rosa is not aware of other commonly known or reasonably ascertainable information about the Site that would help identify conditions indicative of releases or threatened releases of hazardous chemical or petroleum products.

4.5 Valuation or Reduction for Environmental Issues

The City of Santa Rosa believes that the purchase price paid for the Site reasonably reflects the fair market value. The City of Santa Rosa does not believe that the purchase price was affected because contamination is known or believed to be present at the Site.

4.6 Owner, Site Manager, and Occupant Information

The current owner of the Site is Schellinger Brothers as represented by Mr. Bill Schellinger. Schellinger Brothers, a home builder, uses the Site to store construction materials and equipment. They lease the house to one of their employees.

4.7 Reason for Performing Phase I Environmental Site Assessment

This Phase I ESA has been performed for the benefit of the City of Santa Rosa for "all appropriate inquiry into the previous ownership and uses of the Property with good commercial and customary practice" as defined in CERCLA, 42 USC 9601 (35) (B), that will give a party to a commercial real estate transaction the innocent purchaser landowner defense to CERCLA liability (42 USC 9601 (A) and (B) and 9607 (b) (3), assuming compliance with other elements of the defense. The City of Santa Rosa plans to use the Site for a public park.

4.8 Other User Provided Information

The City of Santa Rosa provided ECON with the following documents:

- A Modified Environmental Site Assessment of the Site conducted in 2002 by Gallardo & Associates for Schellinger Brothers (Appendix D).
- A Cultural Resources Survey for the Proposed Burbank Avenue Annexation and Development Project conducted in 2002 by Tom Origer & Associates for Frank Denney.
- A Biological Assessment Special Status Species and Habitat Survey of the Site conducted in 2002 by Golden Bear Biostudies for Schellinger Brothers.
- A Biological Assessment conducted in 2003 by Golden Bear Biostudies on the Site and surrounding sites for Schellinger Brothers and Cobblestone Homes.

5.0 RECORDS REVIEW

ECON has retained the services of Environmental Data Resources, Inc. (EDR) to search public agency records at the federal, state, and local levels for cases which could impact the Site according to the following table which conforms to ASTM Designation: E 1527-05:

ASTM Records Review Criteria

SOURCE OF REGULATORY INFO **Federal Databases:**	ACRONYM	SEARCH RADIUS
National Priority List	NPL	1.0 mile
Comprehensive Environmental Response and Liability Information System	CERCLIS	0.5 mile
CERCLIS No further Remedial Action Planned	CERCLIS-NFRAP	Site and Adjoining Properties
Federal Resource Conservation and Recovery Act (RCRA) Corrective Action Treatment, Storage, and Disposal (TSD) Facilities (CORRACTS)	CORRACTS	1.0 mile
Resource Conservation and Recovery Act Treatment, Storage, and Disposal Facilities (non-CORRACTS)	RCRIS TSD	0.5 mile
Resource Conservation and Recovery Act Hazardous Waste Generators	RCRA Gen	Site and Adjoining Properties
Emergency Response Notification System	ERNS	Property Only
SOURCE OF REGULATORY INFO **State Databases**	ACRONYM	SEARCH RADIUS
Annual Work Plan	AWP	1.0 mile
Bond Expenditure Plan	BEP	0.5 mile
Calsites	Calsites	0.5 mile
California Environmental Protection Agency Office of Emergency Information	CORTESE	0.5 mile
California Hazardous Material Incident Report System	CHMIRS	Site and Adjoining Properties
Proposition 65 notifications	Notify 65	1.0 mile
Toxic Pits	Toxic Pits	1.0 mile
Solid Waste Information System	SWIS	0.5 mile
Registered Underground Storage Tanks	UST	0.125 mile
Leaking Underground Storage Tanks	LUST	0.5 mile
Data extracted from hazardous waste Manifests generated each years in California	HAZNET	Site and Adjoining Properties

A copy of the EDR report is included in Appendix B. Refer to the EDR report for the dates of each list. The most current lists available have been searched by EDR and reviewed by ECON.

The ASTM Standard search radii are designed to help identify those sites, which are capable of impacting the Site. A complete listing for all databases searched with negative results can be found in the EDR report.

EDR reports sites within the ASTM prescribed radii in Federal and State databases. These sites may not be potential off-site sources of environmental conditions for the Site based upon distance or direction of groundwater flow. Only those active listings impacting groundwater that occur less than 500 feet from the Site in the upgradient direction are normally considered potential off-site sources of environmental conditions for the Site (Source: Recommendations to Improve the Cleanup Process for California's Leaking Underground Fuel Tanks, *Lawrence Livermore National Laboratory (LLNL) October 16, 1995).* All of the database listings occurring within the ASTM radii have been reviewed by ECON. Interested parties are encouraged to review the entire EDR report.

References to "down gradient" mean that a listing is located at a lower elevation on the inclined plane of the groundwater table. References to "cross gradient" mean that a listing is located horizontally along the inclined plane of the water table. In either geometry, a potential plume of groundwater contamination would not extend toward the Site under normal circumstances.

NOTE: Due to limitations in Geocoding methodology, locations plotted by the EDR computer are field checked by ECON when sites with known environmental conditions can potentially impact a Site (e.g. LUST and CSCS sites).

5.1 Standard Environmental Record Sources

5.1.1 Database Listings for the Site

The Site is not listed on any of the Federal, State, or local databases searched by Environmental Data Resources.

5.1.2 Database Listings for Neighboring Sites

The EDR report listed several properties within the one mile radius that were upgradient of the Site, and may have the potential to impact groundwater under the Site (Plate 1).

The EDR report also provided elevation information for each of the identified properties as being either higher or lower than 1400 Burbank Avenue. The report provided some information via a map that indicated groundwater elevations at a few of the identified properties in an effort to assist in determining the direction of groundwater flow. Based on experience at properties located within a few miles of the Site, groundwater generally flows towards the southwest at a shallow gradient. Although a number of properties other than the two discussed above were identified in the EDR report it is the opinion of ECON that they are all too far away, cross-gradient or down-gradient from the Site to cause environmental impacts.

For more information on the databases searched and the results, refer to the EDR Report included in Appendix B.

Releases from a group of facilities to the north of the Site, known as the McMinn Avenue Site, have been identified as a State superfund site. The investigations for the McMinn Site included multiple facilities along Sebastopol Road from Highway 101 to Kenmore Lane, and have defined the extent of contamination and identified responsible sources. Soil and groundwater is contaminated with petroleum hydrocarbons and Halogenated Volatile Organic Compounds (HVOCs). Contamination of groundwater has been found in shallow and deeper water bearing zones (NCRWQCB 2000). According to a February 14, 2002 Remedial Investigation Report prepared by PES Environmental, Inc., the Site is not located within any identified plumes of contamination. Copies of the PES report and the EPA fact sheet are included in Appendix E.

5.2 Physical Setting Source(s)

5.2.1 Regional Physiographic Setting

The Site is located in the Santa Rosa Plain between the Mayacamas Mountains to the east and the low rolling hills to the west. Topography at the Site is nearly flat with a very slight slope to the southwest. The nearest water body is Roseland Creek a tributary of the Laguna de Santa Rosa located in a channel adjacent to Fresno Avenue then continuing south and southwest of the Site.

5.2.2 Soil Conditions

The shallow soils underlying the surface of the Site are derived from Quaternary alluvial deposits. Named the Yolo clay loam, it consists of silts and clay.

5.2.3 Geologic Conditions

According to Geology for Planning in Sonoma County, California (CDMG, 1980), the Site geology is mapped as Quaternary alluvium, which consists of sand, gravel, silt, and clay. These deposits are derived primarily from drainage off the mountains to the east.

5.3 Groundwater Conditions

Under normal circumstances, groundwater in sedimentary deposits essentially mirrors the elevation of the surface of the land, and flows toward lower elevations conforming to the slope of the topography. The direction and inclination of the surface of the water table define the groundwater gradient, but localized influences such as active wells or variations in subsurface geology can cause perturbations in the direction. The topography in the vicinity of the Site generally slopes toward the southwest, and this should also be the direction of local groundwater flow.

Based on a review of groundwater assessments at nearby sites, groundwater depth can generally be expected to vary between 8 and 15 feet below ground surface in this area, depending on the season. During this Phase I ESA, there was no specific information reviewed regarding groundwater depth or condition for the Site.

5.4 Historical Use Information on the Site

The Site history and land use has been recreated by a synthesis of historic aerial photographs, historical topographic maps, interviews, public agency records, and other available resources.

Historical aerial photographs taken in 1953, 1965, 1971, 1982, 1993, 1998 and 2005 and historical Topographic maps from 1954, 1968, 1973 and 1980 were viewed (Appendix C).

The Site was once used as an orchard according to aerial photograph taken in 1953 and 1965 and topographic maps published in 1954 and 1968. The orchard occupied the pasture area between the barn and the eastern Site boundary. The wide spacing and large canopy size suggests that the trees were walnuts. Most of the trees were gone by the time of a 1965 aerial photograph. Between 1965 and the present day, the Site appears to have been used only as a residence and storage yard.

5.5 Historical Use Information on the Adjoining Properties

Property in the vicinity of the Site was used agricultural purposes, primarily orchards and pasture. In the early 1960s, the property to the east was developed with single-family homes. The adjacent properties have changed little in the intervening years though agricultural use has decreased and residential development has increased in the surrounding area.

5.6 Sanborn Fire Insurance Map Review

Sanborn Fire Maps were typically produced for older, developed, urban areas, which do not include the historically suburban area of the Site. EDR searched their archive of Sanborn Maps and confirmed that none were produced for the Site or surrounding area.

6.0 SITE RECONNAISSANCE

6.1 Methodology and Limiting Conditions

Mr. Peter Dellavalle and Mr. Andy Rodgers of ECON conducted the Site reconnaissance on February 9 and 11, 2010. Visual observations were made by walking the Site. A photographic log of the Site reconnaissance is included as Appendix A.

6.1.1 General Site Setting

The Site is located in the Roseland District of the City of Santa Rosa, an area consisting of unused agricultural land surrounded by residential development (Plate 1).

6.1.2 Exterior Observations

Condition	Yes	No
Signs of Illegal dumping of hazardous materials (stained soil or paved surfaces, stressed vegetation, odors, etc.).	x	
Unidentified containers, which contain substances, suspected of being hazardous substances or petroleum products.		x
Above or below ground storage tanks and piping, including vent or fill pipes.		x
Solid waste, wastewater wells, septic systems, or monitoring wells.	x	
Spill control, containment devices, or retention basins		x
Lagoons, impoundments, sumps, pits, dry wells, or drinking water wells.		x

As described in the Site Description, the Site consists of three distinct areas; the riparian zone, the residential area, and the pasture area. At the time of the Site visit, only the residential area of the site was in use.

The riparian zone is densely vegetated with native and introduced trees with an understory of poison oak and Himalayan blackberry. These conditions made it difficult to see the surface in the riparian zone. However ECON observed a refuse dump on the northwest side of Roseland Creek north of the house (Plate 2). Refuse visible at the surface consisted of glass bottles, metal kitchenware, and metal automotive parts (Photos 13, 14, 15, and 16, Appendix A). ECON did not see evidence of recent disposal activity.

The area around the barn is used by the owner for the storage of construction related equipment and materials including scaffolding, power poles, fencing and tile (Photo 9, Appendix A). Three empty plastic drums lie in the yard south of the barn (Photo 10, Appendix A). The drums are not labeled and there is no apparent residue in them. The property owner stores a backhoe to the

northwest of the barn at the north end of the drive. According to him, there is no fuel or maintenance chemical for the backhoe stored at the Site.

The pasture area is currently unused. However, ECON observed two mounds of concrete rubble, soil and vegetative debris on the north edge of the pasture area. According to the owner the concrete rubble was brought to the Site for use as rip-rap in Roseland Creek.

6.1.3 Interior Observations

Structures at the Site include a residence, barn, pump house, and a carport. There is also a chicken coop between the house and barn and a small shed formerly used as a chicken coop (Photo 17, Appendix A). The residence is occupied by an employee of Schellinger Brothers. ECON toured the house and did not see any evidence of the use, storage, or disposal of hazardous substances or petroleum products.

The barn is used by the residents for storage of personal possessions including bicycles, tools, and furniture (Photos 18, 19, and 20, Appendix A). Small quantities of paint, automotive lubricants, and other household and construction related chemicals are stored in the garage. These materials are stored in containers of one gallon or less, and ECON saw no evidence of a large-quantity release. Small areas of discoloration were observed on the earth floor and bench tops but these potential releases are considered de minimus conditions.

The pump house contains a stroller, tools, and small pieces of lumber. The well casing is just inside the door and disconnected plumbing and wiring enter the pump house at the base of the west wall (Photos 21 and 22, Appendix A). The well itself has been filled with grouted to within 6-inches of the pump house floor.

The old unused chicken coop which lies on the north side of Roseland Creek to the north of the house is empty. ECON did not see evidence that it has been used in recent years or for any purpose other than housing poultry.

6.1.4 Site Construction and Utilities

The house, barn, and pump house were reportedly constructed in the 1930s. All are of wood frame construction with wood siding. Electricity and natural gas are provided to the Site by PG&E. Water is provided by a domestic well south of the house (Plate 2 and Photo 23, Appendix A). Domestic Sewage is disposed onsite via a septic tank and leach line located north of the house.

ECON collected a sample of the well water at the well head and had it analyzed by a State certified analytical laboratory for petroleum hydrocarbons and volatile organic chemicals; the

constituents accidently released to groundwater within the McMinn Study area located approximately 200 feet north of the Site. The analysis did not detect any of the constituents of concern. Copies of the laboratory reports are included in Appendix F.

6.1.5 Hazardous Materials Use, Generation, and Disposal

Other than the paints and lubricants noted above, ECON observed no evidence of hazardous materials use, generation, or disposal during the Site reconnaissance. The refuse dump appears to contain domestic refuse but one automotive part was observed. It is possible that hazardous substances or petroleum products were disposed of in the refuse dump.

7.0 INTERVIEWS

ECON interviewed Mr. Schellinger, current owner of the property. Mr. Schellinger reported that he and his partners purchased the Site 15 years ago (1995). He said the Site was part of a larger holding owned by the same family. Schellinger Brothers purchased the Site with the intent of developing it with single family homes. While these plans were never realized, Schellinger Brothers have used the Site for the storage of construction related tools and equipment. Mr. Schellinger says they have always rented the house to Schellinger Brothers employees. Mr. Schellinger stated that he is not aware of any releases of hazardous substances or petroleum products and the Site.

8.0 FINDINGS AND RECOMMENDATIONS

ECON has performed a Phase I ESA in conformance with the scope and limitations of ASTM Designation: E 1527-05. Any exceptions to, or deletions from, this practice are described in Section 2.4.

A thorough Site survey, a complete review of regulatory agency records, a review of local historical resources, and interviews with interested parties and enforcement officials has revealed no evidence of Recognized Environmental Conditions in connection with the Site except for the following:

3. Releases from a group of facilities to the north of the Site, known as the McMinn Avenue Site, have been identified as a State superfund site. The investigations for the McMinn Site included multiple facilities along Sebastopol Road from Highway 101 to Kenmore Lane, and have defined the extent of contamination and identified responsible sources. Soil and groundwater is contaminated with petroleum hydrocarbons and Halogenated Volatile Organic Compounds (HVOCs). Contamination of groundwater has been found in shallow and deeper water bearing zones (NCRWQCB 2000). According to a February 14, 2002 Remedial Investigation Report prepared by PES Environmental, Inc., the Site is not located within any identified plumes of contamination. Groundwater samples collected from the domestic well on February 11, 2010 did not contain detectable concentrations of petroleum hydrocarbons or HVOCs.

4. A Refuse dump on the northwest side of Roseland Creek and north of the house contains glass containers and household debris including some automotive parts. ECON did not see evidence of recent dumping however refuse dump presents a material threat of a potential release of hazardous substances or petroleum products.

9.0 DEVIATIONS

This Phase I ESA has been conducted in conformance with ASTM Practice E 1527. The following deletions, deviations and additions apply.

Non-conforming Section	Rationale
Title Report/Chain of Title	Not provided for review

10.0 REFERENCES

ASTM Designation E1527-05, *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process*: American Society for Testing and Materials (ASTM), West Conshohocken, PA.

California Division of Mines and Geology. 1980. *Special Report 120, Geology for Planning in Sonoma County*.

California Regional Water Quality Control Board, North Coast Region. 2000. *McMinn Avenue Site Fact Sheet Number 9.*

Environmental Data Resources, Inc. 2010a. *The EDR-Radius Map, Inquiry No. 2694606.2s,* February 9.

Environmental Data Resources, Inc. 2010b. *Sanborn Map Report, Inquiry No. 2694606.3,* February 9.

Environmental Data Resources, Inc. 2010c. *The EDR-City Directory Abstract, Inquiry No. 2694606.6.* February 9.

Environmental Data Resources, Inc. 2010d. *The EDR Historical Topographic Map Report, Inquiry No. 2694606.4,* February 9.

Environmental Data Resources, Inc. 2010e. *The EDR Aerial Photo Decade Package, Inquiry No. 2694606.5,* February 11.

Gallardo & Associates, Inc. 2002. *Modified Environmental Site Assessment, Phase One Transaction Screen Process (TSP) for Site Located at: 1400 Burbank Avenue in Santa Rosa, California.*

Golden Bear Biostudies. 2003. *Biological Assessment: 1027 McMinn Ave and 1360, 1370, & 1400 Burbank Avenue, Santa Rosa.*

Golden Bear Biostudies. 2002. *Biological Assessment: Special Species Study and Habitat Survey, 1440 Burbank Avenue, Santa Rosa.*

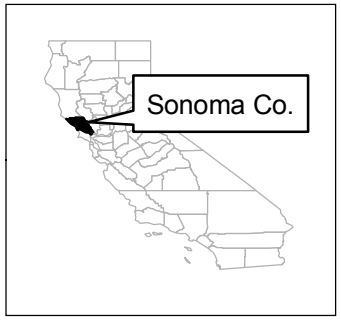
Lawrence Livermore National Laboratory (LLNL), Livermore, California, October 16, 1995, *Recommendations to Improve the Cleanup Process for California's Leaking Underground Fuel Tanks (LUFTs)*

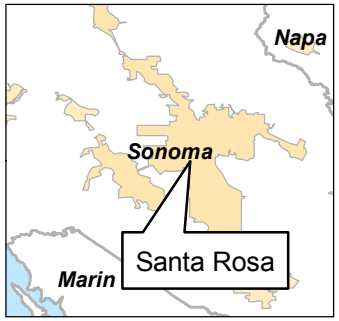
PES Environmental, Inc. 2002. *Remedial Investigation Report: Roseland Area HVOC Investigation, Santa Rosa, California.*

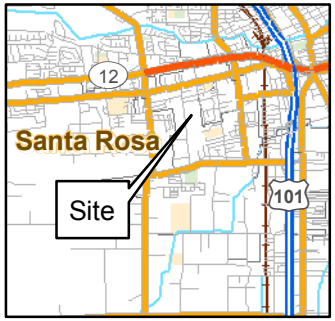
San Francisco Bay Regional Water Quality Control Board (RWQCB) 2008. *Screening for Environmental Concerns at Sites With Contaminated Soil and Groundwater. Interim Final.* May 2008.

Tom Origer & Associates. 2002. *A Cultural Resources Survey for the Proposed Burbank Avenue Annexation and Development Project, Santa Rosa, Sonoma County, California.*

PLATES







Drawn by A. Llewellyn. February 2010. Base layers are unmodified Sonoma County Digital Data Sets.

Explanation

Approximate Site Boundary

Non UST Releases

Status

- Open
- Closed

0 600 1,200 Feet

ECON

Site Location Map
1400 Burbank Ave
Santa Rosa, California

PLATE 1

Drawn by P. Dellavalle. February 2010. Base layers are unmodified Sonoma County Digital Data Sets.

Explanation

- Site Photo Locations
- Areas of Concern
- Approximate Site Boundary
- Creek

Land Use Areas

- Pasture Area
- Residential Area
- Riparian Zone

0 50 100 Feet

ECON

Site Map
1400 Burbank Ave
Santa Rosa, California

PLATE 2

APPENDIX A

Photographic Log

Photographic Log, 1400 Burbank Avenue, Santa Rosa, California

Photo 1: West boundary of the Site seen from the west side of Burbank Avenue.

Photo 2: Riparian Vegetation surrounds Roseland Creek.

Photo 3: Dense vegetation in the Riparian Zone

Photo 4: The residential area of the Site includes a single-family home and a barn.

Photo 5: Barn entrance.

Photo 6: North side of barn.

Photo 7: South Side of Barn.

Photo 8: Unused steel and concrete bridge over Roseland Creek. The vehicles parked in the background are on the adjacent property.

Photo 9: Power poles stored east of the barn.

Photo 10: Empty plastic drums and construction materials stored south of the barn.

Photo 11: The Residential Area is seen to the left of center and the Pasture Area is to the right.

Photo 12: East end of Pasture area.

Photo 13: Teapot and bottles from the Refuse Dump.

Photo 14: Refuse Dump.

Photo 15: Object from Refuse Dump.

Photo 16: Object from Refuse Dump.

Photo 17: Unused chicken coop.

Photo 18: Tools and materials stored in barn.

Photo 19: Materials stored in the barn.

Photo 20: Paint cans stored in the barn.

Photo 21: West side of Pump house.

Photo 22: Grouted well in Pump House.

Photo 23: Domestic Well.

APPENDIX B

Regulatory Agency Database Report
(Included Electronically on Provided Disc)

APPENDIX C

Historic Aerial Photographs and Maps

1400 Burbank Avenue
1400 Burbank Avenue
Santa Rosa, CA 95407

Inquiry Number: 2694606.5
February 11, 2010

The EDR Aerial Photo Decade Package

EDR® Environmental Data Resources Inc

440 Wheelers Farms Road
Milford, CT 06461
800.352.0050
www.edrnet.com

EDR Aerial Photo Decade Package

Environmental Data Resources, Inc. (EDR) Aerial Photo Decade Package is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDRs professional researchers provide digitally reproduced historical aerial photographs, and when available, provide one photo per decade.

When delivered electronically by EDR, the aerial photo images included with this report are for ONE TIME USE ONLY. Further reproduction of these aerial photo images is prohibited without permission from EDR. For more information contact your EDR Account Executive.

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

Date EDR Searched Historical Sources:

Aerial Photography February 11, 2010

Target Property:

1400 Burbank Avenue

Santa Rosa, CA 95407

Year	***Scale***	***Details***	***Source***
1953	Aerial Photograph. Scale: 1"=555'	Flight Year: 1953	Pacific Air
1965	Aerial Photograph. Scale: 1"=333'	Flight Year: 1965	Cartwright
1971	Aerial Photograph. Scale: 1"=533'	Flight Year: 1971	NASA
1982	Aerial Photograph. Scale: 1"=690'	Flight Year: 1982	USGS
1993	Aerial Photograph. Scale: 1"=666'	Flight Year: 1993	USGS
1998	Aerial Photograph. Scale: 1"=666'	Flight Year: 1998	USGS
2005	Aerial Photograph. 1" = 604'	Flight Year: 2005	EDR


INQUIRY #: 2694606.5
YEAR: 1953
= 555'
N


INQUIRY #: 2694606.5
YEAR: 1965
= 333'
N
EDR Environmental Data Resources Inc


INQUIRY #: 2694606.5
YEAR: 1971
= 533'
N


INQUIRY #: 2694606.5
YEAR: 1982
= 690'
N
EDR Environmental Data Resources Inc


INQUIRY #: 2694606.5
YEAR: 1993
= 666'
N


INQUIRY #: 2694606.5
YEAR: 1998
= 666'
N
EDR Environmental Data Resources Inc


INQUIRY #: 2694606.5
YEAR: 2005
= 604'
N
EDR Environmental Data Resources Inc

1400 Burbank Avenue
1400 Burbank Avenue
Santa Rosa, CA 95407

Inquiry Number: 2694606.3
February 09, 2010

Certified Sanborn® Map Report

EDR® Environmental Data Resources Inc

440 Wheelers Farms Road
Milford, CT 06461
800.352.0050
www.edrnet.com

Certified Sanborn® Map Report

2/09/10

Site Name:
1400 Burbank Avenue
1400 Burbank Avenue
Santa Rosa, CA 95407

Client Name:
Econ, Incorporated
241 South Main
Sebastopol, CA 95472

EDR Inquiry # 2694606.3

Contact: Sara Lahman

EDR® Environmental Data Resources Inc

The complete Sanborn Library collection has been searched by EDR, and fire insurance maps covering the target property location provided by Econ, Incorporated were identified for the years listed below. The certified Sanborn Library search results in this report can be authenticated by visiting www.edrnet.com/sanborn and entering the certification number. Only Environmental Data Resources Inc. (EDR) is authorized to grant rights for commercial reproduction of maps by Sanborn Library LLC, the copyright holder for the collection.

Certified Sanborn Results:

Site Name: 1400 Burbank Avenue
Address: 1400 Burbank Avenue
City, State, Zip: Santa Rosa, CA 95407
Cross Street:
P.O. # NA
Project: NA
Certification # 4C07-4723-8E2F

Sanborn® Library search results
Certification # 4C07-4723-8E2F

UNMAPPED PROPERTY

This report certifies that the complete holdings of the Sanborn Library, LLC collection have been searched based on client supplied target property information, and fire insurance maps covering the target property were not found.

The Sanborn Library includes more than 1.2 million Sanborn fire insurance maps, which track historical property usage in approximately 12,000 American cities and towns. Collections searched:

- ☑ Library of Congress
- ☑ University Publications of America
- ☑ EDR Private Collection

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1400 Burbank Avenue
1400 Burbank Avenue
Santa Rosa, CA 95407

Inquiry Number: 2694606.4
February 09, 2010

The EDR Historical Topographic Map Report

EDR® Environmental Data Resources Inc

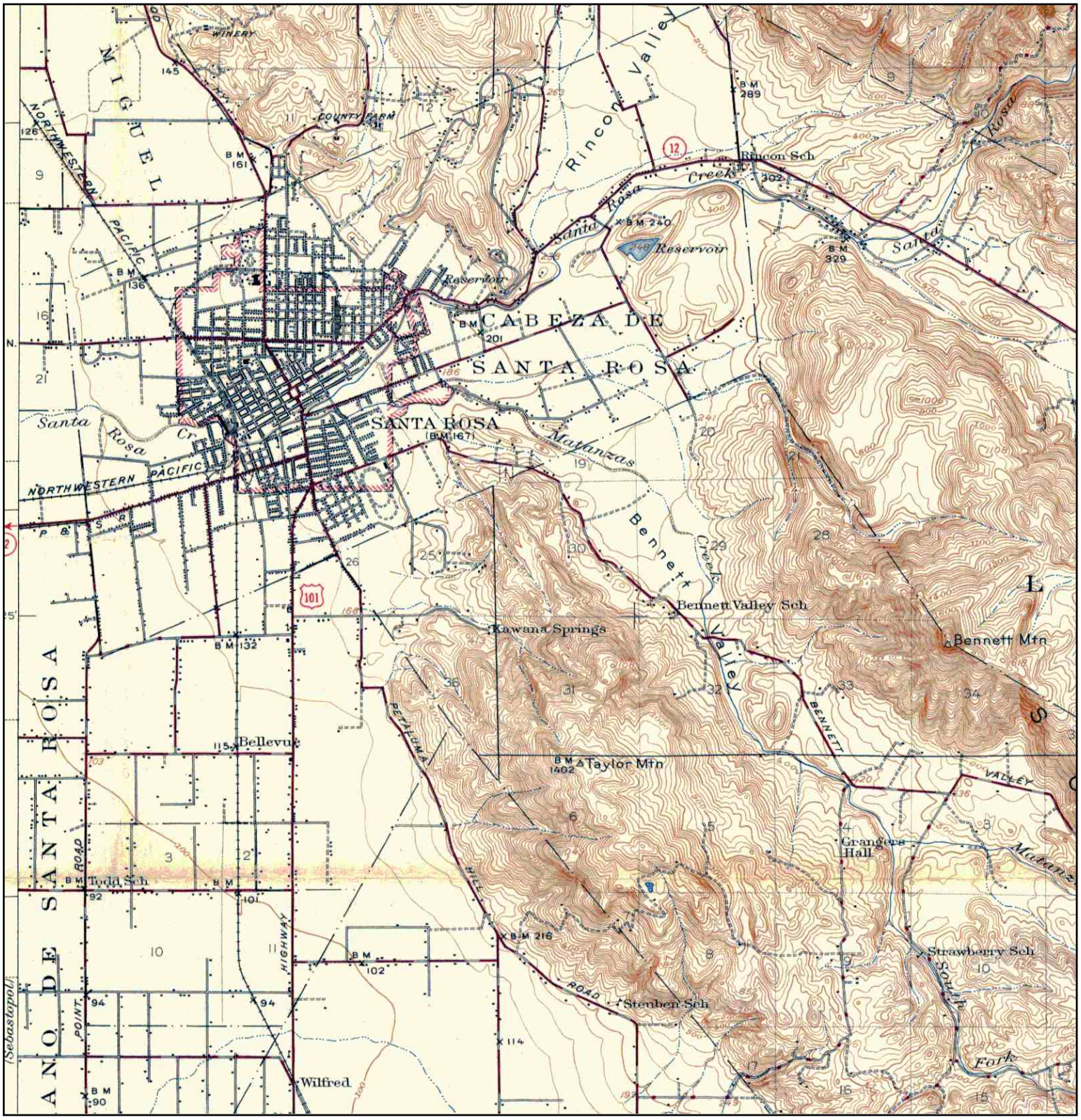
440 Wheelers Farms Road
Milford, CT 06461
800.352.0050
www.edrnet.com

EDR Historical Topographic Map Report

Environmental Data Resources, Inc.s (EDR) Historical Topographic Map Report is designed to assist professionals in evaluating potential liability on a target property resulting from past activities. EDRs Historical Topographic Map Report includes a search of a collection of public and private color historical topographic maps, dating back to the early 1900s.

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

Historical Topographic Map



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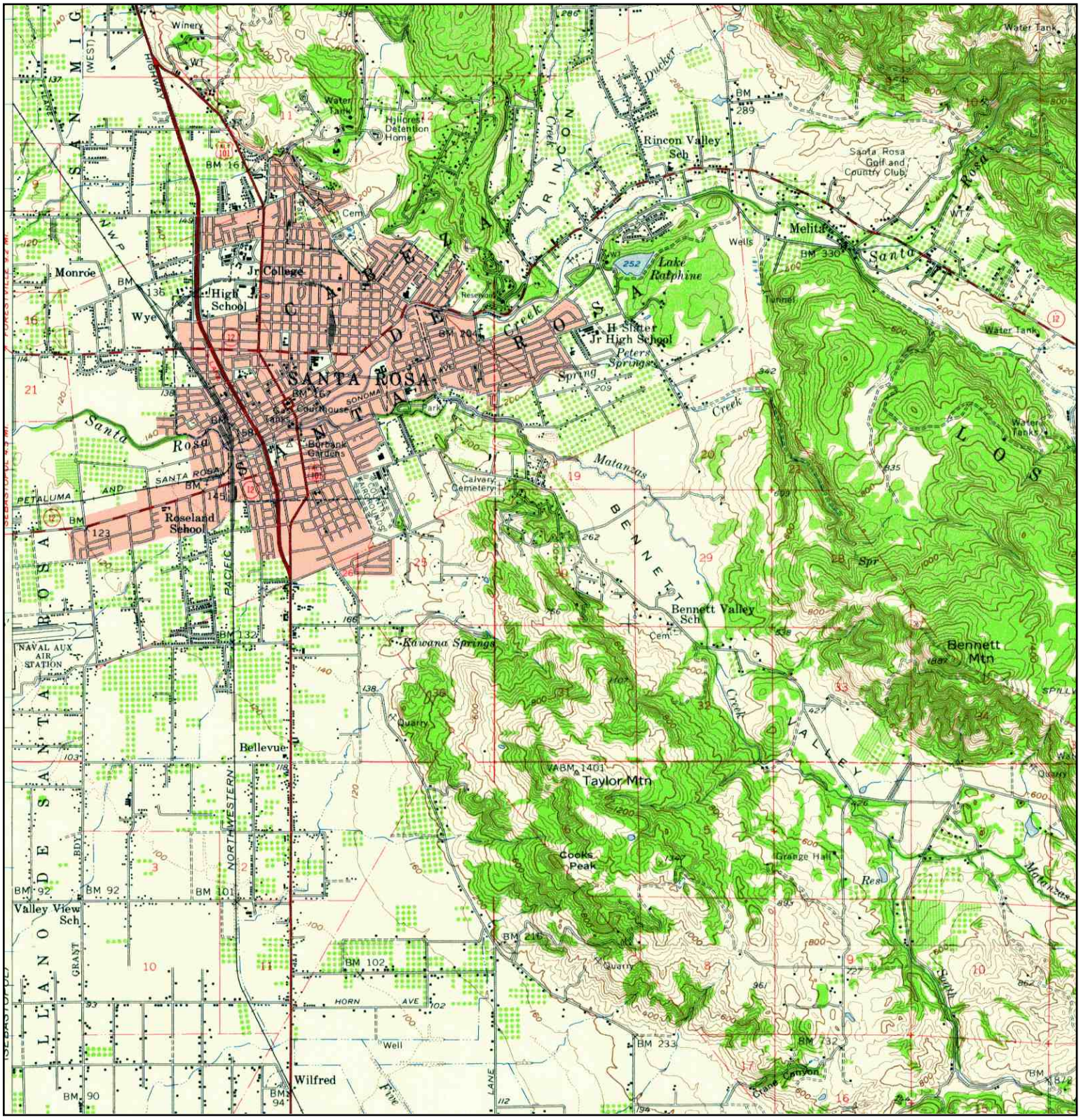
Historical Topographic Map



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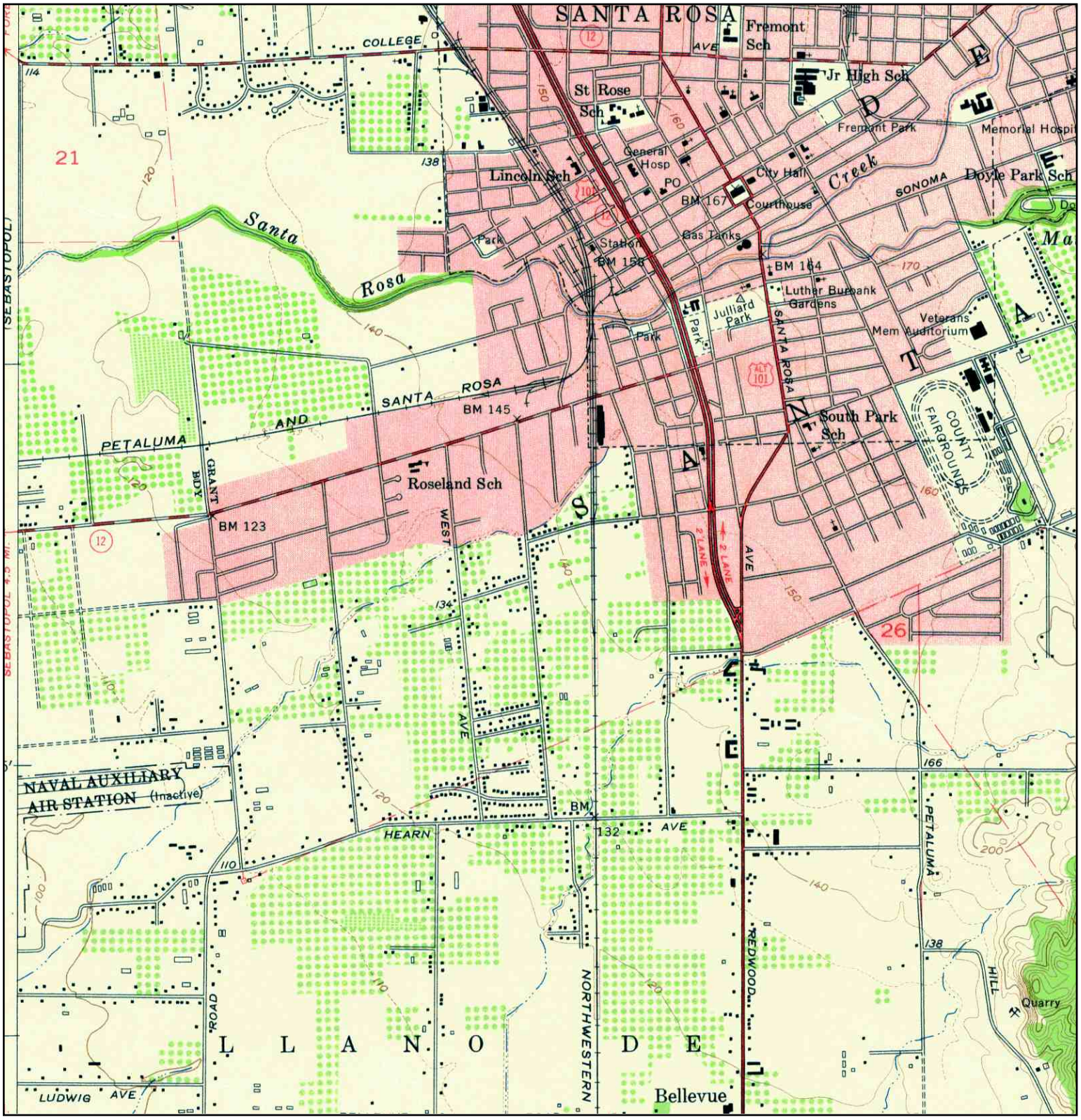
Historical Topographic Map



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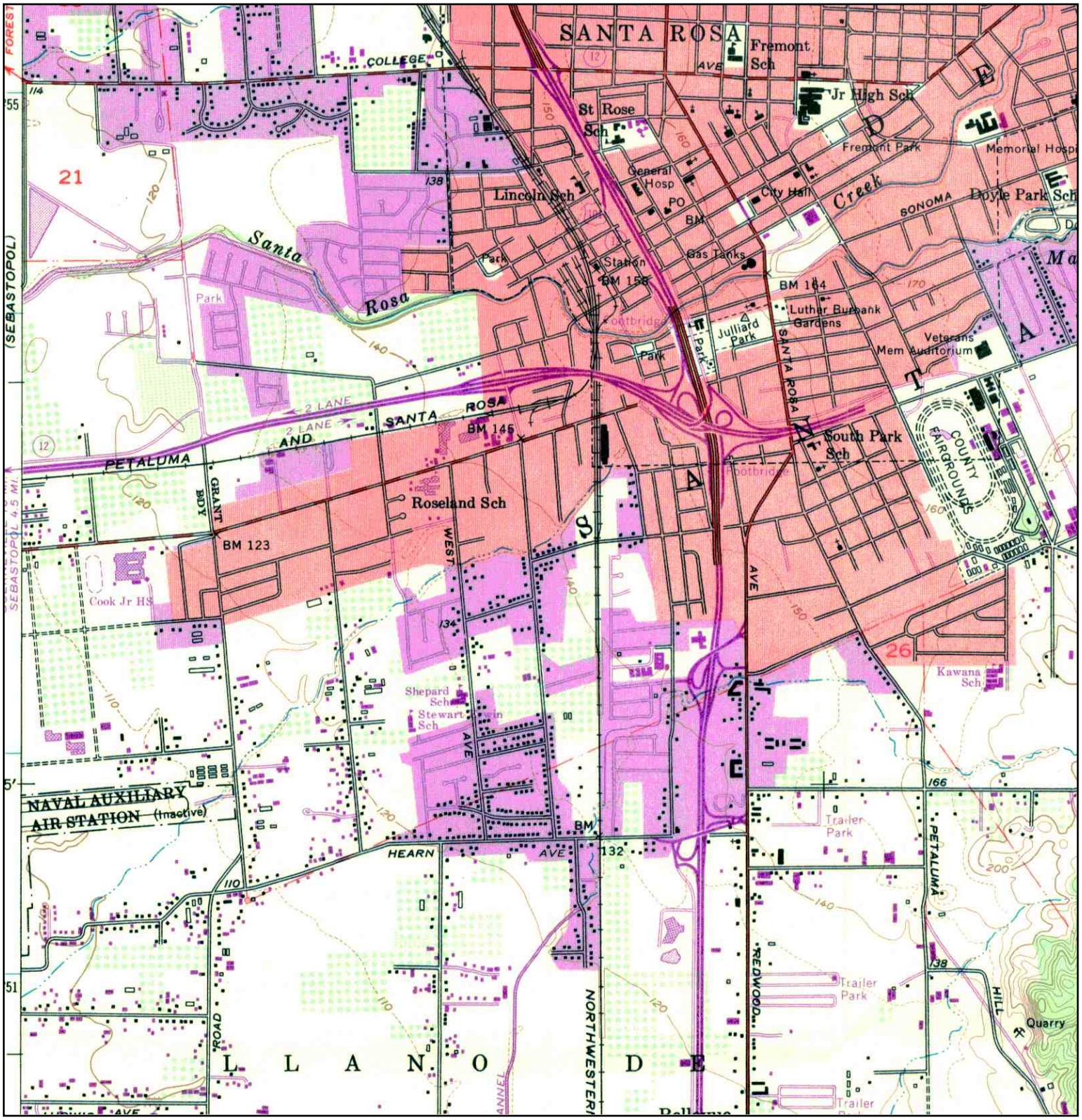
Historical Topographic Map



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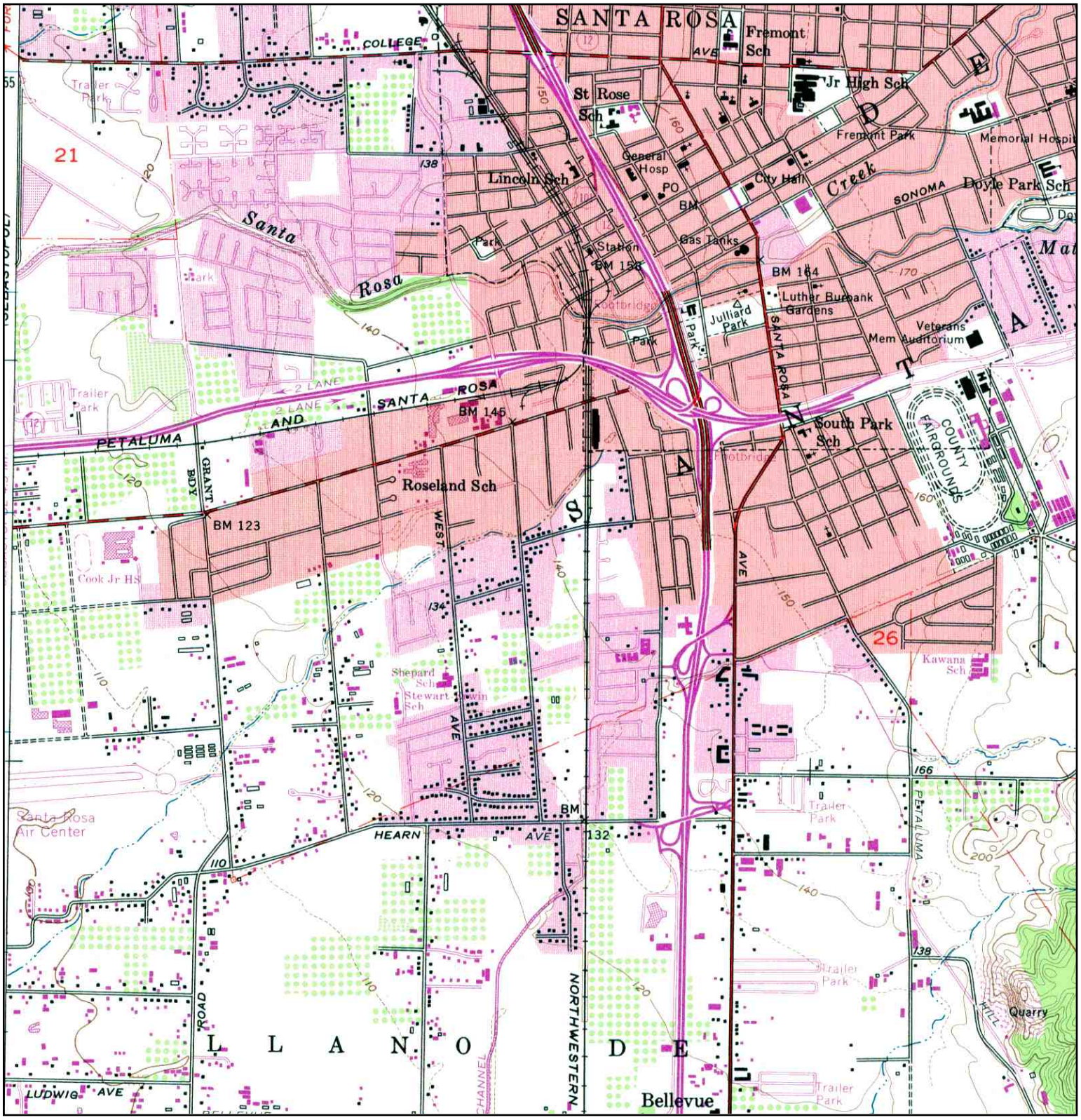
Historical Topographic Map



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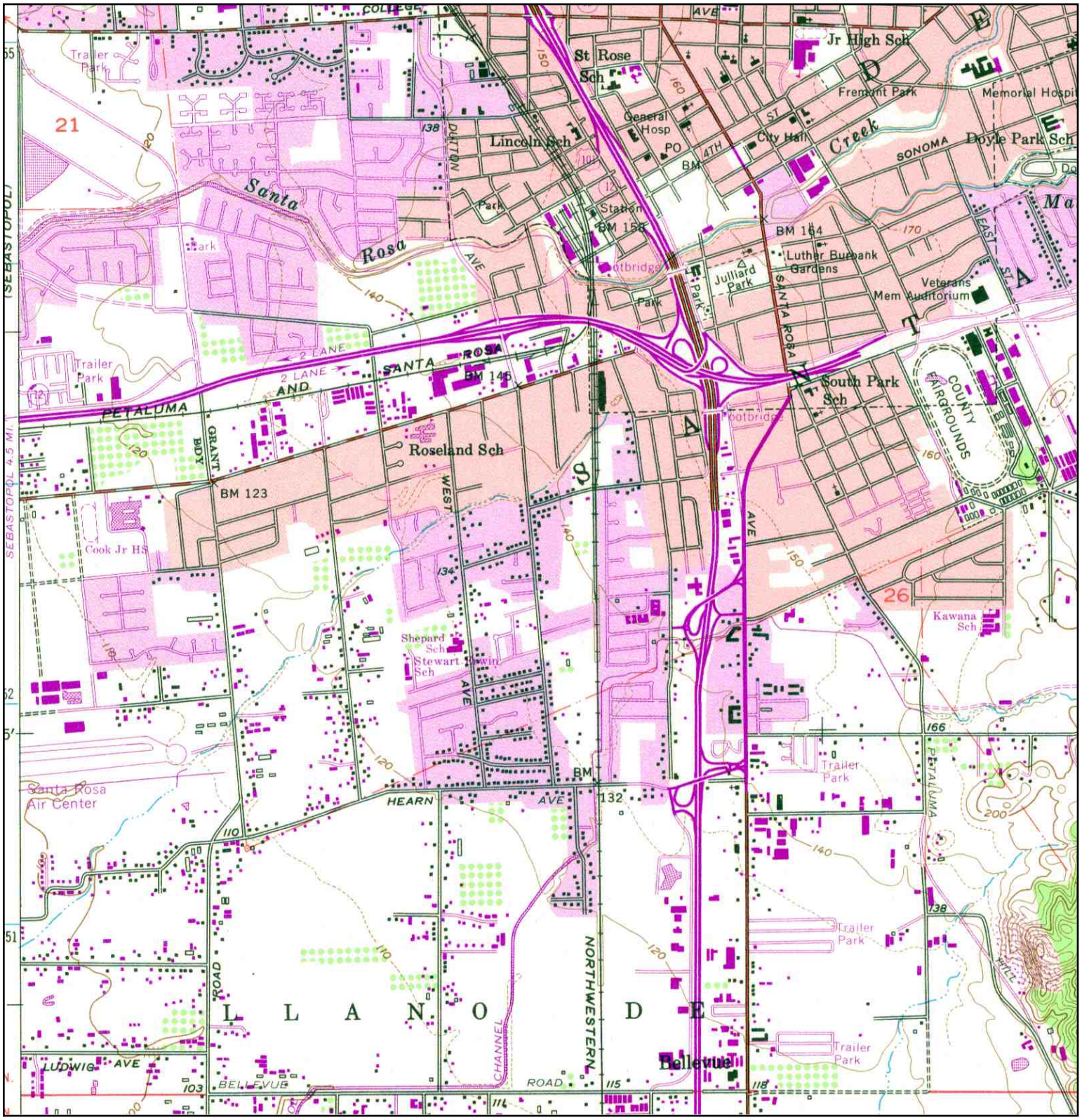
Historical Topographic Map



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APPENDIX D

Previous Site Assessment Reports
(Included Electronically on Provided Disc)

APPENDIX E

Offsite Investigation Reports

(McMinn Plan of Action Final Remedial Investigation Report Included Electronically on Provided Disc)

California Environmental Protection Agency

North Coast
Regional Water
Quality Control
Board

5550 Skylane Boulevard
Suite A
Santa Rosa, CA 95403

McMinn Avenue Site

**FACT SHEET
NUMBER 9**

NOVEMBER 2000

Introduction

The California Regional Water Quality Control Board, North Coast Region, (Regional Water Board) has prepared this fact sheet to inform interested community members about *groundwater* contamination in the Roseland area of Santa Rosa. This fact sheet provides information about *groundwater* contamination in the area and describes ongoing efforts to investigate and cleanup the contamination. It includes specific information organized into the following sections:

This fact sheet represents a compilation and summary of the available information collected by the various agencies working in the Roseland area, including the current status of activities in this area.

Another fact sheet, titled "The McMinn Avenue Site Well Testing Fact Sheet" is also available. It provides general information about *groundwater* and well water testing for owners or users of wells in areas with known or suspected *groundwater* contamination.

Throughout this fact sheet, words appearing in *italics* are defined in the glossary on page 12.

Site Location and Description

The McMinn Avenue Site is located in Sonoma County (County), in the southwest area of Santa Rosa, west of Highway 101 and south of Highway 12. The City of Santa Rosa (City) has annexed some of the affected area, but much of the site remains within the unincorporated area. Most of the contamination originates along Sebastopol Road between Highway 101 and Kenmore Lane (see the map on page 13). In 1984, Department of Toxic Substances Control (DTSC) designated a 2,000-foot radius around the intersection of McMinn Avenue and Sebastopol Road as a "Local Study Area" and a one-mile radius around that intersection as the "Regional Study Area." These designations provided the first areas for intensive study because little was known about the nature and extent of *groundwater* contamination at that time. The "Study Area" designations were

developed to assist in the understanding of the local *hydrogeology* and the behavior of the *groundwater* contamination.

Investigations have defined the sources of most of the contamination; therefore, the circular Regional and Local Study Area designations are no longer used. Based on the current understanding of the sources and extent of contamination, Red Zone, Yellow Zone, and Blue Zone designations are used. The Red Zone designation is used to encompass the known limit of a release of *halogenated volatile organic compounds* (*HVOCs*) that has at least one source near the intersection of Sebastopol Road and West Avenue. The Yellow Zone encompasses the surrounding industrial and residential areas in Roseland that are known to have *groundwater* contamination from a variety of previous commercial and industrial activities in the area. Together, the Red Zone and the Yellow Zone define the boundaries of the McMinn Avenue Site. The Red and Yellow zones also contain petroleum-related contamination. Although it is currently believed that the Blue Zone is unaffected by contamination originating from the Sebastopol Road area, very little well testing has occurred in the Blue Zone and little is known about the *groundwater* quality there. It is also important to note that there may be other unknown sources of *groundwater* contamination in the Blue Zone that are not related to the McMinn Avenue Site. Therefore, it is recommended that all residents have their domestic well tested (see "Property Impacts" section on page 9).

Many of the identified sources of contamination are existing or former service stations, vehicle yards, dry cleaners, and various commercial businesses with underground storage tanks. Soil and *groundwater* is contaminated with *petroleum hydrocarbons* (such as gasoline or diesel fuel) and *HVOCs*, such as *solvents*. *Petroleum hydrocarbon* and *solvent* contamination has been found in the shallow and deeper water bearing zones. Contaminated water supply wells have been found on Avalon Avenue, Burbank Avenue, Dutton Avenue, Emmy Lou Court, Goodman Avenue, Hampton Way, McMinn Avenue, Stony Point Road, Roseland Avenue, Ruby Court, Sebastopol Road, Sugar Bear Lane, Sunset Avenue, and West Avenue.

Therefore, the Regional Water Board recommends that residents in the Red and Yellow Zones explore all the options to ensure that they have a safe and secure source of water. As discussed further in the "Property Impacts" section located on page 9, grants or loans may also be available to fund well destruction and connection to the municipal water system. To further understand how contamination affects the *groundwater*, a graphic representation of various types of *groundwater* contamination has been included on page 14.

As shown on the map (page 13), there are several known source areas for *petroleum hydrocarbon* and/or *HVOC* contamination. This map also provides an overall view of the known source areas relative to the Red, Yellow and Blue zones. All of these known source areas are at some stage of investigation or cleanup.

Currently, the Regional Water Board, Sonoma County, and the South Park County Sanitation District are working together under the Roseland Plan of Action to provide residents with a safe water supply, identify additional sources of *groundwater* contamination, define the extent of contamination, and investigate remedial alternatives for the Red Zone. The Roseland Plan of Action is discussed in more detail under the "Current and Future Activities" section on page 6.

Agency Roles

There are several agencies and committees involved in the McMinn Avenue area:

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY (US EPA): This federal agency has conducted assessments within the area to assist the Regional Water Board. The Regional Water Board has historically received some funding from US EPA to conduct site assessments in the region, including several within the McMinn area.

CALIFORNIA-EPA (CAL-EPA): This state agency includes the Regional Water Board and the DTSC. The agency is not a part of the US EPA.

REGIONAL WATER BOARD: The Regional Water Board is the state agency overseeing all

of the individual site cleanup investigations and remedial actions in the area and has been the local clearinghouse for information on the contamination, including contaminated well sampling information. Since 1995, the Regional Water Board has been the lead agency for the entire McMinn Avenue Site. The Regional Water Board closely coordinates activities in the area with the Environmental Health Division of the Sonoma County Department of Health Services, the City of Santa Rosa and other federal, state and local agencies. The Regional Water Board and the City of Santa Rosa are actively involved in the installation of a water main in Emmy Lou Court and connecting these properties to city water. The Regional Water Board is also a signatory to the Roseland Plan of Action, which is discussed in more detail under the "Current and Future Activities" on page 6.

DEPARTMENT OF HEALTH SERVICES (DHS): This state agency is responsible for regulating the use of public drinking water wells. In addition, the Environmental Investigations Branch evaluates health exposure risks from contaminated sites on behalf of the US EPA and provides information to the Regional Water Board on the site.

DEPARTMENT OF TOXIC SUBSTANCES CONTROL (DTSC): This state agency was the lead agency from 1984 until 1995 for requiring investigation and cleanup of the McMinn Avenue Site. In 1995, the DTSC referred oversight of the McMinn Avenue Site to the Regional Water Board and is no longer involved in the day-to-day activities in the area. This agency is available for emergency response actions.

SONOMA COUNTY DEPARTMENT OF HEALTH SERVICES, ENVIRONMENTAL HEALTH DIVISION (SCEHD): This county agency is involved with county-wide environmental health issues, and oversees local health issues related to use of/exposure from contaminated drinking water wells. This agency works in close coordination with the DHS and recommends destruction of water wells in the McMinn Avenue Site to prevent exposure to potentially contaminated *groundwater*.

CITY OF SANTA ROSA UTILITIES DEPARTMENT (SRPUD): This city agency provides potable water and approves connections to Santa Rosa's municipal water supply. Five-year payment plans are available through this agency for connecting to city water. See the "Property Impacts" section on page 9 for more information on this program.

SONOMA COUNTY (COUNTY): The County government manages and coordinates each of the various County agencies, including those mentioned in this Fact Sheet. The County is a signatory to the Roseland Plan of Action, which is discussed in more detail under the "Current and Future Activities" on page 6.

SONOMA COUNTY WATER AGENCY (SCWA): This agency is responsible for the wholesale delivery of potable water to the City of Santa Rosa, Sonoma County and the northern part of Marin County. SCWA also is involved in various flood control projects in Sonoma County. SCWA provides personnel to maintain and operate various sanitation zones in Sonoma County, including the South Park County Sanitation District. Although the SCWA is not a County agency, the Sonoma County Board of Supervisors serves as the board of directors to the SCWA.

SOUTH PARK COUNTY SANITATION DISCTICT (SPCSD): This sanitation district provides wastewater collection within Roseland and the Southwest area of Santa Rosa. The SCWA provides the personnel to maintain and operate the wastewater collection system in this district. The SPCSD is also a signatory to the Roseland Plan of Action, which is discussed in more detail under the "Current and Future Activities" on page 6.

SONOMA COUNTY PERMIT AND RESOURCE MANAGEMENT DEPARTMENT (PRMD): This county agency issues permits for new water wells and well abandonments in Sonoma County.

SONOMA COUNTY COMMUNITY DEVELOPMENT COMMISSION (CDC): This agency oversees the Roseland Redevelopment plan for the Roseland area (not to be confused with the separate Southwest Redevelopment area, which is administered by the City of Santa Rosa). CDC also administers grants that are available to fund well destructions and water connections, and loans that are available for property rehabilitation. See the "Property Impacts" section on page 9 for more information on these programs.

SONOMA COUNTY DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS: This county agency evaluates and plans infrastructure improvements and is constructing the road improvements for Sebastopol Road.

SANTA ROSA REDEVELOPMENT AGENCY: This agency has jurisdiction within the City of Santa Rosa. Rehabilitation loans are available through this agency, which can be used to fund well destructions and connection to city water. See the "Property Impacts" section on page 9 for more information on this program.

SANTA ROSA DEPARTMENT OF PUBLIC WORKS: This agency is cooperating with the other agencies in developing an information base on the contamination in the area and providing expertise to other agencies. This agency and the Regional Water Board are also actively involved in the installation of a water main in Emmy Lou Court and connecting these properties to city water.

History of Investigations

Contamination at the site was first brought to the attention of the Regional Water Board and County officials in 1981 through several complaints of gasoline odors in well water. Samples of domestic well water collected in response to the complaints revealed various contaminants in drinking water and irrigation wells. Some wells contained gasoline, diesel, and *HVOCs* such as chlorinated *solvents*. These wells were located in the vicinity of McMinn Avenue, Roseland Avenue, Sebastopol Road and near Dutton Avenue.

In 1984, the Regional Water Board determined that no source for the contamination could be readily identified, and both the County and the Regional Water Board requested that DTSC add the site to the *State Superfund* list to assess the contamination and protect public health. DTSC added the site to the list in November 1985. This listing enabled DTSC to fund work on the site as no *responsible parties* had yet been identified.

One year after the listing, DTSC completed a preliminary investigation that confirmed that *groundwater* samples from seven of the 38 private wells tested contained contaminants at levels above the State safe drinking water standards (referred to as the *Primary Maximum Contaminant Levels [MCL]*). The contaminants included soluble *petroleum hydrocarbons* and *HVOCs*. Some of the contaminants detected were:

- *Tetrachloroethylene (PCE)*
- *1,2-dichloroethane (1,2-DCA)*
- *Vinyl chloride*
- *Benzene*

The study recommended further testing of potential sources of contamination, including businesses with underground storage tanks.

Twelve *monitoring wells* were installed by DTSC in 1988, and *petroleum hydrocarbons* were found in five of the wells, two of which produced liquid gasoline floating on the *water table*. Chlorinated *solvents* were detected in two wells, one of which contained *1,2-DCA* and the other contained *PCE*, *trichloroethylene (TCE)* and *1,2-dichloroethylene (1,2-DCE*). The Regional Water Board, in cooperation with DTSC, began to identify suspected sources of the contamination and to require those responsible to begin assessment and cleanup of releases of *petroleum hydrocarbons* and *solvents* to the environment.

In March 1992, gasoline vapors were detected in sewers and businesses along Sebastopol Road. The County declared a local state of emergency on March 31, 1992 due to the buildup of potentially explosive vapors in the sewer system along Sebastopol Road between West Avenue and Roseland Avenue.

The Regional Water Board issued an emergency *Cleanup and Abatement Order* to the Beacon service station, which had a gasoline leak to the sewer line. The leaking gasoline tanks and lines were removed, and a soil and *groundwater* remediation system was installed at the Beacon site. The sewer line has since been lined in this area to prevent infiltration of contaminated *groundwater*.

The County and the Regional Water Board conducted a comprehensive domestic well sampling effort in late March and early April 1992 in response to the state of emergency. Sixty-one domestic wells were sampled for gasoline, diesel, and *HVOCs*. Three of the 61 private wells tested positive for *petroleum*

hydrocarbons and six wells tested positive for chlorinated *solvents*.

In 1992, the Regional Water Board requested assessment assistance from the US EPA to aid in determining other potential source areas. From November 1992 through January 1993, the US EPA conducted an extensive field investigation in the area to:

- Determine the extent of *petroleum hydrocarbon* contamination from known sources
- Identify other sources of contamination
- Determine whether shallow *groundwater* contamination was entering Roseland Creek.

The investigation included the collection and analysis of 116 *groundwater* samples from 59 locations and identified several previously unknown properties as sources of *petroleum hydrocarbon* or *solvent* contamination. The investigation also concluded that the threat of a *petroleum hydrocarbon* or *solvent* release to Roseland Creek via contaminated shallow *groundwater* was minimal.

In 1995, the Regional Water Board became the lead agency in the investigation and cleanup of soil and *groundwater* contamination within the McMinn Avenue Site.

In June 1996, the Regional Water Board sampled 17 private wells and, for the first time, included *methyl tertiary butyl ether* (*MtBE*) in the lab analysis. Two of the 17 wells were contaminated with gasoline and eight wells were contaminated with chlorinated *solvents*. *MtBE* was not detected in any of the 17 wells. However, the samples were tested using an analytical method that was available in 1996, but is no longer recommended today.

In 1997, the Regional Water Board collected samples of soil and *groundwater* from 24 locations in the vicinity of Roseland Elementary School to further determine the sources of contamination under the school. The work resulted in an agreement between three former and currently operating service stations to work cooperatively to complete the investigation and mitigate this *petroleum hydrocarbon* release. These service stations are currently completing the application process for acceptance into the commingled plume account, which is managed by the State Water Resources Control Board Underground Storage Tank Fund.

In July 1998, a contractor working for the US EPA conducted the initial *soil gas* and indoor air survey of the Roseland Elementary School. The primary purpose of this work was to evaluate the threat of exposure from *solvent* or *petroleum hydrocarbon* vapors migrating through the soil and into the buildings.

From June through August 1998, Regional Water Board staff conducted an investigation of soil and *groundwater* contamination near the intersection of Sebastopol Road and West Avenue as part of a grant arrangement with the US EPA. The primary purpose of the investigation was to determine the source and mechanism of the *solvent* release to the environment and to sample private wells downgradient (southwest) of the intersection. Ninety-one *groundwater* samples and 27 soil samples were collected with a Geoprobe®, a truck mounted hammer/punch soil probe.

In August and September 1998, the Regional Water Board and US EPA sampled a total of 64 private wells for *HVOCs* and *MtBE* (and other fuel oxygenates). Approximately 15 of the 64 wells also were sampled for gasoline. Gasoline was not detected in those wells. Seventeen of the 64 wells were found to be contaminated with *MtBE* and eight were contaminated with *HVOCs*, primarily chlorinated *solvents*.

All of the previously mentioned investigative work ultimately resulted in the Roseland Plan of Action in July 1999. The Roseland Plan of Action is an agreement between the Regional Water Board and the County/SPCSD in which the County/SPCSD will complete the investigation and explore options for mitigation of the *HVOC* release. The Roseland Plan of Action is discussed in greater detail in the "Current and Future Activities" section on page 6.

In June 1999, the Regional Water Board sampled an additional 29 wells for *HVOCs*, *MtBE* and arsenic. Twenty-two of the wells also were analyzed for gasoline. Neither gasoline nor arsenic was detected in any of the wells. Two wells were contaminated with *MtBE* and two wells were contaminated with *HVOCs*. In July 1999, the Regional Water Board also

conducted additional *soil gas* and indoor air sampling at the Roseland Elementary School.

The Regional Water Board continues to require *responsible parties* to investigate and cleanup contamination. Thirty-eight sites are undergoing investigation and cleanup activities under the direction of the Regional Water Board and thirteen of these sites have completed the *petroleum hydrocarbon* cleanup and have been issued closure notices that require no further action.

Current and Future Activities

The Roseland Plan of Action is a cooperative agreement between the County, the SPCSD, and the Regional Water Board to investigate the source and extent of the *HVOC* contamination originating along Sebastopol Road near West Avenue. As mentioned previously, this *HVOC* contamination is currently believed to be bounded by the area known as the Red Zone (see figure on page 13). In 1998, the Regional Water Board conducted an extensive source area investigation at and near this intersection, but had limited information on how far the contamination had spread. Therefore, the Roseland Plan of Action included the following main elements:

- The County/SPCSD is to conduct an investigation to determine the overall depth and extent of the *HVOC* contamination that is believed to originate from the area near the intersection of Sebastopol Road and West Avenue. The investigations are to culminate with a final report on the extent of contamination and remediation alternatives to be submitted by the County/SPCSD no later than February 15, 2002.
- County/SPCSD submittal of monthly progress reports on the status of the *HVOC* investigation and water connections (as appropriate).
- Development of an Outreach Plan to coordinate open and regular communication between the involved government agencies and the community in the Roseland area.
- Annual *soil gas* sampling conducted at the Roseland Elementary School through the year 2005.
- Connection of 18 Red Zone properties to the city water system by the County/SPCSD at no cost to the property owners, including a provision for additional connections as appropriate based on the results of the ongoing *HVOC* investigation.
- Assistance from the Regional Water Board for the connections to city water, including the properties on Emmy Lou Court, as provided for by the State Water Resources Control Board's Cleanup and Abatement Account funds.
- County/SPCSD funding for additional Regional Water Board sampling and staff time.

The following sections briefly describe the work that has occurred, or is scheduled to occur, as required by the Roseland Plan of Action.

HVOC INVESTIGATION

In September 1999, the SPCSD submitted a plan to the Regional Water Board for investigating the *HVOC* contamination (Investigation Plan). As part of the Investigation Plan, the SPCSD conducted a study of the *soil gas* and indoor air at the Roseland Elementary School during December 1999. This study was intended to determine if contaminants present in the *groundwater* were affecting the air quality inside the school buildings or in the playground areas.

The December 1999 study by a toxicologist concluded that the types of low-level contamination found in the indoor air presented an estimated risk that "is not unusual for what is considered typical exposure to indoor air." To confirm the results of the December 1999 study, a follow-up study of the indoor and outdoor air was conducted during the first week of February 2000. The preliminary results of this follow up study agree with the results of the December 1999 study. The County/SPCSD will continue to monitor ambient air and *soil gas* conditions annually to verify these results over a longer period of time.

In April 2000, drilling was conducted to better characterize the *hydrogeology* in the Roseland area and to identify the locations for the *monitoring well* network proposed by the SPCSD.

Groundwater sampling of up to 20 domestic wells in the Roseland area is also conducted every three months. The purpose of the domestic well sampling is to get more

information on the current extent of the *HVOC* contamination and how it changes over time. The initial domestic well sampling occurred during January and March 2000. During these sampling events, the SPCSD sampled a total of 17 domestic wells, most of which were in the Red Zone. A total of three chemical compounds were detected during this sampling round: *Freon® 12*, *MtBE*, and *PCE*. *Freon® 12* was detected in one domestic well, *PCE* was detected in three domestic wells, and *MtBE* was detected in nine domestic wells. Of these detections, one domestic well had a level of *PCE* higher than California's *Primary MCL* for drinking water, and one domestic well had a level of *MtBE* higher than the *Secondary MCL* for taste and odor in drinking water. Both properties are currently connected to city water.

A second round of domestic well sampling was completed during the end of June 2000. During this sampling event, the SPCSD sampled a total of 13 domestic wells, most of which were in the Red Zone. A total of five chemical compounds were detected during this sampling round: *Freon® 12*, *1,2-DCE*, *TCE*, *PCE*, and *MtBE*. *Freon® 12*, *1,2-DCE*, *TCE*, and *PCE* was detected in one domestic well. *MtBE* was detected in three domestic wells. Of these detections, one domestic well had a level of *PCE* higher than California's *Primary MCL* for drinking water. This property is currently connected to city water.

In July 2000, 6 *monitoring wells* were sampled to provide additional information for refining the placement of several new *monitoring wells* proposed by the SPCSD. The results of this sampling indicated the presence of *HVOCs* in 3 of the 6 *monitoring wells* and components of *petroleum hydrocarbons* in 4 of the 6 *monitoring wells*.

A third round of domestic well sampling in the McMinn Avenue Site and *soil gas*/ambient air sampling at the Roseland Elementary School was completed during the end of September 2000. At the time of this printing, the results for these sampling events were not yet available. Installation of 6 *monitoring well* clusters was also completed during the week of October 16, 2000.

Upcoming investigative work may include the installation of additional *monitoring wells*, further investigation of the sources of contamination, continued *groundwater* sampling at domestic wells (and *monitoring wells* as they are installed), and annual sampling of the ambient air and *soil gas* at the Roseland Elementary School.

CONNECTIONS TO MUNICIPAL WATER

Of the properties in the Red Zone not connected to City water, 18 were selected in the Roseland Plan of Action to be connected to City Water. Because these properties used only well water for domestic purposes, there was the possibility for direct exposure to the *groundwater* contamination. The Roseland Plan of Action requires that the County/SPCSD make alternative water supply available to these 18 properties. All of these properties have now been connected to the city water system.

EMMY LOU COURT WATER MAIN INSTALLATION: In February 2000, the City of Santa Rosa and the Regional Water Board representatives signed a contract for the installation of a water main in Emmy Lou Court. The contract allows for the water main installation and connection of eight residential properties to the city water system. The installation is scheduled to be completed by September 2001 and is jointly funded by the City of Santa Rosa and the Regional Water Board using the State Water Resources Control Board's *Cleanup and Abatement Account* funds. However, in the interim, the City of Santa Rosa installed water filters on all eight of the properties to protect the residents in the event their well becomes contaminated.

OTHER CURRENT AND FUTURE ACTIVITIES

The following are some other current and future activities occurring in the Roseland area:

OUTREACH PLAN: The Outreach Plan for the *HVOC* Investigation and Mitigation in the Roseland Area (Outreach Plan) was developed as a requirement of the Roseland Plan of Action. The Outreach Plan is a dynamic tool that provides for cooperation between the involved agencies, assures communication to the public and residents of the area, assists the public with the paperwork necessary to be connected to city water, educates the public about investigation and mitigation of contamination in the area, and provides translation services to the diverse population within the Roseland area. The Outreach Plan provides for quarterly public meetings (or as necessary) within the Roseland

area to inform residents of recent developments, and provides a forum for residents to ask questions and express their concerns. In March and July 2000, community meetings were held between the various agencies involved with contamination issues and the citizens of the Roseland area. Also included in the Outreach Plan is a list of agency contacts and telephone numbers.

EDUCATIONAL EVENTS: Both formal and informal events are held for public education regarding the contamination within the McMinn area. These events were designed to involve parents and children from the McMinn area, educate them about soil and *groundwater* contamination, and how to prevent pollution. One such event, the Educational Forum was held at the Roseland Elementary School in the summer of 1998. Another such event, the annual Summer Splash, was held during the summer in 1999 and 2000 at the Roseland Elementary School. Many involved agencies, community groups, and private companies hosted the event and donated time and materials. Prizes were awarded to participants in educational games.

US EPA ENVIRONMENTAL JUSTICE GRANT: In the fall 1999, Santa Rosa Memorial Hospital received a US EPA Environmental Justice Grant on behalf of the Citizens Cleanup Coalition. This grant is being used at Roseland Elementary School to establish a community environmental program for the children and parents of this community and to address environmental issues through outreach to community groups.

SEBASTOPOL ROAD, PHASE IIA PROJECT: This project consists of construction and replacement of underground utilities between Burbank Avenue and Avalon Avenue. This project will be constructed under the Sebastopol Road Widening Project and is also scheduled to begin during fall/winter of 2000.

SEBASTOPOL ROAD WIDENING, Phase IIB PROJECT: The Sebastopol Road widening project is scheduled to go from Burbank Avenue to Avalon Avenue. This project is currently scheduled to begin during 2000/2001.

DUTTON, WEST, WESTWOOD PROJECT: This project consists of replacement and rehabilitation of 6,862 linear feet of the existing sewer collection system along portions of Dutton, West Avenue, and Westwood Avenue. Construction is expected to have begun during the summer of 2000.

KENMORE LANE AREA PROJECT: This project consists of rehabilitation and replacement of 4,719 linear feet of the existing sewer collection system in Kenmore Lane, Mesa Way, Janero Drive, and Stony Point Road from Rose to Janero. Construction is anticipated during 2001/2002.

BURBANK AVENUE PROJECT: This project consists of the replacement of approximately 1,160 linear feet of existing sewer collection system extending south from Sebastopol Road along Burbank Avenue. Construction is anticipated during 2001/2002.

Successful Cleanups

Thirteen petroleum-contaminated sites in the area have completed investigation and cleanup activities and have been issued case closure letters. A few of these sites have residual *petroleum hydrocarbon* contamination remaining, which is expected to naturally degrade in a few years. Some sites also have *solvent* contamination in wells, the source of which is still unknown and is being investigated. The 13 sites that have completed *petroleum hydrocarbon* cleanup are:

1. Continental Baking, 1840 Sebastopol Road
2. Gardner's Aid, 1050 Sebastopol Road
3. Harriman Brothers, 375 Sebastopol Road
4. Laidlaw Transit, 959 Sebastopol Road
5. Murrill Trucking, 439 Roseland Avenue
6. NorCal Glass, 673 Sebastopol Road
7. Talmadge Wood, 1594 Hampton Way
8. Yellow and Roadway Freight, 270 Dutton Avenue
9. Withers Car Wash, 1450 Sebastopol Road
10. Kevin Chang, 1580 Hampton Way
11. Shamrock Materials, 285 Roberts Avenue
12. Dave Zedrick, 111 Sebastopol Road
13. Santa Rosa Value Center, Sebastopol Road at Stony Point Road

Another 25 sites are still conducting investigation and cleanup activities of all

contaminants (see the map on page 13). A detailed staff update on the status of all 25 sites will be given to the Regional Water Board during a public Regional Water Board meeting to be held in early 2001. If you would like to have a copy of the detailed site updates mailed to you, or if you would like to attend this upcoming Regional Water Board meeting, please contact the Regional Water Board staff listed on page 11.

Health and Safety Concerns

The primary concern in the McMinn area is health effects from drinking contaminated well water. Unless the water is tested, it is not possible to know if the water is safe for drinking or other domestic uses. Water from private wells should be tested for contamination. Public water supplies provided by the City of Santa Rosa are safe to use and drink.

The "McMinn Avenue Site Well Testing Fact Sheet" contains more detail on water well contamination and assessment. Copies are available at the Regional Water Board office by calling (707) 576-2220. In addition, the Regional Water Board keeps records of previous domestic well testing done by environmental consultants and public agencies. These records may be obtained by calling the staff contacts listed on Page 11.

Property Impacts

Property owners in the Roseland area are concerned about the impact of the *groundwater* contamination, investigations, and cleanup activities on their properties. Many people have called the Regional Water Board with property-related questions. This section of the fact sheet responds to some of the most commonly asked questions.

Is my property contaminated?
None of the agencies involved can answer this question unless investigation activities have been conducted on your property. The Regional Water Board has files on each of the sites shown on the map on page 13. The Regional Water Board also has domestic well sampling information on some addresses in the Roseland area.

Will I be held responsible for the cleanup of contamination under my house?
The Regional Water Board will not hold a homeowner financially responsible for the investigation and cleanup of contaminated *groundwater* unless the homeowner has caused or contributed to the release or spread of the *groundwater* contamination.

Do I have to pay for the sampling of my well?
During sampling events where the Regional Water Board requests to sample your well, we will test your domestic well at no charge. If you request that the Regional Water Board sample your well, you will be informed at that time if we can test your well at no charge. In some instances, free testing may not be available. We encourage all people to have their well tested if they use the well for any purpose (including irrigation).

If you wish to sample the well yourself, the Regional Water Board recommends that you contact an analytical laboratory or an environmental consultant to collect the sample. Generally, for the types of chemical contamination that occurs in the McMinn Avenue Site, the Regional Water Board recommends that these samples are analyzed using US EPA test method 8260 low-level (including fuel oxygenates).

Why can't I drill a new water supply well?
Both the City and the County passed ordinances in 1999 that effectively prohibit drilling any new water supply wells inside the Red Zone, or within 2,000 feet of the outer boundaries of the Red Zone. Under these new City and County ordinances, new water wells can only be installed if it can be proven that the well(s) will not affect the spread of contamination and the City/County approve the project.

Why am I being told that I must connect to city water?
Both the City and the County passed ordinances in 1999 that require all properties inside the Red Zone to connect to city water if they are using well water for household purposes. These ordinances also prohibit cross connection between the well and the city's water system and are intended to protect residents from exposure to potentially contaminated water.

If I sell, lease, or rent my property, do I have to disclose that it is, or may be, contaminated?
California Health and Safety Code Section 25359.7 requires owners of non residential property to inform buyers, lessees or renters in writing if the property is affected by a release of a hazardous substance. It also requires that lessees or renters of residential or nonresidential property notify the owner of the property in writing if the property is affected by a release of a hazardous substance.

California Civil Code, Section 1102 (et seq.) requires the seller of a residential property to inform any buyer of the existence of environmental hazards affecting the property. The hazards include, but are not limited to, "asbestos, formaldehyde, radon gas, lead-based paint, fuel or chemical storage tanks, and contaminated soil or water of the subject property." Federal and local laws may contain additional requirements, as this is a rapidly changing area of the law. If you own, lease, rent, or intend to sell property where there has been a release of a hazardous substance or if your property is near known or suspected sources of contamination, it is suggested that you consult with an attorney familiar with real estate disclosure law.

The State Department or Real Estate offers a publication titled, "Disclosures of Real Property Transactions." You can get a copy by sending a self-addressed, stamped envelope with the request, and $2 plus sales tax (7.75%), to:

Department of Real Estate
Book Orders
P.O. Box 187006
Sacramento, CA 95818-7006

You also may order this information by downloading form RE-350 from the Department of Real Estate web site at www.dre.cahwnet.gov/forms.htm. More information on the "Disclosures of Real Property Transactions" can be found on the Department of Real Estate web site at www.dre.cahwnet.gov/cnsmrpub.htm.

If my well is contaminated, who will pay to get my house or business hooked up to city water and close down my well?
The 18 properties listed in the Roseland Plan of Action were connected to city water at no cost to the property owners. If other properties are found to be affected by the *HVOC* contamination, such properties will be evaluated on a case-by-case basis to determine if the County/SPCSD will provide connection to the city water system at no cost to the property owner. If you connect to city water, a backflow device or well destruction may be required to prevent potential contamination of the city's water system.

- *If you live in an unincorporated area:* County residents may be eligible for grants to fund water connections and well destructions, and loans to fund property rehabilitation. These grant and loan programs are available to low and moderate-income families living in the unincorporated portions of the Roseland Redevelopment area. These programs are offered through the Sonoma County Community Development Commission. If you are interested in learning more about these programs, call Steve McCoy at (707) 524-7545.

  County residents may also be eligible for a five-year payment plan to defer some of the costs associated with connecting to city water. This program is offered through the City of Santa Rosa Utilities Department. If you are interested in learning more about this program, call Linda Reed at (707) 543-3958.

  Furthermore, during the end of 1999, the City of Santa Rosa eliminated the surcharge for city water supplied to properties within the unincorporated (County) areas of the Red Zone.

- *If you live within the City of Santa Rosa:* City residents may be eligible for a low interest rehabilitation loan through the City of Santa Rosa Community Development Department that can be used for water connections and well destruction. If you are interested in learning more about this program, call Nancy Gornowicz at (707) 543-3300.

  City residents may also be eligible for a five-year payment plan to defer some of the costs associated with connecting to city water. This program is offered

through the City of Santa Rosa Utilities Department. If you are interested in learning more about this program, call Linda Reed at (707) 543-3958.

Public Involvement Opportunities

Agencies encourage public involvement in their decisions related to the McMinn Avenue site investigation and cleanup. The following organizations and community groups provide a forum for public input into this process:

CITIZENS CLEANUP COALITION (CCC): This community-based organization meets monthly to discuss contamination issues in the Roseland area. The CCC also represents the public in the Outreach Plan. All meetings are open to the public. You may contact Sharon Marchetti of the CCC at (707) 547-4887 for additional information.

SOUTWEST AREA CITIZENS GROUP (SWACG): The goal of this community-based organization is to provide recreational opportunities for youth in the southwest area. SWACG meets once per month, where other issues such as fund raising for team uniforms, scholarships to graduating Elsie Allen High School seniors, field trips for youth groups, and improvements to public recreational facilities are discussed. SWACG also hosts the Southwest Design Team, an ad hoc group that periodically reviews pending development proposals for aesthetics, adverse impacts, and neighbor involvement. All meetings are open to the public. You may contact Jim Paschal of SWACG at (707) 579-8882 for additional information.

SOUTHWEST AREA REDEVELOPMENT PLAN AND PROJECT AREA COMMITTE (PAC): The PAC is a group of elected Southwest area citizen representatives that meets regularly to review and advise both the community and the City's Redevelopment Agency on issues related to the redevelopment of the southwest area. These meetings are public and anyone can attend. Call Chaney Delair at City of Santa Rosa Housing and Redevelopment office for the schedule of meetings and location at (707) 543-3300.

COMMUNITY CARE: The organization focuses on developing leadership in the community and facilitating discussion and resolution of a variety of issues that are of concern to the community. You may contact Arnulfo Barragan of Community Care at (707) 546-3399 for additional information.

For Additional Information

If you are interested in reviewing the documents discussed in this fact sheet, you may visit one of the information repositories listed on Page 16.

If you would like additional information about the McMinn Avenue site, or if you have any questions, please contact one of the Regional Water Board representatives listed below.

For More Information

If you have questions about the McMinn Avenue Site, please call the Regional Water Board:

- Damien O'Bid (707) 576-2552
- Stephen Bargsten (707) 576-2653
- Susan Warner (707) 576-2697

Glossary

1,2-DICHLOROETHANE (1,2-DCA): A volatile organic compound used as a solvent and gasoline additive.

1,2-DICHLOROETHYLENE (1,2-DCE): Typically found in groundwater as the product of the biological breakdown of TCE or PCE.

BENZENE: A petroleum derivative and widely used solvent in the chemical industry. Benzene evaporates and is readily absorbed by breathing, ingestion, or contact with the skin. Benzene is listed as a cancer-causing chemical under Proposition 65.

CLEAN UP AND ABATEMENT ORDER: An order issued by the Regional Water Board to a responsible party to stop and abate any discharge of waste, or stop any potential discharge of waste, that can impact surface waters or groundwater.

FREON® 12: A refrigerant that was commonly used in refrigerators and was also used a solvent. Freon® 12 is generally absorbed by inhalation. Due to concerns about depletion of the earth's ozone layer, this chemical is now only used in very limited applications in the United States.

GROUNDWATER: Water beneath the earth's surface that flows through soil and rock openings and often serves as a drinking water source through wells.

HALOGENATED VOLATILE ORGANIC COMPOUNDS (HVOCs): Compounds that include solvents and which readily evaporate. HVOCs are part of a group of chemicals that are typically used for parts cleaning, in the dry cleaning industry, and various manufacturing industries.

HYDROGEOLOGY: The scientific study of the interaction of water and soils and geologic materials.

MONITORING WELLS: Wells designed and constructed specifically for water quality testing and evaluation of groundwater contamination.

METHYL TERTIARY BUTYL ETHER (MtBE): An oxygenating compound added to gasoline. MtBE moves through soil and groundwater more rapidly and a longer distance than other substances in gasoline. MtBE is a gasoline additive first used sporadically in the late 1970's as an octane booster and more recently used extensively in California to meet clean air requirements.

PETROLEUM HYDROCARBONS: Organic compounds derived from oil, such as gasoline, diesel, motor oils, waste oil, and their fractions, such as benzene.

PRIMARY MAXIMUM CONTAMINANT LEVEL (MCL): Primary MCLs are drinking water standards adopted by the California Department of Health Services (DHS). An MCL is the result of "risk management" determinations that take into account not only the human health risk assessment, but also factors such as the chemical's detectability and treatability, as well as the costs of treatment. DHS is required by Health and Safety Code §116365(a) to establish a contaminant's MCL at a level as close as is technically and economically feasible to the level that has shown no adverse health effects, placing primary emphasis on the protection of public health.

PROPOSITION 65: In November 1986, California voters approved an initiative to address growing concerns about exposures to toxic chemicals. That initiative became The Safe Drinking Water and Toxic Enforcement Act of 1986, better known by its original name: Proposition 65. Proposition 65 requires the Governor to publish a list of chemicals that are known to the State of California to cause cancer, birth defects, or other reproductive harm. This list must be updated at least once a year.

RESPONSIBLE PARTIES: Individuals or corporate entities that are considered legally liable for contamination found on a property and, therefore, responsible for cleanup of the contamination. Unless they have contributed to the contamination, homeowners are not held responsible for contamination on their property.

SECONDARY MAXIMUM CONTAMINANT LEVEL (MCL): Secondary MCLS are established by the California Department of Health Services for a number of chemicals, characteristics or constituents and address taste, odor, or appearance of drinking water.

SOIL GAS: Gas in the spaces between soil particles. This gas can be from liquid contaminants in the soil or groundwater.

SOLVENTS: Toxic substances capable of dissolving other substances to form a solution. Solvents are used for dry cleaning, paints, varnishes, lacquers, industrial cleaners, printing inks, parts cleaning, and other purposes.

STATE SUPERFUND: A financial account used to pay for cleanup of hazardous waste sites in the State of California.

TETRACHLOROETHYLENE (PCE): A volatile organic compound often used as an industrial degreasing agent and a dry cleaning agent. Also known as Perc.

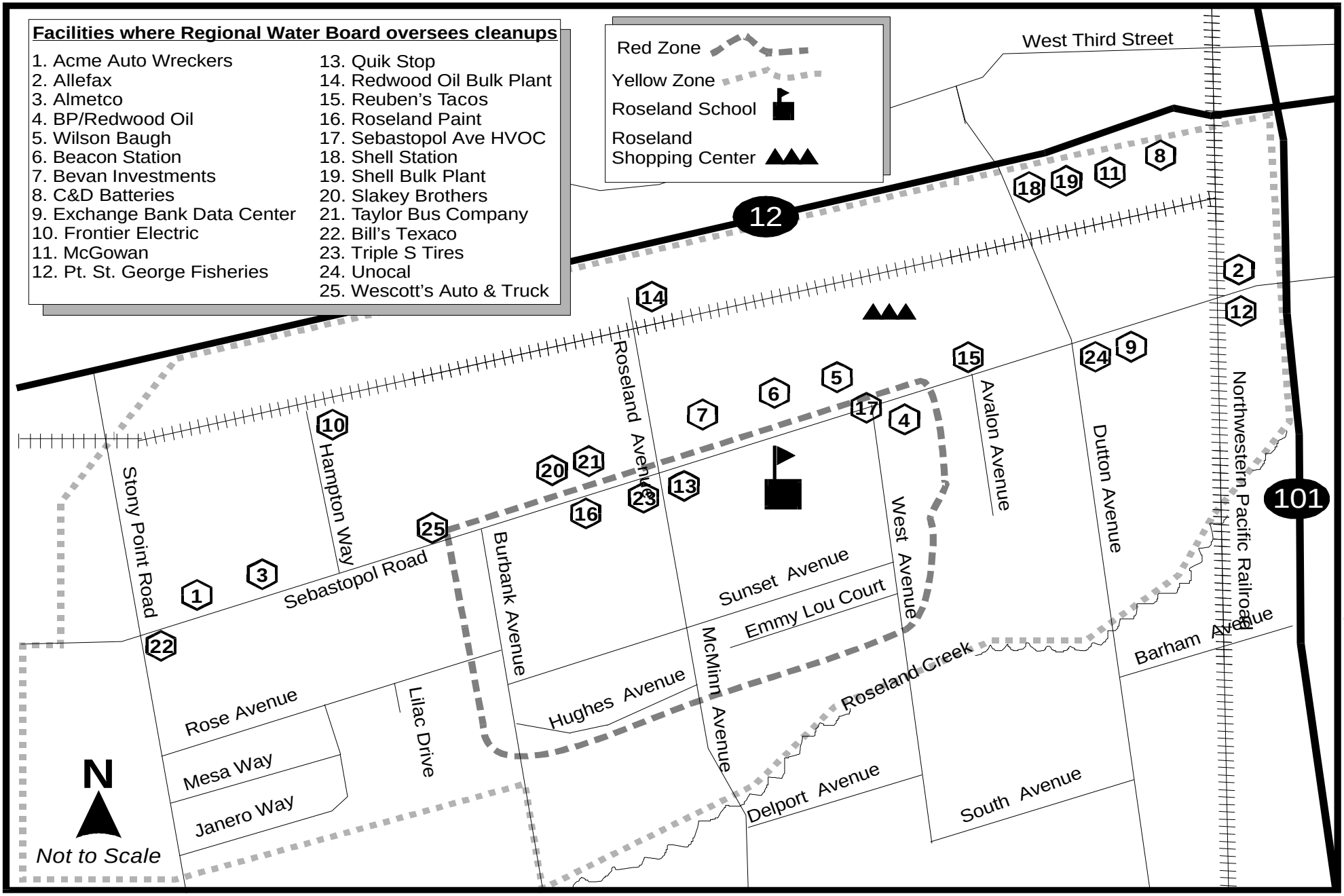
TRICHLOROETHYLENE (TCE): A volatile organic compound often used as an industrial degreasing agent and a dry cleaning agent.

VINYL CHLORIDE: A volatile organic compound widely used in the plastics industry, and also may form in soil and water as a breakdown product of solvents. It is listed as a cancer-causing compound under Proposition 65.

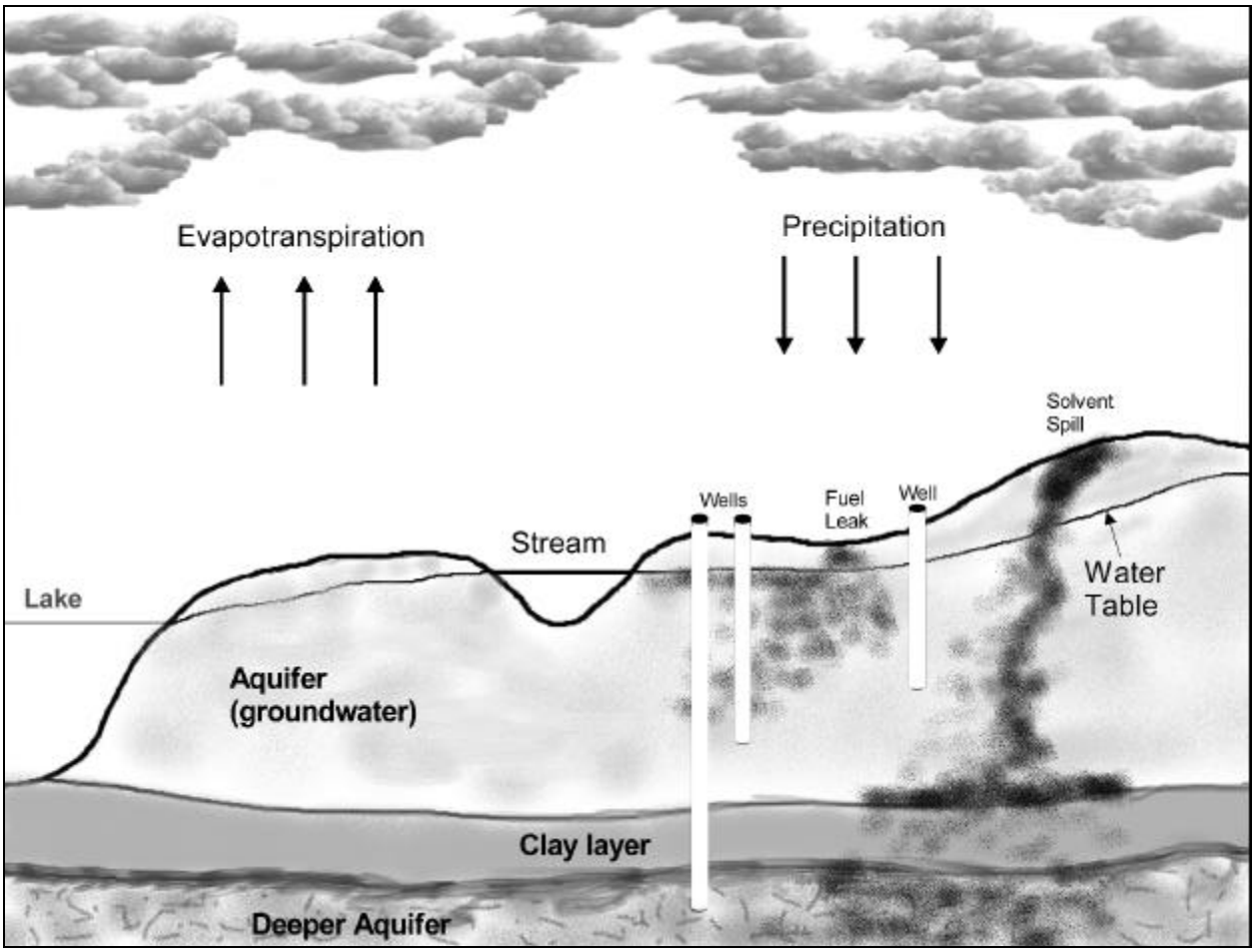
VOLATILE: A description used for substances that readily evaporate at normal temperature and pressure.

WATER TABLE: In a shallow groundwater zone, the water table is the depth at which free water is first encountered in a monitoring well.

Location of the Red and Yellow Zones and Active Cleanup Sites



Hydrologic Cycle



Time to restore aquifer for drinking water use:

Petroleum Hydrocarbons ..... Decades
(Without cleanup)

Petroleum Hydrocarbons ..... A few years
(With removal of leaked fuel and highly contaminated soils)

Solvents ..... Centuries
(Without cleanup)

Solvents ..... Decades to centuries
(With removal of leaked *solvents* and highly contaminated soils)

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Information Repositories

The Regional Water Board repository houses the most up-to-date, specific information on individual sites and other information related to the overall McMinn Avenue Site. Other repositories primarily contain important reports and documents related to the McMinn Avenue Site Investigation and Community Outreach.

Repositories	Hours	
Regional Water Board 5550 Skylane Boulevard, Suite A Santa Rosa, CA 95403 (707) 576-2220 *Space is limited,* *call for an appointment*	Monday: Tuesday: Wednesday: Thursday: Friday: Sat./Sun.:	1:30 p.m. – 4:30 p.m. 8:30 a.m. – 11:30 am **and** 1:30 p.m. – 4:30 p.m. 8:30 a.m. – 11:30 am **and** 1:30 p.m. – 4:30 p.m. 8:30 a.m. – 11:30 am **and** 1:30 p.m. – 4:30 p.m. 8:30 a.m. – 11:30 a.m. Closed
People for Economic Opportunity 555 Sebastopol Road, Suite A Santa Rosa, CA 95407 (707) 544-6911 *No appointment needed.*	Monday: Tuesday: Wednesday: Thursday: Friday: Sat./Sun.:	8:30 a.m. – 5:00 p.m. 8:30 a.m. – 5:00 p.m. 8:30 a.m. – 5:00 p.m. 8:30 a.m. – 5:00 p.m. 8:30 a.m. – 5:00 p.m. Closed
Sonoma County Public Library Third and E Streets Santa Rosa, California (707) 545-0831 *No appointment needed.*	Monday: Tuesday: Wednesday: Thursday: Friday: Saturday: Sunday:	12:00 p.m. – 9:00 p.m. 9:30 a.m. – 6:00 p.m. 9:30 a.m. – 9:00 p.m. 9:30 a.m. – 6:00 p.m. 9:30 a.m. – 6:00 p.m. 9:30 a.m. – 6:00 p.m. 2:00 p.m. – 6:00 p.m.

NCRWQCB
5550 Skylane Boulevard, Suite A
Santa Rosa, CA 95403

APPENDIX F
Laboratory Reports

McCampbell Analytical, Inc.
"When Quality Counts"

1534 Willow Pass Road, Pittsburg, CA 94565-1701
Web: www.mccampbell.com E-mail: main@mccampbell.com
Telephone: 877-252-9262 Fax: 925-252-9269

ECON	Client Project ID: 1400 Burbank	Date Sampled: 02/11/10
		Date Received: 02/12/10
241 South Main Street	Client Contact: Andy Rodgers	Date Reported: 02/16/10
Sebastopol, CA 95472	Client P.O.:	Date Completed: 02/16/10

WorkOrder: 1002353

February 16, 2010

Dear Andy:

Enclosed within are:

1) The results of the **1** analyzed sample from your project: **1400 Burbank,**
2) A QC report for the above sample,
3) A copy of the chain of custody, and
4) An invoice for analytical services.

All analyses were completed satisfactorily and all QC samples were found to be within our control limits.

If you have any questions or concerns, please feel free to give me a call. Thank you for choosing

McCampbell Analytical Laboratories for your analytical needs.

Best regards,

Angela Rydelius
Laboratory Manager
McCampbell Analytical, Inc.

1002353

McCAMPBELL ANALYTICAL, INC.

110 2nd AVENUE SOUTH, #D7
PACHECO, CA 94553-5560
Website: www.mccampbell.com Email: main@mccampbell.com
Telephone: (925) 798-1620 Fax: (925) 798-1622

RUSH

CHAIN OF CUSTODY RECORD

TURN AROUND TIME ☐ RUSH ☐ 24 HR ☑ 48 HR ☐ 72 HR ☐ 5 DAY

EDF Required? Coelt (Normal) No Write On (DW) No

Report To: Andy Rodgers	Bill To: Same
Company: ECON	
241 S. Main St.	
Sebastopol, CA 95472	E-Mail: andy@econca.com
Tele: (707) 823-2324	Fax: ( )
Project #:	Project Name: 1400 Burbank
Project Location: Santa Rosa	
Sampler Signature:	

SAMPLE ID (Field Point Name)	LOCATION	SAMPLING Date	SAMPLING Time	# Containers	Type Containers	MATRIX Water	Soil	Air	Sludge	Other	METHOD PRESERVED ICE	HCL	HNO_3	Other
DW-1		2-11-10	14:30	4	VOA	X					X	X		
DW-1		"	"	1	L	X					X			
DW-1		"	"	1	pl	X					X			

Analysis Request

MTBE / BTEX & TPH as Gas (602 / 8021 + 8015)	MTBE / BTEX ONLY (EPA 602 / 8021)	TPH as Diesel / Motor Oil (8015)	Total Petroleum Oil & Grease (1664 / 5520 E/B&F)	Total Petroleum Hydrocarbons (418.1)	EPA 502.2 / 601 / 8010 / 8021 (HVOCs)	EPA 505/ 608 / 8081 (Cl Pesticides)	EPA 608 / 8082 PCB's ONLY; Aroclors / Congeners	EPA 507 / 8141 (NP Pesticides)	EPA 515 / 8151 (Acidic Cl Herbicides)	EPA 524.2 / 624 / 8260 (VOCs)	EPA 525.2 / 625 / 8270 (SVOCs)	EPA 8270 SIM / 8310 (PAHs / PNAs)	CAM 17 Metals (200.7 / 200.8 / 6010 / 6020)	LUFT 5 Metals (200.7 / 200.8 / 6010 / 6020)	Lead (200.7 / 200.8 / 6010 / 6020)	Other	Comments
X										X							Filter Samples for Metals analysis: Yes / No
		X															extra water

Relinquished By:	Date:	Time:	Received By:
	2-12-10	13:48	
Relinquished By:	Date:	Time:	Received By:
	2/12/10	400	02/12/10 4:00PM
Relinquished By:	Date:	Time:	Received By:

ICE/t° 1C 52.8 oc
GOOD CONDITION ✓
HEAD SPACE ABSENT NA
DECHLORINATED IN LAB NA
APPROPRIATE CONTAINERS ✓
PRESERVED IN LAB NA

	VOAS	O&G	METALS	OTHER
PRESERVATION			pH<2	

COMMENTS:

McCampbell Analytical, Inc.
1534 Willow Pass Rd
Pittsburg, CA 94565-1701
(925) 252-9262

CHAIN-OF-CUSTODY RECORD

WorkOrder: 1002353 **ClientCode: ECON**

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☐ Fax ☑ Email ☑ HardCopy ☐ ThirdParty ☐ J-flag

Report to:
Andy Rodgers
ECON
241 South Main Street
Sebastopol, CA 95472
(707) 789-0262 FAX 707-823-8725

Email: andy@econca.com, yousef@econca.co
cc:
PO:
ProjectNo: 1400 Burbank

Bill to:
Andy Rodgers
ECON
241 South Main Street
Sebastopol, CA 95472

Requested TAT: 2 days

Date Received: **02/12/2010**
Date Printed: **02/12/2010**

Lab ID	Client ID	Matrix	Collection Date	Hold	Requested Tests (See legend below)											
					1	2	3	4	5	6	7	8	9	10	11	12
1002353-001	DW-1	Water	2/11/2010 14:30	☐	B	A	C									

Test Legend:

1	8260B_W	2	G-MBTEX_W	3	TPH(DMO)_W	4		5	
6		7		8		9		10	
11		12							

Prepared by: Samantha Arbuckle

Comments:

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.

McCampbell Analytical, Inc.
"When Quality Counts"

1534 Willow Pass Road, Pittsburg, CA 94565-1701
Web: www.mccampbell.com E-mail: main@mccampbell.com
Telephone: 877-252-9262 Fax: 925-252-9269

Sample Receipt Checklist

Client Name: **ECON**

Date and Time Received: **2/12/2010 5:55:07 PM**

Project Name: **1400 Burbank**

Checklist completed and reviewed by: Samantha Arbuckle

WorkOrder N°: **1002353** Matrix Water

Carrier: Rob Pringle (MAI Courier)

Chain of Custody (COC) Information

Chain of custody present?	Yes ☑	No ☐
Chain of custody signed when relinquished and received?	Yes ☑	No ☐
Chain of custody agrees with sample labels?	Yes ☑	No ☐
Sample IDs noted by Client on COC?	Yes ☑	No ☐
Date and Time of collection noted by Client on COC?	Yes ☑	No ☐
Sampler's name noted on COC?	Yes ☑	No ☐

Sample Receipt Information

Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	NA ☑
Shipping container/cooler in good condition?	Yes ☑	No ☐	
Samples in proper containers/bottles?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	

Sample Preservation and Hold Time (HT) Information

All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature	Cooler Temp: 2.8°C		NA ☐
Water - VOA vials have zero headspace / no bubbles?	Yes ☑	No ☐	No VOA vials submitted ☐
Sample labels checked for correct preservation?	Yes ☑	No ☐	
Metal - pH acceptable upon receipt (pH<2)?	Yes ☐	No ☐	NA ☑
Samples Received on Ice?	Yes ☑	No ☐	

(Ice Type: WET ICE)

** NOTE: If the "No" box is checked, see comments below.*

Client contacted: Date contacted: Contacted by:

Comments:

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ECON	Client Project ID: 1400 Burbank	Date Sampled: 02/11/10
		Date Received: 02/12/10
241 South Main Street	Client Contact: Andy Rodgers	Date Extracted: 02/16/10
Sebastopol, CA 95472	Client P.O.:	Date Analyzed: 02/16/10

Volatile Organics by P&T and GC/MS (Basic Target List)*

Extraction Method: SW5030B Analytical Method: SW8260B Work Order: 1002353

Lab ID	1002353-001B
Client ID	DW-1
Matrix	Water

Compound	Concentration *	DF	Reporting Limit	Compound	Concentration *	DF	Reporting Limit
Acetone	ND	1.0	10	tert-Amyl methyl ether (TAME)	ND	1.0	0.5
Benzene	ND	1.0	0.5	Bromobenzene	ND	1.0	0.5
Bromochloromethane	ND	1.0	0.5	Bromodichloromethane	ND	1.0	0.5
Bromoform	ND	1.0	0.5	Bromomethane	ND	1.0	0.5
2-Butanone (MEK)	ND	1.0	2.0	t-Butyl alcohol (TBA)	ND	1.0	2.0
n-Butyl benzene	ND	1.0	0.5	sec-Butyl benzene	ND	1.0	0.5
tert-Butyl benzene	ND	1.0	0.5	Carbon Disulfide	ND	1.0	0.5
Carbon Tetrachloride	ND	1.0	0.5	Chlorobenzene	ND	1.0	0.5
Chloroethane	ND	1.0	0.5	Chloroform	ND	1.0	0.5
Chloromethane	ND	1.0	0.5	2-Chlorotoluene	ND	1.0	0.5
4-Chlorotoluene	ND	1.0	0.5	Dibromochloromethane	ND	1.0	0.5
1,2-Dibromo-3-chloropropane	ND	1.0	0.2	1,2-Dibromoethane (EDB)	ND	1.0	0.5
Dibromomethane	ND	1.0	0.5	1,2-Dichlorobenzene	ND	1.0	0.5
1,3-Dichlorobenzene	ND	1.0	0.5	1,4-Dichlorobenzene	ND	1.0	0.5
Dichlorodifluoromethane	ND	1.0	0.5	1,1-Dichloroethane	ND	1.0	0.5
1,2-Dichloroethane (1,2-DCA)	ND	1.0	0.5	1,1-Dichloroethene	ND	1.0	0.5
cis-1,2-Dichloroethene	ND	1.0	0.5	trans-1,2-Dichloroethene	ND	1.0	0.5
1,2-Dichloropropane	ND	1.0	0.5	1,3-Dichloropropane	ND	1.0	0.5
2,2-Dichloropropane	ND	1.0	0.5	1,1-Dichloropropene	ND	1.0	0.5
cis-1,3-Dichloropropene	ND	1.0	0.5	trans-1,3-Dichloropropene	ND	1.0	0.5
Diisopropyl ether (DIPE)	ND	1.0	0.5	Ethylbenzene	ND	1.0	0.5
Ethyl tert-butyl ether (ETBE)	ND	1.0	0.5	Freon 113	ND	1.0	10
Hexachlorobutadiene	ND	1.0	0.5	Hexachloroethane	ND	1.0	0.5
2-Hexanone	ND	1.0	0.5	Isopropylbenzene	ND	1.0	0.5
4-Isopropyl toluene	ND	1.0	0.5	Methyl-t-butyl ether (MTBE)	ND	1.0	0.5
Methylene chloride	ND	1.0	0.5	4-Methyl-2-pentanone (MIBK)	ND	1.0	0.5
Naphthalene	ND	1.0	0.5	n-Propyl benzene	ND	1.0	0.5
Styrene	ND	1.0	0.5	1,1,1,2-Tetrachloroethane	ND	1.0	0.5
1,1,2,2-Tetrachloroethane	ND	1.0	0.5	Tetrachloroethene	ND	1.0	0.5
Toluene	ND	1.0	0.5	1,2,3-Trichlorobenzene	ND	1.0	0.5
1,2,4-Trichlorobenzene	ND	1.0	0.5	1,1,1-Trichloroethane	ND	1.0	0.5
1,1,2-Trichloroethane	ND	1.0	0.5	Trichloroethene	ND	1.0	0.5
Trichlorofluoromethane	ND	1.0	0.5	1,2,3-Trichloropropane	ND	1.0	0.5
1,2,4-Trimethylbenzene	ND	1.0	0.5	1,3,5-Trimethylbenzene	ND	1.0	0.5
Vinyl Chloride	ND	1.0	0.5	Xylenes	ND	1.0	0.5

Surrogate Recoveries (%)

%SS1:	108	%SS2:	113
%SS3:	86		

Comments:

* water and vapor samples are reported in µg/L, soil/sludge/solid samples in mg/kg, product/oil/non-aqueous liquid samples and all TCLP & SPLP extracts are reported in mg/L, wipe samples in µg/wipe.

ND means not detected above the reporting limit/method detection limit; N/A means analyte not applicable to this analysis.

surrogate diluted out of range or coelutes with another peak; &) low surrogate due to matrix interference.

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ECON	Client Project ID: 1400 Burbank	Date Sampled: 02/11/10
		Date Received: 02/12/10
241 South Main Street	Client Contact: Andy Rodgers	Date Extracted: 02/16/10
Sebastopol, CA 95472	Client P.O.:	Date Analyzed: 02/16/10

Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline with BTEX and MTBE*

Extraction method: SW5030B Analytical methods: SW8021B/8015Bm Work Order: 1002353

Lab ID	Client ID	Matrix	TPH(g)	MTBE	Benzene	Toluene	Ethylbenzene	Xylenes	DF	% SS	Comments
001A	DW-1	W	ND	ND	ND	ND	ND	ND	1	97	

Reporting Limit for DF =1; ND means not detected at or above the reporting limit	W	50	5.0	0.5	0.5	0.5	0.5	µg/L
	S	1.0	0.05	0.005	0.005	0.005	0.005	mg/Kg

* water and vapor samples are reported in ug/L, soil/sludge/solid samples in mg/kg, wipe samples in µg/wipe, product/oil/non-aqueous liquid samples and all TCLP & SPLP extracts in mg/L.

cluttered chromatogram; sample peak coelutes w/surrogate peak; low surrogate recovery due to matrix interference.

+The following descriptions of the TPH chromatogram are cursory in nature and McCampbell Analytical is not responsible for their interpretation:

DHS ELAP Certification 1644

Angela Rydelius, Lab Manager

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ECON	Client Project ID: 1400 Burbank	Date Sampled: 02/11/10
		Date Received: 02/12/10
241 South Main Street	Client Contact: Andy Rodgers	Date Extracted: 02/12/10
Sebastopol, CA 95472	Client P.O.:	Date Analyzed: 02/13/10

Total Extractable Petroleum Hydrocarbons*

Extraction method: SW3510C Analytical methods: SW8015B Work Order: 1002353

Lab ID	Client ID	Matrix	TPH-Diesel (C10-C23)	TPH-Motor Oil (C18-C36)	DF	% SS	Comments
1002353-001C	DW-1	W	ND	ND	1	97	

Reporting Limit for DF =1; ND means not detected at or above the reporting limit	W	50	250	µg/L
	S	NA	NA	mg/Kg

* water samples are reported in µg/L, wipe samples in µg/wipe, soil/solid/sludge samples in mg/kg, product/oil/non-aqueous liquid samples in mg/L, and all DISTLC / STLC / SPLP / TCLP extracts are reported in µg/L.

cluttered chromatogram resulting in coeluted surrogate and sample peaks, or; surrogate peak is on elevated baseline, or; surrogate has been diminished by dilution of original extract.

+The following descriptions of the TPH chromatogram are cursory in nature and McCampbell Analytical is not responsible for their interpretation:

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QC SUMMARY REPORT FOR SW8260B

W.O. Sample Matrix: Water QC Matrix: Water BatchID: 48675 WorkOrder 1002353

EPA Method SW8260B **Extraction SW5030B** **Spiked Sample ID: 1002353-001B**

Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	µg/L	µg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
tert-Amyl methyl ether (TAME)	ND	10	95.3	97.5	2.30	82.4	86.9	5.25	70 - 130	30	70 - 130	30
Benzene	ND	10	111	109	1.75	101	102	0.624	70 - 130	30	70 - 130	30
t-Butyl alcohol (TBA)	ND	50	94.3	100	6.12	72.2	80	10.2	70 - 130	30	70 - 130	30
Chlorobenzene	ND	10	115	113	1.80	107	105	1.90	70 - 130	30	70 - 130	30
1,2-Dibromoethane (EDB)	ND	10	113	113	0	99.4	102	2.83	70 - 130	30	70 - 130	30
1,2-Dichloroethane (1,2-DCA)	ND	10	109	108	0.445	93.8	96.1	2.34	70 - 130	30	70 - 130	30
1,1-Dichloroethene	ND	10	121	117	3.12	113	112	0.560	70 - 130	30	70 - 130	30
Diisopropyl ether (DIPE)	ND	10	118	117	0.176	102	105	3.25	70 - 130	30	70 - 130	30
Ethyl tert-butyl ether (ETBE)	ND	10	103	104	0.803	89.7	92.7	3.29	70 - 130	30	70 - 130	30
Methyl-t-butyl ether (MTBE)	ND	10	109	109	0	90.9	94	3.35	70 - 130	30	70 - 130	30
Toluene	ND	10	107	104	2.57	99.5	97.5	2.05	70 - 130	30	70 - 130	30
Trichloroethene	ND	10	123	119	3.78	113	112	0.887	70 - 130	30	70 - 130	30
%SS1:	108	25	110	108	1.02	106	105	0.174	70 - 130	30	70 - 130	30
%SS2:	113	25	113	113	0	115	114	0.684	70 - 130	30	70 - 130	30
%SS3:	86	2.5	89	90	0.645	93	91	2.27	70 - 130	30	70 - 130	30

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 48675 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
1002353-001B	02/11/10 2:30 PM	02/16/10	02/16/10 2:59 PM				

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

surrogate diluted out of range or coelutes with another peak; &) low surrogate due to matrix interference.

Laboratory extraction solvents such as methylene chloride and acetone may occasionally appear in the method blank at low levels.

DHS ELAP Certification 1644

QA/QC Officer

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QC SUMMARY REPORT FOR SW8021B/8015Bm

W.O. Sample Matrix: Water QC Matrix: Water BatchID: 48504 WorkOrder 1002353

EPA Method SW8021B/8015Bm **Extraction SW5030B** **Spiked Sample ID: 1002129-001A**

Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	µg/L	µg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
TPH(btex)£	ND	60	97.5	109	11.2	111	109	1.65	70 - 130	20	70 - 130	20
MTBE	ND	10	101	107	5.91	121	118	2.73	70 - 130	20	70 - 130	20
Benzene	ND	10	94.7	96.3	1.66	111	107	3.25	70 - 130	20	70 - 130	20
Toluene	ND	10	94.6	95.7	1.11	99.1	95.3	3.85	70 - 130	20	70 - 130	20
Ethylbenzene	ND	10	92.7	93.8	1.23	99.3	95.7	3.66	70 - 130	20	70 - 130	20
Xylenes	ND	30	95.7	96.8	1.13	113	109	3.45	70 - 130	20	70 - 130	20
%SS:	99	10	99	98	0.172	100	99	0.935	70 - 130	20	70 - 130	20

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 48504 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
1002353-001A	02/11/10 2:30 PM	02/16/10	02/16/10 1:27 PM				

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

£ TPH(btex) = sum of BTEX areas from the FID.

cluttered chromatogram; sample peak coelutes with surrogate peak.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.

NR = matrix interference and/or analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content, or inconsistency in sample containers.

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QC SUMMARY REPORT FOR SW8015B

W.O. Sample Matrix: Water QC Matrix: Water BatchID: 48503 WorkOrder 1002353

EPA Method SW8015B **Extraction SW3510C** **Spiked Sample ID: N/A**

Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	µg/L	µg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
TPH-Diesel (C10-C23)	N/A	1000	N/A	N/A	N/A	93.8	93.8	0	N/A	N/A	70 - 130	30
%SS:	N/A	625	N/A	N/A	N/A	96	96	0	N/A	N/A	70 - 130	30

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 48503 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
1002353-001C	02/11/10 2:30 PM	02/12/10	02/13/10 12:54 AM				

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.