



# **LOCAL AGENCY MANAGEMENT PROGRAM**

**For  
City of Redlands**

Approved by RWQCB: 10/25/2019

Effective: 7/16/2020

Submitted for review to the RWQCB on January 9, 2018

**For Onsite Wastewater  
Treatment System**



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## Table of Contents

Section 1 .....	1
Introduction .....	1
Restricted Sewer Access Areas .....	3
Access to Existing Sewer Lines .....	3
Natural Restrictions .....	5
Restricted Areas for Onsite Wastewater Treatment System.....	5
Preserves and Parks .....	5
Public Water Wells.....	7
Waterbodies.....	7
LAMP Standards, Applicability, Requirements and Exceptions.....	10
Applicability of Program Standards .....	10
Requirements.....	10
Exceptions .....	11
Contacts .....	12
Section 2.....	13
Involved Departments .....	13
Building and Safety (Development Services Division).....	13
Engineering (Municipal Utilities and Engineering Department).....	14
Planning (Development Services Division) .....	14
Code Enforcement, National Pollutant Discharge Elimination System Inspectors (N.P.D.E.S.).....	14
OWTS Approval Process .....	15
Section 3.....	17
Minimum Site Evaluation Standards.....	17
Site Evaluation .....	17
Percolation Testing Notification.....	17
Percolation Testing.....	18



Seepage Pits.....	18
Evaluation Methods.....	18
Parcel Features .....	19
Soil Profile.....	19
Exploratory Borings .....	19
Boring and Trenching Results .....	20
Minimum Qualifications and Certification for OWTS Practitioners .....	22
Section 4.....	23
Plot and Grading Requirements.....	23
Plot Plans .....	23
Grading Plans .....	23
Section 5.....	25
Setback Requirements .....	25
Minimum Setback Requirements .....	25
OWTS Located Near Municipal and/or Domestic Water Systems .....	27
Horizontal Sanitary Setbacks for Municipal Wells .....	29
Notifying Water System Owners and the Division of Drinking Water.....	29
Density/Minimum Lot Size Requirements .....	30
New Developments .....	30
Lot Size Requirements .....	30
Commercial/Industrial Development Requirements .....	31
Tracts, Parcels, and Commercial/Industrial Developments.....	31
City Discretion .....	31
Minimum Lot Size Exemptions.....	32
Combined Lots Smaller than One Half Acre.....	32
Replacements.....	32
Section 6.....	33
Topography Consideration .....	33
Minimum Requirements for Natural Ground Slope and Percolation Rates .....	33
Natural Ground Slope.....	33



Special Considerations for Absorption Field Placement on Sloping Ground .....	34
Disposal Area Percolation Rates .....	34
Groundwater Protection.....	34
Requirement Exception .....	35
OWTS Certification.....	35
When is an OWTS Certification required?.....	36
Section 7.....	37
OWTS Design .....	37
Maximum Allowable Flow Commercial/Industrial Developments .....	37
Soil Depth.....	37
Leach line Percolation Rates .....	38
Seepage Pit Rates .....	38
Minimum Allowable Replacement Area.....	38
Pump Systems .....	38
Leach Line Dispersal Systems.....	39
Oxygen Transfer in Dispersal Systems and/or Replacement Areas .....	39
Septic Tank Requirements.....	39
Septic Tank Capacity – Single Family Residences .....	39
Septic Tank Capacity – Multi-Unit Residences and Non-Residential Facilities .....	42
Prohibitions and Exemptions.....	43
OWTS Prohibitions .....	43
Requesting Exemptions in Prohibition Areas.....	44
Special Considerations .....	44
Geological Factors.....	45
Groundwater Conditions .....	45
Designated Maintenance Areas are Tier 3 Areas of Special Concern.....	45
Domestic Well Usage.....	45
Prohibited Discharge Conditions for Septic Tank Systems.....	46
Surface Water Quality Protection.....	46
Watersheds .....	46



Impaired Water Bodies.....	46
Special Circumstances.....	46
Tier 4 Classified OWTS.....	47
Tier 4 Replacement.....	47
OWTS Requiring Corrective Action.....	47
Addressing Corrective Action Requirements.....	48
Failure to Address Corrective Action Requirements.....	48
Section 8.....	49
Supplemental Treatment and Alternative Dispersal Systems and Sewage Holding Tanks.....	49
Alternative Onsite Supplemental Treatment and Alternative Dispersal Systems.....	49
Types of Supplemental Treatment Systems and Alternative Dispersal Systems.....	49
Wastewater Sample Requirements for Supplemental Treatment Systems.....	50
Supplemental Treatment System and Alternative Dispersal System Requirements.....	50
Supplemental Treatment System Proposals.....	51
Plot Plan Requirements.....	51
When a Supplemental Treatment System or Alternative Dispersal System is Installed...	51
Owner Resources.....	51
Additional Requirements for Supplemental Treatment Systems.....	51
Supplemental Treatment System Submittal.....	52
Sewage Holding Tanks.....	53
When to Allow for Sewage Holding Tanks.....	53
Sewage Holding Tank Requirements.....	53
Requirements When Properties with Sewage Holding Tanks Are Sold.....	54
Sewage Holding Tank Agreements.....	54
Advanced Protection Management Program.....	54
Total Maximum Daily Load.....	54
Total Maximum Daily Load Calculation.....	55
Geographic Area for Advanced Protection Management Program.....	55
Total Maximum Daily Loads for Impaired Waterbodies.....	55
Total Maximum Daily Load Completion Dates.....	56



OWTS Without an Adopted TMDL Implementation Plan.....	56
Requirements for OWTS.....	56
OWTS Located Near Water Bodies Impaired for Pathogens.....	57
OWTS Installed Within an APMP.....	57
Testing and Inspection of Wastewater Within an APMP.....	57
Section 9.....	59
Monitoring and Inspections.....	59
Onsite Inspections and Monitoring.....	59
OWTS Monitoring Requirements.....	59
Monitoring Elements for Alternate OWTS.....	59
Monitoring Frequency for Alternate OWTS.....	60
Monitoring Responsibility for Alternate OWTS.....	60
Reporting for Alternate OWTS.....	60
New OWTS.....	61
Required Onsite Inspection.....	61
OWTS in Designated Maintenance Area (DMA).....	61
Sewage Holding Tanks.....	61
Supplemental Treatment Systems.....	62
Variances.....	62
Above Surface Discharge.....	62
Sewer Availability.....	62
Sewer Requirement.....	63
Ground Slope.....	63
Leaching Areas.....	63
Supplemental Treatment.....	63
Depth to Groundwater.....	63
Recreational Vehicle (RV) Holding Tanks.....	64
Minimum Horizontal Setbacks.....	64
Setbacks Determined by Depth.....	64
Dispersal Systems Near Surface Water Intake Points.....	64



OWTS within Required Setbacks of a Public Water Supply .....	65
Replacement OWTS Not Meeting Horizontal Setback Requirements .....	65
Separation Requirements for OWTS Pre-existing the Program .....	65
Site Assessment .....	66
Cesspool Elimination.....	66
Public Education.....	66
Section 10.....	67
Reporting Requirements and Data Collection.....	67
Reporting to the Santa Ana Regional Water Quality Control Board.....	67
Septage Management.....	67
OWTS Water Quality Assessment Program (WQAP).....	69
Local Agency Management Plan Assessment.....	69
Section 11 .....	70
Tier Descriptions .....	70
Tier 0 .....	70
Tier 1 .....	70
Tier 2 .....	71
Tier 3 .....	71
Advanced Protection Management Program.....	71
Tier 4 .....	72
Corrective Action for OWTS .....	72
OWTS Requiring Corrective Action .....	72
Glossary.....	73
Appendix A .....	83
Appendix B.....	88
Forms.....	88
Appendix C.....	100
Ordinance to Adopt Lamp .....	100
Appendix D .....	101
Index to Maps.....	101





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## Section 1

### **Introduction**

The Local Agency Management Program (LAMP) is the result of Assembly Bill 885, which was approved by the California State Assembly on September 27, 2000. This legislation directed the State Water Resources Control Board (SWRCB) to develop regulations and standards for Onsite Wastewater Treatment Systems (OWTS). This action allowed qualified local agencies to implement a process by which they were permitted to approve OWTS, based on local ordinances. The process by which this action was allowed is referred to the Local Agency Management Program or LAMP for short. Approval of the LAMP is required from the Santa Ana Regional Water Quality Control Board (RWQCB) prior to it being implemented by the local agencies.

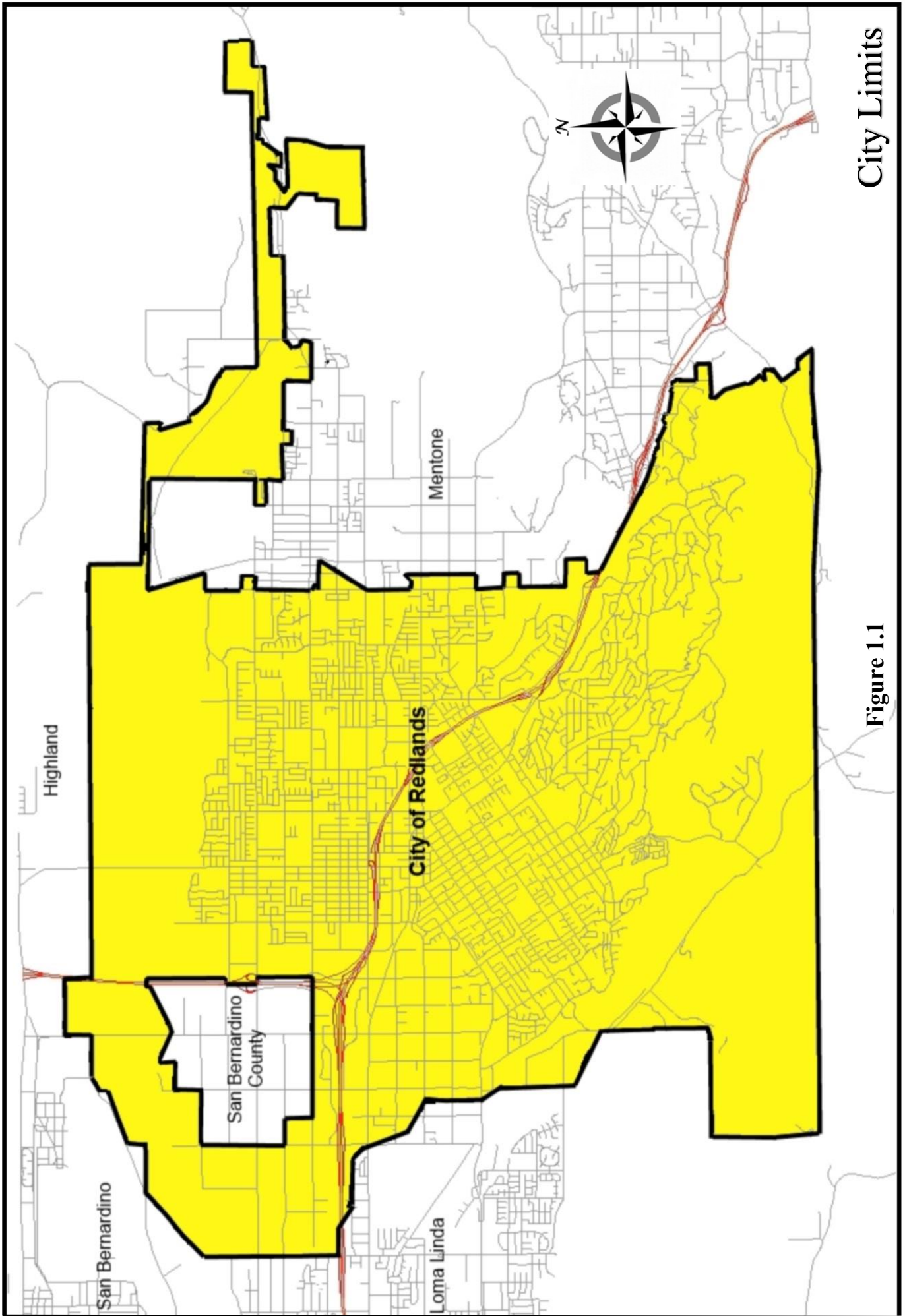
Assembly Bill 885 categorized OWTS into the following tiers:

**Table 1.1 – Tier List**

<b>Tier</b>	<b>Description</b>
0	Applies to all existing systems that function properly, do not meet the conditions of a failing system, and are not contributing to pollution of any waterways.
1	Applies to all new and/or replacement OWTS which meet low risk siting and design requirements in areas which do not have an approved LAMP as specified in Tier 2.
2	Applies to any new and/or replacement OWTS which do not fall into the Tier 3 adjacent to impaired waterways, or in prohibition areas category. This tier is referred to as the LAMP and allows the City to apply standards that differ from the State.
3	Describes all systems currently located within areas denoted as impaired waterways. These systems have been identified as potential sources of pollution, and need to abide by the Advanced Protection Management Program prescribed in Tier 3 of the OWTS Policy.
4	A temporary classification for all systems that have been found to be failing, and/or needing repair. Once the system has been repaired, it will be placed in either Tier 0, Tier 2, or Tier 3.

The purpose of the LAMP is to allow the continued use of OWTS and to expand the local program to permit and regulate alternative OWTS while protecting water quality and public health through the proper design, placement, installation, maintenance, and assessment of individual OWTS within the jurisdiction of the City of Redlands. See Figure 1.1.

Requirements for OWTS necessitate flexibility due to the diversity of soil conditions, depth to groundwater, climates, and population.



City Limits

Figure 1.1



This plan develops minimum standards for the treatment and ultimate disposal of sewage using OWTS in the City of Redlands. The General Plan and City Ordinances provide for the lawful development of privately owned property within the City of Redlands. As the City has grown, available lots meeting the State Water Resources Control Board Minimum Lot Size Requirements (MLSR) and Exemption Criteria under Tier 1 declined. Most of the sites available for development within the city limits are less than the 2 1/2 acres MLSR. The LAMP (Tier 2) would allow for continued development for lots that meet the MLSR of one-half (1/2) acre.

The LAMP does not allow the City to approve any OWTS listed below; these are subject to individual waste discharge requirements or a waiver of individual waste discharge requirements issued by the Santa Ana Regional Water Quality Control Board.

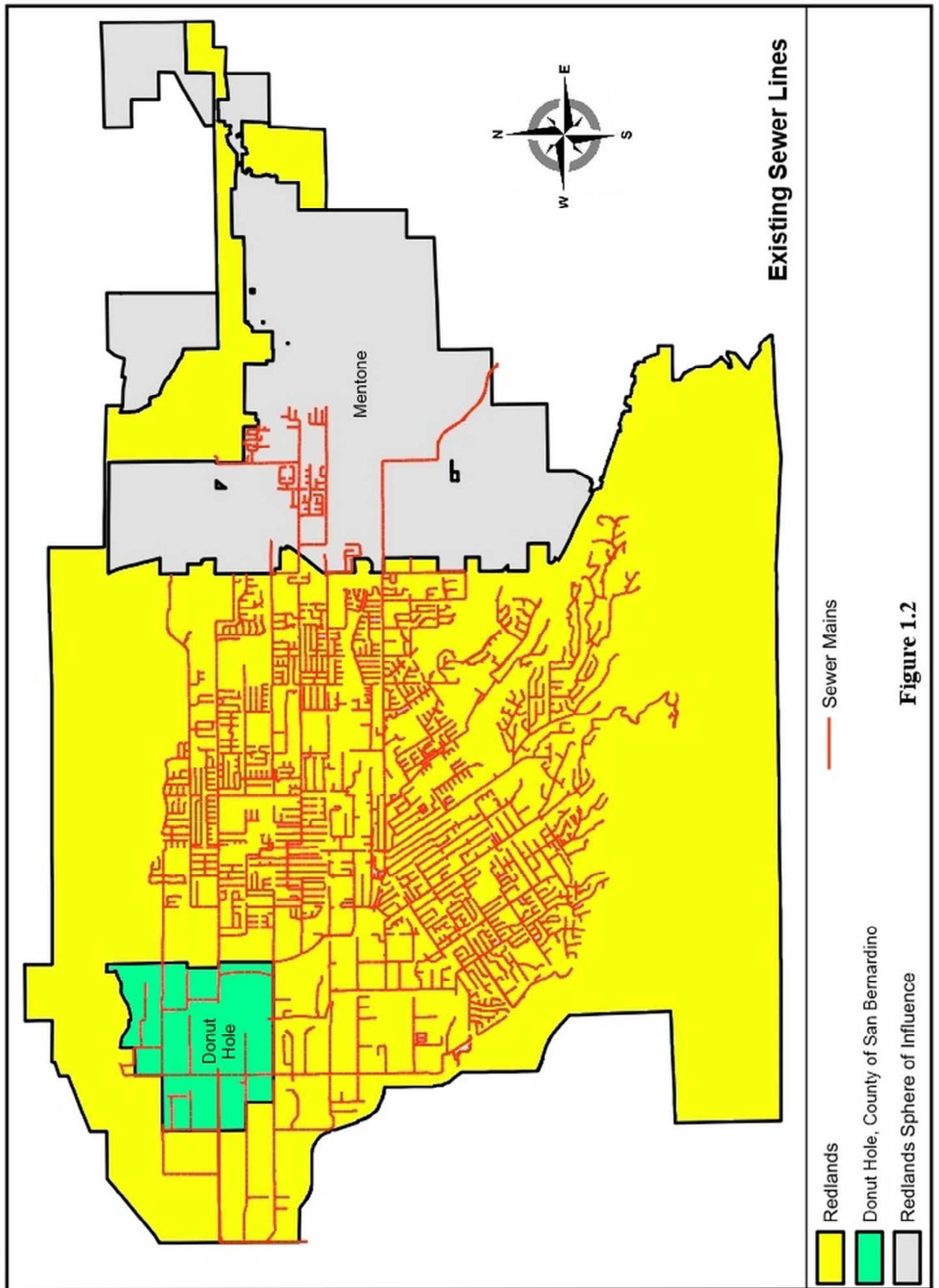
- Any OWTS with a projected wastewater flow of over 10,000 gallons per day.
- Any OWTS that receives high strength wastewater, unless the waste stream is from a commercial food service facility.
- Any OWTS that receives high strength wastewater from a commercial food service facility with a Biological Oxygen Demand higher than 900 mg/l or that does not have a properly sized and functioning oil/grease interceptor.

The City of Redlands has 2361 septic systems permitted prior to May 2018. Of those, 130 are non-residential. The mix of 130 includes office space, religious structures, businesses, and light industrial. Of those 130 septic systems, 27 were for parcels listed as vacant at the time of the survey. The City of Redlands is proposing to adopt the Tier 2 requirements within the Local Agency Management Program. Tier 2 is defined as “Applies to any new and/or replacement OWTS which do not fall into the Tier 3 adjacent to impaired waterways, or in prohibition areas category. This tier is referred to as the LAMP and allows the City to apply standards that differ from the State” (Table 1.1). See Section 11 for details of the Tier criteria.

## **Restricted Sewer Access Areas**

### **Access to Existing Sewer Lines**

The City of Redlands has over 241 miles of sewer line serving the City and also portions of Mentone and the “donut hole” area of San Bernardino County. Mentone is a small community east of Redlands in an unincorporated area of San Bernardino County. The “donut hole” is a portion of San Bernardino County land surrounded entirely by the City of Redlands. Sewer service has been provided in much of the area within the City where development is most likely to occur. Service has also been extended to portions of Mentone. San Timoteo Canyon and the easterly portion of the City south of Interstate 10 is not serviceable from existing lines. The natural barriers in these areas will tend to prohibit any expansion of the sewer system. Figure 1.2 shows the existing sewer system available for use.



**Figure 1.2**



## **Natural Restrictions**

The terrain in Redlands forms several natural barriers that prevent gravity type sewer systems from being exclusively used. Lift stations, backup power supplies, and long force mains are impractical and prohibitively expensive. Any structure on the south side of the crest of the foothills separating Redlands from San Timoteo Canyon cannot reasonably connect to the City's sewer system. To the east of Redlands, a narrowing of the canyon Interstate 10 passes through and Interstate 10 itself prevent the expansion of a gravity sewer in that area. Consequently, those same conditions have limited potential growth in that area. These conditions account for the majority of septic systems being permitted in the south and southeast corner of the City's jurisdiction.

Under the 2017 General Plan, much of foothill and southeasterly areas have been designated for Very Low Density development only. Redlands defines Very Low Density development as 0 to 4 dwelling units per acre. This is a hillside area with limited access. Suitable home sites are rare and limited in size. When combined with a minimum lot size of 0.5 acres per dwelling unit for a septic system, this area is severely restricted for future development. In addition, a substantial portion of the remaining land area is designated as Resource Preservation. These two factors will limit development and the future number of septic systems allowed in the San Timoteo Canyon area.

Figure 1.3 shows the permitted septic systems. They account for only 14.4% of the City's area or about 3,354 acres.

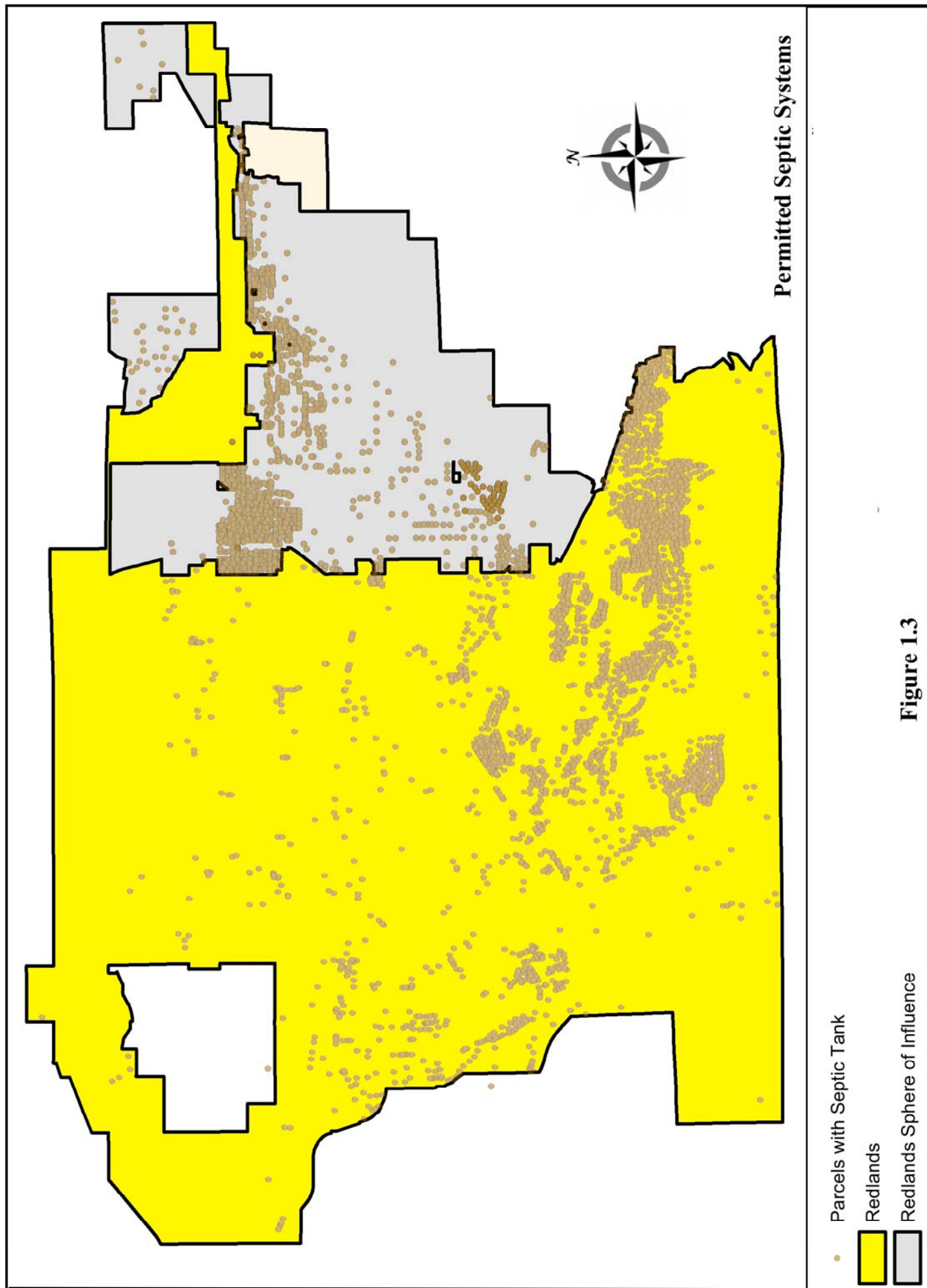
## **Restricted Areas for Onsite Wastewater Treatment System**

### **Preserves and Parks**

As mentioned prior, a combination of the General Plan Requirements and terrain restricts development within San Timoteo Canyon. Hillsides often exceed 30% of slope. Very little level ground is found within the canyon. Numerous minor canyons provide little relief to this condition and act as funnels, collecting runoff from the hillsides and creating local flooding. Soils within the area have proven to be highly erosive. The cost of developing in this area is discouraging and has been mostly single-family homes on single lots.

North of San Timoteo Canyon Road between Alessandro Road and Nevada Street, the westerly City Limit in this area, 200 acres has been dedicated to The San Timoteo Nature Sanctuary. This would preclude any further development in this area. In addition and to a lesser extent, portions near to San Timoteo Creek have also been dedicated to The San Timoteo Nature Preserve. Combined, these two areas severely limit the available area for development in the canyon.

South of the intersection of Creekside Drive and Horse Trail Drive, a City owned 40-acre park has been constructed. This park, called Sunset Hills Park, has been left in a natural state, with some hiking or horseback riding trails. No sewer service is available and as of this date, no septic system is planned for the park.



**Figure 1.3**



At the intersection of Sutherlands Drive and South Lane, a 14.5-acre park owned by the City has been established. Named Oakmont Park, this park, like Sunset Hills Park has been left in a natural state, with some hiking or horseback riding trails. No sewer service is available and as of this date, no septic system is planned for the park.

Next to Oakmont Park and extending to the east City limit is the Herngt ‘Aki’ Preserve. More than 340 acres have been set aside for permanent conservation. No sewer services have been provided.

Immediately south of the Herngt ‘Aki’ Preserve and Live Oak Canyon Road is the Gateway Ranch, a 14-acre site now being established as a regional hub for hikers, cyclists, equestrians, naturalists, ecologists, botanists, and birders for the inland area. This was an existing functioning ranch and had a previously approved septic system. Under the terms of development for this site, no further homes or dwelling may be constructed.

Finally, San Timoteo Creek has been designated as an impaired waterbody, which further restricts the use of OWTS in the canyon. Sections 7 and 8 discuss the impacts of this designation and development is restricted in this area.

Figure 1.4 shows the areas in San Timoteo Canyon where development is restricted, due to topography, parks, and agricultural preserves.

### **Public Water Wells**

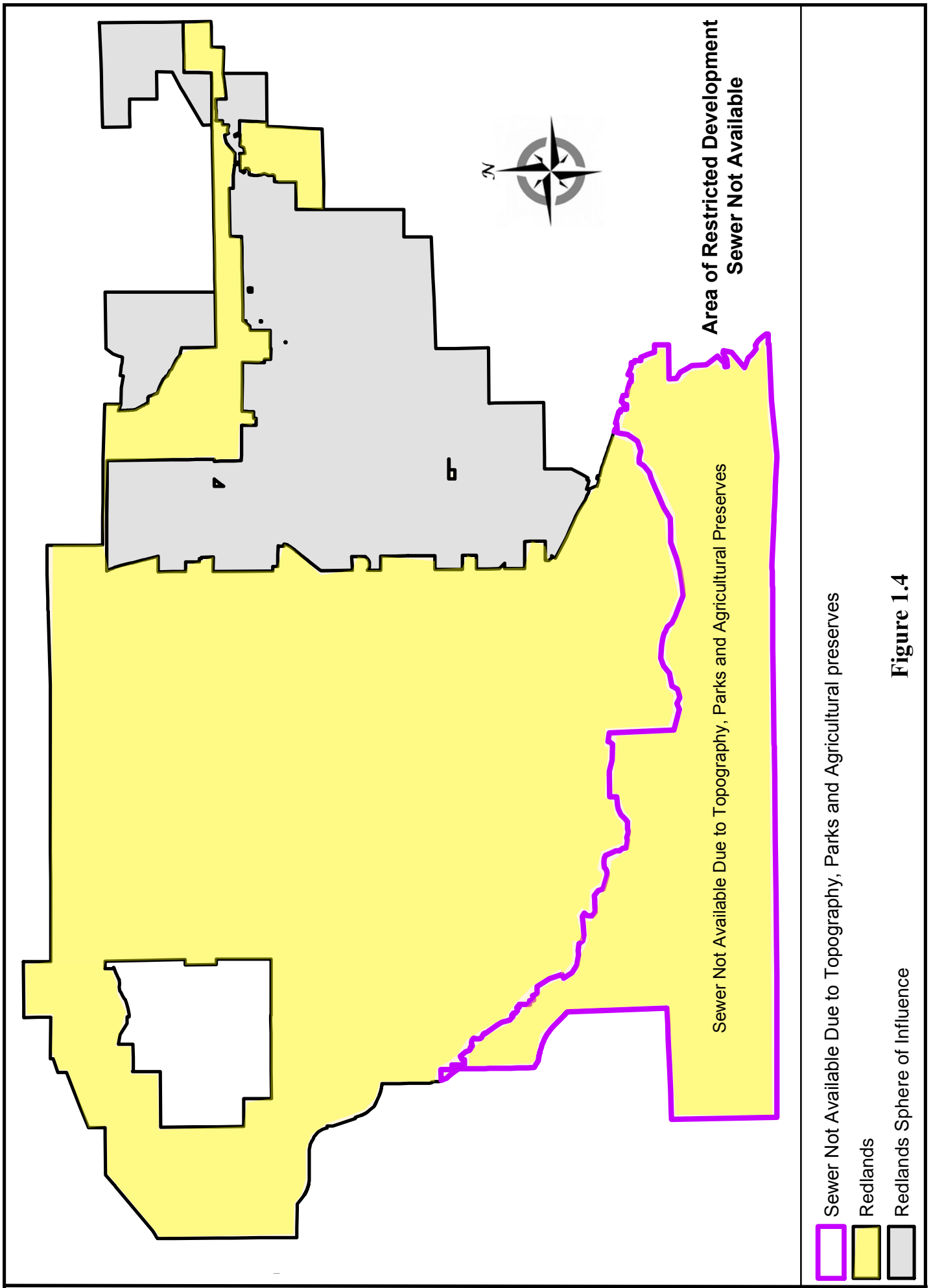
A search of the City’s Geographic Information Systems (GIS) revealed 114 known wells within the City limits. Redlands was once the center of the largest navel orange producing region in the world and the number of wells needed for irrigating citrus is not surprising. Even though citrus farming has been in decline with subdivisions replacing orange groves, approximately 2,500 acres of citrus still remain in production. Many of the wells that no longer irrigate orange groves are used for non-potable irrigation of landscaping.

The City of Redlands owns 15 domestic wells that pump directly into the water system or into reservoirs. The City also receives water from two wells that are owned by the South Mountain Water Company. All of these wells are adequately separated from sewerage facilities.

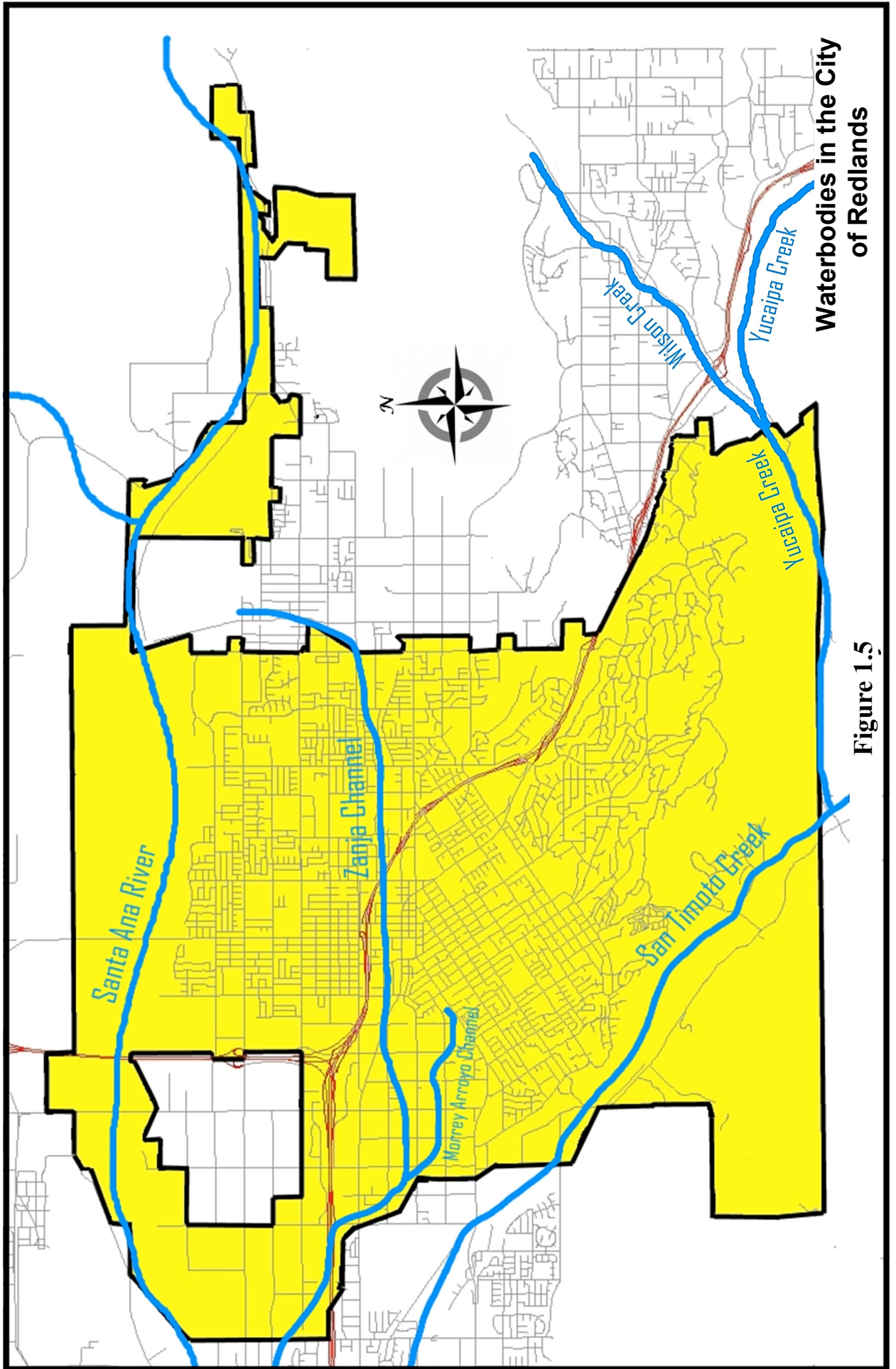
### **Waterbodies**

Redlands is located between the Santa Ana River to the north and south of San Timoteo Creek and Yucaipa Creek. San Timoteo Creek was added to the 2014 and 2016 Integrated Report (303(d)) List, indicating a TMDL (Total Maximum Daily Load) will be required. The remaining waterbodies, including any of the minor ones within City jurisdiction are un-impaired. The Zanja Channel runs more or less through the middle of Redlands and it is un-impaired. Figure 1.5 shows the waterbodies in Redlands.





**Figure 1.4**



**Waterbodies in the City of Redlands**

**Figure 1.5**



## **LAMP Standards, Applicability, Requirements and Exceptions**

The Local Agency Management Program (LAMP) provides minimum standards and requirements for the treatment and disposal of sewage with Onsite Wastewater Treatment Systems (OWTS), to protect water quality, public health and safety, when no connection to a sewer is available. This section describes the minimum standards and requirements for OWTS under the LAMP, as well as detailing the OWTS that are exceptions, and therefore not covered under the LAMP. When public sewer is not available, and if property improvement is expected to generate wastewater, the property owner must demonstrate the following to the City of Redlands to verify the lot will support onsite wastewater disposal:

- Soils are conducive to onsite wastewater disposal.
- Sewer is not available within 200 feet of the nearest property line adjacent to City right-of-way or utility easement (plus 100 feet per dwelling unit thereafter).
- There is not enough fall between the pad and the existing sewer to support a gravity fed system and the pad elevation cannot reasonably be raised to generate sufficient fall.
- Enough area is available to install a septic system that meets proper setbacks (for new construction, 100% expansion area must be available).
- OWTS will not affect ground or surface water.
- OWTS is sized appropriately to serve the intended land use.

### **Applicability of Program Standards**

LAMP standards apply to all OWTS which:

- Are newly constructed, replaced, or subject to a major repair, and discharge liquid waste below ground.
- Have affected, or have the potential to affect, groundwater or other water quality or create health hazards.

### **Requirements**

The LAMP addresses the minimum requirements for monitoring, and/or conditional waiver of waste discharge for OWTS located within the City of Redlands. The LAMP includes the following to achieve this purpose:

- Differing system requirements
- Differing siting controls (i.e., system density and setback requirements)
- Requirements for owners to enter agreements regarding monitoring and maintenance.
- Creation of an onsite Drainage Management Area, also known as a DMA.

In addition to all standards and requirements, all proposed, and/or currently installed OWTS must comply with applicable State and local codes.



## Exceptions

There are specific Onsite Wastewater Treatment Systems that are not included in the Local Agency Management Program. These exceptions require individual discharge requirements, or a waiver of individual waste discharge requirements issued by the Santa Ana Regional Water Quality Control Board.

Exceptions include:

- OWTS having a projected wastewater flow of over 10,000 gallons per day (GPD).
- OWTS receiving high strength wastewater, unless the waste stream:
  - Is from a commercial food service facility with BOD less than 900 mg/L, and
  - Has a properly functioning oil/grease interceptor.
- Wastewater treatment plants that do not meet the Santa Ana Regional Water Quality Control Board prescribed performance requirement or are not National Sanitation Foundation (NSF)/American National Standards Institute (ANSI) certified or listed.
- Subsurface disposal systems including leach fields and seepage pits, must comply with United States Environmental Protection Agency Underground Injection Control requirements when classified as a Class V well. Subsurface disposal systems with at least one of the following characteristics are classified as Class V wells:
  - The system has the capacity to serve 20 or more persons per day.
  - The system receives wastewater other than domestic wastewater such as that generated by manufacturing, chemical processing, industrial fluid disposal, automotive repair, or recycling.
  - The system receives sewage containing biological agents (such as wastewater from recreational vehicles or portable toilets).
- Disposal systems that are classified as Class V wells must be registered with United States Environmental Protection Agency. Forms for registering can be found on the Environmental Protection Agency website under the title underground-injection-wells-registration.



## **Contacts**

The Santa Ana Regional Water Quality Control Board can be contacted at:

Santa Ana Regional Water Quality Control Board  
3737 Main Street, Suite 500  
Riverside, CA 92501-3339  
(951) 782-4130  
[www.waterboards.ca.gov/santaana](http://www.waterboards.ca.gov/santaana)

The Environmental Protection Agency can be contacted at:

Information for Class V injection wells can be found at:  
[www.epa.gov/uic/basic-information-about-class-v-injection-wells](http://www.epa.gov/uic/basic-information-about-class-v-injection-wells)

The City of Redlands Building and Safety Department can be contacted at:

Building & Safety Department,  
One Stop Permit Center  
35 Cajon Street, Suite 15A  
City of Redlands  
909-798-7551



## **Section 2**

### **Involved Departments**

Oversight of OWTS installation and maintenance is a multiple department effort. This section provides an overview of the primary departments involved with the City of Redlands review and approval of an OWTS system.

### **Building and Safety (Development Services Division)**

Building and Safety is responsible for:

- Issuing permits for new construction, replacement, and repair of OWTS.
- Reviewing plot plans for new and replacement OWTS.
- Retaining permit information regarding new construction, replacement systems, and repairs.
- Complying with LAMP reporting requirements regarding issued permits for new and replacement OWTS.
- Record collection, reporting, and storage.

The following information must be provided to Building and Safety for new, replacement and/or repaired OWTS:

- Location
- Description of permits (i.e., new, replacement, and/or repair)
- Tier the permit was issued under, if known
- Differing siting controls (i.e., system density and setback requirements)
- Requirements for owners to enter into agreements regarding monitoring and maintenance.
- Creation of a Drainage Management Area (DMA)

In addition to all standards and requirements, all proposed, and/or currently installed OWTS must comply with all State and local codes.

Building and Safety approval is required on all OWTS proposals. Obtaining an OWTS permit, and Engineering (Municipal Utilities and Engineering Department) approval, are two separate processes. Engineering approval is not a substitute for an OWTS permit issued by Building and Safety, nor does it guarantee issuance of an OWTS permit.



### **Engineering (Municipal Utilities and Engineering Department)**

Engineering must review and approve any plot plan with an OWTS. A plot plan must be submitted to show where the system will be sited. Complete requirements for OWTS plot plans can be found in Section 4.

Depending on the scope of grading for a project, a conceptual grading plan may be required by Building and Safety, Planning, and/or Engineering. A grading plan helps Building and Safety ensure percolation testing was conducted at the correct depths. Where grading is expected, include the existing and finished elevations in the grading plan. For details on how to complete a grading plan, contact the City of Redlands Engineering Division under the Municipal Utilities and Engineering Department.

Engineering will determine if sewer is available for the site.

Engineering must review all non-residential OWTS. This review will be made by the Regulatory Compliance Officer of the wastewater division. The results and any requirements will be reported to Building and Safety for incorporation into the site plans.

### **Planning (Development Services Division)**

Typically, City of Redlands requires the submission of preliminary or conceptual grading plans and applications to the Planning Department for review for the use of an OWTS. Planning also reviews Plot plans with OWTS. The use of a sewage-holding tank requires approval from the City of Redlands Planning Department as well as the application for a sewage holding tank permit from the City of Redlands.

### **Code Enforcement, National Pollutant Discharge Elimination System Inspectors (N.P.D.E.S.)**

Code Enforcement and N.P.D.E.S. Inspectors are responsible for:

- Investigating complaints for overflowing/failed septic tanks for single family residences, and two-unit dwellings which includes:
  - Requiring property owners to obtain applicable permits from Building and Safety for repairs, or replacement of failing septic systems.
  - Retaining information regarding complaints and investigations for overflowing or failed septic systems, and subsequent actions taken.
- Complying with the LAMP reporting requirements for complaint investigations, which includes:
  - Providing information to Building and Safety annually pertaining to OWTS operation and maintenance, including number, and location of the complaints.
  - Identifying investigated complaints.
  - Documenting how the complaints were resolved.



**Regulatory Compliance Officers (Wastewater)** are responsible for:

- Investigating complaints for overflowing/failed septic systems for non-residential installations like hotels, restaurants, multi-family dwelling units and industrial sites which include:
  - Requiring property owners to obtain applicable permits from Building and Safety for repairs, or replacement of failing systems.
  - Retaining information regarding complaints and investigations for overflowing or failed septic systems, and subsequent actions taken.
  - Determining the appropriate disposal method.

### **OWTS Approval Process**

The process of OWTS approval begins with the submittal of a plot plan by the project proponent.

Plot plans are reviewed by Building and Safety, Engineering, and Planning. Comments or concerns are returned to the project proponent to be addressed.

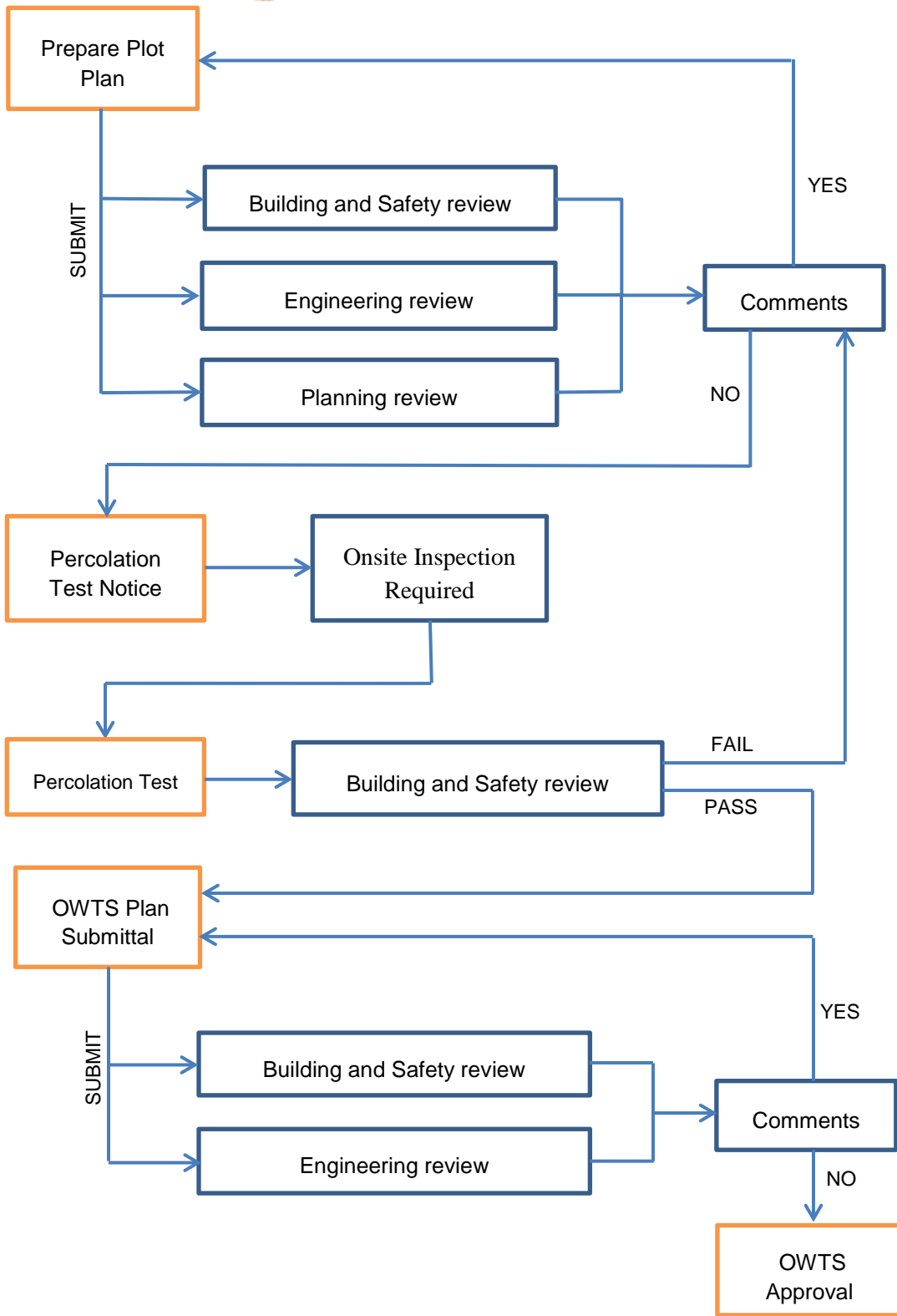
Upon receiving comments from Building and Safety, Engineering, and Planning, the project proponent will submit a copy of the Notification of Percolation Test to Building and Safety. The Notification of Percolation Test must be submitted at least two business days in advance of performing any percolation tests. Percolation testing and accompanying reports must be prepared by a Qualified Professional (see glossary for definition of Qualified Professional). All percolation testing will be conducted per the procedures outlined in Appendix A of this LAMP, unless another method is approved in writing by Building and Safety prior to any actual tests being run.

Test results will be reviewed by Building and Safety. Any limits or requirements based on the tests will be provided to the project proponent.

The project proponent will submit a detailed plan of the OWTS design for review by Building and Safety and Engineering. Comments or concerns are returned to the project proponent to be addressed.

If approved, Building and Safety will issue the OWTS permit. The process is outlined in Figure 2.1





**Figure 2.1**



## **Section 3**

### **Minimum Site Evaluation Standards**

#### **Site Evaluation**

Prior to reviewing a percolation test, and approving the use of an OWTS, Building and Safety may require a site evaluation during percolation testing to:

- Ensure proper system design, and
- Evaluate site location to ensure the system will be in compliance.

The Regulatory Compliance Officer of the wastewater division will evaluate all non-residential sites to determine if:

- The non-residential OWTS site needs to install a pre-treatment device,
- The non-residential OWTS may require an exception under the Santa Ana Regional Water Quality Control Board (RWQCB) and may qualify for individual waste discharge requirements, and;
- Where applicable, the non-residential OWTS will need to comply with 40 CFR requirements, the Redlands Municipal Code (RMC) 13.52, and any prohibitions listed in the RMC 13.52.030 (A) regarding disposal of wastes by a liquid waste hauler at the Waste Water Treatment Plant.

#### **Percolation Testing Notification**

A Qualified Professional (as defined in the Glossary of this document) must submit a Notification of Percolation Test to Building and Safety, at least two business days prior to performing any percolation test within the City. When a Percolation Test Notification is submitted for a site that requires a site evaluation, Building and Safety will conduct an inspection to evaluate the site. If a percolation report is submitted for a site which required a site evaluation but no inspection was conducted, Building and Safety will conduct an inspection of the site at the owner's expense. The inspections are to evaluate:

- Lot size,
- Slope,
- Streams,
- Rock outcroppings, and
- Any other criteria that may affect installations of a standard septic system.

Prior to site evaluation, Building and Safety personnel will contact the applicant to inform him/her of the site evaluation date and fee requirement.



## **Percolation Testing**

The City requires percolation testing, and accompanying reports, to be prepared by a Qualified Professional. For soil to be considered uniform, test results must fall within 25% of the mean percolation rate. If not uniform, the most conservative test result will be used. Determining the number of percolation tests required will be based on soil conditions and project type. All percolation testing will be conducted per the procedures outlined in Appendix A of this LAMP, unless another method is approved in writing by Building and Safety prior to any actual tests being performed.

Percolation testing:

- Is used to ensure the dispersal field is located in an area where no conditions exist, which could:
  - Adversely affect the performance of the system, or
  - Result in groundwater contamination.
- Is used to determine the necessary area needed to treat, and maintain underground sewage properly.
- Must be in the general area of the disposal system, both primary and expansion, if the proposed area is known.

## **Seepage Pits**

The use of seepage pits, as a dispersal field, will only be allowed in instances where leach lines are not feasible, and minimum separation requirements to groundwater are met. The City requires a 10- foot minimum separation from the bottom of the seepage pit to groundwater. When the pit percolation is less than 10 minutes per inch (MPI), the following must occur:

- The separation to groundwater must be at least 40 feet from the bottom of the seepage pit, or
- A sieve analysis of the soil, for a thickness of 10 feet below the bottom of the seepage pit, must contain at least 15% fines passing the #200 United States standard sieve.

## **Evaluation Methods**

Site evaluations contain site specific information, which includes a review of the physical features of the site. Exploratory borings or trenches are the main evaluation methods to determine if there is adequate separation from the bottom of the dispersal system to the groundwater. To determine the highest level of groundwater within the dispersal field, data from permitted wells, local water purveyors, and the United States Geological Survey (USGS) are used in addition to exploratory borings or trenches. This section details the evaluation methods, as well as the information that will be reported.



## Parcel Features

The following parcel features will be evaluated within the percolation report:

- Location of the parcel(s) where the OWTS is being proposed.
- Description of the site and surroundings, including:
  - Water courses,
  - Vegetation type,
  - Existing structures
  - Location of any rock outcroppings, and
  - Historic groundwater.
- Any other feature that may affect sewage disposal.

## Soil Profile

Soil characteristics determine the minimum number of exploratory borings (or trenches), as well as the number of percolation tests required for the parcel(s). A soil profile must be created to:

- Determine the suitability of the soils for absorption of wastewater, and
- Verify adequate vertical separation between the bottom of the dispersal field and historic groundwater levels.

More extensive testing is required, as determined by a Qualified Professional, for moderate and severe soil conditions.

## Exploratory Borings

The table below shows the minimum number of exploratory borings needed per development. Exploratory boring may not be used as percolation test holes.

**Table 3.1 – Exploratory Boring Requirements**

Gross Lot size		Soil Conditions	
		Favorable to moderate	Severe
Subdivisions and individual lot sales	<1 acre	3 borings first 10 lots, 1 boring every 10 thereafter	8 borings first 10 lots, 5 borings every 10 thereafter
	1-5 acres	5 borings first 10 lots, 3 borings every 10 lots thereafter	2 borings per lot*
	>5 acres	1 boring per lot*	
Residential lot	Any size	1 boring*	
Commercial lot, or confluent system under one ownership	Any size	1 boring per 4,000 gallons septic tank capacity*	1 boring per 2,000 gallons septic tank capacity*
Parcel Map	5 acres or less	1 boring in the center of the undivided parcel	2 borings evenly spaced in the undivided parcel

\* This indicates borings in the area of the disposal system.



## **Boring and Trenching Results**

When reporting the results for boring and trenching, each hole or excavation must be numbered, and located on a plot plan of the site. The report must graphically describe the soil strata at each excavation.

A site evaluation shall determine that adequate soil depth is present in the dispersal area. Soil depth is measured vertically to the point where bedrock, hardpan, impermeable soils, or saturated soils are encountered or an adequate depth has been determined. Soil depth shall be determined through the use of soil profile(s) in the dispersal area and the designated dispersal system replacement area, as viewed in excavations exposing the soil profiles in representative areas, unless the City has determined through historical or regional information that a specific site soil profile evaluation is unwarranted.

A site evaluation shall determine whether the anticipated highest level of groundwater within the dispersal field and its required minimum dispersal zone is not less than prescribed in this Section by estimation using one or a combination of the following methods:

- Direct observation of the highest extent of soil mottling observed in the examination of soil profiles, recognizing that soil mottling is not always an indicator of the uppermost extent of high groundwater; or
- Direct observation of groundwater levels during the anticipated period of high groundwater. Methods for groundwater monitoring and determinations shall be decided by the City; or
- Other methods, such as historical records, acceptable to the City.

Where a conflict in the above methods of examination exists, the direct observation method indicating the highest level shall govern.

To ensure the reporting results provide all the required information, Table 3.2 will be used as a guide:



**Table 3.2 – Boring and Trenching Reporting**

Observation	Information Described
Soil Profile	<ul style="list-style-type: none"> <li>• Color,</li> <li>• Field texture analyses,</li> <li>• Soil Mottles,</li> <li>• Bedrock,</li> <li>• Structure,</li> <li>• Roots,</li> <li>• Pores</li> </ul>
Soil Lithology	Direct visual observation when the soil lithology is stratified and contains low-permeability layers; which may affect the onsite disposal system performance (i.e., sandy silts and clay caliche).
Textures	Approximate percentage of cobbles, gravel, sand, silt, and clay.
Colors	Background soil color using the Munsell Soil Color Chart.
Roots	Presence and extent of small and/or large roots.
Excavating/Drilling	Ease of excavating or drilling based on: Depth to bedrock, and Rock competency (i.e., soft, firm, hard, refusal).
Moisture at or near the point of saturation after 24 hours	Presence of free water. <ul style="list-style-type: none"> <li>• Observed groundwater, at the:               <ul style="list-style-type: none"> <li>– Level the groundwater reaches in the excavation, or</li> <li>– Highest level of sidewall seepage into the excavation.</li> </ul> </li> </ul>
Structural Characteristics	Structural characteristics, stratigraphy and geologic origin when it is determined necessary and/or for severe sites.



## Minimum Qualifications and Certification for OWTS Practitioners

The following table outlines the minimum qualifications for OWTS practitioners. Any licenses or certifications possessed by these practitioners must have been issued from the State of California.

**Table 3.3 – Minimum Qualifications for OWTS practitioners**

<b>OWTS Service</b>	<b>Minimum Qualifications</b>
Supplemental Treatment and/or Alternative System Inspection and Monitoring	Registered Civil Engineer, Registered Geologist, or Registered Environmental Health Specialist
OWTS Design	Qualified Professional as defined in the glossary section of this document, or Licensed Contractor (Class A, C-36, or C-42)
OWTS Certification	
Percolation Test	Qualified Professional as defined in the glossary section of this document
Septic Tank Pumping & Reporting	Qualified Waste Hauler, or Registered Pumper
System Installation (new and replacement)	Licensed Contractor (Class A, C-36, or C-42)



## **Section 4**

### **Plot and Grading Requirements**

This section provides the requirements needed by Building and Safety and Engineering when preparing plot plans and grading plans.

#### **Plot Plans**

A plot plan is required to be submitted with the percolation report to show where the system will be sited. The plot plan must:

- Include the tested property, drawn to the following scale:
  - Single Family Home, Small Commercial Minimum 1" = 30'
  - Parcel Map, Subdivision, Large Commercial Minimum 1" = 40'
  - Maximum sheet size shall be 24"x36"
- Show the proposed system, and 100% expansion area, including existing and potential structures, wells, streams, contours, significant vegetation (including trees), rock outcroppings, the location of all borings/tests, and the proposed building pad.
- Include a hypothetical system using the following table:

**Table 4.2 – Plot Plan hypothetical system**

<b>If lots are zoned for...</b>	<b>Then provide a hypothetical system...</b>
Single family homes (lot sale subdivisions)	For a five (5) bedroom home on each lot.
Multi-unit development	Sufficient for the effluent discharged by an average of three bedrooms per unit.

The proposed dwelling/development must be located so the initial subsurface sewage disposal system (and the required 100% expansion area) functions by gravity flow, unless otherwise approved. When leach lines or seepage pits serve a common system for two or more units, add 30% more square footage to the total absorption area.

#### **Grading Plans**

Depending on the degree of grading for a project, the Engineering Division under the Municipal Engineering and Utilities Department (MUED) may require a preliminary grading plan. If a preliminary grading plan is required, it should be included with the percolation report submittal. A preliminary grading plan helps Engineering ensure testing was done at the correct depths. Where grading is expected, include the original and finished elevations in the grading plan. For details on how to complete a grading plan, contact the City of Redlands Municipal Utilities and Engineering Department. The table on the following page will be used as a guide:





**Table 4.3 – Grading Plan Guide**

<b>If...</b>	<b>Then ...</b>
The grading plan was prepared by others	Comment in regards to the recommendations set forth in the report.
It is unknown if a grading plan is needed	<ul style="list-style-type: none"> <li>• Include qualifying statements in the area(s) for the primary and expansion systems, or</li> <li>• Title the report “Preliminary” (preliminary reports are adequate for purposes of recordation, with recommendations to be followed for building permit purposes).</li> </ul>

To ensure that OWTS do not adversely affect water quality, the government agencies tasked with protecting the public’s health, groundwater, and safety have developed siting standards for OWTS. Section 5 provides information regarding siting standards such as, minimum lot size, setback requirements (including increased setback and notification requirements for OWTS located near public water systems), natural ground slope, and density.



## **Section 5**

### **Setback Requirements**

The minimum separations listed herein are largely derived from the California Plumbing Code, Appendix H, and are measured in feet. In some cases, additions or changes have been made in order to adequately protect public health. Where differences exist, the greater separation prevails. Table 5.1 provides the minimum requirements for installation of OWTS for either new or existing structures.

### **Minimum Setback Requirements**

When reviewing setback requirements, the minimum:

- Depth of earth cover required over the dispersal field is twelve inches. When the dispersal field cannot be installed twelve inches below the ground surface, and meet the above separation requirements, then a supplemental treatment system will be required.
- Criteria specified in Table 5.1 must be met within the area of the proposed system and within the 100% expansion area for the proposed system.

**Table 5.1 – Minimum Setback Requirements**

<b>Minimum Setback Required From</b>	<b>Septic Tank</b>	<b>Disposal Field</b>	<b>Seepage Pit</b>
Non-Public Water Supply Well <sup>1,8</sup>	100	100 <sup>2</sup>	150 <sup>2</sup>
Public Water Supply Well <sup>1</sup>	100	150 <sup>2</sup>	200 <sup>12</sup>
Buildings or Structures <sup>3</sup>	5	8	8
Property line adjoining private property	5	5	8
Streams and other flowing bodies of water <sup>9,11</sup>	100	100	150
Drainage Course	50	50	50
Lakes, ponds, and other surface water bodies <sup>10,11</sup>	200	200	200
Colorado River/ Mojave River	50	200	200
Large Trees <sup>4</sup>	10	-	10
Seepage pits	5	5	12
Disposal field	5	4 <sup>6</sup>	5
Private domestic water lines (building service line)	5	5	5



Minimum Setback Required From	Septic Tank	Disposal Field	Seepage Pit
Public Domestic Water Lines	25	25	25
Distribution Box	n/a	5	5
Ground surface on sloping ground	n/a	15	15
Groundwater <sup>5</sup>	5	5 <sup>7</sup>	10

<sup>1</sup> Drainage piping will clear domestic water supply wells by not less than 50 feet. This distance will be permitted to be reduced to not less than 25 feet where the drainage piping is constructed of materials approved for use within a building.

<sup>2</sup> For any system discharging 5,000 GPD, or more, the required setback will be increased to 200 feet.

<sup>3</sup> Includes porches and steps whether covered or uncovered, breezeways, roofed porte cocheres, roofed patios, carports, covered walls, covered driveway, and similar structures or appurtenances.

<sup>4</sup> Any tree with a trunk diameter of one foot or more within 5 feet of the system that will not be removed during construction.

<sup>5</sup> The highest known level to which groundwater is known to have occurred rather than the level at the time when testing occurred.

<sup>6</sup> Plus 2 feet for each additional foot or depth in excess of 1 foot below the bottom of the drain line.

<sup>7</sup> For any system utilizing advanced treatment, this minimum separation may be reduced to 2 feet with approval under the APMP (refer to Section 8 for more information regarding the APMP) and the Santa Ana Regional Water Quality Control Board.

<sup>8</sup> Unless regulatory or legitimate data requirements necessitate that monitoring wells be located closer.

<sup>9</sup> Where the edge of the water body is the natural or levied bank for creeks and rivers, or may be less where site conditions prevent mitigation of wastewater to the water body.

<sup>10</sup> Where the edge of the water body is the high water mark for lakes and reservoirs and the mean high tide line for tidally influenced water bodies.

<sup>11</sup> Where the effluent dispersal system is within 1,200 feet from a public water systems' surface water intake point, within the catchment of the drainage, and located such that it may impact water quality at the intake point (such as upstream of the intake point for flowing water bodies), the dispersal system will be no less than 400 feet from the high water mark of the reservoir, lake or flowing water body. Where the effluent dispersal system is located more than 1,200 feet but less than 2,500 feet from a public water systems' surface water intake point, the dispersal system will be no less than 200 feet from the high water mark of the reservoir, lake, or flowing water body.

<sup>12</sup> Dispersal systems that exceed 20 feet in depth and are located within 600 feet of a municipal well will be required to have the consultant evaluate the two year travel time for microbial contaminants to determine required setback. In no case will the setback be less than 200 feet.



## OWTS Located Near Municipal and/or Domestic Water Systems

Existing or proposed OWTS in close proximity to municipal water supply wells, domestic supply wells, private supply wells, and surface water treatment plant intakes, have the potential to adversely affect source water quality. Due to this possibility:

- Increased setback requirements (i.e., OWTS location within 1200 feet of a surface water intake) are necessary.
- Building and Safety will follow the table below to provide adequate notification (regarding OWTS installations, replacements or repairs to existing OWTS near groundwater or surface water intake) to:
  - Owner(s) of public water systems, and
  - State Water Resources Control Board, Division of Drinking Water (DDW), if the water system is regulated by the DDW.

**Table 5.2 - OWTS Located Near Municipal and/or Domestic Water Systems**

Step	Action						
1	<p>Determine which division is responsible for the OWTS review.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center;">If the OWTS review is done for a...</th> <th style="text-align: center;">Then the review will be completed by...</th> </tr> </thead> <tbody> <tr> <td style="padding: 5px;">Percolation report,</td> <td style="padding: 5px;">Building and Safety</td> </tr> <tr> <td style="padding: 5px;">Plot plan,</td> <td style="padding: 5px;">Building and Safety and Engineering</td> </tr> </tbody> </table>	If the OWTS review is done for a...	Then the review will be completed by...	Percolation report,	Building and Safety	Plot plan,	Building and Safety and Engineering
If the OWTS review is done for a...	Then the review will be completed by...						
Percolation report,	Building and Safety						
Plot plan,	Building and Safety and Engineering						
2	<p>Review the location of the proposed new/replacement OWTS (at the time of permit application) in relation to:</p> <ul style="list-style-type: none"> <li>• Impaired water bodies within the City and</li> <li>• Public water system service area boundary maps (boundary maps and boundaries are updated annually and/or as needed).</li> </ul>						
3	<p>Determine if a proposed or existing OWTS location is within the required setbacks:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center;">If the proposed OWTS location...</th> <th style="text-align: center;">Then...</th> </tr> </thead> <tbody> <tr> <td style="padding: 5px;">           Cannot be relocated and is within:            - The required horizontal setback of any private, domestic or municipal supply well (see         </td> <td style="padding: 5px;">           Building and Safety will refer the customer to the State Division of Drinking Water DDW. Refer to the section Notifying Water System Owners and the Division of Drinking         </td> </tr> </tbody> </table>	If the proposed OWTS location...	Then...	Cannot be relocated and is within: - The required horizontal setback of any private, domestic or municipal supply well (see	Building and Safety will refer the customer to the State Division of Drinking Water DDW. Refer to the section Notifying Water System Owners and the Division of Drinking		
If the proposed OWTS location...	Then...						
Cannot be relocated and is within: - The required horizontal setback of any private, domestic or municipal supply well (see	Building and Safety will refer the customer to the State Division of Drinking Water DDW. Refer to the section Notifying Water System Owners and the Division of Drinking						



Step	Action							
3 Cont	next section for minimum horizontal setbacks), or - 1,200 feet of a surface water intake point,	Water (DDW) for notification requirements.  Proceed to step 5.						
	Is not within: - The required horizontal setbacks of a public well, or - 1,200 feet of an intake point,	The OWTS will continue to be reviewed based on the requirements in the LAMP, and will not need to meet the additional setbacks.						
	Is suspected to be within the required setbacks, and the location of the public water source cannot be verified,	Building and Safety will require the customer to contact the water purveyor, and obtain a letter verifying the proposed OWTS is not within the setback requirements.						
4	Review any comments/recommendations submitted by the affected water system owner(s) and the DDW prior to issuing an OWTS installation or repair permit for any system.							
5	Notify the affected water system owner(s) and the DDW regarding the action taken upon issuance and/or denial of an OWTS installation or repair permit. Approval/denial will be determined based on the risk of the OWTS to water quality.							
6	Determine if the proposed OWTS location is approved. <table border="1" data-bbox="407 1209 1286 1663" style="margin-left: 20px;"> <thead> <tr> <th data-bbox="407 1209 821 1276">If the location is...</th> <th data-bbox="821 1209 1286 1276">Then The City of Redlands will...</th> </tr> </thead> <tbody> <tr> <td data-bbox="407 1276 821 1461">Approved,</td> <td data-bbox="821 1276 1286 1461">               - Refer the customer to Building and Safety to complete the plot plan review, or                - Complete the percolation report review.             </td> </tr> <tr> <td data-bbox="407 1461 821 1663">Not Approved,</td> <td data-bbox="821 1461 1286 1663">               Inform the customer he/she will need to install an alternative treatment system (refer to Section 8, for more information regarding alternative treatment systems).             </td> </tr> </tbody> </table>		If the location is...	Then The City of Redlands will...	Approved,	- Refer the customer to Building and Safety to complete the plot plan review, or - Complete the percolation report review.	Not Approved,	Inform the customer he/she will need to install an alternative treatment system (refer to Section 8, for more information regarding alternative treatment systems).
If the location is...	Then The City of Redlands will...							
Approved,	- Refer the customer to Building and Safety to complete the plot plan review, or - Complete the percolation report review.							
Not Approved,	Inform the customer he/she will need to install an alternative treatment system (refer to Section 8, for more information regarding alternative treatment systems).							



## Horizontal Sanitary Setbacks for Municipal Wells

The table below provides information to determine the horizontal sanitary setbacks for municipal wells.

**Table 5.3 - Horizontal Sanitary Setbacks for Municipal Wells**

The dispersal system...	Then the horizontal sanitary setback will be...
Does not exceed 10 feet in depth,	150 feet.
Exceeds 10 feet in depth,	200 feet.
Exceeds 20 feet in depth,	600 feet.

Dispersal systems that exceed 20 feet in depth, and are located within 600 feet of any municipal well, will be required to have a Qualified Professional evaluate the two-year time travel for microbial contaminants to determine the required setback. In no case will the minimum setback be less than 200 feet.

## Notifying Water System Owners and the Division of Drinking Water

Based on who is responsible for the water system, the City must send notification to the water system owner(s) and/or the State Water Resources Control Board, Division of Drinking Water (DDW) regarding any proposed OWTS. The notification will be done either electronically or in writing, and must contain a copy of the permit application, which includes:

- Estimated wastewater flows,
- Intended use of the proposed structure generating the wastewater,
- Soil data,
- Estimated depth to seasonally saturated soils, and
- A topographical plot plan for the parcel showing the OWTS, including:
  - Layout of the system,
  - Property boundaries,
  - Proposed structures,
  - Physical address, and
  - Name of the property owner.

State Water Resources Control Board, Division of Drinking Water will be notified if the water system is regulated by the DDW. Systems with fewer than 200 connections will be under the jurisdiction of the local agencies.



## **Density/Minimum Lot Size Requirements**

The City of Redlands has minimum lot size requirements for subdivisions of property that will rely on OWTS. This section provides definitions for a new development, as well as an explanation of the requirements for various development types located within the City.

### **New Developments**

When additional structures or accessory buildings are added to existing developments and these additions will result in increased wastewater flows to the existing septic system, these developments will be considered new developments. This applies to single-family residential, commercial, and/or industrial developments. The addition of a single room to a single-family residential home, where the roof is a continuation of the main building, is considered an addition to the main building and not subject to these requirements provided the structure continues to be a single-family residence. Accessory buildings used as dwellings shall be considered as separate structures and count as a second dwelling. The distance requirement for sewer connection will increase to 300' (200' + 100' per dwelling unit). No exemptions will be granted for new developments on tracts/parcels that are 200 feet or less from a sewer, which could serve that tract/parcel, barring legal impediments to such use. Based on this information, each additional development (i.e., any development that is more than a single-family dwelling) will require this distance to be increased by 100 feet per dwelling unit. As an example, a 10-lot subdivision will be required to connect to a sewer if the sewer is within 1,100 feet [200 + (9 x 100 feet)] = 1,100 feet of the proposed development. All distances will be measured from the nearest Lot/ Parcel line.

### **Lot Size Requirements**

The City of Redlands has minimum lot size requirements for subdivisions of property that rely on OWTS. A minimum lot size of one half acre (gross), per dwelling unit, including accessory dwelling units, is required for all new developments that do not have access to a public sewer. A single dwelling unit would require one half acre, a single dwelling unit with an accessory dwelling unit would require one acre (one half acre per each dwelling unit). Any increase in the density would require Santa Ana Regional Water Quality Control Board approval. Lots that are part of a subdivision or tract approved prior to May 13, 2018, are exempt from the minimum lot size restriction but they must conform to all other requirements. These requirements apply only to single-family residences. All commercial developments proposing to use a septic system require Santa Ana Regional Water Quality Control Board approval.

The City of Redlands has a minimum lot size requirement for lots proposed to be created and developed based on the use of an OWTS as provided by Santa Ana Regional Water Quality Control Board Resolution No. 89-157. The average density for any subdivision of property made pursuant to the Subdivision Map Act proposing to use OWTS shall not exceed density of 2 units per acre, for a single-family dwelling, or its equivalent, without additional studies completed by a qualified professional demonstrating no adverse impacts to groundwater quality will occur. Accessory dwelling units are considered separate structures and counted as a second dwelling for the purpose of determining density when served by septic systems.



Where those studies show there will be impacts to groundwater quality that exceed the Santa Ana Regional Water Quality Control Board Basin Plan standards, any proposed development must utilize an OWTS with supplemental treatment as per Alternative Treatment System Requirements of this LAMP to mitigate those impacts or lot sizes shall be increased to eliminate any adverse groundwater impacts. Where zoning regulations require greater lot sizes, those regulations shall take precedent. Lots created for commercial developments which are proposing to use a septic system require Santa Ana Regional Water Quality Control Board approval.

### **Single Family Residential Developments**

For single family residential developments, when the existing septic system will accommodate additional wastewater flows, additional installations (i.e., rooms, bathrooms) will be exempt from the minimum lot size requirements. This applies only to those additional installations for private single family residential developments. Additions for the purpose of creating rental units, boarding homes, Bed and Breakfasts, or for similar uses are not exempt from minimum lot requirements.

A septic certification from a qualified professional may be required to verify the septic tank's capacity to accept additional wastewater flows.

### **Commercial/Industrial Development Requirements**

For new commercial/industrial developments that will be utilizing a septic tank/subsurface disposal system, approval must be issued by the Santa Ana Regional Water Quality Control Board.

### **Tracts, Parcels, and Commercial/Industrial Developments**

Tracts and commercial/industrial developments utilizing a septic tank/subsurface disposal system must receive approval from the Santa Ana Regional Water Quality Control Board.

Non-commercial parcels shall be approved under this LAMP, and are required to meet all conditions thereof including density requirements.

### **City Discretion**

The minimum lot size requirement of one-half acre does not preclude the prescription of more stringent lot size requirements in specific areas, if it is determined necessary to protect water quality. When a tract is proposed that relies on wells and OWTS, a hydrogeological study is required to demonstrate that there is adequate quality and quantity of groundwater and that each and every lot will be buildable meeting horizontal setback requirements. Two and one-half acre lots are the minimum size that can accommodate wells and OWTS. When there is a potential for water quality impacts in proposed subdivisions where high groundwater, steep slopes, or poor soil conditions exist, or where there are significant existing, likely, or potential impacts to groundwater quality, any or all of the following may be required: an increase in lot size, supplemental treatment, or other mitigating measures as determined by Building and Safety. The City will defer consideration of projects to the Santa Ana Regional Water Quality Control Board when the criterion of the City of Redlands LAMP cannot be met. The minimum criteria specified





must be met within the area of the proposed OWTS, and within the 100% expansion area of the proposed system.

### **Minimum Lot Size Exemptions**

The minimum lot size requirements do not apply to existing developments with OWTS that were installed prior to the effective date May 13, 2018. This section details when exemptions apply to the minimum lot size requirement for new and/or existing developments.

### **Combined Lots Smaller than One Half Acre**

New lots, which are smaller than one-half acre, may be formed by combining two or more existing lots which have received land use approval prior to May 13, 2018. Individually, these lots would be eligible for an exemption from the minimum lot size requirement. Developments on combined lots may also qualify for an exemption:

- Provided the total number of units proposed for the new parcel is equal to, or less than the total number of units proposed for the existing parcel, and/or
- When a supplemental treatment or alternative dispersal system is utilized.

When requesting to use a supplemental treatment or alternative dispersal system, each system will be reviewed on a case-by-case basis, and will require the approval of Building and Safety, and may require Santa Ana Regional Water Quality Control Board approval. The fundamental point that persons seeking OWTS permits must remember is the City's OWTS approval process and City land use approval and permitting processes are separate processes. While they are coordinated to some extent, a Building and Safety OWTS approval is never a substitute for a required City grading, land use or building permit. Similarly, no land use approval or permit (e.g., approval of a subdivision map or lot split or boundary adjustment, even after preliminary septic system review by Building and Safety), is a substitute for a Building and Safety OWTS approval, or a guarantee that such an approval can be issued.

### **Replacements**

There will be times when the replacement of a septic tank/subsurface disposal system will be required for systems in existing residential, commercial, and industrial developments to bring the system up to code, based on requirements by Building and Safety.

For single-family residential developments only, replacement of the existing septic tank/subsurface disposal system may be allowed when the system is proposed to allow additional flows, which result from additions to the existing dwelling unit. This does not include any freestanding additional structures, used for dwelling or otherwise, which would be considered new developments (refer to the New Developments section for more information).



## **Section 6**

### **Topography Consideration**

In an effort to control contamination, pollution, and nuisance resulting from the discharge of domestic wastes, the City has developed minimum criteria to ensure geological factors are identified, and the potential for contamination is minimized during a basic site evaluation. This section provides an overview of the minimum requirements for OWTS design and construction.

### **Minimum Requirements for Natural Ground Slope and Percolation Rates**

This section details the minimum criteria for natural ground slopes, as well as percolation rates for OWTS located within the City.

#### **Natural Ground Slope**

Building and Safety requires geological factors be identified by a Qualified Professional (as defined in the Glossary), during a percolation test, or during a basic site evaluation for all systems. For systems located on slopes over 30% or greater, or on unstable landmasses, the Qualified Professional is required to submit a slope study for review and approval to Building and Safety. The maximum undisturbed slope for a leach line dispersal system is 45%. Any portion of the disposal field located at the top of a cut or on sloping ground shall maintain a 15-foot horizontal distance from daylight to any portion of the leach line or leach bed. The following table gives the minimum cover required versus the percent of slope in the area of the disposal field to meet the 15-foot requirement. A factor "f" is included by which to increase the trench length due to the losses in evapotranspiration caused by the added cover.

**Table 6.1 Ground Slope and Minimum Cover**

<b>Slope of the Ground in the Area of the Disposal System</b>	<b>Minimum Cover Over the Drain Lines in feet</b>	<b>f factor</b>
5%	1.00	1.0
10%	1.50	1.0
15%	2.25	1.0
20%	3.00	1.0
25%	3.75	1.1
30%	4.50	1.2
35%	5.25	1.3
40%	6.00	1.4
45%	7.00	1.5



**Special Considerations for Absorption Field Placement on Sloping Ground**

1. If ground slope is greater than 30%, any portion of an absorption field (except solid pipe) shall be a minimum of 10 feet (horizontally) from the downslope property line (s). It is the report preparer's responsibility to certify that this minimum is applied or expanded if the slope is less than or equal to 30%, but the soil conditions are such that a basement or curtain drain already built 5 feet downslope from the lower property line (s) may be affected by sewage effluent. Building and Safety shall check for the setback on the plot plan submitted for permit.
2. The minimum horizontal distance between any portion of an absorption field (except solid pipe) and an exposed downward sloping impermeable stratum or bedrock in "cut" slope shall be 50 feet. It is the report preparer's responsibility to make recommendations so that systems do not daylight. It is the owner/contractor (s) responsibility to install systems per those recommendations. The consultant shall inspect installations to be assured that recommendations are followed. Building and Safety, at their discretion, may make the inspection of the installation a requirement of approval.

**Disposal Area Percolation Rates**

Due to varying soil conditions, the following table will be used as a guide to determine if effluent is being processed effectively.

**Table 6.2 - Disposal Area Percolation Rates**

If the discharge is to a...	Then the percolation rate in the disposal area must not be...
Leach field,	Greater than 120 minutes per inch (MPI).
Seepage pit,	Less than 1.1 gallons of effluent per square foot, per day.

**Groundwater Protection**

The minimum required soil thickness/separation below the bottom of the disposal field to groundwater is determined by the minimum requirements in Section 3; however, there is an increased separation requirement for faster percolation rates. The following table will be used to determine the required separation:



**Table 6.3 – Groundwater Protection**

<b>If the percolation rate is...</b>	<b>Then...</b>
Faster than 5 MPI,	The five feet of soil between the bottom of the leach line and the groundwater must contain: <ul style="list-style-type: none"> <li>• At least 15% of material passing the #200 United States standard sieve, (basis 100% 3/8”) and</li> <li>• Less than one-fourth of the representative soil occupied by stones larger than 6 inches.</li> </ul>
Faster than 5 MPI, and the above requirements cannot be met,	A 40 foot separation (based on recorded data and/or observed mottling) must be maintained between the: <ul style="list-style-type: none"> <li>• Bottom of the leach line, and the highest historic groundwater level.</li> </ul>

### **Requirement Exception**

Building and Safety prohibits discharge from any OWTS which do not conform to the above stated criteria. An exception occurs when the developer demonstrates, by substantial evidence (or as determined by the City), that pollution, nuisance, and/or contamination will not occur as a result of the discharge of domestic waste.

### **OWTS Certification**

Certification of existing subsurface disposal systems is restricted to only those individuals who are qualified professionals may certify an OWTS as described in the LAMP.

Individuals who are Qualified Professionals shall have the authority to conduct OWTS certifications. OWTS certifications shall include the following:

- Identify all septic system components, location, and specification
- Determine the current condition and functionality of an existing OWTS
- Make modifications of an existing OWTS within the manufacturer’s recommendations or guidelines
- Make repair recommendations and perform needed repairs on an existing OWTS
- Identify an existing structure’s total bedroom count and fixture count to ensure proper septic tank sizing

The Qualified Professional shall document their findings of an OWTS certification using the form entitled “Certification of Existing Sub surface Disposal System”. The certification shall also



include an appropriately scaled plot plan signed by the qualified professional. The plot plan shall include the following:

- Design and location of the OWTS and its 100 percent expansion area in relation to its attached dwelling or structure; other detached structures and second units;
- Water meters, wells, rocks, water courses, dry wells, property corners, driveways, and various surface features such as drainage courses

### **When is an OWTS Certification required?**

An OWTS Certification shall be required for the following:

- For any major repair and/or modifications performed on an existing OWTS
- To ensure there is no encroachment between an existing OWTS , including expansion area, and a proposed construction project
- For any project proposing to utilize an existing OWTS
- As required by Building and Safety



## **Section 7**

### **OWTS Design**

Building and Safety has minimum and maximum criteria for design of onsite wastewater treatment systems located within its jurisdiction. This section details these criteria, and explains when OWTS no longer fall within the scope of City oversight, and therefore will be referred to the Santa Ana Regional Water Quality Control Board.

### **Maximum Allowable Flow Commercial/Industrial Developments**

For new commercial/industrial developments that will be utilizing a septic tank/subsurface disposal system, the wastewater flow for each one-half acre of land may not exceed that from a single dwelling unit. When determining compliance with this criterion, a flow rate of 300 gallons per day (this flow rate will be prorated for commercial/industrial developments with lots smaller than one half acre), or the equivalent of 20 fixture units will be used. The following table will be used when determining if an OWTS no longer fall under the scope of Building and Safety oversight based on daily flow.

**Table 7.1 – Maximum Allowable Flow**

<b>If the projected flow rate is...</b>	<b>Then the OWTS...</b>
More than 10,000 GPD,	<ul style="list-style-type: none"> <li>• Will be reviewed by Building and Safety and comment on design rate.</li> <li>• Will be referred to the Regional Water Quality Control Board for review and permit issuance.</li> </ul>
Less than 10,000 GPD,	<ul style="list-style-type: none"> <li>• Will be reviewed by Building and Safety and</li> <li>• May be referred to the Regional Water Quality Control Board on a case-by-case basis, based on individual circumstances</li> </ul>

### **Soil Depth**

The depth of soil between the bottom of the dispersal field and the anticipated level of groundwater (or impermeable material such as clay or bedrock) in the disposal area must not be less than:

- 5 feet for leach lines, and/or
- 10 feet for seepage pits.



On a case by case basis, the required separation may be reduced to 2 feet for leach lines where supplemental treatment is provided in accordance with the APMP (refer to Section 8 for more information regarding the APMP). Approval from Building and Safety is required for all supplemental treatment systems.

### **Leach line Percolation Rates**

Leach line percolation rates are measured in MPI and will be determined by a percolation test. Once determined, the MPI will be converted to ft<sup>2</sup>/gal/day using the table derived from Table 7.4.

**Table 7.2 – Percolation Rate Selection**

<b>If the percolation rates are...</b>	<b>Then use...</b>
Uniform	A percolation rate between the mean and most conservative MPI.
Not uniform	The most conservative percolation rate.

### **Seepage Pit Rates**

Seepage pit percolation rates are measured in gallons/square feet/day (referred to as the design Q), and will be determined by a percolation test. The design Q for seepage pits must be between 1.1 and 4 gal/ft<sup>2</sup>/day. Q's greater than 4 gal/ft<sup>2</sup>/day will not be credited. In caving seepage pit test holes in coarse textured soils with rates greater than 3 gal/ft<sup>2</sup>/day, only 3 gal/ft<sup>2</sup>/day will be credited. If a gravel correction factor is used, incorporate it into the formula as another multiplier.

### **Minimum Allowable Replacement Area**

The minimum allowable replacement area is an area that will remain undeveloped and available to be used once the primary dispersal area is replaced. This area must be 100% of the original OWTS disposal field. The 100% replacement area must meet all minimum criteria outlined within the LAMP, and be gravity fed. All dispersal systems requiring replacement shall have installed a diversion valve so that the primary system has a chance to drain and recover functionality. If development of the lot prevents future access for heavy equipment to install the replacement dispersal system, then the 100% replacement shall be installed.

### **Pump Systems**

A pump system will be considered as a hardship and may only be used under the following conditions:

- To salvage an existing structure when an adequate disposal area cannot be reached by gravity flow, and/or
- To allow new house construction on an existing lot when there is no other alternative to pumping.



This hardship consideration will be based on reasonable site development. All construction details for designed systems utilizing a pump system are subject to review and approval by Building and Safety. Minimum conventional construction details can be found in the currently adopted California Plumbing Code.

### **Leach Line Dispersal Systems**

According to the California OWTS Policy, when computing the absorption area of the leach line dispersal system, the maximum allowable infiltrative area (as an infiltrative surface) per square foot of trench is 4 square feet per linear foot of trench. The maximum allowable trench width is 3 feet. Where leaching chambers are used, the maximum allowable decreased leaching area per International Association of Plumbing and Mechanical Officials (IAPMO) certified dispersal systems will be computed by using a multiplier of 0.70.

### **Oxygen Transfer in Dispersal Systems and/or Replacement Areas**

To ensure proper oxygen transfer to the soil, dispersal systems or replacement areas (with the exception of seepage pits) must not be covered by any impermeable material (i.e., paving, building foundation slabs, and/or plastic sheeting).

### **Septic Tank Requirements**

Construction and installation requirements for septic tanks are reviewed and approved by Building and Safety. Once construction and installation plans are approved, Building and Safety will issue OTWS construction permits. This section provides septic tank capacities and requirements for various development types.

#### **Septic Tank Capacity – Single Family Residences**

The septic tank capacity for a single-family residence is based on the number of bedrooms contained in the unit. The table below provides a summary of the septic tank capacity requirements for a single-family residence.

**Table 7.3 – Septic Tank Requirements - Single-Family Residence**

<b>Number of Bedrooms</b>	<b>Gallons of Septic Tank Capacity</b>
1-2	750
3	1,000
4	1,200
5-6	1,500
>6	See California Plumbing Code





**Table 7.4 - Application Rates as Determined from Stabilized Percolation Rate**

Percolation Rate (minutes per inch)	Application Rate (gallons per day per square foot)	Ft2 /g/d	Percolation Rate (minutes per inch)	Application Rate (gallons per day per square foot)	Ft2 /g/d	Percolation Rate (minutes per inch)	Application Rate (gallons per day per square foot)	Ft2 /g/d
<1	Requires Local Management Program	.83	31	0.522	1.92	61	0.197	5.08
1	1.2	.83	32	0.511	1.96	62	0.194	5.15
2	1.2	.83	33	0.5	2.0	63	0.19	5.26
3	1.2	.83	34	0.489	2.04	64	0.187	5.35
4	1.2	.83	35	0.478	2.09	65	0.184	5.43
5	1.2	.83	36	0.467	2.14	66	0.18	5.56
6	0.8	1.25	37	0.456	2.19	67	0.177	5.65
7	0.8	1.25	38	0.445	2.25	68	0.174	5.75
8	0.8	1.25	39	0.434	2.3	69	0.17	5.88
9	0.8	1.25	40	0.422	2.37	70	0.167	5.99
10	0.8	1.25	41	0.411	2.43	71	0.164	6.10
11	0.786	1.27	42	0.4	2.5	72	0.16	6.25
12	0.771	1.3	43	0.389	2.57	73	0.157	6.40
13	0.757	1.32	44	0.378	2.65	74	0.154	6.49
14	0.743	1.35	45	0.367	2.72	75	0.15	6.67
15	0.729	1.37	46	0.356	2.80	76	0.147	6.80
16	0.714	1.4	47	0.345	2.90	77	0.144	6.94
17	0.7	1.43	48	0.334	2.99	78	0.14	7.14
18	0.686	1.46	49	0.323	3.10	79	0.137	7.30
19	0.671	1.49	50	0.311	3.22	80	0.133	7.52
20	0.657	1.52	51	0.3	3.33	81	0.13	7.69
21	0.643	1.56	52	0.289	3.46	82	0.127	7.87
22	0.629	1.59	53	0.278	3.60	83	0.123	8.13
23	0.614	1.63	54	0.267	3.75	84	0.12	8.33
24	0.6	1.67	55	0.256	3.91	85	0.117	8.55
25	0.589	1.7	56	0.245	4.08	86	0.113	8.85
26	0.578	1.73	57	0.234	4.27	87	0.11	9.09
27	0.567	1.76	58	0.223	4.48	88	0.107	9.35
28	0.556	1.8	59	0.212	4.72	89	0.103	9.71
29	0.545	1.83	60	0.2	5.0	90	0.1	10
30	.0533	1.88				>90-120	0.1	10



**Table 7.5 Design Soil Application Rates**

Source: USEPA Onsite Wastewater Treatment Systems Manual, February 2002)

<b>(Soil Texture (per the USDA soil classification system</b>	<b>Soil Structure Shape</b>	<b>Grade</b>	<b>Maximum Soil Application Rate (gallons per day per square foot)</b>
Coarse Sand, Sand, Loamy Coarse Sand, Loamy Sand	Single Grain	Structureless	0.8
Fine Sand, Very Fine Sand, Loamy Fine Sand, Loamy Very Fine Sand	Single Grain	Structureless	0.4
Coarse Sandy Loam, Sandy Loam	Massive	Structureless	0.2
		Weak	0.2
	Platy	Moderate, Strong	Prohibited
		Prismatic Blocky Granular	Weak
Prismatic Blocky Granular	Moderate , Strong	0.6	
	Fine Sandy Loam, Very Fine Sandy Loam	Massive	Structureless
Weak, Moderate , Strong			Prohibited
Platy		Weak	0.2
		Moderate, Strong	0.4
Loam	Massive	Structureless	0.2
		Weak, Moderate , Strong	Prohibited
	Platy	Weak	0.4
		Moderate, Strong	0.6
Silt Loam	Massive	Structureless	Prohibited
		Weak, Moderate Strong	Prohibited
	Platy	Weak	0.4
		Moderate, Strong	0.6



(Soil Texture (per the USDA soil classification system	Soil Structure Shape	Grade	Maximum Soil Application Rate (gallons per day per square foot)
Sandy Clay Loam, Clay Loam, Silty Clay Loam	Massive	Structureless	Prohibited
	Platy	Weak, Moderate Strong	Prohibited
	Prismatic, Blocky, Granular	Weak	0.2
		Moderate, Strong	0.4
Sandy Clay, Clay, or Silty Clay	Massive	Structureless	Prohibited
	Platy	Weak, Moderate Strong	Prohibited
	Prismatic, Blocky, Granular	Weak	Prohibited
		Moderate, Strong	.02

### Septic Tank Capacity – Multi-Unit Residences and Non-Residential Facilities

The septic tank capacity for multi-unit residences and non-residential facilities is based on the estimated daily flow, or the number of fixture units as determined by the California Plumbing Code, whichever is greater. When creating design proposals for OWTS, developers must:

- Give full consideration to the estimated flows for all projected activities, and
- Include sufficient technical information to support the proposed design flow estimates.
- Distribution/Diversion boxes shall not be installed on the building side of the septic tank(s).

The following table provides information regarding septic tank requirements:

**Table 7.5 - Septic Tank Requirements – Multi-Unit Residences and Non-Residential Facilities**

Component	Requirement
Capacity	Minimum of 750 gallons.
Two Compartments	The first compartment must be equal to two-thirds the total tank volume.
Materials	Must be: <ul style="list-style-type: none"> <li>• Water-tight,</li> <li>• Properly vented, and</li> <li>• Made out of durable and non-corrosive material.</li> </ul>



Component	Requirement
Construction	All tanks must be listed and approved by: <ul style="list-style-type: none"> <li>• International Association of Plumbing and Mechanical Officials (IAPMO), or</li> <li>• An American National Standards Institute (ANSI) accredited testing organization.</li> </ul>
Access Opening	Access to each tank compartment must have a manhole at least 20 inches in diameter.
Access Risers	A riser must: <ul style="list-style-type: none"> <li>• Extend from each manhole opening to, or above, the surface of the ground, and</li> <li>• Be a size larger than the manhole opening.</li> </ul>
Effluent Filter	The outlet of the tank must be fitted with an effluent filter capable of: <ul style="list-style-type: none"> <li>• Screening solids with a diameter in excess of 3/16th of an inch, and</li> <li>• Conform to NSF/ANSI standard 46.</li> </ul>
Tank Connections	Tank connections must comply with standards required by Building and Safety.

## Prohibitions and Exemptions

Due to the geology and hydrology of certain areas within the City’s jurisdiction, prohibitions have been set to protect water quality, public health and safety. This section provides information regarding the areas within the City that have prohibitions, as well as information regarding when an exemption may be granted within these prohibition areas.

### OWTS Prohibitions

There are areas within the City of Redlands in which the discharge of waste from OWTS is prohibited. These areas include:

- Within 100 feet of the cut bank of the Santa Ana River
- Within 600 linear feet (in the horizontal map direction) of a water body listed on the 303(d) list, without an TMDL, where the edge of the water body is the natural or levied band for creeks and rivers, without the use of an APMP. The current list of 303(d) listed waters and waterbodies with TMDLs are available from the State Water Resources Control Board.



### Requesting Exemptions in Prohibition Areas

All persons requesting an exemption to the prohibition must complete the process for submitting a percolation report to Building and Safety. The following table describes the exemption process:

**Table 7.6 - Requesting Exemptions**

Stage	Description
1	The customer will request an exemption by: <ul style="list-style-type: none"> <li>• Completing a percolation test, and</li> <li>• Submitting a percolation report to Building and Safety.</li> </ul>
2	Building and Safety will: <ul style="list-style-type: none"> <li>• Review the percolation report,</li> <li>• Approve/deny the request, and</li> <li>• Return the percolation report to the customer and, if denied, instruct the customer to obtain Santa Ana Regional Water Quality Control Board approval prior to submitting the plot plan to Building and Safety. The customer will then follow Stage 3</li> <li>• If the request is approved, skip to Stage 4</li> </ul>
3	The customer will: <ul style="list-style-type: none"> <li>• Contact the Santa Ana Regional Water Quality Control Board to submit the following for approval:               <ul style="list-style-type: none"> <li>– Percolation report</li> <li>– Proposed plot plan</li> </ul> </li> <li>• Submit the following to Building and Safety for review:               <ul style="list-style-type: none"> <li>– Proposed plot plan</li> <li>– Percolation report</li> <li>– Verification of Santa Ana Regional Water Quality Control Board approval</li> </ul> </li> </ul>
4	Building and Safety will: <ul style="list-style-type: none"> <li>• Review,</li> <li>• Approve, and</li> <li>• Issue Permit.</li> </ul>

If the exemption has been denied by Building and Safety, preliminary exemption approval by the Santa Ana Regional Water Quality Control Board may be requested from the customer. Additional information may be requested by the City of Redlands or the Santa Ana Regional Water Quality Control Board for review of the exemption request.

### Special Considerations

The majority of the City of Redlands is in a river plain, where geologic conditions have a less significant impact on OWTS. The hilly areas throughout the City, however, have significantly more geological factors that must be addressed prior to installing an OWTS. This section



discusses the various geological factors within the City that will be given special consideration when reviewing requests for OWTS installation.

### **Geological Factors**

The performance of OWTS is affected greatly by the geology of the land in which it is located. Geological factors which must be accounted for prior to installing an OWTS include:

- Soil characteristics,
- Slope stability,
- Topography,
- Landforms, and
- Presence and movement of subsurface water.

### **Groundwater Conditions**

The City relies on local aquifers for both public and private water supplies. Site evaluation includes identifying and documenting any signs of groundwater. The documentation and soil permeability identified by a percolation test provides the basis for selecting OWTS design and separation distance of the dispersal system. This documentation is obtained to minimize contamination of the groundwater in the local aquifers. The identification and location of nearest supply wells and current groundwater quality should be included in any proposal when information is available.

### **Designated Maintenance Areas are Tier 3 Areas of Special Concern**

There are areas within the City that have a high density of OWTS. Due to the unique topographical and hydrogeological conditions in these areas, additional monitoring and maintenance is required.

### **Domestic Well Usage**

Numerous domestic wells are located the City of Redlands. Domestic wells are often used in conjunction with OWTS. In an effort to ensure the protection of new and existing wells from the effects of OWTS, the following requirements exist:

- Minimum horizontal setback distances between OWTS and any well.
- Well water testing for all newly constructed wells.
- Allowing supplemental treatment as an option for OWTS in areas where there are potential impacts to groundwater due to:
  - High domestic well usage, and/or
  - Existence of other limiting factors (i.e., shallow groundwater or fast percolation rates).
  - Small lot size or high density



## **Prohibited Discharge Conditions for Septic Tank Systems**

In an effort to ensure the proper functioning of septic tank systems, as well as prevent adverse effects to the environment, the following discharges are prohibited for septic tank systems:

- Surface water, rain, and/or other clear water.
- Toxic or hazardous chemicals to a domestic system.
- Water softener and iron filter discharge to a sewage disposal system or on the ground surface, unless specifically approved by Santa Ana Regional Water Quality Control Board. Water softener and iron filter discharge must be disposed of at an approved disposal site.

**Note:** Commercial developments will have individual monitoring ports for each unit connected to a confluent sewage disposal system if there is a single owner of the development. Multi-owner units (condominium type) will have a separate system for each unit.

## **Surface Water Quality Protection**

Setback requirements are the primary source of protection for surface water. These setbacks act as a buffer zone between the potential contaminants of the OWTS and the water body. The requirements listed in the LAMP are consistent with the Basin Plan for the Santa Ana Regional Water Quality Control Board, as well as meeting or exceeding requirements outlined in the California Plumbing Code. This section describes the requirements for surface water quality protection.

### Watersheds

Watersheds are reservoirs which serve as a source of drinking water supply for several downstream communities, and therefore require special protections. These areas are outlined in the Basin Plan for the Santa Ana Regional Water Quality Control Board. Increased setback standards are required for any OWTS proposal within 2,500 feet of surface water intake for public water supplies.

### Impaired Water Bodies

San Timoteo Creek within the City is listed as impaired, pursuant to the Clean Water Act Section 303(d). Any OWTS installed within 600 feet of the impaired water bodies contained in the 303(d) list is subject to the Advanced Protection Management Program (APMP). Refer to Section 8 for more information regarding impaired water bodies and the APMP. Should any water body within the City become 303(d) designated at a future date, these standards will apply to it also.

### Special Circumstances

In the hillside portion of the City, there are multiple known OWTS installed prior to this LAMP. When these systems are replaced or modified, they will be required to meet the current standards.



The following factors will also be given special consideration and will be reviewed on a case-by-case basis:

- Density
- Parcel size
- Potential cumulative OWTS impact issues

**Note:** To provide greater flexibility to City residents, alternative systems may be approved on a case-by-case basis with revised standards for setback requirements. See section 8 for details on alternate systems.

#### **Tier 4 Classified OWTS**

As noted in the OWTS Policy section, Tier 4 is a temporary classification for all systems that have been found to be failing, and/or in need of repair. OWTS which are included in Tier 4 must continue to meet applicable requirements of the LAMP, pending completion of corrective action. This section provides detailed information regarding OWTS, which are classified as requiring corrective action.

#### **Tier 4 Replacement**

Replacement of the OWTS where public sewer is available is prohibited. The public sewer may be considered not available when such public sewer is located more than 200 feet from any property line. This provision does not apply to replacement OWTS where the connection fees and construction cost are greater than twice the total cost of the replacement OWTS and the City determines that the discharge from the OWTS will not affect groundwater or surface water to a degree that makes it unfit for drinking or other uses.

#### **OWTS Requiring Corrective Action**

OWTS have the primary purpose of protecting public health. When systems are no longer meeting this purpose, they are deemed to be failing and require corrective action. When this occurs, systems must be replaced, repaired, or modified to return to proper functioning and comply with Tier 2 or Tier 3 classifications as appropriate. Failing OWTS include any OWTS that has:

- A Dispersal system failure which is no longer percolating wastewater adequately, causing:
  - Pooling effluent,
  - Wastewater discharge to the surface, and/or
  - Backed up wastewater into plumbing fixtures.
- A Septic tank failure (i.e., baffle failure, tank structural integrity failure), causing:
  - Wastewater to exfiltrate, or
  - Groundwater to infiltrate the system.
- A Component failure (i.e., broken piping connection, distribution box).





- Affected, or has the potential to affect groundwater, or surface water to a degree which:
  - Makes it unsafe for drinking or other uses, or
  - Is causing a condition, which affects human health, or is a public nuisance.

### **Addressing Corrective Action Requirements**

In order to retain coverage under the LAMP, owners of OWTS must:

- Address any corrective action requirement of Tier 4 as soon as reasonably possible (as determined by Building and Safety), and
- Comply with the time schedule of any corrective action notice received from the City of Redlands, or the Santa Ana Regional Water Quality Control Board.

When the owner of an OWTS is not able to comply with corrective action requirements, City of Redlands may approve repairs that are in substantial conformance with the LAMP to the greatest extent practicable given the limitations of the project site. However, the repair may still have a reasonable potential to cause a violation of water quality objectives. In order to retain coverage under the LAMP, owners of OWTS must:

- Address any corrective action requirement of Tier 4 as soon as reasonably possible (as determined by the City of Redlands ), and
- Comply with the time schedule of any corrective action notice received from the City of Redlands, or the Santa Ana Regional Water Quality Control Board.

### **Failure to Address Corrective Action Requirements**

OWTS which fail to meet the corrective action requirements of Tier 4 constitute a failure to meet the conditions of the waiver of waste water discharge requirements contained in the LAMP.

These are subject to further enforcement actions, which include, but is not limited to:

- Citations and/or fines from Code Enforcement and/or NPDES
- Legal action against the property



## **Section 8**

### **Supplemental Treatment and Alternative Dispersal Systems and Sewage Holding Tanks**

This section provides information that will be used to determine when an Alternative Treatment System (ATS) or other wastewater disposal method (i.e., a sewage holding tank) is needed.

### **Alternative Onsite Supplemental Treatment and Alternative Dispersal Systems**

Supplemental treatment systems and/or Alternative Dispersal Systems are required:

- If it is determined that:
  - A conventional septic system is not feasible for new construction,
  - The repair or upgrade of any existing OWTS cannot meet the requirements of the LAMP
- To maintain an annual operating permit with the City of Redlands.
- To meet Advanced Protection Management Program (APMP) requirements when installed near impaired bodies of water on the 303(d) list. See Advanced Protection Management Program this section for details.
- When the dwelling unit density exceeds one dwelling unit per 0.5 acres, as defined in previous sections, an Advanced Treatment System will be required to equate the proposed effluent loading amounts to that of a single-family dwelling unit.

When a supplemental treatment system and/or Alternative Dispersal System are required the owner shall provide a copy of the recorded deed showing maintenance and operation of the alternate disposal system is attached and runs with the deed. Alternative wastewater treatment system shall continuously operate to consistently produce an effluent quality which results in a 50 per cent reduction of nitrate as nitrogen. Should this property be sold, owner is required to disclose all conditions of approval to the new property owner(s).

### **Types of Supplemental Treatment Systems and Alternative Dispersal Systems**

The types of supplemental treatment systems and alternative dispersal systems include, but are not limited to:

- Supplemental treatment to a predetermined performance requirement according to the Santa Ana Regional Water Quality Control Board. These include aerobic treatment units (ATU) and sand filters.
- Mound systems
- Evapotranspiration systems
- Pressure distribution
- Subsurface drip dispersal



- Hybrid leach lines that are deeper, wider or shorter than otherwise permitted
- Other non-conventional OWTS approved by the City of Redlands and the Santa Ana Regional Water Quality Control Board

### **Wastewater Sample Requirements for Supplemental Treatment Systems**

All supplemental treatment systems are required to have wastewater samples taken per the operation and maintenance manual of the OWTS manufacturer, or annually the first year, and annually thereafter by Building and Safety staff when disinfection is not required. Important information regarding these samples includes:

- The wastewater samples must include the geographic coordinates (latitude and longitude) of the sample's location.
- Effluent samples will be taken by a service provider and analyzed by a California Department of Public Health (CDPH) certified laboratory. A copy of a service provider contract must be submitted to the City of Redlands by January 30<sup>th</sup> of each calendar year.
- The sample frequency shall be annual. Quarterly wastewater samples are required for disinfection treatment if there is no telemetric notification of a disinfection failure and with approval from Building and Safety (refer to the Additional Requirements for Supplemental Treatment Systems section for more information).
- For effluent, nitrate (as nitrogen) and total (Kjeldahl) nitrogen testing is required.

### **Supplemental Treatment System and Alternative Dispersal System Requirements**

Supplemental treatment systems must meet the following requirements for review and approval by the City of Redlands:

- Be certified by NSF, or another approved third party tester.
- Be designed by a Qualified Professional.
- Contain a description, in the percolation report and/or the plot plan, of the type of wastewater which will be discharged to the OWTS (i.e., domestic, commercial or industrial), and classification of it as domestic wastewater or high-strength waste.
- Contain a schedule of all materials and products that will be used to construct the system. This includes:
  - All technical details and informational maintenance or replacement documentation on the alternative treatment system that will be provided to the homeowner.
  - Procedures to ensure maintenance, repair, or replacement of critical items within 48 hours following failure.
- Ensure all of the following individuals are present onsite during the installation:
  - Qualified Professional,
  - Representative from the alternative treatment system manufacturer,
  - Licensed contractor, and
  - Individuals from any required regulatory agencies.
  - Inspector from Building and Safety, or their appointed agent.



## **Supplemental Treatment System Proposals**

Property owners proposing an Alternative Treatment System must submit the following to the City of Redlands:

- Application for Percolation Review,
- Preliminary approval from the Santa Ana Regional Water Quality Control Board for the alternative treatment system (if applicable),
- Supplemental Treatment System supporting literature (if applicable).
- Plot Plan,
- Percolation Report (if not previously submitted and approved), and
- The Percolation Report and Alternative Treatment system review fees.

## **Plot Plan Requirements**

Plot plan requirements are the same for alternative system as for conventional systems; however, the plot plan must also be signed and stamped by a Qualified Professional. Final approval for plot plans is a Building and Safety function.

## **When a Supplemental Treatment System or Alternative Dispersal System is Installed**

Once property owners install an alternative treatment system:

- A “Notice of Condition” must be recorded. Proof of the filing must be provided to Building and Safety within 30 days of installation and final inspection has been made by Building and Safety. Building and Safety staff is required access to inspect and sample the ATS as necessary.
- Parcels must connect to a sewer as soon as it becomes available, and the alternative treatment system must:
  - Cease to be used, and
  - Be properly abandoned. The owner must obtain a permit from Building and Safety for the abandonment of the system.

## **Owner Resources**

Owners of Alternative OWTS may obtain information regarding maintenance, repair, and/or replacements from the system designer/installer or manufacturer.

## **Additional Requirements for Supplemental Treatment Systems**

Supplemental treatment systems must also:

- Install a visible or audible alarm, as well as a telemetric alarm that alerts the owner or owner’s agent when there is a system failure or malfunction.



- Provide Building and Safety literature from the manufacturer showing the:
  - Total nitrogen in the effluent from the alternative treatment system meets a minimum 50 percent reduction in total nitrogen when comparing the 30-day average influent to the 30-day average effluent,
  - Effluent from the alternative treatment system does not exceed a 30-day average Total Suspended Solids (TSS) of 30 milligrams per liter (mg/L), and
  - Effluent has a fecal coliform bacteria concentration less than or equal to 200 Most Probable Number (MPN) per 100 milliliters (for systems near a body of water impaired for pathogens or where required by the City of Redlands or the Santa Ana Regional Water Quality Control Board.
- Define which treatment mode will be used, if the system has multiple treatment modes.
- Define the effluent water sample frequency, as determined by Building and Safety.
- Provide the name and contact information for the approved service provider that will maintain the system.
- Provide the name of the CDPH certified laboratory where the effluent water samples will be analyzed.
- Use the OWTS Certification form when serviced by a service provider.

**Supplemental Treatment System Submittal**

Supplemental treatment systems are required when it is necessary to reduce the biological or nitrogen load of the wastewater effluent. This includes when the OWTS is located:

- Near an impaired water body, or
- Where the underlying groundwater exceeds 10 mg/L nitrate-nitrogen and is an aquifer that supplies drinking water.
- Where minimum lot size requirements cannot be met.

When reviewing a supplemental treatment system proposal for an existing septic system, it must be determined what alterations or additions will be made.

<b>If a supplemental treatment system is proposed for an existing septic system and...</b>	<b>Then a ...</b>
No alterations or additions to the septic system will be completed,	Septic certification will be required, in addition to the Alternative Treatment System Requirements.
Alterations or additions to the septic system will be made,	Percolation report and/or septic certification may be required, in addition to the Alternative Treatment systems requirements.



## **Sewage Holding Tanks**

A Sewage Holding tank provides a means to collect and temporarily store sewage from a dwelling, business establishment, or other facility for subsequent removal and transport to an approved treatment and disposal site. Under normal circumstances, no person or entity will install, utilize, or control the use of any sewage holding tank within the incorporated area of the City for the confinement of sewage discharged from a dwelling, business establishment, or other facility. However, this section describes exceptions when a sewage holding tank is allowed.

## **When to Allow for Sewage Holding Tanks**

The City of Redlands may allow sewage holding tanks when the property for which the permit is requested is unsuitable for a conventional or alternative treatment system. Documentation must be provided to the City of Redlands to show that a conventional or alternative wastewater treatment system is not feasible (i.e. percolation report, plot plan, or other documentation as requested by Building and Safety). This is to eliminate a public health hazard or code violation where no other acceptable means of sewage disposal is feasible.

## **Sewage Holding Tank Requirements**

The City of Redlands must approve all plans for the design, location, and installation of sewage holding tanks. The following must be provided for review and approval:

- A completed Sewage Holding Tank Application, including documentation that all required City of Redlands conditions stipulated in the application have been completed.
- A copy of the current maintenance contract with a sewage holding tank pumper. The contract will be placed on file with the City of Redlands and must include the following terms:
  - A minimum of one inspection of the sewage holding tank per month, with servicing (pumping) as necessary.
  - The pumper will provide all emergency servicing required.
  - In the event the contract is cancelled or property ownership changes, the septic tank pumper will immediately notify the City of Redlands of the cancellation or change in ownership.
- A “Notice of Condition” must be recorded on the property once the sewage holding tank has been installed. Proof of the filing must be provided within 30 days of the installation and final inspection and permit issued by Building and Safety.
- A written agreement with the City of Redlands (refer to the Sewage Holding Tank Agreements, Appendix B).



## **Requirements When Properties with Sewage Holding Tanks Are Sold**

When a property containing a sewage holding tank is sold:

- The present property owner will notify the new property owner of the City of Redlands requirement to obtain a new permit.
- The City of Redlands will give the new property owner written notice of the permit conditions to be completed prior to occupancy of the property.

**Note:** Properties served by a sewage holding tank will be subject to an annual operating permit fee, as set forth in the City Fee Schedule, to pay the cost of routine inspections and program administration.

## **Sewage Holding Tank Agreements**

When submitting sewage holding tank agreements, the document must be:

- Satisfactorily completed,
- Signed by all property owners who will be using the proposed sewage holding tank, and
- Filed with Building and Safety prior to the issuance of any City of Redlands sewage holding tank permit.

When sewage collection lines become available within 200 feet for service to properties using a sewage holding tank, the property owner will connect to the sewage collection line and properly abandon the sewage holding tank (within 90 days).

## **Advanced Protection Management Program**

An Advanced Protection Management Program (APMP) is the minimum required management program for all Onsite Wastewater Treatment Systems (OWTS) located near a water body that has been listed as impaired due to nitrogen or pathogen indicators, pursuant to the Clean Water Act, Section 303(d). City of Redlands is authorized to implement APMPs in conjunction with an approved Local Agency Management Program (LAMP), or when there is no approved LAMP, APMPs can be approved under Tier 1 guidelines. The City of Redlands will collaborate with the Regional Water Boards by sharing any information pertaining to the impairment, provide advice on potential remedies, and regulate OWTS to the extent that the City's authority allows for the improvement of the impairment.

Per the State Water Resources Control Board's OWTS Policy, OWTS which are located near impaired water bodies may be addressed by a Total Maximum Daily Load (TMDL) and its implementation program, or special provisions contained in a LAMP.

## **Total Maximum Daily Load**

Section 303(d) of the Clean Water act requires each State to establish a TMDL for each impaired water body to address the pollutant(s) causing the impairment. In California, TMDLs are



generally adopted as Basin Plan amendments and contain implementation plans detailing how water quality standards will be attained. This section provides information regarding the TMDL requirements for impaired water bodies located within the City of Redlands.

### **Total Maximum Daily Load Calculation**

According to the United States Environmental Protection Agency (EPA) website, a TMDL calculates the maximum amount of a pollutant allowed to enter a water body so the water body will meet, and continue to meet, water quality standards for that particular pollutant. The TMDL calculation includes both anthropogenic and natural background sources of pollutants, which includes allocations to:

- Point sources [Wasteload Allocation (WA)], and
- Nonpoint sources [Load Allocation (LA)].

TMDLs must also include a margin of safety (MOS) to account for the uncertainty in predicting how well pollutant reduction will result in meeting water quality standards, and account for seasonal variations. The TMDL calculation is:

$$TMDL = \text{Sum of WA (point sources)} + \text{Sum of LA (nonpoint sources \& background)} + MOS$$

### **Geographic Area for Advanced Protection Management Program**

Where there is an approved TMDL, the geographic area for each water body's APMP is defined by the applicable TMDL. When there is not an approved TMDL which defines the geographic area, it will be 600 linear feet (in the horizontal map direction) of a water body listed on the 303(d) list, where the edge of the water body is the:

- Natural or levied bank for creeks and rivers.
- High water mark for lakes and reservoirs.
- High tide line for tidally influenced water bodies, as appropriate.

There may be OWTS located near impaired water bodies that would not be included in the APMP; however, they must meet all the requirements of the LAMP:

- Not listed in Attachment 2 of the Santa Ana Regional Water Quality Control Board OWTS Policy,
- Without an approved TMDL, and
- Not covered in this LAMP with special provisions.

### **Total Maximum Daily Loads for Impaired Waterbodies**

Currently, there are no TMDLs for the impaired water bodies on the 303(d) list. Once a TMDL is adopted, the TMDL implementation plan will supersede the APMP. Unless a TMDL is modified





to include actions for OWTS, the OWTS located near an impaired water body is not required to take any further actions when there is an approved TMDL, which:

- Addresses the impairment, and
- Does not assign a load allocation to the OWTS.

*Note:* Existing, new and replacement OWTS located near impaired water bodies are covered by a Basin Plan prohibition and must comply with the terms of the prohibition (refer to Prohibitions and Exemptions for more information).

### **Total Maximum Daily Load Completion Dates**

The Santa Ana Regional Water Quality Control Board must adopt TMDLs for the impaired water bodies identified on the 303(d) list in accordance with the dates specified ( refer to the State Water Board’s website). Should the Santa Ana Regional Water Quality Control Board not adopt a TMDL within two years of the specified date, coverage provided by the State Water Quality Control Board’s OWTS Policy waiver of waste discharge requirements will expire. This applies to any OWTS which has any part of its dispersal system discharging within the geographic area of an APMP. The Santa Ana Regional Water Quality Control Board will then be responsible for the following, with regard to these OWTS:

- Corrective action, and
- Issuing:
  - Waste discharge requirements (site specific),
  - General waste discharge requirements (non-site specific), and
  - Waivers of waste discharge requirements.

### **OWTS Without an Adopted TMDL Implementation Plan**

This section provides information regarding requirements for OWTS and supplemental treatment systems that have been permitted after the water body was initially listed in Attachment 2 of the State of California OWTS policy, and have any discharge within the geographic area of the APMP.

### **Requirements for OWTS**

In the absence of an adopted TMDL implementation plan, all new and/or replacement OWTS must:

- Utilize supplemental treatment. (Section 8)
- Meet performance requirements for nitrogen/pathogen impairment (see OWTS Located Near Water Bodies Impaired for Nitrogen and Pathogens for information regarding requirements).
- Comply with:
  - Setback requirements detailed in Section 5, and
  - Any applicable requirements outlined within the LAMP.



### **OWTS Located Near Water Bodies Impaired for Pathogens**

When an OWTS is located near a water body impaired for pathogens, the supplemental treatment components (designed to perform disinfection of pathogens) must provide sufficient pretreatment of the wastewater so effluent from the supplemental treatment components:

- Does not exceed a 30 day average Total Suspended Solids (TSS) of 30 milligrams per liter (mg/L), and

Will achieve an effluent fecal coliform bacteria concentration less than, or equal to, 200 Most Probable Number (MPN) per 100 milliliters.

The minimum soil depth and the minimum depth to the anticipated highest level of groundwater below the bottom of the dispersal system will not be less than 3 feet. All dispersal systems will have at least 12 inches of soil cover.

### **OWTS Installed Within an APMP**

All OWTS installed within an APMP must:

- Meet the requirements for Alternative Treatment Systems (refer to Section 8 for more information regarding Alternative Treatment Systems), which require:
  - An annual operating permit, and
  - Monitoring and maintenance of the OWTS.
- Connect to a sewer as soon as it is available, and properly abandon the supplemental treatment system.
- Monitor the OWTS in accordance with the operation and maintenance manual for the OWTS (or more frequently as required by the County and/or Santa Ana Regional Water Quality Control Board).
- Be equipped with a visual and/or audible alarm, as well as a telemetric alarm, which will alert the owner and service provider in the event of a system malfunction.

*Note:* Where telemetry is not possible, the owner (or owner's agent) will inspect the system at least monthly while the system is in use as instructed by a service provider. The owner/owner's agent must also notify the service provider not less than quarterly of the observed operating parameters of the OWTS.

### **Testing and Inspection of Wastewater Within an APMP**

All OWTS installed near water bodies impaired for pathogens will be inspected quarterly by a service provider for proper operation, unless a telemetric monitor system is capable of



continuously assessing the operation of the disinfection system. Testing of the wastewater flowing from the supplemental treatment components that perform disinfection will be:

- Sampled at a point in the system:
  - After the treatment components, and
  - Before the dispersal system.
- Conducted quarterly based on analysis of total coliform, with a minimum detection limit of 2.2 MPN.

All effluent samples must include the geographic coordinates of the sample's location. Effluent samples will be taken by a service provider and analyzed by a California Department of Public Health (CDPH) certified laboratory.



## **Section 9**

### **Monitoring and Inspections**

There are types of wastewater treatment that are not under the City's purview. These can range from cesspools, which are prohibited in the State of California, to wastewater treatment plants treating high strength waste, or OWTS receiving a projected flow over 10,000 GPD (which are under the purview of the Santa Ana Regional Water Quality Control Board). This section provides information regarding the City's role and the scope of coverage provided by the LAMP in the monitoring of OWTS within the City of Redland's boundaries.

### **Onsite Inspections and Monitoring**

Onsite inspections and/or monitoring are required for all new OWTS in DMAs, sewage holding tanks, and alternative treatment systems. This section provides information regarding the inspection and monitoring required for various OWTS.

### **OWTS Monitoring Requirements**

A monitoring program will be established for each alternative OWTS as a condition of the operating permit at the time of permit issuance, and may be amended at the time of permit renewal. The purpose of this monitoring is to ensure that the alternative OWTS is functioning satisfactorily to protect water quality and public health and safety.

### **Monitoring Elements for Alternate OWTS**

The monitoring requirements will vary depending on the specific type of alternative OWTS, typically including the following:

- Recording of wastewater flow based on water meter readings, pump event counter, elapsed time meter, in-line flow meter, or other approved methods;
- Measurement and recording of water levels in inspection risers/pipes in the dispersal field;
- Inspection and observation of pump operation and other mechanical equipment;
- Water quality analysis of selected water samples taken from points in the treatment process, from groundwater monitoring wells, or from surface streams or drainages; typical water quality parameters include total and fecal coliform, nitrate, BOD, and suspended solids;
- General review and inspection of treatment and dispersal area for evidence of seepage, effluent surfacing, erosion or other indicators of system malfunction; and
- Other monitoring as recommended by the system designer or equipment manufacturer.



### **Monitoring Frequency for Alternate OWTS**

The required frequency of monitoring for each alternative OWTS installation will be established in the operating permit, generally in accordance with the following minimum schedule:

- Years 1 through 4 of operation: semi-annual monitoring
- Years 5 and beyond: annual monitoring
- Monitoring frequency may be increased for larger flow OWTS (e.g., >2,500 GDP), where warranted because of the complexity of the design or sensitive nature of the site (i.e., impaired areas)

Monitoring frequency may be increased for any system if problems are experienced.

### **Monitoring Responsibility for Alternate OWTS**

Monitoring of alternative OWTS shall be conducted by or under the supervision of one of the following:

- Registered Civil Engineer;
- Professional Geologist;
- Registered Environmental Health Specialist; or

Other onsite wastewater maintenance providers recognized by Building and Safety as having experience in the construction and/or operation of OWTS as evidenced by either of the following:

- Possession of a valid contractor's license (A, C-36 or C-42); or
- Completion of an onsite wastewater certification training course by a third party entity, such as the California Onsite Wastewater Association (COWA), National Association of Waste Transporters (NAWT), National Sanitation Foundation (NSF), or other acceptable training program as determined by the director.

Additionally, Building and Safety staff may require third-party inspection and monitoring of any alternative OWTS where deemed necessary because of special circumstances, such as the complexity of the system or the sensitive nature of the site. The costs for such additional monitoring would be the responsibility of the owner.

### **Reporting for Alternate OWTS**

Monitoring results shall be submitted to Building and Safety staff in accordance with reporting guidelines provided in this Manual and as specified in the operating permit. The monitoring report shall be signed by the party responsible for the monitoring. Notwithstanding formal monitoring reports, Building and Safety staff shall be notified immediately of any system problems observed during system inspection and monitoring that threaten public health or water quality.



## **New OWTS**

Building and Safety may conduct an onsite inspection of percolation testing for new OWTS on any lot that is:

- Located in the hillside areas, this includes any area:
  - Within San Timoteo Canyon, or
  - In the hillsides south of Interstate 10 or Barton Road, or East of Wabash Avenue
- Less than 1.5 acres, and is not served by a permitted water system.
- Located:
  - On a slope greater than 20%,
  - Within 200 feet of the Santa Ana River (in the horizontal map direction), or
  - Within 100 feet of a stream (perennial or ephemeral).
- Located in an area which cannot meet the minimum setback requirements for a conventional septic system due to:
  - Historically high groundwater, or
  - Perched groundwater.

**Note:** For more information regarding minimum setback requirements, refer to Section 5.

## **Required Onsite Inspection**

Building and Safety must complete an onsite inspection for percolation testing when the Qualified Professional submitting the report has:

- Not submitted a report to Building and Safety in the previous 2 years, or
- Previously submitted reports which have been deemed:
  - Incomplete, and/or
  - Significantly deficient.

Building and Safety may also, at its discretion, determine an on-site inspection is necessary in instances not mentioned above, or where it is determined the installation of an OWTS may have an adverse impact to water quality, public health and safety.

## **OWTS in Designated Maintenance Area (DMA)**

All OWTS which are located within a DMA are required to maintain an operating permit with the City of Redlands. These OWTS are inspected biennially.

## **Sewage Holding Tanks**

All sewage holding tanks located within the City of Redlands are required to:

- Maintain an operating permit with City of Redlands, and
- Be inspected annually.

**Note:** Refer to Section 8, Sewage Holding Tanks for more information.



## **Supplemental Treatment Systems**

Owners of supplemental treatment systems located within the City are required to:

- Maintain an operating permit and pay the required fees,
- Ensure the supplemental treatment system is inspected annually and a report provided to the City of Redlands, and
- Submit wastewater samples during the first year of use.

## **Variations**

On a case-by-case basis, the City of Redlands may establish alternative OWTS siting and operational requirements where it is determined by the City of Redlands that the alternate requirements will provide a similar level of protection. There will be situations, however, where variations are not granted. This section details the instances when variations will not be granted.

### **Above Surface Discharge**

Variations will not be granted for any OWTS which utilizes any form of effluent disposal discharging on, or above, the post installation ground surface; this includes, but is not limited to sprinklers, exposed drip lines, free-surface wetlands, and lagoons.

### **Sewer Availability**

Variations will not be granted for any OWTS where there is a public sewer available. Building and Safety will require a “Will or Will Not Serve” letter from the City of Redlands Engineering Department with each new or replacement OWTS proposal in order to evaluate the proximity and availability of community systems to the proposed OWTS site. This will ensure septic systems are only installed in areas where a sewer is unavailable. The “Will or Will Not Serve” letter must include the following:

- Parcel number for the property where the OWTS is being proposed.
- Distance to the nearest available sewer line.
- Whether or not the sewer entity will provide service to the parcel.
- Be completed and signed by the appropriate official representing the City of Redlands Engineering Department and be filed with Building and Safety:
  - Prior to submittal of the percolation report/plot plan, or
  - Upon request once the percolation report/plot plan has been submitted.

The City of Redlands GIS Department maintains a digital map of all of the sewer lines in the City to prevent the approval of a septic system when a sewer is available. In addition, when reviewing requests for replacement systems, the City of Redlands uses ESRI NearMap to evaluate the site at ground level for sewer manholes that may not be in the database.



### **Sewer Requirement**

Developments must connect to a sewer system when the nearest property line adjacent to City right-of-way or utility easement is within 200 feet of an available sewer line. This requirement will be increased by 100 feet for each additional equivalent dwelling unit within the development/project. A site-specific study will be required to consider hydrogeological conditions, the proposed project, and surrounding development's groundwater impacts to best protect groundwater.

The following options must be considered:

- Require a Supplement Treatment Plant for the entire project with approved operation and maintenance
- Require larger lot sizes
- Require individual supplemental treatment systems in lieu of septic systems
- Allow septic systems and install monitoring well (s) with a mechanism for sampling established.

### **Ground Slope**

Variations will not be granted for slopes greater than a 30% incline without a slope stability report approved by a Qualified Professional. Refer to Natural Ground Slope in Section 6 for more information regarding natural ground slope requirements.

### **Leaching Areas**

As referenced in Leach Line Dispersal Systems (Section 7), the maximum allowable decreased leaching area for International Association of Plumbing and Mechanical Officials (IAPMO) certified infiltrator type systems will be a multiplier of 0.70. No variances will be granted for systems using a multiplier of less than 0.70.

### **Supplemental Treatment**

As referenced in Onsite Supplemental Treatment and Alternative Dispersal Systems (Section 8), OWTS utilizing supplemental treatment require periodic monitoring or inspections. No variances will be granted for supplemental treatments that are unable to meet the requirements of Section 8.

### **Depth to Groundwater**

No variance will be granted for OWTS with a separation from the bottom of the dispersal system to groundwater less than 5 feet for leach lines. Seepage pits will have a separation of no less than 10 feet. Refer to the Soil Depth Section 7 for more information.

The highest level of groundwater within the dispersal system may be determined using data from permitted wells, local water purveyors, and/or the United States Geological Survey (USGS), in addition to exploratory borings or trenches.

*Note:* At the discretion of the City, the depth to groundwater requirement may be reduced to 2 feet when there is a supplemental treatment unit with disinfection installed.





### **Recreational Vehicle (RV) Holding Tanks**

No variances will be granted for OWTS receiving significant amounts of wastes from RV holding tanks. The determination of what is significant is at the discretion of Building and Safety.

### **Minimum Horizontal Setbacks**

All new and replacement OWTS must meet the minimum horizontal setbacks from domestic or municipal water supply well sources, including private wells. This section provides details regarding the minimum horizontal setback requirements for OWTS located near public water sources.

### **Setbacks Determined by Depth**

The minimum horizontal setbacks for effluent dispersal systems are dependent on the depth of the system. The following table describes the required setbacks for effluent dispersal systems located near public water wells. See Section 5, Setback Requirements.

**Table 9.1 Setbacks by Depth**

<b>If the depth of the effluent dispersal system...</b>	<b>Then the required horizontal setback from the public water well is...</b>
Does not exceed 10 feet,	150 feet.
Equals to or exceeds 10 feet and does not exceed 20 ft,	200 feet.
Equals to or exceeds 20 feet	600 feet

Where the effluent dispersal system is within 600 feet of a public water well, and the depth exceeds 20 feet, a Qualified Professional must conduct an evaluation. The evaluation is to determine the horizontal setback required to achieve a two-year travel time for microbiological contaminants. In no case, however, will the setback be less than 200 feet.

### **Dispersal Systems Near Surface Water Intake Points**

The following minimum horizontal setbacks will be determined when effluent dispersal systems are located:

- Near a public surface water intake point (e.g., reservoir, lake, or flowing water body),
- Within the catchment of the drainage area, and
- In such a way that it may affect water quality at the intake point (i.e., upstream of the intake point for flowing water bodies).



When the effluent dispersal system is located ...	Then the dispersal system will be no less than...
Within 1,200 feet of the intake point,	400 feet from the high water mark.
More than 1,200 feet, and Less than 2,500 feet from the intake point,	200 feet from the high water mark.

### **OWTS within Required Setbacks of a Public Water Supply**

Existing or proposed OWTS (in close proximity to domestic or municipal water wells, and surface water treatment plant intakes) have the potential to adversely impact source water quality. City Codes indicates horizontal setback requirements that apply to all OWTS located in the proximity of individual and public water supply wells. Refer to Setback Requirements in Section 5 for information regarding OWTS located within required setbacks.

### **Replacement OWTS Not Meeting Horizontal Setback Requirements**

Replacement OWTS not meeting the horizontal setback requirements must meet the separation requirements to the greatest extent practicable. When this occurs, the OWTS must use mitigation measures (i.e., supplemental treatment) to ensure the public water source is not adversely affected. Mitigation measures, including supplemental treatment, will not be required when Building and Safety and/or the Santa Ana Regional Water Quality Control Board find there is no indication that the previous OWTS adversely impacted the public water source. This will be determined based on:

- Topography,
- Soil depth,
- Soil Texture, and
- Groundwater separation.

### **Separation Requirements for OWTS Pre-existing the Program**

New OWTS installed on parcels of record existing on the effective date of this Program, which are unable to meet the horizontal setback requirements, must:

- Meet the separation requirements to the greatest extent practicable,
- Use the supplemental treatment for pathogens as detailed in the APMP (refer to Section 8 for more information regarding the APMP), and
- Use other mitigation measures, if necessary, as determined by the permitting authority.

**Note:** No variances will be granted for any of the minimum horizontal setback requirements outlined in this section.



## **Site Assessment**

Prior to approving the use of an OWTS, a site evaluation by Building and Safety may be required to:

- Ensure the proper system design.
- Determine compliance with site suitability, and whether adequate capacity is available.

Septage disposal from septic tanks is reported by septic tank pumpers monthly to the City of Redlands Building and Safety with the location pumped, quantity pumped and the disposal location declared. These reports are entered into an electronic database.

## **Cesspool Elimination**

Cesspools are not permitted in the City of Redlands. When City staff discovers a cesspool is still in use, the property owner will be required to replace the cesspool with an OWTS under Tier 2, or connect to an existing sewer if they meet the requirements under Section 1, LAMP Standards, Applicability, Requirements and Exceptions. The timeframe for complying with this requirement will vary based on the condition of the cesspool and the potential threat it represents to water quality, public health, and safety. While the City does not have a point of sale requirement for existing septic systems certification, voluntary certifications are performed routinely and system upgrades are permitted and replacements are constructed under Building and Safety permit.

## **Public Education**

Reference and educational material for owners of OWTS can be found at the Building and Safety counter. These educational documents provide information for owners regarding how to locate, operate, and maintain their OWTS.



## **Section 10**

### **Reporting Requirements and Data Collection**

As a condition to having oversight of the OWTS within the City of Redlands, Building and Safety must collect certain data and report it to the Santa Ana Regional Water Quality Control Board and in some instances, the Division of Drinking Water (DDW), as well as owners of water systems. This section provides information regarding the minimum reporting responsibilities, the OWTS Water Quality Assessment Program (WQAP), and the Program assessment.

### **Reporting to the Santa Ana Regional Water Quality Control Board**

The City must report the following information to the Santa Ana Regional Water Quality Control Board on an annual basis, no later than February 1st of each year. The records shall be submitted in digital format.

- The quantity and location of complaints pertaining to OWTS in the City, and specifying which complaints were investigated, and how the complaints were resolved.
- The permits issued for new and replacement OWTS, including the number, location, and description of the permits, and which Tier the permit was issued under.
- The quantity, location, and description of permits issued for OWTS where a variance from the approved Program was granted.
- The reports provided regarding the liquid waste haulers who pumped septage in the City, the location from where the septage was pumped and the volume of septage pumped.
- A list of the applications and registrations issued for the Liquid Waste Hauler Program.
- The copy of the permits issued to domestic and municipal supply wells, including number, location, and description of permits.
- A written assessment and tabulation of the data in each information type, including (1) the distribution of new OWTS by group of lot size and (2) any new OWTS with supplemental treatment, and type of dispersal, including type of alternative dispersal system.

The records will be maintained in hardcopy form for no less than 3 years and digitally in perpetuity.

### **Septage Management**

Septage is the partially treated waste from an OWTS. It generally consists of all the wastes that are disposed of through a structure's plumbing system that neither drain out into the soil nor are converted to gases by the bacteria in the tank. In the septic tank where primary treatment takes place, the waste separates into three distinct layers; the upper scum layer, the middle clarified layer and the lower sludge layer.

Over time the scum and sludge layers accumulates to the point where the biologically active clarified area is minimized. When this occurs, the tank should to be pumped. The liquid waste



pumped from the tank is referred to as septage. Septage is essentially sewage and like sewage must be disposed of in a manner that protects public health.

The City of Redlands collects pumping information and/or collects septage pumping data from qualified waste haulers. This information is required to be submitted by all qualified waste haulers. (Ord. 2268 § 1, 1995)

Once removed from the tank by a registered pumper, septage must be transported to a dispersal facility that operates under the authority of a permit by the Santa Ana Regional Water Quality Control Board.

The San Bernardino County Division of Environmental Health regulates the transportation and disposal of sanitary liquid waste within San Bernardino County.

Septage pumpers are required per §33.0859 (d) of San Bernardino County Code to provide each customer for whom the permittee has provided pumper services for sanitary waste removal, with a receipt/and or bill for services performed. This receipt/bill shall include the following information:

1. Number of compartments pumped.
2. Estimated gallons or volume of sanitary wastes removed.
3. Intended location to which the sanitary wastes are to be discharged.
4. Estimated disposal charges to be incurred upon disposal of said sanitary wastes.

Septage pumpers may dispose of their liquid waste at the City of Redlands Wastewater Treatment Plant. The Wastewater Treatment Plant keeps records from each waste hauler of the above information along with location within the City of Redlands from where the septage was pumped.

Per §33.0860 of San Bernardino County Code, no sanitary wastes, including wash or rinse water used to clean the interior of the liquid waste hauler's vehicle tank or any portable toilet, shall be disposed of at any location which is not approved by Santa Ana Regional Water Quality Control Board and which does not meet either or both, as applicable, of the following conditions:

- The current unrevoked waste discharge requirements for the treatment and/or disposal of liquid wastes from the Santa Ana Regional Water Quality Control Board. (Refers to municipal wastewater treatment plants).
- A current, unrevoked solid waste disposal site permit, sanctioning the disposal of septic or other liquid wastes from the California Integrated Waste Management Board. (Applies to permitted landfills with septage receiving ponds).

No sanitary waste pumped by a pumper truck is allowed to be stored in a sewage-holding tank within the City of Redlands prior to final disposal at an approved location, without prior approval from the City of Redlands Building, Safety Department, and Waste Water Treatment. The use of a sewage-holding tank requires approval from the City of Redlands Building and Safety, and Planning Department as well as the application for a sewage holding tank permit from the City of Redlands.



## **OWTS Water Quality Assessment Program (WQAP)**

In addition, the City of Redlands must maintain a Water Quality Assessment Program (WQAP) to determine the general operation status of OWTS and to evaluate the impact of OWTS discharges, and assess the extent to which groundwater and local surface water quality may be adversely impacted. The assessment program will include monitoring and analysis of water quality data, review of complaints, failures, and OWTS inspections. The water quality data can be obtained from the following sources:

- Review of public system sampling reports done by the City or another agency responsible for the public system.
- Water quality testing reports done at the time of new well development if those are reported.
- Data contained in the California Water Quality Assessment Database.
- Groundwater data collected as part of the Groundwater Ambient Monitoring and Assessment Program and available in the Geotracker Database.
- Any other sampling data deemed relevant or necessary for the protection of ground/surface water supplies.

A summary of the data and a report of the City's activities and findings shall be submitted on an annual basis on or before February 1st. An evaluation of the monitoring program and an assessment of whether water quality is being impacted by OWTS shall be submitted every 5 years.

## **Local Agency Management Plan Assessment**

Every five years an assessment will be completed to evaluate the LAMP and determine whether OWTS within the City are affecting water quality. During this review, the LAMP will be modified, as needed, to address the impacts of OWTS. This section provides information regarding how the information will be compiled and reviewed, as well as how the information will be compiled and saved. In order to assess the operational status of the OWTS within the City, the City will compile and review:

- Septic tank pumper disposal reports. Complaints and abatement activities for failing OWTS,
- Variances issued for new and/or repair OWTS,
- Sample data from the WQAP,
- Water quality monitoring reports for alternative treatment systems or other OWTS having an operating permit, and
- Septic system certifications of existing OWTS in connection with:
  - Building additions/remodel projects, or
  - Property transactions (if required by a bank or other agency).



## **Section 11**

### **Tier Descriptions**

#### **Tier 0**

Existing OWTS that are properly functioning and do not meet the conditions of failing systems or otherwise require corrective action (for example, to prevent groundwater impairment) as specifically described in Tier 4, and are not determined to be contributing to an impairment of surface water as specifically described in Tier 3, are automatically included in Tier 0.

Existing OWTS are automatically covered by Tier 0 if they meet the following requirements:

- Have a projected flow of 10,000 gallons-per-day or less;
- Receive only domestic wastewater from residential or commercial buildings, or high-strength wastewater from commercial food service buildings that does not exceed 900 mg/L BOD and has a properly sized and functioning oil/grease interceptor (a.k.a. grease trap);
- Continue to comply with any previously imposed permitting conditions;
- Do not require supplemental treatment under Tier 3;
- Do not require corrective action under Tier 4; and
- Do not consist of a cesspool as a means of wastewater disposal.

The City of Redlands may deny coverage under this Policy to any OWTS that is:

- Not in compliance with this section
- Not able to adequately protect the water quality of the waters of the State, as determined by the Regional Water Board after considering any input from the City of Redlands. The Regional Water Board may require the submission of a report of waste discharge to receive Region specific waste discharge requirements or waiver of waste discharge requirements so as to be protective.

Existing OWTS currently under waste discharge requirements or individual waiver of waste discharge requirements will remain under those orders until notified in writing by the appropriate Regional Water Board that they are covered under this Policy.

#### **Tier 1**

Tier 1 is for new or replacement OWTS meet low risk siting and design requirements. Tier 1 applies only where there is not an approved Local Agency Management Program (LAMP) per Tier 2.

Tier 1 will not apply upon approval of this LAMP.



## **Tier 2**

Tier 2 is also known as the Local Agency Management Program.

Local agencies may submit management programs for approval, and upon approval then manage the installation of new and replacement OWTS under that program. Local Agency Management Programs approved under Tier 2 provide an alternate method from Tier 1 programs to achieve the same policy purpose, which is to protect water quality and public health.

In order to address local conditions, Local Agency Management Programs may include standards that differ from the Tier 1 requirements for new and replacement OWTS.

This Local Agency Management Program authorizes OWTS considering that there are differences in soil characteristics, densities for new developments, watersheds and topography.

This Local Agency Management Programs outlines the requirements for the use of OWTS within the City's jurisdiction.

Once a Local Agency Management Program is approved, it shall supersede Tier 1 and all future OWTS decisions will be governed by the Tier 2 Local Agency Management Program until it is modified, withdrawn, or revoked.

## **Tier 3**

Existing, new, and replacement OWTS that are near impaired water bodies may be addressed by a Total Maximum Daily Load (TMDL) and its implementation program, or special provisions contained in a Local Agency Management Program. If there is no TMDL or special provisions, new or replacement OWTS within 600 feet of impaired water bodies must meet the applicable specific requirements of Tier 3.

### **Advanced Protection Management Program**

An Advanced Protection Management Program is the minimum required management program for all OWTS located near a water body that has been listed as impaired due to nitrogen or pathogen indicators pursuant to Section 303(d) of the Clean Water Act. The City of Redlands is authorized to implement Advanced Protection Management Programs in conjunction with an approved Local Agency Management Program. The City will collaborate with the Regional Water Boards by sharing any information pertaining to the impairment and regulating OWTS to the extent that their authority allows for the improvement of the impairment.

The geographic area for each water body's Advanced Protection Management Program is defined by the applicable TMDL, if one has been approved. If there is not an approved TMDL, it is defined by an approved Local Agency Management Program, if it contains special provisions for that water body. If it is not defined in an approved TMDL or Local Agency Management Program, it shall be 600 linear feet [in the horizontal (map) direction] of an impaired water body where the edge of that water body is the natural or levied bank for creeks and rivers, the high water mark for lakes and reservoirs, as appropriate. OWTS near impaired water bodies that do not





have a TMDL and are not covered by a Local Agency Management Program with special provisions are not addressed by Tier 3.

#### **Tier 4**

OWTS that require corrective action or are either presently failing or fail at any time while this Policy is in effect are automatically included in Tier 4 and must follow the requirements as specified. OWTS included in Tier 4 must continue to meet applicable requirements of Tier 0, 1, 2 or 3 pending completion of corrective action.

#### **Corrective Action for OWTS**

Any OWTS that has pooling effluent, discharges wastewater to the surface, or has wastewater backed up into plumbing fixtures, because its dispersal system is no longer adequately percolating the wastewater is deemed to be failing, no longer meeting its primary purpose to protect public health, and requires major repair, and as such the dispersal system must be replaced, repaired, or modified so as to return to proper function and comply with Tier 1, 2, or 3 as appropriate.

Any OWTS septic tank failure, such as a baffle failure or tank structural integrity failure such that either wastewater is exfiltrating or groundwater is infiltrating is deemed to be failing, no longer meeting its primary purpose to protect public health, and requires major repair, and as such shall require the septic tank to be brought into compliance with the requirements of Section 8 in Tier 1 or a Local Agency Management Program per Tier 2.

Any OWTS that has a failure of one of its components other than those noted above, such as a distribution box or broken piping connection, shall have that component repaired so as to return the OWTS to a proper functioning condition and return to Tier 0, 1, 2, or 3.

Any OWTS that has affected, or will affect, groundwater or surface water to a degree that makes it unfit for drinking or other uses, or is causing a human health or other public nuisance condition shall be modified or upgraded to abate its impact.

#### **OWTS Requiring Corrective Action**

Owners of OWTS will address any corrective action requirement of Tier 4 as soon as is reasonably possible, and must comply with the time schedule of any corrective action notice received from the City of Redlands or Regional Water Board, to retain coverage under this Policy.

Failure to meet the requirements of Tier 4 constitute a failure to meet the conditions of the waiver of waste discharge requirements contained in this Policy, and is subject to further enforcement action.



## **Glossary**

### **303(d) or 303(d) list**

Those surface water bodies or segments thereof that are identified on a list approved first by the State Water Board and then approved by US EPA pursuant to Section 303(d) of the federal Clean Water Act.

### **Above Ground Dispersal System**

A covered sand bed elevated above original ground surface with an effluent leach field located in the sand bed.

### **Accessory Structures**

A subordinate habitable building that is incidental and not attached to the main building or use on the same lot. If an accessory building is attached to the main building or if the roof is a continuation of the main building roof, the accessory building shall be considered an addition to the main building. Includes habitable structures with sanitary sewer plumbing facilities regardless of whether a Building Permit is required, including, but not limited to, barns, guesthouses, second dwelling units, garages, storage buildings/sheds, and pool (swimming) houses/bathrooms.

### **Alternative OWTS**

Any OWTS that does not meet the criteria of a conventional OWTS, but is allowed under conditions specified by the City of Redlands. These include supplemental treatment systems (see separate definition) and alternative dispersal system, such as pressured dose distribution systems.

### **Average Annual Rainfall**

The average of the annual amount of precipitation for a location over a year as measured by the nearest National Weather Service station for the preceding three decades.

### **Basin Plan (or Water Quality Control Plan)**

A plan that identifies surface and groundwater bodies within each region's boundaries, and establishes for each, its respective beneficial uses, and water quality objectives. Basin plans are adopted by the Regional Water Quality Control Board (RWQCB) and State Water Resources Control Board (SWRCB), and are approved by the Office of Administrative Law.

### **Bedrock**

The rock, usually solid, which underlies soil or other unconsolidated, surficial material.



### **Biological Oxygen Demand (BOD)**

Biochemical oxygen demand (BOD, also called biological oxygen demand) is the amount of dissolved oxygen needed (i.e., demanded) by aerobic biological organisms to break down organic material present in a given water sample at certain temperature over a specific time period.

### **Building and Safety**

The Building and Safety is the Building and Safety Division of Development Services and/or the officer or other duly authorized representative charged with the administration and enforcement of the current adopted California Building Code.

### **Building Official**

The Building Official for the City of Redlands is the Building and Safety Department Director and is the officer or other designated authority charged with the administration and enforcement of the current adopted California Building Code, or a duly authorized representative.

### **Cesspool**

An excavation in the ground receiving domestic wastewater, designed to retain the organic matter and solids, while allowing the liquids to seep into the soil.

### **Clay**

Term used to describe a soil particle, or type of soil texture. As a soil:

- Particle – clay consists of individual rock or mineral particles having diameters of <0.002 millimeters (mm).
- Texture – clay is a soil material that is comprised of 40%, or more, clay particles, not more than 45% sand, and not more than 40% silt particles using the United States Department of Agriculture (USDA) soil classification system.

### **Cobbles**

Rock fragments measuring 76 mm (3 inches) or larger, using the USDA soil classification systems.

### **DDW**

The California State Water Resources Control Board Division of Drinking Water.

### **Designated Maintenance Area (DMA)**

Areas of the City that do not have a public sewer system and have been determined by the Santa Ana Regional Water Quality Control Board as sensitive to septic system waste discharge.



### **Dispersal System**

A type of system for final wastewater treatment and subsurface discharge, which may include a leach field, seepage pit, mound, subsurface drip field, or evapotranspiration and infiltration bed.

### **Domestic Wastewater**

Wastewater with a measured strength less than high strength wastewater, which is discharged from plumbing fixtures, appliances and other household devices.

### **Domestic Well**

A groundwater well that provides water for human consumption, and is not regulated by the State Water Quality Control Board.

### **Drainage system**

Includes all the piping within public or private premises that convey sewage or other liquid wastes to a legal point of disposal, but does not include the mains of a public sewer system or a public sewage treatment or disposal plant.

### **Effluent**

Sewage, water, or other liquid (partially or completely treated, or in its natural state), flowing out of a septic tank, aerobic treatment unit, dispersal system, or other OWTS component.

### **Electronic Deliverable Format (EDF)**

The data standard adopted by the SWRCB for submittal of groundwater quality monitoring data to the State Water Board's internet-accessible database system, Geotracker.

### **Engineering**

A division of the Municipal Utilities and Engineering Department. Also, see Municipal Utilities and Engineering Department

### **Existing OWTS**

An OWTS that was constructed, operating, and issued a permit prior to the effective date of the LAMP.



### **Flowing water body**

A body of running water flowing over the earth in a natural water course, where the movement of the water is readily discernible or if water is not present it is apparent from review of the geology that when present it does flow, such as in an ephemeral drainage, creek, stream, or river.

### **Grease Interceptor**

See Oil/Grease Interceptor

### **Groundwater**

Water below the land surface that is at, or above, atmospheric pressure.

### **High Strength Wastewater**

Wastewater, prior to septic tank or other form of OWTS treatment component, having:

- A 30-day average concentration of Biochemical Oxygen Demand (BOD) greater than 300 milligrams per liter (mg/L), and/or
- Total Suspended Solids (TSS) greater than 330 mg/L, and/or
- A Fats, Oil, and Grease (FOG) concentration greater than 100mg/L.

### **Impaired Water Bodies/303(d) List**

Surface water bodies, or segments thereof, identified on the Section 303(d) list pursuant to the Federal Clean Water Act, approved by the State Water Resources Control Board, and the United States Environmental Protection Agency (EPA).

### **International Association of Plumbing and Mechanical Officials (IAPMO)**

An association that assists individual jurisdictions, both in the United States and abroad, to meet their specific needs by coordinating the development and adaptation of plumbing, mechanical, swimming pools, and solar energy codes.

### **Local Agency**

Any subdivision of state government responsible for permitting, installation, and regulation of OWTS within its jurisdictional boundaries; in this LAMP, the City of Redlands.

### **Local Agency Management Program (LAMP)**

A program for the siting, design, operation and maintenance of OWTS, developed by a local agency, and approved by the RWQCB as an alternate method to achieve the same policy purpose as that of OWTS policy.



### **Major Repair**

A repair for an OWTS dispersal system due to surfacing wastewater effluent from the dispersal field and/or wastewater backed up into plumbing fixtures because the dispersal system is not able to percolate the design flow of wastewater associated with the structure served, or for a septic tank as a result of compartment baffle failure, or tank structural integrity; failure such that either wastewater is exfiltrating, or groundwater is infiltrating.

### **Mottling**

A soil condition that:

- Results from oxidizing or reducing minerals due to soil moisture changes from saturated to unsaturated over time, and/or
- Is characterized by spots or blotches of different colors or, shades of color (grays and reds), interspersed within the dominant color as described by the USDA soil classification system, and/or
- May indicate historic seasonal high groundwater levels.

### **Mound System**

An above ground dispersal system, having subsurface discharge, used to enhance soil treatment, dispersal, and absorption of effluent discharged from an OWTS treatment unit (e.g., septic tank).

### **Municipal Utilities & Engineering (MUED)**

The Municipal Utilities and Engineering Department plans, builds, and maintains Redlands' physical and environmental infrastructure and oversees the Engineering Division, commonly called Engineering.

### **National Sanitation Foundation (NSF) International**

A not for profit, non-governmental organization that develops health and safety standards, and performs product certification.

### **New Development**

A proposed tract, parcel, industrial, or commercial development that has not been granted one or more of the following, on or prior to approval of the LAMP:

- Approval, or conditional approval, of a tentative parcel or tract map by the City of Redlands, and/or
- A conditional use permit, and/or
- Approval, or conditional approval, from the City of Redlands Planning Department, and/or Building and Safety Department.



### **New Onsite Wastewater Treatment Systems (OWTS)**

An OWTS permitted after the effective date of this LAMP.

### **Notice of Condition**

A “Notice of Condition” is a site-specific document that is provided to the customer by Building and Safety. It is the owner’s responsibility to ensure the document is recorded with the County Recorder’s office.

### **National Pollutant Discharge Elimination System (N.P.D.E.S)**

A program established by the EPA to reduce pollutants from urban setting.

### **Oil/grease interceptor**

A passive interceptor that has a rate of flow exceeding 50 gallons-per-minute and that is located outside a building. Oil/grease interceptors are used for separating and collecting oil and grease from wastewater.

### **Onsite Wastewater Treatment Systems (OWTS)**

Wastewater treatment systems that use subsurface disposal, including individual; community collection and disposal; and alternative collection and disposal systems. This is also referred to as a Private Sewage Disposal System in the current adopted California Plumbing Code and may also be referred to in general vernacular by the public as a “septic system”.

Note: OWTS do not include “graywater” systems pursuant to California Health and Safety Code, Section 17922.12.

### **Percolation Test**

A method of testing water absorption of the soil by using clean water to determine the dispersal system design. See Section 2.

### **Permit**

A document issued by a local agency that allows the installation, use, and/or monitoring of an OWTS.

### **Projected Flows**

Wastewater flows into the OWTS determined in accordance with any of the applicable methods for determining average daily flow in the California Plumbing Code.



### **Public Water System**

A system for the provision of water for human consumption, through pipes or other constructed conveyances, that has 15 or more service connections (or regularly serves at least 25 individuals daily), at least 60 days out of the year. Per California Health and Safety Code Section 116275(h), a public water system includes any:

- Collection, treatment storage, and distribution facilities under control of the operator of the system that are used primarily in connection with the system.
- Collection or pretreatment storage facilities not under the control of the operator that are used primarily in connection with the system.
- Water system that treats water on behalf of one or more public water systems for the purpose of rendering it safe for human consumption.

### **Public Water Well**

A groundwater well serving a public water system.

### **Qualified Professional**

An individual licensed, or certified by a State of California agency, to design OWTS and practice as a professional for other associated reports, as allowed under their license or registration. Qualified Professionals include the following:

- Professional Civil Engineers
- Certified Engineering Geologists
- Registered Environmental Health Specialists (REHSs)
- Registered Geologists
- Geotechnical Engineers

### **Replacement OWTS**

An OWTS that, after the effective date of this LAMP, has its treatment capacity expanded or its dispersal system replaced or added onto.

### **Sand**

A soil particle or type of soil texture. As a:

- Soil particle – Sand consists of individual rock, or mineral particles, having diameters ranging from 0.05 to 2.0mm.
- Soil texture – Sand is soil that is comprised of 85% or more sand particles, with the percentage of silt plus 1.5 times the percentage of clay particles comprising less than 15%.





### **Santa Ana Regional Water Quality Control Board (RWQCB)**

A regional water board that regulates wastewater discharges to surface water (rivers, ocean, etc.) and to groundwater (via land). It also regulates storm water discharges from construction, industrial, and municipal activities; discharges from irrigated agriculture; dredge and several other activities with practices that could degrade water quality.

### **Seepage Pit**

A drilled or dug excavation five (5) to seven (7) feet in diameter with a liner. It is also gravel filled (between the liner and the soil) and receives effluent discharge for dispersal from a septic tank or other OWTS treatment unit.

### **Septage**

Septage or septic tank sludge, refers to the partially treated sludge stored in a septic tank or (less commonly) in a pit latrine. It is one type of fecal sludge. Septage is a by-product from the pretreatment of household wastewater in a septic tank where it accumulates over time.

### **Septic Tank**

A watertight, covered, receptacle designed for primary treatment of wastewater and constructed to:

- Receive wastewater discharged from a building,
- Separate settleable and floating solids from liquid,
- Digest organic matter using anaerobic bacterial action,
- Store digested solids, and/or
- Clarify wastewater for further treatment with final subsurface discharge.

### **Service Provider**

A person capable of operating, monitoring, and maintaining an OWTS in accordance with this LAMP.

### **Sewage Holding Tank**

A Sewage Holding tank provides a means to collect and temporarily store sewage from a dwelling, business establishment, or other facility for subsequent removal and transport to an approved treatment and disposal site.



### **Silt**

A soil particle or type of soil texture. As a:

- Soil particle – Silt consists of individual rock, or mineral particles, having diameters ranging from 0.05 to 0.002mm.
- Soil texture – Silt is soil that is comprised of approximately 80% or more silt particles, and not more than 12% clay particles using the USDA soil classification system.

### **Site**

The location of the OWTS and/or a reserve dispersal area, capable of disposing 100% of the design flow from all the sources the OWTS is intended to serve.

### **Site Evaluation**

An assessment of the characteristics of the site, sufficient to determine its suitability for an OWTS that meets the requirements of this LAMP.

### **Soil**

The naturally occurring body of porous mineral and organic materials on the land surface, which is composed of:

- Unconsolidated materials, including sand, silt, and clay sized particles.
- Varying amounts of larger fragments and organic matter.
- Earthen material with particles smaller than 0.08 inches (2mm) in size.

### **Soil Texture**

The soil class that describes the relative amount of sand, clay, silt, and combinations thereof.

### **State Water Resources Control Board (SWRCB)**

A five member State Water Board, which develops statewide water protection plans and establishes water quality standards.

### **Structure**

A new separate stand-alone building which is separate from the main structure and does not have a common roof line with the main structure and which requires a plumbing permit.

### **Supplemental Treatment**

Any OWTS or component of an OWTS, except a septic tank or dosing tank, that performs additional wastewater treatment so that the effluent meets a predetermined performance requirement prior to discharge of effluent into the dispersal field.



### **Surface Water Ambient Monitoring Program (SWAMP)**

A unifying program created to fulfill the Legislature's mandate for the coordination of all water quality monitoring conducted by the State and Regional Water Quality Control Boards. It is managed by a roundtable of monitoring coordinators from the State Water Resources Control Board and nine Regional Water Quality Control Boards.

### **Telemetric**

The ability to automatically measure and transmit OWTS data by wire, radio, or other means.

### **“TMDL”**

The acronym for "Total Maximum Daily Load." Section 303(d)(1) of the Clean Water Act requires each State to establish a TMDL for each impaired water body to address the pollutant(s) causing the impairment. In California, TMDLs are usually adopted as Basin Plan amendments and contain implementation plans detailing how water quality standards will be attained.

### **Total Coliform**

A group of bacteria consisting of several genera belonging to the family Enterobacteriaceae, which includes *Escherichia coli* (*E. coli*) bacteria.

### **Tract**

For the purposes of this LAMP, a Tract is defined as the development of more than one (1) lot or parcel, and/or more than one (1) structure discharging sewage wastes.

### **United States Department of Agriculture (USDA)**

The federal department that provides leadership regarding food, agriculture, natural resources, and related issues.

### **Waste Discharge Requirement**

A permit issued for operation and discharge of waste pursuant to *California Water Code Section 13260*.

### **Water Quality Control Plan**

Refer to the Basin Plan definition.



## **Appendix A**

This Appendix is to be used to establish the methodology to be used for percolation testing in the City of Redlands. The objective is to determine the area necessary to properly treat and maintain sewage underground; to size the OWTS with adequate infiltration surface area based on an expected percolation rate and the rate of loading; and to provide for a system intended to allow for a long-term expectation of satisfactory performance.

Percolation testing is required for all new OWTS.

All percolation testing for dispersal systems except vertical seepage pits in the City of Redlands shall be conducted using the following procedures. The test shall be performed by or under the direct supervision of a California registered professional engineer, or geologist. Any deviation shall be authorized only after receiving written approval by the City of Redlands Building and Safety Department.

Note: Grading or clearing of brush for the purposes of completing a percolation test will require approval from Engineering and requires the implementation of wind and storm water erosion BMPs.

### **Test Holes**

#### **Number of Test Holes**

1. A minimum of four test holes are required when percolation rates are less than 60 minutes per inch (mpi).
2. A minimum of six test holes is required when the average percolation rate is more than 60 mpi.
3. Additional test holes may be necessary on a site-specific basis for reasons that include, but are not limited to the following:
  - Unacceptable or failed tests.
  - Areas of the disposal field require exclusion.
  - Test holes were not located in the area of the disposal field.

#### **Depth of Testing**

1. Test holes shall be representative of the dispersal system installation depth.
2. Conditions which may require testing deeper than leach line depth:
  - Shallow consolidated rock or impervious soil layers.
  - Slope exceeds 25% (4:1).
  - Other factors as might be determined by sound geotechnical engineering practices.



### **Location of Test Holes**

Test holes shall be representative of the dispersal area demonstrating site conditions throughout the entire sewage disposal system with equal consideration of primary and reserve leach fields.

### **Identification of Test Holes**

1. Staked and flagged so the test holes can be located.
2. Identified with:
  - A test hole number or letter
  - The depth of the test boring
  - Lot/parcel number or letter if associated with a subdivision or lot line adjustment.

### **Drilling of Borings for Test Holes**

1. Diameter of each test hole shall be a minimum of 6 inches.
2. If a backhoe excavation is used, a test hole at 12–14 inches in depth shall be excavated into the bottom of the trench.

### **Preparation of Test Holes**

1. The sides and bottom of the holes shall be scarified to remove the areas that became smeared by the auger or other tool used to develop the hole.
2. All loose material should be removed from the hole.

### **Soil Classification**

1. All test holes and deep borings shall have soil types described according to the American Society for Testing and Materials (ASTM) Soil Classification System (Unified).
2. All borings are to be reported, including any, which encountered groundwater or refusal.
3. Comments about consolidation and friable characteristics shall be included in the report.

### **Presoaking the Test Holes Procedure**

1. Carefully fill the test hole with 12-14 inches of clear water.
2. Maintain 12-14 inches of clear water for a minimum of four (4) hours. After four hours, allow the water column to drop overnight. (Testing must be done the next day, but not less than 15 hours or more than 30 hours after the initial four-hour presoak).
3. Overnight Option: If clay soils are present, it is recommended to maintain the 12-14 inch water overnight. A siphon can be used to maintain the supply at a constant level.
4. In highly permeable sandy soils with no clay and/or silt, the presoak procedure may not be possible. If, after filling the hole twice with 12-14 inches of clear water, the water seeps completely away in less than 30 minutes, skip to “Determination of Percolation Rates”, Example 2, for high percolation rate testing.



### **Saturation and Swelling**

1. The test hole must be saturated prior to testing. The time required for this can vary greatly.
2. Swelling is caused by the intrusion of water into soil particles that expand as they become wet. This is typically a long process and most likely to occur in clay soils.

### **Use of Inserts**

1. If sidewalls are not stable or sloughing results in changing depth, the test hole may be abandoned or retested after means are taken to shore up the sides. The holes shall be re-cleaned prior to resuming the test.
2. Options for shoring or maintaining test hole stability:
  - Hardware cloth (1/8 inch grid)
  - Perforated pipe or containers
  - Gravel pack

NOTE: A correction factor is necessary if a gravel pack is used. Show all calculations on the test report.

### **Determination of Percolation Rates**

Depending on the soil type and permeability, and the results of the presoak, variations in the procedures used for determining percolation rates will occur. Testing shall proceed based on the conditions outlined in the following examples.

Example 1 – Water remains overnight in the test hole following the four-hour presoak. (Unless an overnight siphon is used.)

Example 2 – Soil with a fast percolation rate is encountered where two columns of 12-14 inches of water percolates in less than 30 minutes for each column during the presoak.

Example 3 – No water remains in the test hole after the four-hour presoak.

#### **Example 1 Procedure**

1. Adjust depth of water to 6 inches in the hole.
2. Take two (2) readings at thirty (30) minute intervals and report percolation rate as the slower of the two readings.

NOTE: When a minimum amount of water remains due to a damaged hole or silting, the hole may be cleaned out and tested under Example 3, starting with the presoak.

#### **Example 2 Procedure**

1. Begin test the next day, but not less than 15 hours or more than 30 hours after presoak.
2. Fill the hole twice with 12-14 inches of water. Observe to see if each column of water seeps away in less than 30 minutes. If so, proceed with the percolation test. If not, go to Example 3.



3. Refill hole to 6 inches above the bottom.
4. Measure from a fixed reference point at ten (10) minute intervals over a period of one (1) hour. Measure to the nearest 1/16th inch. Add water at each 10-minute time interval.
5. Continue 10 minute readings as long as necessary to obtain a "stabilized" rate with the last 2 rate readings not varying more than 1/16th inch or for a duration of four (4) hours. The last water level drop will be considered in the percolation rate.

### **Example 3 Procedure**

1. Begin test the next day, but not less than 15 hours or more than 30 hours after presoak.
2. Clean out the silt and mud and add 2 inches of 3/8 inch pea gravel.
3. Adjust water depth to 6 inch above the pea gravel buffer and measure from a fixed reference point at 30-minute intervals. Measure to the nearest 1/16th inch. NOTE: It is not necessary to record data points for the first hour as this is an adjustment period and a reestablishment of a wetted boundary.
4. Refill the hole as necessary between readings to maintain a 6-inch column of water over the pea gravel. If a fall of 1 inch or less is recorded, the test can continue without refilling until the next 30-minute reading interval.
5. Continue recording readings at 30-minute intervals for a minimum of four (4) hours.
6. The last water level drop is used to calculate the percolation rate.

## **Calculations and Measurements**

### **Calculation Example**

The percolation rate is reported in minutes per inch. For example, a 30-minute time interval with a 3/4 inch fall would be as follows:

$$30 \text{ minutes} \div 3/4 \text{ inch} = 40 \text{ minutes per inch (mpi)}$$

### **Measurement Principles**

1. The time interval for readings are to reflect the actual times and are to be maintained as near as possible to the intervals outlined for the test. (10 or 30 minutes).
2. Measurements to the nearest 1/16th inch should be adjusted to the slowest rate, e.g., a reading observed between 3/8 inch and 5/16 inch (80 mpi and 96 mpi) would be reported as 96 mpi.

### **Measurements, Special Considerations**

1. Measurement from a fixed reference point shall be from a platform that is stable and represents the center of the test hole.



2. Accurate measurement is vital and in cases of testing deeper than 60 inch, the report shall include a description of the measurement method and how the borings were cleaned out and prepared for testing.

**Void factor for gravel pack**

1. All test data and required information shall be submitted on approved City of Redlands Building and Safety forms with appended data or information as needed. A minimum of three copies are required.
2. Reports shall be signed with an original signature and seal by the consultant who either performed or supervised the testing.
3. All percolation testing to be done by a civil engineer or geologist registered in the State of California.
4. The percolation test is only one critical factor in siting an OWTS. Site considerations may require special evaluation by a qualified professional to technically address any other issues.

Void Factor Formula:

$$AF = \frac{AH}{AP + n (AH - AP)}$$

AH = X-Section Area of Test Hole

AP = X-Section Area of Pipe

AG = X-Section Area of Gravel Pack

VD = Drainable Voids in Gravel Pack (n\*AG)

V = Total Voids = AP + n (AG) = AP + n (AH - AP)

n = void ratio

Adjusted Percolation Rate = mpi x AF





## **Appendix B**

### **Forms**

Certification of Existing Subsurface Disposal System

Land Use Application

Liquid Waste Hauler Discharge Permit Application A and B

Percolation Review Application

Percolation Test Notification

Sewage Holding Tanks Application

Will / Will Not Serve Letter



# CERTIFICATION OF EXISTING SUBSURFACE DISPOSAL SYSTEM

Development Services

City of Redlands, 35 Cajon St, Redlands, CA

**FAILURE TO PROVIDE ALL REQUIRED INFORMATION SHALL PREVENT OWNER FROM OBTAINING APPROVAL**

Property Information: APN: \_\_\_\_\_ Date of Inspection: \_\_\_\_\_

1. Owner: \_\_\_\_\_ Address: \_\_\_\_\_

2. Show design and location on a scale of 1:20 or 1:40 of the sewage disposal system and 100% expansion area in relation to dwellings, structures, wells, rock outcroppings, drainage, watercourses, etc.

3. a. I examined existing subsurface sewage disposal system at the above location on \_\_\_\_\_ and determined that the tank capacity is \_\_\_\_\_ gallons and that there is \_\_\_\_\_ sq. ft. of leach line bottom area. There are \_\_\_\_\_ bedrooms in the dwelling and there are \_\_\_\_\_ fixture units.

b. There are \_\_\_\_\_ leach line(s), each \_\_\_\_\_ ft. long .The Depth is \_\_\_\_\_ ft.  Rock  Plastic Chamber

c. There are \_\_\_\_\_ Seepage pit(s), each \_\_\_\_\_ ft. in diameter, and \_\_\_\_\_ ft. TD. \_\_\_\_\_ ft. Bl.

d. The leach bed is \_\_\_\_\_ ft. by \_\_\_\_\_ ft., total \_\_\_\_\_ sq. ft. of leached area. Depth is \_\_\_\_\_ ft.

4. a. Construction of septic tank (Please check one of the following):

Concrete  Fiberglass  Steel  Other:

b. Internal dimensions of septic: Length \_\_\_\_\_ ft. Width \_\_\_\_\_ ft. Depth \_\_\_\_\_ ft.

c. Condition of tank (please check yes or no for each question): Inlet Tee present?  Yes  No

Tank Structure deteriorated?  Yes  No Outlet Tee present?  Yes  No

Effluent Filter Present?  Yes  No Two compartments?  Yes  No

d. Condition of D-Box: Level?  Yes  No Replaced?  Yes  No

5. a. While pumping the tank, did effluent flow back into tank from absorption system?  Yes  No

b. Prior to pumping, was the liquid level in the tank above the outlet tee?  Yes  No

c. Was the area around the lids oxidized?  Yes  No

d. Is design of system gravity feed?  Yes  No

e. Were well(s) observed on this or adjacent property?  Yes  No

If yes, indicate distance of well from: Septic tank \_\_\_\_\_ ft. Leach lines \_\_\_\_\_ ft. Seepage Pits \_\_\_\_\_ ft.

f. Distance from springs, lakes, and natural watercourses (check all that apply):

Septic Tank \_\_\_\_\_ ft.  Leach lines \_\_\_\_\_ ft.  Seepage Pits \_\_\_\_\_ ft.

g. Is sewer within 200 ft. of structure and abuts property line?  Yes  No

Additional Comments: \_\_\_\_\_

h. How long has dwelling been vacant? (if applicable) \_\_\_\_\_ months \_\_\_\_\_ weeks  N/A

6. a.  It is my opinion that the system appears to be in good working order and can be expected to function properly with proper maintenance. No repairs are necessary at this time.

b.  It is my opinion that the system is not in good working order and will not function properly without the following repairs:

I certify under penalty of perjury that the foregoing is true and correct.

Signature: \_\_\_\_\_

Print Name: \_\_\_\_\_

License No.: \_\_\_\_\_

Expiration Date: \_\_\_\_\_

Pumper Co.: \_\_\_\_\_

Phone Number: \_\_\_\_\_

Address: \_\_\_\_\_

City: \_\_\_\_\_ Zip: \_\_\_\_\_



## Land Use Application

City of Redlands  
P.O. Box 3005, 35 Cajon Street, Suite 15A, Redlands, California 92373

APN:	TR/PM	LOT #	CUP/CRA #	USE OF PERMIT:			
<b>Section A</b>							
Owner	Name:						
	Address:		City:	Zip:			
	Phone:		Email:				
Agent/Contractor	Company Name:		Agent/Contractor :				
	Mailing Address		City:	Zip:			
	Phone:		Email:				
Property Info	Site Address:		City:	Zip:			
	Water Agency/Well:		Lot Size:				
Applicant's Signature				Date:			
<b>Section B - Below For Office Use Only</b>							
<b>Check Box if Required</b> If any box is checked, this application shall be considered denied until the information is provided.							
<input type="checkbox"/> Holding Tank Agreements Required <input type="checkbox"/> Certification of Existing Subsurface OWTS <input type="checkbox"/> RWQCB Clearance Required <input type="checkbox"/> Soils Percolation Report Required		<input type="checkbox"/> Floor Plan and/or Plumbing Layout Required <input type="checkbox"/> Special Feasibility Boring Report Required <input type="checkbox"/> Detailed Contour Plot Plan Required (1 to 5 foot intervals) <input type="checkbox"/> Alternate Wastewater Treatment Required (linked to deed)					
Site Evaluation Inspection Remarks:				Building & Safety Initial and Date			
<b>Section C</b>							
<input type="checkbox"/> New	<input type="checkbox"/> Repair/Replacement	<input type="checkbox"/> Existing	<input type="checkbox"/> Pump	<input type="checkbox"/> ATU	<input type="checkbox"/> Connect to Sewer	Fixture Units #	BDRMS #
Soils Percolation/Boring Report By:					Date:	Soils Project#	
Certification of Existing Subsurface OWTS By:					Date:	License#	
Septic tank cap.:		Soil Rate:	Tested Depth:		Max. trench depth:		
Sq. Ft. Bottom Area:		Total Linear Ft.:		# of Line(s):	Length:            feet - Each            feet wide		
Sidewall Allowance:		Ft. Rock/	Sq. ft. Running foot		Rock below drain line:            in.    OR <input type="checkbox"/> Plastic Chambers		
Leach Lines/bed special design for slope:					<input type="checkbox"/> N/A	<input type="checkbox"/> Overburden Factor:	
Pit Diameter:	No. pits:	Depth below Inlet (bi):		Pit Total Depth:	Max. allowable depth:		
Construction/Installation Remarks:							
<b>Section D</b>							
This Application is <input type="checkbox"/> Approved <input type="checkbox"/> Denied regarding the design of the OWTS as indicated on the accompanied plot plan using the requirements set forth in Section C above. <b>No construction is permitted in the required reserved 100% Expansion area.</b>							
Signature:						Date:	



City of Redlands Municipal Utilities, Wastewater Division

35 Cajon St. Suite 15A, Redlands, CA 92373

Phone: (909) 798-7506 Fax: (909) 798-7670

## **Liquid Waste Hauler Discharge Permit Application**

### **Liquid Waste Hauler Information**

Company Name: \_\_\_\_\_

Business Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

Mailing Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

Phone: \_\_\_\_\_ Fax: \_\_\_\_\_

E-mail Address: \_\_\_\_\_

Name of Business Owner: \_\_\_\_\_ Phone: \_\_\_\_\_

Authorized individual to contact in case of emergency or for information in this application.

Name: \_\_\_\_\_ Phone: \_\_\_\_\_

Title: \_\_\_\_\_

### **Operational Information**

Usual Days/Hours of Operation: \_\_\_\_\_

Area of Operations: \_\_\_\_\_

San Bernardino County Permit Number: \_\_\_\_\_

(Department of Environmental Health Services, SB County)

### **Fee Information**

1. A fee at the rate of \$0.11/gallon will be charged based on the capacity of the tank of the Liquid Waste Hauler, with a minimum fee of \$12.29.
2. A permit fee of \$100 will be charged for each Liquid Waste Hauling vehicle
3. Payment is to be submitted in the form of a check or money order made payable to City of Redlands.
4. Fees are subject to change.

**Important Information**

1. All Liquid Waste Hauling Vehicles must be registered on the Permit Application.
2. The Liquid Waste Hauler Discharge Permit is non-transferable.
3. Drivers must fill out the Sewage Dumping Receipt completely before discharging.
4. Drivers are responsible for cleaning up their own spills.
5. Drivers are not to leave their vehicle unattended during the discharge process.
6. Failure to comply with the rules of the wastewater treatment plant may result in the suspension of discharging privileges.

**CERTIFICATION**

Certification is an authorized representative of the user as outlined in City of Redlands Municipal Ordinance Sub-Section 13.52.050 F.

“I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.”

Name of Application: \_\_\_\_\_

Signature of Applicant: \_\_\_\_\_ Date: \_\_\_\_\_

---

Do no write below this line – office use only

**PERMIT**

Permit Number:	
Permit Fee Paid:	
Date of Permit:	

Application Reviewed by: \_\_\_\_\_ Date: \_\_\_\_\_

**VEHICLE(S) INFORMATION**

Make: \_\_\_\_\_ Model: \_\_\_\_\_ Year: \_\_\_\_\_

CA license No. \_\_\_\_\_ San Bernardino County Permit No. \_\_\_\_\_

Tank Capacity in Gallons: \_\_\_\_\_

Tanker Trailer (check one): No: \_\_\_\_\_ Yes: \_\_\_\_\_ (If Yes, Fill in Information Below)

CA license No. \_\_\_\_\_ San Bernardino County Permit No. \_\_\_\_\_

---

Make: \_\_\_\_\_ Model: \_\_\_\_\_ Year: \_\_\_\_\_

CA license No. \_\_\_\_\_ San Bernardino County Permit No. \_\_\_\_\_

Tank Capacity in Gallons: \_\_\_\_\_

Tanker Trailer (check one): No: \_\_\_\_\_ Yes: \_\_\_\_\_ (If Yes, Fill in Information Below)

CA license No. \_\_\_\_\_ San Bernardino County Permit No. \_\_\_\_\_

---

Make: \_\_\_\_\_ Model: \_\_\_\_\_ Year: \_\_\_\_\_

CA license No. \_\_\_\_\_ San Bernardino County Permit No. \_\_\_\_\_

Tank Capacity in Gallons: \_\_\_\_\_

Tanker Trailer (check one): No: \_\_\_\_\_ Yes: \_\_\_\_\_ (If Yes, Fill in Information Below)

CA license No. \_\_\_\_\_ San Bernardino County Permit No. \_\_\_\_\_

---

Make: \_\_\_\_\_ Model: \_\_\_\_\_ Year: \_\_\_\_\_

CA license No. \_\_\_\_\_ San Bernardino County Permit No. \_\_\_\_\_

Tank Capacity in Gallons: \_\_\_\_\_

Tanker Trailer (check one): No: \_\_\_\_\_ Yes: \_\_\_\_\_ (If Yes, Fill in Information Below)

CA license No. \_\_\_\_\_ San Bernardino County Permit No. \_\_\_\_\_



City of Redlands, 35 Cajon St, Redlands, CA

## APPLICATION FOR PERCOLATION REVIEW

THIS SECTION TO BE COMPLETED BY APPLICANT			
GENERAL INFORMATION			
<b>Percolation Report</b> (check all that apply)	<input type="checkbox"/> New Construction <input type="checkbox"/> Replace an Existing System	<input type="checkbox"/> Commercial <input type="checkbox"/> Tentative Parcel Map	<input type="checkbox"/> Tentative Tract <input type="checkbox"/> Single Family Residence
<b>Design Rate</b> (check all that apply)	<input type="checkbox"/> PERC Rate on File <input type="checkbox"/> Replace an Existing System	<input type="checkbox"/> Leach Lines	<input type="checkbox"/> Seepage Pits
<b>Note: If sewer is within 200 feet connection is required. A will/will not serve letter may be required.</b>			
SITE INFORMATION			
APN	Lot Dimensions	Acreage	
Tract	Parcel Map	Lot #	
Site Address			Zip Code
CONTACT INFORMATION			
Owner's Name(s)			
Mailing Address	City	State	Zip Code
Email		Phone	
Contractor/Engineer	License/Registration #	Phone	
Contact Mailing Address		Phone	
Email			
FOR OFFICE USE ONLY			
Fee:		Received By:	
Late Fee: <input type="checkbox"/> Yes <input type="checkbox"/> No	Late Fee Amount:	Date:	
<input type="checkbox"/> New <input type="checkbox"/> Transfer <input type="checkbox"/> Reactivate Changes:			



**PERCOLATION TEST NOTIFICATION**  
 City of Redlands, 35 Cajon St., Redlands CA.

**THIS SECTION TO BE COMPLETED BY QUALIFIED PROFESSIONAL**

**QUALIFIED PROFESSIONAL INFORMATION**

Firm Name		Date	
Firm Address	City	State	Zip
Firm Contact Person	Email(s)	Phone Number	

**SITE INFORMATION**

Owner's Name	Assessor's Parcel Number (APN)		
Site Address	City	State	Zip
Email(s)	Phone Number		

**BILLING INFORMATION**

Building and Safety Department inspectors may need to be on-site to observe percolation testing. This will be billed at the current hourly professional rate. Provide billing information below or check one of the following:

Same as Qualified Professional Information     
  Same as Site Information

Billing Name			
Billing Address	City	State	Zip
Email(s)	Phone Number		

**PROJECT INFORMATION**

<b>Disposal field</b>	<input type="checkbox"/> Leach Lines	<input type="checkbox"/> Seepage Pits	<input type="checkbox"/> Alternative Treatment System
<b>Exploratory Boring(s)</b>	Boring Date(s)	Boring Time	Number of Borings
<b>Testing</b>	Test Date(s)	Test Time	Number of Tests
<b>Project Type</b>	<input type="checkbox"/> Single Family Residence	<input type="checkbox"/> Multi Family Residential	<input type="checkbox"/> Commercial
	Lot Size (ft <sup>2</sup> /acres)	Number of Units	Lot Size (ft <sup>2</sup> /acres)
		Lot Size (ft <sup>2</sup> /acres)	Estimated Flow
	Please select one of the following		
	<input type="checkbox"/> Tentative Tract (TT) #	<input type="checkbox"/> Tentative Parcel Map (TPM) #	
	Number of Proposed Lots	Original Lot Size (ft <sup>2</sup> /acres)	Average New Lot Size (ft <sup>2</sup> /acres)

A sewer connection will be required if a sewer is available within 200 ft. of the nearest property line (add 100 ft. for each additional lot). A "sewer will not serve" letter may be required prior to submittal of the percolation report.

<b>Site Conditions</b>	Historic groundwater level in feet	Slope in disposal area (%)
	Source of Water: <input type="checkbox"/> Private Well <input type="checkbox"/> Water Purveyor and Name _____	
	<input type="checkbox"/> Check box if parcel is in an environmentally sensitive area <input type="checkbox"/> Check box if lot is within 100 feet of a river/stream	

**For Office Use Only   For Office Use Only   For Office Use Only   For Office Use Only   For Office Use Only**

Fee:	FA Number:	Record ID:	PE Number:
Late Fee: <input type="checkbox"/> Y <input type="checkbox"/> N	Designated Employee:	Received By:	Date:
Check One: <input type="checkbox"/> New <input type="checkbox"/> Transfer <input type="checkbox"/> Reactivate	Changes (please specify):		





City of Redlands, 35 Cajon St, Redlands, CA

## **SEWAGE HOLDING TANKS**

### **GUIDELINES FOR DESIGN AND INSTALLATION OF SEWAGE HOLDING TANKS**

The City of Redlands has adopted a procedure for regulation of the use, or proposed use, of sewage holding tanks. Where a sewage holding tank permit is required to obtain a building permit or to operate a holding tank, an individual may select to obtain either a construction or operating permit. The following procedures apply:

#### **CONSTRUCTION PERMIT**

A Construction Permit is issued for the purpose of obtaining a building permit with a sewage holding tank as the proposed means of sewage disposal. This permit is issued by the One Stop Permit Center, valid for the period of construction only. No renewal of this permit is required. If the sewage holding tank is installed, an operating permit must be obtained BEFORE any use of the holding tank. To obtain a Construction Permit, complete the following:

1. Complete, in full, page 1 of the application.
2. Read and sign page 2 of the "Property Owner Agreement".
3. Have the governing sewerage entity complete and sign the "Agreement Between the Sewering Entity and the Property Owner".
4. Sketch a map showing the location of the holding tank or attach a copy of plans showing the location holding tank. Also, show the location of your well and neighboring wells.
5. Obtain a contract with a septic pumper. Attach copy of contract to application.
6. Record the notice of condition with the Records office.

Bring or mail the application & construction permit fees to:

City of Redlands One Stop Permit Center  
35 Cajon Street Suite 15A  
909-798-7551

**SEWAGE HOLDING TANKS WILL ONLY BE PERMITTED IF THE PROPERTY IS UNSUITABLE FOR CONVENTIONAL SEWAGE DISPOSAL SYSTEM. THE SEWAGE HOLDING TANK APPLICATION WILL BE DENIED AND THE APPLICATION FEE WILL NOT BE REFUNDED IF THE CITY OF REDLANDS FINDS AN OWTS IS FEASIBLE.**

**KEEP IN MIND THAT IT IS YOUR RESPONSIBILITY TO NOTIFY THE CITY OF REDLANDS OF THE COMPLETION OF THE INSTALLATION OF YOUR SEWAGE HOLDING TANK OR ANY CHANGE OF OWNERSHIP! PERMITS ARE NOT TRANSFERABLE. PENALTY FEES MAY BE ASSESSED.**

#### **OPERATING PERMIT**

When a sewage holding tank has been installed and is ready for use, a sewage holding tank permit is required and is RENEWABLE ANNUALLY. If use is made of the sewage holding tank prior to obtaining this permit, a penalty fee will be charged. This permit may be obtained in lieu of the "Construction Permit," if desired by the applicant. To obtain the Operating Permit, follow instructions as described under "CONSTRUCTION PERMIT" on previous page, and submit a copy of the final inspection from the Division of Building and Safety, which indicates that installed holding tank complies with the state minimum standards.



For your convenience a copy of the "Guidelines for Design and Installation of Sewage Holding Tanks" and a "Sewage Holding Tank Application" are attached.

Information regarding tank permits is available from the City of Redlands, Building and Safety Division.

Subsequent to issuance of an Operational Permit, notice of the existence of a sewage holding tank as the approved means of sewage disposal for a property will be recorded by the Municipal Utilities and Engineering Department. The application for the permit shall serve as recordation notice and the signature of the property owner shall signify the owner(s) agreement to this recordation action.

### **GUIDELINES FOR DESIGN AND INSTALLATION OF SEWAGE HOLDING TANKS**

Sewage waste holding tanks are permitted for construction within the City boundaries. These guidelines list basic information for manufacture and installation of holding tanks. These guidelines list basic information for manufacture and installation of holding tanks.

#### **TANK AND DESIGN CRITERIA**

The design and details of construction of each sewage waste holding tank shall be submitted to approval prior to fabrication and installation.

1. Structural design and coating criteria shall be the same as that shown in the Uniform Plumbing Code for a septic tank of the same size, including appropriate product standards.
2. Tank capacity shall be at least 2000 U.S. gallons for a new dwelling.
3. Tank shall be without baffles or partitions.
4. Tank shall be equipped with at least one water and gas tight access extended to or above finish grade. Access shall be at least 20" in diameter and be lockable when closed and located in the inlet of the tank.
5. An electric alarm system shall be installed in each tank and indicate when the tank is approximately 75% filled. All equipment shall be located so as not to interfere with pumping or be subject to mechanical damage and shall be accessible for repairs and adjustments.
6. For installation of a sewage holding tank for an existing structure, requirements may be modified on a case-by-case basis when an applicant provides sufficient justification to the Municipal Utilities and Engineering Department, Division of Building and Safety approve the proposal.

#### **JOB SITE PLAN REQUIREMENTS**

When applying for a building permit on a project that will have a sewage waste holding tank, submit two copies of the plot plan containing the following information:

1. Show all structures, property lines, holding tank, location of your well and neighboring wells as well as any water and sewer lines by dimensions. Indicate the holding tank size.
2. Show pumper parking space, distance to pumping manhole, and the difference in elevation between the bottom of the tank and grade level of pumper parking space.
3. Provide a signed statement by a licensed San Bernardino County septic tank pumper certifying that the proposed system can be serviced.



## INSTALLATION

Waste holding tanks shall be inspected during construction by Building and Safety.

1. Tanks shall be at least 5 feet from property lines, structures, and water lines.
2. Tanks shall be within 75 feet of the pumper parking area and no more than 20 feet below the pumper parking area measured from grade level to the tank bottom.
3. Tanks should be located to make the connection to the sewer, when it becomes available, as easy as possible but without running the sewer over the abandoned tank.
4. Each tank shall be filled with water for inspection to check for leaks and operation of the alarm system.
5. The alarm system shall be installed on a separate electrical circuit. Each installation shall have an electrical disconnecting means within sight of the tank.
6. High level alarm indicators shall be located in the kitchen or bathroom.
7. Plumbing fixtures connected to the holding tank shall be the same as used with conventional sewer systems and water saving faucets must be used.
8. All residential and commercial hose bibs shall be equipped with anti-siphon prevention devices.
9. Abandoned holding tanks shall be removed from the property or the tank pumped and back-filled with sand.



City of Redlands, 35 Cajon St, Redlands, CA

**APPLICATION FOR SEWAGE HOLDING TANKS**

Please refer to the City Code Schedule of Fees for fee amounts: CONSTRUCTION PERMIT – ONE TIME FEE \$ _____      OPERATING PERMIT – ANNUAL FEE \$ _____			
<b>LOCATION OF HOLDING TANK</b>			
Site Address			Zip Code
Lot and Tract Numbers		Assessor's Parcel Number	
CUP/CRA Number			
<b>If you can give only the lot and tract or Assessor's Parcel Number, please sketch a map on an attached sheet showing how to get to your lot(s).</b>			
<b>OWNER INFORMATION</b>			
Owner's Name(s)			
Address		City	State      Zip Code
Signature			Date
Print Name		Title	
Representative's Name			Representative's Phone Number
Email			
<b>FOR OFFICE USE ONLY</b>			
Fee:		Received By:	
Late Fee: <input type="checkbox"/> Yes <input type="checkbox"/> No	Late Fee Amount:	Date:	
<input type="checkbox"/> New <input type="checkbox"/> Transfer <input type="checkbox"/> Reactivate Changes:			



City of Redlands, 35 Cajon St, Redlands, CA

### **AGREEMENT BETWEEN PROPERTY OWNER AND THE CITY OF REDLANDS**

Property owner shall be in charge of and responsible that:

- a. All sewage of the property shall be discharged to the sewage holding tank or to such other receptacle as approved by Division of Building and Safety and/or the City of Redlands waste water treatment plant.
- b. A written contract with a licensed septic tank pumper shall be in effect at all times to service the sewage holding tank on a regularly scheduled basis. A signed copy will be submitted as an attachment to this application.
- c. In the event the contract with the septic tank pumper is terminated, the property owner shall notify the City of
- d. Redlands and immediately obtain another contract to achieve compliance with this agreement.
- e. If the property owner fails to correct any problem or fails to maintain the system at the proper level of sanitation within forty-eight (48) hours after notification by the City of Redlands or its agents, the City of Redlands or its agents may enter the Property, correct the problem, and maintain the system at the expense of the property owner.
- f. Santa Ana Water Regional Control Board may adopt rules or regulations that would prohibit or curtail the use of holding tanks, thereby rendering the property unavailable for occupancy. If such action is taken by any agency outside the control of the City of Redlands, the City of Redlands shall be held harmless from the results of such action.
- g. As soon as sewage collection lines are available for service to the property, the property owner shall connect to the sewage collection line and abandon the sewage holding tank in accordance with all applicable state, county and local codes.
- h. If the property is sold, the new property owner must obtain a new permit and shall be given written notice of the permit conditions to be completed prior to occupancy of the property.
- i. The City of Redlands may, at its discretion, add such conditions, as it may deem necessary to the permit prior to the execution of the agreement between the City of Redlands and the property owner.

I, the undersigned, have read and understand items (a) through (i) of this permit application and shall comply fully with each of these items. I also understand that additional conditions may be imposed by the City of Redlands, Division of Building and Safety prior to issuance of the permit here being applied for, and upon acknowledgment of these conditions I shall be bound by them as well. With this understanding, I do freely enter into this agreement on date listed below.

---

Print Name

---

Signature

---

Date



City of Redlands, 35 Cajon St, Redlands, CA

## WILL / WILL NOT SERVE LETTER

SITE INFORMATION		
APN:		
Owner's Name(s):		
Site Address (if known):		
Nearest Cross Streets:		
Development Type: <input type="checkbox"/> Single Family Home <input type="checkbox"/> Subdivision:	If subdivision, Number of dwelling units: Complete the correction factor below.	
Distance to nearest Available sewer line:	Correction Factor for Subdivisions: 200 + number of dwelling units * 100 = _____ ft.	
Ground elevation at nearest property line:	Ground elevation at nearest sewer line:	Elevation difference (elevation at property line – elevation at sewer line):
Are there any legal impediments that would prevent a sewer connection: <input type="checkbox"/> Yes <input type="checkbox"/> No Are there any physical barriers to prevent a sewer connection: <input type="checkbox"/> Yes <input type="checkbox"/> No If Yes for either, describe here:		
If this is a Single Family Home and the distance as measured from nearest property line adjacent to adjacent to City right-of-way or utility easement is more than 200' or the elevation difference from property line to the sewer line will not support a gravity fed system- Check here and sign below <input type="checkbox"/>	If this is a Subdivision and the distance as measured from nearest property line adjacent to adjacent to City right-of-way or utility easement is more than the correction factor shown above or the elevation difference from property line to the sewer line will not support a gravity fed system- Check here and sign below <input type="checkbox"/>	
<input type="checkbox"/> <b>Will Serve</b> <input type="checkbox"/> <b>Will Not Serve</b>		
Signature	Date	



## Appendix C

### **Ordinance to Adopt Lamp**

ORDINANCE NO. 2909

AN ORDINANCE OF THE CITY OF REDLANDS ADDING CHAPTER 8.38  
TO THE REDLANDS MUNICIPAL CODE TO ESTABLISH REGULATIONS  
GOVERNING ONSITE WASTE TREATMENT SYSTEMS

WHEREAS, pursuant to the California State Constitution, the City of Redlands ("City") has the authority to adopt such ordinances as it deems necessary and appropriate to ensure good government in the City, to protect and preserve the City's rights, property, and privileges, and to preserve peace, safety and good order; and

WHEREAS, the City deems it to be necessary and appropriate to provide for certain standards and regulations relating to the location, placement, design, construction, and maintenance of onsite waste treatment systems, and providing for the enforcement of said standards and regulations, consistent with federal and state law limitations on that authority; and

WHEREAS, Assembly Bill No. 885, enacted in 2000 by the State legislature and codified in sections 13290 through 13291.7 of the California Water Code, directed the State Water Resources Control Board ("SWRCB") to develop regulations or standards for onsite wastewater treatment systems ("OWTS"), to be implemented by qualified local agencies; and

WHEREAS, the SWRCB adopted regulations in 2012 as its "Water Quality Control Policy for Siting, Design, Operation and Maintenance of Onsite Wastewater Treatment Systems," which allows local agencies to approve alternative OWTS based on a local ordinance, after approval of a Local Agency Management Program ("LAMP") by the Regional Water Quality Control Board ("RWQCB"); and

WHEREAS, in coordination with the Santa Ana RWQCB, the City has developed a City-wide Tier 2 LAMP addressing the required elements of the OWTS Policy; and

WHEREAS, on October 25, 2019 the Santa Ana RWQCB held a public hearing and approved the City's LAMP granting the City authority to approve onsite waste treatment systems consistent with the design standards contained within the LAMP; and

WHEREAS, this City Council desire to adopt the LAMP to allow the continued use of OWTS and to expand the local program to permit and regulate alternative OWTS while protecting water quality and public health through the proper design, placement, installation, maintenance, and assessment of individual OWTS within the jurisdiction of the City;

THE CITY COUNCIL OF THE CITY OF REDLANDS DOES ORDAIN AS  
FOLLOWS:



Section 1. The foregoing Recitals are true and correct and are adopted as findings of the City Council as though set forth in fully within the body of this ordinance.

Section 2. Chapter 8.38, entitled “Onsite Wastewater Treatment Systems,” is hereby added to the Redlands Municipal Code to read as follows:

“CHAPTER 8.38  
ONSITE WASTEWATER TREATMENT SYSTEMS

8.38.010: Purpose

8.38.020: Standards for design and operation

8.38.030: Charges

8.38.010 PURPOSE:

The purpose of this chapter is to establish standards for the approval, installation, and operation of onsite wastewater treatment systems (OWTS) within the City of Redlands, consistent with the appropriate California Regional Water Quality Control Board (RWQCB) standards and basin plans. The standards are adopted to prevent the creation of health hazards and nuisance conditions and to protect surface and groundwater quality. The city has prepared and adopted by resolution a Local Agency Management Program (LAMP) for OWTS permitting and regulation throughout the city, and that program has been approved by the California RWQCB for the Santa Ana Region.

8.38.020 STANDARDS FOR DESIGN AND OPERATION:

Any OWTS must be designed and operated in compliance with the provisions of the current version of the City’s adopted LAMP resolution, as approved by the RWQCB.

8.38.030 CHARGES:

A fee as established by resolution of the city council shall be paid upon filing an application for review of the design of an OTWS, for inspection of the construction of a new OTWS, and for oversight of the design review for an OTWS permitted through the RWQCB.”

Section 3. That the City Council hereby finds and determines that the adoption of this ordinance is exempt from review under the California Environmental Quality Act (“CEQA”) pursuant to section 15061(b)(3) of the State Guidelines implementing CEQA.

Section 4. In the event that any provision of this ordinance, or any part hereof, or any application hereof to any person or circumstances, is for any reason held to be unconstitutional or otherwise invalid or ineffective by a court of competent jurisdiction on its face or as applied, such holding shall not affect the validity of the remaining provisions of this ordinance, or any part hereof, or any application hereof to any person or circumstance or of said provision as applied to any other person or circumstance. It is hereby declared to be the legislative intent of the City that this ordinance would have been adopted had such unconstitutional, invalid, or ineffective provision not been included herein.

Section 5. The Mayor shall sign this ordinance and the City Clerk shall certify to the adoption of this ordinance and shall cause it, or a summary of it, to be published once in the Redlands Daily Facts, a newspaper of general circulation within the City, and thereafter, this ordinance shall take effect as provided by law.



---

Paul W. Foster, Mayor

ATTEST:



---

Jeannie Donaldson, City Clerk

I, Jeanne Donaldson, City Clerk of the City of Redlands, hereby certify that the foregoing ordinance was duly adopted by the City Council at a regular meeting thereof held on the 16<sup>th</sup> day of June, 2020, by the following vote:

AYES: Councilmembers Barich, Tejada, Momberger, Davis; Mayor Foster  
NOES: None  
ABSTAIN: None  
ABSENT: None



Jeanne Donaldson  
Jeanne Donaldson, City Clerk



## **Appendix D**

### **Index to Maps**

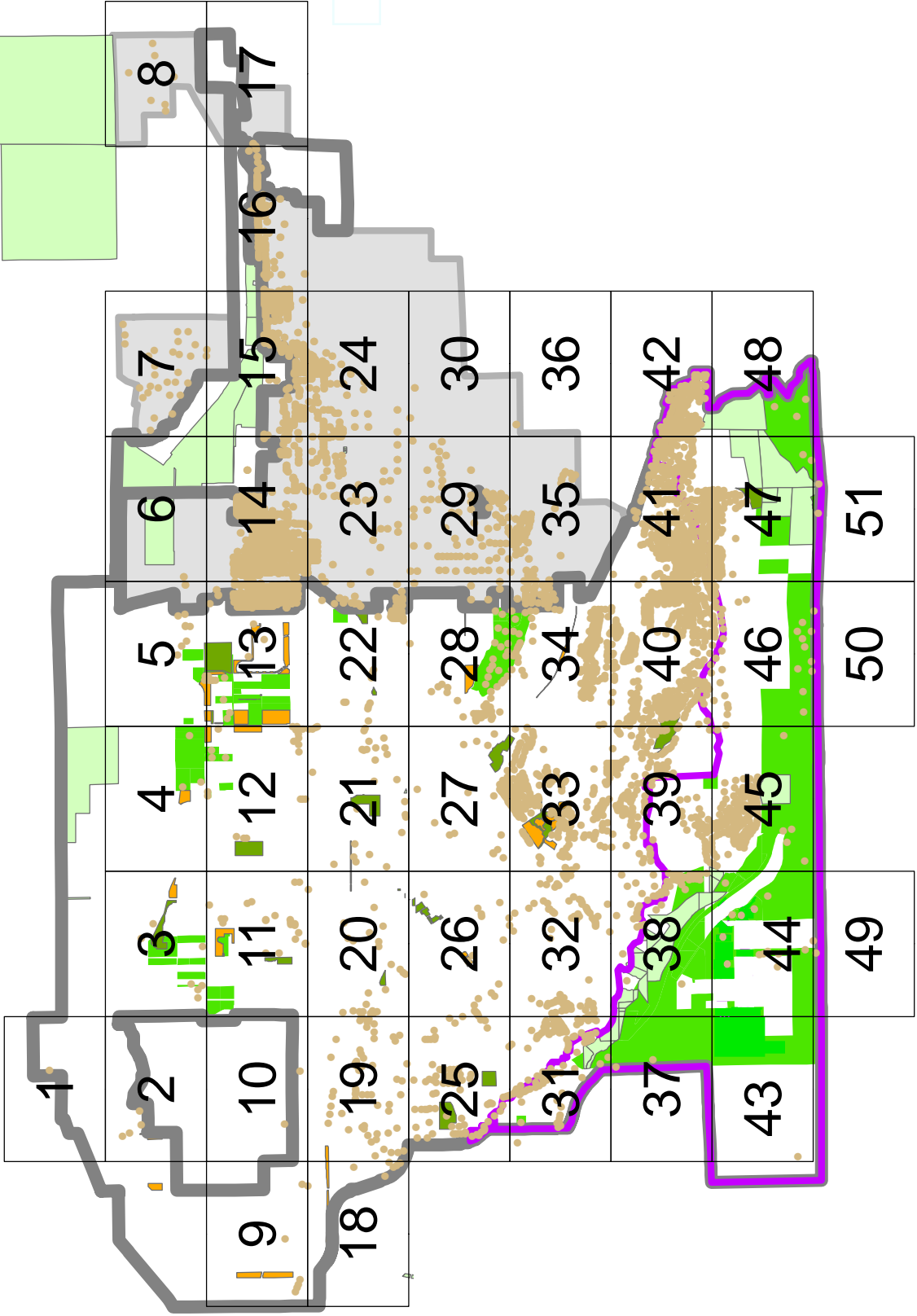
Septic Tanks





Restricted Areas

Wells

Sewer Mains

Parks and Preserves

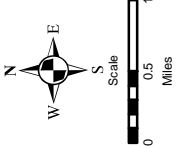


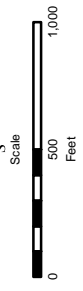
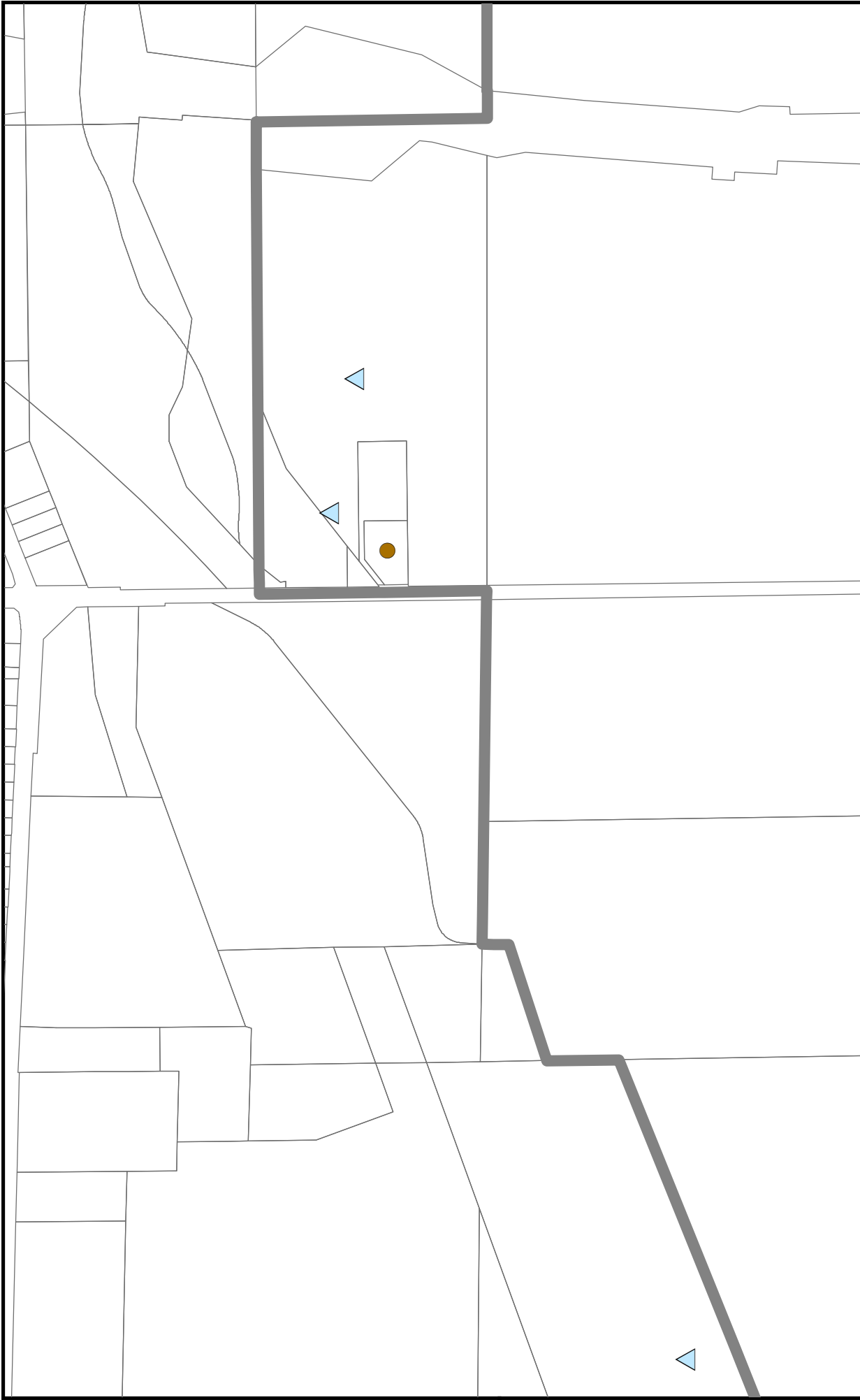
-  Parcels with Septic Tank
-  Sewer Not Available
-  Redlands Sphere of Influence
-  Redlands Boundary

-  Open Space
-  City Groves
-  Parks
-  Agricultural Preserves













Source: City of Redlands

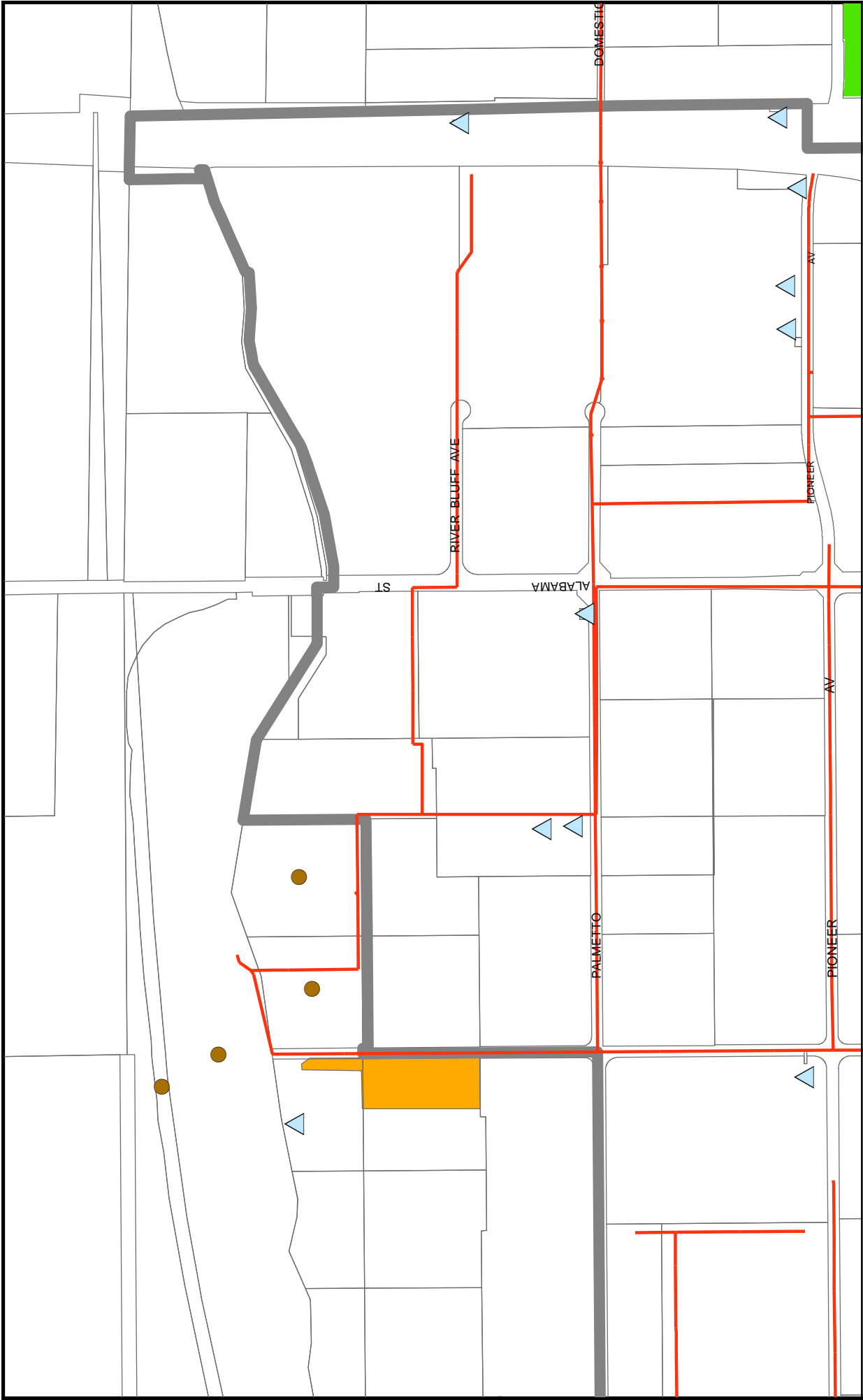
## INDEX MAP





# MAP 1

- |   |                          |   |                                       |   |                        |
|---|--------------------------|---|---------------------------------------|---|------------------------|
|  | Parcels with Septic Tank |  | Sewer Not Available Due To Topography |  | Open Space             |
|  | Redlands Well            |  | Redlands Sphere of Influence          |  | City Groves            |
|  | Other Wells              |  | Redlands Boundary                     |  | Parks                  |
|  | Sewer Mains              |  | Parcels                               |  | Agricultural Preserves |



- Open Space
- City Groves
- Parks
- Agricultural Preserves

- Sewer Not Available Due To Topography
- Redlands Sphere of Influence
- Redlands Boundary
- Parcels

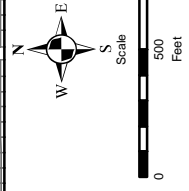
- Parcels with Septic Tank
- Redlands Well
- Other Wells
- Sewer Mains

## MAP 2

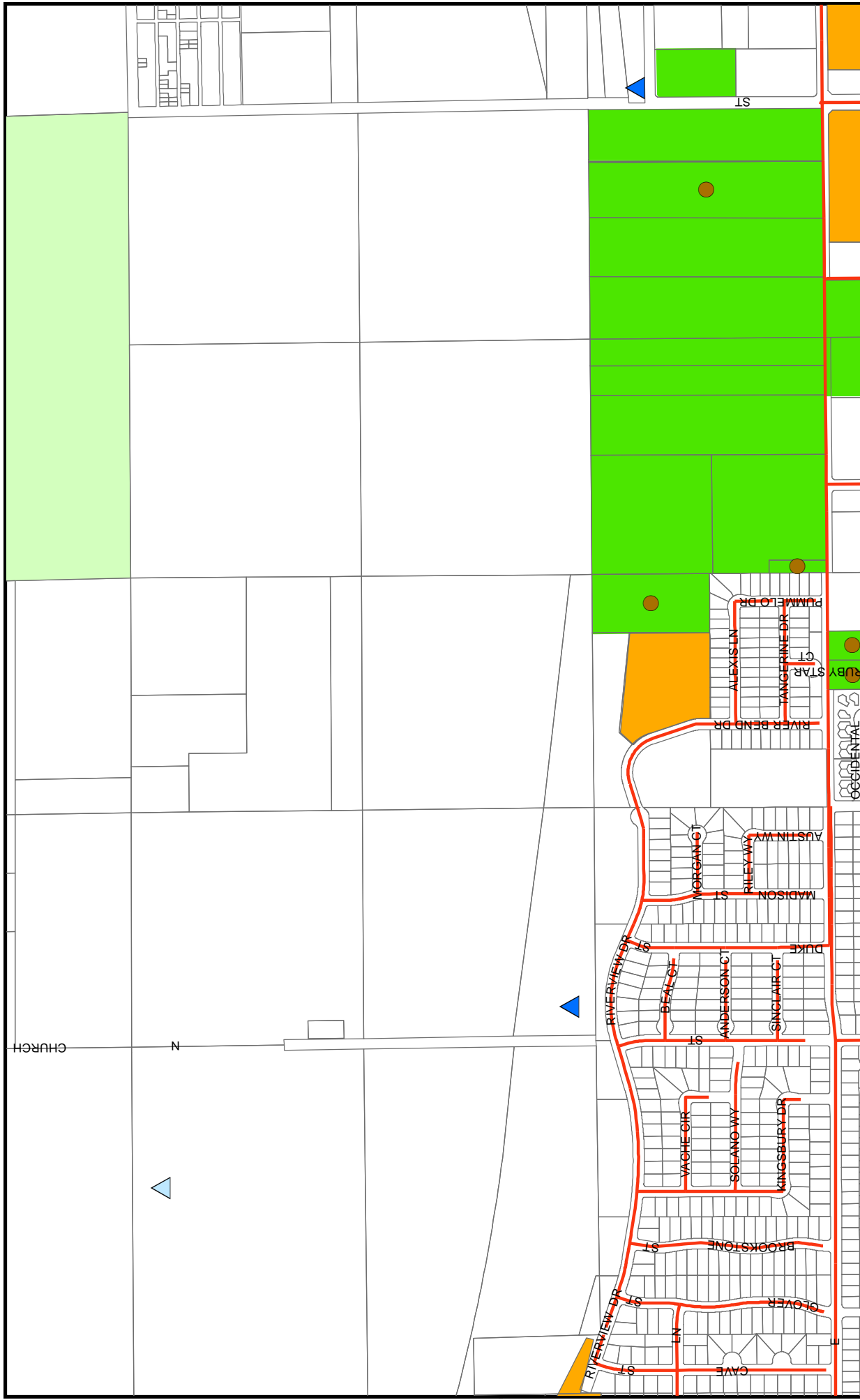


- Parcels with Septic Tank
- Redlands Well
- Other Wells
- Sewer Mains
- Sewer Not Available Due To Topography
- Redlands Sphere of Influence
- Redlands Boundary
- Parcels
- Open Space
- City Groves
- Parks
- Agricultural Preserves

# MAP 3







- ▲ Sewer Mains
- ▲ Other Wells
- ▲ Redlands Well
- Parcels with Septic Tank
- Redlands Sphere of Influence
- Redlands Boundary
- Parcels
- Agricultural Preserves
- Parks
- City Groves
- Open Space

# MAP 4

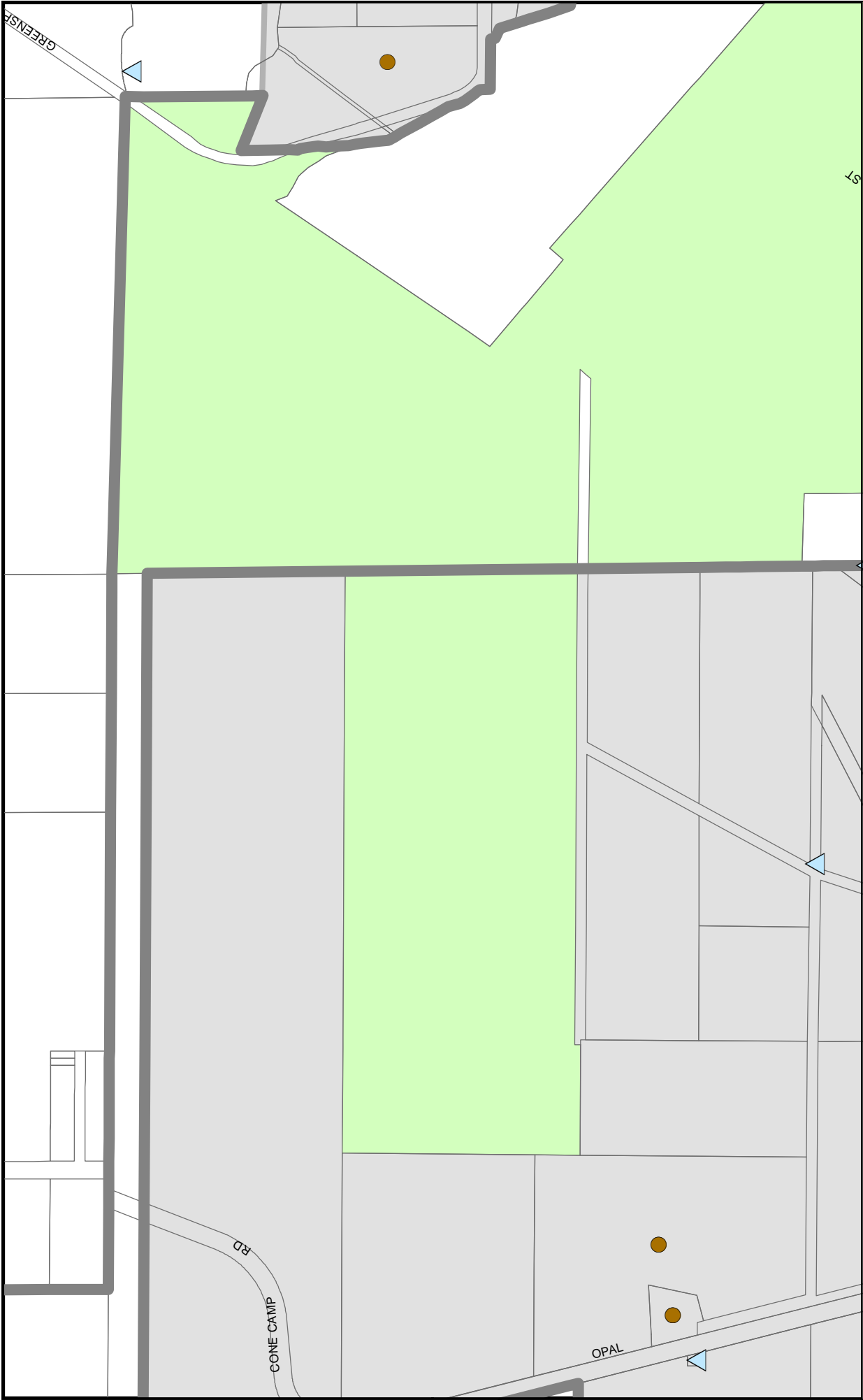




- Wells with Septic Tank
- ▲ Redlands Well
- ▲ Other Wells
- Sewer Mains
- Sewer Not Available Due To Topography
- Redlands Sphere of Influence
- Redlands Boundary
- Parcels
- Open Space
- City Groves
- Parks
- Agricultural Preserves

# MAP 5



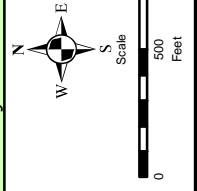


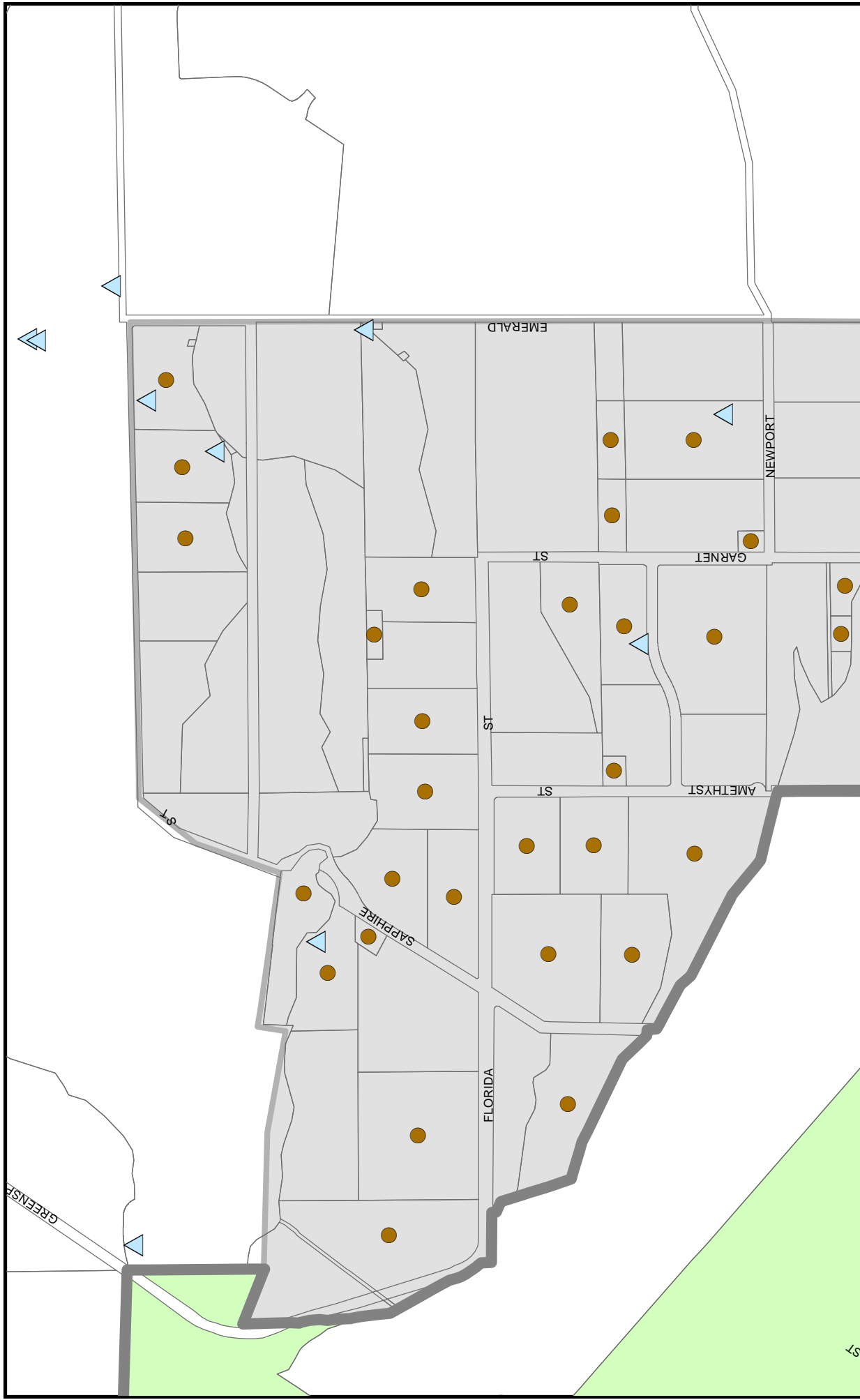
- Open Space
- City Groves
- Parks
- Agricultural Preserves

- Sewer Not Available Due To Topography
- Redlands Sphere of Influence
- Redlands Boundary
- Parcels

- Parcels with Septic Tank
- Redlands Well
- Other Wells
- Sewer Mains

# MAP 6



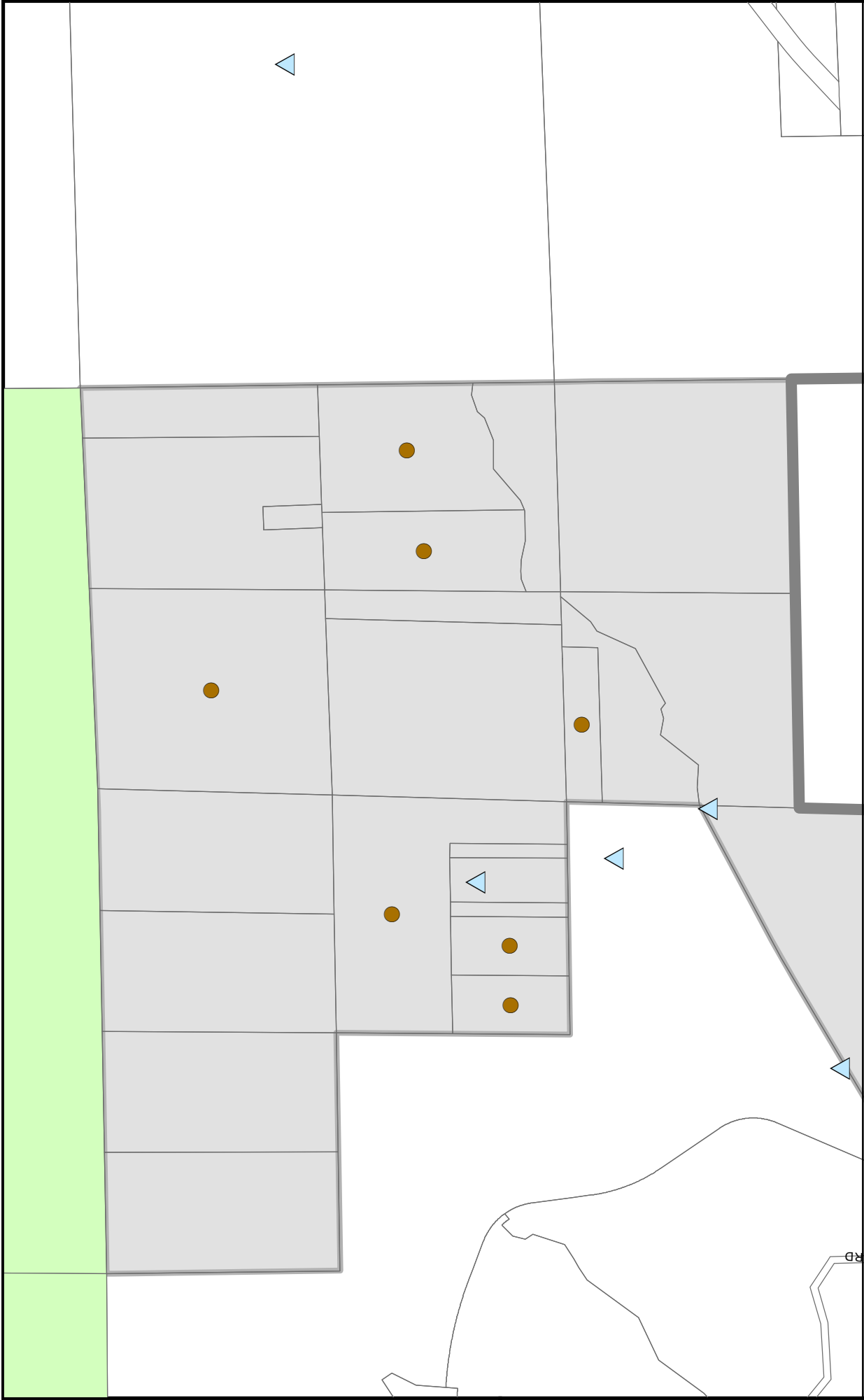


**MAP 7**

	Parcels with Septic Tank		Sewer Not Available Due To Topography		Open Space
	Redlands Well		Redlands Sphere of Influence		City Groves
	Other Wells		Redlands Boundary		Parks
	Sewer Mains		Parcels		Agricultural Preserves

Scale: 0 500 1,000 Feet

North Arrow

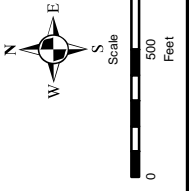


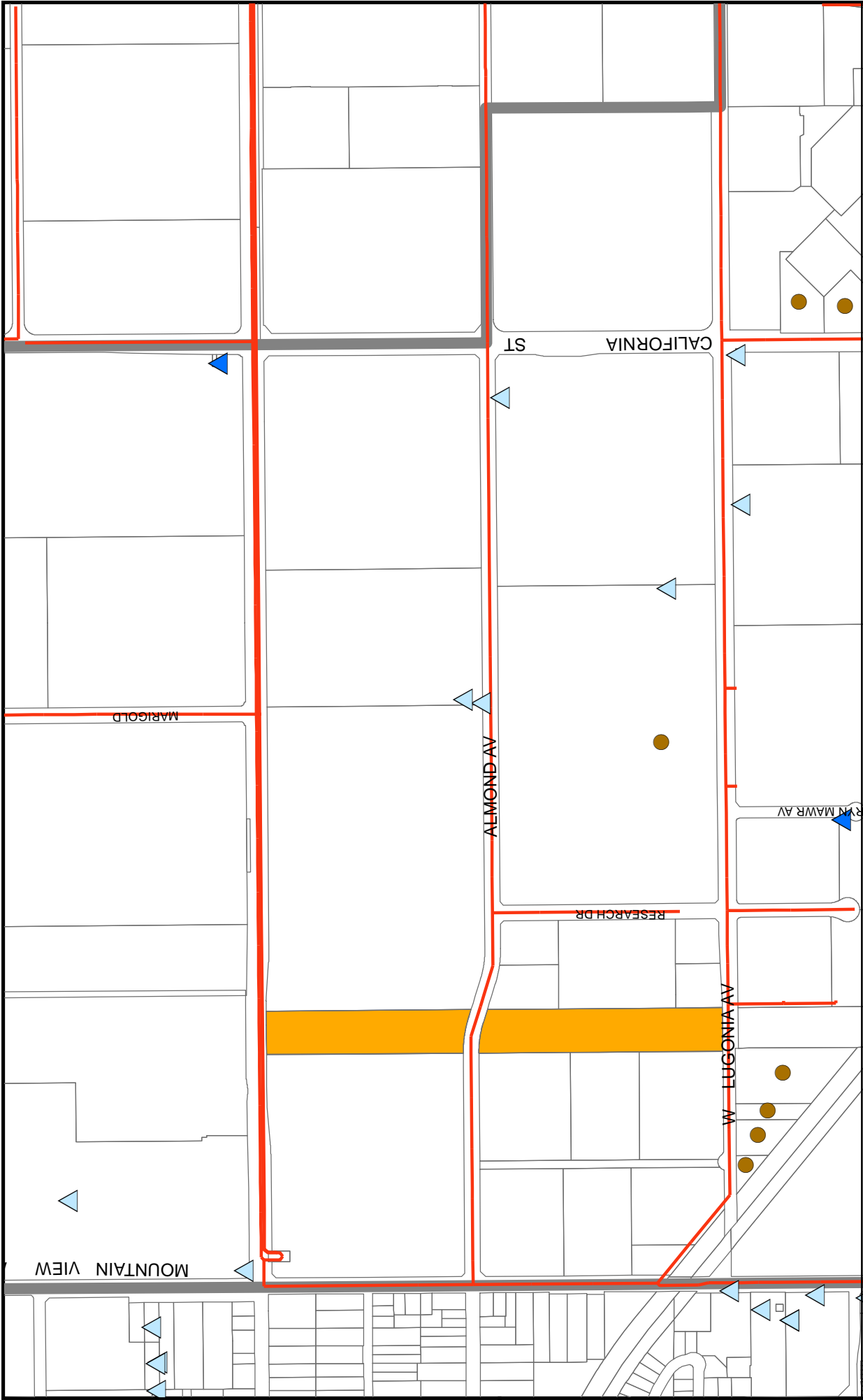
- Open Space
- City Groves
- Parks
- Agricultural Preserves

- Sewer Not Available Due To Topography
- Redlands Sphere of Influence
- Redlands Boundary
- Parcels

- Parcels with Septic Tank
- Redlands Well
- Other Wells
- Sewer Mains

# MAP 8





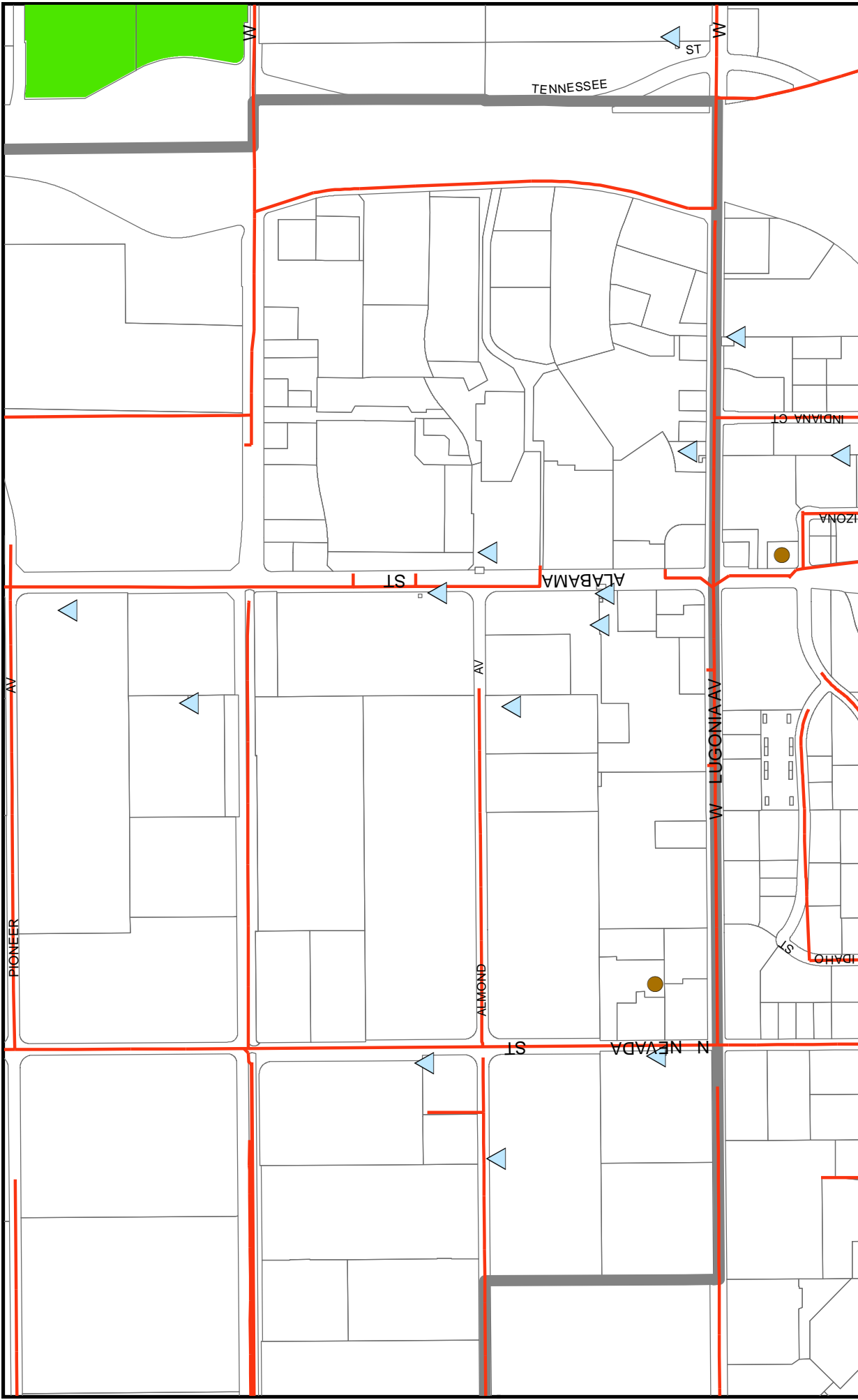
- Parcels with Septic Tank
- Redlands Well
- Other Wells
- Sewer Mains
- Sewer Not Available Due To Topography
- Redlands Sphere of Influence
- Redlands Boundary
- Parcels
- Open Space
- City Groves
- Parks
- Agricultural Preserves

Scale

0 500 1,000  
Feet

# MAP 9

Map 9 (City of Redlands)



- Parcels with Septic Tank
- Redlands Well
- Other Wells
- Sewer Mains
- Sewer Not Available Due To Topography
- Redlands Sphere of Influence
- Redlands Boundary
- Parcels
- Open Space
- City Groves
- Parks
- Agricultural Preserves

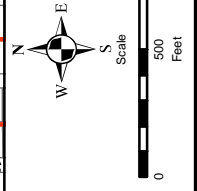
Scale

0      500      1,000  
Feet

# MAP 10



	Parcels with Septic Tank		Open Space
	Redlands Well		City Groves
	Other Wells		Parks
	Sewer Mains		Agricultural Preserves
	Sewer Not Available Due To Topography		
	Redlands Sphere of Influence		
	Redlands Boundary		
	Parcels		



# MAP 11





**MAP 12**

Scale  
0 500 1,000  
Feet

N  
W E  
S

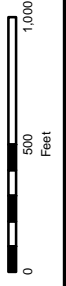
- Open Space
- City Groves
- Parks
- Agricultural Preserves

- Sewer Not Available Due To Topography
- Redlands Sphere of Influence
- Redlands Boundary
- Parcels

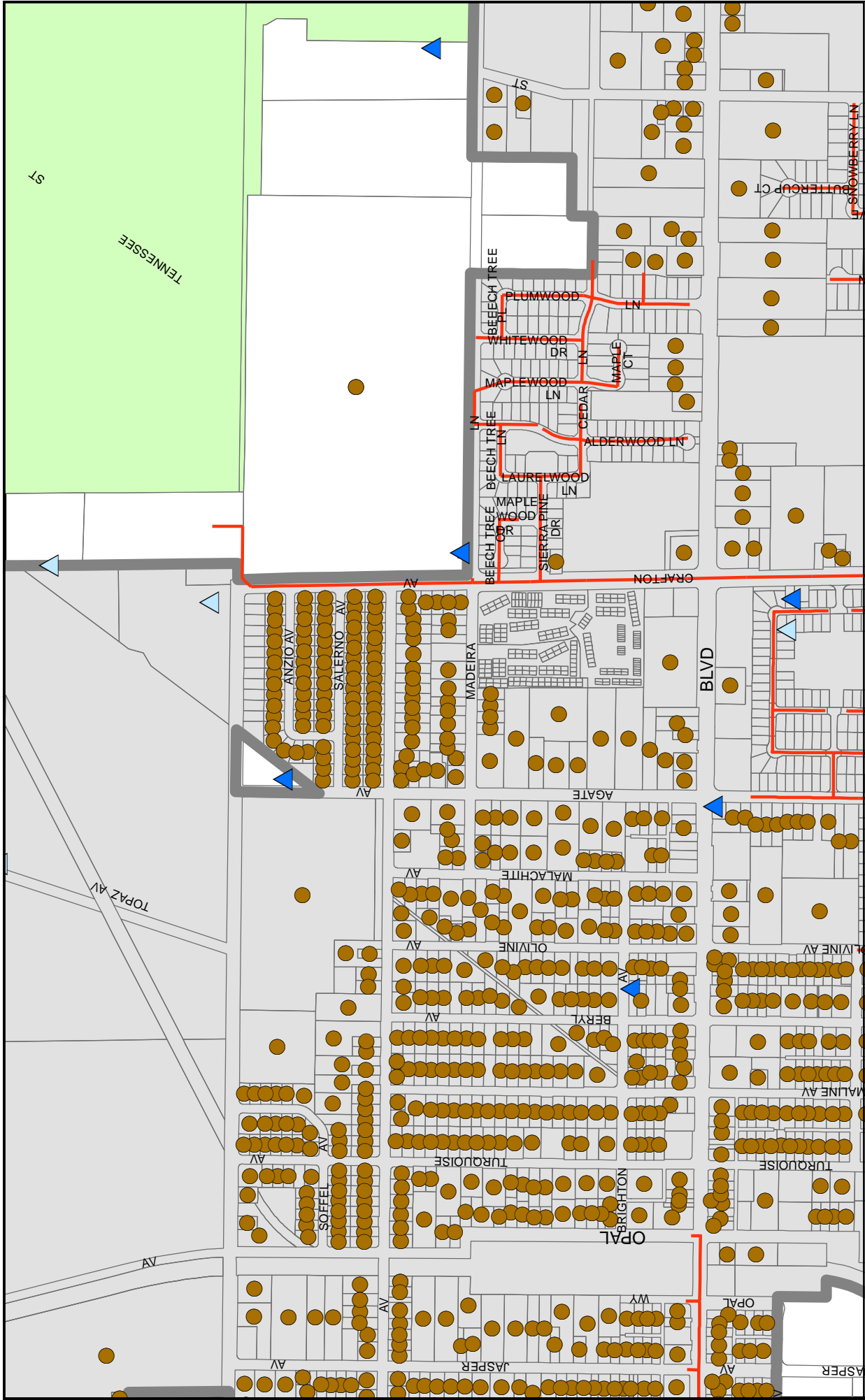
- Parcels with Septic Tank
- Redlands Well
- Other Wells
- Sewer Mains



- Parcels with Septic Tank
- ▲ Redlands Well
- ▲ Other Wells
- Sewer Mains
- ▭ Sewer Not Available Due To Topography
- ▭ Redlands Sphere of Influence
- ▭ Redlands Boundary
- ▭ Parcels
- ▭ Open Space
- ▭ City Groves
- ▭ Parks
- ▭ Agricultural Preserves

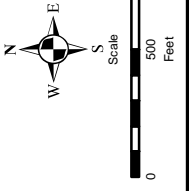


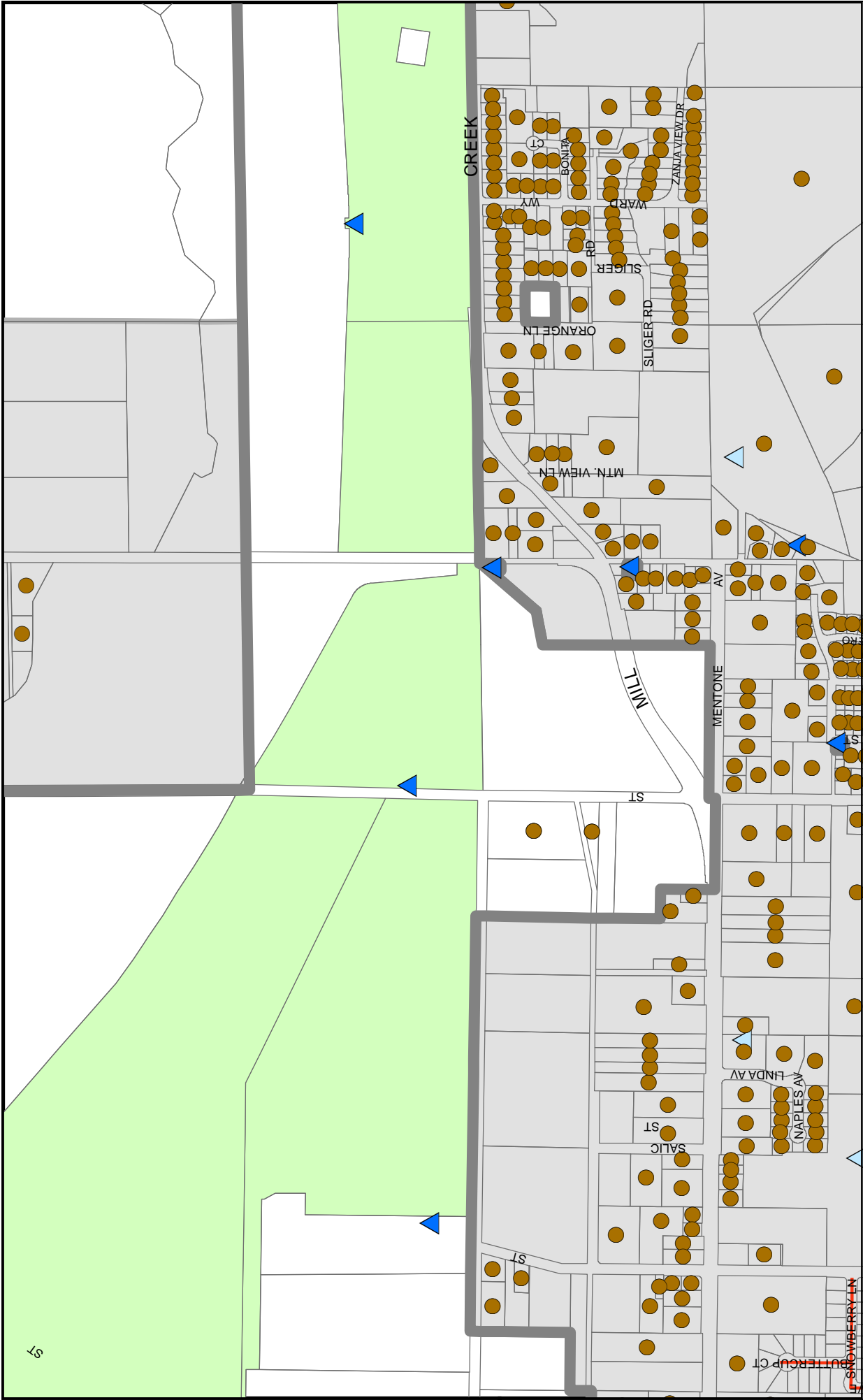
# MAP 13



- Parcels with Septic Tank
- ▲ Redlands Well
- ▲ Other Wells
- Sewer Mains
- ▭ Sewer Not Available Due To Topography
- ▭ Redlands Sphere of Influence
- ▭ Redlands Boundary
- ▭ Parcels
- Open Space
- City Groves
- Parks
- Agricultural Preserves

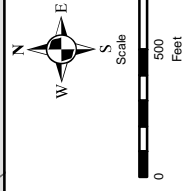
# MAP 14

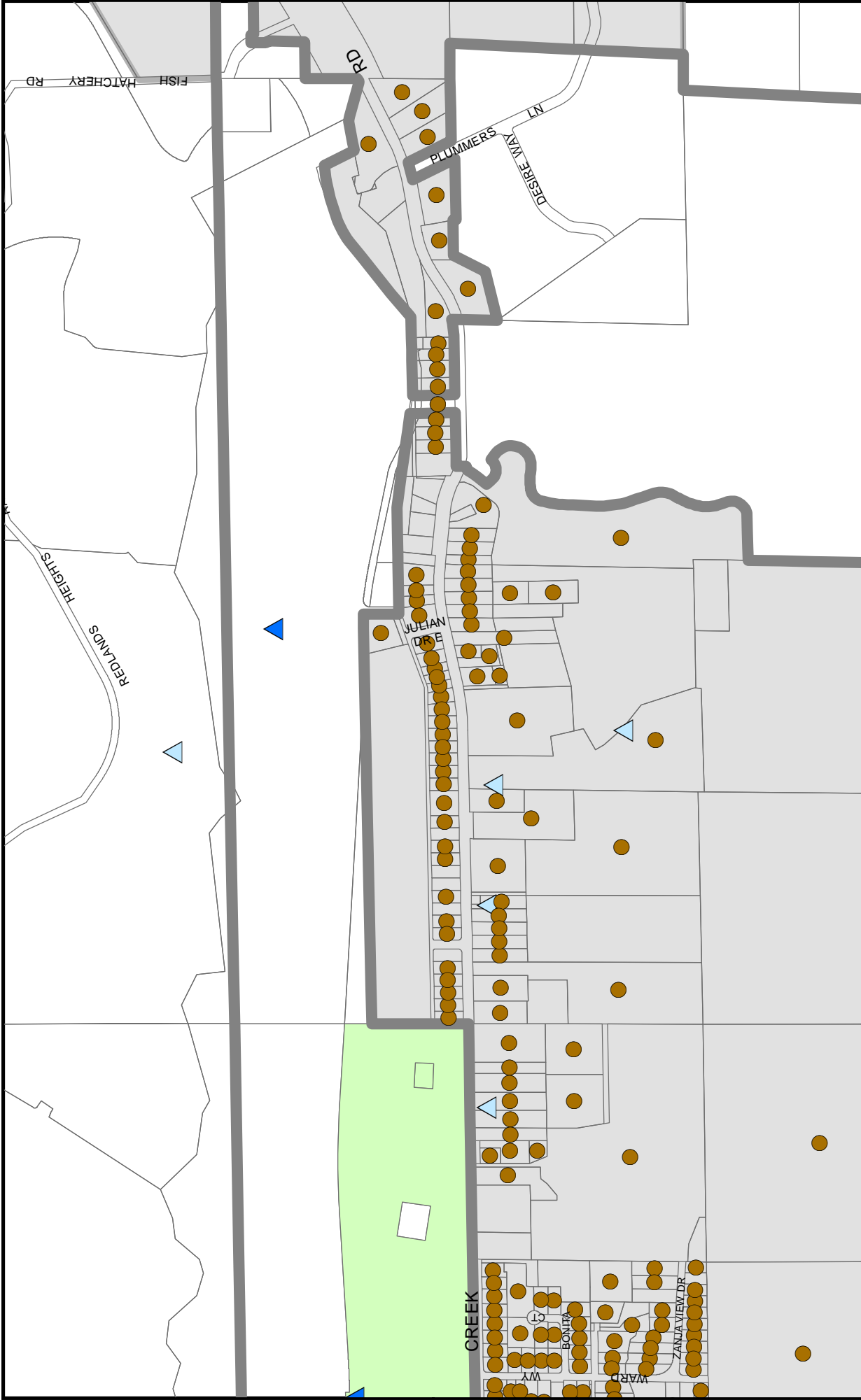




- Parcels with Septic Tank
- ▲ Redlands Well
- ▲ Other Wells
- Sewer Mains
- Sewer Not Available Due To Topography
- Redlands Sphere of Influence
- Redlands Boundary
- Parcels
- Open Space
- City Groves
- Parks
- Agricultural Preserves

# MAP 15





- Open Space
- City Groves
- Parks
- Agricultural Preserves

- Sewer Not Available Due To Topography
- Redlands Sphere of Influence
- Redlands Boundary
- Parcels

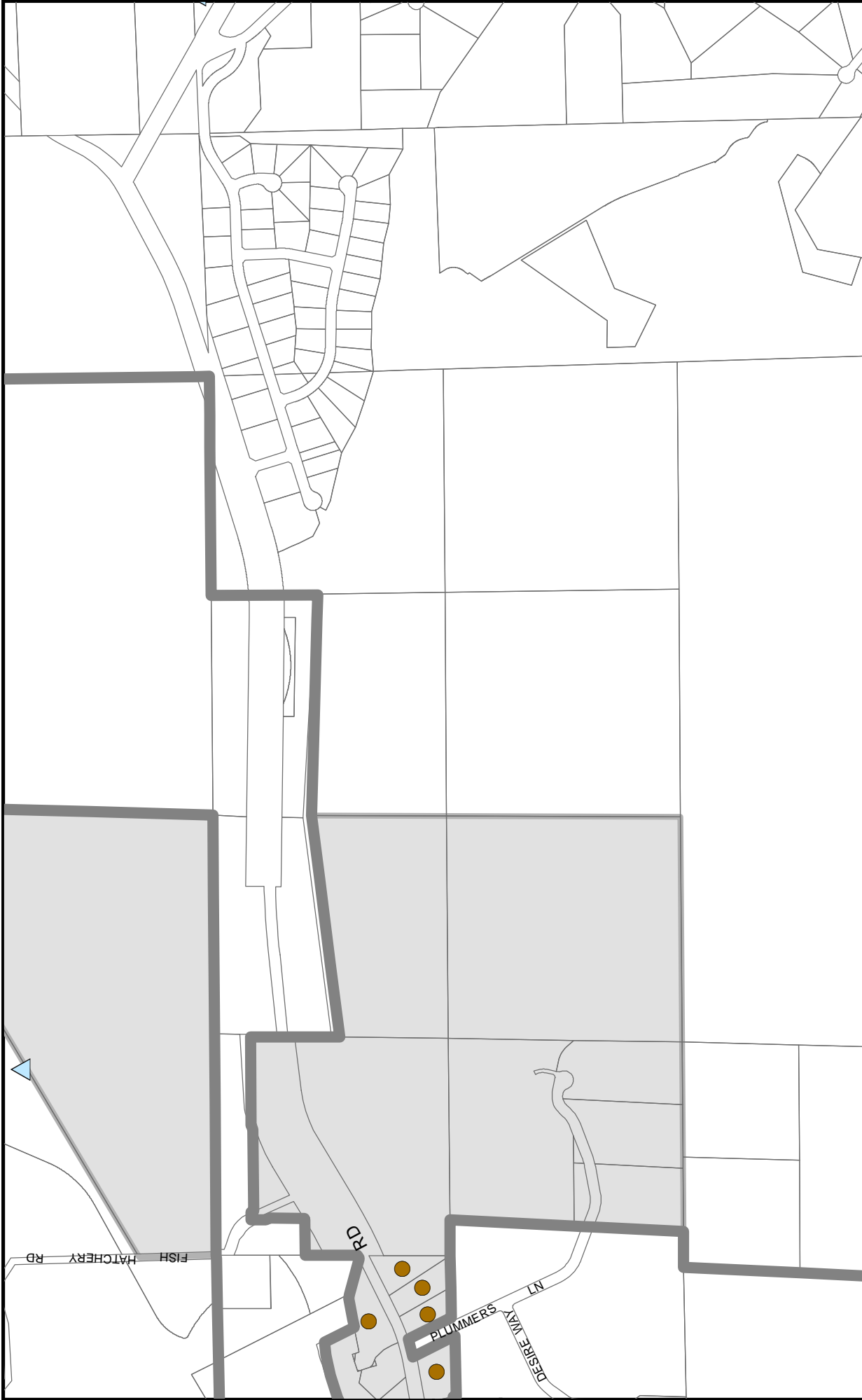
- Parcels with Septic Tank
- Redlands Well
- Other Wells
- Sewer Mains

Scale

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Feet

# MAP 16

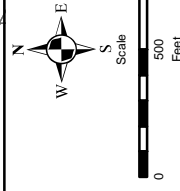
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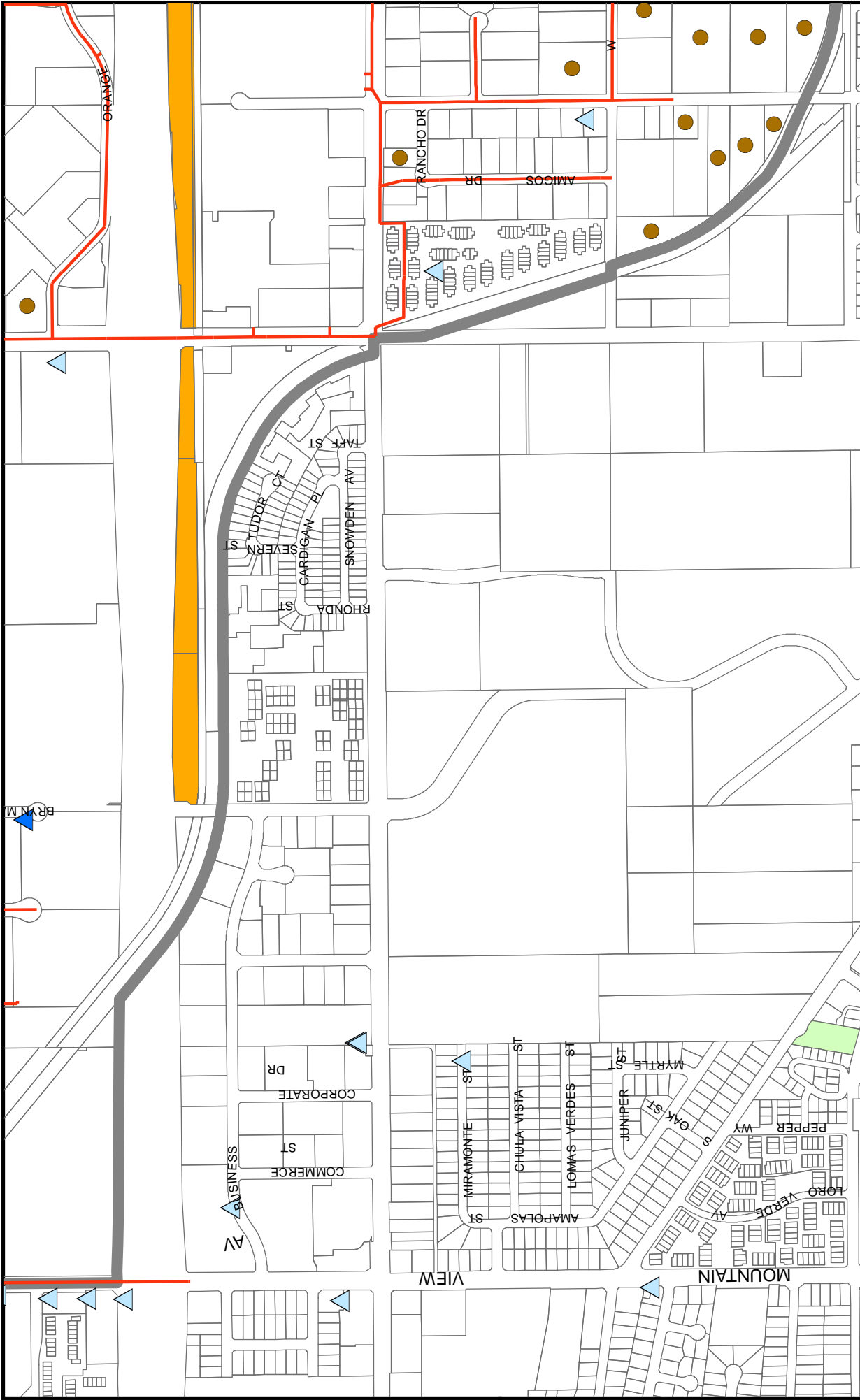


- Parcels with Septic Tank
- Redlands Well
- Other Wells
- Sewer Mains
- Sewer Not Available Due To Topography
- Redlands Sphere of Influence
- Redlands Boundary
- Parcels
- Open Space
- City Groves
- Parks
- Agricultural Preserves

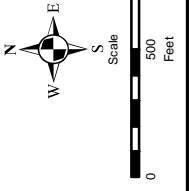
Map 17 (2014) (2014)

# MAP 17



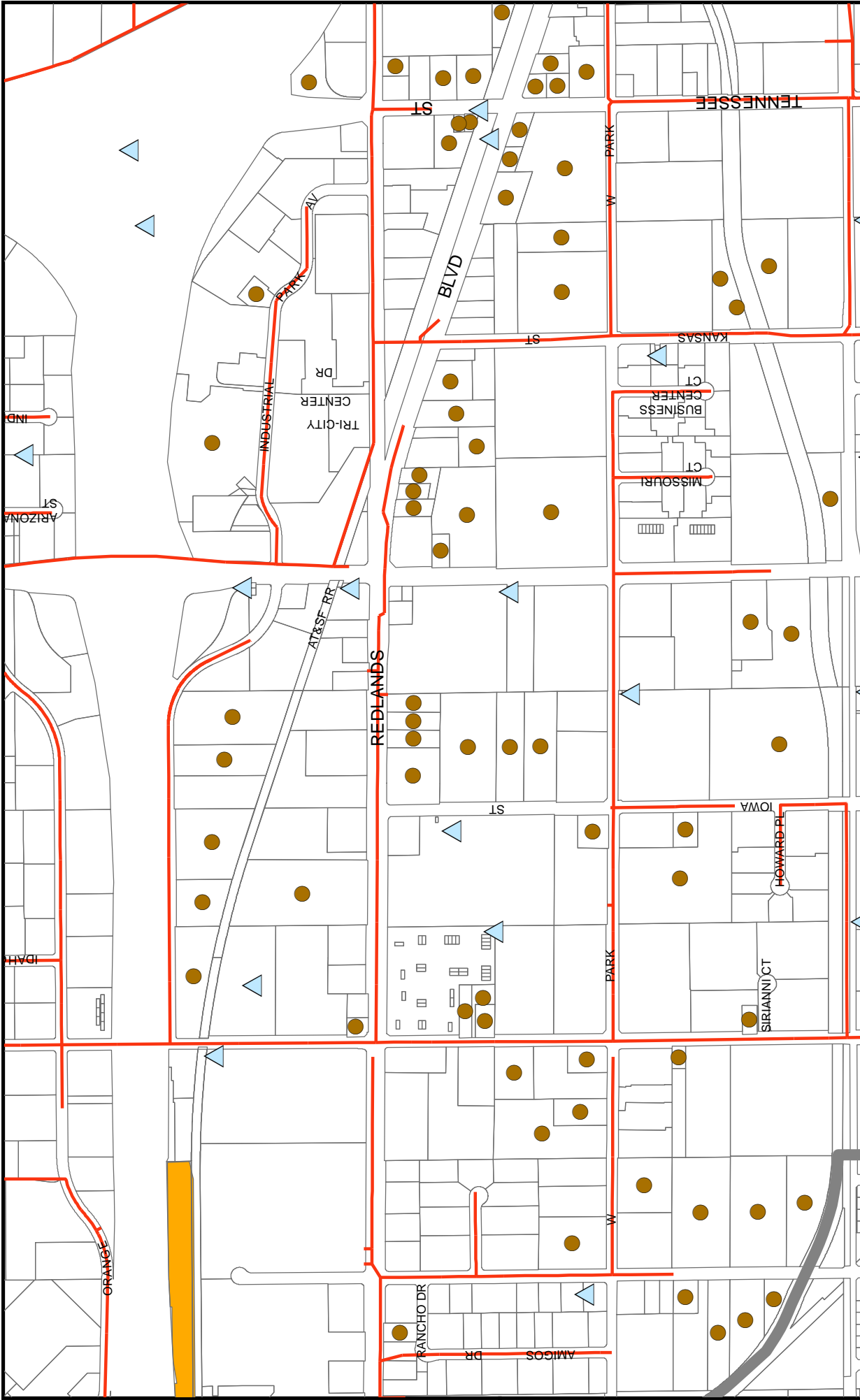


- Parcels with Septic Tank
- ▲ Redlands Well
- ▲ Other Wells
- Sewer Mains
- Sewer Not Available Due To Topography
- Redlands Sphere of Influence
- Redlands Boundary
- Parcels
- Open Space
- City Groves
- Parks
- Agricultural Preserves

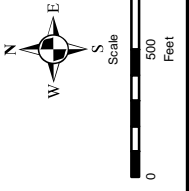


# MAP 18

Map 18 (2018)

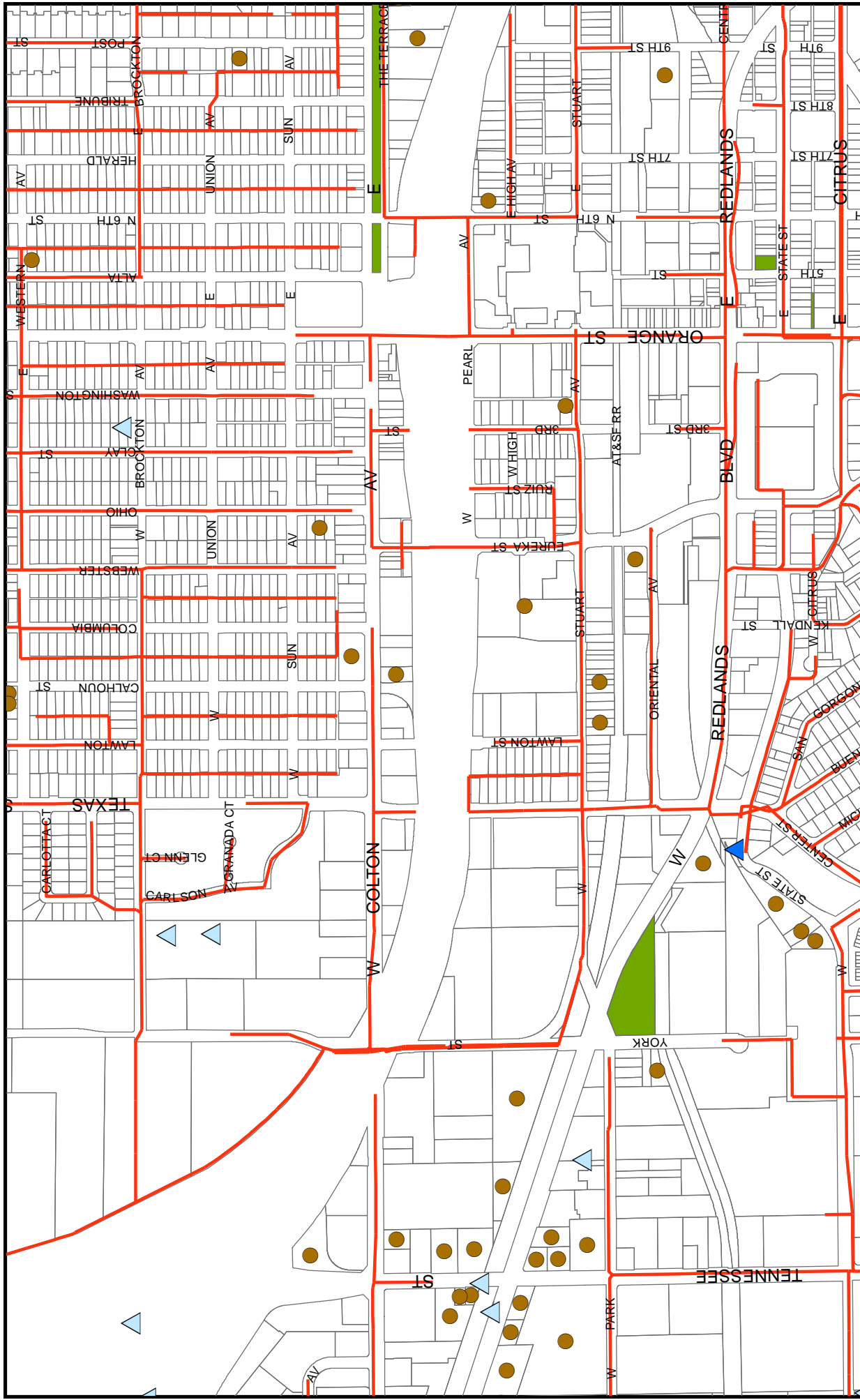


- Parcels with Septic Tank
- ▲ Redlands Well
- ▲ Other Wells
- Sewer Mains
- Sewer Not Available Due To Topography
- Redlands Sphere of Influence
- Redlands Boundary
- Parcels
- Open Space
- City Groves
- Parks
- Agricultural Preserves



# MAP 19

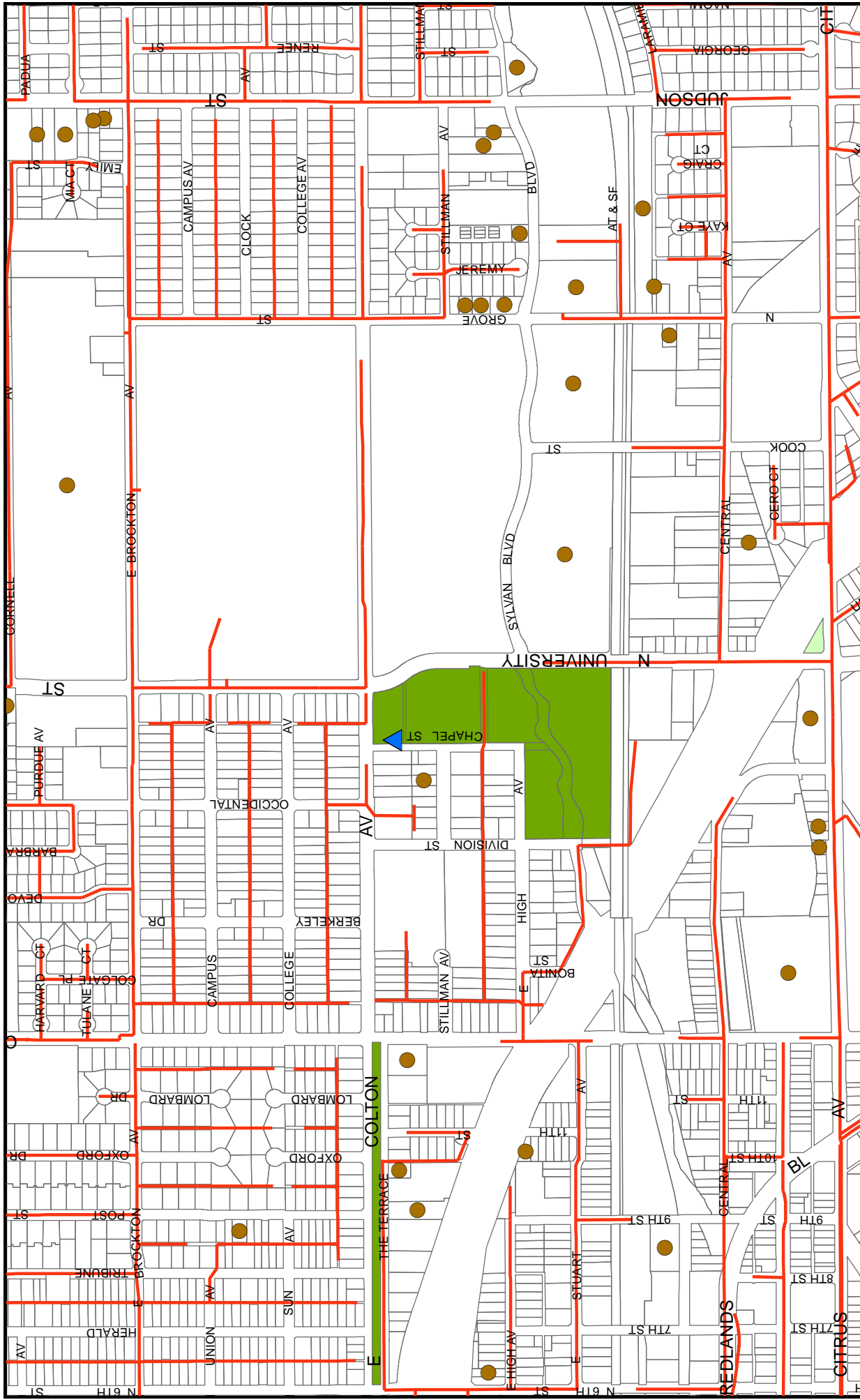




	Parcels with Septic Tank		Sewer Not Available Due To Topography		Open Space
	Redlands Well		Redlands Sphere of Influence		City Groves
	Other Wells		Redlands Boundary		Parks
	Sewer Mains		Parcels		Agricultural Preserves

# MAP 20

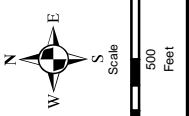




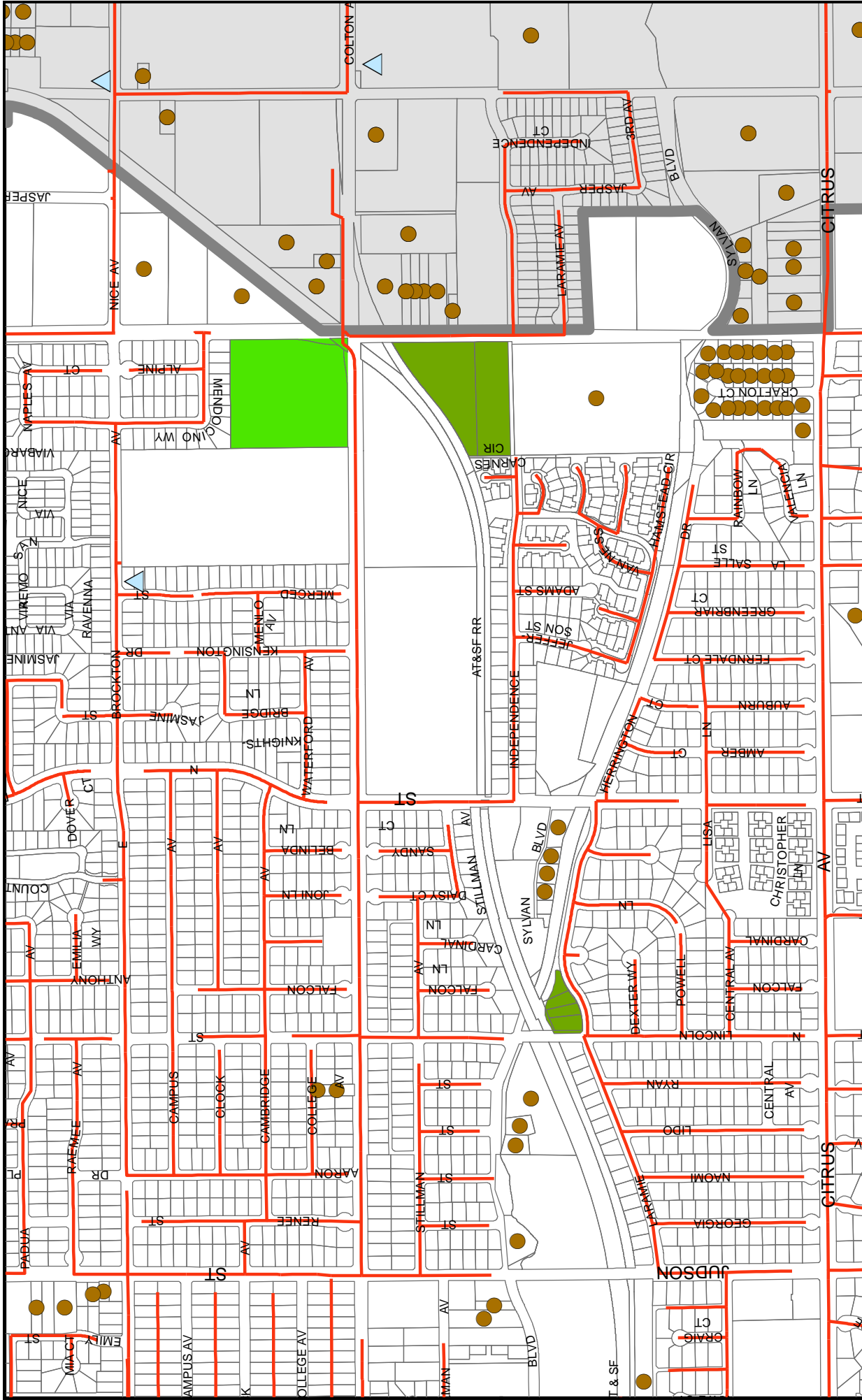
- Open Space
- City Groves
- Parks
- Agricultural Preserves

- Sewer Not Available Due To Topography
- Redlands Sphere of Influence
- Redlands Boundary
- Parcels

- Parcels with Septic Tank
- Redlands Well
- Other Wells
- Sewer Mains



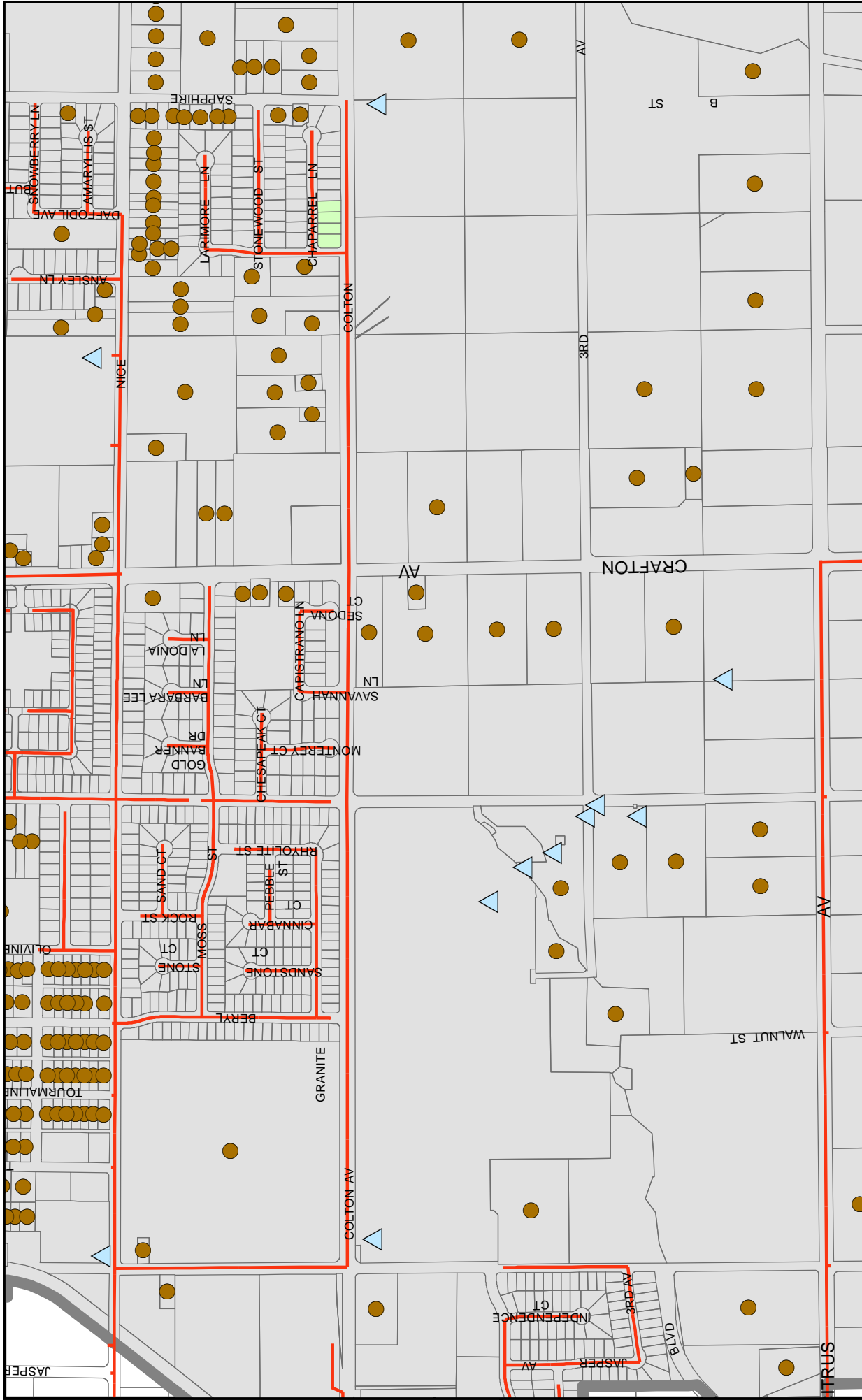
# MAP 21



**MAP 22**

	Parcels with Septic Tank		Sewer Not Available Due To Topography		Open Space
	Redlands Well		Redlands Sphere of Influence		City Groves
	Other Wells		Redlands Boundary		Parks
	Sewer Mains		Parcels		Agricultural Preserves

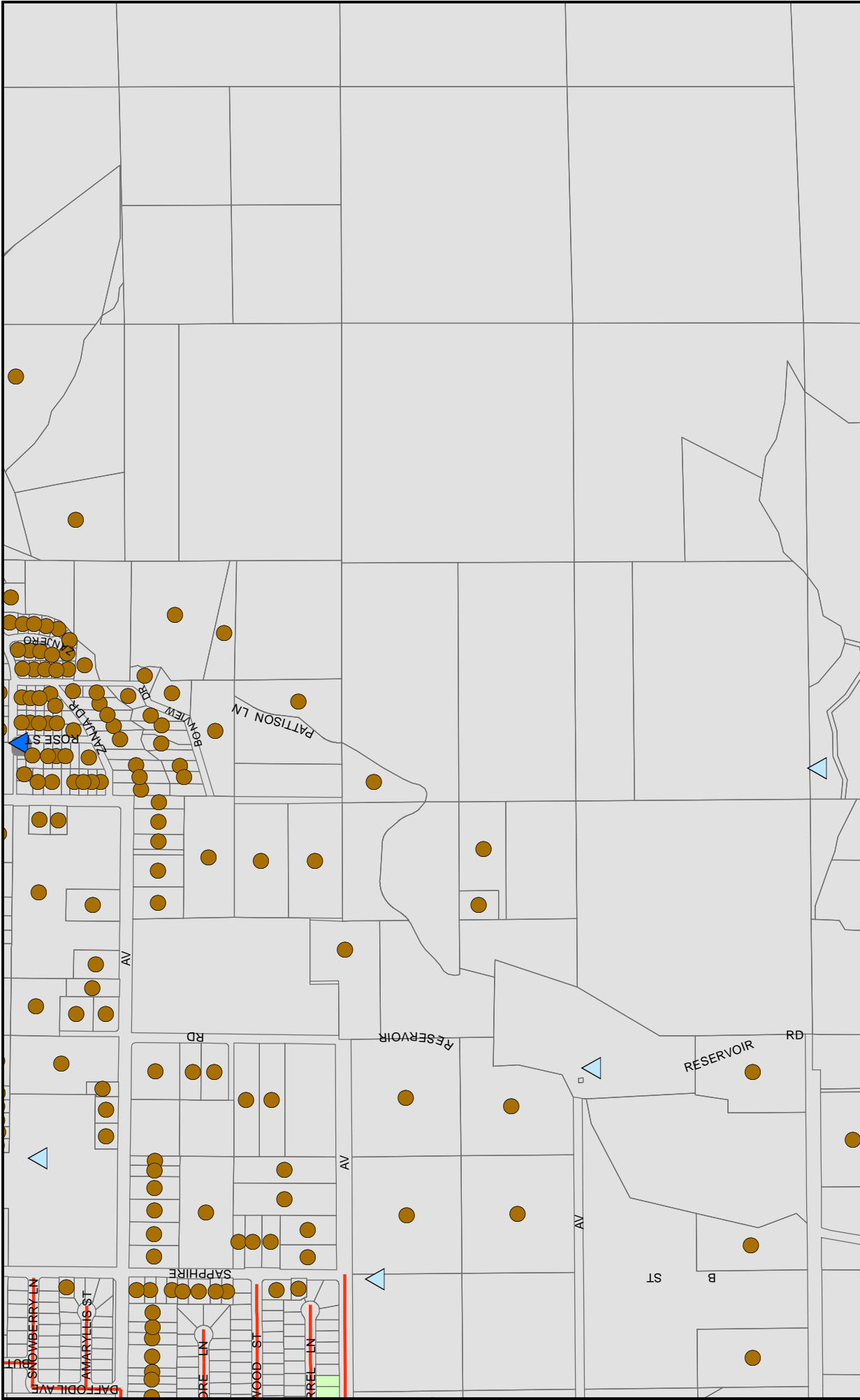
Scale: 0 500 1,000 Feet



- Parcels with Septic Tank
- Redlands Well
- Other Wells
- Sewer Mains
- Sewer Not Available Due To Topography
- Redlands Sphere of Influence
- Redlands Boundary
- Parcels
- Open Space
- City Groves
- Parks
- Agricultural Preserves

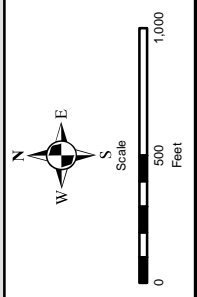


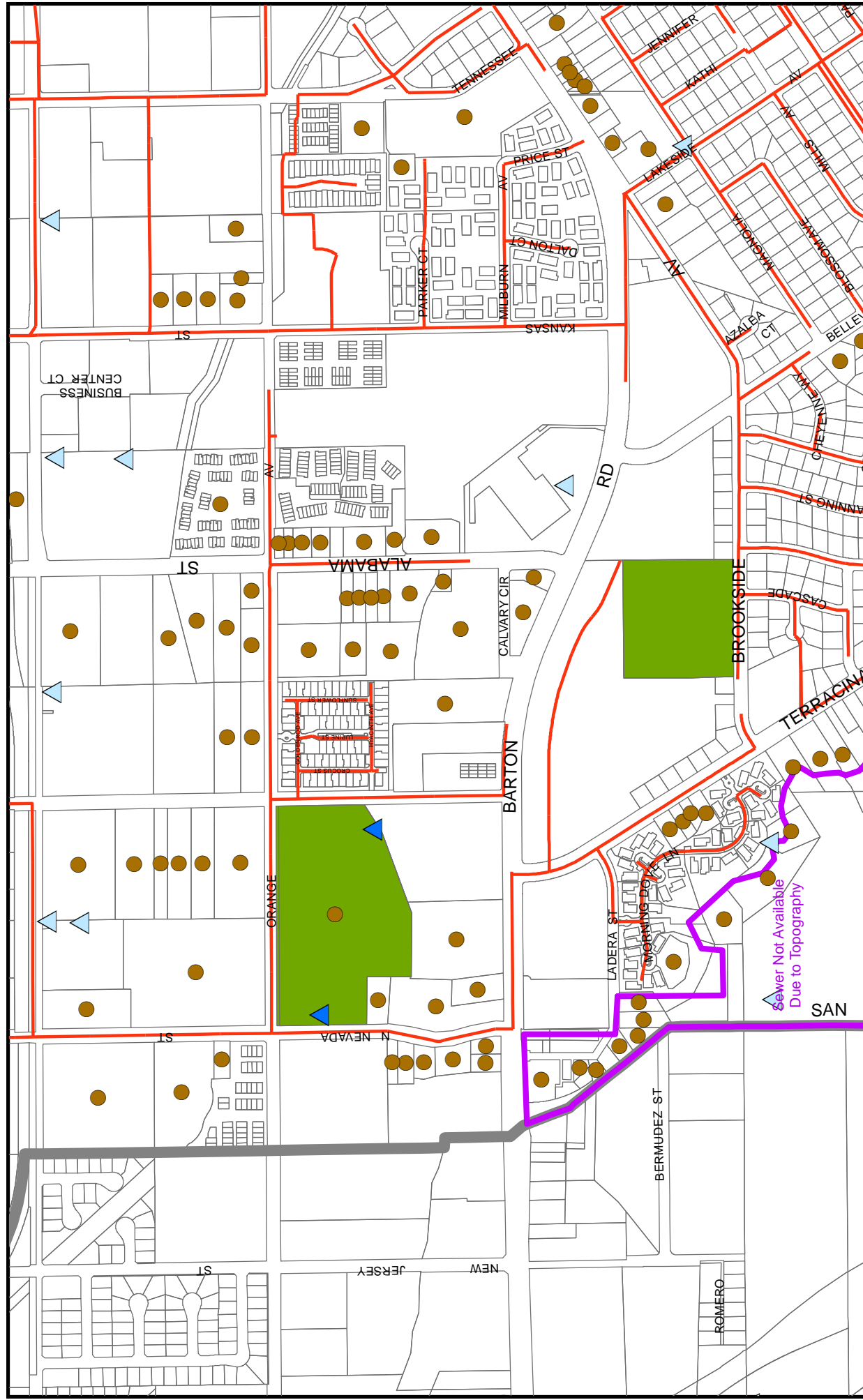
# MAP 23



- Parcels with Septic Tank
- ▲ Redlands Well
- ▲ Other Wells
- Sewer Mains
- Sewer Not Available Due To Topography
- Redlands Sphere of Influence
- Redlands Boundary
- Parcels
- Open Space
- City Groves
- Parks
- Agricultural Preserves

# MAP 24



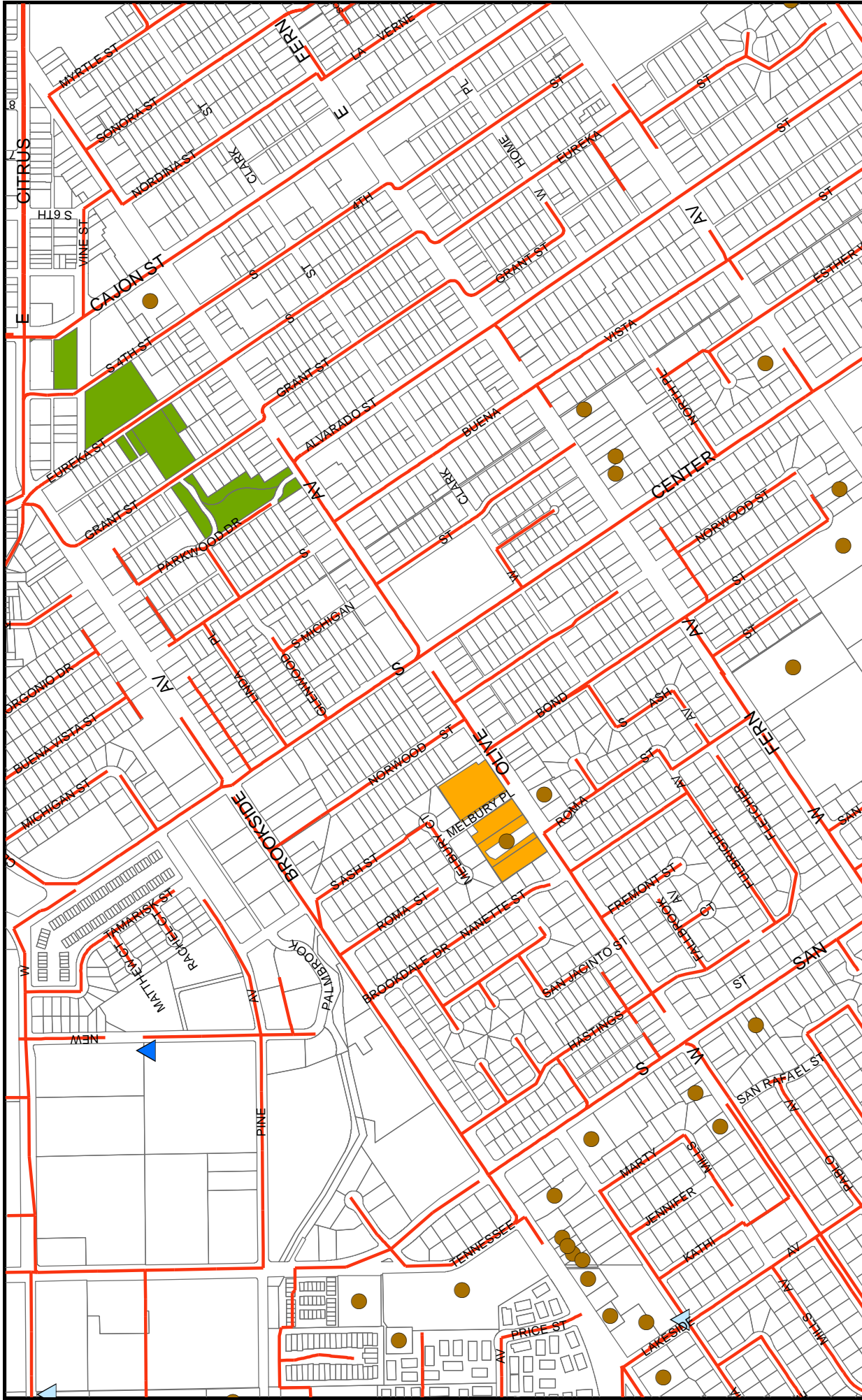


# MAP 25

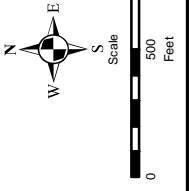
- Parcels with Septic Tank
- Redlands Well
- Other Wells
- Sewer Mains
- Sewer Not Available Due To Topography
- Redlands Sphere of Influence
- Redlands Boundary
- Parcels

- Open Space
- City Groves
- Parks
- Agricultural Preserves

Scale  
0 500 1,000  
Feet

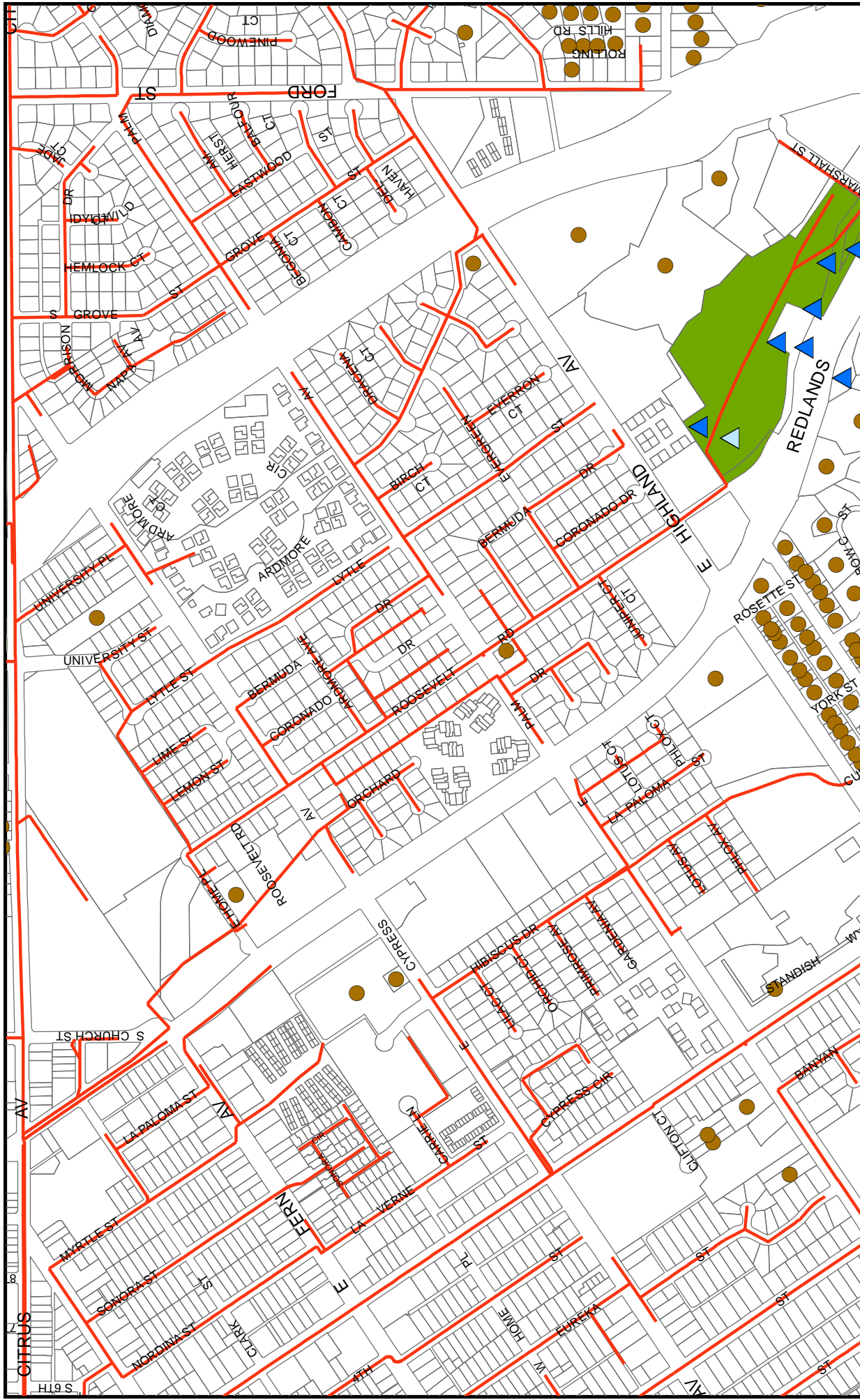


- Parcels with Septic Tank
- Redlands Well
- Other Wells
- Sewer Mains
- Sewer Not Available Due To Topography
- Redlands Sphere of Influence
- Redlands Boundary
- Parcels
- Open Space
- City Groves
- Parks
- Agricultural Preserves



# MAP 26

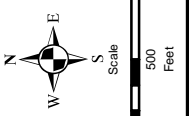
Map Data Provided



- Open Space
- City Groves
- Parks
- Agricultural Preserves

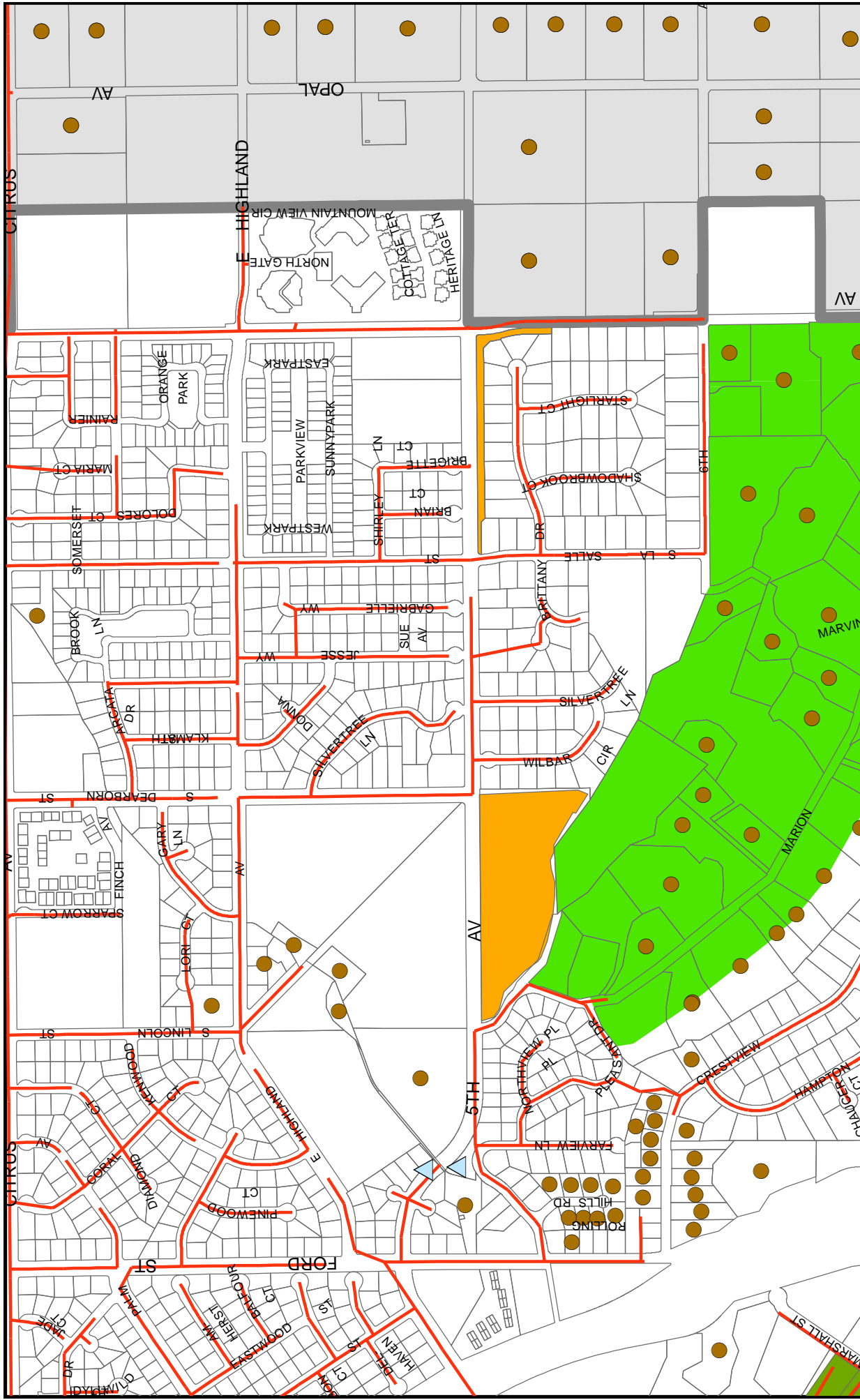
- Sewer Not Available Due To Topography
- Redlands Sphere of Influence
- Redlands Boundary
- Parcels

- Parcels with Septic Tank
- Redlands Well
- Other Wells
- Sewer Mains



# MAP 27

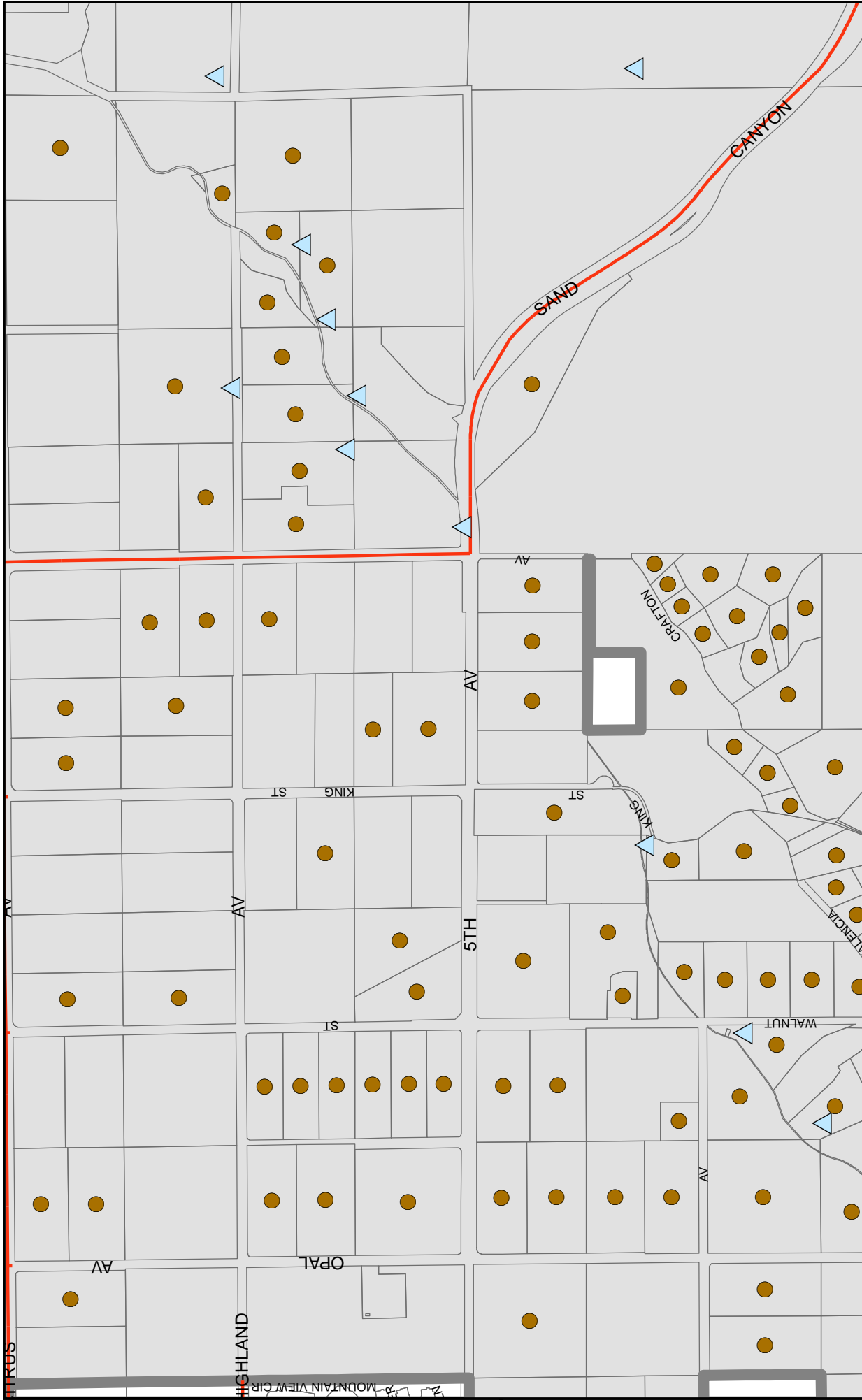




**MAP 28**

Scale: 0 500 1,000 Feet

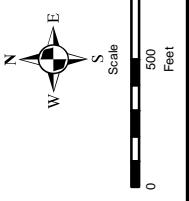
● Parcels with Septic Tank  
 ▲ Redlands Well  
 ▲ Other Wells  
 — Sewer Mains  
 □ Sewer Not Available Due To Topography  
 □ Redlands Sphere of Influence  
 □ Redlands Boundary  
 □ Parcels  
 □ Open Space  
 □ City Groves  
 □ Parks  
 □ Agricultural Preserves



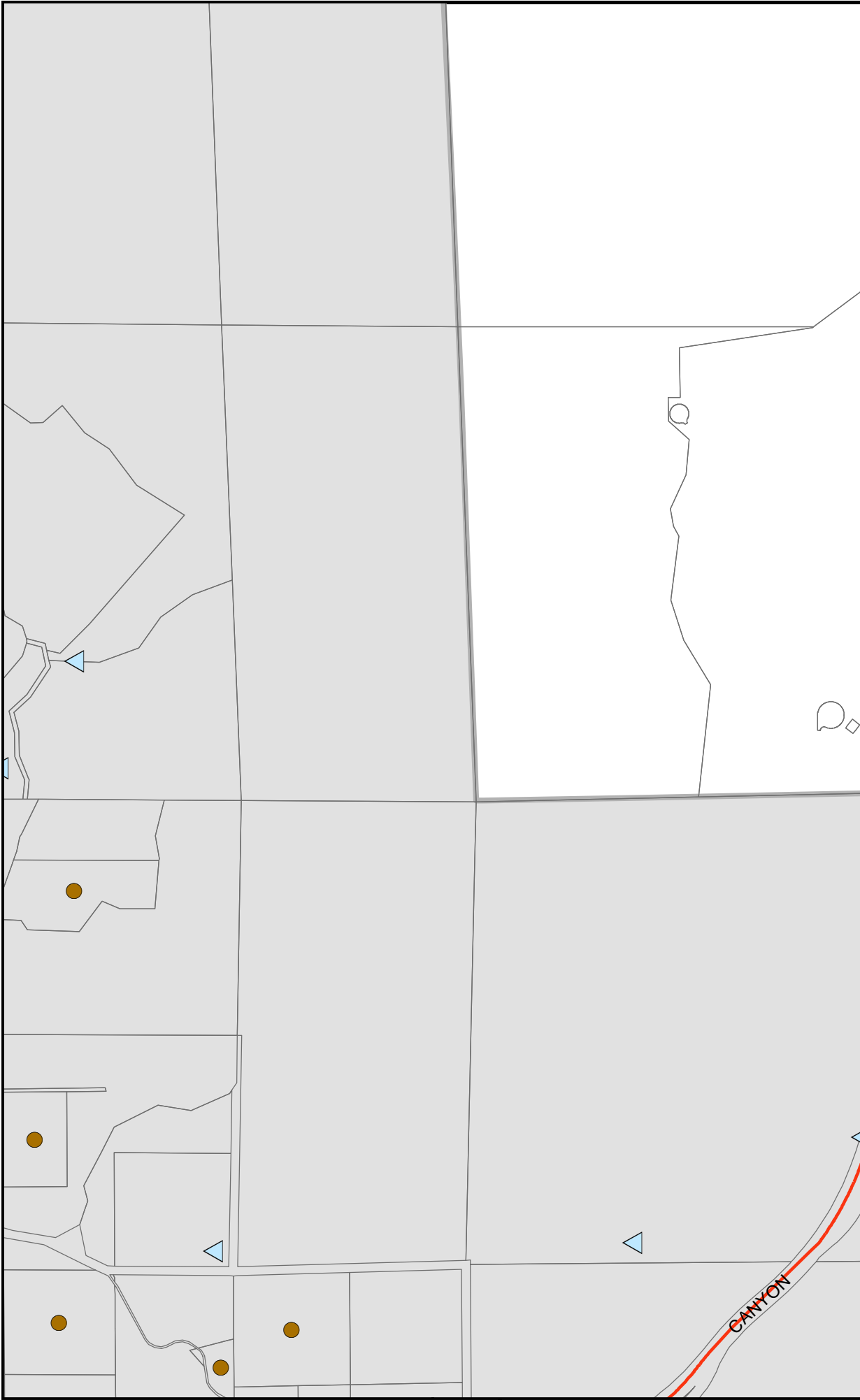
- Open Space
- City Groves
- Parks
- Agricultural Preserves

- Sewer Not Available Due To Topography
- Redlands Sphere of Influence
- Redlands Boundary
- Parcels

- Parcels with Septic Tank
- Redlands Well
- Other Wells
- Sewer Mains



# MAP 29



- Parcels with Septic Tank
- ▲ Redlands Well
- ▲ Other Wells
- Sewer Mains

- Sewer Not Available Due To Topography
- Redlands Sphere of Influence
- Redlands Boundary
- Parcels

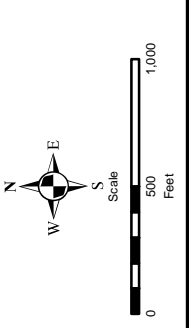
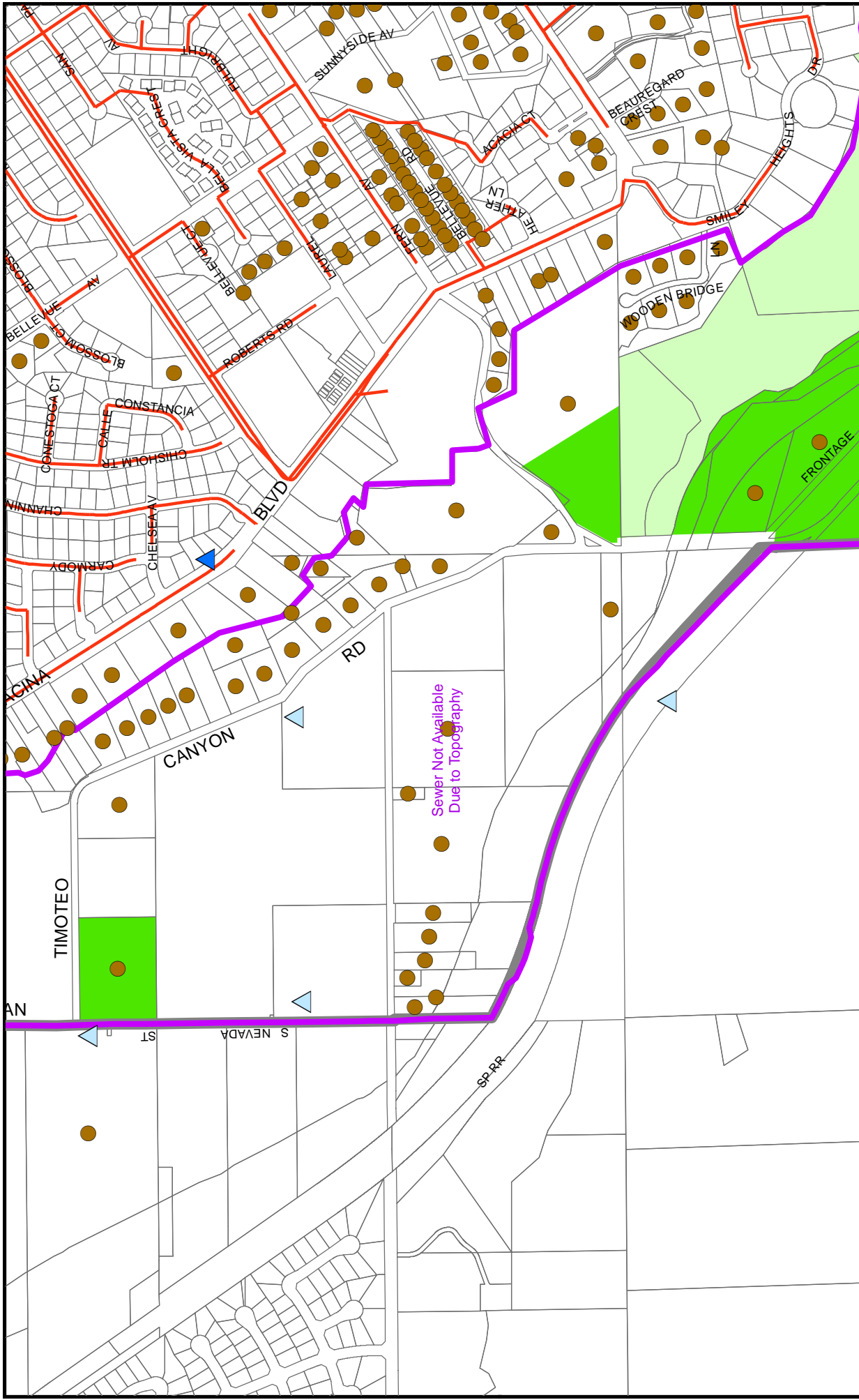
- Open Space
- City Groves
- Parks
- Agricultural Preserves

Scale

0      500      1,000  
Feet

N  
E  
S  
W

# MAP 30



# MAP 31

- Parcels with Septic Tank
- ▲ Redlands Well
- ▲ Other Wells
- Sewer Mains
- Sewer Not Available Due To Topography
- Redlands Sphere of Influence
- Redlands Boundary
- Parcels
- Open Space
- City Groves
- Parks
- Agricultural Preserves

Sewer Not Available  
Due to Topography

FRONTAGE

CANYON

BLVD

RD

TIMOTEO

S NEVADA

SP RR

SUNNYSIDE AV

BEAUREGARD CREST

HEATHER LN

WOODEN BRIDGE

CONSTANCIA

CHISHOLM TR

CHANNING

CARMODY

CHELSEA VY

ACACIA

ACACIA

ACACIA

ACACIA

ACACIA

ACACIA

ACACIA

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ACACIA

ACACIA

ACACIA

ACACIA

ACACIA

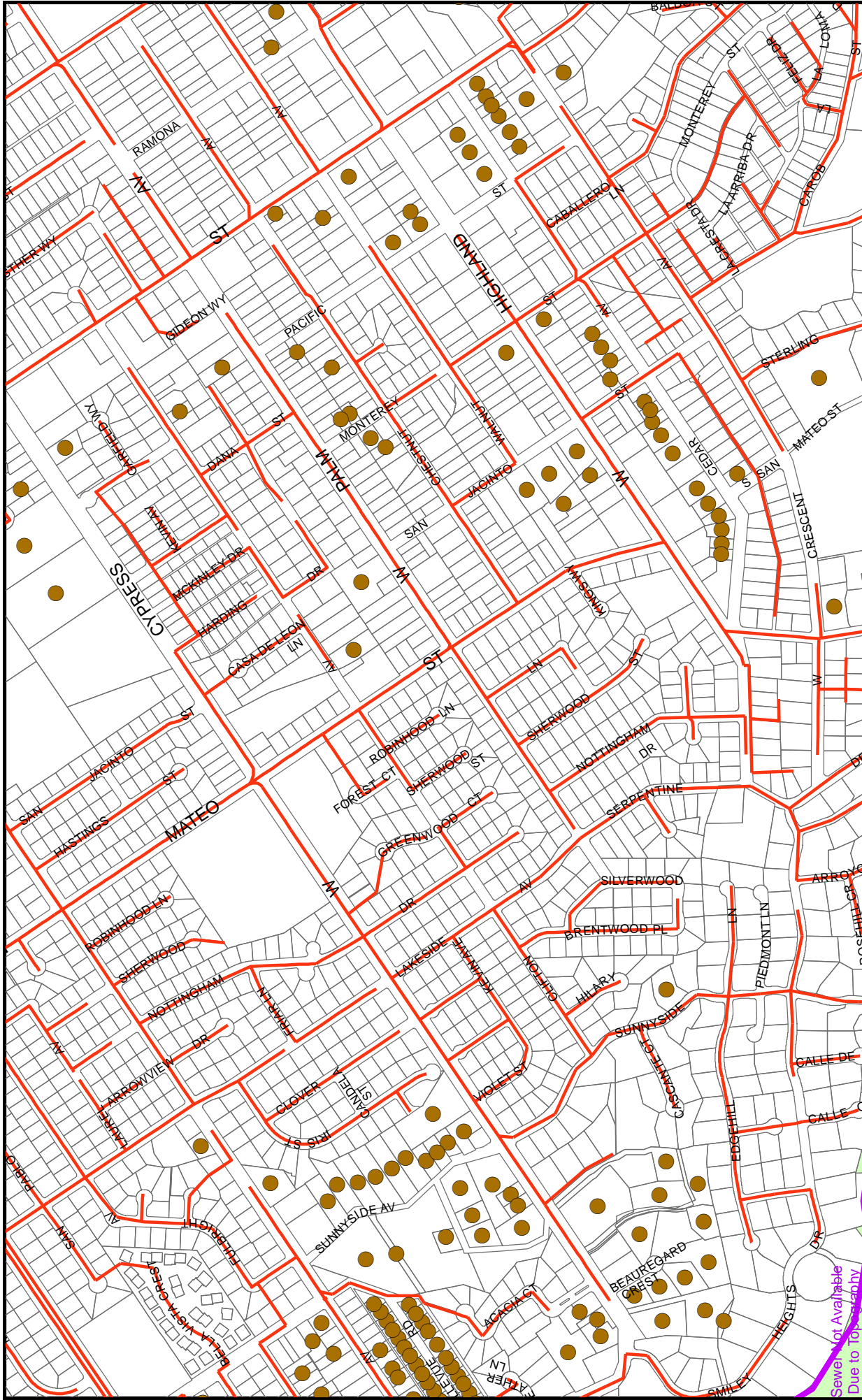
ACACIA

ACACIA

ACACIA

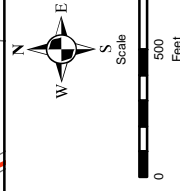
ACACIA

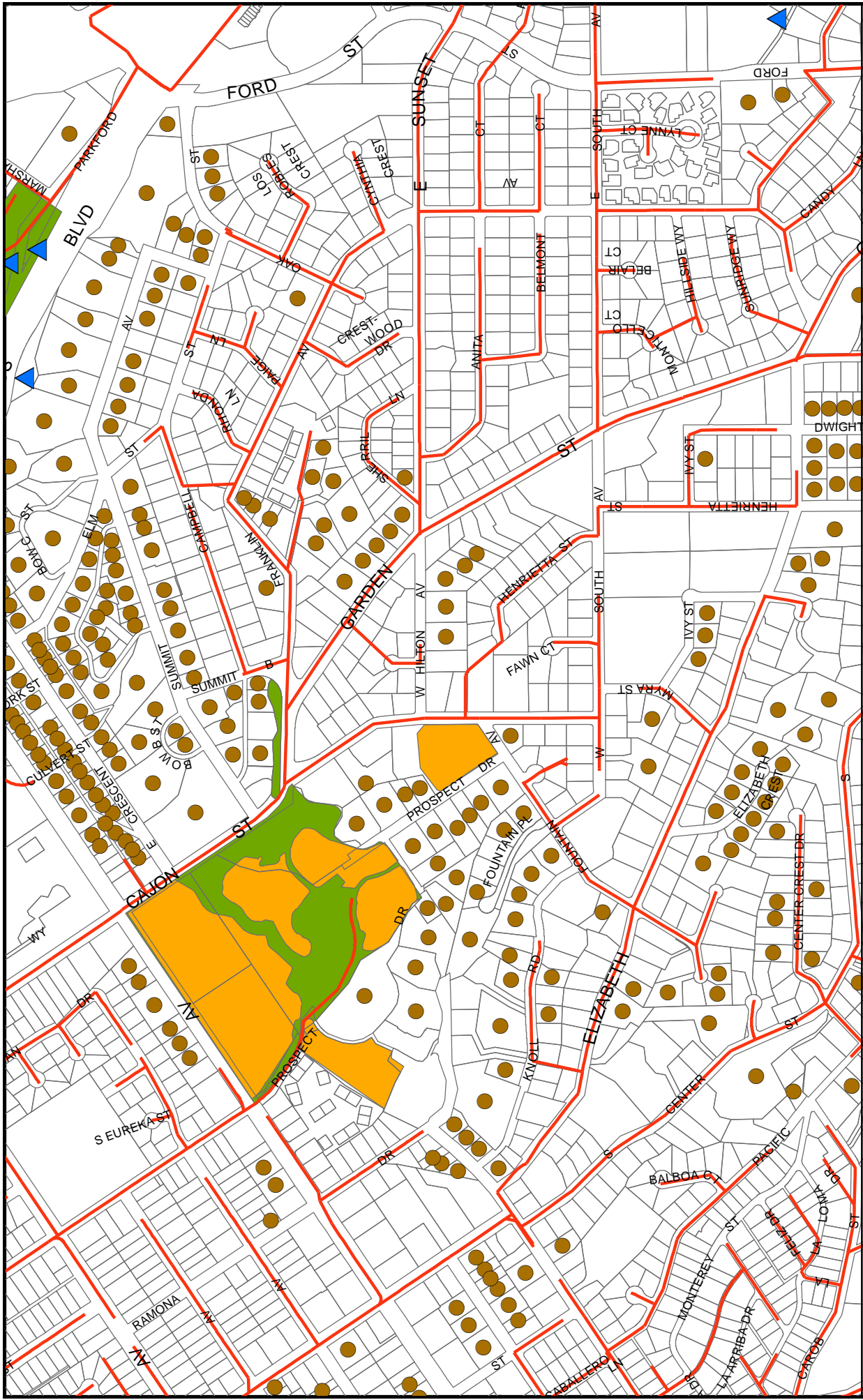
ACACIA



- Parcels with Septic Tank
- ▲ Redlands Well
- ▲ Other Wells
- Sewer Mains
- Sewer Not Available Due to Topography
- Redlands Sphere of Influence
- Redlands Boundary
- Parcels
- Open Space
- City Groves
- Parks
- Agricultural Preserves

# MAP 32






- Open Space
- City Groves
- Parks
- Agricultural Preserves

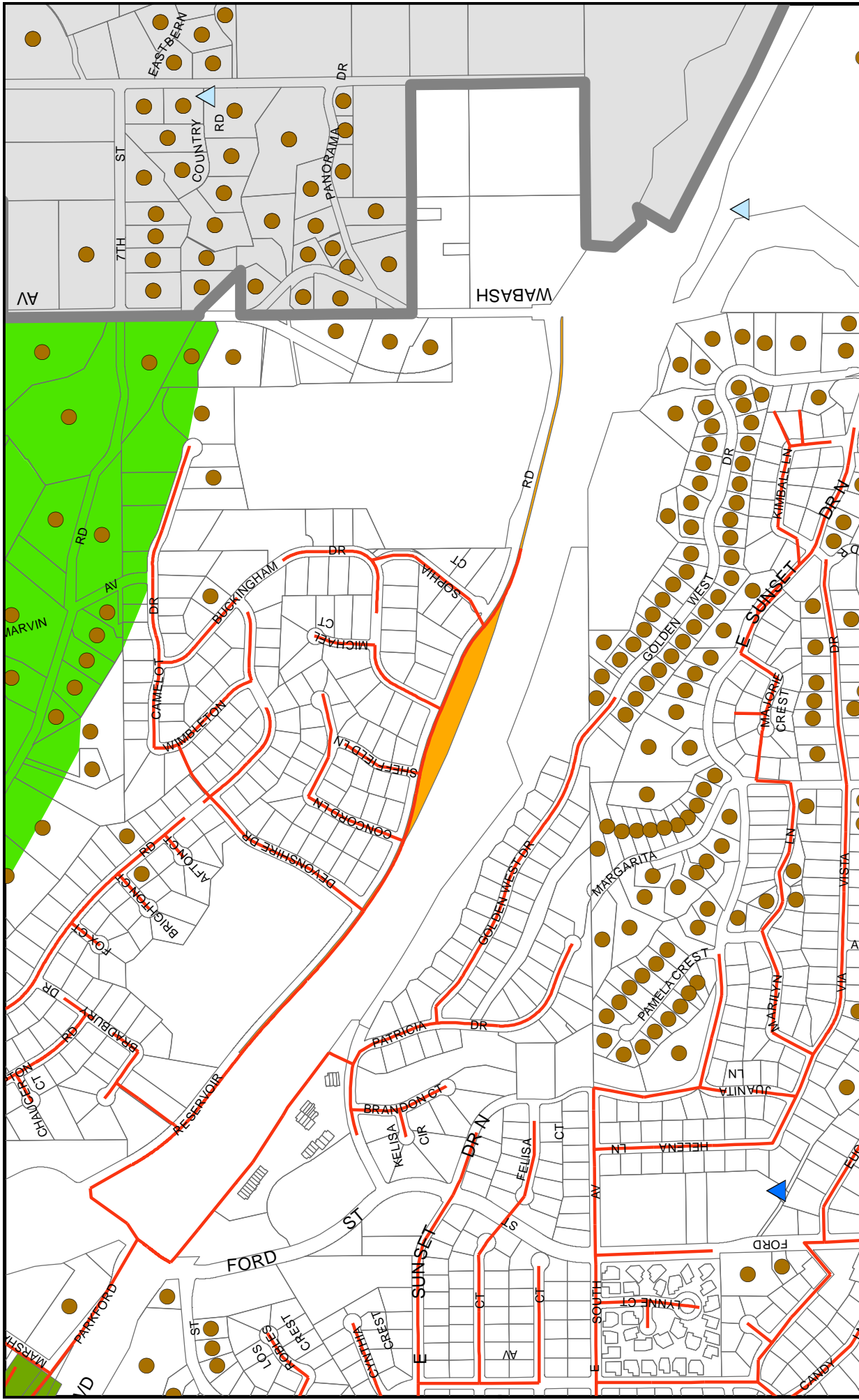
- Sewer Not Available Due To Topography
- Redlands Sphere of Influence
- Redlands Boundary
- Parcels

- Parcels with Septic Tank
- Redlands Well
- Other Wells
- Sewer Mains



Scale  
0 500 1,000  
Feet

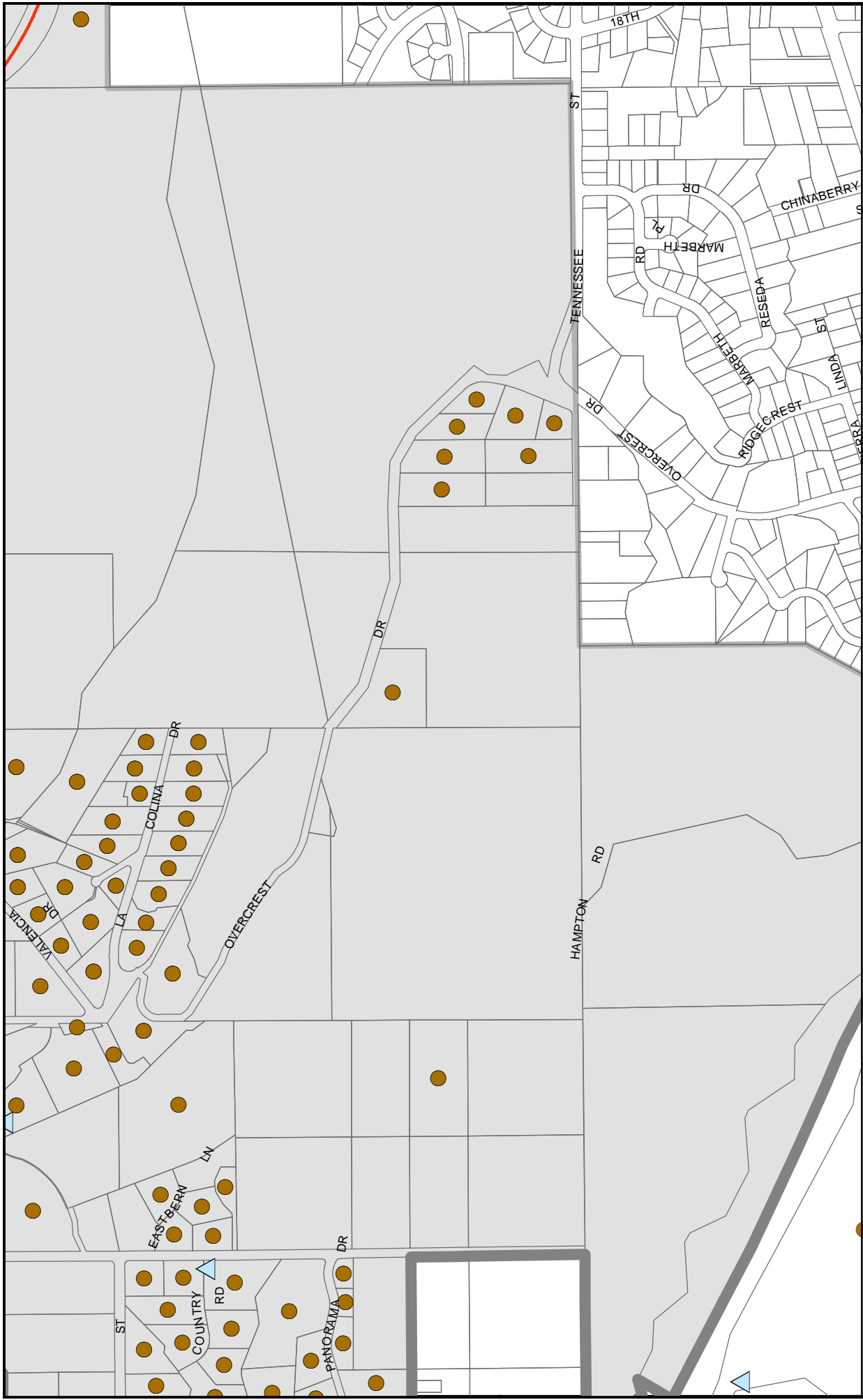
# MAP 33



- Parcels with Septic Tank
- ▲ Redlands Well
- ▲ Other Wells
- Sewer Mains
- Sewer Not Available Due To Topography
- Redlands Sphere of Influence
- Redlands Boundary
- Parcels
- Open Space
- City Groves
- Parks
- Agricultural Preserves

# MAP 34



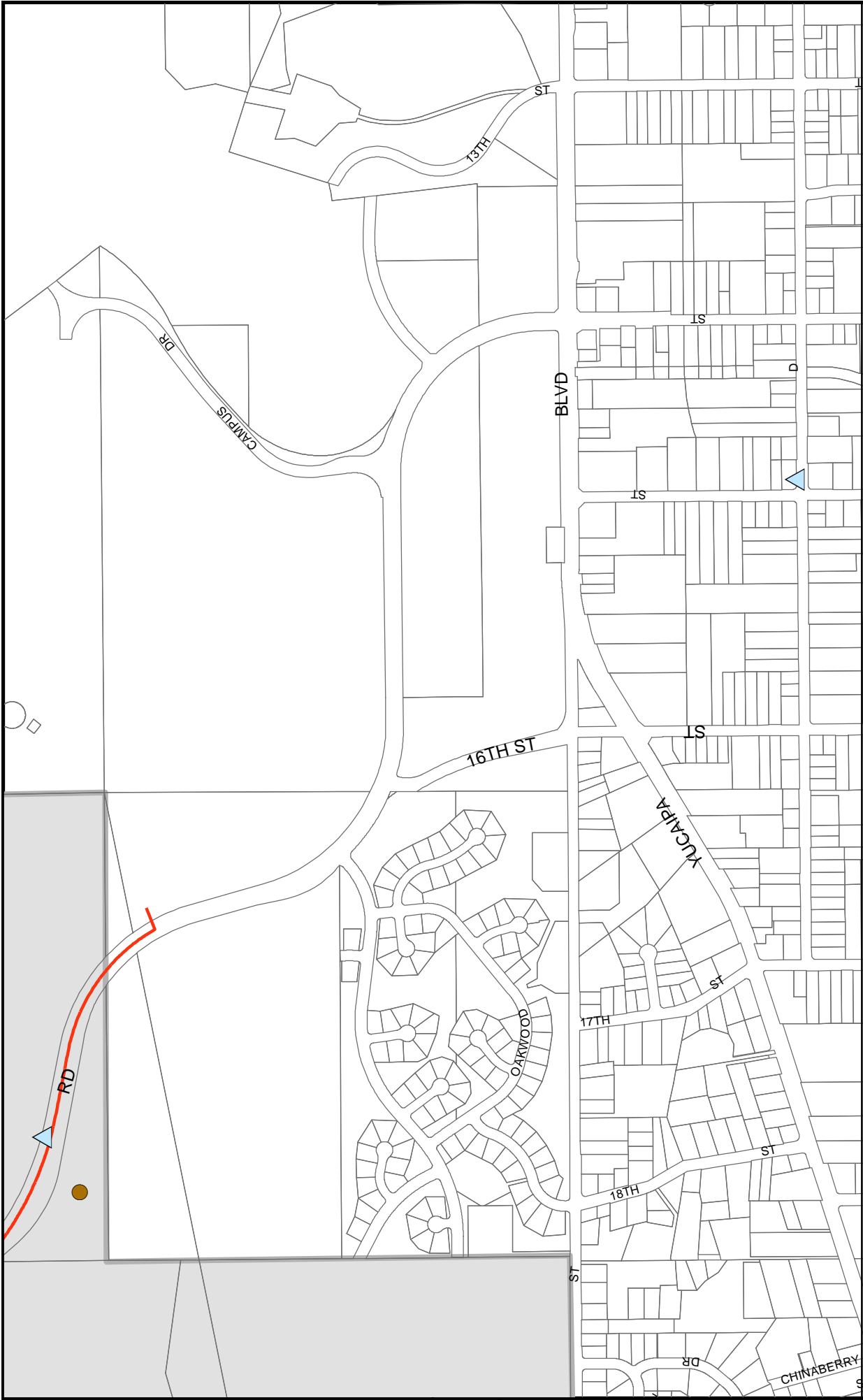


- Parcels with Septic Tank
- ▲ Redlands Well
- ▲ Other Wells
- Sewer Mains
- Sewer Not Available Due To Topography
- Redlands Sphere of Influence
- Redlands Boundary
- Parcels
- Open Space
- City Groves
- Parks
- Agricultural Preserves

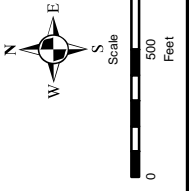
N  
W E  
S  
Scale  
0 500 1,000  
Feet

# MAP 35



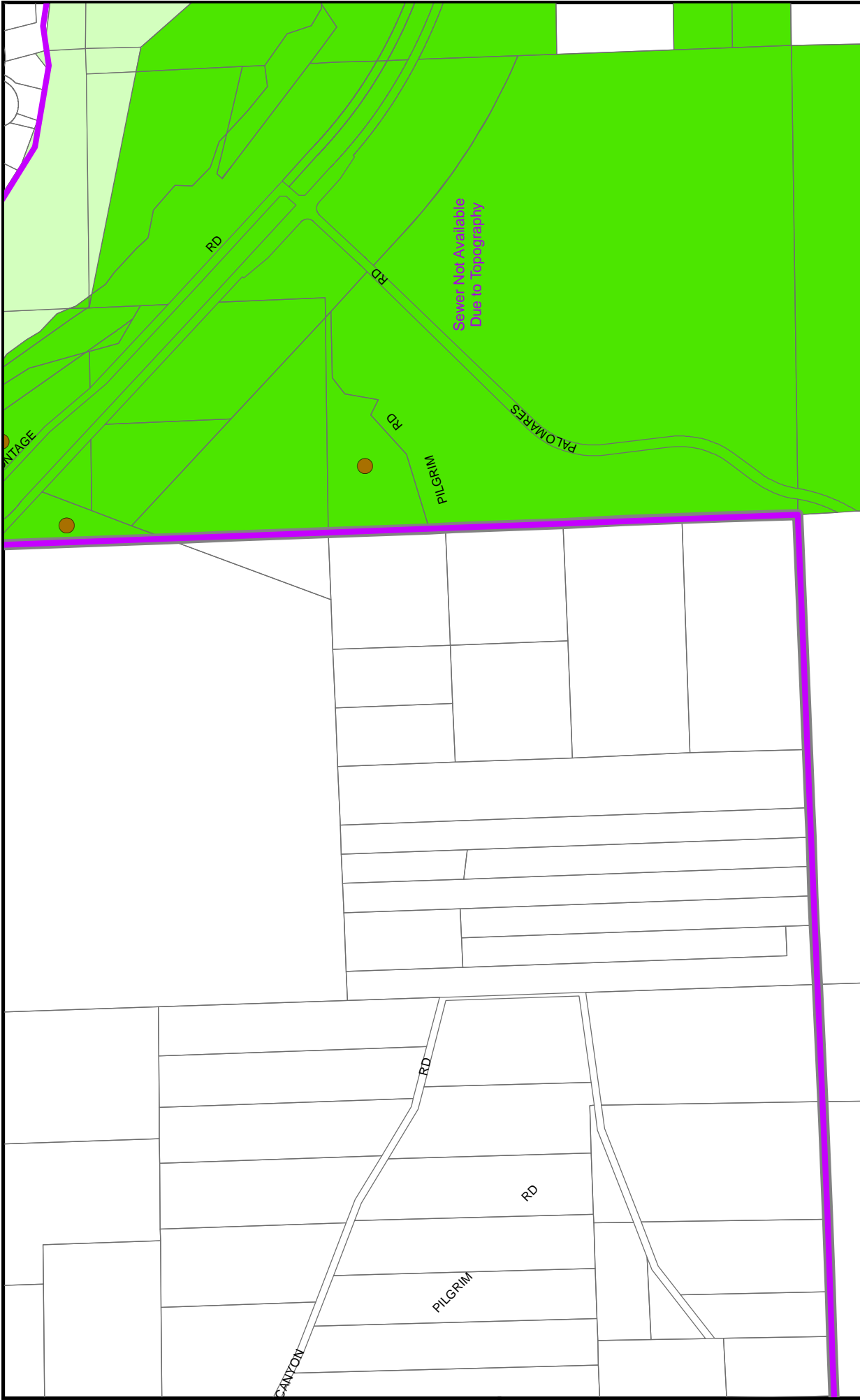


- Parcels with Septic Tank
- ▲ Redlands Well
- ▲ Other Wells
- Sewer Mains
- ▭ Sewer Not Available Due To Topography
- ▭ Redlands Sphere of Influence
- ▭ Redlands Boundary
- ▭ Parcels
- ▭ Open Space
- ▭ City Groves
- ▭ Parks
- ▭ Agricultural Preserves



# MAP 36

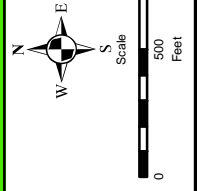
Map 36 (2014)

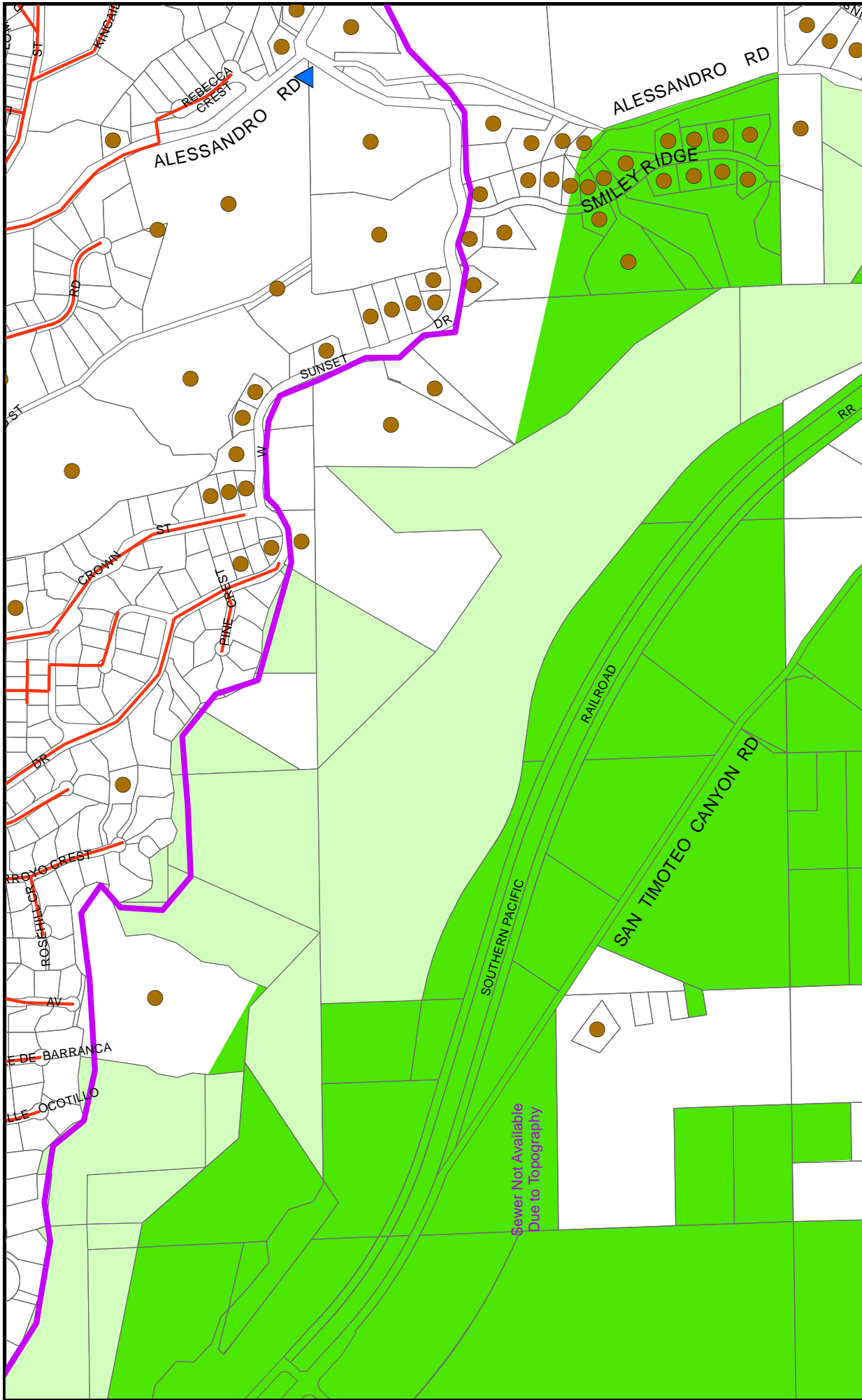


- Parcels with Septic Tank
- ▲ Redlands Well
- ▲ Other Wells
- Sewer Mains
- Sewer Not Available Due To Topography
- Redlands Sphere of Influence
- Redlands Boundary
- Parcels
- Open Space
- City Groves
- Parks
- Agricultural Preserves

Map 37 (04/18/2018)

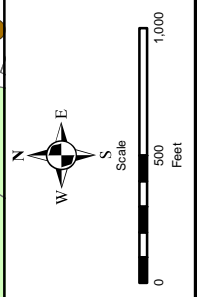
# MAP 37





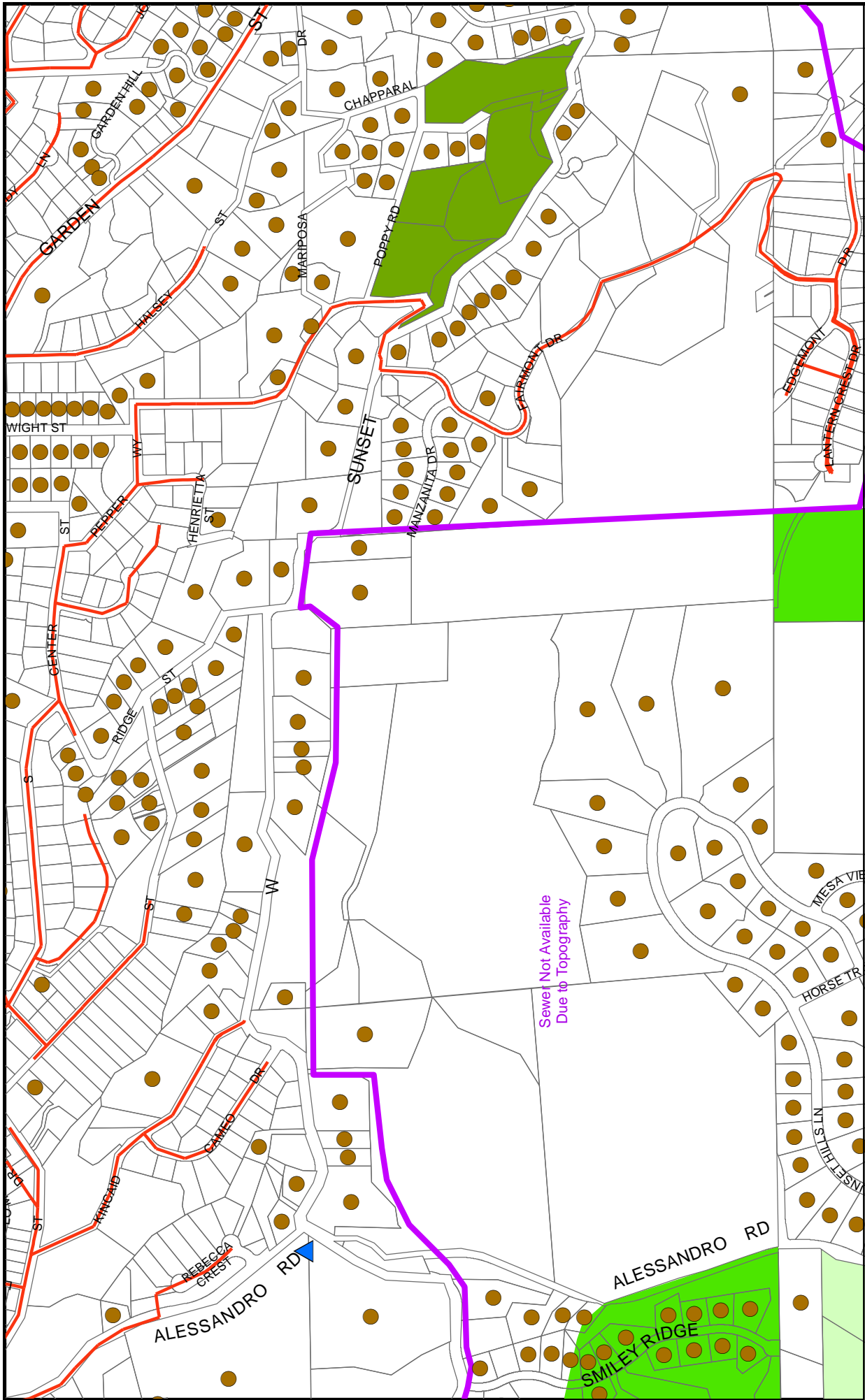
- Parcels with Septic Tank
- ▲ Redlands Well
- ▲ Other Wells
- Sewer Mains
- Sewer Not Available Due To Topography
- Redlands Sphere of Influence
- Redlands Boundary
- Parcels
- Open Space
- City Groves
- Parks
- Agricultural Preserves

# MAP 38















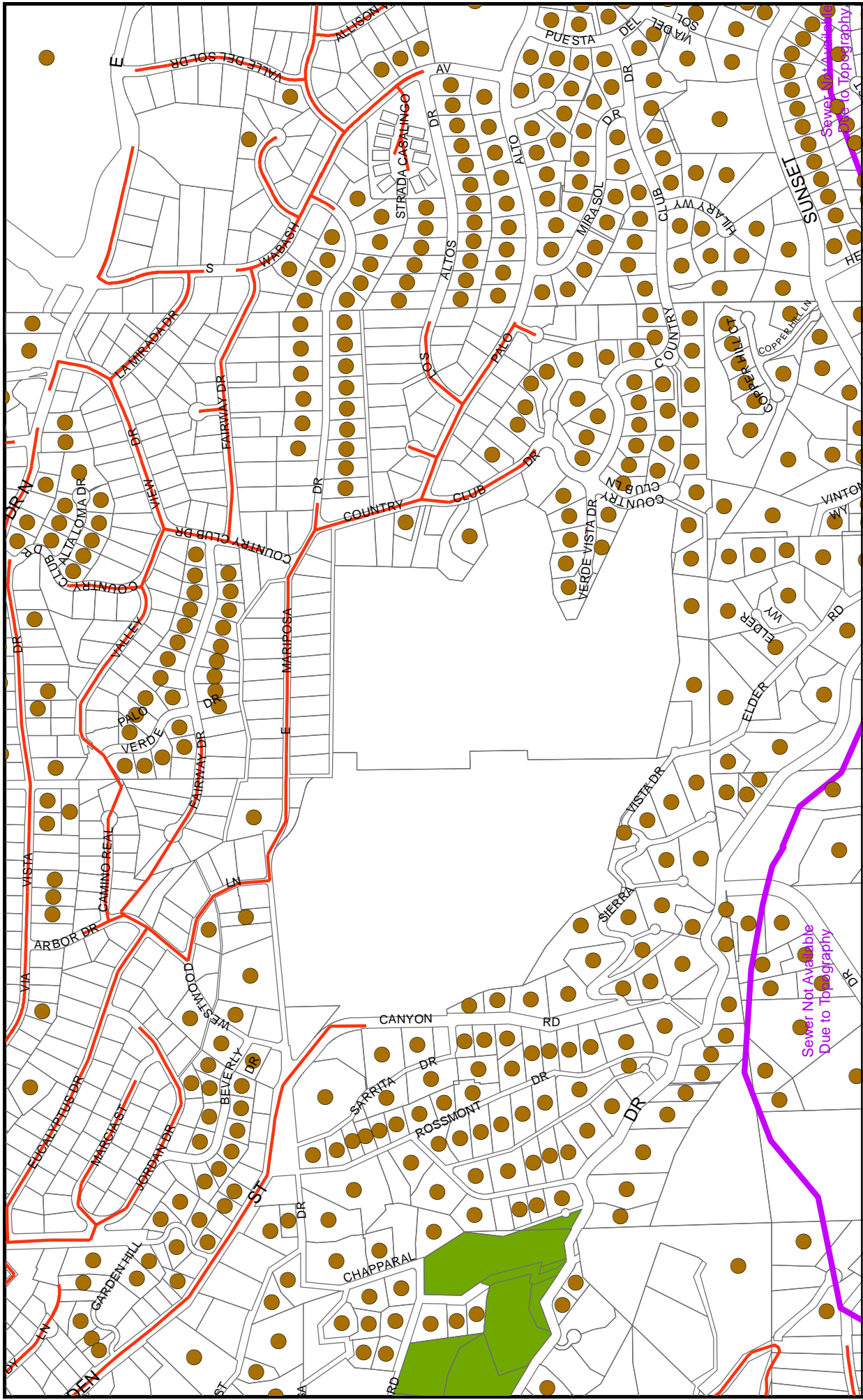
Sewer Not Available  
Due to Topography

Map Data Source



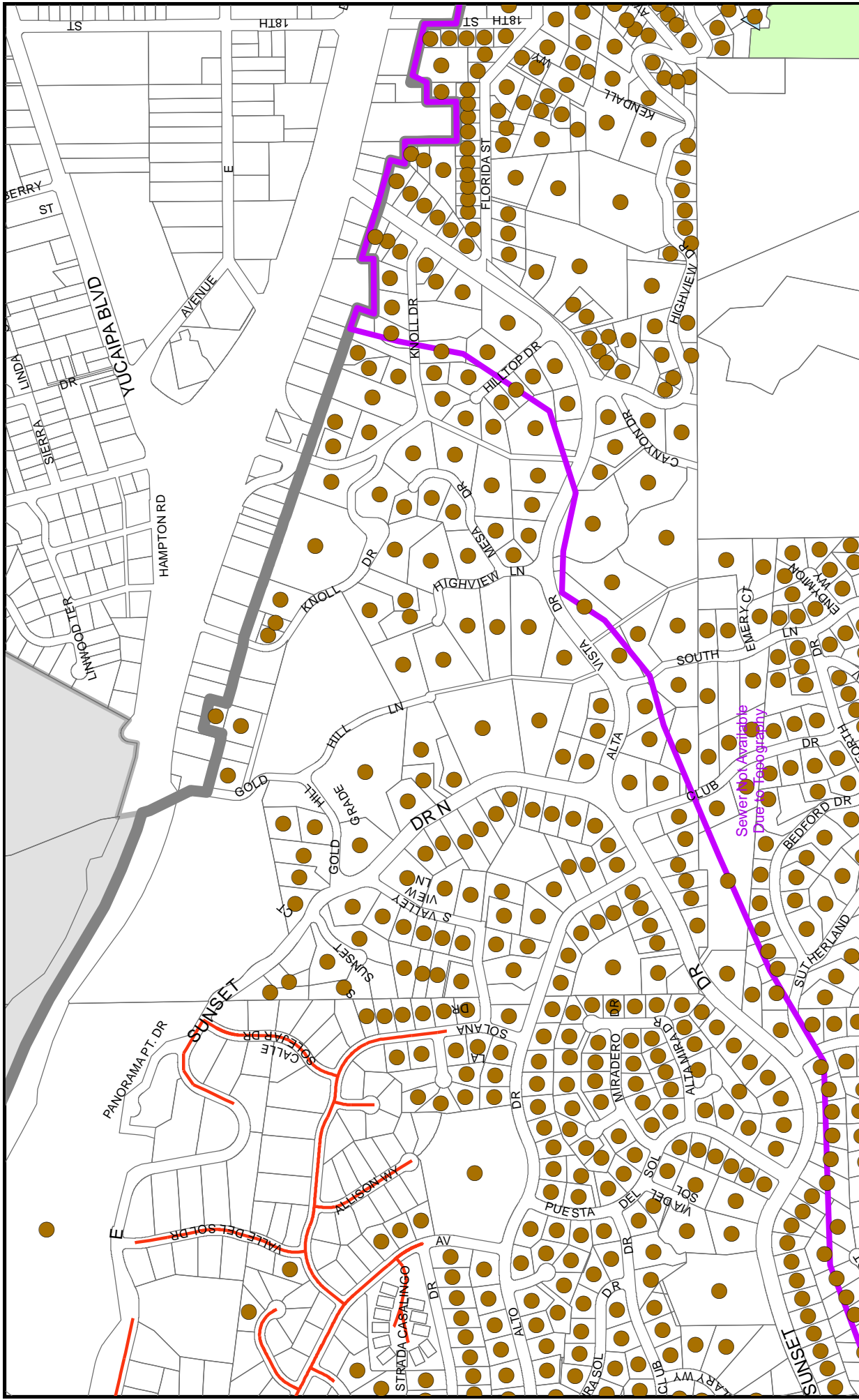
**MAP 39**

-  Parcels with Septic Tank
-  Redlands Well
-  Other Wells
-  Sewer Mains
-  Sewer Not Available Due to Topography
-  Redlands Sphere of Influence
-  Redlands Boundary
-  Parcels
-  Open Space
-  City Groves
-  Parks
-  Agricultural Preserves



	Parcels with Septic Tank		Sewer Not Available Due To Topography		Open Space
	Redlands Well		Redlands Sphere of Influence		City Groves
	Other Wells		Redlands Boundary		Parks
	Sewer Mains		Parcels		Agricultural Preserves

**MAP 40**



**MAP 41**

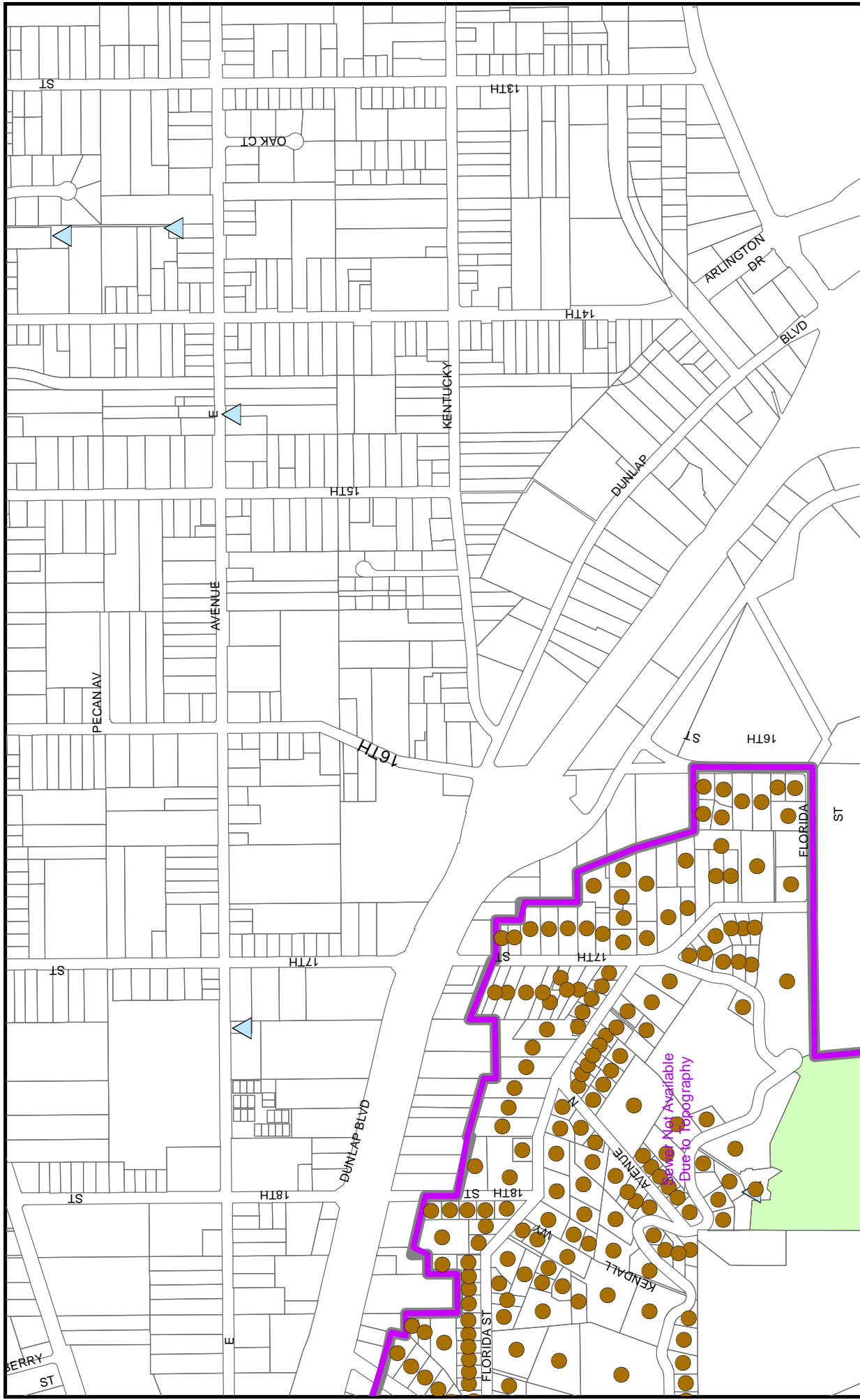
**Legend:**

- Parcels with Septic Tank
- ▲ Redlands Well
- ▲ Other Wells
- Sewer Mains
- ▭ Sewer Not Available Due To Topography
- ▭ Redlands Sphere of Influence
- ▭ Redlands Boundary
- ▭ Parcels
- Open Space
- City Groves
- Parks
- Agricultural Preserves

**Scale:** 0, 500, 1,000 Feet

**North Arrow:** N, E, S, W

*Sewer Slope Available Due to Topography*



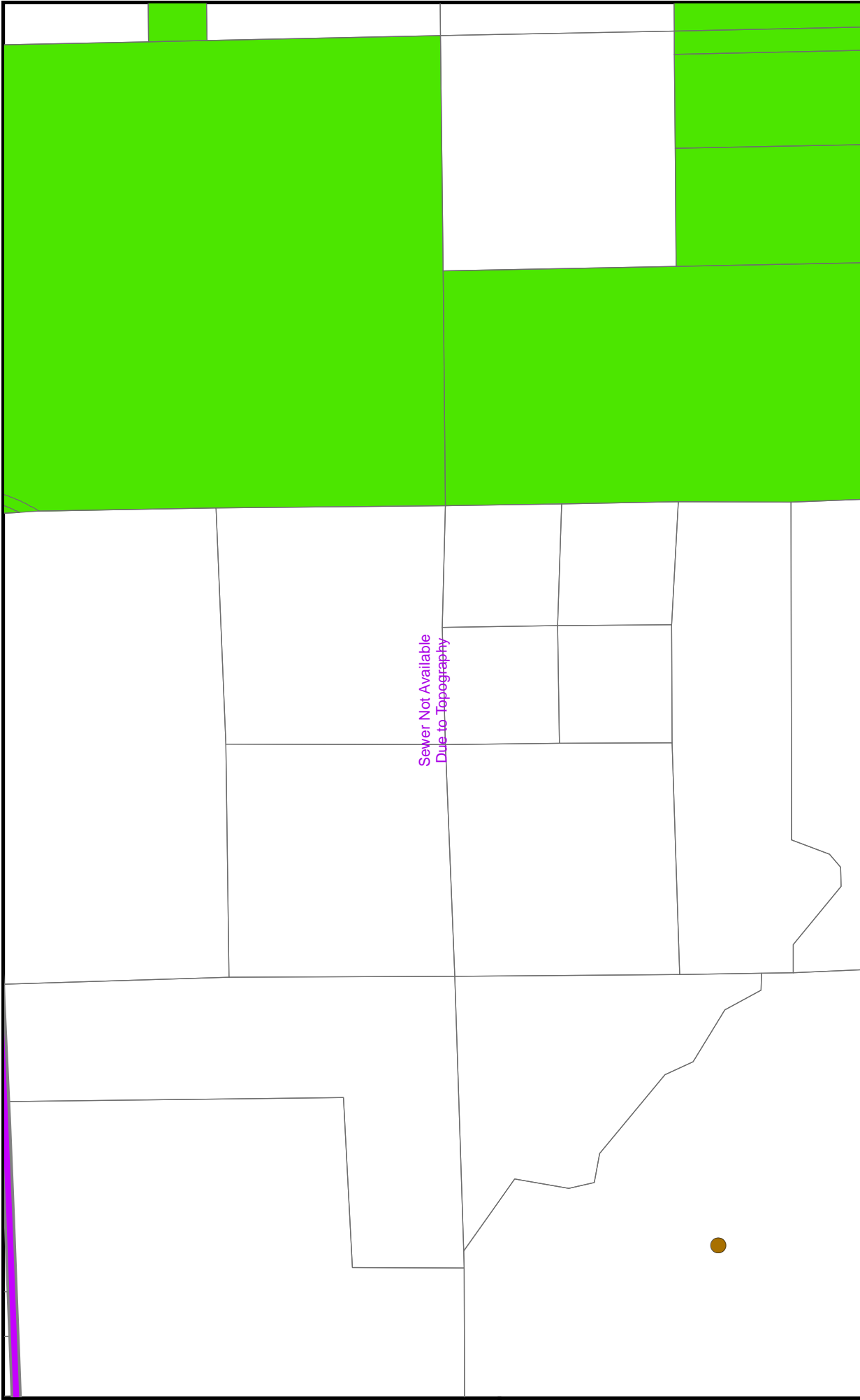
- Open Space
- City Groves
- Parks
- Agricultural Preserves

- Sewer Not Available Due To Topography
- Redlands Sphere of Influence
- Redlands Boundary
- Parcels

- Parcels with Septic Tank
- Redlands Well
- Other Wells
- Sewer Mains



# MAP 42



	Parcels with Septic Tank		Sewer Not Available Due To Topography		Open Space
	Redlands Well		Redlands Sphere of Influence		City Groves
	Other Wells		Redlands Boundary		Parks
	Sewer Mains		Parcels		Agricultural Preserves

Scale

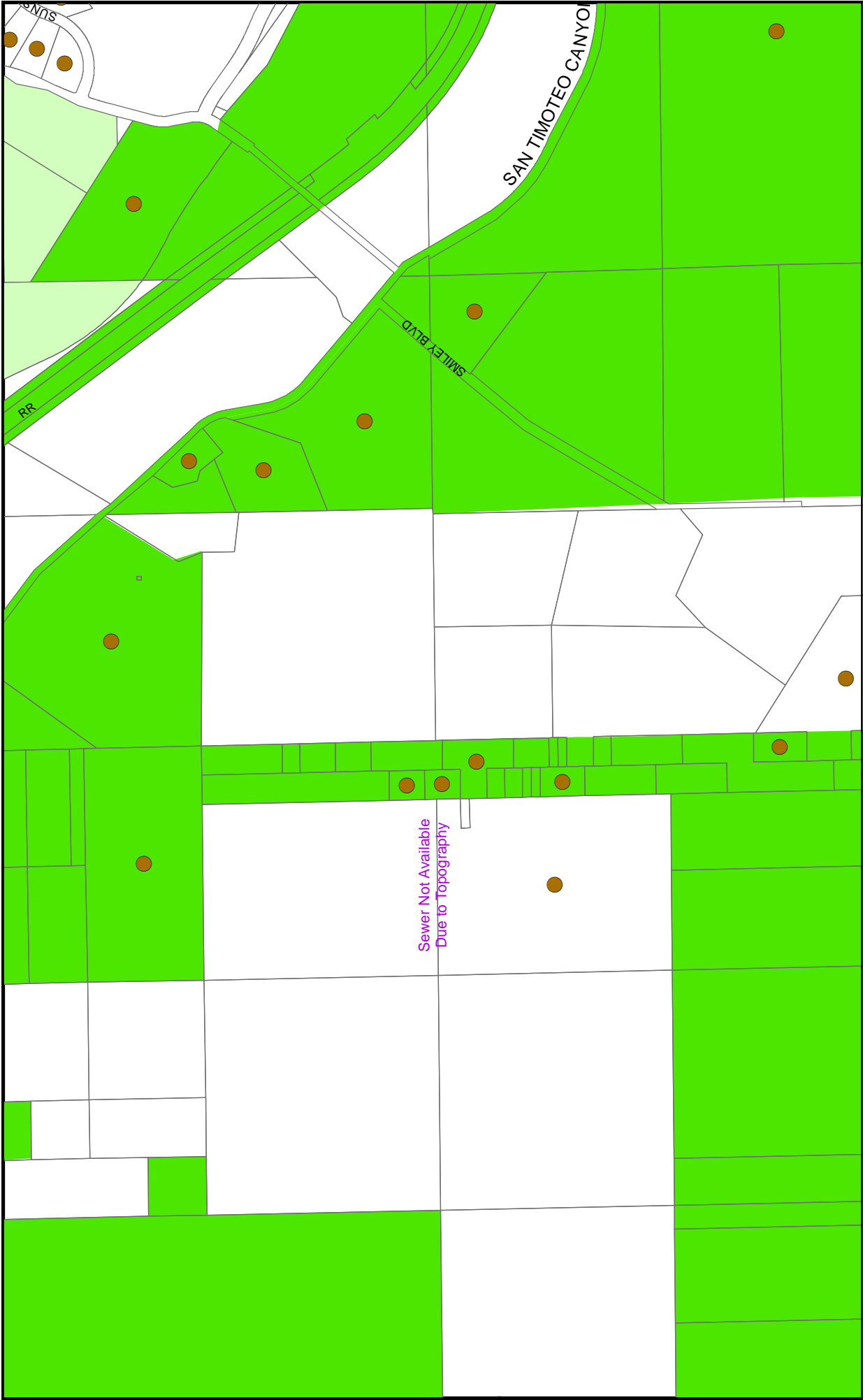
0 500 1,000  
Feet

# MAP 43

Sewer Not Available  
Due to Topography

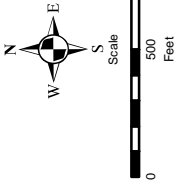
Map 43 (04/18/2018)





- Parcel with Septic Tank
- ▲ Redlands Well
- ▲ Other Wells
- Sewer Mains
- Sewer Not Available Due To Topography
- Redlands Sphere of Influence
- Redlands Boundary
- Parcels
- Open Space
- City Groves
- Parks
- Agricultural Preserves

# MAP 44



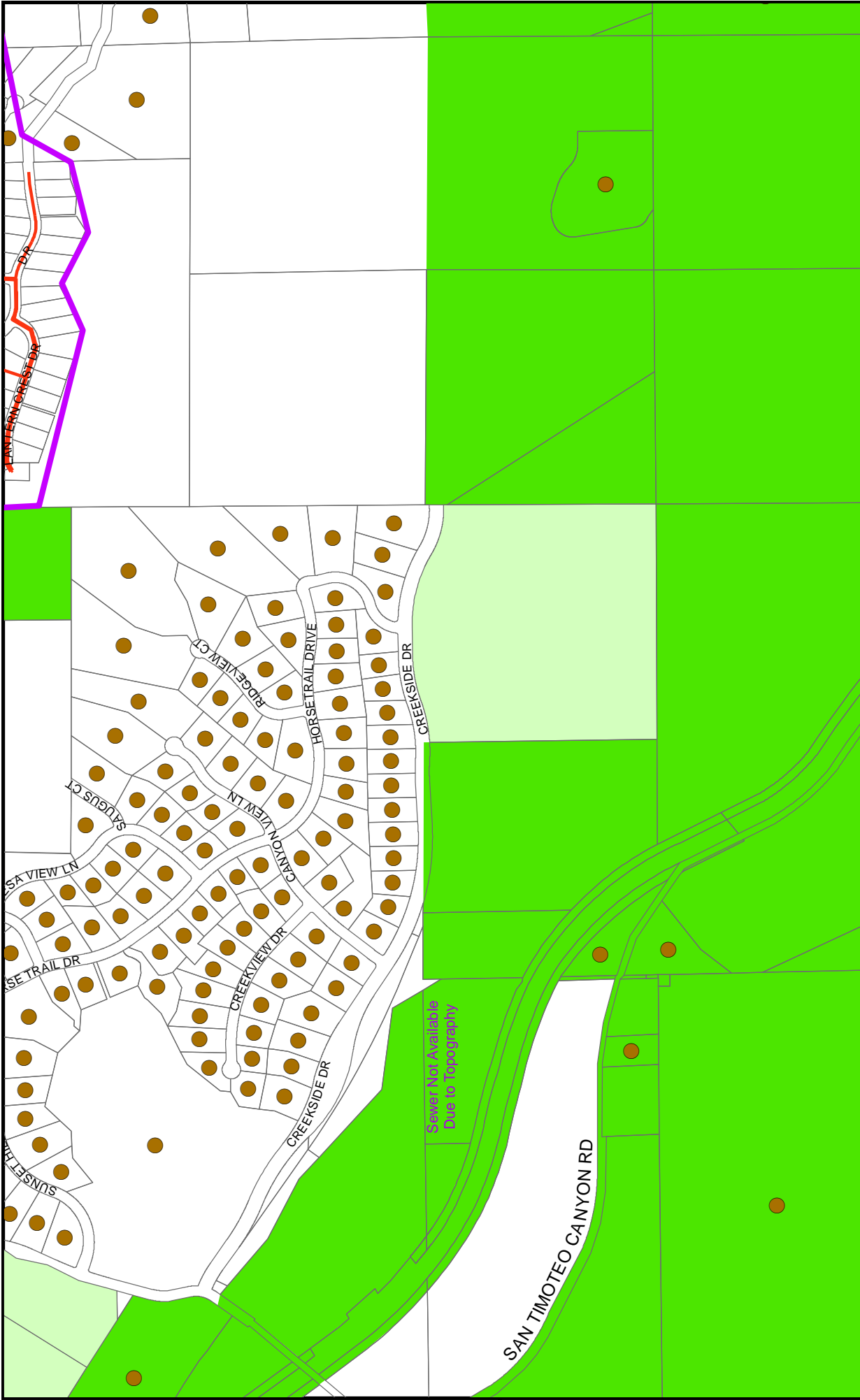
Sewer Not Available  
Due to Topography

SAN TIMOTEO CANYON

SMILEY BLVD

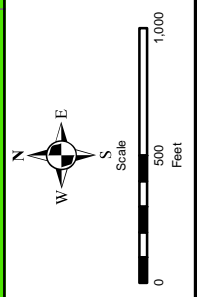
RR

SUN



- Parcels with Septic Tank
- Redlands Well
- Other Wells
- Sewer Mains
- Sewer Not Available Due To Topography
- Redlands Sphere of Influence
- Redlands Boundary
- Parcels
- Open Space
- City Groves
- Parks
- Agricultural Preserves

# MAP 45



Sewer Not Available  
Due to Topography

SAN TIMOTEO CANYON RD

SUNSET BLVD

SUNSET BLVD

SAUSALITO LN

CANYON VIEW LN

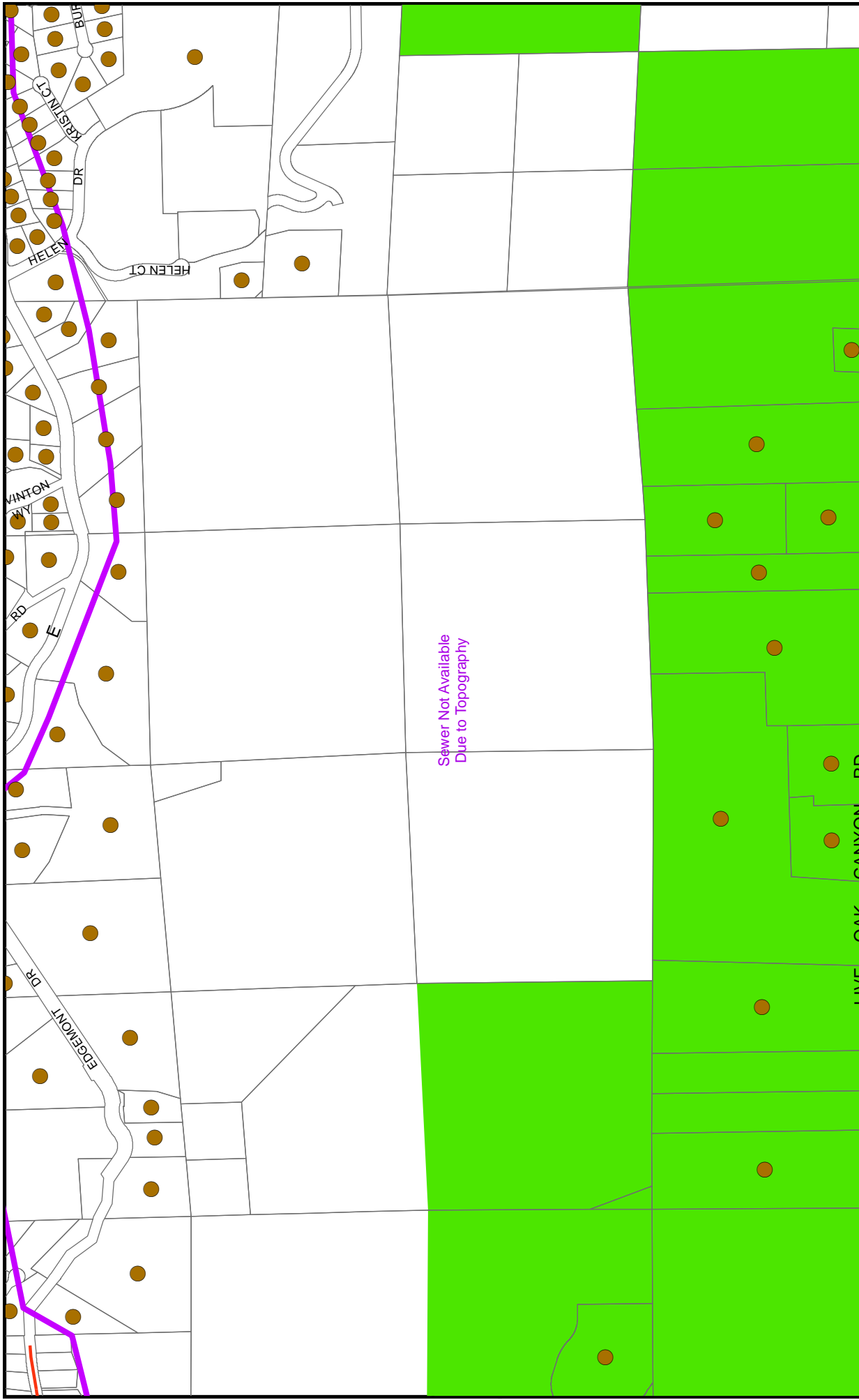
CREEKVIEW DR

HORSE TRAIL DR













CREEKVIEW CT

CREEKVIEW DR

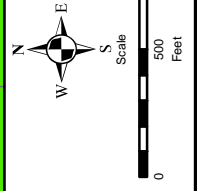
CREEKVIEW DR

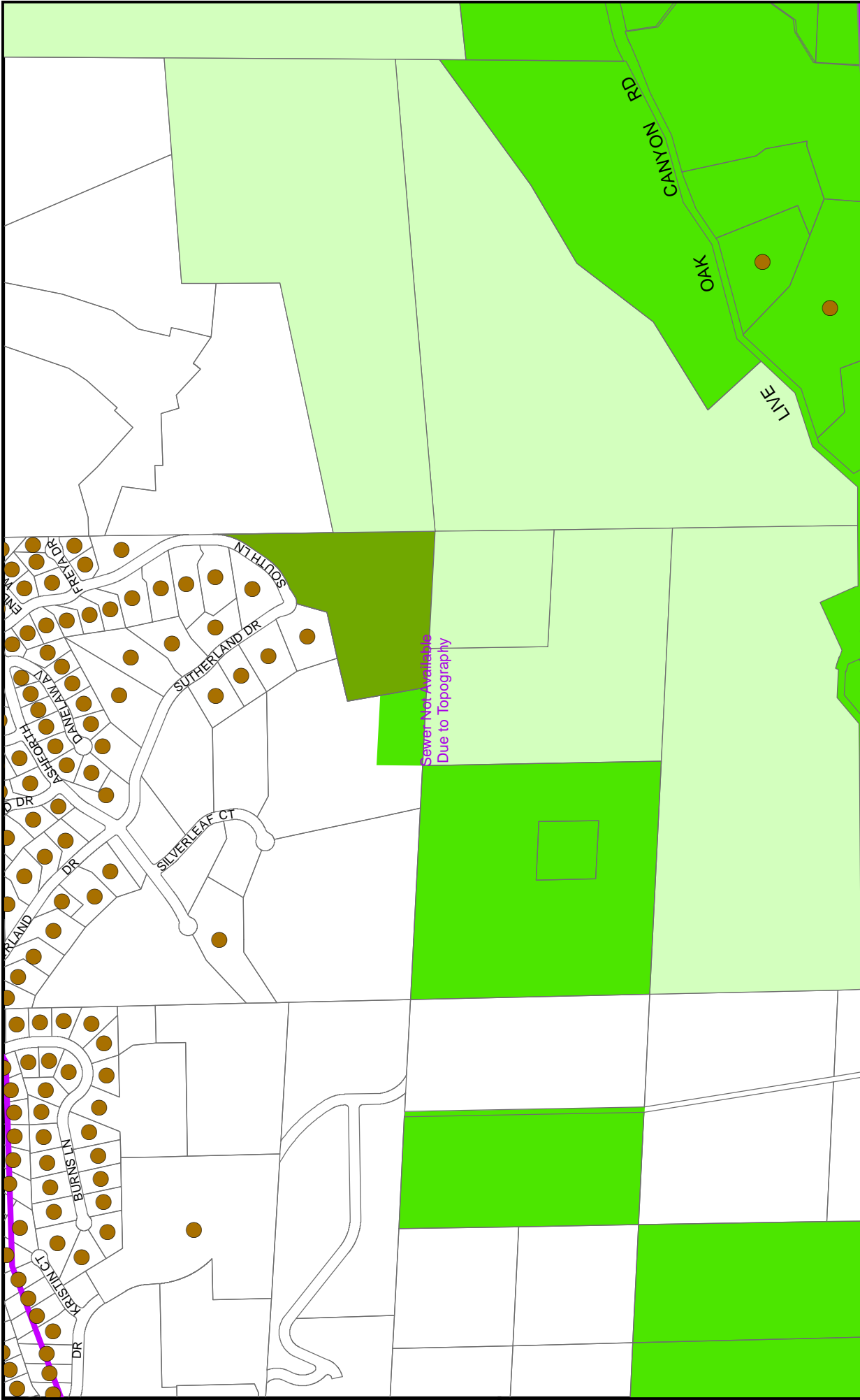


Sewer Not Available  
Due to Topography

-  Parcels with Septic Tank
-  Redlands Well
-  Other Wells
-  Sewer Mains
-  Sewer Not Available Due To Topography
-  Redlands Sphere of Influence
-  Redlands Boundary
-  Parcels
-  Open Space
-  City Groves
-  Parks
-  Agricultural Preserves

# MAP 46





**MAP 47**

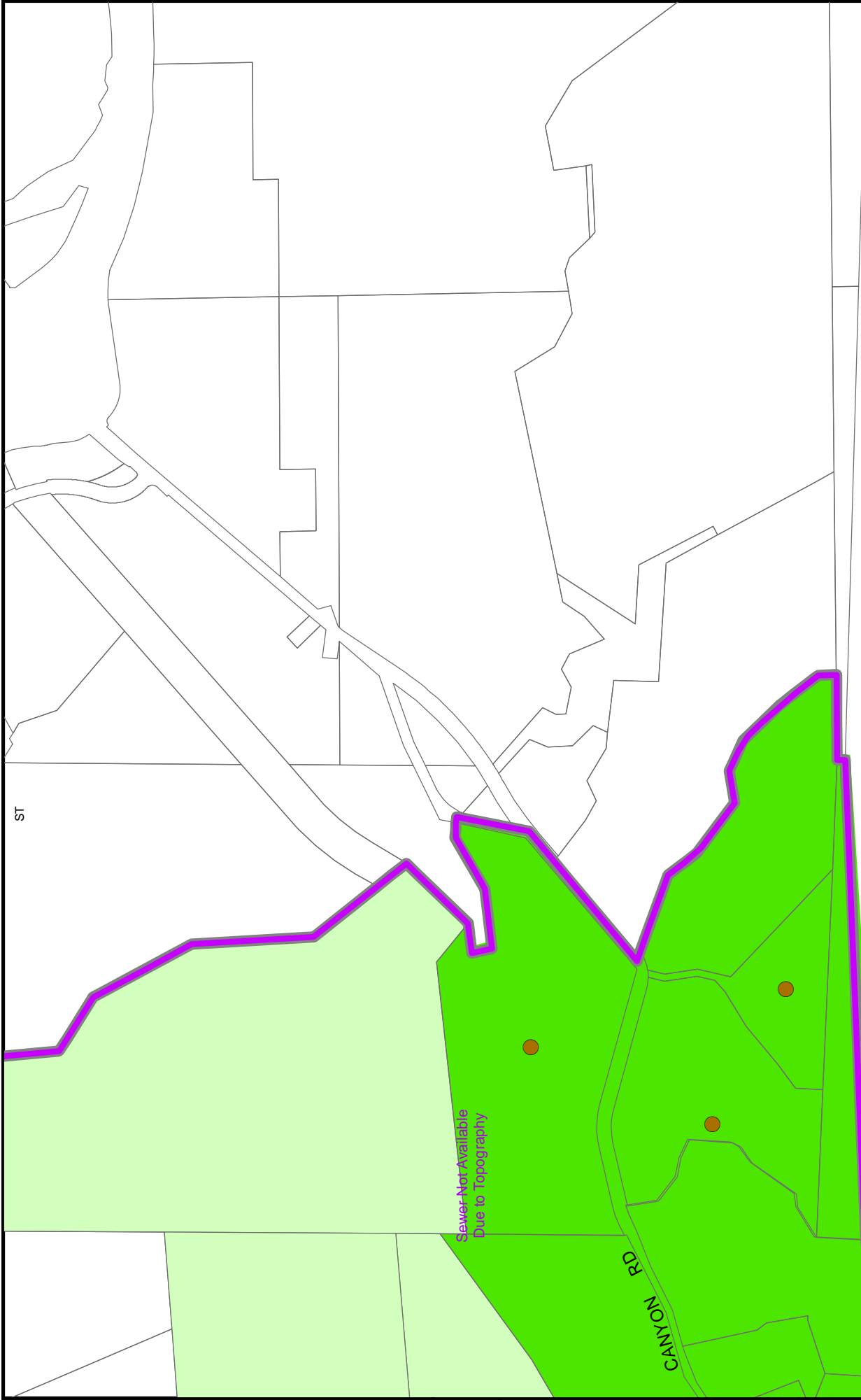
Scale: 0 500 1,000 Feet

Parcels with Septic Tank  
 Redlands Well  
 Other Wells  
 Sewer Mains

Sewer Not Available Due To Topography  
 Redlands Sphere of Influence  
 Redlands Boundary  
 Parcels

Open Space  
 City Groves  
 Parks  
 Agricultural Preserves

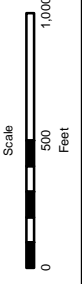
N  
 E  
 W  
 S

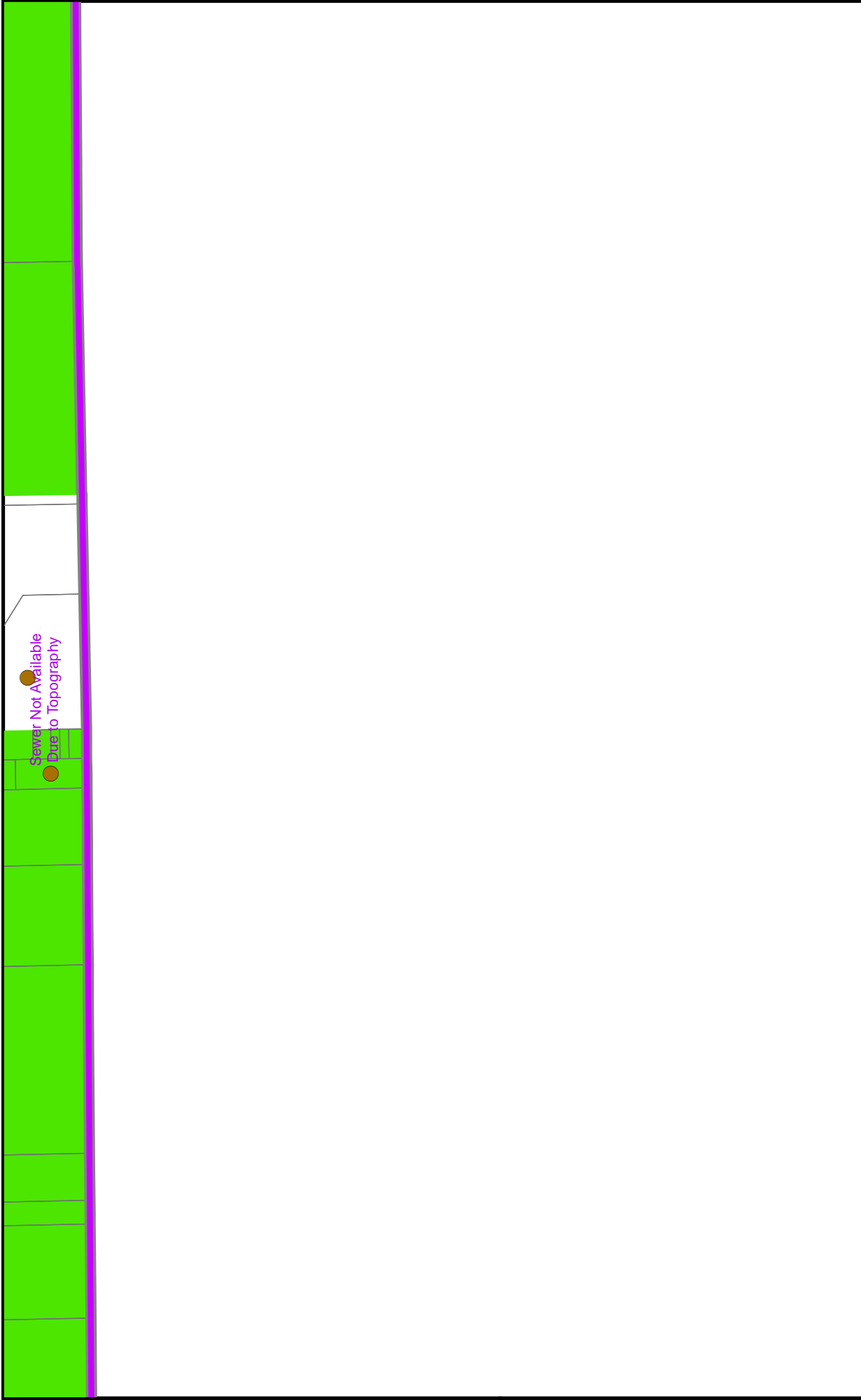


Map 48 (10/18/2018)













- Parcels with Septic Tank
- ▲ Redlands Well
- ▲ Other Wells
- Sewer Mains
- ▭ Sewer Not Available Due To Topography
- ▭ Redlands Sphere of Influence
- ▭ Redlands Boundary
- ▭ Parcels
- ▭ Open Space
- ▭ City Groves
- ▭ Parks
- ▭ Agricultural Preserves

# MAP 48





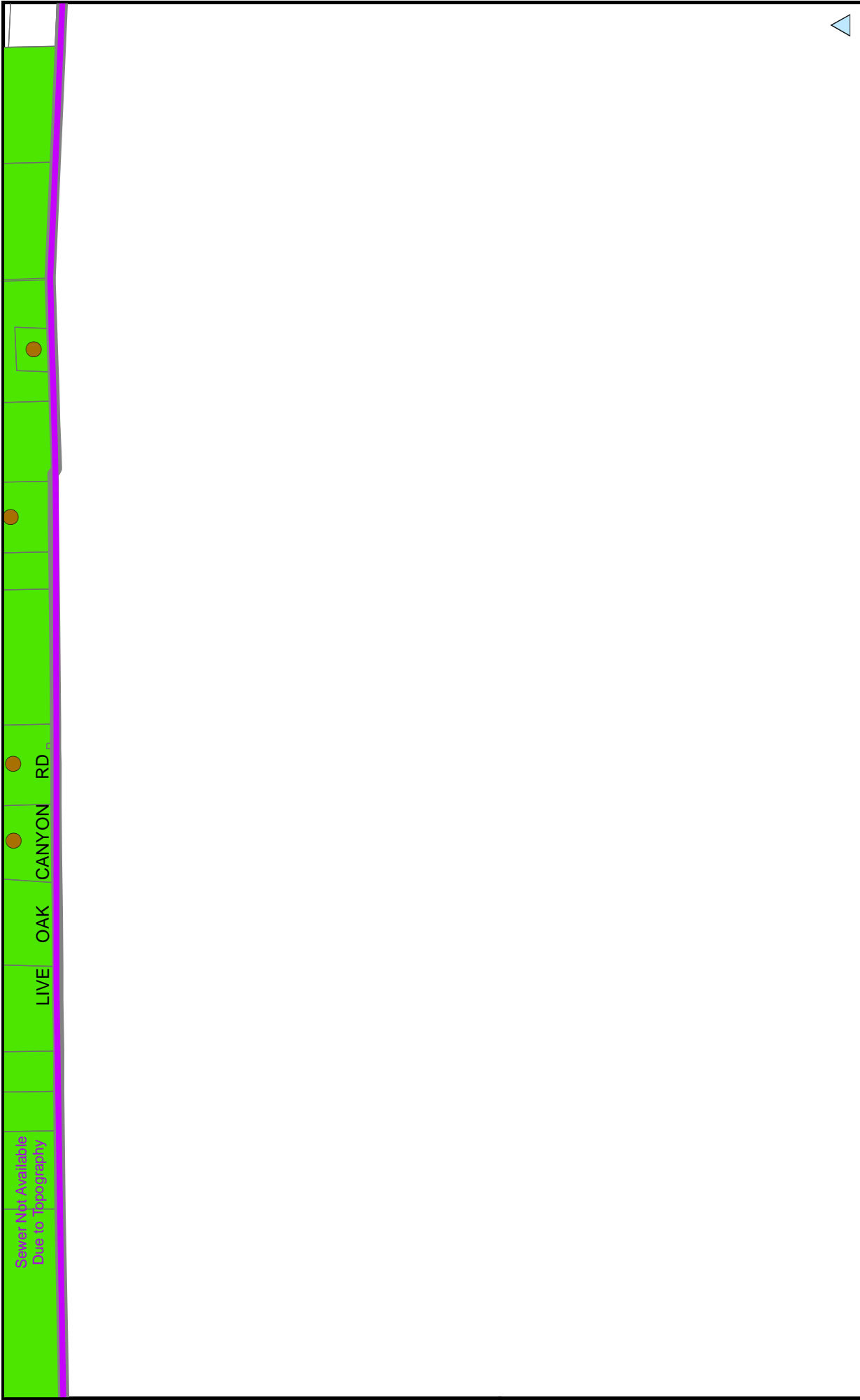


Sewer Not Available  
Due To Topography









<ul style="list-style-type: none"> <li> Parcels with Septic Tank</li> <li> Redlands Well</li> <li> Other Wells</li> <li> Sewer Mains</li> </ul>	<ul style="list-style-type: none"> <li> Sewer Not Available Due To Topography</li> <li> Redlands Sphere of Influence</li> <li> Redlands Boundary</li> <li> Parcels</li> </ul>	<ul style="list-style-type: none"> <li> Open Space</li> <li> City Groves</li> <li> Parks</li> <li> Agricultural Preserves</li> </ul>
---	---	--

**MAP 49**










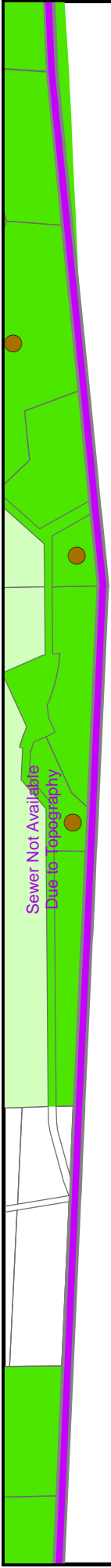
**MAP 50**

	Parcels with Septic Tank		Open Space
	Redlands Well		City Groves
	Other Wells		Parks
	Sewer Mains		Agricultural Preserves

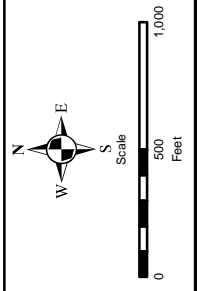
  

	Sewer Not Available Due To Topography
	Redlands Sphere of Influence
	Redlands Boundary
	Parcels





Map 50 (04/18/2018)











Sewer Not Available  
Due To Topography



# MAP 51

-  Open Space
-  City Groves
-  Parks
-  Agricultural Preserves

-  Sewer Not Available Due To Topography
-  Redlands Sphere of Influence
-  Redlands Boundary
-  Parcels

-  Parcels with Septic Tank
-  Redlands Well
-  Other Wells
-  Sewer Mains