

City of Santa Rosa Desk Manual for the Modification of the Sonoma-Marin Saving Water Partnership's Landscape Design Templates

Working Draft: March 2019

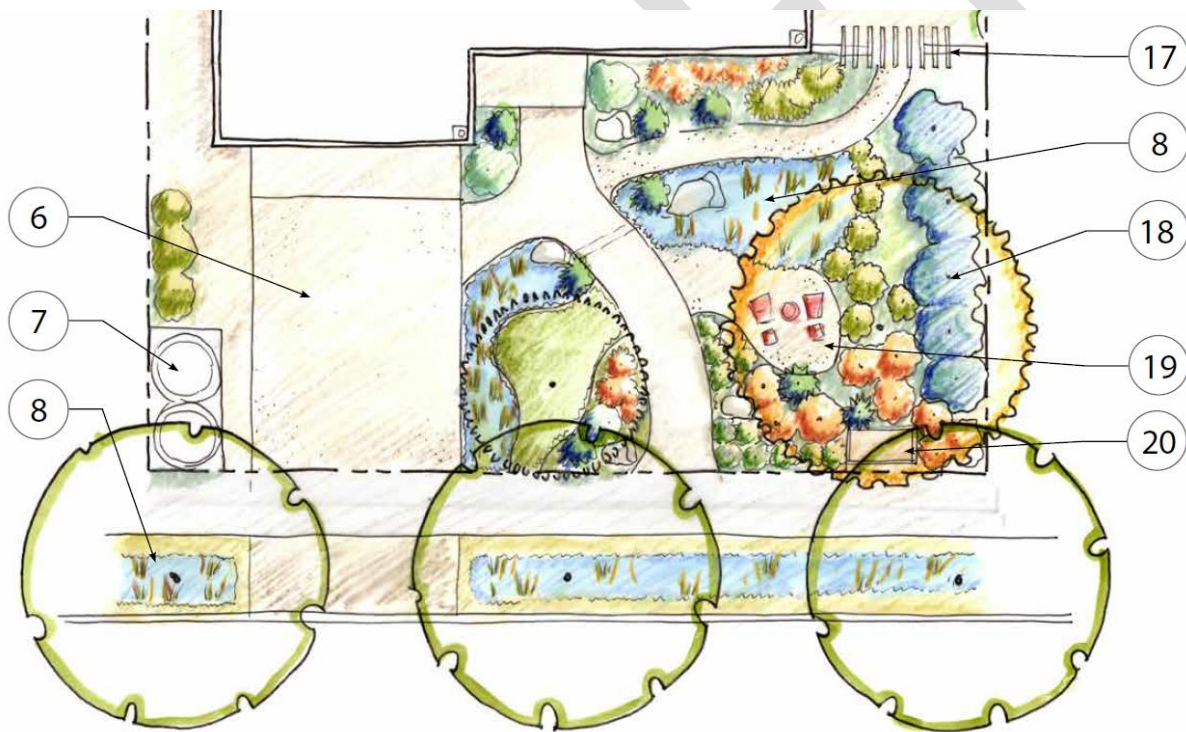


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Introduction

The Sonoma-Marín Saving Water Partnership has developed eight scalable Landscape Design Templates to support rebuild efforts from the October 2017 Sonoma Complex Fires. These free, front yard designs are scalable to fit landscaped areas up to 2,500 square feet, are ready-to-permit, and comply with the Prescriptive Requirements of the State of California's Model Water Efficient Landscape Ordinance (MWELO).

This manual provides detailed instructions on how to use the Templates and modify them for your site.

Acknowledgements

The City of Santa Rosa would like to thank the Sonoma-Marín Saving Water Partnership for their commitment of time and resources for the Landscape Design Template Project and Ann Baker Landscape Architects (ABLA) who developed the eight Landscape Design Templates (Templates). ABLA assembled a diverse team of design professionals that included digital mapping by Foresite, engineering by Sherwood Design Engineers, green landscape elements by Equinox Landscapes, irrigation design by Panoramic Design Group and community support by the local non-profit Daily Acts. Additional thanks to the technical design team that included members from Sonoma Water, County of Sonoma's Permit Sonoma and City of Santa Rosa's Fire, Water, and Planning and Economic Development Departments. The design process included public input meetings, technical meetings and numerous plan iterations culminating in the final product. A special thank you goes out to the design professionals in our community who have volunteered their time and expertise to help those who have lost their homes redesign their landscapes as they rebuild and recover.

The following instructions provide guidance to assist in selecting and modifying a Template for use at your property.

1st Pre-Step – Verify total planting area is less than 2,500 sq. ft.

Before you get started, make sure you are eligible to use these plans.

- Verify Total Planting Area is 2,500 square feet (sq. ft.) or less** – Using your home’s site plan, calculate the area of your front yard landscape using a ruler and subtract all the hardscape elements (driveway, paths, sidewalks, etc.). If the total front yard landscape area is 2,500 sq. ft. or less, you can use the Templates. If the total front yard landscape area is larger than 2,500 sq. ft., you will not be able to use these Templates, and you may need to hire a qualified landscape design professional. For more information about measuring your landscape area, please see Appendix A: “How to Measure Landscape Area.”
- Verify Maximum Slope** – The Templates are intended for use on front yards with slopes less than 8%. For example, if your front yard slopes up (or down) a height of four feet or more over a stretch of 50 feet in length, your slope would be too steep for these templates. If this is the case, you may want to consult with a landscape design professional.

2nd Pre-Step – Choose your FREE Template

Review the Renderings, Concept Plans, and Templates to choose the design that you like.

Download free Templates at <http://www.savingwaterpartnership.org/concept-plans-and-design-templates/>. This Template webpage also contains many resources to help you design a sustainable, water-efficient, fire safer landscape.

Four separate resources are provided for each of the eight design Templates:

- **Architectural Rendering:** These are photo-like illustrations for each design that show what the front yard layout and planting plan might look like once matured and installed per plans.
- **Concept Plan:** These are full yard graphic illustrations of each design that includes both the front and back yards.
- **Design Template:** These are the actual plan sheets that include both required and optional elements. You will need to print, modify, and submit the plan sheets to the Building Department.
- **Cost Opinion:** An opinion of estimated cost to install the landscape as designed.

The Templates are divided into four landscape styles with two layouts provided in each style to include options for small, large, and corner lots. Each of these eight designs is also available as a mirror image to allow for the location of the driveway. **You can adapt any style to your front yard so choose a design based on what you like, not just the one that matches the shape of your front yard.**

The four landscape styles are:

- Sonoma Native/Adaptive – an emphasis on native and fire safer plants
- Sonoma Eco-Edible – a mix of edible and habitat plantings that maximize sustainability
- Sonoma Contemporary – a modern, minimalistic and clean look that is easy to maintain
- Sonoma Cottage – a Sonoma version of a cottage garden with natural materials and colorful plantings

Develop Your Landscape Plans by following the eight stages below:

1. Print large format (24"x36") copies of Layout & Planting Plan (L-1.0) and Irrigation Plan Sheet (L-2.0)
2. Select optional design elements
3. Adjust lot lines and add north arrow (L-1.0)
4. Revise the Layout & Planting Plan (L-1.0)
5. Adjust the Irrigation Plan Sheet (L-2.0)
6. Complete the Application Packet
7. Submit your plans for review
8. Complete your project

1. Print large format copies of your favorite template plans

Once you have selected your favorite template, download and print copies of Layout & Planting Plan (L-1.0) and Irrigation Plan Sheet (L-2.0) in large format (24"x36").

Download the Template plan you decide to use and save it on a thumb drive to take to a print shop (you may also be able to upload the files directly to the print shop). Sheets L-1.0 and L-2.0 are the required submittal plan sheets that you will modify to match your site.

- Print L-1.0 and L-2.0 in large format size (24"x36")** – The City of Santa Rosa Building Department requires this large size for review.

- Full color printing is recommended for easier reading.

Minimum Building Permit Requirements – For more details about the current minimum requirements to get a Building Permit in the City of Santa Rosa see **Endnote #1: “City of Santa Rosa Minimum Building Permit Requirements”**.

2. Select optional design elements

Review and choose the optional elements you would like to include in your design. There are many optional design elements in the Templates that can help your landscape be water efficient and reduce storm water runoff on your site. Some of these options are briefly described below, and additional information, requirements, and details for each of these elements is available on the Template webpage. For a description of what a detail is, please see **Endnote #2: “Construction Details”**. Table 1 on the following page provides an overview of all the required and optional Template plan sheets.

- **Low Impact Development (LID) options:** LID integrates specialized features into urban landscapes to mimic the benefits of the natural environment where most of the rainfall soaks into the ground. Rain gardens, swales, and permeable pavement options are all LID features. Runoff is directed into these features and allowed to soak into the ground. These specialized features can provide beauty while also slowing runoff and removing pollutants. Plants and microbes that live in the healthy soil of the swales and rain gardens use pollutants as nutrients, removing them from the runoff.
 - **Rain Gardens:** Rain gardens are vegetated landscape depression areas that collect runoff (typically from a home’s rooftop) and allow it to soak into the ground. Capturing this runoff can also reduce the amount of City supplied water you will need to apply to your plants.
 - **Swales:** Swales are open, shallow channels with vegetation covering the side slopes and bottom. Swales collect and slowly convey runoff “downstream”. Because runoff moves slowly in the swale, much of it will soak into the ground. This can reduce the amount of City supplied water you will need to apply to your plants.

Greywater: Greywater is water from bathroom sinks, showers, bathtubs, and clothes washing machines. Greywater is distinct from blackwater, which comes from toilets and kitchen sinks. Using greywater to irrigate parts of your landscape will reduce the amount of City supplied water needed for irrigation.

Table 1: Optional and Required Design Elements

Plan Sheet	Title	Required	Additional Information
L-0.0	Residential Landscape Permit Cover sheet	Yes*	Design and installation guidelines and requirements that must be agreed to and followed.
L-1.0	Layout & Planting Plan	Yes	Design and layout of all hardscape and planting areas. Includes a Materials Legend, a Planting Legend, and Plant Water Use Table.
L-2.0	Irrigation Plan	Yes	Design and layout of the irrigation system. Includes an Irrigation Legend, Irrigation Valve Table, and Plant Water Use Table.
L-2.1	Irrigation Details and Notes	Yes*	Required construction and installation methods for irrigation components. The Irrigation Notes section provides additional instructions and requirements.
L-3.0	L.I.D. Paving Details	No	L.I.D. = Low Impact Development. Optional permeable paving material options to help reduce runoff by allowing more rain to soak into the ground.
L-3.1	Rain Gardens & Swale Details	No	Design and layout for optional swales, rain gardens and disconnected downspouts that move water from the roof to the garden where it can soak into the ground.
L-3.2	Planting Details	Yes*	Required planting methods.
GW-1.0	Greywater - Laundry to Landscape	No	Design and layout for optional greywater system that directs water from the clothes washing machine to the garden.
GW-1.1	Greywater - Branched Drain System	No	Design and layout for optional greywater system that directs water from bathroom sinks and bathtub(s) to the garden. Building Permit required.
RW-1.0	Rainwater Harvesting	No	Design and layout for optional rainwater system to capture rainwater in a tank and direct it to the garden.

* The Application Packet (see Stage #6 on p. 15) also contains this information and can be submitted instead of submitting sheets L-0.0, L-2.1, and/or L-3.2 as full format 24" x 36" documents.

3. Adjust lot lines and add north arrow (L-1.0)

Modify sheet L-1.0 to match your front yard. **Appendix B: “Site Example”** provides an example of a design Template that has been modified to help illustrate this section.

- Adjust lot lines** – Transfer your property boundaries onto the large format Layout and Planting Plan Sheet (L-1.0). This can easily be done:
 - Have your home’s site plan printed in ¼” scale (this will match the template plans).
 - Lay the Template Sheet L-1.0 *on top* of your site plan and line up the front yard to match.
 - Draw in your actual property boundary, front of the building footprint, driveway, sidewalk, and any other paths that are in the front yard. If you cannot read the lines through the paper, you can bold the lines with a black pen or marker on your site plan to make them easier to identify through the paper.
 - Designs that cannot fit onto one sheet are split into two sheets. In this case, Matchlines must be used, and both sheets will need to be printed in large format size. For more information see **Endnote #3: “Matchlines”**.
- Place a north arrow on plans** – Transfer your site plan’s north arrow onto Sheet L-1.0. This will help you determine if your front yard landscape has full sun or partial sun. Front yards on the north side of the lot have more shade than front yards on the south side of the lot. If you have a shadier lot, you may want to substitute some of the plants for those that prefer part-shade conditions from the Master Plant Substitution List provided on the Template webpage.

Fire Safer design & Wildland Urban Interface (WUI) areas – The Templates are designed to demonstrate fire safer landscaping approaches with lower, less woody plants close to the buildings, and trees planted further away to allow maintenance of branches 10’ away from buildings. When modifying the Templates to fit your site, be fire safer by considering the following:

- Place trees so that at maturity they will not reach your roof line.
- Don’t plant tall shrubs under your roofline.
- Include an optional rain garden feature to help increase and maintain the overall soil moisture of your site.

- Remember that most WUI preparedness is met through maintenance practices. This means maintaining defensible space around structures, clearing roofs and gutters, and trimming trees. at a minimum.
- See **Endnote #4: “Wildland Urban Interface”** for more information.

4. Revise the Layout & Planting Plan Sheet (L-1.0)

Now you will need to revise the existing plant layout. This is your chance to make changes to the hardscape, expand or reduce plantings, and make plant substitutions. See **Endnote #5: “The Color Key”** to better understand the colored lines on sheet L-1.0. **Appendix B, “Site Example”** provides an example of a design Template that has been modified to help illustrate this section.

- Add existing trees** – Use a colored pencil to show the location of any trees that already exist in your front yard on Sheet L-1.0.
- Modify hardscape and landscape feature locations** – Using a different colored pencil, draw your desired paths, driveways, and optional elements directly on Sheet L-1.0.
- Adjust plantings** – Once your hardscape and existing features are drawn on Sheet L-1.0, the remaining open spaces will be the planting areas.
 - Identify location of new trees first** – Change the planting layout of new trees on Sheet L-1.0 as needed for any pathway modification. You must have at least one new or existing tree in the front yard.
 - Expand or reduce plantings** – Expand or reduce plantings to accommodate your home’s site plan, pathways, and existing trees. See **Endnote #6: “Plant Spacing”** for more information.
 - **Expand groupings** – Draw in the same plant symbols as shown on the Planting Legend on Sheet L-1.0 for the planting area being expanded. Use a ruler to match the plant spacing as shown on Sheet L-1.0.
 - **Reduce groupings** – ‘X’ out plants that are being removed from the plan.
- Substitute Plants** – Use the Master Plant Substitution List provided on the Template webpage if you want to substitute any of the plants on the Templates. See **Endnote #7: “Plant Substitutions”** for more information.
 - If you want to change the plant selection, be sure to replace any low water use plants with other low water use plants. You can replace a

medium water use plant with a low water use plant or medium water use plant. However, replacing a low water use plant with a medium water use plant may not meet the 75/25 Rule. See **Endnote #8: “The 75/25 Rule”** for more information.

- Zones that only irrigate edible plants and fruit trees don’t have to comply with the 75/25 rule. These areas are called Special Landscape Areas. See **Endnote #9: “Special Landscape Areas”** for more information.
- Update Planting Legend** – if you have substituted plants, modify your Planting Legend accordingly. Cross out the Template plant name and write-in the botanical name for the plant you have chosen from the Master Plant Substitution List.
- Count plant groupings** – Determine the quantity of each plant and update the Planting Legend on Sheet L-1.0 by filling in the Permit Quantity on the Planting Legend for each plant type.
- Clarifying Notes** – Add clarifying notes as needed directly to Sheet L-1.0.

5. Adjust the Irrigation Plan Sheet (L-2.0)

Now you will need to revise the irrigation system layout on Sheet L-2.0 to match the modifications made on Sheet L-1.0.

Appendix B: “Site Example” provides an example of a design Template that has been modified to help illustrate this section. Note: all irrigation design requirements and guidelines are listed on Template Plan Sheet L-0.0 and/or noted in the Application Packet.

Before you get started: Designing an irrigation system that will work properly and adhere to City and State requirements is highly technical. Before you start working on your irrigation plan take some time to study Sheet L-2.0 while you review the information provided below:

- For help interpreting the Irrigation Legend on Sheet L-2.0. please see **Endnote #10: “The Irrigation Legend”**.
- To better understand the colored lines on Sheet L-2.0 please review **Endnote #5: “The Color Key”**.
- For general information about irrigation systems please review **Endnote #11: “Understanding Irrigation Systems”**.
- To understand what a “sleeve” is please review **Endnote #12: “Understanding Sleeves”**.
- To understand subzones please see **Endnote #13: “Subzones”**.

- To understand how and when to add a valve please review **Endnote #14: “Ensure Valve Performance”**.
- To meet City of Santa Rosa Building Department and State of California requirements please review **Endnote #15: “Understanding Hydrozone Requirements”**.

Now you are ready to modify Sheet L-2.0. As you work through each section, the relevant endnote information is provided again for reference.

- Adjust lot lines** – Transfer your property boundaries onto the large format Irrigation Plan Sheet L-2.0 of your Template plan just as you did for Sheet L-1.0:
 - Lay the Template plan sheet L-2.0 *on top* of your site plan and line up the front yard to match.
 - Draw in your actual property boundary, front of the building footprint, driveway, sidewalk and any other paths that are in the front yard footprint. If you cannot read the lines through the paper, you can bold the lines with a black pen or marker on your site plan to make them easier to see through the paper.

- Position your Irrigation Components**
 - Place the irrigation controller on Sheet L-2.0. The Templates specify an indoor controller, but there is also an outdoor version of this same controller. To switch to the outdoor version, simply cross off “indoor” in the Irrigation Legend Notes column and write “outdoor.” A different controller may be used so long as it is an EPA WaterSense labeled weather-based model and installed per the manufacturer’s guidelines: www.epa.gov/watersense/irrigation-controllers
 - Helpful tip: It is often easiest to install the controller either on an interior garage wall near the side yard or on the exterior garage wall near the side yard. This can make it easier to connect wires from your controller to your valves. **Consider who needs to access the controller and when. If you want a landscape contractor to have easy access to the controller, an outdoor model may be best for your situation.**
 - The Templates specify a weather-based controller that uses an onsite weather sensor. If you need to relocate this unit, “X” out the Template location and write in the symbol in its new location. The weather sensor must be mounted in a location where it is fully exposed to weather conditions. For more information, follow the manufacturer’s installation guidelines.

- Confirm location of irrigation valves** – The valves on the Template are located on the side of the house (where they are less likely to be seen). If you need to relocate the

valves for your site plan, draw an “X” over the valves on Sheet L-2.0 and draw the valves in their new location. If you have not made any plant changes to Sheet L-1.0 you can leave the numbered valves as shown on the Template.

You may need to add or remove valves if you have:

- Added a Special Landscape Area (see **Endnote #9: “Special Landscape Areas”**),
- Made medium water use plant substitutions, or
- Added or removed planting areas on Sheet L-1.0.

For more information on determining the number of valves, please see:

- **Endnote #14: “Ensure Valve Performance”**,
- **Endnote #15: “Understanding Hydrozone Requirements”**, and
- The section immediately below entitled “Fill out Irrigation Valve Table”.

- Fill out Irrigation Valve Table** – This table is used to determine the final number of valves, corresponding subzones, and Permit Square Feet (PERMIT SF) for your project. NOTE: PERMIT SF is the square footage for your site according to the permit application you are submitting, and PLAN SF is the square footage for the Template as originally drawn.
 - Outline and Measure Irrigated Areas** – Outline the new shape of your planting areas to match the changes you made on Sheet L-1.0. Outline and measure the planting subzones that will be irrigated. Use pencil for the first outline as you may need to make changes once you complete the Irrigation Valve Table. Keep a tally of the area for each subzone and add up the total area for each zone. For more information about how to measure irrigated areas, please see:
 - **Endnote #16: “How to Take Measurements on the Plans”** and
 - **Appendix A: “How to Measure Landscape Area”**.
 - Determine the number of irrigation valves** – The number of valves needed for your project will depend on the size of the planting areas, the type of plants you are installing (low or medium water use; shrubs or trees) and the soil type. You must also meet specific guidelines to:
 - Make sure the irrigation system operates correctly. To determine the number of valves that you will need, you will use the technical information provided in this manual, on Sheet L-2.0, and on the layout

and plant modifications you made on Sheet L-1.0. To make sure that your valves will operate correctly please see **Endnote #14: “Ensure Valve Performance”**.

- Have your plans approved by the City of Santa Rosa Building Department. For more information please see **Endnote #15: “Understanding Hydrozone Requirements”**.

- Plant Valves** (Shrubs, perennials, grasses, etc.): Use the blank lines on the Irrigation Valve Table to number and list any additional plant valves. “X” out the information for any removed valves. Enter the “Permit SF” for each valve.

If you have added a Special Landscape Area (SLA), you will need to add a valve. Write in “SLA” under the Water Use Column.

- For more information about SLA’s see **Endnote #9: “Special Landscape Areas”**.
- **Soil Type:** The Irrigation Legend on sheet L-2.0 lists soil types to determine the type of drip tubing that should be used for plant/shrub valves. For more information about soil type and how it determines the kind of irrigation tubing you will need to use, please see **Endnote #17: “Soil Type and Irrigation”**.
- Tree Valve(s):** Use the blank lines on the Irrigation Valve Table to number and list any additional tree valves. “X” out the information for any removed tree valves. Since the irrigation tubing for trees is measured in linear feet (LF), you will need to fill in the total LF of tubing you will need for your tree valve in the PERMIT SF column. In most smaller lots, there will only be one valve for trees. To understand how to irrigate trees, see **Endnote #15: “Understanding Hydrozone Requirements”** and **Endnote #18: “Trees and Irrigation”**.
- Determine the number of subzones** – If you have moved planting areas around or added valves, you may need to add or remove subzones. Use the Sub-Zones column and fill in the number of subzones per valve. This may be easier to do once you have completed the Stage below titled “Adjust the Final Irrigation System Layout on Sheet L-2.0”. See **Endnote #13: “Subzones”** to better understand subzones.

- Complete the 75/25 Rule Worksheet** – Transfer the corresponding information from the Irrigation Valve Table to the 75/25 Rule Worksheet. The Worksheet is available on the Template webpage. Follow the instructions to determine if your new design will meet the 75/25 requirement. Adjust the design as needed until you are successful. This will most often mean removing medium water use plants that you have substituted and choosing low water use plant substitutions. If this process results in the need to add or remove valves, make sure to revise the Irrigation Valve Table as necessary.

- Fill in Plant Water Use Table** – Transfer the information from the 75/25 Rule Worksheet onto the Plant Water Use Table on both Sheets L-1.0 and L-2.0. Note, PERMIT SF is the square footage for your site according to the permit application you are submitting, and PLAN SF is the square footage for the Template as originally drawn. PERMIT % in the LOW row is the percentage of planted areas with low water use plants, and PERMIT % in the MED row is the percentage of planted areas with medium water use plants. You can easily calculate these numbers using the 75/25 Rule Worksheet.

- Adjust the Final Irrigation System Layout on Sheet L-2.0** – Refer to your complete Irrigation Valve Table and draw any necessary modifications on the diagram on Sheet L-2.0. Use colored pencils or markers that match the colors on the Template so that it is clear what you are adjusting.
 - Add or remove valves** – “X” out any unused valves. Use the “Drip Irrigation Control Valve Assembly” symbol in the Irrigation Legend on Sheet L-2.0 and draw in any added valves. Number the valves to match your complete Irrigation Valve Table. Add a note indicating the valve type and plant water use.

 - Color code the hydrozones** – Outline and color in the irrigated area for each valve. Use one color for each hydrozone.

 - Identify sleeve locations** – Relocate sleeves as needed for changes in entrance or pathway, etc. “X” out sleeves on the Template. Use the “Sleeve” symbol on the Irrigation Legend on Sheet L-2.0 and draw in the new locations. See **Endnote #12: “Understanding Sleeves”**.

 - Draw in the irrigation pipes (and wire paths)** – Draw in the piping paths starting from each irrigation valve to the respective planted area that will be irrigated. Color code your piping paths to match each hydrozone.
 - If your controller will not be mounted next to your irrigation valves, draw in the wire path from the valves to the controller location. This wire can go in the same trench as the irrigation pipe but be sure to draw it in so that it is installed before the pipes are buried.

 - Indicate all Subzone Drip Transitions** – If you have moved planting areas around or added valves, you will need to show the new drip transition location for each subzone. You will need a transition subzone for each hydrozone in every area that is separated by hardscape. Use the “Transition to Drip Zone” symbol on the Irrigation Legend on Sheet L-2.0 and mark each transition area.

 - Indicate all Drip Flushout Locations** – Use the “Drip Flushout” symbol on the Irrigation Legend on Sheet L-2.0 and make sure you show one flushout device for each subzone. See **Endnote #19: “Drip Flushout Device”**.

6. Complete the Application Packet

The Application Packet is broken into six steps. The first four of these steps must be done prior to submittal with the City of Santa Rosa Building Department. The last two of these steps will be described in section 8 “Complete your Project” below.

- Step 1: Project Information – Enter the date, applicant name and the property address. Enter the information from the Plant Water Use Table on the Layout and Planting Plan (L-1.0).
- Step 2: Sign Pre-Construction Agreement – This certifies that you will install the landscaping as outlined on all applicable Template Plan Sheets and Construction Details.
- Step 3: Sign Disclaimer – This step verifies that the Applicant accepts responsibility for these plans, will ensure that the landscape will be constructed according to the plans, and that any liability is that of the applicant.
- Step 4: Provide Permit Agency Required Plan Sheets – Bring large format (24”x36”) completed copies of your plans (Sheets L-1.0 and L-2.0), a completed copy of the 75/25 Rule Worksheet, and all the required details. You can print the details in large format size as provided in the Template plan set (Sheets L-2.1, L-3.0, etc.) or you can print the 8 ½”x 11” sized details. The 8 ½”x 11” sized details are arranged into the four categories below and are available on the Template webpage. Choose the details that are used in your plan, and make sure you include all the necessary details. For more information see **Endnote #2: “Construction Details”** and Table 1 on page 7.

- 1) Required Permit Application Packet:** application packet, 75/25 Rule Worksheet and all the required details.
- 2) Optional Driveway Details Packet:** details that make your driveway more permeable.
- 3) Optional Path and Sidewalk Details Packet:** details that make your paths and sidewalk more permeable.
- 4) Optional Landscape Elements Packet:** LID details that include a rainwater harvesting system, disconnected downspouts, vegetated raingardens and swales.

7. Submit your Plans for Review

- For the City of Santa Rosa:
Provide three (3) paper copies of the complete submittal package, **or** one (1) complete digital submittal package provided on a USB Flash Drive.
- Submit your package at the City of Santa Rosa's Resilient City Permit Center located at Santa Rosa City Hall, 100 Santa Rosa Avenue, Room 6, Santa Rosa, California, 95404

8. Complete your Project

Build your landscape per the plans you have submitted. Following the additional notes and construction details in the Application Packet will help you ensure compliance. During construction, be sure to pay attention to soil preparation. For more details about soil preparation requirements see **Endnote #20: "Soil Management Requirements"**.

- Step 5: Post-Construction Certification – In this step the Applicant self-certifies that the landscape has been installed per the approved plans in compliance with the requirements of the Prescriptive Compliance Option of the Model Water Efficient Landscape Ordinance and has completed Step 6.
- Step 6: MWELO Final Inspection Checklist – Review and complete each item on the checklist. If you find that an item is incomplete, work with your installing contractor, or correct the issue yourself. Do not sign the Certificate of Completion until you can check off that all items have been completed.

Once you have completed construction, contact the City of Santa Rosa Building Department at Permit Santa Rosa to schedule an inspection: <https://srcity.org/1602/Apply-forCheck-Permit>

Endnotes

ENDNOTE #1: City of Santa Rosa Minimum Building Permit Requirements: Landscaping is required on all new or replaced single-family dwellings in the City of Santa Rosa. Landscaping and irrigation plans can be a deferred submittal, but they must be reviewed and approved by the City prior to the first sheetrock inspection. The following minimum requirements are allowed by the City's Building Department when using the Template plans in the fire rebuild areas:

- Final plan submittal contains no less than 50% of the plant quantities as shown on Sheet L-1.0 (i.e., 50% plant density). Note, installing less dense plant quantities will likely result in increased landscape maintenance requirements due to weed growth.
- Installation of the Approved Plans can be deferred for up to two years provided that the following occurs:
 - Trees are installed as indicated on Sheet L-1.0 of approved plans
 - All Soil Management Requirements are completed as indicated on Sheet L-0.0
 - All irrigation sleeves are installed under hardscape areas as indicated on Sheet L-1.0 of approved plans

ENDNOTE #2: Construction Details: There are several plan sheets that contain construction details (see Table 1 on page 7). These details are available in both the large format plan sheets and in 8 ½" x 11" sized individual details in the Application Package (see Stage #8, Step #6). Each detail is numbered and shows exactly how that portion of the project must be constructed. Required and optional details correspond to a specific construction item in the project. Include all relevant details (required and optional) with your Building Permit Submittal. During construction, make sure that your project is built according to each detail.

ENDNOTE #3: Matchlines: Designs that cannot fit onto one plan sheet are split into two sheets using a "Matchline" reference. Each plan sheet contains a portion of the design and the matchline refers the user to the other complimentary sheet. Match the lines of both sheets to see the entire layout.

ENDNOTE #4: Wildland Urban Interface: If you live in the Wildland Urban Interface (WUI), Fire Safe Sonoma is a good resource with helpful links: www.firesafesonoma.org. Fire Safe Marin provides detailed information about Defensible Space: www.firesafemarin.org. WUI areas may have special requirements that vary based on your location. Check with your local fire department for details.

ENDNOTE #5: The Color Key: Each hydrozone is outlined in color on both Sheet L-1.0 and Sheet L-2.0 of the Templates (note: Tree hydrozones are only shown on Sheet L-2.0). To the left of the Plant Water Use Table on Sheet L-1.0 you will see colored squares. Each color represents one of the hydrozones and matches the corresponding hydrozones on Sheet L-1.0 and Sheet L-2.0. On

Sheet L-2.0, each irrigation valve has a colored square drawn around it which matches the color shown on the diagram (piping paths and irrigated areas) so you can tell which valve is irrigating which part of your yard.

ENDNOTE #6: Plant Spacing: Notice the “Spacing” column on the Planting Legend on Sheet L-1.0. Spacing for each plant type is listed by feet or inches “O.C.,” which means “On Center.” The spacing is measured from the center of one plant to the center of the adjacent plant. When adjusting the plant layout, follow the spacing as indicated to match the intended design and reduce future maintenance needs as the plants grow and mature.

ENDNOTE #7: Plant Substitutions: The Master Plant Substitution List found on the Template webpage is divided into low water use and medium water use plants and grouped into categories like trees, shrubs, grasses and wildflowers. Additional information includes the mature size of the plant, how much sun it needs, if it’s a Fire Safer plant, etc. Note: additional planting design requirements and guidelines are listed on Template Plan Sheet L-0.0 and/or the Application Packet. To make sure that the plants you are substituting don’t put you out of compliance with the 75/25 Rule, please see Endnote #8: “The 75/25 Rule,” Endnote #9: “Special Landscape Areas,” and Endnote #15: “Understanding Hydrozone Requirements.”

ENDNOTE #8: The 75/25 Rule: Both State and City of Santa Rosa regulations require that at least 75% of the front yard planted areas are low water use. The Templates are designed to allow up to 25% of the planted areas to be medium water use. This is important to keep in mind as you adapt the templates to your site plan. Whether you need to add additional plants because your front yard shape is bigger than the template, or you decide to make plant substitutions, your final planted area must meet the 75/25 Rule. It gets a little trickier because in addition to the plants, the irrigation system design must also meet the 75/25 Rule. Helpful Hint: to keep this simple, try to stick with the layout of plants and trees as specified on the Templates, and if making substitutions, choose only low water use plants and trees. A “75/25 Rule Worksheet” has been created to help with these calculations. The Worksheet is available on the Template webpage. See Endnote #15: “Understanding Hydrozone Requirements” for more information.

ENDNOTE #9: Special Landscape Areas: Edible plants and fruit trees are considered Special Landscape Areas (SLA) per regulations and qualify as an exception to the 75/25 Rule. However, to allow this, there are some requirements for the irrigation system. See Endnote #15: “Understanding Hydrozone Requirements” for more information.

ENDNOTE #10: The Irrigation Legend: Sheet L-2.0 contains the Irrigation Legend. The Irrigation Legend lists all the components (make/model/size/manufacturer) that will be used to build the irrigation system. Symbols represent each component and are drawn on the irrigation plan. When modifying the irrigation system layout on Sheet L-2.0 refer to the Irrigation Legend to identify each symbol type that you may need to add or move. Refer to the Irrigation Legend before construction begins and make sure that the proper materials are purchased and installed to match what is listed on the Irrigation Legend.

ENDNOTE #11: Understanding Irrigation Systems: Take a moment to study the irrigation system configuration on Sheet L-2.0.

Start by looking at the controller. The irrigation controller is the “brain” of the system which is programmed by the user to apply the correct amount of water at the right time of day. It is marked with a “C” on Sheet L-2.0. Wires run from the irrigation controller to the valves. A signal from the irrigation controller opens (or closes) a valve, allowing water to flow through the valve to an irrigated area, or hydrozone.

Every valve is numbered and outlined in color with a note describing plant type and water requirement. Follow the color-coded line as it goes out from the valve into the corresponding outlined planting or tree areas. The lines represent the underground pipes that take the water from the valve out to the irrigated area. Together, this is the irrigation “zone”, or “hydrozone”. Hydrozones are areas of plants with similar irrigation requirements. It can be confusing, but on Sheet L-2.0 a hydrozone, or “zone,” is also referring to a specific valve.

ENDNOTE #12: Understanding Sleeves: When the irrigation pipes cross a sidewalk, path, or driveway a “sleeve” (a large diameter piece of pipe) is placed below ground so that the smaller irrigation pipe is protected and can run through the sleeve under the path, sidewalk, etc. This will allow you to “push” irrigation pipes (and wiring) through the sleeves to cross under the hardscape. The plans already have the sleeves located for you (See symbol on Irrigation Legend and Irrigation Sleeving Detail #4), but if you relocated your entrance or pathways, you might have to move the sleeves around too. It is important to install sleeves prior to installing the hardscape. See Endnote #1: “City of Santa Rosa Minimum Building Permit Requirements” for more information.

ENDNOTE #13: Subzones: The Template plan irrigation system is designed so that hard pipe runs underground from each valve and then transitions “up” to drip tubing that is installed on top of the soil in the planting areas. Every time you transition from the hard pipe to the drip tubing, that area is a subzone (See Drip Transition Detail #6 in the Application Package or on Sheet L-2.1). As you will see on the Irrigation Legend on Sheet L-2.0, the symbol for this transition is the letter “D” with a circle around it. Because the piping paths from a valve may run under pathways and driveways, you will likely have multiple subzones on each valve.

ENDNOTE #14: Ensure Valve Performance: To make sure the irrigation valve operates correctly, you must verify that each hydrozone doesn’t use too much or too little water. The Irrigation Valve Table on Sheet L-2.0 is designed to do this by measuring: 1) square footage of PLANTS, and 2) linear footage of drip tubing for TREES.

PLANTS (shrubs, perennials, grasses, etc.): The Templates specify a grid layout of drip tubing for the planting beds (See Sheet L-2.0 Irrigation Legend and Drip Sub-zone Layout Details #7 and #8). The Irrigation Valve Table lists not-to-exceed thresholds of square

footage of the planting area based on soil type. For example, in the case of loam or clay soil, if your total planted area per hydrozone exceeds 2,200 SQ FT, you will need to split the hydrozone in two by adding an additional irrigation valve (you will need to show this on your plans). Each subzone within a hydrozone cannot exceed 1,100 SQ FT, so in this case, you would need to add another subzone by adding another drip transition (See Endnote #13, "Subzones"). However, since the Templates only apply to front yards that do not exceed 2,500 sq. ft. it is unlikely that you will exceed these thresholds.

TREES: The Templates specify a spiral shaped layout of drip tubing around each tree (See Sheet L-2.0 Irrigation Legend Trees Symbol). The spiral of tubing is measured in linear feet (LF). As stated in the Irrigation Valve Table, you cannot exceed 200 linear feet per subzone, and you cannot exceed 400 linear feet per hydrozone. Refer to Endnote #18, "Trees and Irrigation" for the suggested amount of liner feet of drip spiral tubing at maturity. If your mature trees will require more than 200 linear feet per subzone, simply add another subzone.

If your mature trees will require more than 400 linear feet of drip tubing in a single hydrozone, you will need to split the hydrozone in two by adding an additional irrigation valve (you will need to show this on your plans). However, reaching this maximum for a tree zone in a front yard that is 2,500 SQ FT is very unlikely. Depending on tree size and irrigation needs, it would take more than 5 large trees, 8 medium trees, or 13 small trees to make it necessary to add another valve.

ENDNOTE #15: Understanding Hydrozone Requirements: Hydrozones are areas of plants with similar irrigation requirements. It is important to group plants with similar irrigation requirements together so that they can be efficiently and effectively irrigated. There are specific design requirements that you must follow to have your plans approved:

- Do not mix trees and other plants/shrubs on the same valve. Trees are required be on their own dedicated valve. Multiple trees can be on the same valve if they are low or medium water use (high water use trees like Redwoods must be on a separate valve).
- Meet the 75/25 Rule for irrigation hydrozones. Use the 75/25 Rule Worksheet available on the Template webpage to calculate compliance with the 75/25 Rule.
 - Group medium water use plants/shrubs on the same hydrozone(s).
 - The total square footage of the hydrozone will be medium water use.
 - Group low water use plants/shrubs on the same hydrozone(s).
 - The total square footage of the hydrozone will be low water use.
 - Avoid grouping medium and low water use plants/shrubs together. If you group medium and low water use plants/shrubs together on the same hydrozone, the

total square footage of the hydrozone must then be calculated as medium water use. This can make it difficult to meet the 75/25 Rule.

- Tree hydrozones are being given a special exception. Medium and low water use trees can be grouped together on the same hydrozone without impacting the 75/25 Rule. When calculating the 75/25 Rule for trees, use the square footage in Table 2 below:

Table 2: 75/25 Rule Square Footage Allotments for Trees

Tree Size	Square Feet
Small (12'-25' high x 10'-15' wide)	50
Medium (25'-40' high x 15'-25' wide)	75
Large (<40' high x <25' wide)	100

- Group Special Landscape Area (SLA) Plants on the same hydrozone(s).
 - The total square footage of the SLA hydrozone(s) is exempt from the 75/25 Rule.
- Special Landscape Area (SLA) fruit trees can be grouped with other ornamental trees on the same hydrozone. The square footage of the SLA trees is exempt from the 75/25 Rule.

ENDNOTE #16: How to Take Measurements on the Plans: The Templates are drawn in ¼" scale, meaning that every 1 inch equals 4 feet. Use a standard ruler and make sure you have printed Sheets L-1.0 and L-2.0 full scale (24"x36"). For more information about calculating measurements for your landscape areas, please see Appendix A: "How to Measure Landscape Area."

ENDNOTE #17: Soil Type and Irrigation: Use the Irrigation Legend to determine the type of inline drip tubing that you will use for PLANTS based on your site's soil type. Most areas in the rebuild will be clay or loam (i.e. use Netafim TLCV4-1801).

ENDNOTE #18: Trees and Irrigation: Make sure to use the drip tubing that is specified on the Irrigation Legend for TREES (Netafim TLCV6-1201). You MUST install a minimum of 20 linear feet (LF) of drip tubing for each tree zone to ensure valve performance. Table 3 below lists recommendations for linear feet of tubing for each tree size (see Table 2 for tree size explanation) at installation and at maturity. The goal is to have the spiral reach out to the edge of the tree canopy. As the trees mature, you can easily add additional tubing so that the spiral increases in size. Note, because the irrigation requirements of trees are so individual, especially at maturity, there is a wide range for the suggested length of Drip Spiral at Maturity. The best

guide for the irrigation requirement will be the health of the tree in question, and this will become especially important during periods of drought.

Table 3: Suggested Linear Feet of Drip Tubing for Trees

Tree Size	Suggested Linear Feet (LF) of Drip Spiral at Installation*	Suggested Linear Feet(LF) of Drip Spiral at Maturity
Small	15 – 20 LF	20 – 30 LF
Medium	15 – 20 LF	20 – 40 LF
Large	15 – 20 LF	20 – 60 LF

*If installing only one tree, use a min of 20 LF

ENDNOTE #19: Drip Flushout Device: A drip flushout device is used to allow debris to be flushed out of the drip system (this typically occurs each spring before the start of the irrigation season, and then as needed). The device is placed at the end of each section of drip tubing within a subzone (See Drip Flushout Detail #9 in the Application Package or on Sheet L-2.1). As you will see on the Irrigation Legend on Sheet L-2.0, the symbol for this transition is the letter “F” with a triangle around it. Make sure you have one flushout device indicated on for each subzone.

ENDNOTE #20: Soil Management Requirements: The Templates include several soil management requirements. These requirements are listed on Template Plan Sheet L-0.0 and the Application Packet.

- You must add and incorporate compost into the planting areas prior to planting at a rate of four (4) cubic yards per 1,000 sq. ft. This is equal to a one-inch layer of compost.
- A three-inch layer of mulch must be applied on all exposed soil surface of planting areas (mulch can be reduced for native grass or wildflower areas). We suggest using non-dyed mulch and avoiding shredded mulch, which is more flammable.

Appendix A: How to Measure Landscape Area

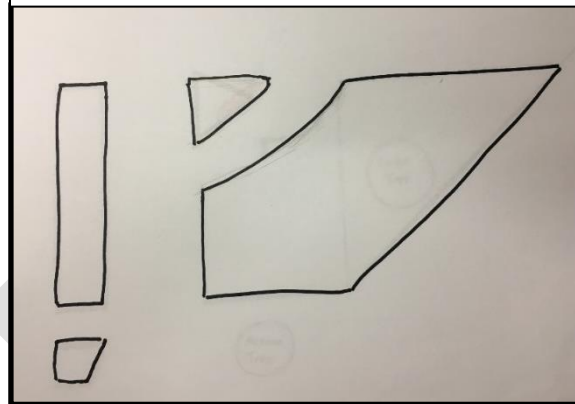
Step 1: Outline irrigated areas

Outline irrigated areas on large format (24" by 36") plan sheets.



Step 2: Trace shape of irrigated area

Simplify shapes so you can divide them into triangles and rectangles in the next step.



Step 3: Measure and calculate area in square feet (SF)

Measure the sides of divided shapes and multiply by 4 to match Template scale. Calculate areas in square feet (SF) using the simple geometry formulas provided.

Triangles: $0.5 \times B \text{ (ft)} \times H \text{ (ft)} = \text{Area (SF)}$
 Triangle 1: $0.5 \times B \times H = A$
 $0.5 \times 34 \text{ ft} \times 25 \text{ ft} = 425 \text{ sq. ft.}$

Rectangles: $L \text{ (ft)} \times W \text{ (ft)} = \text{Area (SF)}$
 Rectangle 4: $L \times W = A$
 $24 \text{ ft} \times 14 \text{ ft} = 336 \text{ sq. ft.}$

Practice Worksheet: Calculate Landscaped Area

Hydrozone	Shape	Formula	Area (SF)
Low Water Use Plants	Triangle 1	$0.5 \times 25 \times 34$	425
Low Water Use Plants	Triangle 2	$0.5 \times 9 \times 12$	54
Low Water Use Plants	Triangle 3	$0.5 \times 20 \times 24$	240
Low Water Use Plants	Rectangle 4	24×14	336
Low Water Use Plants	Rectangle 5	5×26	130
Low Water Use Plants	Rectangle 6	4×6	24
Trees - Low Water	Large Tree		100
Trees - Medium Water	Medium Tree		75
Total Low Water Use (Plants and Trees):			1309
Total Medium Water Use (Plants and Trees):			75
Grand Total:			1384

Tree Size	Square Feet (SF)
Small	50
Medium	75
Large	100

Use Tree Size Table at left to fill in Square Feet (SF) for the trees in the above Practice Table. When calculating the Total Low Water Use SF for both Plants and Trees, add SF from Low Water Use Trees and SF from Low Water Use Plants. Do the same for Medium Water Use Trees and Plants.

Appendix B: Site Example

Coming soon

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