

Tempe Micro Estates Grounds & Gardens Maintenance Policy & Procedure Manual

DRAFT – 08 July 2020

Purpose

To maintain the health, attractiveness, and growth of the landscaping of all common areas of Tempe Micro Estates for years to come and to encourage as many residents as possible to take a part in the care and enhancement of the property that is outside of their individual parcel.

This manual provides an outline of the policies and procedures for maintaining attractive, functioning garden and grounds at the Tempe Micro Estates. This manual should be reviewed and updated from time to time to ensure that proper maintenance is being conducted, and that procedures are updated as needed.

The CC&Rs for the property state:

The Grounds and Garden Committee shall establish procedures for gardening and harvesting fruit, vegetables, or berries grown in the Tempe Micro Estates community garden and orchard, and post such procedures at www.NewtownCDC.org.

This document shall include the policies and procedures for maintaining the grounds, landscape features, the garden beds, and the structure for the Grounds & Garden Committee.

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Committee Structure

Committee Members

All homeowners at Tempe Micro Estates take individual responsibility for, and join in the creation and maintenance of, a mutually supportive and respectful Tempe Micro Estates Home Owner’s Association to care for and maintain the common spaces, set rules and manage the budget of the property.

Homeowners shall take individual responsibility for, and join in the creation and maintenance of a mutually supportive and respectful Tempe Micro Estates Association.

Homeowners shall preserve and protect the property value and ecological health of Tempe Micro Estates through the enforcement of the CC&Rs.

Homeowners shall participate in the discussions and decision-making processes regarding Tempe Micro Estates Association affairs by scheduling and attending Association meetings.

The Grounds and Garden Committee shall consist of no less than three regular members, each of which shall be a Member in Good Standing appointed by the board. The Grounds and Garden Committee shall be in charge of the maintenance and upkeep of the landscape and gardens of Tempe Micro Estates, development and update of policies and procedures for the grounds and garden, and scheduling work parties to maintain the property.

Members of the Grounds and Garden Committee include any resident(s) of Tempe Micro Estates who help make sure that the work that needs to be done is done.

The Board will appoint the Grounds & Garden Committee chairperson at the annual meeting. Any resident can join the committee by contacting the chairperson. The chairperson may need to invite people to be part of the committee if no one volunteers. The chairperson will report to the Board regarding who is on the committee. The chairperson needs to have a vision of the entire property to help encourage committee members and residents to take part in the care of the landscaping as well as schedule any work that needs to be hired out.

The Grounds & Garden Committee may be called upon to approve a major planting or removal of a tree or large shrub that was part of the original landscape design. All expenditures go through the normal approval process by the Tempe Micro Estates Treasurer and if there are any large unexpected events/costs, the chairperson will discuss this with the Board for approval.

History and Development of the Landscape Plan:

Tempe Micro Estates is the first development that Newtown CDC has provided formal landscaping. Tiffany Halperin of Urban Culture Design was contracted to design the landscape of the property to meet a number of goals. 1) Meet or exceed City of Tempe landscaping requirements, 2) to provide an aesthetically pleasing environment to neighbors and residents, and 3) to comply with city, county, and state storm water regulations that require water that falls in a 100-year storm event to be retained on site.

The intent of the landscape was to create a desert-friendly environment where all plants were either edible, or native to the Sonoran Desert – providing respite to residents, visitors, and fauna.

The proximity of the Salt River inspired a connection to the birds and flight ways from the river to the rest of the community.

Before written history of the area, the site was likely agricultural land for a nearby settlement, supported by a canal just to the east of the property. In the modern era, the land was agricultural with reported crops like carrots being grown until around 1950. There were 5-6 homes on the site. A long-time resident was Grace and neighbors called the property “Graceland.” The City of Tempe acquired the properties in the late 1990s and early 2000s as part of blight removal. The property had been vacant since about 2005.

Property Care:

Work Parties

- Work parties shall be periodically scheduled to care for the common landscape areas.
- Unless there is a different prior agreement among affected Homeowners, work in the nature of construction, repair or landscaping that is accompanied by noise audible to other Residents shall take place only between the hours of 7:00 AM and 10:00 PM.

General:

- No trees with invasive root systems shall be planted within 15 feet of sewer lines
- Plants classified as noxious weeds by the State of Arizona or Maricopa County must be removed.
- Owners shall not allow any standing bodies of water to accumulate that could become breeding environments for mosquitos or other insects.
- The use of non-organic herbicides such as glyphosate (Roundup) shall be avoided to the greatest extent possible.
- No Owner shall permit any thing or condition to exist upon any Lot or Dwelling Unit which shall induce, breed, or harbor infectious plant diseases, insects, or pests.
- The original landscape design of the Common Areas will be preserved as much as possible. Approval of the Grounds and Garden Committee is required before any significant change, such as removal of trees or shrubs, occurs. Approval of the Grounds and Garden Committee is not required if Homeowner wishes to add plants to their lot, replace plants that have died, prune shrubs or do minor tree trimming. However, only persons with the appropriate training are permitted to perform major tree pruning.

- If a Resident wishes to plant vegetation that may affect an adjacent Parcel's access, views or sunlight, such as trees or shrubs that will grow to a height greater than six feet, prior approval by the Homeowner of the adjacent Parcel is required.
- Storm drain catch basins are located in specific areas to facilitate storm water drainage to the underground storm water storage area. Residents will weed, remove debris, and otherwise keep clear storm drain catch basins, particularly during the monsoon season. The use of non-organic herbicides such as glyphosate (Roundup) shall be avoided as much as possible.
- Residents will monitor the drywell, chamber system, rainwater tank, and all catch basins for sediment build-up, and remove sediment when it threatens to obstruct the drains.
- Residents will perform other maintenance and monitoring activity that may be necessary to ensure effective storm water management.
- No Owner or Resident or other Person shall interfere with the drainage established by the developer & registered engineer.
- No Owner or Resident or other Person shall obstruct, divert, alter or interfere in any way with the drainage of ground and surface water upon, across, or over any portion of the Lots, rights-of-way, Common Area(s) or other portions of the Project, including, but not limited to, construction or installation of any type of structure or the planting or placement of any vegetation that would cause such interference. Each Owner shall, at its own expense, maintain the drainage ways and channels on its Lot in proper condition free from obstruction.

Monarch Waystation Maintenance

Tempe Micro Estates is a registered Monarch Waystation with Monarch Watch.

Each fall, hundreds of millions of monarch butterflies migrate from the United States and Canada to mountains in central Mexico where they wait out the winter until conditions favor a return flight in the spring. The monarch migration is truly one of the world's greatest natural wonders yet it is threatened by habitat loss at overwintering grounds in Mexico and throughout breeding areas in the United States and Canada.

Monarch Waystations are places that provide resources necessary for monarchs to produce successive generations and sustain their migration. Without milkweeds throughout their spring and summer breeding areas in North America, monarchs would not be able to produce the successive generations that culminate in the migration each fall. Similarly, without nectar from flowers these fall migratory monarch butterflies would be unable to make their long journey to overwintering grounds in Mexico. The need for host plants for larvae and energy sources for adults applies to all monarch and butterfly populations around the world.

(From <https://monarchwatch.org/waystations/index.html>)

The design of monarch-friendly features was done based on the "Low Desert Monarch Waystations and Butterfly Gardens" regional planting guide developed by Southwest Monarch Study in support of the North American Monarch Conservation Plan. Their websites and guides, which are updated from time to time, outline best practices for planting and maintaining monarch-friendly landscape features.

Components of the Landscape that Support the Monarch Waystation:

Host Plants:

Host plants, also called larval plants, are annuals or perennials where butterflies lay their eggs. As the tiny caterpillars hatch from the eggs they will consume the leaves and often the flowers as food. While hungry caterpillars can quickly defoliate a plant, new leaves quickly grow afterwards.

(SWMonarchs.org)

- Desert or Rush Milkweed - *Asclepias linaria*
 - Native plant. Needs full sun. Low water use.
- Pineneedle Milkweed – *Asclepias subulata*
 - Native plant. Grows best with filtered afternoon shade. Low water use.
- Pink & Red (Baja) Fairyduster. *Calliandra eriophylla* & *californica*.
 - Native plant. Host plant for Marine Blue butterfly.
- Consider planting additional annuals from the host plant list available at SWMonarchs.org

Nectar Plants:

All butterflies need nectar to sustain their adult life but not all flowers are created equal. Butterflies have favorites and they can vary by the season. They visit the desert in the spring, but late summer and fall are the premier seasons.

(SWMonarchs.org)

- Wolfberry or Frutilla. *Lycium fremontii*.
 - Native. Fruits are edible, and loved by birds. Flowers are enjoyed by bees, hummingbirds, and butterflies.
- Pink & Red (Baja) Fairyduster. *Calliandra eriophylla* & *californica*.
 - Native. Attracts birds, hummingbirds, and butterflies.
- Chuparosa. *Justicia californica*.
- Native. Attracts hummingbirds, butterflies, and is a larval food plant for Texan Crescentspot butterfly
- Compact Jojoba. *Simmondsia chinensis* 'Vista.'
 - Native. Popular with birds and butterflies.
- Louis Hamilton Globe Mallow. *Sphaeralcea ambigua*.
 - Native. Popular with native bees, Host plant for West Coast Lady, Painted Lady, Common Checkered Skipper, Small Checkered Skipper, and White Skipper butterflies.
- Consider planting additional annuals from the nectar plant list available at SWMonarchs.org

Important Note Regarding Pesticides:

Many plant nurseries or their growers use systemic or topical pesticides on their plants to prevent insect damage on leaves. Remember that butterflies are insects too, and their caterpillars will not survive if they chew a treated leaf. Always ask your nursery if your plant has been treated with systemic or topical sprays.

Do not use any pesticides or insecticides. Even nearby spraying can drift onto your visiting butterflies' favorite plants. Many "natural" insecticides also kill larvae. Instead, incorporate a variety of host and nectar plants to help keep pest levels down and allow the populations of natural predators to increase to reduce unwanted pests.

(from: <https://www.swmonarchs.org/Low%20Desert%20Monarch%20Waystations%20and%20Butterfly%20Gardens.pdf>)

Resources

Southwest Monarch Study - <https://www.swmonarchs.org/>

Monarch Watch - <https://monarchwatch.org/>.

Monarch Watch. Monarch Waystation Program. <https://monarchwatch.org/waystations/>

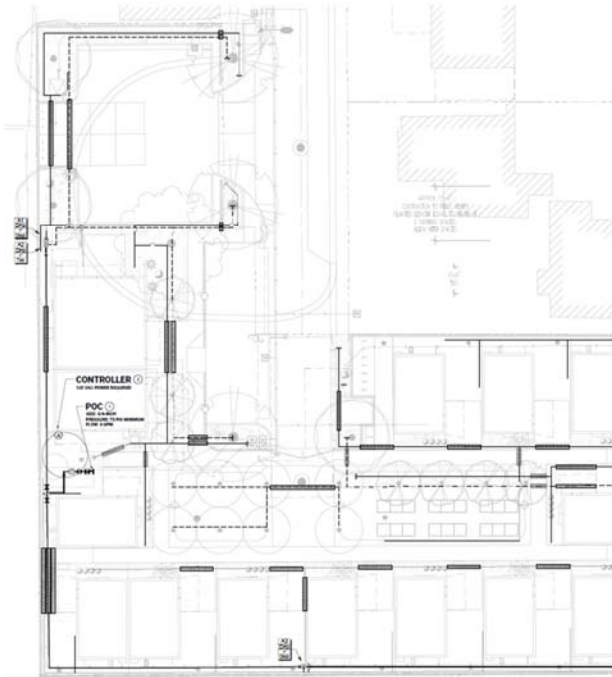
Irrigation System

Tempe Micro Estates is equipped with a **Weathermatic Smartlink Model XXX** irrigation timer that controls the drip irrigation system for the common landscaping. It is located on the wall behind the common room.

The main water cut-off for the system is located just outside the fire gate.

The irrigation system is **broken into five stations:**

Station	Plantings / Area
A1	Shrubs / Parking Lot
A2	Trees / Parking Lot
A3	Shrubs / Perimeter
A4	Trees / Courtyard
A5	Shrubs / Front Yards

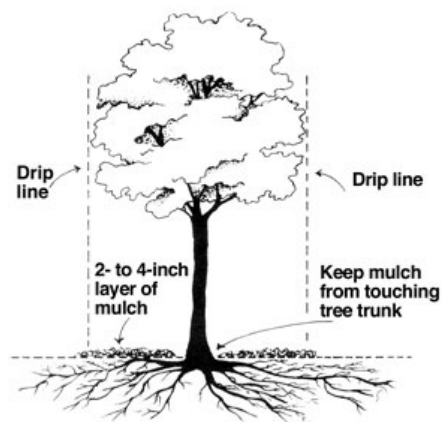


The first year or so of operation, the irrigation system should be monitored closely to ensure consistent and even watering, and to ensure that there is no over-watering.

Thereafter, the irrigation system should be checked monthly or so to make sure it is working properly and the plants and trees are receiving the proper amount of water.

Each station is equipped with a “flush cap” at the end of the system, to allow for the flushing of debris, if needed.

Drip emitters for trees will need to be slowly extended so that emitters are at the dripline of the trees as the trees grows. This should be done annually. Avoid applying water directly at the base of the plant, as this can promote root rot.



Irrigation System Resources

Irrigation Controller [link to manual on manufacturer's website]

Water Use It Wisely. *How to Program Your Irrigation Controller.*

<https://wateruseitwisely.com/100-ways-to-conserve/landscape-care/timing-is-everything/>

DiFrancesco, Donna. *Programming Your Irrigation Controller*. University of Arizona Cooperative Extension. <https://cals.arizona.edu/maricopa/garden/html/pubs/0203/irrigation.html>

Water Use It Wisely. *Landscape Watering Guide*. <https://wateruseitwisely.com/100-ways-to-conserve/landscape-watering-guide/>

Landscape Trees & Shrubs

Watering

Plants use 3 to 5 times as much water during the hot, dry, windy summer as they do during the winter. Adjust your watering schedule with the season and when there are significant changes in the weather.

Summer - Generally you should water mature trees and shrubs no more than once a week. Water arid adapted plants less often, if at all.

Winter - If there has not been any precipitation for four to six weeks, water deciduous and evergreen trees and shrubs to keep the root zone moist.

Frequently, over-watering can be as-big, or bigger problem than under-watering. The signs can sometimes be the same. Desert-adapted plants and trees require less water than less drought-tolerant species.

Signs of under- and over-watering:

Under-watering:

- Soil is dry
- Older leaves turn yellow or brown and may even drop off
- Leaves are wilted and/or curled

Over-watering:

- Soil is constantly damp
- Young leaves become light green or yellow
- Young shoots are wilted
- Leaves are green yet brittle
- Algae and mushrooms are growing

Pruning

Pruning should only be done by individuals who have taken courses on how to maintain the health of the tree and how to make safe cuts. Over-pruning, "lion-tailing," lifting the skirt of the tree too early, or overly-aggressive pruning can weaken or kill the tree, requiring the expensive replacement of the tree.

Pruning should be limited to ensure the health of the tree, to meet reasonable City guidelines, and to remove material that interferes with the use of walks and pathways.

Landscape Resources

Watering Trees and Shrubs: Simple Techniques for Efficient Landscape Watering. (AZ1298)
University of Arizona cooperative Extension.

https://cals.arizona.edu/extension/ornamentalhort/waterquality/watering_trees.pdf

Schuch, Ursula K. Call, Robert E. Daily, Cado. *Drip Irrigation: The Basics.* (AZ1392-2016)
https://extension.arizona.edu/sites/extension.arizona.edu/files/pubs/az1392-2016_0.pdf

Martin, Edward C. Schuch, Ursula K. A Study of Irrigation Requirements of Southwestern Landscape Trees. (AZ1741-2017). <https://extension.arizona.edu/pubs/study-irrigation-requirements-southwestern-landscape-trees>

Davison, Elizabeth DeGomez, Tom. *Pruning Deciduous Shade Trees.* (AZ1139-2015).
<https://extension.arizona.edu/pubs/pruning-deciduous-shade-trees>

Fletcher, Della C. Waterfall, Patricia H. *Care of Desert-Adapted Plants.* (AZ1048).
<https://extension.arizona.edu/pubs/care-desert-adapted-plants>

Schuch, Ursula K. *Pruning Shrubs in the Low and Mid-Elevation Deserts in Arizona.* (AZ1499-2016). <https://extension.arizona.edu/pubs/pruning-shrubs-low-mid-elevation-deserts-arizona>

Young, Kelly Murray Paul, Haley. *Landscape Maintenance Considerations for Homeowners Associations: Save Money, Be Safe, Look Good!* (Powerpoint with notes) (AZ1613b-2014)
<https://extension.arizona.edu/pubs/landscape-maintenance-considerations-homeowners-associations-save-money-be-safe-look-good>

Orchard Trees

Harvesting

The Grounds & Garden Committee shall organize the harvesting and distribution of all fruit from the trees and shrubs of the property.

Fruit should be removed promptly from the trees at the end of the season to prevent pests.

Deciduous Fruit Trees

Watering

Trees are on a drip watering system. Adjust the water amounts as needed. Watering should be deep and infrequent.

Fertilizing

See the University of Arizona Backyard Gardener fertilizer recommendations, starting the second growing season after planting.

Pruning & Shaping

Initial Pruning – Use the Ag. Extension article **Training and Pruning Newly Planted Deciduous Fruit Trees** to plan for the first (and second) year of initial pruning.

Summer Pruning – Summer pruning is the most effective for keeping the trees small and reachable. Make sure that no more than ¼ of the total foliage is removed in any season.

Annual Pruning – Use the guides from Dave Wilson Nursery and the University of Arizona Agricultural Extension to understand how each type of deciduous fruit tree needs to be pruned (for example, peaches only grow on last year's growth, while apple and pear grow on older growth).

Deciduous Fruit Tree Resources

Backyard Orchard Culture, Dave Wilson Nursery - <https://www.davewilson.com/home-gardens/backyard-orchard-culture>

Urban Farm - <https://www.urbanfarm.org/>

University of Arizona Cooperative Extension - <https://extension.arizona.edu/maricopa>

Schalau, Jeff. *Backyard Gardener: Fertilizing Fruit Trees*. Agriculture & Natural Resources Arizona Cooperative Extension, Yavapai County - <https://cals.arizona.edu/yavapai/anr/hort/byg/archive/fertilizingfruittrees.html>

Bradley, Lucy. Maurer, Michael. *Deciduous Fruit & Nuts for the Low Desert*. (az1269) March 2002. <https://extension.arizona.edu/sites/extension.arizona.edu/files/pubs/az1269.pdf>

DeGomez, Tom. *Training and Pruning Newly Planted Deciduous Fruit Trees*. (az1668) <https://extension.arizona.edu/sites/extension.arizona.edu/files/pubs/az1668-2015.pdf>

Mesa Urban Garden & Trees Matter frequently hold pruning classes.

Citrus Trees

Watering

Trees are on a drip watering system. Adjust the water amounts as needed. Watering should be deep and infrequent.

Fertilizing

For **oranges, tangerines, and grapefruit**, apply 1/3 of the annual recommended range of fertilizer at the following times:

- **January-February** (reminder holiday: Valentine's Day)
- **March-April** (reminder holiday: April Fool's Day)
- **May-June** (reminder holiday: Memorial Day)

For **lemons and limes**, apply 1/3 of the annual recommended fertilizer at the following times:

- **January-February** (reminder holiday: Valentine's Day)
- **March-April** (reminder holiday: April Fool's Day)
- **August-September** (reminder holiday: Labor Day)

Review Extension Document **AZ1671-2015** - *Citrus Fertilization Chart for Arizona* for guidance on using Citrus Fertilizer.

Pruning & Shaping

Pruning should only be done under the supervision of someone who has received appropriate training.

Citrus Trees do not need much pruning to keep them healthy and productive. In general, they are closer to bushes than to actual trees. Their trunks are susceptible to sunburn and naturally grow low branches and leaves to protect themselves for the entire height of the tree. A full canopy of leaves should be maintained in order to protect the bark of the trunk and scaffold branches from direct sun and potential sunburn.

Pruning or trimming citrus trees should be approached cautiously, and limited to the removal of water sprouts, suckers from below the graft, dead branches, and removal of diseased or crisscrossing branches. To the greatest extent possible, the skirt of the tree should remain untrimmed to protect it from sunburn.

Proper citrus care for the young tree should include sprout removal, and cautious elimination of weak limbs within the tree canopy. For mature trees, sprouts should be removed regularly, deadwood should be pruned out, and diseased or crisscrossing limbs should be removed. If there is no interior fruit, the center of the canopy may need to be opened up to improve light penetration.

- *Prune citrus to eliminate sprouts, remove weak, crossing or dead branches, or to allow more light in the canopy.*
- *February through April are the best months to prune.*
- *Remove all sprouts originating from the trunk. Most sprouts are best removed by hand when they are small.*

From: University of Arizona Cooperative Extension Publication **AZ1455** - *Pruning Citrus*

Citrus Resources

Wright, Glenn. Kelly, Jack. *Pruning Citrus* – AZ1455 (University of Arizona Agricultural Extension)
<https://extension.arizona.edu/sites/extension.arizona.edu/files/pubs/az1455.pdf>

Del Hotal, Tom. **Citrus Pruning** – California Rare Fruit Growers

<https://crfg.org/wp-content/uploads/CITRUS-PRUNING-Presentation.pdf>

Maricopa County Master Gardener Citrus Clinic - East Valley (held annually)

<https://extension.arizona.edu/events/>

Laundry-to-Landscape system

The Tempe Micro Estates Laundry-to-Landscape system was designed in coordination with Watershed Management Group and Ryan Wood, or Ryan Wood Design. It is installed pursuant to Arizona's Reclaimed Water Type 1 General Permit.

You can safely irrigate edible crops with graywater, as long as the graywater does not touch the edible part of the plant. Ideal edibles to water include fruit trees, fruiting vines, berries, and large perennials.

- gray water can only be used for irrigation
- only drip or flood irrigation with graywater is allowed
- gray water flow must be less than 400 gallons per day
- ensure the graywater lines are properly labeled

Signage for the Laundry-Room

Label the 3-way valve "To Sewer" and "To Landscape"

Sign:

Turn 3-way valve to Sewer, if you are:

- Using a non-graywater safe detergent or aren't sure if your detergent is safe for the plants
- Using bleach, antibacterial products, or other harsh cleaners
- Using powdered detergents
- Using borax
- Washing anything oily or kinda gross (diapers, etc...)
- Noticing pooling water around the graywater emitters

Note: Watch out for brands that claim to be biodegradable or greywater-safe but contain boron and salts.

Turn 3-way valve to Landscape, if:

- You are using biodegradable detergent, such as:
 - ECOS liquid detergent
 - Bio Pac Oasis Biocompatible Laundry Detergent
 - Vaska Liquid Laundry Detergent
 - Puretergent Laundry Liquid
 - FIT Organic Laundry Detergent
 - Trader Joe's Liquid Laundry Detergent
 - soap nuts or laundry balls
- None of the "Turn to Sewer" items apply

On the washing machines:

- Make sure the 3-Way Diverter is set to Sewer or Landscape, depending on your load

- Use HE detergent only. Use the minimum amount of detergent needed to clean your clothes (more is not better in high-efficiency washers)
- Do not let damp clothes sit in washer
- Leave washer door ajar when not in use
- Wipe washer gasket after each use
- Clean the drain pump filter at least monthly
- If there is an issue with the washer, **contact [Name] at [number]**

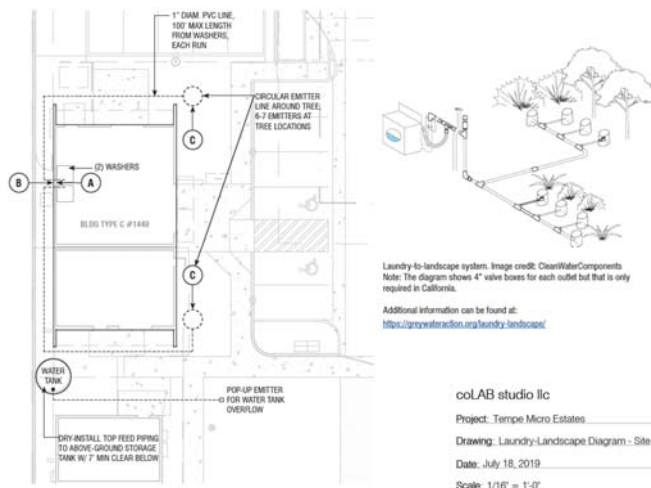
On the dryers:

- Please make sure that the lint trap is cleaned after each use
- Monthly, check dryer vent exhaust and clear of lint
- If there is an issue with the dryer, **contact [Name] at [number]**

Design Assumptions

- The washing machines use an average of 14 gallons per load.
- The calculation assumes 3 loads of laundry per household per week.
- This system was designed to accommodate **780 gallons per week.**

Commented [DC1]: Update once installed.



How do I turn the graywater system off?

To turn your graywater system off, turn the handle of the 3-way valve to direct the water towards the sewer system. The first few times you do this, check to make sure the system is turning off and that your 3-way valve is labeled correctly.

These are common times you'll need to turn off your system:

- When washing anything with harmful chemicals, such as bleach, non-compostable detergent, or oily rags
- When washing dirty diapers or other clothing similarly soiled with waste

- Anytime you notice that the water isn't draining well and you see pooling or runoff
- If you think the plants are receiving too much water
- Anytime you use products that are harmful to plants (like bleach or harsh cleaners)

If you feel the laundry-to-landscape system should be turned off for a longer-period of time, please place a note on the 3-way diverter and **contact [Name] at [number]**.

What products can I use in my graywater system?

It is important to use plant-friendly products when reusing your graywater. All products should be biodegradable and non-toxic. In addition, they should be free of salt (sodium) and boron (borax), two common ingredients that are non-toxic to people but are harmful to plants and/or the soil.

Chlorine bleach is harmful to plants and should be diverted, along with any other harmful products, to the sewer or septic system (by switching the 3-way valve). Hydrogen peroxide bleaches are less harmful and can be used instead of chlorine.

Example detergent brands that are typically graywater-safe (from <https://www.thisoldhouse.com/>):

ECOS, Bio Pac, Oasis, Vaska, Puretergent, FIT Organic, as well as non-detergent options like soap nuts or laundry balls.

Powdered detergents are never okay; use only liquid detergents. Watch out for brands ... that claim to be greywater-safe but contain boron and salts.

Maintenance

Simple greywater systems, like the laundry-to-landscape and branched drain system, need maintenance about once a year, in addition to routine visual inspection of the plumbing parts and connections near the washing machine (for L2L systems).

- **3-way valve and autovent.** Do a quick visual check for leaks when you're doing laundry (and make sure label is in place). Replace the autovent if it leaks. No water should be seen at these locations.
- **Greywater outlets.** Check for even distribution. Unclog lint or hair built up in the outlet. (L2L system) Open ball valves and unclog with a small stick (there may be a glob of gunk in the valve). If needed, flush the system with a garden hose.
- **Mulch basin below greywater outlet.** Check for signs of pooling. As mulch decomposes, the basin will drain more slowly. Remove and compost decomposed mulch and replace with new mulch.

Annually, check the location of the greywater outlets and make sure they are not too close the trunks of trees, as the trees grow move them out toward the tree's dripline. Make sure emitters are not too buried.

Table B-1. Laundry-to-Landscape System: Operation and Maintenance Checklist

<i>Component</i>	<i>Inspection Schedule</i>	<i>O&M Activity</i>	<i>Action Needed</i>
<i>3-way valve</i>	<i>Annual</i>	<i>Check for leaks at washer hose and that label is in place</i>	<input type="checkbox"/> <i>Condition good</i> <input type="checkbox"/> <i>Action needed</i> <ul style="list-style-type: none"> • <i>If leaking, tighten hose clamp.</i> • <i>Replace label if needed.</i>
<i>Auto vent</i>	<i>Annual</i>	<i>Check for leaks from auto vent</i>	<input type="checkbox"/> <i>Condition good</i> <input type="checkbox"/> <i>Action needed</i> <ul style="list-style-type: none"> • <i>If leaking, replace the auto vent.</i>
<i>Piping and tubing</i>	<i>If you notice water in an unusual place</i>	<i>Check for leaks</i>	<input type="checkbox"/> <i>Condition good</i> <input type="checkbox"/> <i>Action needed</i> <ul style="list-style-type: none"> • <i>If piping or tubing is damaged, cut out damaged section and reconnect with a 1-inch barbed coupling</i>
	<i>Annual</i>	<i>Check for even distribution from outlets</i>	<input type="checkbox"/> <i>Condition good</i> <input type="checkbox"/> <i>Action needed</i> <ul style="list-style-type: none"> • <i>Unclog hair or lint built up in the outlets. Open ball valves, check for clogs. If needed, flush the system with a hose: temporarily disconnect the tubing from the PVC fitting, attach the garden hose by barb fitting, and connect the hose to the system.</i>
<i>Mulch basins</i>	<i>Annual</i>	<i>Check to see if mulch has decomposed and water is pooling under graywater outlets</i>	<input type="checkbox"/> <i>Condition good</i> <input type="checkbox"/> <i>Action needed</i> <ul style="list-style-type: none"> • <i>Remove decomposed mulch and add new mulch.</i>

Laundry-to-Landscape / Graywater Resources

Arizona Department of Environmental Quality. *Using Gray Water at Home: Arizona Department of Environmental Quality's Guide to Complying with the Type 1 General Permit.*

Link: <https://legacy.azdeq.gov/environ/water/permits/download/graybro.pdf>

Laundry-to-Landscape Greywater System. Greywater Action.

Link: <https://greywateraction.org/laundry-landscape/>

Maintenance videos: <https://greywateraction.org/greywater-system-maintenance-videos/>

Ludwig, Art. *Laundry to Landscape Grey Water System.*

Link: <http://oasisdesign.net/greywater/laundry/>

Lancaster, Brad. *Greywater Harvesting.*

Link: <https://www.harvestingrainwater.com/greywater-harvesting/>

San Francisco Water Power Sewer. *Graywater: Laundry-to-Landscape (L2L) Graywater Program.*

Link: <https://sfwater.org/index.aspx?page=100>

Rain Tank system

Tempe Micro Estates includes a commonly-owned 2,650 gallon rainwater harvesting tank, with first-flush diverter connection kit. It is fed from the roof of the common room and the home at 1450 S. Rita.

Rainwater Tank Calculations:

The water tank is sized to hold up to 2,650 gallons of rain water – either in a single large (2.4" of rain) storm, or cumulatively over a period of time, such as during the monsoon. Calculations are as follows:

The total roof area is approximately 1,770 square feet.

Roof Area (ft²) x Precipitation Amount (in) X 0.623 = Amount Collected (Gallons)

1,770 ft² x 2" x 0.623 = 2,205.42 gallons

The Water Harvesting tank has a three (3) year material or workmanship warranty.

Regularly use water collected in the rain barrel between rain events to make sure there is room to collect stormwater during the next storm. A 1" rain event will fill approximately half the tank. The nearest official rain gauge is at ASU South (ID # 67500) – approximately half a mile west of the property - shows that the area averages around 7.2 inches a year, with about 3 inches of rain during the monsoon months. It is not unusual to get a 2" rain event during the monsoons – or two 1" rains within a few days of each other.

As-Needed Maintenance (quarterly or roughly every three rain events):

- Remove leaves and other debris from the screen at the top of the barrel, the overflow pipe, and the roof gutter.

Strainer basket cleaning:

Remove the 3 screws holding the lid and strainer down on the top of the tank. Inspect the basket for debris, clean as required, and re-install.



Overflow Extension Cleaning:

Pull the press fit screened overflow extension fitting off the overflow. Inspect the screen for debris and clean as required. Re-install by pressing it back on the overflow.



Annual Maintenance

- Inspect tank overflow screens
- Over time, the dust from the roof will start to accumulate in the rain tank itself. While the first flush water diverter will minimize the amount of sediment getting into the tank, some will get in regardless. Rinse sediment from the tank through the bottom drain. It is best to do this when the tank is near empty after there has been little rain.
- Ensure there are no holes that mosquitos could enter; ensure there are no obstructions blocking your tank outlets.
- Inspect air gaps
- Hose or brush off screens to clean as required; test to ensure backflow prevention is working.

Rainwater Harvesting Resources

Sprouse, Terry; McCoy, Amy; Murrieta, Joaquin. *A Guide: Rain Barrel Water Harvesting*. – Sonoran Institute; Water Resources Research Center; The University of Arizona.

Link:

<https://wrrc.arizona.edu/sites/wrrc.arizona.edu/files/Rain%20Barrel%20Water%20Harvesting%20Guide.pdf>

Water-Efficient Technology Opportunity: Rainwater Harvesting Systems. US Office of Energy Efficiency & Renewable Energy

Link: <https://www.energy.gov/eere/femp/water-efficient-technology-opportunity-rainwater-harvesting-systems>

Lancaster, Brad. *Rainwater Harvesting for Drylands and Beyond*, (Book & Website)

Link: <https://www.harvestingrainwater.com/>

Maricopa County Rainfall Data Website

Link: <https://www.maricopa.gov/625/Rainfall-Data>

Blue Mountain Co. *Rain Harvesting Handbook: USA Edition*.

Waterfall, Patricia H. *Harvesting Rainwater for Landscape Use*. (AZ1344).

<https://extension.arizona.edu/sites/extension.arizona.edu/files/pubs/az1344.pdf>

Waters, Summer Paul, Haley. Using Rainwater in Urban Landscapes: Quick Guide for Maricopa County. (AZ1566).

<https://extension.arizona.edu/sites/extension.arizona.edu/files/pubs/az1566.pdf>

Community Garden Rules

Garden Beds

1. Each garden bed is individually assigned to a household by the Grounds & Garden Committee.
2. Households may be assigned more than one bed, but only after all households have had the opportunity to claim at least one.
3. Homeowners / Residents may allow another to manage and tend their bed.
4. Ultimate responsibility for the maintenance and upkeep of the bed shall be the responsibility of the household assigned to that bed.
5. It is the responsibility of each owner to make sure that their bed is properly tended and managed.
6. Garden bed plantings are to be maintained so that mature vegetation does not overlap onto pathways or neighboring garden beds.
7. Weeds and cuttings from your garden bed must be taken to the designated section of the community garden for composting. All weeds and cuttings must be removed on a monthly basis. No dumping of debris or rubbish on any other garden bed or areas within the community garden is permitted.
8. Participants who neglect their garden beds will be notified in writing of their failure to perform the mandatory gardening tasks. Grounds & Garden Committee members should inspect garden beds from time-to-time to ensure there are not any issues.
9. No planting of trees is allowed in garden beds.
10. Tall plants and trellises may not excessively shade your neighbors' garden beds. To maintain safety of the area, no trellis, stakes or other structures may exceed 6 feet in height.
11. Participants should expect to tend to their garden bed at least 1 time every 10 days during the growing season to maintain weeds.

Liability

1. Tempe Micro Estates Homeowners Association, Newtown CDC, and homeowners assume no liability for any injury, damage, theft or loss of property belonging to gardeners or their guests, before, during or after their use of the garden.

Gardening Hours:

1. Participants may garden at their own convenience anytime during sunrise to sunset. No gardening shall be conducted during nighttime hours (after sunset). Participants may garden any day of the week, seven days of the week, unless otherwise noticed by Grounds & Garden Committee due to maintenance or future construction activities.

Pesticides/Chemicals/Traps:

1. Tempe Micro Estates practices sustainable and organic gardening principles.

2. All chemical pesticides such as herbicides and insecticides are prohibited in the garden. The Grounds & Garden Committee shall develop and make available a list of supplemental organic methods to manage pests and help your garden thrive.
3. Gophers or any other animals may not be poisoned. Humane traps can be used. Pets and wild birds may eat the poison – or poisoned animal.
4. State law protects all wildlife in Arizona. Some species are protected by Federal law such as the Migratory Bird Treaty Act, Bald and Golden Eagle Protection Act, and Endangered Species Act. These state and federal laws prohibit the intentional and incidental killing of wildlife without proper authorization. Secondary poisoning of protected wildlife could be considered unlawful by law enforcement. These laws pose fines of up to \$200,000 and prison time.

Water and Irrigation:

1. Tempe Micro Estates furnishes municipal water for the garden beds. Your water costs are included in your HOA fee.
2. No participants are permitted to relocate, alter or tap into the irrigation system without written permission from the Grounds & Garden Committee.
3. When hoses are used, participants shall take care to not allow hoses to damage plants within garden beds. Hoses shall be coiled up and stored after each use or returned to designated areas.
4. Participants are encouraged to use all methods of water conservation. Gardeners must take steps to ensure that water use is not excessive and does not interfere with adjacent plots or common areas. Please report any leaks or problems with water use to a Grounds & Garden Committee representative immediately.
5. Participants must not water other garden beds not assigned to them unless otherwise approved by garden bed renter in need of assistance.

Trash:

1. Trash must be taken to the dumpster immediately. Trash may not be allowed to accumulate in the garden area.

Smoking:

1. Smoking is not allowed near the community gardens. Tobacco can carry a plant disease that can impact tomatoes, peppers and other crops.

Pathways

Paths should be maintained in a clear, orderly manner. Plants and trees should be trimmed to prevent them from interfering with people walking to and from their homes. Each homeowner should sweep the pathway that is immediately around their home.

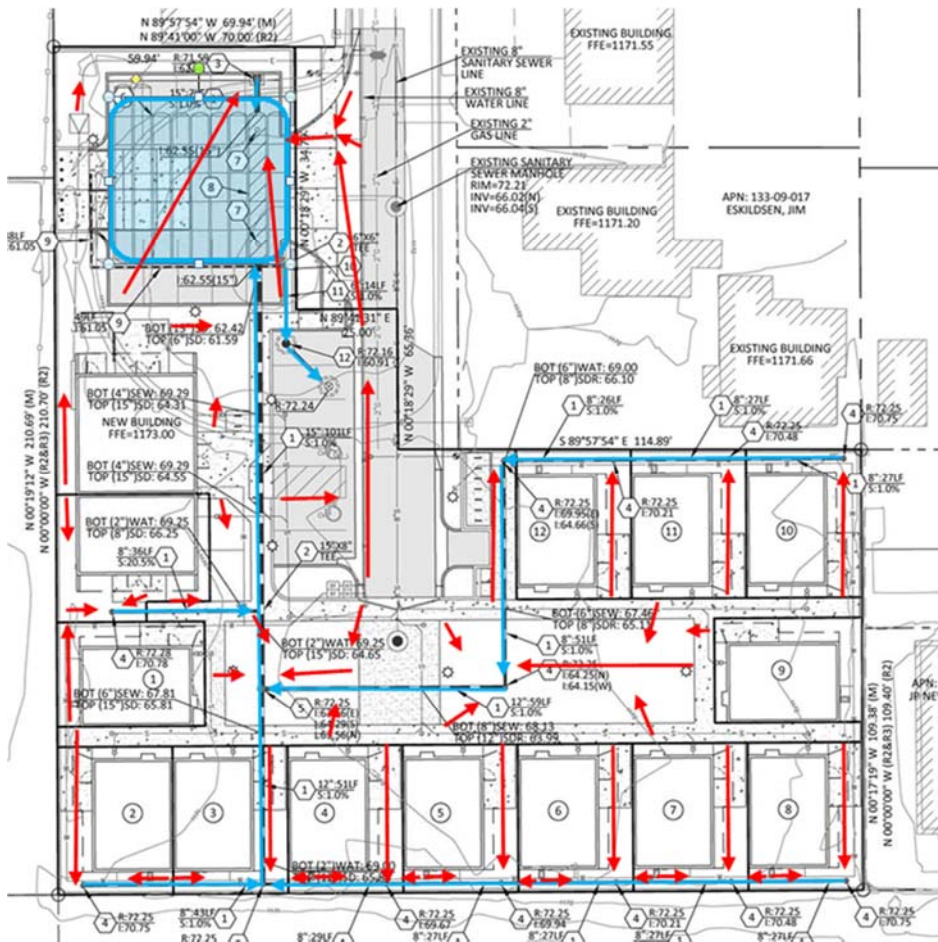
Rita Lane & Parking Area

The parking areas are the responsibility of the homeowners and the homeowner's association at the Tempe Micro Estates to keep clean and in good repair.

Trees that were part of the original landscape are part of the development documents and are required by the City of Tempe to be maintained and replaced by the homeowners/HOA.

Storm Water Retention System

Storm Water is collected across the property into a large storm water detention area under the parking lot. Any overflow then goes to a two-chamber drywell according to the City of Tempe requirements.



Storm Water drains along the sides of homes to the rear to be collected into a storm water line, or into the central courtyard into the storm drain.

Storm Water behind the homes on the north and south sides of the property. This is in a 8" solid pipe behind the homes and converts to a 12" solid pipe in the courtyard where it collects the other lines. It then collects into a 15" solid line until it drains to the underground storm water chamber (StormTech system) that has capacity to hold up to 33,000 gallons of water (4,420 cubic feet) above 18" of gravel that allows collected stormwater to percolate into the ground. Any overflow from this system will drain into a two-chamber drywell system. In the event of a larger-than 100 year storm event, storm water will drain down Rita Lane as it has historically done.

As required by the development process, there is a recorded document stating that the HOA will maintain and repair the storm water system in perpetuity.

Maintenance

The dry-well and StormTech system will need to be inspected annually by a qualified company. If needed, the drywells will need to be cleaned. Some companies may provide inspection service at no charge.

It is important to budget the maintenance of this system in the annual HOA budget, as this is a requirement from the City of Tempe and could create a liability to the homeowners if not properly maintained and inspected.

Storm Water Maintenance Resources

StormTech Technical Documents and Details -

<https://www.stormtech.com/resources/downloads>

Conclusion

The homeowners at Tempe Micro Estates are lucky to have such beautiful grounds and landscaping. They may not have realized when they purchased a home from Newtown that more would be asked of them regarding the maintenance of the property outside of their parcel. If most of the residents put some effort into the property, it won't be such a daunting task. The Grounds & Garden Committee consists of residents and neighbors who are out there weeding and watering and pruning and trying to encourage others to help. It's a task too large for just a few people to take on.

Some of this work is to be done by volunteer labor and some will be hired out based on the annual budget. The Tempe Micro Estates HOA Board will help organize work parties and encourage residents to take care of their respective areas. The Grounds & Garden Committee will be in charge of hiring out the work designated.