

Serene Hills Landscape Requirements

Special water conservation measures have been established by development contract in the Serene Hills area. The Serene Hills Water Conservation Measures are designed to provide homeowners with a well-designed, water efficient landscape. The major provisions of this ordinance are:

- No more than 50 percent of the front yard may be planted in turf;
- The topsoil mix shall be not less than 25 percent organic matter; and there shall be six inches (6”) of topsoil in turn and planted areas. A soil sample must be submitted to the District for approval before application; and
- There must be three inches (3”) of mulch around trees, perennials and shrubs.

Additional Inspection

Builders in the Serene Hills area will have one additional inspection to ensure topsoil depth and proper turf limitation in the front yard is met. This inspection should be performed after soil application and prior to turf installation. Fee for this inspection is \$50.00.

Exhibit "C"

Water Conservation Measures

General

This Water Conservation Measures document is intended to provide homeowners with a well designed, water efficient landscape. The four major components that increase landscape sustainability are: adequate quantity of high quality soil, implementation of efficient irrigation, appropriate plant choice, and proper plant placement. All of the following specifications must be met by the builder and landscape contractor.

Soil and Mulch

- A. In areas that are to be planted, there shall be no less than 6 inches of high quality topsoil.
 - a. Topsoil shall be native soil from the site, or fertile, friable, blended sand/loam/compost topsoil. Topsoil shall not be of any admixture of subsoil or slag and shall be free of stones over 1 ½ inches in diameter, lumps, refuse, plants or their roots, sticks, noxious weeds, salts, soil sterilants or other material that is detrimental to plant growth. If topsoil is delivered, it shall be obtained from a well-drained site that is free of flooding. Topsoil shall not be delivered or used while in a muddy condition.
 - b. Non-native topsoil shall contain not less than 25 percent organic matter (compost) that is blended through the soil.
 - c. Topsoil that is added to the site shall be incorporated into existing surface in a two to three-inch scarified transition layer to enable water to drain adequately through the different types of soil. Do not scarify within drip lines of existing trees to be retained.
- B. All areas planted with trees, perennials and shrubs shall be finished with a 3 inch deep layer of high quality organic mulch.
 - a. Wood chip mulch shall be clean wood chips free of soil or man-made debris shredded into coarse pieces ranging in size from 1 inch to 3 inches.
 - b. Rock mulch shall be used in planting beds only as a temporary mulch until full plant coverage is achieved, or as permanent mulch in areas with native shrubs and perennials.

Irrigation

Automated irrigation systems shall not be required in any new landscape. However, if irrigation is installed it shall meet the guidelines outlined below.

- C. All irrigation systems shall be installed in accordance with state law, Title 2 Texas Water Code, Chapter 34 and Title 30 Texas Administrative Code, Chapter 344 rules, as regulated and enforced by the Texas Commission on Environmental Quality (TCEQ). Irrigation contractors who install the irrigation system must be a TCEQ Licensed Irrigator.

- D. Areas planted with turf shall be on separate zones from areas planted with shrubs and perennials.
- E. All residential automatic irrigation systems are required to have a rain sensor connected to an irrigation controller in order to stop the irrigation cycle during and after a rainfall event. Rain sensors are to be installed in a location where rainfall is unobstructed, such as a rooftop or fence line. It is recommended that rain sensors be adjusted at the one fourth inch setting.
- F. Sprinkler irrigation with the exception of recycled water irrigation is prohibited in medial strips, parking islands and all irregular turfgrass or landscape area less than 10 feet from curb to curb or 10 feet in width. Areas less than 10 feet curb-to-curb or 10 feet in width can be irrigated with low volume irrigation. Low-narrow turf or landscape strips less than 10 feet in width to avoid runoff and overspray onto the hardscape.
- G. All new residential irrigation systems are required to have pressure regulation where static operating pressure exceeds the sprinkler manufacturer's recommended operating range. These may include in-line pressure regulators, flow control valves, or sprinkler devices equipped with pressure regulation stems or nozzles. Extensive misting due to high pressure wastes water.
- H. Irrigation systems are to have a controller that features multiple start times, rain sensor capability; a water budget feature, and a non-volatile memory in case of power outage.
- I. Homeowners shall be provided with a complete irrigation plan (or as-built drawing) that describes the location of each irrigation zone, control valves, and sprinkler devices.
- J. Sprinkler systems shall be designed as to minimize overspray onto the hardscape.
- K. Sprinkler zones located at the bottom of sloped terrain along curbs, sidewalks, driveways, and other hardscapes should be equipped with devices that prevent low-head drainage after the sprinkler zone is turned off. In-line check valves already installed will help prevent low-head drainage.

Plant Choice

- L. No more than 50% of the planting area in the front yard shall be planted in turf.
- M. It is recommended that plants used either come from Attachment A, be native to the Texas Hill Country region, or be drought tolerant.

Plant Placement and Spacing

Proper plant placement and spacing is critical to plant health and long-term landscape quality. Plant placement too close to buildings can cause problems with plant disease, as well as insect and structural problems. Proper plant spacing ensures good air flow and room for plants to mature without crowding.

- N. Shade trees shall be planted no closer than
 - a. 15 feet from any building
 - b. 25 feet from any aboveground utility line

- c. 10 feet from any paved surface
- d. 5 feet from underground utilities
- O. Ornamental trees shall be planted no closer than
 - a. 10 feet from any building
 - b. 10 feet from any paved surface
 - c. 5 feet from underground utilities
- P. Large Evergreen shrubs; center of plant shall be no closer than
 - a. 5 feet from any building
 - b. 5 feet from any paved surface
 - c. 5 feet from other plants
- Q. Large Deciduous Shrubs; center of plant shall be no closer than
 - a. 5 feet from any building
 - b. 5 feet from any paved surface
 - c. 5 feet from other plants
- R. Small Evergreen Shrubs; center of plant shall be no closer than
 - a. 3 feet from any building
 - b. 3 feet from any paved surface
 - c. 3 feet from other plants
- S. Small Deciduous Shrubs; center of plant shall be no closer than
 - a. 3 feet from any building
 - b. 3 feet from any paved surface
 - c. 3 feet from other plants
- T. Evergreen Perennials; center of plant shall be no closer than
 - a. 2 feet from any building
 - b. 2 feet from any paved surface
 - c. 2 feet from other plants
- U. Herbaceous Perennials; center of plant shall be no closer than
 - a. 2 feet from any building
 - b. 2 feet from any paved surface
 - c. 2 feet from other plants
- V. Groundcovers shall be spaced no closer than 1 foot on center.
- W. Shade tolerant plants shall be placed in shaded areas, and plants requiring full sun shall be placed in areas receiving at least 6 hours of sun per day.

Attachment A

Acceptable grass choices:

- A. Turfgrass
 - a. Turf appropriate for sunny areas (more than 6 hours of direct sunlight per day)
 - i. Buffalo
 - ii. Bermuda*
 - iii. Zoysia japonica*
 - b. Turf appropriate for shaded areas (less than 6 hours of direct sunlight per day)
 - i. Zoysia japonica* (tolerates light shade)
 - ii. St. Augustine* (appropriate only in shaded areas)

B. Trees

Trees should come from a western seed source such as San Antonio, Austin, Dallas and further west. Trees grown in Houston, Louisiana, and other coastal areas are not drought tolerant. Examples of good tree and shrub choices:

- a. Shade Trees
 - i. Arizona Cypress* (*Cupressus arizonica*)
 - ii. Bur Oak (*Quercus macrocarpa*)
 - iii. Cedar Elm (*Ulmus crassifolia*)
 - iv. Chinquapin Oak (*Quercus muhlenbergii*)
 - v. Escarpment Live Oak (*Quercus fusiformis*)
 - vi. Lacey Oak (*Quercus glaucoides*, *Quercus laceyi*)
 - vii. Monterey Oak* (*Quercus polymorpha*)
 - viii. Texas Ash (*Fraxinus texensis*) Note: *Fraxinus velutina* is NOT acceptable
 - ix. Texas Red Oak (*Quercus texana*)
- b. Ornamental Trees
 - i. American Smoke Tree (*Cotinus obovatus*)
 - ii. Anacacho Orchid Tree (*Bauhinia congesta*)
 - iii. Carolina Buckthorn (*Rhamnus caroliniana*)
 - iv. Chitalpa* (*Chitalpa tashkentensis*)
 - v. Crape Myrtle* (*Lagerstroemia x. hybrida*)
 - vi. Desert Willow (*Chilopsis linearis*)
 - vii. Escarpment Black Cherry (*Prunus serotina var. exima*)

*Non-native.

- viii. Eve's Necklace (*Sophora affinis*)
- ix. Evergreen Sumac (*Rhus sempervirens*)
- x. Goldenball Leadtree (*Leucaena retusa*)
- xi. Kidneywood (*Eysenhardtia texana*)
- xii. Mexican Buckeye (*Ungnadia speciosa*)
- xiii. Mexican Plum (*Prunus mexicana*)
- xiv. Possumhaw Holly (*Ilex decidua*)
- xv. Red Buckeye (*Aesculus pavia*)
- xvi. Rough-Leaf Dogwood (*Cornus drummondii*)
- xvii. Rusty Blackhaw Viburnum (*Viburnum rufidulum*)
- xviii. Texas Mountain Laurel (*Sophora secundiflora*)
- xix. Texas Persimmon (*Diospyros texana*)
- xx. Texas Pistache (*Pistacia texana*)
- xxi. Yaupon Holly (*Ilex vomitoria*)

C. Shrubs

- a. Large Evergreen Shrubs
 - i. Abelia* (*Abelia grandiflora*)
 - ii. Agarita (*Berberis trifoliata*)
 - iii. Agave (*Agave sp.*)
 - iv. Burford Holly* (*Ilex cornuta "Burfordii"*)
 - v. Bush Germander (*Teucrium fruticans*)
 - vi. Cenizo/Texas Sage* (*Leucophyllum frutescens*)
 - vii. Cotoneaster* (*Cotoneaster spp.*)
 - viii. Primrose Jasmine* (*Jasminum mesnyi*)
- b. Large Deciduous Shrubs
 - i. American Beautyberry (*Callicarpa americana*)
 - ii. Barbados Cherry (*Malpighia glabra*)
 - iii. Butterfly Bush* (*Buddleja davidii*)
 - iv. Flowering Senna* (*Cassia corymbosa*)
 - v. Fragrant Sumac (*Rhus aromatica*)
- c. Small Evergreen Shrubs
 - i. Basket Grass (*Nolina texana*)

*Non-native.

- ii. Bicolor/Butterfly Iris* (*Dietes spp.*)
 - iii. Cast Iron Plant* (*Aspidistra elatior*)
 - iv. Dwarf Chinese Holly* (*Ilex cornuta 'Rotunda'*)
 - v. Dwarf Palmetto (*Sabal minor*)
 - vi. Dwarf Yaupon Holly* (*Ilex vomitoria 'Nana'*)
 - vii. Prickly Pear (*Opuntia spp.*)
 - viii. Red Yucca* *Hesperaloe parviflora*)
 - ix. Soft-leaf Yucca* (*Yucca recurvifolia*)
 - x. Texas Sotol (*Dasyilirion texanum*)
 - xi. Twist-leaf Yucca (*Yucca rupicola*)
 - xii. Upright Rosemayr* (*Rosmarinus officinalis*)
- d. Small Deciduous Shrubs
- i. Bamboo Muhly (*Muhlenbergia dumosa*)
 - ii. Big Muhly (*Muhlenbergia lindheimeri*)
 - iii. Black Dalea (*Dalea frutescens*)
 - iv. Deer Muhly (*Muhlenbergia rigens*)
 - v. Flame Acanthus (*Anisacanthus quadrifidus var.wrightii*)
 - vi. Gulf Muhly (*Muhlenbergia capillaris*)
 - vii. Inland Sea Oats (*Chasmanthium latifolium*)
 - viii. Mexican Feather Grass (*Stipa tenuissima*)
 - ix. Mountain Sage (*Salvia regla*)
 - x. Sideoats Grama (*Bouteloua curtipendula*)
 - xi. Wooly Butterfly Bush* (*Buddleja marrubiifolia*)
 - xii. Yellow Bells (*Texcoma stans*)

D. Perennials

- a. Evergreen Perennials
 - i. Autumn Sage/Cherry Sage (*Salvia greggii*)
 - ii. Black-Foot Daisy (*Melampodium leucanthum*)
 - iii. Calylophus (*Calylophus berlandieri*)
 - iv. Columbine (*Aquilegia chrysantha, Aquilegia canadensis*)
 - v. Damianita (*Chrysactinia mexicana*)
 - vi. Jerusalem Sage* (*Pholomis fruticosa*)

*Non-native.

- vii. Rock Penstemon (*Penstemon baccharifolius*)
 - viii. Santolina* (*Santolina chamaecyparissus*)
- b. Herbaceous Perennials
- i. Big Red Sage (*Salvia penstemonoides*)
 - ii. Hill Country Penstemon (*Penstemon triflorus*)
 - iii. Lindheimer Senna (*Senna lindheimeriana*)
 - iv. Mexican Bush Sage (*Salvia leucantha*)
 - v. Missouri Primrose (*Oenothera missouriensis*)
 - vi. Prairie Verbena (*Verbena bipinnatifida*)
 - vii. Purple Coneflower (*Echinacea purpurea*)
 - viii. Rock Rose (*Pavonia lasiopetala*)
 - ix. Winecup (*Callirhoe involucrata*)
- E. Groundcovers
- a. Evergreen Groundcover
- i. Artemisia* (*Artemisia 'Powis Castle'*)
 - ii. Asian Jasmine* (*Trachelospermum asiaticum*)
 - iii. Aztec Grass* (*Ophiopogon intermedius*)
 - iv. Creeping Germander* (*Teucrium cossonii*)
 - v. Liriope* (*Liriope muscari*)
 - vi. Meadow Sedge (*Carex perdentata*)
 - vii. Monkey Grass* (*Ophiopogon japonicus*)
 - viii. Oregano* (*Origanum vulgare*)
 - ix. Trailing Rosemary* (*Rosmarinus officinalis var.prostratus*)
- b. Deciduous Groundcover
- i. Frogfruit (*Phyla incisa*)
 - ii. Greg Dalea (*Dalea greggii*)
 - iii. Mountain Pea* (*Orbexilum sp.nova*)
 - iv. Pigeonberry (*Rivina humilis*)

*Non-native.