



CITY OF  
**HAYWARD**  
HEART OF THE BAY

**HAYWARD ENVIRONMENTALLY FRIENDLY LANDSCAPE**

**GUIDELINES AND CHECKLIST**

**FOR THE LANDSCAPE PROFESSIONAL**

September, 2008

✓ ***Applicability of these Guidelines and Checklist***

These guidelines and checklist are intended for use by a landscape professional and are to be used for private developments comprising:

- more than three new single-family units;
- new multi-family residential projects (defined as a project comprising more than three units per building);
- multi-family residential remodels and additions encompassing more than 5,000 square feet of landscape area renovation;
- new commercial projects (defined as projects entailing new non-residential development); and
- commercial tenant improvements, remodels and additions that exceed 5,000 square feet of landscape area renovation.

Although not required, the use of these guidelines and checklist for smaller multi-family and commercial project remodels and additions is encouraged to promote water conservation and sustainable landscape practices.

For projects encompassing one to three new single-family units or single-family remodels or additions, refer to the City's Environmentally Friendly Landscape Guidelines and Checklist for Single-Family Development.

✓ ***Purpose of Guidelines and Checklist?***

This set of Guidelines and Checklist is provided to assist landscape architects and designers in preparing landscape and irrigation plans that will comply with the City's landscaping standards, guidelines, and submittal requirements. The Guidelines and Checklist incorporate the nine required practices for Bay-Friendly Landscape by StopWaste.Org\*, and incorporate the updates to the Model Water Efficient Landscape Ordinance from the California Department of Water

Department of Development Services  
Planning Division

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**ATTACHMENT B**

Resources. The Guidelines and Checklist are derived from the City's Zoning Ordinance, Water Efficient Landscape and Tree Preservation ordinances, Off-Street Parking Regulations, Security and Traffic Code, Design Review Guidelines, Landscape Beautification Plan, Hillside Design and Urban/Wildland Interface Guidelines, Bay-Friendly Landscape Guidelines\*, and the updated Model Water Efficient Landscape Ordinance by the Department of Water Resources. Certain items may not pertain to some projects, and should be noted as such by the professional on the checklist. Please contact the City Landscape Architect at (510) 583-4732, or go to [www.hayward-ca.gov/municipal](http://www.hayward-ca.gov/municipal) for additional information.

\*Bay-Friendly Landscape Guidelines are established by StopWaste.Org, a program funded by the Alameda County Waste Management Authority and the Alameda County Source Reduction and Recycling Board. For more information, go to [www.StopWaste.org](http://www.StopWaste.org)

### ✓ ***Who can prepare landscape plans?***

Required landscape plans shall be prepared by a licensed landscape architect with expertise to prepare plans that comply with water efficient landscape design principles in accordance with State laws and the above mentioned ordinances and guidelines. Landscape plans consist of layout, landscape grading, planting, irrigation and landscape construction detail plans. Different project types will require varying level of completion. All required plans shall be wet stamped to include signature and license number of the landscape architect preparing the plans.

### ✓ ***When are landscape plans and checklist submitted?***

#### **For Planning Approval - Conceptual Landscape and Irrigation Plans are required:**

If planning approval is required for a project (i.e., site plan review, use permit, planned development or single-family hillside projects), *conceptual* landscape and irrigation plans are required when development plans are submitted for approval by the Planning Division. Minimum standards for conceptual landscape and irrigation plans are as follows:

- **Landscape statement is required** addressing site planning issues listed under "I. Required Landscape Statement Submittal" under Landscape Plan Guidelines and Checklist.
- The conceptual landscape plans shall be prepared on an accurately surveyed topographic plan that matches the architectural, site or civil plan.
- The landscape plan shall indicate the botanical name, common name, size, location, massing of different plant types, and water use requirements; provides all existing trees shown on the survey plan; and trees designated to be preserved or removed.
- A comprehensive arborist report prepared by a certified arborist shall be required when any protected tree is proposed to be removed for development. See the Tree Preservation Ordinance (HMC Chapter 10, Article 15) for guidelines in preparing an arborist report.
- The conceptual irrigation plan shall include designation of landscape zones per water use (Hydrozone Map), proposed water meter location, static water pressure (psi) at point of connection, performance standards, and backflow prevention device locations.

**For Landscape Improvement Plan & Building Permit Approval - Checklist Submittal Required:**

Following planning approval, submit *detailed* landscape and irrigation plans prepared by a licensed landscape architect, and completed the landscape statement, design checklist and attachments in this document to the Building Division for building permit application review, unless otherwise specified in the planning approval process. Issuance of a building permit is contingent on approval of landscape plans by the City Landscape Architect or Project Planner.

✓ ***What is required at completion of landscaping?***

A landscape inspection and approval by the City Landscape Architect or Project Planner is required upon completion of landscape installation prior to issuance of a Certificate of Occupancy. An irrigation schedule and *Document of Final Acceptance* (Attachment C) must be submitted to the City Landscape Architect or Project Planner prior to requesting an inspection. The *Document of Final Acceptance* shall be prepared by the project landscape architect, or by a licensed landscape contractor when permitted by the City Landscape Architect or Project Planner.

### PROJECT INFORMATION

Include the following information on the title sheet of the planning application and building permit submittal package. The submittal package without the following project information will be rejected.

Project Type:

- Single Family Hillside Residential: new (\_\_\_ of units) / remodel / addition
- Multi-Family Residential: new (\_\_\_ of units) / remodel / addition / hillside / flat
- Commercial (non-residential): new / remodel / addition

Project Size:

Total Project Size: \_\_\_\_\_ Square Feet

Total Irrigated Landscaping: \_\_\_\_\_ Square Feet

Project Contact Information including phone numbers and E-mail addresses:

Project Applicant: \_\_\_\_\_

Property Owner: \_\_\_\_\_

Project Name: \_\_\_\_\_ Building Permit No.: \_\_\_\_\_

Project Address: \_\_\_\_\_ Planning Permit No.: \_\_\_\_\_

Water Supply Type: potable / recycled / well / others If others, specified: \_\_\_\_\_

Water Budget Calculation (in gallons or cubic feet/year):

Maximum Applied Water Allowance (MAWA): \_\_\_\_\_ Estimated Total Water Use: \_\_\_\_\_

***I. Required Landscape Statement Submittal: Address the followings and provide the statement and illustrate on the landscape plan at the time of Precise Plan, Site Plan, and Use Permit Review.***

1. Consider regional and micro-climatic, topography, solar orientation and soil conditions.
2. Explain how water conservation and long term green waste reduction goal will be achieved.
3. Explain how integrated and/or organic pest control practice would be proposed during soil preparation.
4. Explain how proposed landscape design complements architectural style, form, building colors and materials, and project and building entrances.
5. Explain how the proposed landscape improvements make positive contribution physically and aesthetically to surrounding neighborhoods.

6. Explain how safety, function and aesthetical enhancements for pedestrian network and experience are addressed.
7. Explain the type of landscape buffers to adjacent land use with combination of trees, shrubs, vines and groundcovers are provided.
8. Maximize the use of permeable paving types as recommended by Bay-Friendly Landscape Guidelines and Alameda County Clean Water Program. Reference websites: [www.StopWaste.org](http://www.StopWaste.org), and [http://www.cleanwaterprogram.org/businesses\\_developers.htm](http://www.cleanwaterprogram.org/businesses_developers.htm).
9. Maximize usage of recycled material in all aspects of construction material.
10. Screen parking, loading, service areas, utilities, solid building surfaces, retaining walls, masonry walls, and fences with trees, shrubs and vines.
11. Allow space for plants to mature, and not to cause damage to pavement or underground utilities.
12. Select appropriate type of plants to preserve sight distance at site entries/exits and internal circulation routes without shearing.
13. Erosion control: Plant deep-rooted plants on slopes; and specify jute mesh netting or equal on slopes 3:1 or steeper, or on slopes showing signs of erosion.
14. Select diverse plant species to display various texture, form, foliage color, flowers, seasonal color, and attract wild life.
15. For projects located along the arterial streets, street frontage landscaping is consistent with guidelines in **Landscape Beautification Plan** (LBP).

*Comment: Arterials covered by the LBP consist of Jackson Street, "A" Street, Foothill Boulevard, Hesperian Boulevard, Mission Boulevard, Winton Avenue, Harder Road, Tennyson Road, Industrial Boulevard/Parkway, "B" Street, Second Street, Fairview Avenue, and Hayward Boulevard. Copies of the LBP are available at the Planning Division and on the City's website at [www.hayward-ca.gov](http://www.hayward-ca.gov).*

16. Projects located in the Hayward hills and in the urban/wildland interface areas must conform with Hayward's **Hillside Design and Urban/Wildland Interface Guidelines**

*Comment: The Hayward hills are generally defined as the areas east of Mission Boulevard and south of "D" Street. Properties subject to the interface provisions are designated by the Hayward Fire Department and typically include sites that abut open space or riparian corridors. Copies of the Guidelines are available at the Planning Division and on the City's website at [www.hayward-ca.gov](http://www.hayward-ca.gov).*

17. State water conservation, run-off control and erosion control measures through irrigation design.
18. State type of irrigation system to be used.
19. State if stockpiling topsoil would be practiced.
20. State the intent to recycle minimum 50% of landscape construction and green waste.

## **LANDSCAPE PLAN GUIDELINES AND CHECKLIST**

Submit the completed checklist to the City of Hayward with Landscape Improvement Plan and/or Building Permit Submittal.

**II. Landscape Improvement Package Submittal Requirements:** For Improvement Plans and Building Permit Approval (Construction Documents). Mylar of Approved Landscape and Irrigation Plan submittal is required when Civil Improvement Plans are required.

**A. DETAILED LANDSCAPE IMPROVEMENT PLAN:** Please check all applicable items.

- 1. Prepare on accurately surveyed and scaled plan.
- 2. Show north arrow, bar and written scale, property lines, and street names.
- 3. Provide existing and proposed buildings, structures, retaining walls, fences, above and underground utilities, meters, paved areas, and other site improvements.
- 4. Provide contour lines and/or spot elevations where landscaped areas exceed 10 percent slope as necessary for the proposed finished grade.
- 5. Provide legend summarizing botanical and common name, quantity, size, spacing of all plant materials, and water use requirements.
- 6. Show location of all proposed plant materials.
- 7. Show all existing trees and plant materials to be removed or retained.
- 8. Provide a hydrozone map illustrating plants with similar water needs are grouped together (See example for a hydrozone map, Attachment D).
- 9. Provide Tree Mitigation Summary Chart: All removed protected trees must be mitigated per Tree Preservation Ordinance (HMC Chapter 10, Article 15). The summary chart must provide the method of meeting the mitigation goal. Tree mitigation method includes, but not limited, to transplanting existing specimen trees, up-sizing required trees, and replacement above and beyond required trees
- 10. Specify California native, Mediterranean or other climate adapted plants that require occasional, little or no summer watering for 75% of all non-turf plants.
- 11. Limit the use of plant species require shearing to the area where no other design and/or planting alternatives are available.
- 12. Do not specify species listed by Cal-IPC (California Invasive Plant Council) as invasive in the San Francisco Bay Area, and Plant Right, Keep Invasive Plants In Check by California Horticultural Invasives Prevention (Cal-HIP). Web links: <http://www.cal-ipc.org/ip/inventory/index.php>, and [www.PLANTRIGHT.org](http://www.PLANTRIGHT.org).
- 13. Specify plants that are well-suited to microclimate, sun exposure, soil conditions, minimal water use requirements once established, and that are relatively free from pests and diseases, and relatively easy to maintain.

*Recommended Water Conserving Plants Reference Publications: EBMUD's **Water-Conserving Plants and Landscapes for the Bay Area, and the latest publication from EBMUD Plants and Landscapes for Summer-Dry Climate of the San Francisco Bay Region**; Bob Perry's **Trees and Shrubs for Dry California Landscapes**; the University of California cooperative Extension's **Water***

**Use Classification of Landscape Species (WUCOLS),**  
<http://www.emwd.org/conservation/pdf/wucolsb.pdf>; and Alameda county Master Gardeners' **Outstanding Plants for Alameda County, Attractive Plants that Thrives on Little Care,**  
<http://acmg.ucdavis.edu/>.

- ❑ 14. Minimum planting area shall be five feet measuring from back of the curb to back of the curb, or from any hard surfaces to all directions.
- ❑ 15. Limit the use of turf to 25 percent of the total irrigated landscaping area for all projects including single family residential homes unless used for sport or recreational function.
- ❑ 16. Do not specify turf on slopes exceeding 10 percent, or areas narrower than 8 feet.
- ❑ 17. Where turf is proposed, a drought tolerant variety with similar water requirement, plant factor 0.7, should be specified.
- ❑ 18. Jute mesh netting or a comparable erosion control material shall be specified on slopes 3:1 or steeper or on slopes showing signs of erosion.
- ❑ 19. Provide details and specifications for tree staking, soil preparation, and other planting work. City Standard Street Tree Staking Detail SD-122 is required for street tree planting and is strongly recommended for other trees on the project.
- ❑ 20. Trees shall be planted a minimum of five feet from sewer, water, gas, cable, and electrical lateral services lines as well as from any paving and structures. Trees shall also be located a minimum of seven feet from utility boxes, fifteen feet from a light pole, and a minimum of thirty feet from the face of a traffic signal, or as otherwise specified by the City. Provide root barriers when a tree is located within seven feet of a structure or edge of paving.
- ❑ 21. Root barriers for trees shall be installed along the edge of structure or paving or curb.
- ❑ 22. Minimum three-inches of recycled chipped wood mulch in Dark Brown color, or greenwaste in all planting areas except in turf areas.
- ❑ 23. Prepare planting holes to be two times of a root ball. Backfill mix shall be one part organic compost and two parts native soil.
- ❑ 24. Replace nitrified soil conditioner and commercial fertilizer with minimum 9 cubic yards of organic compost per 1,000 square feet (1:4 ratios) of all planting areas and rototill thoroughly into minimum top 9 inches of soil.
- ❑ **25. Soil Analysis Report** (if required by the City Landscape Architect) – Report shall be prepared by a qualified soil and plant laboratory after mass grading is completed. Submit the soil analysis report, and documentation of verifying implementation of the recommendations in accordance with the report at the time of submitting Document of Final Acceptance prior to requesting a landscape inspection to the City.
- ❑ **26. Setbacks** – Required front, side street, side and rear yard setback areas shall be fully landscaped and irrigated except for permitted paved areas and other approved encroachments. When landscape setback areas are used for Stormwater Treatment such as bio-swale, the setback areas shall be increased to meet required screen tree planting.

*Comment: Confirm with Planning Division regarding required setbacks for development. The expansive decorative rocks, decomposed granite, or wood mulch as groundcovers for the sole purpose of landscaping in place of live plants is not permitted.*

- ❑ **27. Curbs** – landscape areas adjoining driveways and/or parking areas shall be separated by 6" high Class "B" Portland Cement concrete curb unless flush curb or slotted curb are proposed for

Stormwater Treatment and approved by the City staff. Cobblestones shall be placed behind each slotted curb to prevent undesirable ponding water and soil erosion. Refer to City of Hayward Standard Details for Standard Sidewalk, Curb and Gutter, Island Curb and Curb Ramp Sections SD-108.

- **28. Street Trees – Minimum one 24"-box tree shall be provided for every 20 to 40 lineal feet of street frontage for all commercial and multi-family residential projects depending on tree species and as directed by City Landscape Architect. Minimum of one 15 gallon tree shall be planted within the required front and side yard setback for every 50 feet or fraction thereof frontage for all single family residential projects regardless of construction type: new, additions or remodels. See Tree Preservation Ordinance for detailed information on mitigating protected trees.**

*Comment: Refer to City's List of Recommended Street Trees. City Landscape Architect may also specify a tree for certain streets: \_\_\_\_\_.*

- **29. Parking Lot Landscaping – All parking lot shade trees shall be medium to large size tree types.** A parking lot shade tree shall be provided at every six spaces, or provide 50% shades to total paved areas including driving aisles and/or driveways in 15 years. All parking rows shall be capped with landscape islands. The end capped landscape islands shall have minimum two trees. Shade trees can be planted in finger islands, or continuous landscape medians. Minimum tree size shall be 15-gallon. All landscaping shall be completed with trees shrub and groundcover planting. Alternative shade structure such as carports or solar panel roofs or trellis can be used for providing minimum 50% shading of entire parking lot including parking aisles and/or driveways. Continuous planting islands are encouraged to allow for multiple tree plantings and increased rootable soil volume. Combining a row of compact car parking spaces with a row of standard car parking spaces is encouraged to create central landscape medians. The landscape medians can incorporate vehicle overhangs into landscape areas to create deeper landscape areas. Vehicular overhang shall be provided over and beyond required minimum planting area.
- **30. Tree Wells in Parking Lot –** Tree well design could be allowed when adequate rootable soil volume (min. 85 cubic feet) is incorporated into the tree well planting.
- **31. Soil Volume for Tree Wells –** Tree wells in parking lots shall be excavated to a depth of 3 feet or greater before being backfilled. The use of structural soil mixes is encouraged to promote root growth and to reduce the potential for root invasion into parking lot paving especially where irregular tree wells are proposed.
- **32. Parking Lot Screening –** parking areas screened from neighboring residents, businesses, or street with low shrubs, and/or walls; maximum 30 – 36 inches high per City's Security Ordinance; shrubs will create a continuous 30 – 36 inches high screen at mature growth. The height is measured from the top of the curb.
- **33. Parking Lot Lighting –** Light standards no greater than 16 feet in height are strongly encouraged to minimize conflicts with required shade tree locations or growth.
- **34. Masonry Walls and Fences –** buffered with shrubs or vines where facing a street or driveway.
- **35. Parcels Abutting BART Tracks (or within 500 feet and in direct view of BART tracks) –** 10' wide landscape strip provided along property line, with minimum one 15-gallon tree every 20 lineal feet.
- **36. Commercial or Industrial Use Abutting Residential –** Provide minimum one 15-gallon tree for every 20 lineal feet or the equal quantity of required trees within required side or rear yards.
- **37. Drive-in Establishments (e.g., service stations, car washes, fast-food restaurants, etc.) –** contact Planning Division for specific landscaping standards.

- 38. Security** – landscaping will not obstruct building or parking lot light fixtures, address signs, building entrances, and windows.
- 39. Sight Distance** – for corner lots, shrubs kept to maximum 3 feet high (measured from gutter line) and tree branches kept to minimum 8 feet above the grade at the center of the intersection. (Not applicable to intersections controlled by signs or signals.)
- 40. Document of Final Acceptance** – See Attachment C. Submit Document of Final Acceptance when landscaping is completed, prior to requesting a landscape inspection and prior to issuance of a Certificate of Occupancy.

**Other Landscaping Requirements** (e.g. conditions of approval for planning permit):

- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_

**B. DETAILED IRRIGATION IMPROVEMENT PLAN:** *Please check all applicable items.*

- 1. A dedicated water meter is required for projects with 5,000 Square Feet or more of irrigated landscaped area.
- 2. Re-circulated water system shall be used for decorative water features.
- 3. Recycled water for irrigation is encouraged.
- 4. Submit Landscape Water Use Statement** – See Attachment A.
- 5. Estimated Total Water Use (ETWU) does not exceed Maximum Applied Water Allowance (MAWA). *See Attachment A.*
- 6. Submit Irrigation Schedule** – See Attachment B. Submit Schedule when landscaping is completed, prior to issuance of Certificate of Occupancy. A copy of the schedule shall be provided to the property owner.
- 7. Layout of the irrigation system. (i.e. water meter, backflow prevention device, pressure regulator, rain sensor, automatic controller, main and lateral lines, valves, sprinklers, bubblers, drip emitters, quick couplers, and filters where applicable)
- 8. Legend summarizing the manufacturer name, model number, and size of all components of the irrigation system.
- 9. Static water pressure (psi) at the point of connection. (Water pressure at City main available from Utilities Administration, 583-4727.)
- 10. Flow rate (gallons per minute) and design operating pressure (psi) for each valve; and precipitation rate (inches per hour) for valves with sprinklers.
- 11. Installation details for irrigation components.
- 12. Adopt Smart Water Application Technology and irrigation equipment including, but not limited to, controllers, rain sensors, emission devices and valves.

- ❑ 13. Automatic controller shall be equipped with multiple programs and repeat cycle capabilities with a flexible calendar program.
- ❑ 14. Irrigation on slopes 4:1 or greater shall be specified with low volume drip irrigation or matched precipitation rotators or equal with a precipitation rate not to exceed 0.65 inches per hour. The irrigation controller shall be programmed to "cycle and soaking" in a manner that the precipitation rated applied matches the infiltration rate.
- ❑ 15. Each valve shall irrigate an area with similar micro-climate, slope, and soil conditions and plants with hydrozone requirements.
- ❑ 16. Turf and non-turf areas shall be irrigated on separate valves. Different turf areas shall be on separate valves if sun exposure differs from one area to the other.
- ❑ 17. Drip emitters and sprinklers shall be on separate valves.
- ❑ 18. Drip emitters or two flood or pop-up type bubbler shall be provided for each tree; bubblers shall not exceed 0.25 gallons per minute per device. Bubblers for trees shall be on separate valve, unless otherwise permitted by the City Landscape Architect. Bubblers shall not be placed inside of aeration tubes unless approved otherwise.
- ❑ 19. Two aeration tubes per each tree are required in addition to irrigation unless preassembled bubbler in aeration tube is approved: the tube shall be 30 inches long and 4 inches in diameter PVC perforated drainpipe with slotted cover, and drain rocks shall be filled in and around the pipe. See Standard Street Tree Planting Detail SD-122.
- ❑ 20. Sprinklers shall have matched precipitation rate on each valve.
- ❑ 21. Drip or subsurface irrigation is to be specified for planting including turf area within 24" of hard surface.
- ❑ 22. Specify check valves built into the heads.
- ❑ 23. Use pressure compensating valves or sprinklers are specified where operating water pressure exceeds manufacturer's recommendations.
- ❑ 24. Sprinklers spaced to ensure head to head coverage for maximum coverage, and achieve distribution uniformity.
- ❑ 25. Spray heads shall not overspray onto paving surfaces.
- ❑ 26. Rain shut-off device specified.
- ❑ 27. Pressure regulator provided where static water pressure exceeds maximum recommended operating pressure.
- ❑ 28. All irrigation lines shall not be exposed, including drip systems, except for approved installations to be otherwise.
- ❑ 29. Lateral (non-pressure) irrigation lines are to be 12" minimum below grade. Main (pressure) irrigation lines are to be 18" below grade, minimum, and 24" under drivable surfaces. All lines under pavement must be sleeved.
- ❑ 30. Backflow prevention device shall be mounted on a concrete pad and provided with a strong box type enclosure painted in black or dark green with a lock, and a polar blanket type for freeze protection.

----- end of the checklist -----

## **Tree Preservation**

- See Tree Preservation Ordinance (**HMC Chapter 10, Article 15**).
- All trees and large shrubs on the site should be shown on a salvage/demolition plan. Trees to be preserved, trimmed, or removed must be indicated on the plan. Trees in good health that are proposed to be removed shall be replaced with a tree of equal size and value.
- When tree mitigation goals can't be achieved through allowed tree mitigation method as described in Tree Preservation Ordinance, cash mitigation is recommended as an option to a designated City tree fund.
- A minimum replacement tree size shall be 36"-box tree except for single family residential homes and exceptions as stated in the ordinance. A minimum replacement tree size shall be 24"-box tree for a single family home.

*Comment: Indicate location, trunk diameter, species, and approximate dripline of trees. Retain significant trees and native vegetation that are in good condition, and avoid grading and paving within the dripline of the trees. The City Landscape Architect or Planner may require an arborist report.*

- Tree Protection measures shall be noted on the grading, site, and landscaping plans, if applicable. See below for recommended minimum tree protection measures.
- A separate tree removal permit must be obtained in person prior to removing any tree designated as protected per Tree Preservation Ordinance; the permit must be signed by a Planner.

*Comment: Replacement trees are typically required for trees authorized for removal, which will be specified by City Landscape Architect based on condition, size, species, and location of tree(s) to be removed. Show required replacement trees on planting plan.*

### **TREE PROTECTION NOTES**

1. Tree branches interfering with construction equipment shall be properly pruned **prior** to commencement of construction. Pruning shall be as approved by the City and shall comply with City approved practices.
2. A protective fence shall be placed at the dripline of the existing trees during the entire construction period. No work shall occur within the dripline except under the direct supervision of a certified arborist approved by the City.
3. Soil compaction and grading shall be avoided within the dripline of the trees. Maintain a positive drainage away from tree trunk. Irrigation shall be avoided under native oak trees.
4. No storage of materials or equipment shall occur within 25 feet of the dripline of trees.
5. All roots 1" or larger that must be severed shall be cut manually to produce a clean cut and treated with a tree sealant. Boring, rather than trenching shall be required where it is unavoidable for piping to cross through the dripline of a tree.
6. Contractor shall be responsible for providing comparable replacement trees for any existing trees that are found by the City to be irreparably damaged due to construction activity.

## ***STREET TREE PLANTING SPECIFICATIONS***

1. Refer to City of Hayward Standard Details for Street Tree Planting SD-122.
2. Tree shall be healthy, disease and insect-free, well-rooted, and properly trained with a straight trunk that can stand upright without support. Tree shall exhibit a central leader, or a main branch that can be trained as a central leader. Branches shall be well-developed and shall be evenly and radially distributed around the trunk. Root ball shall not exhibit kinked or circling roots. After planting, no roots shall be left exposed.
3. Tree shall comply with federal and state laws requiring inspection for plant diseases and pest infestation. Clearance from the county agricultural commissioner, as required by law, shall be obtained before planting trees delivered from outside the county.
4. Prior to planting tree, determine the location of existing or future underground utilities. Locate the tree a minimum of 5 feet from lateral service lines and driveways. Locate the tree a minimum of 15 feet from light pole, and a minimum of 30 feet from the face of a traffic signal, or as otherwise specified by the City.
5. Tree pit shall be tested for proper drainage prior to planting tree. Fill pit with water. If water remains after a 24-hour period, auger three (3) 4-inch diameter by 3-foot deep holes at the bottom of the tree pit. Backfill with drain rock.
6. Set tree in an upright and plumb position. As much as possible, tree shall be positioned such that dominant branches are parallel to the roadway and are oriented away from potential conflicts.
7. If required by the City, two pressure-compensating bubblers, or drip emitters, shall be provided to each tree.
8. Depending on the planter strip width, or the tree well size and the tree species being planted, a 24 inch deep root-barrier may be required by the City to be placed against back of the curb and/or sidewalk. Length of strip barrier will be specified by the City.
9. Stakes are to be removed when the tree trunk diameter meets or exceeds the diameter of the stake.

## ATTACHMENT A

### Water Efficient Landscape Worksheet

#### **General Instructions:**

This statement shall be submitted with the planting and irrigation plans and is the basis for achieving a water efficient landscape design. Part One should be completed before preparing conceptual planting plan. Part Two should be completed after preparing a preliminary planting plan. The Maximum Applied Water Allowance (MAWA) calculated in Part One shall not exceed the Estimated Total Water Use (ETWU) calculated in Part Two.

For design purposes, the MAWA establishes an "annual water budget" for the landscaped area within a project. It is based on the area's evapotranspiration, the ET factor of 0.7, which adjusts for plant factors and irrigation efficiency and the size of the irrigated landscaped area. Current reference evapotranspiration (ET<sub>o</sub>) data from the California Irrigation Management Information System (CIMIS) shall be used to calculate MAWA. Reference Evapotranspiration for Union City shall be used for ET<sub>o</sub> value for Hayward.

$$MAWA = (ET_o)(0.62)(0.7 \times LA + 0.3 \times SLA)$$

*MAWA = Maximum Applied Water Allowance in gallons per year*

*(ET<sub>o</sub>) = Reference Evapotranspiration (inches per year): ET<sub>o</sub> for Hayward is 44.2*

*(0.62) = Conversion factor to gallons per square foot*

*0.7 = ET Adjustment Factor*

*LA = Landscaped area including Special Landscape Area in square feet*

*0.3 = the additional ET Adjustment Factor for Special Landscape Area (1.0 - 0.7 = 0.3)*

*SLA = Portion of the landscape area identified as Special Landscape Area in square feet*

The ETWU is determined from the planting and irrigation plans for a project and provides an estimate of the water annually needed to keep the landscaping healthy and attractive.

A sample Water Efficient Landscape Worksheet for a hypothetical project is attached.

Preparing landscaping plans that do not exceed the MAWA or "Annual Water Budget" requires an emphasis on water-conserving and summer-dry-climate adopted plants, and limited amount of turf or other non-drought tolerant plants.

**Instructions:**

**Part ONE**

**Box A- Enter** the total square footage of irrigated landscaped area within the project.

**Box B-** Calculate the Maximum Applied Water Allowance (MAWA) for a project by following the equation,  $MAWA = (ET_o)(0.62)(0.7 \times LA + 0.3 \times SLA)$ .

**Part TWO**

*First*, designate "landscape zones" on the preliminary planting plan. Each landscape zone should consist of plants with similar water needs, area with similar microclimate (e.g., slope exposure, wind, etc.) and soil conditions, and areas that will be similarly irrigated. A landscape zone can consist of an area served by one or several valves.

*Next*, complete the table in Part TWO as follows:

|                                   |  |
|-----------------------------------|--|
| <b>Landscape Zone</b>             | Enter symbol corresponding to the designation on the planting plan.  |
| <b>Area (LZ)</b>                  | Enter square footage of the landscape zone.  |
| <b>27.4</b>                       | ET <sub>o</sub> for Hayward area of 44.2 x Conversion factor to gallons per square feet (44.2 inches per year x 0.62 = 27.4).  |
| <b>Plant Factor (PF)</b>          | Enter the PF from Table A below that most closely describes the type of plants in the landscape zone.  |
| <b>Irrigation Efficiency (IE)</b> | Enter the IE from Table B below that describes the predominate type of irrigation in the landscape zone.   |
| <b>ETWU</b>                       | Calculate the Estimated Total Water Use (gallons per year) for each landscape zone using the following formula:<br><br>$ETWU = \frac{LZ \times PF \times 27.4}{IE}$  |
| <b>Totals</b>                     | a) Total the square footage of all landscape zones, which should equal the total irrigated landscaped area shown in Part One, Box A.<br><br>b) Total the ETWU for all landscape zones, which shall not exceed the MAWA shown in Part One, Box B. |

| TABLE A - Plant Factors (PF)  |           | TABLE B - Irrigation Efficiency (IE)                     |           |
|-------------------------------|-----------|--|-----------|
| <i>Plant Type</i>             | <i>PF</i> | <i>Irrigation Type</i>                                   | <i>IE</i> |
| Fescue Turf                   | 0.7       | Bubblers   | 0.85      |
| Non- Drought Tolerant Plants  | 0.7       | Drip Emitters  | 0.85      |
|                               |           | Stream Sprinklers<br>(in planter strips 8 feet or wider) | 0.75      |
| Water-Conserving Plants       | 0.7       | Spray Sprinklers<br>(in planter strips 8 feet or wider)  | 0.625     |
| Extra Drought Tolerant Plants | 0.2       | Subsurface   | 0.85      |

EXAMPLE



**Water Efficient Landscape Worksheet**

**Project Name:** Fashion Elite Commercial Building

**Project Applicant:** John Dow

**Project Address:** 21215 Main Street, Hayward, CA 94541

Prepared by:

Creative Landscape Design

RLA: #1956

**Name**

**License or Cert. No. (if applicable)**

195 Garden Lane, Hayward, CA 94541 (510) 786-5678 jdow@creativelandscapedesign.com

**Address / Telephone Number / E-Mail**

January 14, 2009

**Document Preparation Date**

**PART ONE Maximum Applied Water Allowance (MAWA)**

Total Irrigated Landscaped Area  
(square feet)

**Box A**

8,873

Maximum Applied Water Allowance  
(Gallons per Year)

**Box B**

$$MAWA = (ET_o)(0.62)(0.7 \times LA + 0.3 \times SLA) = 44.2 \times 0.62(0.7 \times 8873 + 0.3 \times 1225) = 180,279.95$$

180,280

**PART TWO Estimated Total Water Use**

$$*ETWU = \frac{LZ \times PF \times 27.4}{IE}$$

| Landscape Zone | Area (LZ)<br>(square feet) | Plant Factor<br>(PF) | Irrigation Efficiency<br>(IE) | ETWU<br>(Gallons/Year) |
|----------------|----------------------------|----------------------|-------------------------------|------------------------|
| A              | 3,113                      | 0.2                  | 0.85                          | 20,070                 |
| B              | 1,943                      | 0.5                  | 0.85                          | 31,317                 |
| C              | 2,592                      | 0.5                  | 0.75                          | 47,347                 |
| D              | 1,112                      | 0.7                  | 0.625                         | 34,125                 |
| E              | 113                        | 0.7                  | 0.625                         | 3,468                  |
| <b>TOTAL</b>   | 8,873                      |                      |                               | 136,327                |

**Water Efficient Landscape Worksheet**

**Project Name:**

**Project Applicant:**

**Project Address:**

Prepared by:

**Name**

**License or Cert. No. (if applicable)**

**Address / Telephone Number / E-Mail**

**Document Preparation Date**

**PART ONE Maximum Applied Water Allowance (MAWA)**

Total Irrigated Landscaped Area  
(square feet)

Box A

Maximum Applied Water Allowance  
(Gallons per Year)

$MAWA = (44.2)(0.62)(0.7 \times LA + 0.3 \times SLA)$

Box B

**PART TWO Estimated Landscape Water Use**

$*ETWU = \frac{LZ \times PF \times 27.4}{IE}$

| Landscape Zone | Area (LZ)<br>(square feet) | Plant Factor<br>(PF) | Irrigation<br>Efficiency (IE) | ELWU<br>(Gallons/Year) |
|----------------|----------------------------|----------------------|-------------------------------|------------------------|
|                |                            |                      |                               |                        |
|                |                            |                      |                               |                        |
|                |                            |                      |                               |                        |
|                |                            |                      |                               |                        |
|                |                            |                      |                               |                        |
|                |                            |                      |                               |                        |
| <b>TOTAL</b>   |                            |                      |                               |                        |

## ATTACHMENT B IRRIGATION SCHEDULE

### **General Instructions:**

A monthly irrigation schedule shall be prepared to cover the initial 90-day plant establishment period and the following one-year period. The irrigation schedule shall be prepared by a landscape architect or designer, an irrigation designer, or a licensed landscape contractor. Attached is a suggested form for the irrigation schedule. The preparer may use this form or follow another appropriate format.

The irrigation schedule shall rely on the Estimated Total Water Use (ETWU) that was calculated for the project during the preparation of the landscaping plans. The schedule should also rely on monthly reference evapotranspiration (ET) data for the Hayward area, which is provided below. Once established, Tall Fescue turf can be maintained in an attractive manner at approximately 70 percent of the ET rate under normal weather conditions. Water-conserving plants typically need 50 percent or less of the ET under normal weather conditions. The amount of water applied for valve should also be adjusted for irrigation efficiency, local rainfall, specific site conditions, (e.g., exposure, slope, etc.) depths of root zone, and soil conditions, (e.g., water holding capacity, and infiltration rate). Ultimately, the amount and frequency of irrigation will need to be monitored regularly to adjust for plant growth, climatic changes, and site conditions.

For valves with overhead spray or stream sprinklers, set valves to operate between 9 p.m. and 8 a.m. to reduce water loss from wind and evaporation. Early morning irrigation is recommended for turf and ground cover. On slopes and soils with slow infiltration rates, program valves for multiple repeat cycles to reduce run-off.

| <b>Estimated Monthly ET for Hayward Area*</b> |            |            |            |            |            |            |            |            |            |            |            |                |
|---|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|----------------|
| (inches per year)                             |            |            |            |            |            |            |            |            |            |            |            |                |
| <b>Jan</b>                                    | <b>Feb</b> | <b>Mar</b> | <b>Apr</b> | <b>May</b> | <b>Jun</b> | <b>Jul</b> | <b>Aug</b> | <b>Sep</b> | <b>Oct</b> | <b>Nov</b> | <b>Dec</b> | <b>Ann ET.</b> |
| 1.4   | 1.8        | 3.1        | 4.2        | 5.4        | 5.9        | 6.4        | 5.7        | 4.4        | 3.1        | 1.5        | 1.2        | 44.2           |

- Based on reference evapotranspiration (ET<sub>o</sub>) data for Union City from the California Irrigation Management Information System (CIMIS).

**SPECIFIC INSTRUCTIONS:**

- A. **Valve or – Station Number** Shall correspond to irrigation plan.
- B. **Plant Type-** *Indicate either:*  
T - Trees Only  
WC - Water-conserving trees, shrubs, and/or groundcover  
ND - Non-drought tolerant trees, shrubs, and/or groundcover  
GC - Groundcover only  
L - Turf
- C. **Irrigation Type-** *Indicate either:*  
SP - Spray Sprinklers  
ST - Stream Sprinkler  
MP - Matched Precipitation Sprinkler  
B - Bubblers  
D - Drip Emitters
- D. **Flow Rate-** Indicate total gallons per minute or hour flowing through Valve during normal operation (available on irrigation plan).
- E. **Precipitation-Rate** For valves with spray or stream sprinklers **only**, indicate the average precipitation rate in inches per hours (available on irrigation plan, from irrigation manufacturer, or through field test.)
- F. **Month-** Begin irrigation schedule with the month that landscaping work is completed.
- G. **Run Time-** Indicate total minutes per day valve will be operating.
- H. **Number of-Day/Week** Indicate number of days per week valve will be scheduled to operate.





# CITY OF HAYWARD

## ATTACHMENT C DOCUMENT OF FINAL ACCEPTANCE

Project Name: \_\_\_\_\_

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

Building Permit No. \_\_\_\_\_ Planning Permit No.: \_\_\_\_\_

I/We hereby certify the following:

1. The landscape work for the above project has been completed in full compliance to the City approved planting and irrigation plans and specifications;

- |  |   |
|--|---|
| <input type="checkbox"/> Soil Amendment/Organic Compost                                    | <input type="checkbox"/> Staking of Trees: 2 sets of rubber ties & horizontal bracing |
| <input type="checkbox"/> Verification of implementing soil analysis report recommendations |   |
| <input type="checkbox"/> 3" deep Bark Mulch: recycled                                      | <input type="checkbox"/> Irrigation Head Review                                       |
| <input type="checkbox"/> Organic Fertilizer  | <input type="checkbox"/> Irrigation Coverage  |
| <input type="checkbox"/> Quality of Plant Material   | <input type="checkbox"/> Water Pattern  |
| <input type="checkbox"/> Spacing of Plant Material   | <input type="checkbox"/> Required Revision or Substitutions (explain in comments)     |

\_\_\_\_\_ Date of Final Acceptance for Conformance to Prepared Plans.

2. The automatic controller has been set according to the approved irrigation schedule for the plant establishment period;
3. The irrigation system has been adjusted to maximize irrigation and minimize overspray and runoff; and
4. A copy of the irrigation schedule had been given to the property owner, and is submitted with Document of Final Acceptance to the City of Hayward.

COMMENTS: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

This documentation was prepared by: (check whichever applies)

Landscape Architect (for projects having plans prepared by a Licensed Landscape Architect).

Licensed Landscape Contractor when permitted by the City of Hayward

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

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

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

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

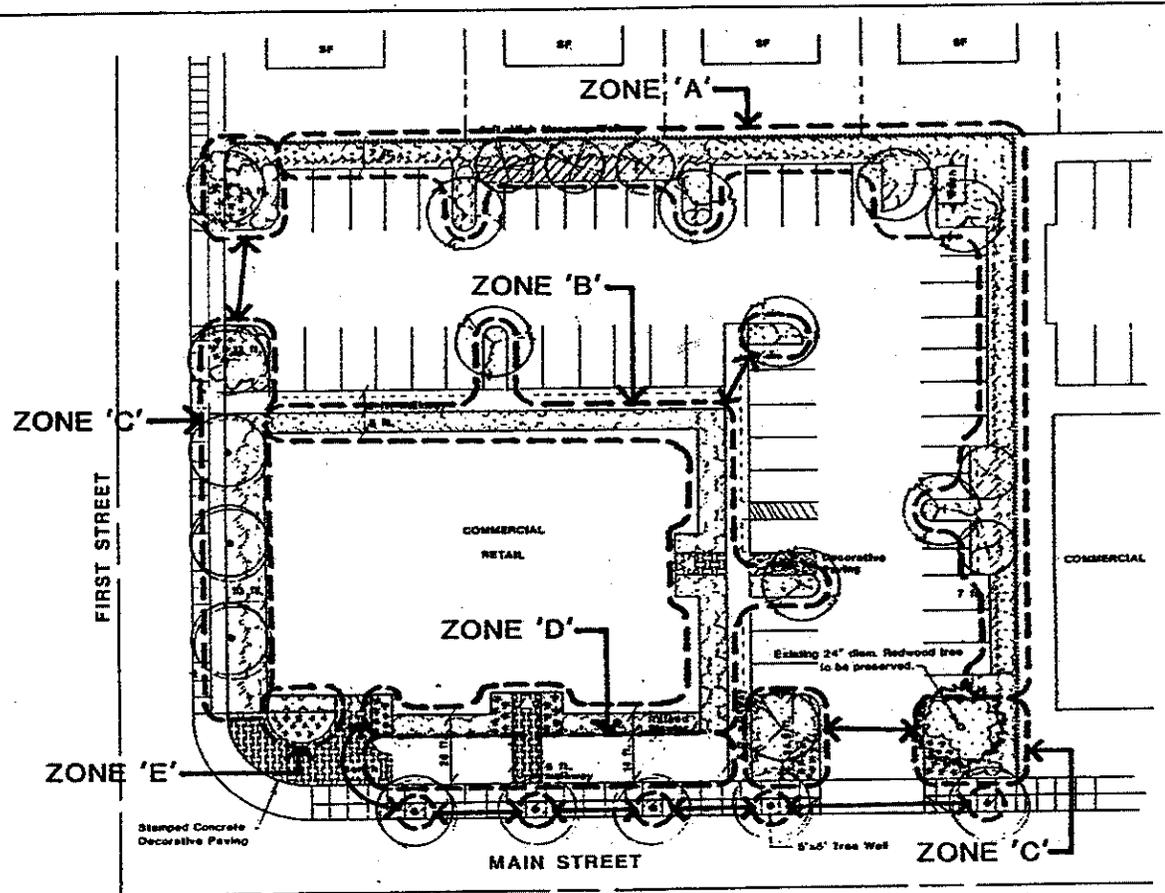
\_\_\_\_\_

\_\_\_\_\_

License No.

**PLANT PALETTE**

- STREET TREES (24" Box):**
  - *Platanus acerifolia* "Tarwood"/ Sycamore (Main Street)
  - *Pyrus calleryana* "Aristocrat"/ Aristocrat Pear (First Street)
- PARKING LOT TREES (15 gallon):**
  - *Fraxinus* "Morana"/Morana Ash
  - *Lagerstroemia* s. "Tuscarora"/ Cape Myrtle
- MEDIUM SHRUBS (5 gallon):**
  - *Abelia grandiflora*/Glossy Abelia
  - *Escallonia exoniensis* "Fradés"/ Escallonia
  - *Photinia fraseri*/Fraser Photinia
  - *Viburnum suspensum*/ Sandankiva Viburnum
  - *Xylocma congestum*/Shiny Xylocma
- LOW FOUNDATION SHRUBS (5 gallon):**
  - *Cistus hybridus*/White Rockrose
  - *Platanopora lobbia* "Wheeler's Dwarf"/Dwarf Tobira
  - *Rhaphtolepis indica* "Clara"/ India Hawthorn
- FLOWERING ACCENT SHRUBS (1 gallon):**
  - *Agapanthus africanus* "Queen Anne"/Lily-of-the-Nile
  - *Hemerocallis hybrid*/Daylily
  - *Salvia leucantha*/Mexican Sage
- GROUND COVER:**
  - *Casaria Nicotiana* Yellow/Gazania (box, 12" O.C.)
  - *Ceanothus glaucus* "Anchor Bay"/ Point Reyes Ceanothus
- TURF:** (Drought-tolerant Fescue blend)



EXAMPLE: Landscape Water Use Statement

**Landscape Zones:**

- "A" - Extra-drought tolerant plants with drip emitters
- "B" - Water-conserving plants with bubblers
- "C" - Water-conserving plants with stream sprinklers
- "D" - Fescue turf with spray sprinklers
- "E" - Non-drought tolerant plants with spray sprinklers

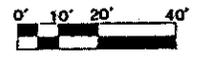
**OWNER:**  
 Fashion Elite  
 29937 Farmingdale Lane  
 Newberg, MO 67582  
 Phone Number: 722/516-9999

**APPLICANT:**  
 Same as Owner

**LANDSCAPE ARCHITECT:**  
 Creative Landscape Designs, Inc.  
 195 Garden Lane  
 Hayward, CA 94541  
 Phone Number: 415/786-5678

**CONTACT PERSON:**  
 Fred Church  
 Project Manager

Minimum Scale 1" = 20'



Date:  
 Rev:

**CONCEPTUAL PLANTING PLAN**

Commercial Building  
 for Fashion Elite  
 21215 Main St.  
 Hayward, CA