

"EXHIBIT A"  
LANDSCAPE REFERENCE DOCUMENTS:

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|            | 11. St-23                                               | 33      |
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Table 4. Condition rating as related to life expectancy.

| Condition           | Life Expectancy<br>(years <sup>1</sup> ) | Condition Rating<br>(percent) |
|---------------------|------------------------------------------|-------------------------------|
| Excellent           | Over 30                                  | 90 - 100                      |
| Good                | 20 - 30                                  | 80 - 90                       |
| Fair to Good        | 15 - 20                                  | 60 - 80                       |
| Fair                | 10 - 15                                  | 40 - 60                       |
| Poor to Fair        | 5 - 10                                   | 20 - 40                       |
| Poor, rapid decline | 0 - 5                                    | 0 - 20                        |

<sup>1</sup>Years beyond time of inspection.Table 5. Diminution in condition value related to partial injury.<sup>2</sup>

| Bark and Cambium injury<br>(percent of total trunk circumference) | Diminution of condition value<br>(percent) |
|-------------------------------------------------------------------|--------------------------------------------|
| Up to 20                                                          | At least 20                                |
| 25                                                                | 25                                         |
| 30                                                                | 35                                         |
| 40                                                                | 70                                         |
| 45                                                                | 90                                         |
| 50                                                                | 100                                        |

<sup>2</sup>Percentages taken from Table 75, page 322 in A. Bernatzky. 1978. *Tree Ecology and Preservation*. Elsevier Scientific Publishing Company, Amsterdam.

Table 6. Guide for judging the condition of landscape trees.

| Factor                 | Variation                                                  | Points<br>Awarded |
|------------------------|------------------------------------------------------------|-------------------|
| Crown Development      | Characteristic of species, well-balanced                   | 5                 |
|                        | Lacking natural or desired symmetry                        | 3                 |
|                        | Lacking full crown                                         | 1                 |
|                        |                                                            |                   |
| Trunk                  | Sound and solid                                            | 5                 |
|                        | Section of bark missing                                    |                   |
|                        | Less than ¼ of circumference                               | 4                 |
|                        | ¼ to ½ missing                                             | 3                 |
|                        | More than ½ missing                                        | 1                 |
|                        | Extensive Decay or hollow                                  | 0                 |
| Major branch structure | No defects                                                 | 5                 |
|                        | Dieback limited                                            | 4                 |
|                        | Few structurally important dead or broken branches         | 3                 |
|                        | Several structurally important dead or broken branches     | 1                 |
| Twig growth rate       | Typical for species and age, usually 4 to 6 inches         | 5                 |
|                        | Less than ½ normal growth rate                             | 3                 |
|                        | Growth rate greatly reduced, yearly decline                | 1                 |
| Foliage                | Normal size and color for species                          | 5                 |
|                        | Minor deficiency/pollution symptoms                        | 3                 |
|                        | Major deficiency/pollution symptoms                        | 1                 |
| Insects and diseases   | No insects or diseases apparent                            | 5                 |
|                        | Few insects or diseases present and these are controllable | 3                 |
|                        | Severe infestation                                         | 1                 |

Service Area Address-Number Tree Location Zip Police Report Number

Name Home Phone Business Phone

Address Priority

# PARKS AND RECREATION DEPARTMENT TREE EVALUATION REPORT

| Date | Taken By | Service Request | Request Assignment        | Task                                                   |
|------|----------|-----------------|---------------------------|--------------------------------------------------------|
|      |          |                 | Tree                      | <input type="checkbox"/> Accident - Repair and Report  |
|      |          |                 | Preservation & Protection | <input type="checkbox"/> Vandalism - Repair and Report |

## REASON FOR REPORT:

- ☐ Routine      ☐ Compensation for Casualty Loss  
☐ Complaint      ☐ Accident Auto-Related  
☐ Removal Request      ☐ Vandalism  
☐ Other, Explain \_\_\_\_\_

## A. DESCRIPTION AND EVALUATION OF INDIVIDUAL TREES

| TREE SPECIES | dbn (inches) | CROSS SECTION AREA (sq. in.) | BASIC VALUE OR REPLACEMENT COST (DOLLARS) | SPECIES FACTOR % | CONDITION FACTOR % | LOCATION FACTOR % | CALCULATED VALUE OF TREE (DOLLARS) |
|--------------|--------------|------------------------------|-------------------------------------------|------------------|--------------------|-------------------|------------------------------------|
|              |              |                              |                                           |                  |                    |                   |                                    |
|              |              |                              |                                           |                  |                    |                   |                                    |
|              |              |                              |                                           |                  |                    |                   |                                    |

## B. CALCULATION OF PARTIAL LOSS

| Calculated Value Of Tree in Dollars: | Injury in % of Trunk Circumference or Whole Tree: | Diminution of Value in %: | Calculated Partial Loss In Dollars |
|--------------------------------------|---------------------------------------------------|---------------------------|------------------------------------|
|                                      |                                                   |                           |                                    |
|                                      |                                                   |                           |                                    |

Request Ck'd By \_\_\_\_\_ Date \_\_\_\_\_ Calculation \_\_\_\_\_ Photo Taken \_\_\_\_\_ Worked By \_\_\_\_\_ Date \_\_\_\_\_  
 Contact By: ☐ Personal ☐ Phone ☐ Door Tag ☐ Letter

## C. EQUIPMENT AND MANPOWER ASSIGNED

Total Loss Sustained

Labor Charges \_\_\_\_\_

Labor Overhead ( ) \_\_\_\_\_

☐ Calculated Value of Tree \_\_\_\_\_

☐ Calculated Partial Loss \_\_\_\_\_

Materials \_\_\_\_\_

Equipment Charges \_\_\_\_\_

Subtotal

General Overhead ( )

TOTAL INVOICE

\$ \_\_\_\_\_

\$ \_\_\_\_\_

\$ \_\_\_\_\_

\$ \_\_\_\_\_

\$ \_\_\_\_\_

☐ Marked for Replanting By \_\_\_\_\_

☐ Notify \_\_\_\_\_ Division

Attn: \_\_\_\_\_

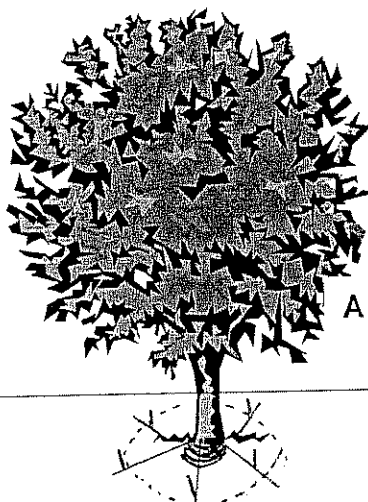
Date of Evaluation \_\_\_\_\_

Signed: \_\_\_\_\_

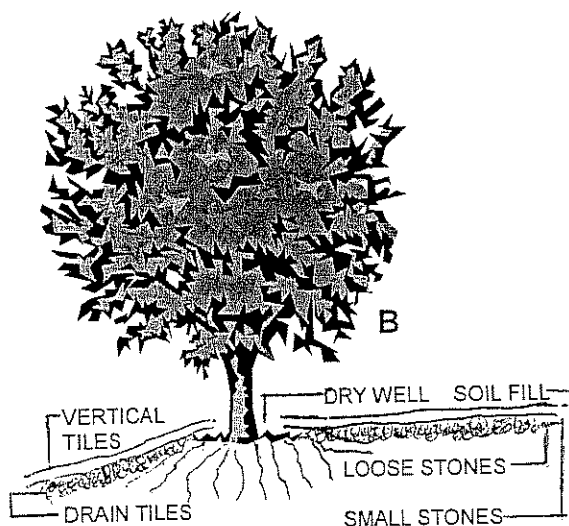
| Factor | Variation                 | Points Awarded |
|--------|---------------------------|----------------|
| Roots  | No root problems apparent | 5              |
|        | Minor root problems       | 3              |
|        | Severe root problems      | 1              |

#### Scoring Procedure

| Total Points | Condition | Formula Condition (percent) |
|--------------|-----------|-----------------------------|
| 30-35        | Excellent | 90-100                      |
| 24-29        | Good      | 70- 89                      |
| 17-23        | Fair      | 50- 69                      |
| 11-16        | Poor      | 25- 49                      |
| 6-10         | Very Poor | 0- 24                       |



A. The tile is laid out on the original grade, leading from a dry well around the tree trunk.

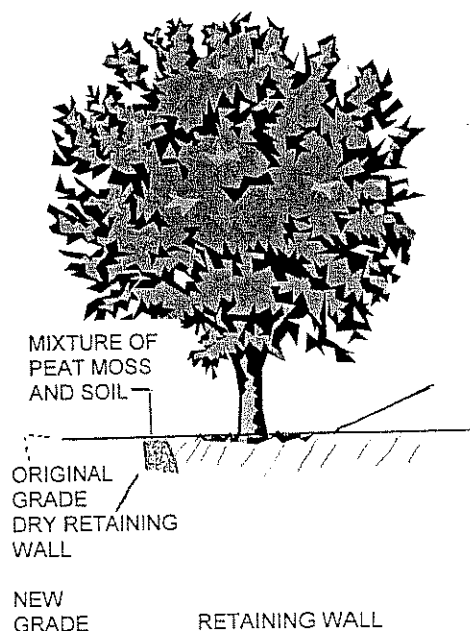
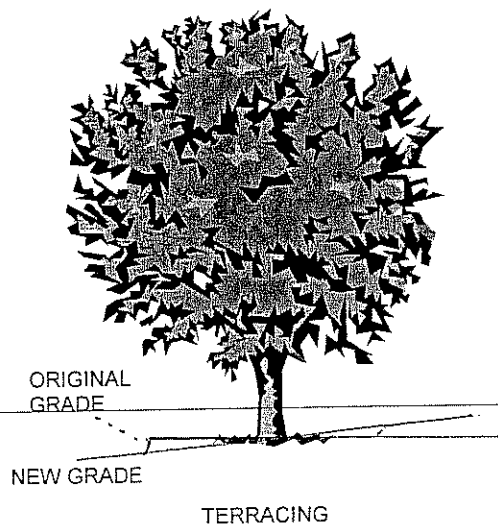


A tile system protects a tree from a raised grade.  
B. The tile system is covered with small stones to allow air to circulate over the root area.

#### Lowering The Grade

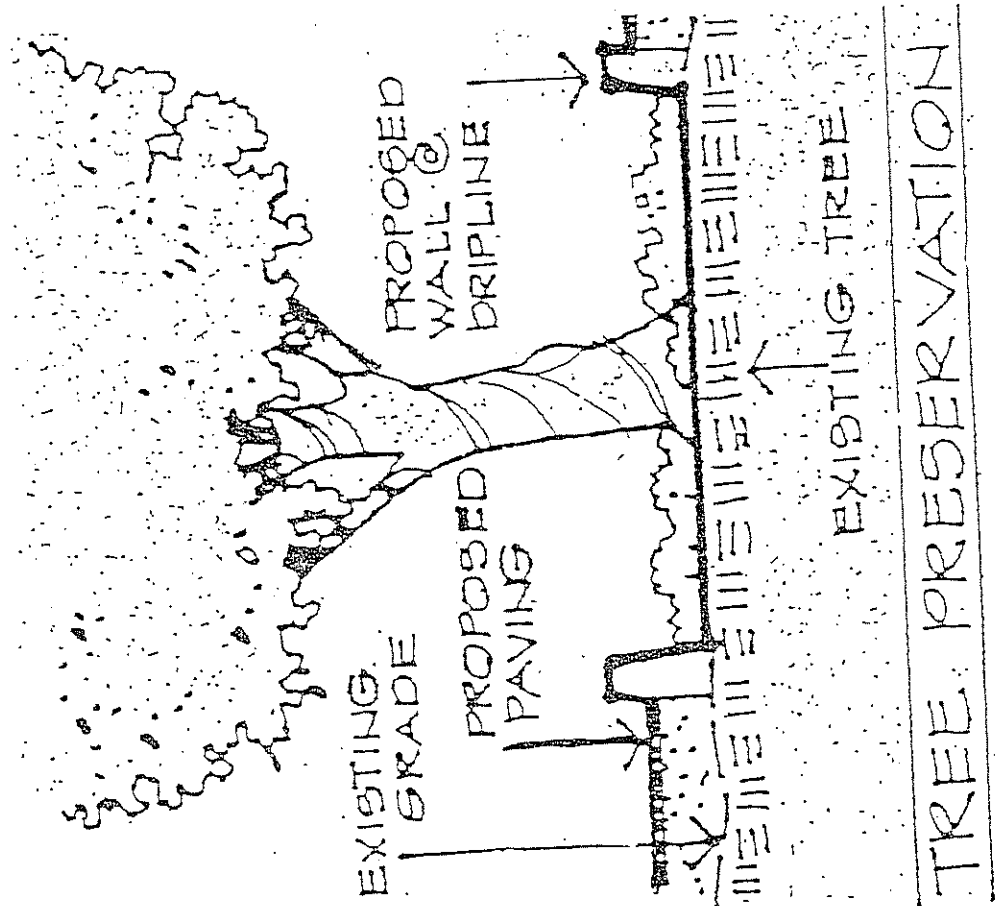
While protecting a tree from a lowered grade is less complicated than protecting it from a raised grade. It can be equally harmful unless proper attention is given to root pruning, pruning branches and stimulating root growth.

Generally protection is achieved by terracing the grade, if the space is available. Another way to protect a tree from a lowered grade is to build a retaining wall. This is an effective way of achieving a grade difference to save a tree, if it is less than 2'.



#### Excavating

Trees need to be protected from excavations for utilities because the soil moisture content is altered and the number of roots are decreased. If the route of the utilities can't be kept from underneath the tree then tunneling should be done to reduce damage to the roots. Tunneling should be done from both sides. Start tunneling below the main lateral roots as soon as a 1" diameter root is encountered.



## TREE PRESERVATION GUIDELINES

### A. Existing Trees:

Existing trees over six inches in trunk diameter; measured four and one half feet above ground level (DBH), shall be retained in accord with following:

#### 1. Notification:

Contact the City of Manteca, Parks and Recreation Department or Community Development Department for assistance and/or refer to a tree expert or arborist to analyze the location, species, size, age, and vigor of each tree and to evaluate which healthy mature tree(s) shall be saved. Refer to Text references; The City of Manteca Landscape Reference document, the International Society of Arboriculture Handbook, "Valuation of Landscape Trees, Shrubs and other Plants", seventh edition, January 1988

#### 2. Protection:

Existing trees must be protected from the following:

- a. Construction equipment
- b. Grade changes
- c. Excavation for utilities
- d. Paving
- e. Footers for the proposed structure of wall

#### 3. Protection from Machinery:

Construct a protective fence or barrier, which encloses the entire area beneath the tree canopy. All exposed roots must be enclosed in this area.

Most of the damage caused by machinery occurs to the root system from compaction although there is some damage to the trunk and low hanging branches. Because root systems can go beyond the tree canopy, make sure all exposed roots are enclosed in this protection zone. Refer to Landscape Reference Document, Protection Zone.

#### 4. Protection from Grade Changes:

Grade changes, either raising or lowering the grade must be approved by the Community Development Department prior to any grading taking place. Refer to Landscape References; Grading and Excavation, Root System and Protection Zone documents.

#### When raising the Grade:

Fill added around a tree prevents normal air and water circulation in the original soil and will damage the roots. Minor fills - less than 6" will not harm most species, if the fill

is high in organic matter. Be sure that a particular species can survive this change before fill is added.

Major fill around a tree requires that air be supplied to the roots and that excess water be removed. Consult an expert for the installation of a tile drain system.

B. Requests for removal of an existing tree:

Requests for the proposed replacement of an existing tree as identified in (A) above, shall be subject to Community Development Director approval. Replacement of an existing tree shall be with a minimum 24 inch box tree, of compatible species for the development site and consistent with Section 17. 19.030.

C. Location of Trees:

The location of each tree(s) should be analyzed with respect to its relative location in landscape. Before building a structure near trees refer to the following:

1. Will the tree provide shade where it is wanted or will it block out desired sunlight?
2. Will the tree protect the structure from winter winds or will it block out the summer breeze?
3. Will the tree screen an unpleasant view or will it block out a desirable view?
4. Can retaining or mature trees (Native/Non-native) provide my project with necessary air quality, parking lot shading noise buffering mitigations?

D. Species:

The tree species is considered to determine if its characteristics are desirable for the proposed situation. Shall rooted trees hinder the growth of lawns, gardens, storm or sanitary sewer lines. Some trees are susceptible to diseases and insects, which may make saving them uncertain. Consult the above referenced document, ask a specialist and then consult the City of Manteca Community Development or Parks and Recreation departments before submitting landscape plans.

E. Size, Age, Vigor:

When considering the size, age and vigor of a tree refer to the following:

1. Large and old trees do not adapt well to changes in their environment, hence should have minimal changes.
2. A small tree can be replaced easily and replacing it may be cheaper than saving it.
3. Annual twig growth, amount of dead material and the size and color of leaves are indications of health and vigor. Compare the tree with other trees of the same species.

Consult the Manteca Community Development Department or Parks Department prior to removal of any trees. Use of a professional with experience in tree removal is required so the protected tree(s) will not be damaged.

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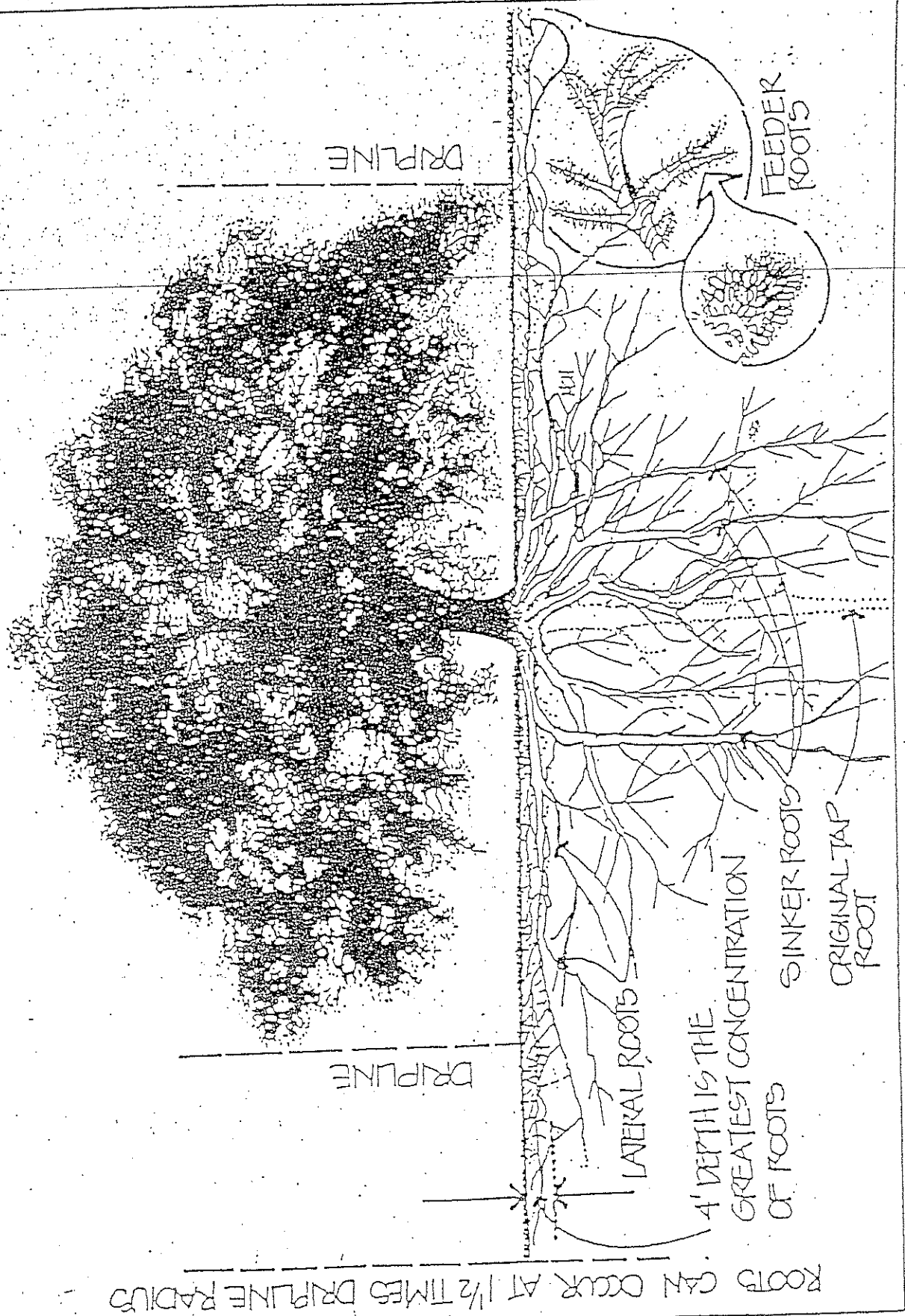
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Diagram: Root System



## TREE SHADING INFORMATIONAL LIST

The following list of trees for parking lot shading and screening was compiled to aid in specific selection. Selection of the trees listed is based on adaptability to site conditions. The following tree conditions and characteristics are information to help select an appropriate tree and are references to columns 2 through 9 on the attached list:

1. Recommended minimum planter width.
2. Approximate tree height
3. Growth rate
4. Root growth and depth.
5. Suggested soil type
6. Significant flowers and/or fruit
7. Color of leaves during fall
8. Remarks - deciduous, evergreen, miscellaneous information.

The species listed are not foolproof for all situations. Consultation with a landscape architect or nurseryman is desirable before any selections are made. Professional guidance is recommended to assure that the optimal design is achieved to meet the needs of each project. Proper planting procedures, optimal spacing distance, soil, water requirements, and maintenance programs should be ascertained at the start of the landscape project. It is important to note that proper planting procedure may include digging past the hardpan layer to assure deep-rooting and proper growth.

Note: Symbols have been placed in front of certain species to indicate that particular tree's suitability for shade or screening purposes. A circle indicated that the tree is a desirable screen tree. A check mark is used to denote good shade trees.

30-35' DIAMETER TREES 100% = 962 SQ. FT. 50% = 481 SQ. FT. 25% = 240 SQ. FT.

| Botanical Name<br>COMMON NAME              | Planter<br>size | Height | Growth               | Roots                | Soil                                                                 | Flowers / fruit | Fall color           | Remarks                                                                                                         |
|--------------------------------------------|-----------------|--------|----------------------|----------------------|----------------------------------------------------------------------|-----------------|----------------------|-----------------------------------------------------------------------------------------------------------------|
| Quercus acerifolia<br>LONDON PLANE TREE    | 8'              | 70'    | Rapid                | Shallow<br>Spreading | Most Deep                                                            | —               | Brown                | Deciduous, has red spider, powdery mildew,<br>anthracnose, use bloodgood or yanwood<br>varieties, summer litter |
| Quercus agrifolia<br>COAST LIVE OAK        | 8'              | 70'    | Moderate             | Deep                 | Most Dry or<br>Moist                                                 | Acorn           | —                    | Evergreen, has caterpillars in spring                                                                           |
| Quercus coccinea<br>SCARLET OAK            | 6'              | 60'    | Rapid                | Deep<br>Spreading    | Dry, Rocky,<br>Sandy                                                 | Acorn           | Scarlet              | Deciduous                                                                                                       |
| Quercus ilex<br>HOLLY OAK                  | 6'              | 70'    | Moderate             | Deep                 | Most Soils                                                           | Acorn           | —                    | Evergreen, has caterpillars, takes pruning                                                                      |
| Quercus lobata<br>VALLEY OAK               | 8'              | 70'    | Moderate             | Deep                 | Deep                                                                 | Acorn           | Yellow               | Deciduous, has oak balls, litters                                                                               |
| Quercus rubra<br>RED OAK                   | 8'              | 90'    | Fast                 | Deep                 | Deep Moist                                                           | Acorn           | Red/Brown/<br>Orange | Deciduous                                                                                                       |
| Quercus suber<br>CORK OAK                  | 8'              | 100'   | Moderate             | Deep                 | Most Drained                                                         | Acorn           | —                    | Cork bark, evergreen                                                                                            |
| Quercus virginiana<br>SOUTHERN LIVE OAK    | 8'              | 60'    | Moderate<br>to Rapid | Deep                 | Most soils<br>Moist                                                  | Acorns          | —                    | Evergreen                                                                                                       |
| Robinia pseudoacacia<br>BLACK LOCUST       | 8'              | 75'    | Rapid                | —                    | Most soils                                                           | —               | Yellow               | Deciduous, messy pods, thorns                                                                                   |
| Albizia julibrissin<br>CHINESE TALLOW TREE | 6'              | 35'    | Moderate             | Medium               | Needs deep<br>soil, to avoid<br>root problems<br>Most Soils<br>moist | Yellow Spikes   | Red/Yellow<br>Orange | Deciduous, likes acid soil, surface roots                                                                       |
| Fraxinus molle<br>CALIF. PEPPER TREE       | 8'              | 40'    | Rapid<br>Invasive    | Shallow              | Most soils                                                           | Yellow berries  | —                    | Evergreen                                                                                                       |
| Thuja occidentalis<br>AMERICAN LINDEN      | 6'              | 60'    | Rapid                | Deep                 | Fertile, Moist                                                       | Small Nutlets   | —                    | Deciduous                                                                                                       |
| Ulmus americana<br>SAWLEAF ZELKOVA         | 8'              | 90'    | Rapid                | Shallow<br>Surface   | Most Soils                                                           | —               | Red Yellow           | Deciduous, elm leaf battle, susceptible to<br>dutch elm disease, can be top heavy, requires<br>thinning         |

| Botanical Name<br>COMMON NAME                | Planter<br>Size | Height  | Growth              | Roots                 | Soil                 | Flowers /<br>fruit      | Fall color    | Remarks                                                                               |
|----------------------------------------------|-----------------|---------|---------------------|-----------------------|----------------------|-------------------------|---------------|---------------------------------------------------------------------------------------|
| Quercus melanoxylon<br>BLACKWOOD ACACIA      | 6'              | 70'     | Rapid               | Shallow<br>Spreading  | Dry/Well<br>Drained  | White/Pod               | —             | Evergreen, short lived, litters, drought tolerant<br>splits                           |
| Acer platanoides<br>NORWAY MAPLE             | 8'              | 50'-60' | Rapid               | Medium                | Moist Drained        | Winged Pod              | Yellow        | Deciduous, voracious root system, some<br>aphids, mistletoe                           |
| Acer rhombifolia<br>WHITE ALDER              | 6'              | 40'-80' | Rapid               | Shallow<br>Invasive   | Wet or Boggy         | Insig. Cones            | —             | Deciduous                                                                             |
| Quercus decurrens<br>PINE CEDAR              | 8'              | 50'-90' | Slow                | Deep Lateral          | Most Soils<br>Poor   | Small Cones             | —             | Evergreen, drought tolerant, foliage is<br>aromatic                                   |
| Juniperus deodora<br>CEDAR                   | 8'              | 80'     | Fast                | Deep                  | Most Soils           | Cones                   | —             | Evergreen                                                                             |
| Vaccinium australe<br>EUROPEAN HAZELBERRY    | 6'              | 80'     | Moderate            | Medium to<br>Deep     | Most Soils           | Small Purple<br>Berries | —             | Deciduous                                                                             |
| Vaccinium occidentale<br>EUROPEAN HAZELBERRY | 6'              | 60'     | Moderate            | Medium to<br>Deep     | Most Soils           | Small Purple<br>Berries | —             | Deciduous                                                                             |
| Hamamelis virginica<br>WITCHAMNION           | 8'              | 50'     | Slow                | Surface to<br>Shallow | Most Soils           | —                       | —             | Evergreen, root problems, turns yellow-green<br>in winter, prone to verticillium wilt |
| Pinus strobus<br>PINE                        | 6'              | 40'     | Moderate<br>to Fast | Shallow               | Most Soils           | —                       | Bright Yellow | Deciduous, prone to insect and disease<br>damage                                      |
| Pinus resinosa<br>RED PINE                   | 6'              | 40'     | Fast                | Shallow               | Most Soils           | —                       | —             | Deciduous, no seeds, prone to insect and<br>disease damage                            |
| Pinus strobus<br>PINE                        | 6'              | 35'     | Fast                | Medium                | Most Soils           | —                       | Purple Red    | Deciduous, prone to insect and disease<br>damage                                      |
| Pinus strobus<br>PINE                        | 6'              | 70'     | Fast                | Medium                | Most Deep<br>Drained | —                       | —             | Evergreen, prone to insect and disease<br>damage                                      |
| Pinus strobus<br>PINE                        | 8'              | 50'     | Slow                | Deep                  | Most Soils           | —                       | Bright Yellow | Deciduous, "Autumn Gold", good fall color                                             |
| Pinus strobus<br>PINE                        | 8'              | 80'     | Moderate            | Deep<br>Spreading     | Deep moist           | Brown Cone              | Yellow Brown  | Deciduous, unusual lyre shaped leaf has<br>scale, aphid (drips)                       |
| Pinus strobus<br>PINE                        | 8'              | 60'     | Slow                | Deep                  | Deep moist           | White<br>Flower         | —             | Evergreen, litters                                                                    |
| Pinus strobus<br>PINE                        | 6'              | 60'     | Slow                | Deep                  | Most Soils           | —                       | Orange Red    | Deciduous                                                                             |

| 25-30' DIAMETER TREES                                   |                 |        |                     |                    |                      |                              | 100% = 707 SQ. FT. | 50% = 354 SQ. FT.                                                      | 25% = 177 SQ. FT. |
|---------------------------------------------------------|-----------------|--------|---------------------|--------------------|----------------------|------------------------------|--------------------|------------------------------------------------------------------------|-------------------|
| Botanical Name<br>COMMON NAME                           | Planter<br>size | Height | Growth              | Roots              | Soils                | Flowers/ fruit               | Fall color         | Remarks                                                                |                   |
| <i>Pinus ponderosa</i><br>MONTEREY PINE                 | 6'              | 50'    | Moderate            | Deep               | Most Soils           | 3"-5" Cones                  | —                  | Evergreen, Conifer, Drought Tolerant, site clearance problem           |                   |
| <i>Pinus sylvestris</i><br>SCOTCH PINE                  | 6'              | 50'    | Moderate            | Deep               | Poor Sandy           | 2" Cones                     | —                  | Evergreen, Conifer, Site clearance problem                             |                   |
| <i>Pinus thunbergiana</i><br>JAPANESE BLACK PINE        | 8'              | 80'    | Moderate            | Deep               | Any Soil             | 3" Cones                     | —                  | Evergreen, Conifer, Site clearance problem                             |                   |
| <i>Pinus calleryana</i><br>BRADFORD PEAR                | 6'              | 50'    | Moderate<br>to Fast | Deep               | Most Soils<br>Moist  | White clusters               | Scarlet Red        | Deciduous, Resists Fireblight                                          |                   |
| <i>Quercus palustris</i><br>PIN OAK                     | 6'              | 50'    | Rapid               | Shallow<br>Fibrous | Rich Most<br>Drained | Acorn                        | Scarlet            | Deciduous, No alkali soil, Brown leaves hang on during winter          |                   |
| <i>Liquidambar styraciflua</i><br>COAST REDWOOD         | 8'              | 90'    | Rapid               | Shallow            | Deep Moist           | 1" Cones                     | —                  | Evergreen, Conifer, Site Clearance Problem                             |                   |
| <i>Tilia cordata</i><br>LITTLE LEAF LINDEN              | 6'              | 50'    | Rapid               | Deep               | Fertile Moist        | Nutlet                       | —                  | Deciduous, Aphid Drip                                                  |                   |
| 20'-25' DIAMETER TREES                                  |                 |        |                     |                    |                      |                              | 100% = 491 SQ. FT. | 50% = 246 SQ. FT.                                                      | 25% = 125 SQ. FT. |
| Botanical Name<br>COMMON NAME                           | Planter<br>size | Height | Growth              | Roots              | Soils                | Flowers/ fruit               | Fall color         | Remarks                                                                |                   |
| <i>Alnus incana</i><br>EUROPEAN HORNBEECH               | 6'              | 50'    | Slow                | Medium             | Most soils           | Winged seeds                 | Yellow             | Deciduous, availability problems                                       |                   |
| <i>Geijera parviflora</i><br>AUSTRALIAN WILLOW          | 6'              | 30'    | Moderate            | Shallow            | Well drained         | Yellow Fragrant              | —                  | Evergreen, drought tolerant                                            |                   |
| <i>Alnus nobilis</i><br>SWEET BAY                       | 6'              | 40'    | Slow                | Deep               | Moist sandy          | Yellow flower<br>Black berry | —                  | Evergreen                                                              |                   |
| <i>Prunus sekiyama</i><br>(kwanzan)<br>FLOWERING CHERRY | 6'              | 30'    | Moderate            | Medium             | Well drained         | Double pink                  | —                  | Deciduous, purple leaves                                               |                   |
| <i>Prunus cerasifera pissardii</i><br>PURPLE LEAF PLUM  | 6'              | 30'    | Fast                | Medium             | Most soils           | White                        | —                  | Deciduous, purple leaves, top heavy (thin out)<br>messy fruit problems |                   |
| <i>Zizyphus jujuba</i><br>JUJUBE CHINESE DATE           | 6'              | 30'    | Moderate            | Deep               | Deep moist           | Small date                   | —                  | Deciduous, some drought tolerance.                                     |                   |

00-00 DIAMETER TREES 100% = 962 SQ. FT. 0% = 481 SQ. FT. 25% = 240 SQ. FT.

| Botanical Name<br>COMMON NAME             | Planter<br>size | Height | Growth | Roots  | Soil       | Flowers / fruit                 | Fall color            | Remarks                     |
|-------------------------------------------|-----------------|--------|--------|--------|------------|---------------------------------|-----------------------|-----------------------------|
| <i>Quercus parvifolia</i><br>CHINESE ELM  | 6'              | 50'    | Rapid  | Medium | Most Soils | —                               | Red in cold<br>winter | Evergreen-deciduous         |
| <i>Ulmus parvifolia</i><br>CALIFORNIA BAY | 6'              | 70'    | Rapid  | Medium | Most Moist | Yellow Clusters/<br>Olive Fruit | —                     | Evergreen, drought tolerant |

25-30' DIAMETER TREES 100% = 707 SQ. FT. 50% = 354 SQ. FT. 25% = 177 SQ. FT.

| Botanical Name<br>COMMON NAME                | Planter<br>size | Height | Growth            | Roots                 | Soils                 | Flowers/ fruit                    | Fall color        | Remarks                                                                            |
|----------------------------------------------|-----------------|--------|-------------------|-----------------------|-----------------------|-----------------------------------|-------------------|------------------------------------------------------------------------------------|
| <i>Alnus cordata</i><br>ALIAN ALDER          | 6'              | 40'    | Rapid             | Shallow<br>Invasive   | Wet Boggy             | Cones                             | —                 | Deciduous, roots more restrained than alnus<br>rhumbefolia                         |
| <i>Alnus glutinosa</i><br>BLACK ALDER        | 6'              | 50'    | Moderate          | Shallow<br>Invasive   | Wet Boggy             | Cones                             | —                 | Deciduous                                                                          |
| <i>Alnus siliqua</i><br>ALB BARK ALDER       | 6'              | 40'    | Moderate          | Surface to<br>Shallow | Most Soils            | Long Messy<br>Pods                | —                 | Evergreen, use male tree only                                                      |
| <i>Alnus incana</i><br>WHITE BARK ALDER      | 6'              | 40'    | Fast              | Shallow<br>Invasive   | Light Drained         | White Flower<br>Capsules          | —                 | Evergreen, drought tolerant, thin top to<br>prevent toppling                       |
| <i>Alnus glutinosa</i><br>WILLOW LEAFED      | 6'              | 35'    | Slow/<br>Moderate | Deep                  | Most Soils<br>Drained | Yellow Flowers/<br>Capsules       | —                 | Deciduous, drought, messy                                                          |
| <i>Alnus glutinosa</i><br>OLDEN RAIN TREE    | 6'              | 40'    | Moderate          | Shallow<br>Surface    | Deep Moist            | 1" Round Burs                     | Crimson<br>Yellow | Deciduous, litters burs, cork twigs, can break<br>pavement, site clearance problem |
| <i>Alnus glutinosa</i><br>AMERICAN SWEET GUM | 6'              | 60'    | Moderate          | Deep                  | Most Soils<br>Wet     | White Flowers/<br>Small Plum Like | Scarlet<br>Orange | Deciduous, take mulch or little water                                              |
| <i>Alnus glutinosa</i><br>CANARY ISLAND PINE | 6'              | 60'    | Rapid             | Deep                  | Poor Sandy            | 8" Cones                          | —                 | Evergreen, conifer, blue green needles,<br>drought, pruned, site clearance problem |
| <i>Alnus glutinosa</i><br>JAPANESE RED PINE  | 6'              | 80'    | Rapid             | Deep                  | Poor Sandy            | 2" Cones                          | —                 | Evergreen, conifer, mites, site clearance<br>problem.                              |
| <i>Alnus glutinosa</i><br>MONTELL PINE       | 6'              | 80'    | Fast              | Deep                  | Most Soils<br>Dry     | 4" Cones                          | —                 | Evergreen, conifer, good for erosion control,<br>site clearance problem            |
| <i>Alnus glutinosa</i><br>LLEPO PINE         | 6'              | 60'    | Rapid             | Deep                  | Most Dry              | 4" Cones                          | —                 | Evergreen, conifer, wind break, erosion<br>control, site clearance problem         |

## PRELIMINARY PLANT LIST

### TREES

|     |                                 |
|-----|---------------------------------|
| T-1 | Cinnamomum camphora             |
| T-2 | Ginkgo biloba 'Fairmount'       |
| T-3 | Lagerstroemia 'Lavender'        |
| T-4 | Liquidambar 'Palo Alto'         |
| T-5 | Platanus acerifolia 'Bloodgood' |

Camphor Tree  
Maidenhair Tree  
Crape Myrtle  
Sweet Gum  
London Plane

### SHRUBS AND GROUND COVERS

|      |                                      |                   |       |
|------|--------------------------------------|-------------------|-------|
| S-1  | Abelia grandiflora                   | Glossy Abelia     | 5 Gal |
| S-2  | Agapanthus africanus 'Peter Pan'     | Lily of the Nile  | 1 Gal |
| S-3  | Arctostaphylos 'Howard McMinn'       | Manzanita         | 5 Gal |
| S-4  | Escallonia 'Compacta'                | Escallonia        | 5 Gal |
| S-5  | Hemerocallis aurantiaca              | Daylily           | 1 Gal |
| S-6  | Nerium oleander 'Petite Pink'        | Dwarf Oleander    | 5 Gal |
| S-7  | Photinia fraseri                     | Photinia          | 5 Gal |
| S-8  | Pittosporum tobira 'Wheeler's Dwarf' | Dwarf Pittosporum | 5 Gal |
| S-9  | Tulbaghia violacea                   | Society Garlic    | 1 Gal |
| GC-1 | Gazania 'Burgundy & White'           | Gazania           | Flats |
| GC-2 | Rosmarinus 'Huntington Blue'         | Rosemary          | 1 Gal |

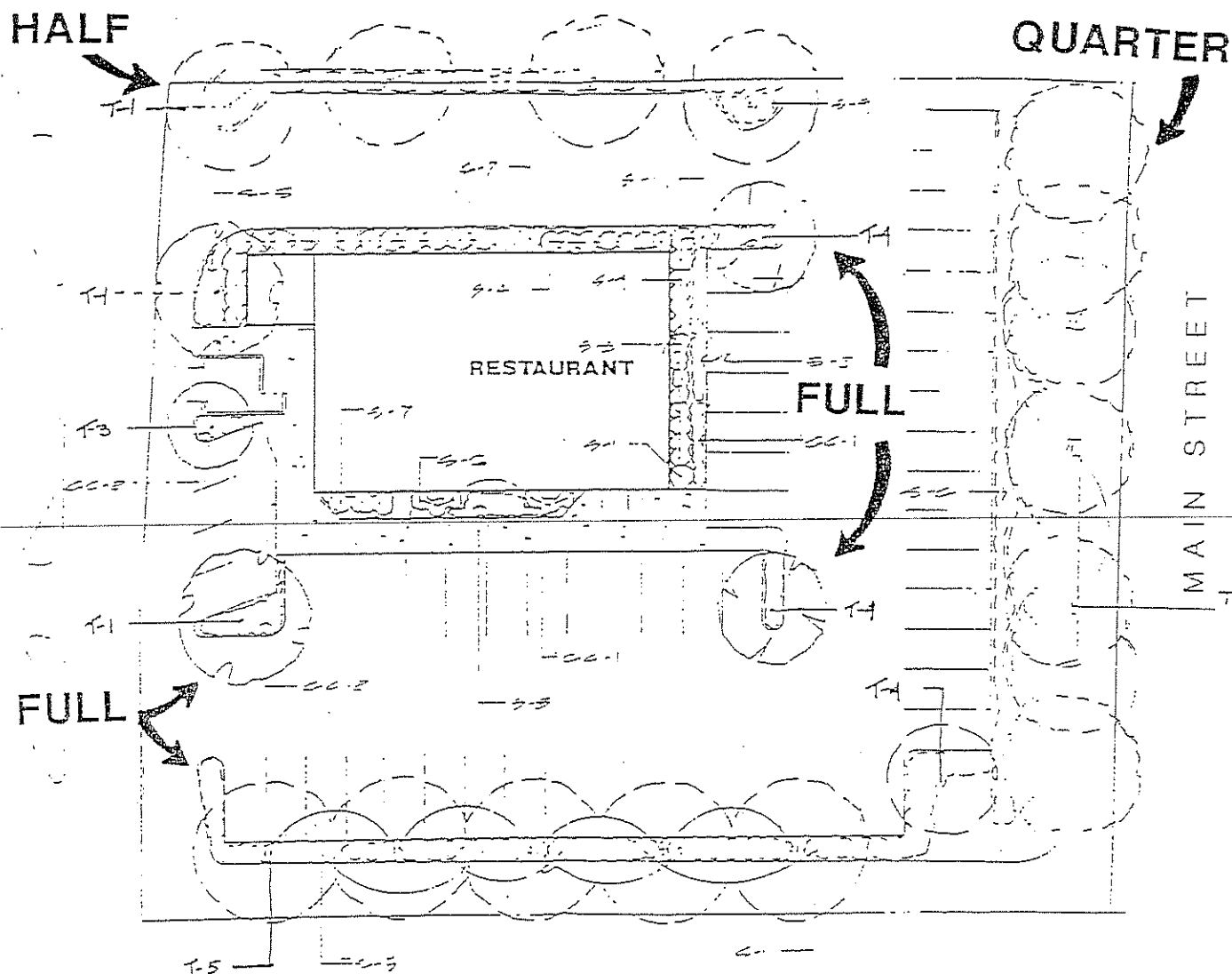
### SHADING BY LOCATION INSTRUCTIONS:

Reference type of tree with Shading By Location Criteria, pages 11-18, for the appropriate tree size category. Then apply the percentage of credit based on the location of tree. Multiply the number of trees with the applicable credit and total the square foot credit for the entire parking lot area. The Shading requirement total should be 50% or greater than the parking lot square footage area.

#### Formula Example:

T-1, Cinnamomum camphora is categorized as a 30-35' tree. The parking lot shading credit for full (100%) is 962 square feet for a half (50%) is 481 square feet and for a quarter (25%) 240 square feet. Multiply the number of each tree by the credit and total for all trees. The sum should be equal or greater than 50% of the parking area square footage.

| 15' - 20' DIAMETER TREES                 |                 |        |                  |                 |                    |                     |               | 25% = 75 SQ. FT.                                              |
|------------------------------------------|-----------------|--------|------------------|-----------------|--------------------|---------------------|---------------|---------------------------------------------------------------|
| 100% = 314 SQ. FT.                       |                 |        |                  |                 |                    |                     |               | 50% = 157 SQ. FT.                                             |
| Botanical Name<br>COMMON NAME            | Planter<br>size | Height | Growth           | Roots           | Soils              | Flowers/ fruit      | Fall color    | Remarks                                                       |
| acer palmatum<br>JAPANESE MAPLE          | 4'              | 25'    | Slow             | Shallow         | Moist drained      | Small winged        | Red           | Deciduous, afternoon shade, wilt, fungus, multiple trunk      |
| acer buergerianum<br>FRIDENT MAPLE       | 4'              | 25'    | Moderate         | Shallow         | Moist drained      | Small winged        | Red           | Deciduous                                                     |
| ercis canadensis<br>EASTERN REDBUD       | 4'              | 35'    | Moderate         | Medium          | Most soils         | Red, spring         | Yellow to red | Deciduous, drought                                            |
| ercis occidentalis<br>WESTERN REDBUD     | 4'              | 20'    | Moderate         | Medium          | Most soils         | Red, spring         | Yellow to Red | Deciduous, usually a small tree, multiple trunk               |
| agerstroemia Indica<br>GRAPE MYRTLE      | 4'              | 25'    | Slow             | Shallow         | Most soils         | Pink to red flowers | Red to gold   | Deciduous, need full sun all day, mildew, aphids              |
| aylenus boaria<br>MAYTEN TREE            | 4'              | 30'    | Slow to moderate | Deep            | Most moist drained | -                   | -             | Evergreen, weeping habit, must have well drained soil         |
| yrus kawakamii<br>EVERGREEN PEAR         | 4'              | 30'    | Moderate         | Medium to deep  | Most soils         | White flowers       | -             | Semi-evergreen, fire-blight                                   |
| hus lancea<br>AFRICAN SUMAC              | 4'              | 25'    | Slow             | Medium          | Most drained       | Small red berries   | -             | Evergreen, drought tolerant, messy berries                    |
| runus blireiana<br>FLOWERING PLUM        | 4'              | 25'    | Moderate         | Medium          | Most soils         | Pink to Rose        | -             | Deciduous, purple leaves, aphids                              |
| runus c. thundercloud<br>FLOWERING PLUM  | 4'              | 20'    | Moderate         | Medium          | Most soils         | Pink to White       |               | Deciduous, dark purple-coppery leaves, aphids                 |
| runus C. krauter<br>FLOWERING PLUM       | 4'              | 20'    | Moderate         | Medium          | Most soils         | Pink                | -             | Deciduous, dark purple leaves, aphids                         |
| inus thunbergiana<br>JAPANESE BLACK PINE | 8'              | 50'    | Moderate         | Deep            | Any Soil           | 3" cones            | -             | Evergreen, conifer, site clearance problem                    |
| yrus Calleryana<br>BRADFORD PEAR         | 6'              | 50'    | Modearte to Fast | Deep            | Moist Soils        | White Clusters      | Scarlet Red   | Deciduous, resists fireblight                                 |
| uercus Palustris<br>IN OAK               | 6'              | 50'    | Rapid            | Shallow Fibrous | Rich Moist drained | Acom                | Scarlet       | Deciduous, no alkali soil, brown leaves hang on during winter |
| equia sempervirens<br>COAST REDWOOD      | 8'              | 90'    | Rapid            | Shallow         | Deep Moist         | 1" cones            | -             | Evergreen, conifer, site clearance problem                    |
| ilia Cordata<br>TTLE LEAF LINDEN         | 6'              | 50'    | Rapid            | Deep            | Fertile Moist      | Nutlet              |               | Deciduous, aphid drip                                         |



SHADING BY LOCATION EXAMPLE

| TREE<br>DIAMETER | CREDIT IN SQUARE FEET |             |                |
|------------------|-----------------------|-------------|----------------|
|                  | 100%<br>FULL          | 50%<br>HALF | 25%<br>QUARTER |
| 15-20'           | 314                   | 157         | 79             |
| 20-25'           | 491                   | 246         | 123            |
| 25-30'           | 707                   | 354         | 177            |
| 30-35'           | 962                   | 481         | 240            |

| Size |        | Percentage of Square Footage Credit<br>(QUANTITY AT %) |       |
|------|--------|--------------------------------------------------------|-------|
| T-1  | 30-35' | 2 @ Full (296) =                                       | 1,924 |
| T-1  | 30-35' | 4 @ Half (481) =                                       | 1,924 |
| T-2  | 30-35' | 7 @ .25 (240) =                                        | 1,680 |
| T-3  | 15-20' | 1 @ Full (314) =                                       | 314   |
| T-4  | 25-30' | 3 @ Full (707) =                                       | 2,121 |
| T-4  | 25-30' | 1 @ Half (354) =                                       | 354   |
| T-5  | 30-35' | 5 @ Full (962) =                                       | 4,810 |

Totals = 13,127

TOTAL CREDIT FOR SHADING = 13,127  
 PARKING LOT AREA = 23,607  
 50% SHADING REQUIREMENT = 11,804

## RELATIVE WATER REQUIREMENTS OF COMMONLY USED PLANTS

The following is a list of plants that are commonly used in landscape designs with water requirement classifications of low (L), medium (M), or high (H).

The list should not be considered a complete list of plants that can be used in landscape projects. The list is provided to assist the landscape designer in choosing species of appropriate water demands to meet the requirements of Section 17.19.080, and to group species of similar water demands to facilitate efficient irrigation. To use species other than those listed, the designer may provide the City with information indicating the water requirement of the species. Information may include the listing of a plant in an acceptable reference stating its water requirement characteristics, comparing it to a species in the plant list, field data, etc. Acceptable references include the "Sunset Western Garden Book," "Trees and Shrubs for Dry California Landscapes," Robert Perry, and "Water Wise Gardening, E.B.M.U.D. or WUCOLS Plant List, U.C. Davis.

# RELATIVE WATER REQUIREMENTS OF COMMONLY USED PLANTS

| GENUS           | SPECIES        | CULTIVAR OR VARIETY | WATER REQUIREMENTS |
|-----------------|----------------|---------------------|--------------------|
| Akebia          | Quinata        |                     | M                  |
| Albizia         | Julibrissin    |                     | L                  |
| Allmanda        | Cathatica      |                     | M                  |
| Alnus           | Cordata        |                     | M                  |
|                 | Oregona        |                     | H                  |
|                 | Rhombifolia    |                     | H                  |
| Alnus           | Glutinosa      |                     | H                  |
| Alocasia        | Odora          |                     | H                  |
| Aloe            | Arborescens    |                     | L                  |
| Aloe            | Vera           |                     | M                  |
| Alpinia         | zerumbet       |                     | H                  |
| Alsophilla      | Australis      |                     | H                  |
| Alyogyne        | Huegelii       |                     | L                  |
| Ampelopsis      | Veitchi        |                     | M                  |
| Andromeda       | polifolia      |                     | H                  |
| Aralia          | Elegantissima  |                     | H                  |
|                 | Sieboldii      |                     | H                  |
| Araucaria       | Bidwillii      |                     | M                  |
|                 | Heterophylla   |                     | M                  |
| Arbutus         | Menziesii      |                     | L                  |
|                 | Unedo          |                     | M                  |
| Archonzophoenix | Cunninghamiana |                     | M                  |
| Arctostaphylos  |                | "Emerald Carpet"    | L                  |
|                 |                | "Green Sphere"      | L                  |
|                 |                | "Howard McMinn"     | L                  |
|                 | Bakeri         | "Louis Edmunds"     | L                  |
|                 | Densiflora     | "Sentinel"          | L                  |
|                 | Edmundsii      | "Carmel Sur"        | L                  |
|                 | Hookeri        | "Monterey Carpet"   | L                  |
|                 | "              | "Wayside"           | L                  |
|                 | Manzanita      | "Dr. Hurd"          | L                  |
|                 | Uva-ursi       |                     | L                  |
|                 | Uva-ursi       | "Pacific Mist"      | L                  |
|                 | "              | "Point Reyes"       | L                  |
|                 | "              | "Radiant"           | L                  |
|                 | "              | "Woods Compact"     | L                  |
| Arctotheca      | Calendula      |                     | M                  |
| Arecastrum      | Romanzoffianum |                     | M                  |
| Arenaria        | Verna          |                     | H                  |
| Artemisia       | Arborescens    |                     | L                  |
|                 | Pycnocephala   | "David's Choice"    | L                  |
|                 | Stelleriana    | "Silver Brocade"    | L                  |
| Asparagus       | Densiflorus    | "Sprengeri"         | M                  |
|                 | Plumosus       |                     | M                  |
| Aspidistra      | Elatior        |                     | H                  |
| Asplenium       | Nidus          |                     | H                  |
| Atriplex        | Lentiformis    |                     | L                  |
|                 | "              | Breweri             | L                  |
| Aucuba          | Japonica       |                     | H                  |
|                 | "              | Variegata           | H                  |
| Azalea          | Indica         |                     | H                  |
| Baccharis       | Pilularis      |                     | L                  |
|                 | "              | "Twin Peaks"        | L                  |

# RELATIVE WATER REQUIREMENTS OF COMMONLY USED PLANTS

| GENUS         | SPECIES       | CULTIVAR OR VARIETY         | WATER REQUIREMENTS |
|---------------|---------------|-----------------------------|--------------------|
| Berberis      | Variegata     |                             | M                  |
|               | Julianae      |                             | L                  |
|               | Mentorensis   |                             | L                  |
|               | Thunbergii    |                             | L                  |
| Berginia      | Cordifolia    |                             | M                  |
| Betula        | Pendula       |                             | H                  |
|               | "             | "Dalecarlica"               | H                  |
|               | Verrucosa     |                             | H                  |
| Bougainvillea |               | "Barbara Karst"             | M                  |
|               |               | "San Diego Red"             | M                  |
| Brunfelsia    | Calycina      |                             | H                  |
|               | Pauciflora    |                             | H                  |
| Buxus         | Hariandii     |                             | M                  |
|               | Microphylla   |                             | M                  |
| Calliandra    | "             | Japonica                    | M                  |
|               | Sempervirens  |                             | M                  |
|               | Tweedii       |                             | L                  |
|               | citrinus      |                             | L                  |
| Callistemon   | "             | "Jeffersii                  | L                  |
|               | Lanceolatus   |                             | L                  |
| Calocedrus    | Viminalis     |                             | L                  |
|               | Decurrens     |                             | M                  |
| Calycanthus   | Occidentalis  |                             | H                  |
|               | Hiemalis      |                             | H                  |
| Camellia      | Japonica      |                             | H                  |
|               | Sasanqua      |                             | H                  |
| Campanula     | poscharskyana |                             | H                  |
| Campsis       | Radicans      |                             | M                  |
| Carissa       | Grandiflora   |                             | M                  |
| Carpenteria   | Californica   |                             | L                  |
|               | "             | "Elizabeth"                 | L                  |
| Carpobrotus   | Edulis        |                             | M                  |
| Cassia        | Artemisioides |                             | L                  |
|               | Leptophylla   |                             | L                  |
| Casaurina     | Glauc         |                             | L                  |
|               | Stricta       |                             | L                  |
| Catalpa       | Speciosa      |                             | M                  |
| Ceanothus     |               | "Blue Jeans"                | L                  |
|               |               | "Concha"                    | L                  |
|               |               | "Dark Star"                 | L                  |
|               |               | "Frosty Blue"               | L                  |
|               |               | "Joyce Coulter"             | L                  |
|               |               | Julia Phelps"               | L                  |
|               |               | "Ray Hartman"               | L                  |
|               |               | "Sierra Blue"               | L                  |
|               |               | "Skylark"                   | L                  |
|               |               | "Tilden Park"               | L                  |
|               |               | "Blue Buttons"              | L                  |
|               | Cordulatus    |                             | L                  |
|               | Gloriosus     |                             | L                  |
|               | "             | "Anchor Bay"                | L                  |
|               | "             | Exaltatus "Emily Brown"     | L                  |
|               | "             | Var. porrectus              | L                  |
|               | Griseus       | Horizontalis                | L                  |
|               | "             | Horizontalis "Yankee Point" | L                  |
|               | "             | "Santa Ana"                 | L                  |
|               | Hearstiorum   |                             | L                  |

# RELATIVE WATER REQUIREMENTS OF COMMONLY USED PLANTS

| GENUS         | SPECIES         | CULTIVAR OR VARIETY  | WATER REQUIREMENTS |
|---------------|-----------------|----------------------|--------------------|
|               | Rigidus         | "Snowball"           | L                  |
|               | Thyriflorus     | Repens               | L                  |
|               |                 | "Snow Flurry"        | L                  |
| Cedrus        | Atlantica       |                      | L                  |
|               | "               | "Glauca"             | L                  |
|               | Deodara         |                      | L                  |
|               | Libani          |                      | L                  |
| Celtis        | Australis       |                      | L                  |
|               | Sinensis        |                      | L                  |
| Centaurea     | Cineraria       |                      | L                  |
| Cephalanthus  | Occidentalis    | Var. californicus    | H                  |
| Cerotonia     | Siliqua         |                      | L                  |
| Cercidum      | Floridum        |                      | L                  |
| Cercis        | Canadensis      |                      | L                  |
|               | Occidentalis    |                      | L                  |
| Cercocarpus   | Betuloides      |                      | L                  |
| Cestrum       | Nocturnum       |                      | H                  |
| Chaenomeles   | Japonica        |                      | M                  |
| Chamaecyparis | Obtusa          |                      | M                  |
|               | "               | "Nana"               | M                  |
|               | Pisifera        |                      | M                  |
| Chamaerops    | Humilis         |                      | M                  |
| Cheiranthus   | Variegata       |                      | L                  |
| Choisya       | Ternata         |                      | H                  |
| Cinnamomum    | Camphora        |                      | M                  |
| Cissus        | Antarctica      |                      | H                  |
|               | Rhombifolia     |                      | H                  |
| Cistus        |                 | "Sunset"             | L                  |
|               |                 | "Warley's Rock Rose" | L                  |
|               | Crispus         |                      | L                  |
|               | Hybridus        |                      | L                  |
|               | Landanifer      |                      | L                  |
|               | Purpureus       |                      | L                  |
|               | Salvifolius     | "Prostratus"         | L                  |
|               | Skanbergi       | "Low Pink"           | L                  |
| Citrus        | Limon           |                      | L                  |
| Clematis      | Armandii        |                      | H                  |
| Clivia        | Miniata         |                      | H                  |
| Clytostoma    | Callistegioides |                      | M                  |
| Cocculus      | Laurifolius     |                      | H                  |
| Cocos         | Plumosa         |                      | M                  |
| Coleonema     | Pulchrum        |                      | M                  |
| Convolvulus   | Cneorum         |                      | L                  |
| Coprosma      | Kirkii          |                      | L                  |
| Coprosma      | Repens          |                      | L                  |
| Cordyline     | Indivisa        |                      | H                  |
| Cornus        | Florida         |                      | H                  |
|               | Stolonifera     |                      | H                  |
| Correa        | Alba            |                      | L                  |
|               | Pulchella       |                      | L                  |
| Cortaderia    | Selloana        |                      | L                  |
| Corylus       | Avellana        |                      | M                  |
|               | Cornuta         |                      | H                  |
| Cotinus       | Coggygria       |                      | L                  |
| Cotoneaster   |                 | "Lowfast"            | L                  |

# RELATIVE WATER REQUIREMENTS OF COMMONLY USED PLANTS

| GENUS           | SPECIES       | CULTIVAR OR VARIETY | WATER REQUIREMENTS |
|-----------------|---------------|---------------------|--------------------|
| Crataegus       | Apiculatus    |                     | L                  |
|                 | Dammeri       |                     | L                  |
|                 | Horizontalis  |                     | L                  |
|                 | Lacteus       |                     | L                  |
|                 | Microphyllus  |                     | L                  |
|                 | "             | Thymifolius         | L                  |
|                 | Parneyi       |                     | L                  |
|                 | Lavellei      |                     | M                  |
|                 | Oscantha      | "Paul's Secret"     | M                  |
|                 | Phaenapyrum   |                     | M                  |
| Cupaniopsis     | Amacardioides |                     | M                  |
| Cupressocyparis |               | "Gold Cup"          | M                  |
| Cupressus       | Leyandii      |                     | M                  |
|                 | Glabra        |                     | L                  |
|                 | Macrocarpa    |                     | L                  |
|                 | Sempervirens  |                     | L                  |
| Cycas           | Revoluta      |                     | M                  |
| Cyperus         | Alternifolius |                     | H                  |
|                 | Papyrus       |                     | H                  |
| Cytisus         | Praecox       |                     | L                  |
|                 | Purpureus     | Arropurpureus       | L                  |
|                 | Racemosus     |                     | L                  |
|                 | Scoparius     |                     | L                  |
|                 | "             | "Lilac Time"        | L                  |
| Deutzia         | Gracilis      |                     | M                  |
| Dianthus        | Alpinus       |                     | M                  |
| Diascia         |               | "Ruby Field"        | M                  |
|                 |               |                     | M                  |
| Dicksonia       | Fetcaniensis  |                     | M                  |
|                 | Rigescens     |                     | M                  |
|                 | Antarctica    |                     | H                  |
|                 | Bicolor       |                     | L                  |
| Dietes          | Vegeta        |                     | L                  |
|                 | Pulchrum      |                     | M                  |
| Diosma          | Aurantiacus   |                     | M                  |
| Diplacus        | Buccinatoria  |                     | H                  |
| Districtis      | Viscosa       | "Purpurea"          | L                  |
| Dodonaea        | Unguis-cati   |                     | M                  |
| Doxantha        | Indica        |                     | H                  |
| Duchesnea       | Fastuosum     |                     | L                  |
| Echium          | Angustifolia  |                     | L                  |
| Elaeagnus       | Pungens       | "Maculata"          | L                  |
|                 | Deflexa       |                     | M                  |
| Eriobotrya      | Japonica      |                     | M                  |
| Eriogonum       | Arborescens   |                     | L                  |
|                 | Crocatum      |                     | L                  |
|                 | Fasciculatum  |                     | L                  |
|                 | Giganteum     |                     | L                  |
|                 | Umbellatum    | Polyanthum          | L                  |
|                 |               |                     | M                  |
| Erythrina       | Carrfa        |                     | M                  |
|                 | Coralloides   |                     | M                  |
| Escallonia      |               | "Fredesii"          | M                  |
|                 |               | "Red Elf"           | M                  |
| Eucalyptus      | Rubra         |                     | M                  |
|                 | X             | "Newport Dwarf"     | M                  |
|                 | Camaldulensis |                     | L                  |
|                 | Cinerea       |                     | L                  |
|                 | Cladocalyx    |                     | L                  |
|                 | Globulus      | "Compacta"          | L                  |

# RELATIVE WATER REQUIREMENTS OF COMMONLY USED PLANTS

| GENUS           | SPECIES       | CULTIVAR OR VARIETY | WATER REQUIREMENTS |
|-----------------|---------------|---------------------|--------------------|
| Eucalyptus      | Grandis       |                     | L                  |
|                 | Gunnii        |                     | L                  |
|                 | Leucoxydon    |                     | L                  |
|                 | Maculata      |                     | L                  |
|                 | Microtheca    |                     | L                  |
|                 | Nicholii      |                     | L                  |
|                 | Nitens        |                     | L                  |
|                 | Polyanthemos  |                     | L                  |
|                 | Rudis         |                     | L                  |
|                 | Sideroxydon   |                     | M                  |
|                 | Torquata      |                     | L                  |
| Euonymus        | Alata         | "Compacta"          | M                  |
|                 | Fortunei      |                     | M                  |
| Euryops         | Japonica      |                     | M                  |
|                 | Patens        |                     | M                  |
| Euryops         | Pectinatus    |                     | L                  |
|                 | "             | "Virides"           | L                  |
| Fatsia          | Lizei         |                     | H                  |
| Fatsia          | Japonica      |                     | H                  |
| Feijoa          | Sellowiana    |                     | M                  |
| Felicia         | Ameloides     |                     | M                  |
| Festuca         | Ovina         | "Glaucia"           | L                  |
| Ficus           | Pumila        |                     | H                  |
| Forsythia       | Intermedia    |                     | M                  |
|                 | Ovata         |                     | M                  |
| Fragaria        | Chiloensis    |                     | H                  |
| Fraxinus        | Americana     |                     | H                  |
|                 | Holotricha    |                     | M                  |
| Fraxinus        | Latifolia     |                     | H                  |
|                 | Oxycarpa      |                     | M                  |
|                 | "             | "Raywood"           | M                  |
|                 | Pennsylvanica |                     | M                  |
|                 | Uhdei         |                     | M                  |
|                 | "             | "Orange County"     | M                  |
|                 | Velutina      |                     | M                  |
| Fremontodendron |               | "California Glory"  | L                  |
|                 |               | "Pacific Sunset"    | L                  |
| Gadvezia        | Speciosa      |                     | L                  |
| Gardenia        | Jasminoides   |                     | H                  |
| Garrya          | Elliptica     | "James Roof"        | M                  |
| Gaultheria      | Shallon       |                     | M                  |
| Gazania         |               | "Burgundy"          | L                  |
|                 |               | "Copper King"       | L                  |
|                 |               | "Fiesta Red"        | L                  |
|                 |               | "Gold Rush"         | L                  |
|                 |               | "Sunrise Yellow"    | L                  |
| Geijera         | Parviflora    |                     | M                  |
| Gelsemium       | Sempervirens  |                     | M                  |
| Genista         | Lydia         |                     | L                  |
|                 | Pilosa        | "Vancouver Gold"    | L                  |
| Ginkgo          | Biloba        |                     | M                  |
| Gleditsia       | Triacanthos   |                     | M                  |
|                 | "             | "Aurea"             | M                  |
|                 | "             | "Moraine"           | M                  |
|                 | "             | "Shademaster"       | M                  |
| Grevillea       |               | "Canberra"          | M                  |
|                 |               | "Noelii"            | M                  |
|                 | Lanigera      |                     | L                  |

# RELATIVE WATER REQUIREMENTS OF COMMONLY USED PLANTS

| GENUS         | SPECIES        | CULTIVAR OR VARIETY | WATER REQUIREMENTS |
|---------------|----------------|---------------------|--------------------|
| Grevillea     | Robusta        |                     | M                  |
| Grewia        | Caffra         |                     | H                  |
| Hakea         | Suaveolens     |                     | L                  |
| Hebe          |                | "Blue Elf"          | M                  |
|               |                | "Co-Ed"             | M                  |
|               |                | "Patty's Purple"    | M                  |
|               | Buxifolia      |                     | M                  |
|               | Menziesii      |                     | M                  |
| Hedera        | Canariensis    |                     | H                  |
|               | Helix          |                     | M                  |
| Helianthemum  | Nummularium    | "Apricot"           | L                  |
|               | "              | "Stoplite"          | L                  |
|               | "              | "Wisley Pink"       | L                  |
| Helxine       | Soleirolia     |                     | H                  |
| Hemerocallis  | Sp             |                     | M                  |
| Herniaria     | Glabra         |                     | H                  |
| Heteromeles   | Arbutifolia    |                     | L                  |
|               | "              | "Yellow Berry"      | L                  |
| Heuchera      | Maxima         |                     | M                  |
| Heuchera      | Sanguinea      |                     | M                  |
| Hibiscus      | Rosa-sinensis  |                     | H                  |
| Hydrangea     | Macrophylla    |                     | M                  |
| Hymenosporum  | Flavum         |                     | M                  |
| Hypericum     | Patulum        |                     | M                  |
| Iberis        | Sempervirens   |                     | M                  |
| Ilex          | Aquifolium     |                     | H                  |
|               | Cornuta        |                     | H                  |
|               | Crenata        |                     | H                  |
|               | Dimorphophylla |                     | H                  |
|               | Vomitorea      | "Nana"              | H                  |
|               | X              | Altaclarensis       | H                  |
| Iris          | Douglasiana    |                     | H                  |
| Jacaranda     | Acutifolia     |                     | M                  |
| Jasminum      | Mesnyi         |                     | L                  |
|               | Polyanthum     |                     | M                  |
|               | Nigra          |                     | L                  |
| Juglans       | Chinensis      |                     | L                  |
| Juniperus     | Conferta       |                     | H                  |
|               | Excelsa        |                     | M                  |
|               | Horizontalis   |                     | M                  |
|               | Procumbens     |                     | M                  |
|               | Sabina         |                     | L                  |
|               | Scopulorum     |                     | L                  |
|               | Shimpaku       |                     | M                  |
|               | Squamata       |                     | L                  |
|               | Virginiana     |                     | L                  |
| Kniphofia     | Uvaria         |                     | L                  |
| Koeleruteria  | Bipinnata      |                     | M                  |
|               | Paniculata     |                     | M                  |
| Laburnum      | Wateri         |                     | H                  |
| Lagerstroemia | Faureri        |                     | L                  |
|               | Indica         |                     | L                  |
| Lantana       | Camara         |                     | M                  |
|               | Sallowiana     |                     | M                  |
| Laurus        | Nobilis        |                     | L                  |
| Lavandula     | Angustifolia   |                     | L                  |
|               | "              | "Hidcote"           | L                  |
|               | "              | "Munstead"          | L                  |

# RELATIVE WATER REQUIREMENTS OF COMMONLY USED PLANTS

| GENUS        | SPECIES          | CULTIVAR OR VARIETY | WATER REQUIREMENTS |
|--------------|------------------|---------------------|--------------------|
| Leptospermum | Scopiarum        |                     | L                  |
| Leucophyllum | Frutescens       |                     | L                  |
|              | "                | "Compactum"         | L                  |
| Ligustrum    | Japonicum        |                     | H                  |
|              | "                | "Texanum"           | H                  |
|              | Lucidum          |                     | H                  |
|              | Vulgare          |                     | H                  |
| Limonium     | Perezii          |                     | M                  |
| Lippia       | Canescens        |                     | L                  |
| Liquidambar  | Styraciflua      |                     | M                  |
|              | "                | "Burgundy"          | M                  |
|              | "                | "Festival"          | M                  |
| Liquidambar  | Stryaciflua      | "Palo Alto"         | M                  |
| Liriodendrum | Tulipifera       |                     | H                  |
| Liriope      | Gigantea         |                     | M                  |
|              | Muscari          |                     | H                  |
|              | Spicata          |                     | M                  |
| Lithodora    | Diffusa          |                     | M                  |
| Lonicera     | Heckrottii       |                     | M                  |
|              | Japonica         | "Halliana"          | M                  |
|              | Tatarica         |                     | M                  |
| Lupinus      | Albifrons        |                     | L                  |
| Macfadyena   | Unquis-cati      |                     | M                  |
| Magnolia     | Grandiflora      |                     | M                  |
|              | "                | "Majestic Beauty"   | M                  |
|              | Soulangiana      |                     | H                  |
|              | Stellata         |                     | H                  |
| Mahonia      | Aquifolium       |                     | L                  |
|              | Lomariifolia     |                     | L                  |
|              | Nevinii          |                     | L                  |
|              | Pinnata          |                     | L                  |
|              | Repens           |                     | L                  |
| Malus        | Floribunda       |                     | H                  |
|              | loenis           |                     | H                  |
|              | Purpurea         |                     | H                  |
|              | Zumi             |                     | H                  |
| Maytenus     | Boaria           |                     | M                  |
| Malaleuca    | Linariifolia     |                     | L                  |
|              | Nesophila        |                     | L                  |
|              | Quinquenervia    |                     | L                  |
| Metasequoia  | Glyptostroboides |                     | H                  |
| Metrosideros | Excelsus         |                     | L                  |
| Moraea       | Bicolor          |                     | L                  |
|              | Iridioides       |                     | L                  |
| Morous       | Alba             |                     | M                  |
| Myoporum     |                  | "Pacificum"         | L                  |
|              | Debile           |                     | L                  |
|              | Laetum           |                     | L                  |
| Myoporum     | Parvifolium      |                     | L                  |
| Myrica       | Californica      |                     | M                  |
| Myrsine      | Africana         |                     | M                  |
| Myrtus       | Communis         |                     | L                  |
| Nandina      | Domestica        |                     | M                  |
| Nephrolepis  | Cordifolia       |                     | H                  |
| Nerium       | Oleander         |                     | L                  |
|              | "                | "Mrs. Roeding"      | L                  |
|              | "                | "Petite Pink"       | L                  |

# RELATIVE WATER REQUIREMENTS OF COMMONLY USED PLANTS

| GENUS          | SPECIES       | CULTIVAR OR VARIETY | WATER REQUIREMENTS |
|----------------|---------------|---------------------|--------------------|
| Nerium         | Oleander      | "Petite Salmon"     | L                  |
|                | "             | "Sister Agnes"      | L                  |
| Nyssa          | Sylvatica     | "Siskiyou"          | H                  |
|                | Berlandieri   |                     | L                  |
| Oenothera      | Stubbei       |                     | L                  |
|                | Europaea      |                     | L                  |
| Olea           | Japonicus     |                     | H                  |
| Ophiopogon     | Fragrans      |                     | M                  |
| Osmanthus      | Illicifolius  |                     | M                  |
|                | Terminalis    |                     | M                  |
| Pachysandra    | Aculeata      |                     | L                  |
| Parkinsonia    | Quinquefolia  |                     | M                  |
| Parthenocissus | Tricuspidata  |                     | M                  |
| Passiflora     | Pfordtii      |                     | L                  |
| Pennisetum     | Aculeata      |                     | L                  |
| Penstemon      | Gloxinioides  |                     | M                  |
| Phaedranthus   | Buccinatorius |                     | M                  |
| Philadelphus   | Virginalis    |                     | H                  |
| Philodendron   | Selloum       |                     | L                  |
| Phoenix        | Canariensis   |                     | M                  |
|                | Reclinata     |                     | M                  |
| Phormium       | Roebelenii    |                     | M                  |
|                | Tenax         |                     | M                  |
|                | "             | "Bronze"            | M                  |
|                | "             | "Variegatum"        | M                  |
| Photinia       | Fraseri       |                     | M                  |
|                | Serrulata     |                     | M                  |
| Phyla          | Nodiflora     |                     | M                  |
| Phyllostachys  | Aurea         |                     | H                  |
| Picea          | Abies         |                     | H                  |
|                | Glauca        |                     | H                  |
| Pieris         | Pungens       |                     | H                  |
|                | Forestii      |                     | M                  |
| Pinus          | Japonica      |                     | M                  |
|                | Canariensis   |                     | M                  |
|                | Contorta      |                     | H                  |
|                | Densiflora    |                     | L                  |
|                | Eldarica      |                     | L                  |
|                | Haldeppensis  |                     | L                  |
|                | Jeffreyi      |                     | M                  |
|                | Mugo          |                     | H                  |
|                | Nigra         |                     | M                  |
|                | Patula        |                     | L                  |
|                | Pinea         |                     | L                  |
|                | Ponderosa     |                     | M                  |
|                | Radiata       |                     | M                  |
|                | Roxburghii    |                     | L                  |
|                | Sabiniana     |                     | M                  |
|                | Strobus       |                     | M                  |
|                | Sylvestris    |                     | L                  |
|                | Thunbergii    |                     | L                  |
|                | Torreyana     |                     | L                  |
|                | Chinensis     |                     | L                  |
| Pistacia       | Vera          |                     | M                  |
| Pittosporum    | Crassifolium  |                     | M                  |
|                | Eugenioides   |                     | M                  |
| Pittosporum    | Tenuifolium   |                     | M                  |
|                | Tobira        |                     | M                  |

# RELATIVE WATER REQUIREMENTS OF COMMONLY USED PLANTS

| GENUS       | SPECIES      | CULTIVAR OR VARIETY | WATER REQUIREMENTS |
|-------------|--------------|---------------------|--------------------|
| Pittosporum | "            | "Variegata"         | M                  |
|             | "            | "Wheeler's Dwarf"   | M                  |
| Pittosporum | Undulatum    |                     | M                  |
| Platanus    | Acerifolius  |                     | M                  |
|             | "            | "Bloodgood"         | M                  |
|             | "            | "Yarwood"           | M                  |
|             | Cashmeriana  |                     | M                  |
|             | Occidentalis |                     | M                  |
|             | Orientalis   |                     | M                  |
|             | Racemosa     |                     | M                  |
| Plumbago    | Auriculata   |                     | M                  |
|             | Capensis     |                     | M                  |
| Podocarpus  | Gracilior    |                     | H                  |
|             | Macrophyllus |                     | M                  |
|             | "            | "Maki"              | M                  |
| Polygala    | Dalmaisia    |                     | M                  |
| Polystichum | Munitum      |                     | H                  |
| Populus     | Balsamifera  |                     | M                  |
|             | Bolleana     |                     | M                  |
|             | Canadensis   |                     | H                  |
|             | Fremontii    |                     | H                  |
|             | Nigra        |                     | H                  |
|             | "            | "Italica"           | M                  |
|             | Tremuloides  |                     | H                  |
|             | Trichocarpa  |                     | H                  |
| Potentilla  | Fruticosa    |                     | H                  |
|             | Veitchii     |                     | H                  |
|             | Verna        |                     | H                  |
| Prunus      | Blieriana    |                     | M                  |
|             | Caroliniana  |                     | M                  |
|             | Cerasifera   |                     | M                  |
|             | Cistena      |                     | M                  |
|             | Glandulosa   |                     | M                  |
|             | Laurocerasus |                     | H                  |
|             | Lyonii       |                     | L                  |
|             | Serrulata    |                     | H                  |
|             | Subhirtella  |                     | H                  |
|             | Yedoensis    |                     | H                  |
| Psidium     | Cattelianum  |                     | M                  |
| Punica      | Granatum     |                     | L                  |
| Pyracantha  | Coccinea     |                     | L                  |
|             | Fortuneana   |                     | L                  |
|             | Koidzumii    |                     | L                  |
| Pyrus       | Calleryana   |                     | H                  |
|             | "            | "Aristocrat"        | M                  |
|             | "            | "Bradford"          | M                  |
|             | Kawakami     |                     | M                  |
| Quercus     | Agriifolia   |                     | L                  |
| Quercus     | Coccinea     |                     | M                  |
|             | Douglasii    |                     | L                  |
|             | Ilex         |                     | L                  |
|             | Kelloggii    |                     | M                  |
|             | Lobata       |                     | L                  |
|             | Palustris    |                     | M                  |
|             | Robur        |                     | M                  |
|             | Rubra        |                     | M                  |
|             | Shumardii    |                     | M                  |
|             | Suber        |                     | L                  |

# RELATIVE WATER REQUIREMENTS OF COMMONLY USED PLANTS

| GENUS                  | SPECIES          | CULTIVAR OR VARIETY    | WATER REQUIREMENTS |
|------------------------|------------------|------------------------|--------------------|
| Quercus<br>Raphiolepis | Virginiana       |                        | M                  |
|                        | Wislizenii       |                        | L                  |
|                        | Indica           |                        | L                  |
|                        | "                | "Jack Evans"           | L                  |
|                        | "                | "Pink Dancer"          | L                  |
|                        | "                | "Pink Lady"            | L                  |
|                        | "                | "Pinkie"               | L                  |
|                        | "                | "Rosea"                | L                  |
|                        | "                | "Snow White"           | L                  |
|                        | Umbellata        |                        | L                  |
| Rhamnus                | X                | "Majestic Beauty"      | L                  |
|                        | Alaternus        |                        | L                  |
|                        | California       | "Eve Case"             | L                  |
| Rhus                   | California       |                        | L                  |
|                        | Crocea           | Illicifolia            | L                  |
|                        | Integrifolia     |                        | L                  |
|                        | Lancea           |                        | L                  |
|                        | Ovata            |                        | M                  |
| Ribes                  | Typhina          |                        | L                  |
|                        | Aureum           | Var. gracillimum       | M                  |
|                        | Sanguineum       |                        | M                  |
|                        | "                | Glutinosum "Claremont" | M                  |
|                        | "                | "White Icicle"         | M                  |
| Robinea<br>Robinia     | Viburnifolium    |                        | M                  |
|                        | Ambigua          |                        | L                  |
|                        | Pseudoacacia     |                        | L                  |
|                        | X                | "Idaho Pink"           | L                  |
|                        | "                | "Purple Robe"          | L                  |
| Romneya<br>Rosa        | Coulteri         |                        | M                  |
|                        | Banksiae         |                        | M                  |
|                        | Californica      |                        | H                  |
| Rosmarinus             | Officinalis      |                        | L                  |
|                        | "                | "Lockwood de Forest"   | L                  |
|                        | "                | "Prostratus"           | L                  |
|                        | "                | "Tuscan Blue"          | L                  |
| Sagina<br>Salix        | Subulata         |                        | H                  |
|                        |                  | "Allen Chickering"     | H                  |
| Salix<br>Salvia        | Abla             |                        | H                  |
|                        | Babylonica       |                        | H                  |
|                        | Hindsiana        |                        | H                  |
|                        | Lasiandra        |                        | H                  |
|                        | Matsudana        |                        | H                  |
|                        | Clevelandii      |                        | L                  |
|                        | Greggii          |                        | L                  |
|                        | "                | "Coral"                | L                  |
|                        | "                | "Pink"                 | L                  |
|                        | "                | "Purple"               | L                  |
|                        | "                | "Red"                  | L                  |
|                        | "                | "White"                | L                  |
|                        | Leucantha        |                        | L                  |
|                        | Leucophylla      |                        | L                  |
|                        | "                | "Pt. Sal"              | L                  |
| Sambucus               | Mellifera        |                        | L                  |
|                        | Caerulea         |                        | H                  |
|                        | Mexicana         |                        | H                  |
| Santolina              | Chamaecyparissus |                        | L                  |
|                        | Virens           |                        | L                  |
| Sapium                 | Sebiferum        |                        | M                  |

# RELATIVE WATER REQUIREMENTS OF COMMONLY USED PLANTS

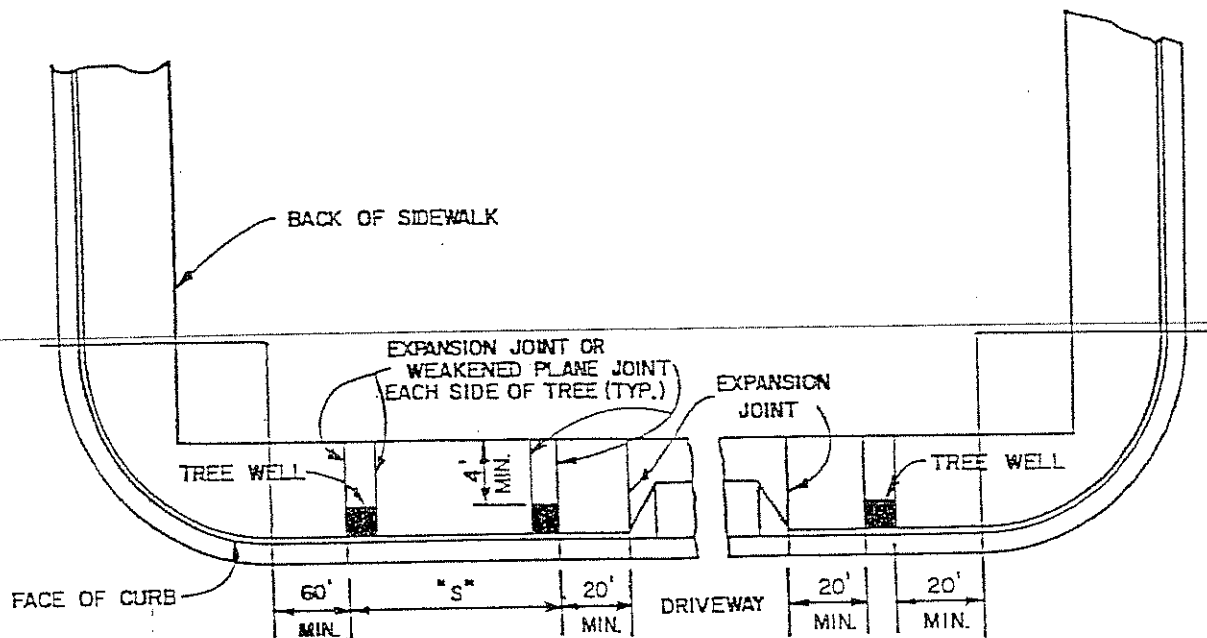
| GENUS           | SPECIES          | CULTIVAR OR VARIETY | WATER REQUIREMENTS |
|-----------------|------------------|---------------------|--------------------|
| Sarcococca      | Ruscifolia       |                     | M                  |
| Saxifraga       | Arendsii         |                     | H                  |
|                 | Rosacea          |                     | H                  |
|                 | Stolonifera      |                     | H                  |
| Scabiosa        | Anthemifolia     |                     | M                  |
| Scaevola        | Humilis          |                     | M                  |
| Scaevola        |                  | "Mauve Clusters"    | M                  |
| Schinus         | Molle            |                     | L                  |
|                 | Terebinthifolius |                     | L                  |
| Seaforthia      | Elegans          |                     | M                  |
| Sequoia         | Sempervirens     |                     | L                  |
|                 | "                | "Aptos Blue"        | M                  |
|                 | "                | "Los Altos"         | M                  |
|                 | "                | "Santa Cruz"        | M                  |
|                 | "                | "Soquel"            | M                  |
| Sequoiadendron  | Giganteum        |                     | L                  |
| Sisyrinchium    | Bellum           |                     | H                  |
|                 | "                | "Nana"              | H                  |
|                 | Californicum     |                     | H                  |
|                 | Macounii         | "Album"             | H                  |
| Solanum         | Jasminoides      |                     | M                  |
|                 | Rantonetti       |                     | M                  |
| Sollya          | Heterophylla     |                     | M                  |
| Sophora         | Japonica         |                     | M                  |
| Sorbus          | Aucuparia        |                     | H                  |
| Spirea          | Bumalda          |                     | M                  |
|                 | Cantoniensis     |                     | M                  |
|                 | Nipponica        |                     | M                  |
|                 | Prunifolia       |                     | M                  |
|                 | Thunbergii       |                     | M                  |
|                 | Vanhouttei       |                     | M                  |
| Strelitzia      | Nicolai          |                     | M                  |
|                 | Reginae          |                     | M                  |
| Syringa         | Persica          |                     | H                  |
|                 | Vulgaris         |                     | H                  |
| Syzygium        | Paniculatum      |                     | M                  |
| Taxus           | Baccata          |                     | M                  |
|                 | Media            |                     | M                  |
| Tecomaria       | Capensis         |                     | M                  |
| Ternstroemia    | Gymnathera       |                     | H                  |
| Thelvetia       | Peruviana        |                     | M                  |
| Thuja           | Occidentalis     |                     | H                  |
|                 | Orientalis       |                     | H                  |
| Thymus          | Albus            |                     | L                  |
|                 | Citriodorus      |                     | L                  |
|                 | Druceli          |                     | L                  |
|                 | Rosea            |                     | L                  |
|                 | Serphyllum       |                     | L                  |
| Tibouchina      | Urvilleana       |                     | M                  |
| Tilia           | Cordata          |                     | H                  |
| Tipuana         | Tipu             |                     | L                  |
| Trachelospermum | Asiaticum        |                     | M                  |
|                 | Jasminoides      |                     | M                  |
| Trachycarpus    | Fortunei         |                     | M                  |
| Trichostema     | Lanatum          |                     | L                  |
| Tsuga           | Canadensis       |                     | H                  |
| Tulbaghia       | Violacea         | "Variegata"         | L                  |

## RELATIVE WATER REQUIREMENTS OF COMMONLY USED PLANTS

| GENUS        | SPECIES          | CULTIVAR OR VARIETY | WATER REQUIREMENTS |
|--------------|------------------|---------------------|--------------------|
| Ulmus        | Americana        |                     | H                  |
|              | Parvifolia       |                     | M                  |
|              | "                | "Drake"             | M                  |
|              |                  |                     | M                  |
| Umbellularia | Californica      |                     | L                  |
| Verbena      | Tenuifolium      |                     | H                  |
| Veronica     |                  |                     | M                  |
| Viburnum     | Burkwoodi        |                     | H                  |
|              | Davidii          |                     | M                  |
|              | Opulus           |                     | M                  |
|              | Plicatum         |                     | M                  |
|              | Suspensum        |                     | L                  |
|              | Tinus            |                     | L                  |
| Vinca        | Major            |                     | L                  |
|              | Minor            |                     | L                  |
|              | Rosea            |                     | H                  |
| Vitis        | Californica      |                     | H                  |
| Washingtonia | Filifera         |                     | M                  |
|              | Robusta          |                     | M                  |
| Weigela      | Florida          |                     | H                  |
| Westringia   | Rosamariniformis |                     | L                  |
| Wisteria     | Floribunda       |                     | M                  |
|              | Sinensis         |                     | M                  |
| Woodwardia   | Fimbriata        |                     | H                  |
| Xylosma      | Congestum        |                     | L                  |
| Yucca        | Aloifolia        |                     | L                  |
|              | Bervifolia       |                     | L                  |
|              | Filimentosa      |                     | L                  |
|              | Gloriosa         |                     | L                  |
|              | Pendula          |                     | L                  |
|              | Recurvifolia     |                     | L                  |
|              | Whipplei         |                     | L                  |
| Zantedeschia | Aethiopica       |                     | H                  |
| Zauschneria  |                  | "Everett's Choice"  | L                  |
|              |                  |                     | L                  |
|              | Californica      |                     | M                  |
| Zeldova      | Serrata          |                     |                    |

The following books are suggested as a Bibliography reference list for the selection of plants in addition to a plant list:

1. PLANTS FOR CALIFORNIA LANDSCAPES: A CATALOG OF DROUGHT-TOLERANT PLANTS, California Department of Water Resources.
2. TREES AND SHRUBS FOR DRY CALIFORNIA LANDSCAPES, Robert Perry.
3. A SUCCESS LIST OF WATER-CONSERVING PLANTS, Saratoga Horticultural Foundation.
4. SELECT CALIFORNIA NATIVE PLANTS, Saratoga Horticultural Foundation.
5. WATER WISE GARDENING/EAST BAY MUD BOOK.
6. WUCOLS PROJECT LIST, UC DAVIS.
7. LANDSCAPE PLANTS FOR WESTERN REGIONS, Perry.



#### NOTES:

1. "S" SPACING OF TREEWELLS SHALL BE EQUALLY DIVIDED THROUGHOUT THE BLOCK.
2. "S" SPACING SHALL BE 28 FEET MINIMUM AND 40 FEET MAXIMUM.
3. SIZE OF TREE WELLS SHALL BE 4' x 4' OR AS APPROVED BY THE PUBLIC WORKS DEPARTMENT.
4. ALL TREES SHALL BE PLACED A MINIMUM DISTANCE OF 8' FROM SEWER LATERALS AND WATER SERVICES.
5. PROVIDE BUBBLER SPRINKLER HEAD TO EACH TREE WELL FROM ADJACENT LANDSCAPE AREA OR WATER SOURCE. FOR BACK-UP FRONTAGES, THE LOCATION OF THE VALVE IS TO BE APPROVED BY THE CITY ENGINEER.
6. ALL NEW OR IMPROVED COMMERCIAL FRONTAGE SHALL HAVE TREE WELLS.

| NO.                   | REVISED   | BY |
|-----------------------|-----------|----|
| 1                     | JAN. 1988 | JK |
| DRAWN BY: C. SABERTON |           |    |

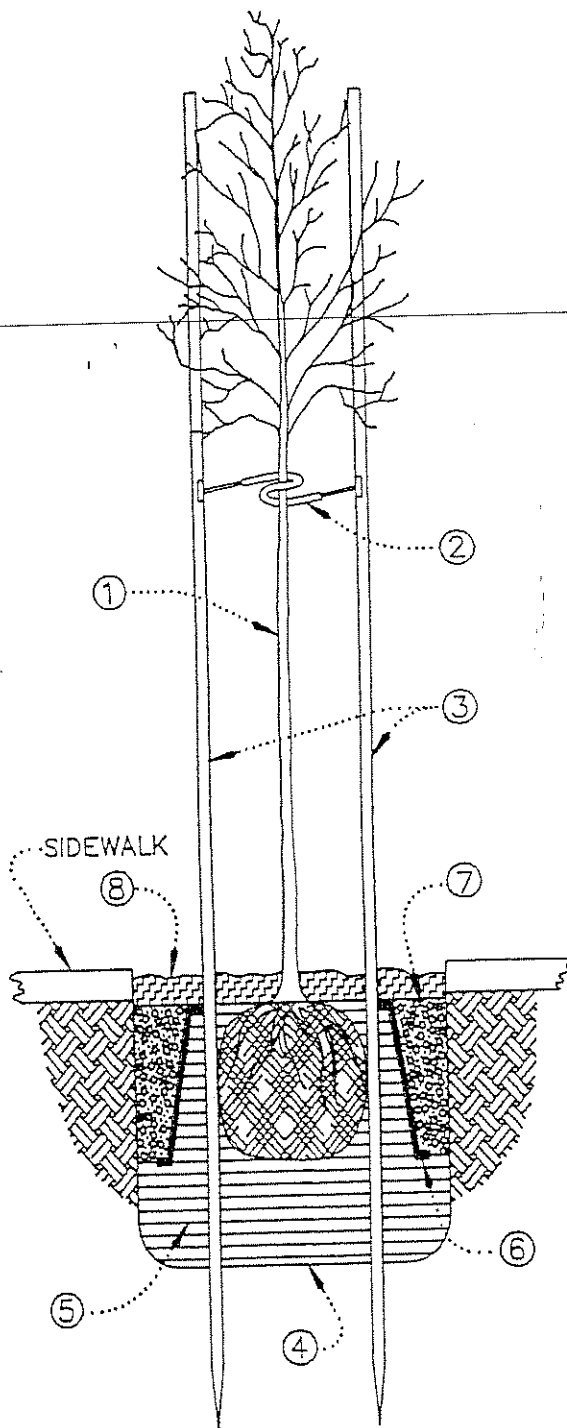
## STANDARD TREE WELL LOCATION

APPROVED BY:  
  
 DIRECTOR OF PUBLIC WORKS

DRAWING NO. 100-100

# NOTES:

1. 15 GALLON TREE (VARIETY SPECIFIED BY THE PARKS AND RECREATION DEPARTMENT)  
MINIMUM SIZE REQUIREMENTS:  
HEIGHT - 7 FEET  
TRUNK CALIPER 3/4 INCH
2. 16 INCH V.I.T. TREE TWIST BRACE NAILED TO TREE STAKES WITH GALVANIZED ROOFING NAILS.
3. TREE STAKES: TWO - 2" X 2" X 12' REDWOOD OR 2" DIAMETER X 12' TREATED LODGEPOLE DRIVEN A MINIMUM OF 4 FEET INTO THE GROUND AND AT OUTSIDE EDGE OF ROOT BALL.
4. EXCAVATION TO BE 30 INCHES DEEP AND TO THE FULL WIDTH AND LENGTH OF TREEWELL (TYPICALLY 4' X 4').
5. PLANTING SOIL MIX SHALL BE 3 PARTS TOPSOIL TO 1 PART NITROGEN STABILIZED HUMUS AND 1/2 LB. "BEST" TURF SUPREME FERTILIZER (16-6-8) OR APPROVED EQUAL.
6. SET ROOT CONTROL BARRIER (DEEP ROOT CORP. # 22-29-18-P OR ROOT BOOSTER # F1-15-BOX) ON COMPACTED BACKFILL SO THAT TOP OF BARRIER IS 4 INCHES BELOW TOP OF SIDEWALK. PLANT TREE IN BARRIER AND BACKFILL WITH SOIL MIX. TREE AND BARRIER SHALL BE CENTERED IN TREEWELL.
7. FILL REMAINDER OF HOLE AROUND OUTSIDE OF BARRIER WITH 3/4 INCH GRAVEL/DRAIN ROCK TO TOP OF BARRIER.
8. INSTALL 3 1/2 INCH LAYER OF BARK MULCH (PROVIDED BY THE CITY - INSTALLED BY THE DEVELOPER) IN TREEWELL TO 1/2 INCH BELOW TOP OF SIDEWALK.
9. DEVELOPER OR CONTRACTOR SHALL WATER THE TREE AT TIME OF PLANTING AND SHALL BE RESPONSIBLE FOR CARE OF THE TREE UNTIL ALL IMPROVEMENTS ARE ACCEPTED BY THE CITY.
10. ALL TREES SHALL BE PLACED A MINIMUM OF 8 FEET FROM SEWER LATERALS AND WATER SERVICES AND A MINIMUM OF 20 FEET FROM STREET LIGHTS.
11. IRRIGATION SYSTEM TO BE PROVIDED PER CITY STANDARD DRAWING NO. W-12 ON BACKUP LOT FRONTAGES. ON COMMERCIAL FRONTAGES, IRRIGATION SYSTEM TO BE CONNECTED TO ON-SITE AUTOMATIC IRRIGATION SYSTEM.

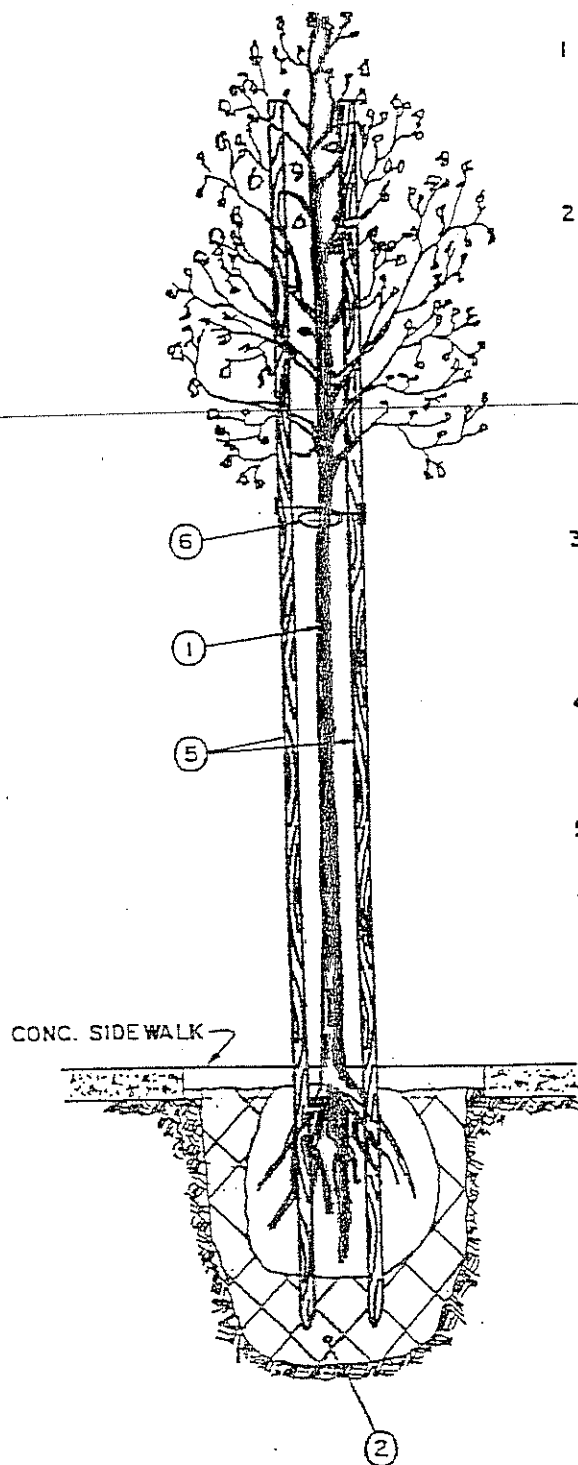


| NO.         | REVISED   | BY |
|-------------|-----------|----|
|             |           |    |
| DRAWN BY:   | J. HULSEY |    |
| CHECKED BY: | S. HOUX   |    |
|             | NONE      |    |

## ARTERIAL TREE WELL STREET TREE PLANTING

CITY OF MANTECA  
DEPARTMENT OF PUBLIC WORKS

|                          |                        |
|--------------------------|------------------------|
| APPROVED BY:             | <i>Michael Branton</i> |
| DIRECTOR OF PUBLIC WORKS |                        |
| DRAWING NO.              | ST-24                  |
| DATE:                    | AUG. 1992              |



- 1 MINIMUM TREE SIZE SHALL BE 15 GALLON CONTAINER. MINIMUM TREE HEIGHT SHALL BE 7'-0" FROM TOP OF CONTAINER TO TOP OF TREE. CALIPER OF TREE SHALL BE NO SMALLER THAN 3/4 OF AN INCH.
- 2 ALL SOIL SHALL BE REMOVED TO A DEPTH OF 3 FEET. THE DEVELOPER OR CONTRACTOR SHALL NOTIFY THE PARKS DEPARTMENT 48 HOURS PRIOR TO PLANTING TREE FOR INSPECTION. EXCAVATION SHALL BE INSPECTED PRIOR TO PLANTING. THE SOIL SHALL BE MIXED WITH SOIL RICH MATERIAL (70% REDWOOD - 30% FIR) AT A RATIO OF 2 PARTS SOIL TO ONE PART SOIL RICH. AFTER MIXING ONE FOOT OF MIXTURE WILL BE PLACED IN THE HOLE.
- 3 TREES SHALL BE CENTERED IN THE TREE WELL.
- 4 TWO 2"x2"x12'-0" REDWOOD OR KAPOR HARDWOOD TREE STAKES SHALL BE PLACED FOR EACH TREE. STAKES SHALL DRIVEN THROUGH ROOT AREA OF TREE 4'-0"
- 5 TREE BRACE SHALL BE RIGID METAL WITH RUBBER COVER AND SHALL BE LOCATED NEAR HEAD OF TREE.
- 6 DEVELOPER OR CONTRACTOR SHALL WATER TREE AT TIME OF PLANTING AND SHALL BE RESPONSIBLE FOR CARE OF THE TREE UNTIL ALL IMPROVEMENTS ARE ACCEPTED BY CITY.
- 7 ALL TREES SHALL BE PLACED A MINIMUM OF 8 FEET FROM SEWER LATERALS AND WATER SERVICES AND A MINIMUM OF 20 FEET FROM ELECTROLIERS.
- 8 SEE CITY LIST OF ACCEPTABLE TREES (ST-25).

| NO.                    | REVISED | BY |
|------------------------|---------|----|
|                        |         |    |
| DRAWN BY: J. HULSEY    |         |    |
| CHECKED BY: J. PODESTA |         |    |

## ARTERIAL STREET TREE PLANTING

CITY OF MANTECA

APPROVED BY:  
*M. Briston*  
DIRECTOR OF PUBLIC WORKS

DRAWING NO. **ST-24**

SUGGESTED LIST OF STREET TREES AS DEFINED IN RESOLUTION NO. R-5051 DATED MAY 5, 1969.

THERE ARE MANY DESIRABLE TREES FOR LAWN AND PATIO IN ADDITION TO THESE LISTED. OTHER TREES MAY BE APPROVED UPON REQUEST TO THE PUBLIC WORKS DIRECTOR. THIS LIST OF STREET TREES IS A SELECTED GROUP OF TREES WITH SPECIAL QUALITIES THAT MAKE THEM DESIRABLE ALONG THE STREET:

| <u>SUGGESTED LIST OF STREET TREES</u> | <u>APPROX. HEIGHT<br/>AT MATURITY</u> |
|---------------------------------------|---------------------------------------|
| CAMPHOR-----                          | (E) -----40'                          |
| CREPE MYRTLE-----                     | (D) -----25'                          |
| RAYWOOD ASH-----                      | (D) -----45'                          |
| EVERGREEN PEAR-----                   | (E) -----30'                          |
| MAYTENUS BOARIA-----                  | (E) -----20'                          |
| TULIP TREE-----                       | (D) -----75'                          |
| CANARY ISLAND PINE-----               | (E) -----60'                          |
| PURPLE LEAF PLUM-----                 | (D) -----25'                          |
| CHINESE SILK TREE (ALBIZZIA)---       | (D) -----30'                          |

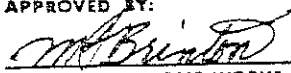
D-DECIDUOUS

E-EVERGREEN

#### LIST OF PROHIBITED STREET TREES

THIS LIST OF TREES ARE PROHIBITED AS STREET TREES UNDER ORDINANCE NO. 169 AND ARE PROHIBITED IN THE STREET TREE AREA (PARKING STRIPS AND THE FRONT FIVE (5) FEET OF THE LOT):

SYCAMORE (PLATANUS) D  
 POPULAR (POPULUS) D  
 WILLOW (SALIX) D  
 AMERICAN ELM (ULMUS AMERICANA) D  
 WALNUT (JUGLANS) D  
 EUCALYPTUS (MOST VARIETIES) E  
 CONIFERS (MOST VARIETIES) E  
 PEPPER (SCHINUS OR ZANTHOXY PIPERITUM) E-D  
 PALM (MOST VARIETIES)  
 ACACIA (MOST VARIETIES) E  
 MODESTO ASH (FRAXINUS VELUTINA "MODESTO") D  
 FRUITLESS MULBERRY (MORUS) D

|                                               |         |    |                                                   |                                                                                                                   |
|-----------------------------------------------|---------|----|---------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|
| NO.                                           | REVISED | BY | <h2 style="text-align: center;">STREET TREES</h2> | APPROVED BY:                                                                                                      |
|                                               |         |    |                                                   | <br>DIRECTOR OF PUBLIC WORKS |
| DRAWN BY: J. KOESTER                          |         |    |                                                   | DRAWING NO.                                                                                                       |
| CHECKED BY: J. PODESTA                        |         |    |                                                   | DATE: JAN. 1988                                                                                                   |
| CITY OF MANTECA<br>DEPARTMENT OF PUBLIC WORKS |         |    | <b>ST-25</b>                                      | 34                                                                                                                |