CITY OF PALO ALTO TREE TECHNICAL MANUAL STANDARDS AND SPECIFICATIONS

notes:

SECTION 1.00 DEFINITIONS

For the purposes of this *Manual* and interpretation of regulations, the following definitions shall apply:

- 1. Appraisal (see Tree Appraisal, Section 1.34).
- 2. Building Area means the area of a parcel that (1) upon which, under applicable zoning regulations, a structure may be built without a variance, design enhancement exception, or home improvement exception or; (2) is necessary for the construction of primary access to structures located on the parcel, where there exists no feasible means of access which would avoid protected trees. On single-family residential parcels, the portion of the parcel deemed to be the building area access shall not exceed ten (10) feet in width.
- 3. Building Footprint means the two-dimensional configuration of a building's perimeter boundaries measured on a horizontal plane at grade level.
- 4. Certified Arborist is an individual who has demonstrated knowledge and competency through obtainment of the current International Society of Arboriculture arborist certification, or who is a member of the American Society of Consulting Arborists. A certified arborist can be found in the vellow pages of the local telephone book, by contacting Canopy: Trees for Palo Alto at (650) 964-6110 (www.canopy.org) or the Western Chapter of the ISA at (916) 641-2990 (www.wcisa.org).
- 5. City Arborist means the person designated as such by the Director of Planning and Community Environment or the Director of Public Works.
- 6. Compaction means compression of the soil structure or texture by any means that creates an upper layer that is impermeable ('cap'). Compaction is injurious to roots and the health of a tree (see Soil Compaction Damage, Section 2.20).
- 7. <u>Dangerous</u> see Hazardous.
- 8. <u>Dead Tree</u> means a tree that is dead or that has been damaged beyond repair or is in an advanced state of decline (where an insufficient amount of live tissue, green leaves, limbs or branches, exists to sustain life) and has been determined to be such by a certified arborist. If the tree has been determined to be dead, removal is permitted under Section 8.10.050 of the Palo Alto Municipal Code.
- 9. Designated Tree means all trees that are specifically designated by the City to be saved and protected on a public or private property which is subject to discretionary development approval (see Discretionary Development Approval, Section 1.11), such as a variance, home improvement exception, architectural review, site and design, subdivision, etc. Designated trees are to be indicated on approved building permit or landscape plans.

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- 10. <u>Diameter at Breast Height (DBH) or Diameter at Standard Height</u> means the diameter of the perimeter tree trunk at four and one-half feet (or 54 inches) above natural grade level. See '*Protected trees*' for diameters of different species. The diameter may be calculated by using the following formula: DBH= circumference at 4.5-feet x 3.142 (D=C x Þ). To determine the DBH of multi-trunk trees or measuring trees on slopes, consult the current *Guide for Plant Appraisal*, published by the Council of Tree and Landscape Appraisers.
- 11. <u>Director</u> means the Director of Planning and Community Environment or the Director's designee, unless otherwise specified in the *Manual*.
- 12. <u>Discretionary Development Approval</u> means a planned community zone, subdivision, use permit, variance, home improvement exception, design enhancement exception, or Architectural Review Board approval.
- 13. <u>Disturbance</u> refers to all of the various activities from construction or development that may damage trees.
- 14. <u>Dripline Area</u> means the area within X distance from the trunk of a tree, measured from the perimeter of the trunk of the tree at 54-inches above natural grade, where X equals a distance ten times the diameter of the trunk at 54-inches above natural grade.
- 15. Excessive Pruning means: removing in excess, one-fourth (25 percent) or greater, of the functioning leaf, stem or root area. Pruning in excess of 25 percent is injurious to the tree and is a prohibited act. Excessive pruning typically results in the tree appearing as a 'bonsai', 'lion's-tailed', 'lolly-popped' or overly thinned (see 'Standards for Pruning Protected Trees', Section 5.15).
 - ▶ Unbalanced Crown. Excessive pruning also includes removal of the leaf or stem area predominantly on one side, topping, or excessive tree canopy or crown raising. Exceptions are when clearance from overhead utilities or public improvements is required or to abate a hazardous condition or a public nuisance.
 - ▶ Roots. Excessive pruning may include the cutting of any root two (2) inches or greater in diameter and/or severing in excess of 25 percent of the roots.
- 16. <u>Hazardous Tree</u> refers to a tree that possesses a structural defect which poses an iminent risk if the tree or part of the tree that would fall on someone or something of value (target)(see Determining if a tree is Hazardous, Section 4.00).
 - ▶ Structural defect means any structural weakness or deformity of a tree or its parts. A tree with a structural defect can be verified to be *hazardous* by a *certified arborist* and confirmed as such by the City Arborist. For the purpose of tree removal information required by the City, the tree report shall include a completed *ISA-TREE HAZARD EVALUATION FORM*, or an approved equivalent. The *City Arborist* retains discretionary right to approve or amend a *hazardous* rating, in writing, and recommend any action that may reduce the condition to a less-than significant level of hazard. If the tree has been determined to be *hazardous*, *removal* of the tree is permitted under Section 8.10.050 of the Municipal Code.

▶ A 'target' may mean people, vehicles, structures or property, such as other trees or landscape improvements. A tree may not be a hazard if a 'target' is absent within the falling distance of the tree or it's parts (e.g., a substandard tree in a non-populated area away from pedestrian pathways may not be considered a hazard).

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- 17. Injury means a wound resulting from any activity, including but not limited to 'excessive pruning', cutting, trenching, excavating, altering the grade, paving or compaction within the tree protection zone of a tree. Injury shall include bruising, scarring, tearing or breaking of roots, bark, trunk, branches or foliage, herbicide or poisoning, or any other action foreseeably leading to the death or permanent damage to tree health.
- 18. Monthly Inspection Report means a written report prepared by the property owner, project arborist, architect, developer, landscape architect, builder, applicant or other designated individual to document that a monthly tree inspection or any other required measure has been accomplished. The project arborist shall perform a site inspection to monitor the tree condition on a minimum interval of four weeks. The Planning Division Arborist shall be in receipt of the progress report during the first week of each calendar month until project completion at fax # (650) 329-2154.
- 19. Project Arborist means a certified arborist (see Certified Arborist, Section 1.4) retained by a property owner or development applicant for the purpose of overseeing on-site activity involving the welfare of the trees to be retained. The project arborist shall be responsible for all reports, appraisals, tree preservation plans, or inspections as required.
- 20. Protected Tree means:
 - ▶ All Coast Live Oak, Quercus agrifolia, Valley Oak, Quercus lobata that are 11.5-inches or greater in diameter (36-inches in circumference measured at 54-inches above natural grade) and Coast Redwood, Sequoia sempervirens trees that are 18-inches or greater in diameter (57-inches in circumference measured at 54inches above natural grade) and Heritage trees, individual trees of any size or species designated by City Council having distinctive characteristics such as great age, large, unique form or possess historical significance (see Introduction - Use of The Manual, Regulated Trees).
- 21. Protective Tree Fencing means a temporary enclosure erected around a tree to be protected at the boundary of the tree protection zone. The fence serves three primary functions: 1) to keep the foliage crown, branch structure and trunk clear from direct contact and damage by equipment, materials or disturbances; 2) to preserve roots and soil in an intact and non-compacted state; and 3) to identify the tree protection zone (see Section 2.15 E) in which no soil disturbance is permitted and activities are restricted. (For size, type, area and duration of the fencing, see Protective Tree Fencing, Section 2.15.D).
- 22. Public Nuisance means either an individual tree or shrub on any private property or in any street, or a type or species apt to destroy, impair or otherwise interfere with any street improvements, sidewalks, curbs, street trees, gutters, sewers, or other public improvements, including above and below ground utilities.

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- 23. <u>Recommended Practice</u> means an action, treatment, technique or procedure that may be implemented for superior care or preservation of trees. Recommended practices may be required under specific conditions of approval for *discretionary development* projects or *injury* mitigation.
- 24. Regulated Tree means any Protected Tree, Street Tree or Designated Tree.
- 25. Removal means any of the following:
 - ▶ Complete tree *removal* such as cutting to the ground or extraction of the tree.
 - ▶ Taking any action foreseeably leading to the death of a tree or permanent damage to its health or structural integrity, including but not limited to excessive pruning, cutting, girdling, poisoning, over watering, unauthorized relocation or transportation of a tree, or trenching, excavation, altering the grade, or paving within the dripline of the tree.
- 26. <u>Required Practice</u> means a mandatory action, treatment, technique or standard of care required to be implemented by the property owner, developer, contractor or designee for the preservation of trees
- 27. Root Buffer means a temporary layer of material to protect the soil texture and roots. The buffer shall consist of a base course of tree chips spread over the root area to a minimum of 6-inch depth, capped by a base course of 3/4-inch quarry gravel to stabilize 3/4-inch plywood on top. (see Buffers, Section 2.15.5 B).
- 28. <u>Site Plan</u> means a set of drawings (e.g. preliminary drawings, *site plan*, grading, demolition, building, utilities, landscape, irrigation, tree survey, etc.) that show existing site conditions and proposed landscape improvements, including trees to be removed, relocated or to be retained. *Site plans* shall include the following minimum information that may impact trees:
 - ▶ Surveyed tree location, species, size, *dripline area* (including trees located on neighboring property that overhang the project site) and *street trees* within 30-feet of the project site.
 - ▶ Paving, concrete, *trenching* or grade change located within the *tree protection zone*.
 - Existing and proposed utility pathways.
 - Surface and subsurface drainage and aeration systems to be used.
 - ▶ Walls, tree wells, retaining walls and grade change barriers, both temporary and permanent.
 - Landscaping, irrigation and lighting within dripline of trees, including all lines, valves, etc.
 - ▶ Location of other landscaping and significant features.
 - ▶ All of the final approved *site plan* sheets shall reference tree protection instructions (*see also Site Plan, Section 6.35*).

- 29. Soil Compaction means the compression of soil particles that may result from the movement of heavy machinery and trucks, storage of construction materials, structures, paving, etc. within the tree protection zone. Soil compaction can result in atrophy of roots and potential death of the tree, with symptoms often taking 3 to 10-years to manifest (see Compaction, Section 2.20; and Aeration, Section 5.50 A).
- 30. Soil Fracturing means the loosening of hard or compacted soil around a tree by means of a pneumatic soil probe (Gro-gun) that delivers sudden bursts of air to crack, loosen or expand the soil to improve the root growing environment.
- 31. Street Tree means any publicly owned tree, shrub or plant growing within the street right-of-way, outside of private property. In some cases, property lines lie several feet behind the sidewalks. A permit from the Public Works Department is required prior to any work on or around these trees. Check with the Public Works Department to verify prior to any work near a street tree (see Introduction - Use of The Manual, Regulated Trees).
- 32. Target is a term used to include people, vehicles, structures or something subject to damage by a tree.
 - ▶ Note: A tree may not be a hazard if a "target" is absent within the falling distance of a tree or its parts (e.g., a defective tree in a non-populated area away from pathways may not be considered a hazard (see Hazardous Tree, Section 1.15).
- 33. Topping means the practice of cutting back large-diameter branches or truncating the main stem.
- 34. Tree Appraisal means a method of determining the monetary value of a tree as it relates to the real estate value of the property, neighborhood or community. When required, a certified arborist determines the appraisal by adjusting a tree's basic value by its condition, location and species using the most recent edition of the Guide for Plant Appraisal, published by the Council of Tree and Landscape Appraisers (see Tree Reports, Section 6.00).
- 35. Tree Protection and Preservation Plan means a plan prepared by a certified arborist that outlines measures to protect and preserve trees on a project (see Tree Protection and Preservation Plan, Section 2.10 and Reports, Section 6.30). This plan shall include requirements for preconstruction; treatments during demolition and/or construction; establish a tree protection zone for each tree; tree monitoring and inspection schedule; and provide for continued maintenance of those trees after construction according to the requirements in this Manual.
- 36. Tree Protection Zone or (TPZ) means, unless otherwise specified by a project arborist or City Arborist, the area of temporary fenced tree enclosure (see Protective Tree Fencing, Section 2.15.D, and Section 2.15.E). Within the TPZ, roots that are critical for tree survival are typically found in the upper three foot soil horizon, and may extend beyond the dripline area. Protecting the roots in the TPZ is necessary to ensure the tree's survival. The TPZ is a restricted activity zone where no soil disturbance is permitted, unless otherwise approved. TPZ must be identified for each tree and shown on all applicable improvement plans for a development project. Restricted and approved activities within the TPZ are outlined in Section 2.15.E.

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- ▶ Determining the TPZ. Unless otherwise specified, the approved minimum TPZ shall be formulated in the following way: the TPZ radius shall be 10 times the DBH of the trunk (see Dripline area, Section 1.13). For example: a 2-foot DBH = a 20-foot radius from the perimeter of the trunk—or a 40-foot TPZ. The City Arborist retains discretionary right to extend or modify the TPZ at any time.
- 37. <u>Tree Report</u> means a report submitted to the City for review that is prepared by a *certified arborist* retained by the property owner or agent.
 - ▶ Tree Survey Report. In the case of a discretionary development approval, a tree survey report is required to provide information about all trees on the site including: inventory of all trees, location, species, size, condition, maintenance needs, potential impacts of disturbance, recommended mitigation measures, tree appraisal value, etc. (see Tree Reports; Tree Protection and Preservation Plan and Tree Appraisal, Section 6.00).
 - ▶ Letter Report. A 'letter report' shall provide a brief description of the tree information to determine whether or not a tree is dead, hazardous or constitutes a public nuisance as defined in Palo Alto Municipal Code, Chapter 8.04.050 (2) (see Tree Reports; Tree Protection and Preservation Plan and Tree Appraisal, Section 6.00).
- 38. Tree Technical Manual is this document.
- 39. Trenching means any excavation to provide irrigation, install foundations, utility lines, services, pipe, drainage or other property improvements below grade. *Trenching* within the TPZ is injurious to roots and tree health and is prohibited, unless approved. If *trenching* is approved within the TPZ, it must be in accordance with instructions and table outlined in this *Manual* (see *Trenching*, Section 2.20.C, and Existing Paving and Hardscape Conflicts with Tree Roots, Section 2.40).
- 40. <u>Verification of Tree Protection</u> means the *project arborist* shall verify, in writing, that all pre-construction conditions have been met (tree fencing, erosion control, pruning, etc.) and are in place. An initial inspection of protective fencing and written verification must be submitted to the *City Arborist* prior to demolition, grading or building permit issuance (see *Inspections*, *Section 2.30*).
- 41. <u>Vertical Mulching</u> means augering, hydraulic or air excavation of vertical holes within a tree's root zone to loosen and aerate the soil, typically to mitigate compacted soil. Holes are typically penetrated 4- to 6-feet on center, 2- to 3-feet deep, 2- to 6-inches in diameter and backfilled with either perlite, vermiculite, peat moss or a mixture thereof.



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