



ADDENDUM NO. 1
McCLELLAN RANCH WEST – SIMMS HOUSE REMOVAL
PROJECT NO. 2016-06
ISSUED DATE: NOVEMBER 17, 2015

The following revisions are hereby made to the above referenced project.

1. Document 00100 "Advertisement for Bids": Replace Paragraph 5 "Contract Time" with this new Paragraph 5:

*"A Notice to Proceed is anticipated to be issued by or before January 22, 2016. Work shall be finally completed within **45 Calendar Days** from the date when Contract Time commences to run."*

2. Document 00520 "Contract", Paragraph 3.1 "Contract Time": Replace the 2nd paragraph with this new paragraph:

*"Contractor shall achieve Final Completion of the entire Work and be ready for Final Payment in accordance with Document 00700 "General Conditions" within **45 Calendar Days** when Contract Time commences to run."*

3. Document 00800 "Special Conditions", Paragraph 1.5 "Contract Time": Replace the 2nd paragraph with this new paragraph:

*"Contractor shall achieve Final Completion of the entire Work and be ready for Final Payment in accordance with Document 00700 "General Conditions" within **45 Calendar Days** when Contract Time commences to run."*

4. Replace Document 0 08 23 "Tree Protection" with the revised Document 0 08 23 "Tree Protection", attached.

5. Section 31 22 00 "Grading", Paragraph 1.1, B, 3: Change the reference to the Tree Specification Section from Section 31 13 11 to **Document 0 08 23**.

All questions regarding the project must be transmitted in writing to Alex Acenas, Public Works Projects Manager by fax or e-mail. Fax number is 408-777-3333 and e-mail address is AlexA@cupertino.org.

Please indicate receipt of this addendum on the last page of the Proposal. Failure to do so may cause rejection of your bid.

APPROVED BY:

Timm Borden
Director of Public Works

Addendum No. 1

City of Cupertino
McClellan Ranch West
Simms House Removal

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DOCUMENT 00823

TREE PROTECTION

PART 1 INTRODUCTION

1.01 SUMMARY

- A. Tree Protection includes, but is not limited to:
1. The protection of the above and below-ground portions of trees and plants including roots, trunks, branches and foliage. Protection of roots includes reduction and/or prevention of soil compaction caused by vehicles, equipment, materials or foot traffic.
 2. Protective Fencing and Signage surrounding the Tree Protection Zone (TPZ) around the tree or group of trees.
 3. Pre-Demolition and Construction meetings on site with the Project Arborist.
 4. Coordination and consultation with the Project Arborist regarding site work and potential tree impacts – as required.
 5. Weekly Tree Protection Inspections and Reports by the Project Arborist.
 6. Construction Access Clearance Pruning for demolition and construction.
 7. Organic mulch placement in TPZ if needed, as determined by the Project Arborist.
 8. Irrigation of trees before and during demolition and construction.
 9. Soil grubbing, grading, structure or pavement removal, excavations, etc. around tree roots.
 10. Tree removal without damage to trees to remain.
- B. Related Sections can include, but may not be limited to:
1. General Conditions 00700
 2. Special Conditions 00800

1.02 DEFINITIONS

- A. ***Air spade:*** a commercial grade, hand-held metal probe attached to a large air compressor by a hose. Pressurized air is discharged from the tip of the probe. The air is used to excavate soil away from items such as tree roots, or to dig trenches or remove soil with minimal damage to tree roots (compared to traditional soil removal methods).
- B. ***Arborist Designations:***
1. Arborist: a person who provides advice about urban trees.
 2. Board Certified Master Arborist (ISA) must meet higher eligibility requirements than a Certified Arborist, pass a more comprehensive test and has a greater and more specific continuing education requirement.
 3. Certified Arborist: is an Arborist certified through the ISA (International Society of Arboriculture) after passing a test demonstrating basic knowledge about urban trees and their management, fulfilling an ongoing continuing education requirement and paying regularly scheduled certification fees.

4. City Arborist is that person designated as such by the City of Cupertino. The City Arborist is responsible for City-owned trees.
 5. Project Arborist: A Qualified Arborist who is the appointed consulting arborist for the project and provided and paid for by the City.
 6. Qualified Arborist: An ISA Board-Certified Master Arborist and/or or an ASCA RCA that has experience in working as the Project Arborist on construction projects.
 7. Registered Consulting Arborist (RCA) is an arborist certified by the ASCA (American Society of Consulting Arborists). This is the highest level of arborist certification and requires a longer period of pre-certification work experience and/or formal education than an ISA Certified or Board-Certified Arborist. RCA's must have a more comprehensive knowledge of arboriculture, and demonstrate a minimum acceptable report writing proficiency.
- D. ***Dripline (tree):*** the area under the total branch spread of the tree, all around the tree.
- E. ***Existing tree:*** those trees existing on project property prior to any demolition or construction for a project.
- F. ***Tree:*** a woody perennial plant usually having one dominant trunk and a mature height greater than 15 feet. Multiple-trunk trees have more than one trunk.
- G. ***Tree Protection Zone (TPZ):*** unless otherwise specified by the City, the area inside the tree protection fencing on a construction project, containing the tree trunk(s) and extending to 10 feet beyond the dripline of the tree or as close to this distance as possible, given the nature of the site and proposed improvements. The TPZ shall be jointly agreed upon by the Contractor, City and Project Arborist. The TPZ and tree protection fencing are put in place prior to commencement of any Work on site and remain in effect until the Work is fully complete. The TPZ may change during the span of the project.
- H. ***Tree Service:*** A company that performs tree pruning and tree removals as their main business.
- I. ***Qualified Tree Service:*** A tree service with a supervising arborist who has the minimum certification level of ISA (International Society of Arboriculture) Certified Arborist, in a supervisory position on the job site during execution of the tree work.

1.03 REFERENCES AND REGULATORY REQUIREMENTS

- A. Arboriculture – Integrated Management of Landscape Trees, Shrubs & Vines, 4th edition. Harris et al. Prentice Hall. 2004.
- B. Guide for Plant Appraisal. 9th Edition. Council of Tree & Landscape Appraisers. International Society of Arboriculture. 2000.

- C. Tree Technical Manual. Standards & Specifications. City of Palo Alto. Palo Alto Municipal Code, Chapter 8.10030. Dave Dockter, June 2001 (First edition). Palo Alto Department of Planning & Community Environment.
- D. Pruning Standards:
 - 1. Best Management Practices, Tree Pruning. 2008. International Society of Arboriculture, PO Box 3129, Champaign, IL 61826-3129. 217-355-9411
 - 2. ANSI Z133.1 American National Standards for Tree Care Operations. 2006 Edition. Secretariat: National Arborist Association, Inc. American National Standards Institute, 11 West 42nd St., New York, New York, 10036.
 - 3. ANSI A300 Pruning Standards. 2008 Edition. Ibid.
- E. Trees & Development. Matheny et al. International Society of Arboriculture. 1998.
- F. The Guide for Plant Appraisal, 9th edition. Council of Tree & Landscape Appraisers. International Society of Arboriculture. 2000.
- G. Species Classification and Group Assignment, Western Chapter of the International Society of Arboriculture, 2004.

1.04 SUBMITTALS

- A. Conform to the requirements of Document 00700 General Conditions.
- B. Construction Access Clearance Pruning Plan indicating location and type of tree(s) and pruning needed for construction access.
- C. Tree Protection Fencing Plan indicating locations of Type I and Type II fencing, construction vehicle access and designated storage and parking areas.
- D. Tree Service qualifications as provided for under Section 1.05, "Quality Assurance."

1.05 QUALITY ASSURANCE

- A. The tree service shall have at least five (5) years' experience and have a State of California Contractor's license for Tree Service (C61-D49) and provide proof of Workman's Compensation and General Liability Insurance. The person(s) performing the tree work must adhere to the most current arboricultural industry tree care standards as listed under Section 1.03, "References and Regulatory Requirements" of this Document 00823.

1.06 PROJECT CONDITIONS

- A. Tree protection specifications apply to any existing tree on site that will not be removed and will be within or near any area where demolition or construction will occur. This includes any tree that is not located in an area that is completely fenced off from construction with a perimeter construction fence. If any portion of the canopy of a tree outside the construction zone overhangs a perimeter construction fence, these specifications shall apply to such trees as well.

- B. Trees have value and a monetary value for individual trees that can be calculated by the Project Arborist. The Contractor may be charged the full value of the tree if a tree that is supposed to be saved is removed due to contractor negligence. Tree damage due to contractor's negligence will be charged at a percentage of the tree damaged, based upon the calculated tree value, up to 100% of that tree's value, as determined by the City. The contractor may also be charged for work to repair damage to the tree, including soil compaction remediation.
- C. Unexpected conditions occur and changes are necessary on all construction projects. Such situations may necessitate that changes or modifications be made to these Tree Protection Specifications. Any concerns or conflicts with these Specifications should be brought to the attention of the City immediately so that alternate methods may be agreed upon in writing.
- D. Notify the City as soon as there are changes in site or construction management personnel.
- E. Rototilling within tree driplines shall not be allowed unless otherwise approved by the Project Arborist in writing. Any planting within this area should be done by hand and not use power equipment such as soil augers.
- F. Plants and new irrigation including irrigation trenching shall be kept at least 6 to 10 feet away from the trunks of existing trees or 5xDBH, whichever is greater, depending upon the size and type of tree, and the environmental conditions or as shown on the plans.
- G. Underground Utilities:
1. Every attempt should be made to keep new underground utility lines outside TPZ and as far away from existing trees as possible. At any point in the construction process, Contractor shall immediately notify the City in writing if new utilities are required to pass through TPZ so that alternatives may be investigated.
 2. If any utility lines will pass underneath the dripline of the tree, TPZ or within the 5xDBH distance to the trunk, the Project Arborist shall review the utility location and may prescribe any mitigation procedures that will reduce damage to trees.
 3. Abandoned pipes and utilities within TPZ shall be cut at existing grade and not pulled out, if their removal would damage tree roots as determined by the Project Arborist.
- G. Construction Vehicle Access: a defined route for construction vehicles and large equipment shall be established in order to reduce damage to trees and other vegetation. Clearly show and label the construction vehicle route on the Tree Protection Fencing Plan. Vehicle access shall be limited to one entrance and one exit to the site unless otherwise approved by the City in writing.

- H. Designated Storage & Parking Areas: No storage or parking shall be allowed within TPZ. On site designated storage and parking areas shall be shown on the Tree Protection Fencing Plan and must be away from protected trees.
- I. Project Arborist Presence during Work: City may require the presence of the Project Arborist when Work is being completed near driplines, in root areas, and/or TPZ. The Contractor must notify the City at least 4 working days prior to implementing work near driplines, in root areas, and/or TPZ so that the Project Arborist may be present.

1.07 PRE-DEMOLITION/ CONSTRUCTION:

- A. Pre-Demolition/ Construction Meeting at the site shall be conducted with the Project Arborist, the City, and the Contractor. The Contractor is responsible to see that these tree protection specifications are implemented and that all people working at the site, making deliveries or are otherwise involved with the project site are aware of and adhere to these specifications. A copy of these Specifications is to remain and be accessible at the site at all times. Additional meetings on site with workers may be necessary and, if needed, shall be organized with the Project Arborist when required by the City. Tail-gate meetings may be recommended to include review of unusual circumstances, conditions or procedures to be followed.
- B. Irrigation:
 - 1. All trees that will be near construction or demolition disturbance shall be well hydrated before any demolition or construction work begins.
 - 2. The Project Arborist will determine whether or not irrigation is required at any time before or during the project and will supply directions for irrigation. The frequency and amount of water will depend upon the weather, real or expected root damage to the tree, tree species and condition and the soil moisture status.
 - 3. The Contractor shall irrigate the trees as required by Project Arborist as soon as possible prior to the commencement of work, if the soil is not moist to at least 12 inches below the surface. At the Project Arborist's discretion, such irrigation may include drought tolerant trees which should normally be "summer dry" such as native California oaks, if they are expected to experience root damage during construction.
 - 4. During construction, the Contractor shall supply the trees with non-recycled water from a water truck or other suitable water source at least several times per week during the normally dry months, as well as if there is insufficient rain during the normal wet season. Irrigation directions are intended to keep trees properly hydrated during construction and shall be supplied by the Project Arborist.
 - a. Contractor shall maintain an irrigation log on site that indicates dates, times, durations, water method and amount of water applied.
 - b. The irrigation log shall be reviewed by the City or Project Arborist as indicated in the irrigation directions.
 - 5. Construction Access Clearance Pruning shall be minimized and limited to pruning required to allow for site access and demolition. No pruning for aesthetics shall be allowed.

- a. NO construction clearance pruning will be performed until the required clearance distances have been determined and communicated to the Project Arborist and the qualified tree service that will perform the work.
- b. In the event of pruning required to mitigate an acute hazardous condition, contact the City as soon as possible for instructions.
 - i. Contractor may perform hazard mitigation pruning if approved in writing by the Project Arborist
 - ii. Contractor performed hazard mitigation pruning may require correction by a Qualified Tree Service as part of the Contract and at no cost to the City.
- c. Project Arborist may be required by the City to oversee the pruning work.

1.08 PROTECTION

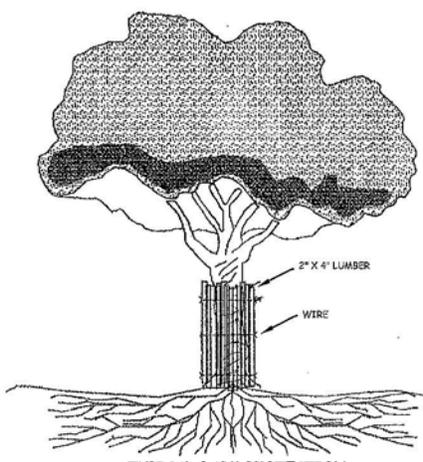
- A. Tree Protection Fencing Requirements for all trees that may be affected by the Work.
 - 1. All construction activities shall be conducted outside tree protection fencing.
 - i. These activities include, but are not limited to, the following: demolition, grubbing grading, trenching, equipment cleaning, stockpiling and dumping materials (including soil fill) and equipment/vehicle operation and parking.
 - 2. Contractor will be allowed to use Orange safety fence as shown on the plans, unless this type of protection does not work to keep the tree safe during construction.
 - i. If the City determines that Orange safety fencing is not working, the Contractor shall be required to install fencing Materials as indicated in 1.08.A.3 below. No extra cost shall be incurred by the City for upgrade to tree protection fencing.
 - 3. Fencing Materials and Installation:
 - a. The fencing shall be as “Type 1 Fencing” as described in 1.08.A.4 below and as shown in Detail #1 unless otherwise directed by the City.
 - b. Chain-Link Protection-Zone Fencing: Galvanized-steel fencing fabricated from minimum 2-inch (50-mm) opening, 0.148-inch- (3.76-mm-) diameter wire chain-link fabric; with pipe posts, minimum 2-3/8-inch- (60-mm-) OD line posts, and 2-7/8-inch- (73-mm-) OD corner and pull posts; with 1-5/8-inch- (42-mm-) OD top rails and 0.177-inch- (4.5-mm-) diameter bottom tension wire; with tie wires, hog ring ties, and other accessories for a complete fence system.
 - c. If “Type 1 Fencing” is not possible on the project or a portion of the project, then Contractor must notify the City in writing. Contractor and City shall review and agree that “Type 1 Fencing” is not viable and agree upon an alternative fencing solution.
 - 4. Fencing Types
 - i. Type 1 Fencing: shall be 6-foot high chain-link fencing mounted on 2-inch diameter galvanized posts, driven into the ground to a depth of at least 2 feet and spaced no more than 10 feet apart. An 18 - 24-inch

gap shall be left in the fencing for Arborist inspection and tree care access. There must be a fence post on either side of this gap.

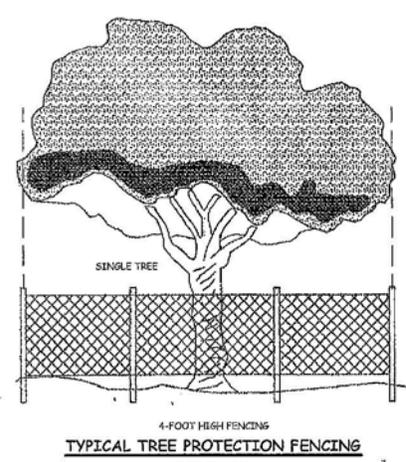
5. Fencing Placement:

- a. Fencing shall be placed 10 feet beyond the dripline of the tree, or as shown on plans.
 - i. If it is not possible or practical to place the tree protection fencing as directed above, then the fencing shall be placed as far from the trunk of the tree as possible while still allowing construction work to progress, protect as much of the ground underneath the tree canopy and the tree canopy itself.
- b. The City and the Project Arborist shall meet with the general contractor on the project site prior to both demolition and construction to discuss and agree upon tree protection fencing locations. Tree protection fencing locations shall be spray painted on the ground and any deviations to the "Type 1 Fencing" must be noted and agreed to by the Project Arborist, Contractor, and City.
- c. The City and the Project Arborist shall inspect the fencing after installation. If the fencing is non-compliant, then no work, including staging of equipment or materials, may begin on site until the Project Arborist has approved the tree protection fencing.
- d. The fencing shall not be moved from its City- and Project Arborist-approved locations without permission. No work may occur within the fencing without City's and Project Arborist's permission. If Contractor or others believe that the fencing must be moved or work must be done inside the fenced area, Contractor shall call City to arrange a field meeting. City written authorization is required in order to move or take down the tree protection fencing.
- e. Perimeter construction fencing may serve as a portion of tree protection fencing upon written approval by the Project Arborist. Such perimeter fencing must have tree protection signs attached to it facing the project site, as described in 1.09.B below.

6. Fencing maintenance: Fence posts must be maintained vertical, level and plumb, and shall not be allowed to lean. Fence mesh shall be taught and shall not sag. Do not lean construction equipment, materials, supplies or other items on the tree protection fencing.



TYPICAL BARK PROTECTION
NOT TO SCALE



TYPICAL TREE PROTECTION FENCING
NOT TO SCALE

1. Prior to any construction operations contractor shall construct and maintain, for each protected tree on a construction site, a protective fencing which encircles the outer limits of the critical root zone(CRZ) of the tree to protect it from construction activity. The CRZ is calculated 1.25 feet times the diameter of the trunk measured in inches 4.5 feet above the natural grade).
2. All protective fencing shall be in place prior to commencement of any site work and remain in place until all exterior construction activity at the site has been completed.
3. Protective fencing shall be at least six (6) feet high, clearly visible, and shall have a tree protection sign affixed to the fence every twenty (20) feet in such a manner to be clearly visible and legible to workers on the site at a distance of twenty-five (25) feet. The sign(s) shall read "Tree Protection Zone Keep out".
4. The owner shall cause the required fencing and signage to be installed and maintained for the duration of the construction.
5. In situations where a protected tree remains in the immediate area of intended construction and the tree may be in danger of being damaged by construction equipment or other activity, the contractor or subcontractor shall protect the tree with 2"x4" lumber encircled with wire or other means that do not damage the tree. The intent is to protect the trunk of the tree against incidental contact by large construction equipment.
6. Material Storage: No storage or placement of materials intended for use in construction or waste materials accumulated due to excavation or demolition shall be placed within the limits of the critical root zone of any protected tree.
7. Equipment Cleaning/Liquid Disposal: No equipment shall be cleaned or other liquids, including, without limitation, paint, oil, solvents, asphalt, concrete, mortar or similar materials deposited or allowed to flow into the critical root zone of a protected tree.
8. Tree Attachments: No signs, wires or other attachments, other than those of a protective nature, shall be attached to any protected tree.
9. Vehicular Traffic: No vehicular and/or construction equipment traffic or parking shall take place within the critical root zone of any protected tree other than on existing street pavement.
10. No heavy equipment, including but not limited to trucks, tractors, trailers, bulldozers, excavators, skid steer tractors, trenchers, compressors, and hoists, shall be allowed inside the drip-line of any protected tree on any construction site.
11. Grade Changes: No grade changes shall be allowed within the limits of the critical root zone of any protected tree unless adequate protective construction methods are approved in advance in writing by the city.
12. Impervious Paving: No paving with asphalt, concrete or other impervious materials shall be placed within the limits of the critical root zone of a protected tree, unless expressly permitted by the public works Dept
13. Root Pruning: All roots two inches or larger in diameter which are exposed as a result of trenching or other excavation shall be cut off square with a sharp medium tooth saw and covered with natural fiber burlap within two hours of initial exposure. Project Arborist must be on site to advise.
14. All public sidewalks shall remain open, free and clear for public access, unless closure is permitted by the Public Works Department.

TREE PROTECTION STANDARDS

REVISED 5/13

CITY OF CUPERTINO STANDARD DETAILS	APPROVED BY:  City Engineer	DATE: 7/19/13	6-4
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Detail #1 – Tree Protection Fencing

- B. **Tree Protection Fencing Signage:** Tree Protection Signs are required to be affixed to all tree protection fencing with four plastic wire ties; one wire tie in each corner of the sign. The **Tree Protection Sign Template** (Detail #2) shall be used to order and make the Tree Protection Signs. The written portion of the sign shall face the project work area. The sign shall be a minimum 8.5 x 11 inches and be constructed of either aluminum or corrugated plastic. Tree Protection Signs must be securely affixed to the Tree Protection Fencing with one plastic wire tie in each corner. The top of the sign shall be 6 inches below the top of the fence. The sign must be level and must face the construction work.



Detail #2 – Tree Protection Sign Template

- C. **Duration of Fencing:** Tree protection fencing must remain in place until final inspection of the project unless otherwise authorized by the Project Arborist.
- D. **Fencing Visibility:** Durable neon-colored flagging tape may be woven through the top of the tree protection fencing, or about 12 inches of orange plastic ski fencing can be attached to the top of the metal chain link fencing to increase visibility to vehicle operators.
- E. **Other:**
1. Do not direct vehicle or equipment exhaust toward protection zones.
 2. Prohibit heat sources, flames, ignition sources, and smoking within or near protection zones and organic mulch.
 3. Restrict vehicular traffic to areas outside the dripline of the tree, even when the entire dripline is not surrounded by tree protection fencing.
- F. **Mulching – Existing Trees to Remain.** For the purpose of the bid, NO supplemental mulching is required for existing trees to remain on this project. However, the existing natural topsoil, surface plant litter and live vegetation must remain in place until landscaping, in order to protect the root system of the trees.
1. No site clearing or grubbing or removal of surface vegetation and plant debris shall occur except in the distinct areas where improvements will be located.

2. Depending upon tree and site conditions, the Project Arborist may require mulch material, such as tree trimming chippings from a local tree service, to be delivered to the site and spread around trees as the Work progresses.

1.09 DURING DEMOLITION/CONSTRUCTION:

- A. Project Arborist Presence During Work:
 1. Work around specific trees (such as trenching or excavation near certain trees) is called out on the plans as requiring the Project Arborist to be present during the work.
 2. If not called out on the plans the City may request the Project Arborist presence for the oversight of work near trees. If it is determined that the Project Arborist is required, Contractor to give City at least 4 working days' notice to coordinate having Project Arborist scheduled.
- B. Structures, underground features and other improvements to be removed within any TPZ shall use the smallest equipment possible, and the equipment shall stage outside the TPZ and as far from protected trees as possible. The Project Arborist may be required onsite to monitor demolition activity. If it is determined by the City that the Project Arborist is required onsite, Contractor shall give City at least 4 working days' notice for Project Arborist scheduling.
- C. Unavoidable Vehicle Traffic within TPZ: Where vehicles or equipment must travel within TPZ, protection of the soil to reduce compaction must be accomplished through one or more of the following, to be approved by the Project Arborist and the City:
 1. Apply 6-12 inches of woodchip mulch to the area
 2. Lay 1-inch thick plywood or 4 x 4 inch wood beams over a 4+ inch thick layer of wood chip mulch
 3. Apply 4 to 6 inches of gravel over a taut, staked geotextile fabric
 4. Placing commercial logging or road mats on top of a 4+ inch thick mulch layer
 5. Lay steel plates on top of supportive 4x4" lumber or railroad ties to span over tree root zones.
 6. Note that all stone, and base rock, all geotextile and any mulch exceeding 4 inches in depth will need to be removed after work in the area has been completed.
- D. Unavoidable foot traffic or worker access for construction within TPZ: The ground surface should be cushioned with one or more of the following, agreed upon by the Project Arborist and the City:
 1. Flakes taken from bales of hay and overlain with ¾ or 1" thick sheets of plywood. Use at least 2 layers of flakes (or as many as needed to provide a 4 to 6 inch height. Move this protection as needed, but keep as much of this protection in place as possible.
 2. 6-inches of mulch overlain by ¾-inch thick plywood
 3. 8-12 inches of mulch spread over the ground surface
- E. Roots that are exposed, must be removed or are damaged:

1. Any soil disturbance within the TPZ and/or the tree dripline (whichever is greater) should be done with great care as follows:
2. If grading – cut or fill – occurs, then hand or air-spade excavate a *root observation and root cutting trench* at the edge of soil disturbance near a protected tree(s).
 - a. The trench must be to the depth of the excavation at the edge of the soil disturbance.
 - b. Roots that must be removed within the soil disturbance area shall be exposed and cut cleanly within this trench.
 - c. The excavation of this trench must not cause the soil disturbance to come any closer to the tree than is necessary for construction of the improvement.
 - d. The trench must be at least 12 inches wide.
 - e. Within the trench, cut exposed roots that need to be removed cleanly with sharp pruning tools as specified.
 - f. The Project Arborist shall be present to inspect the exposed roots after the trench has been dug and also to observe, supervise and assist with the root cutting.
 - g. If the City does not require the Project Arborist to be present, then leave cut root pieces close to the trees from which they were cut, for the arborist to evaluate at a later time.
3. Root cutting tools must be sharp and in good condition.
 - a. Mandatory root uncovering and cutting tools include:
 - i. Round-blade shovel
 - ii. Large mattock
 - iii. Tree pruning saws designed for root cutting
 - iv. Pruning loppers with minimum 1-inch diameter cutting capacity
 - b. Recommended root uncovering and cutting tools are:
 - i. Hand mattock
 - ii. Hand trowel shovel
 - iii. Recipro-saw with wood cutting blades and pruning blades – have several new blades on hand
 - iv. Concrete circular saw, rock or root cutting saw, such as Stihl TS-400 with a 12-inch blade. Carbon or diamond-tipped blades – start with a new blade and have extra blades on hand.
 - v. Chain saw for large roots, e.g. over 4 inches in diameter. Start with a new chain and have extra chains on hand.
4. Root Cutting: Leave existing roots in place when possible (e.g. routing pipes underneath if this is acceptable). When roots must be cut, use appropriate root cutting tools as specified above. Roots that are 2 inches or greater in diameter that must be removed or are damaged must be cleanly cut. Roots smaller than 2 inches in diameter are encouraged to be cut. Roots larger than 4 inches in diameter shall not be cut without the Project Arborist's approval.
 - a. Cut roots at a right angle when possible.

- b. Cut roots back to branch roots growing in a direction away from the work area when possible.
 - c. When roots are cut back to a trench wall, cut them flush with the face of the wall.
 - d. Do not break, tear or chop roots.
 - e. Do not use a backhoe or other equipment that rips, tears, or pulls roots.
 - f. Place all cut roots in a pile near the tree where they were cut so that the Project Arborist may evaluate and document.
5. Covering exposed and/or cut roots and keeping them moist until backfill or other permanent soil covering is in place:
- a. Areas of soil disturbance with tree roots (even if roots are not visible) shall be sprayed with water on at least a daily basis or as directed in writing by Project Arborist.
 - b. On warm days several sprayings may be required. This wetting down shall continue until permanent covering is placed on the exposed soil surface or trenches are backfilled.
 - c. Mulch material placed on level areas will keep those areas moister much longer than if the soil is left bare.
 - d. Trench walls shall be sprayed with water and covered with minimum 2 layers of natural burlap. Synthetic burlap shall not be allowed. Discarded carpeting, old sheets or blankets, cardboard sections, organic mulch held in place with plywood or other materials that will perform the same function and are safe for tree roots may be substituted for natural burlap upon review and approval by Project Arborist.
- F. Structure demolition: structures shall be collapsed inward and/or away from adjacent trees. Demolition equipment must be staged outside TPZ.
- G. Pavement removal may be done with a backhoe if done carefully so as not to damage the trunk of the tree, and to disturb the roots of the tree as little as possible. If the backhoe, excavator or heavy equipment bucket or other soil removing device is working within 6 feet of the trunk of the tree, then the equipment must have $\frac{3}{4}$ -inch thick plywood placed in front of it and the trunk must be wrapped with straw wattle. The backhoe or other equipment must be staged on existing pavement or outside the TPZ and work backwards. Alternatively, pavement may be broken into manageable pieces (e.g. by hand with jackhammer) and hand placed onto a loader. Where roots larger than 2 inches in diameter have grown into the existing base course material, use the existing material as the new material and do not remove and replace it unless otherwise provided for in the technical specifications or approved in writing by the City. Any roots that are exposed or damaged must be appropriately cut, covered and kept moist as described previously.
- H. Trees Removal. Trees to be removed must be removed without damaging trees to remain. The tree removal method for each tree shall be approved by the Project Arborist prior to any tree removal.
- a. Trees to be felled must fall away from the TPZ of trees to remain.

- b. Trees to be pulled out: If roots are entwined with trees to remain, the Project Arborist may require that the large roots close to the trunk of the tree to be removed be severed close to the trunk before the tree is extracted from the soil, or grinding the stump below ground to avoid damage to the roots of trees to remain.
 - c. If tree canopies are knit together (branches from more than one tree intermingle with each other) then the Contractor may NOT remove these trees – they must instead be removed by a Qualified Tree Service that will cut the trees down carefully in order to avoid damage to adjacent trees and any understory that is to remain.
 - d. If trees to be removed are far away from trees that will remain, the Contractor may remove these trees by pulling or pushing them over as long as roots or aboveground portions of nearby remaining trees will not be damaged. Alternatively and upon written approval by City, grind the stumps of trees to be removed to 12 inches below grade.
- I. Damage to trees: Any damage or injury to trees shall be reported within 6-hours to the In the event of injury, the following mitigation and damage control measures shall apply:
- 1. Root injury: Bark or trunk wounding: Current bark tracing and treatment methods shall be performed by a Qualified Tree Service or the Project Arborist within two days.
 - 2. Scaffold branch or leaf canopy injury: Remove broken or torn branches back to an appropriate branch capable of resuming terminal growth within five days. If leaves are heat scorched from equipment exhaust pipes, consult the Project Arborist within 6 hours.
 - 3. For soil compaction (e.g. tree protection fencing was removed and vehicles were parked in the TPZ – the Project Arborist will require water jet irrigation, radial trench mulching, regular mulching and/or other treatments.
 - 4. Fines for damage to trees:
 - a. \$100 per inch of width (e.g. for bark scraping of trunk or branches), as measured by the Project Arborist.
 - b. Other damage: the full or partial value of the tree as per Trunk Formula Method, Replacement Cost Method or Cost of Repair Method as provided for in the Guide for Plant Appraisal and as determined by the City.

1.10 MISCELLANEOUS:

- A. No herbicides are allowed to be used underneath pavement or in any other area on site.
- B. Any herbicides used on site must be labeled as “safe to use around trees”.
- C. Do not dump cement tailings, chemicals or other waste products into any future landscape area, or within TPZ.
- D. Liming of the soil for soil compaction is not allowed near trees: If there will be any liming on site, Contractor shall consult with the Project Arborist at least 10 days prior to starting liming operation to assure that the lime does not impact trees or other

vegetation to remain. A lime-free buffer zone of at least 50 feet from the dripline of any trees or plants shall be maintained between vegetation and liming.

- E. Dust Control Program. During periods of extended drought, wind or grading, spray wash trunk, limbs and foliage to remove accumulated construction dust. The Project Arborist may request removal of accumulated construction dust be completed by the Contractor at the Project Arborist's discretion.
- F. Do not use trees as a winch support.
- G. Do not hang, tie, attach, lean against or otherwise allow materials, supplies, debris or other things to contact trees.
- H. Trees shall not be fertilized before, during or after the construction process unless specifically prescribed by the Project Arborist.

1.11 TREE PROTECTION INSPECTION AND DOCUMENTATION:

- A. Tree Protection Inspections and Documentation: The Project Arborist must supervise any work within the TPZ, or when roots or branches of the tree(s) are encountered or are expected to be encountered – whether or not these are within, around or above the TPZ. The Project Arborist will inspect the site for compliance with this Document 00823 “Tree Protection” periodically from prior to demolition until immediately after construction is completed.
 - 1. Contractor request to City for Project Arborist Inspections shall be made with a minimum of 4 working days advance notice.
- B. Tree Protection Inspection Report is based upon the Project Arborist's inspections. The Tree Protection Inspection Report will be provided to the Contractor for action and shall include status of the following:
 - 1. Inspector name and contact information
 - 2. Date and time of inspection:
 - 3. Date of last inspection
 - 4. Reason for inspection
 - 5. Weather (approximate temperature, any rainfall, etc.)
 - 6. Current demolition or construction work on site
 - 7. Additional demolition or construction work completed since last inspection
 - 8. Tree protection fencing status (including tree protection signage)
 - 9. Mulching status (if required)
 - 10. Tree work done within last inspection period (pruning, irrigation, etc.)
 - 11. Grading, trenching, excavations, cut or exposed roots, root re-cutting and protection
 - 12. Other
- C. The following Project Arborist site inspections are mandatory and must be documented as per the items listed above: It is important that the Contractor provide a construction schedule that covers the tasks that require Project Arborist review or prior inspection so that the Project Arborist can be scheduled.

Addendum No. 1

Project No. 2016-06

1. Tree Protection Fencing. The City shall have Project Arborist conducted a field inspection of the trees and that the protective tree fencing is in place prior to issuance of a demolition, grading or building permit, unless otherwise approved by the City.
2. Pre-Construction Meeting. Prior to commencement of demolition or construction, the Project Arborist shall conduct a pre-demolition/construction meeting to discuss tree protection with the site superintendent, grading equipment operators and the City.
3. Inspections of Rough Grading or Trenching. The Project Arborist shall perform an inspection during the course of rough grading adjacent to the TPZ to ensure trees will not be injured by compaction, grading, drainage and/or trenching, and if required, inspect tree wells, drains and special paving. The contractor shall provide confirmation to the Project Arborist at least 48 hours advance notice of such activity.
4. Weekly General Tree Protection Inspections: The Project Arborist shall perform periodic inspections to monitor changing site and tree condition. These inspections may be unannounced. The City shall be in receipt of the inspection report as per above.
5. Special Activity within the TPZ. Work within this area requires the direct onsite supervision of the Project Arborist.

END OF DOCUMENT

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