



Planning, Design & Construction
THE UNIVERSITY OF UTAH

CAMPUS PLANNING

2024

University of Utah

TREE PROTECTION AND PRESERVATION POLICY

Introduction

The University of Utah is the [state arboretum](#) and an active member of [Tree Campus Higher Education](#). All trees, regardless of size, shape and species, are to be preserved and protected at all times.

The campus is home to a number of trees that are significant because they are State Champion trees, memorial trees, Cottam's Oaks, unique cultivars, cultural trees (50+ years old), or allee trees. Due to their maturity, many of these trees also provide significant benefit to the university's campus community by providing shade and comfort, sequestering carbon, mitigating urban heat island effect, and in general, contribute positively to the campus aesthetic.

The Tree Protection and Preservation Policy is meant to provide the tools necessary for both the A/E and contractor to protect the university's tree inventory. This plan is broken into three sections: *Tree Protection Zone Guidelines*, *Irrigation Impacts*, and *Tree Replacement, Removal and Damage*. Within each section, the material is organized under either the A/E responsibility or the contractor's responsibility. As development across campus continues to impact the University of Utah's tree canopy, great care must be taken to minimize damage and whenever possible, avoid removing this precious resource.

ACRONYMS:

OSM: Open Space Manger

TPZ: Tree Protection Zone

A/E: Architect / Engineer

FMRC: Facility Management Review Committee





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Section 1

Tree Protection Zone Guidelines for the A/E and Contractor

Trees are to be preserved during all construction activities and shall have a Tree Protection Zone (TPZ) as shown on all plans. Tree protection practices include establishing the TPZ. This is intended to minimize potential damage to the roots, bark and canopy. The following TPZ design requirements apply to both the A/E (as written notes on the Landscape Sheets) and Contractor (in the field):

- TPZ is to be a metal fence surrounding the tree's critical infrastructure.
- The TPZ will be a 1.5 foot radius for each 1 inch of tree's diameter at breast height (DBH) or the diameter of the trees' dripline, whichever is greater. DBH is measured at 4.5 feet from the base of the tree (see TPZ by DBH Calculation Chart on this page and the Critical Root Zone diagram on the following page).
- One single TPZ around tree clusters is preferred, when possible.
- Tree work shall be done per accordance with the Latest ISA Standards and ANSI Z 133.1 and ANSI Z A 300 standards.

OVERVIEW OF A/E RESPONSIBILITY:

The TPZ shall be clearly marked on the civil site plan, utility plan, demolition plan and landscape plan for all protected trees.

TPZ By DBH Calculation (1.5 x inch of tree diameter at breast height)		
Tree Diameter	Tree protection zone radius	Total protection zone diameter, including trunk
2 inches	3 feet	6 feet
6 inches	9 feet	18 feet

The following must be included in the final **design drawing bid set**:

- Trees to be protected within project limit of disturbance
- Trees to be transplanted prior to demolition
- Trees to be removed
- Bid-Package Limits of Disturbance
- Tree Protection Detail
- Note that reads "It is the responsibility of contractors to modify university irrigation to keep trees and landscapes thriving during construction."

OVERVIEW OF CONTRACTOR'S RESPONSIBILITY:

Tree protection requires coordination with the university OSM prior to removing any trees or altering the TPZ. The Contractor must do the following before construction begins:

- Provide a watering schedule to the OSM. Apply deep watering twice every week with low pressure at the drip line to ensure the ground is soaked to a depth of at least eight inches. Generally, five gallons per inch of trunk's DBH. Young or newly planted trees must be watered every 3-4 days, depending on the temperature.
- In the case of the TPZ being modified in any way and at any point during the project, due to site constraints, mitigation efforts to protect the root zone from damage is imperative. This is done with Geogrid and bark mulch, to be coordinated with OSM.

- Present tree protection plan, including TPZ, to FMRC for approval. This process addresses impacts to circulation (pedestrian, cyclist, ADA, vehicles) and ensures construction activities don't negatively impact the health, safety and welfare of the campus community.
- Walk construction site with OSM to confirm fencing, and trees flagged to be protected, removed, and transplanted are correct and per the bid set specifications.
- Print tree protection signs on 8 ½ x 11" laminated paper (see TPZ sign example on page 2). Post the signs on all exterior sides of fencing. Signs and fencing will need to be inspected by the university OSM and remain up until completion of project.
- Avoid foot and vehicle traffic within the TPZ.
- Identify the TPZ by installing 6-foot chain link.
- Bark mulch may be needed beneath tree canopy within construction zone-- to be coordinated with OSM on a case by case basis.
- Submit a tree removal form for any tree removed during construction. This form may be found at the following address, along with the campus tree inventory: <https://bit.ly/3iW0ImA>

It is the role of the contractor to communicate any issues that arise with irrigation, utilities, or construction that impacts the trees within the Limit of Disturbance.

NOTICE

TREE PROTECTION ZONE DO NOT ENTER

The University of Utah is the State Arboretum and is recognized nationally by Tree Campus Higher Education for its community forest. As such, the University is committed to the health and protection of our tree canopy.

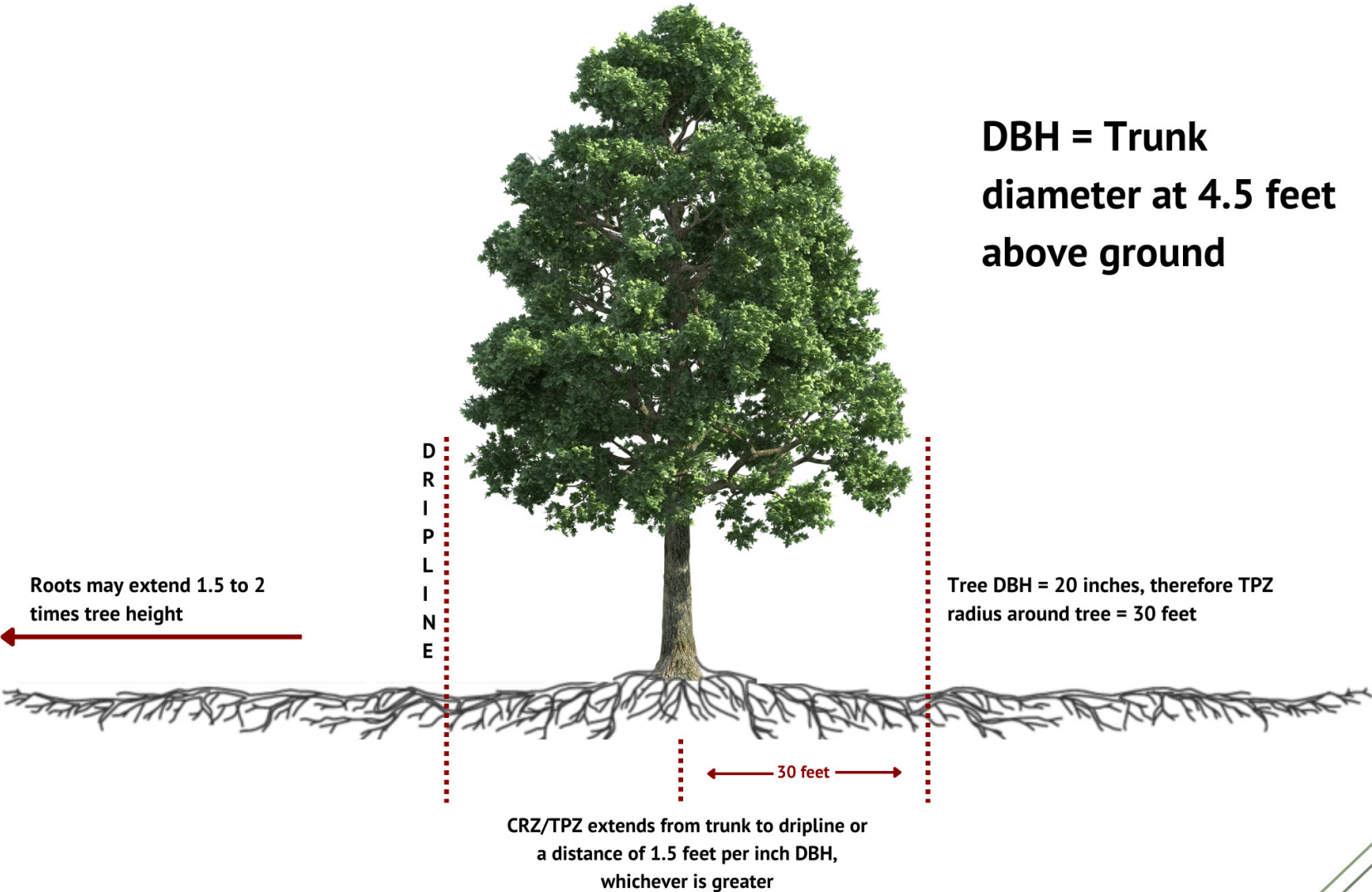
Fencing is not to be altered without proper authorization. All equipment and materials are to be kept outside of this restricted area during construction. Root and branch cutting or damage is prohibited.



Questions or concerns?
Contact Sue Pope, Open Space Manager
sue.pope@fm.utah.edu



TREE PROTECTION ZONE



The Tree Protection Zone Construction Requirements

Once the TPZ fence lines are in place with appropriate signs, the following guidelines are to be followed.

CONTRACTOR'S RESPONSIBILITY:

- When replacing existing utilities near preserved trees, such as water or sewer lines, abandon the lines and reinstall them beyond the dripline of the tree, whenever possible.
- When tunneling or boring for irrigation and utilities in the TPZ, keep depth to a minimum of 36 inches and the access pit within the TPZ.
 - OSM approval required if this cannot be accomplished.
 - All roots will be cleanly cut with a saw.
 - If a root has been damaged, a clean cut is needed.
- Excavation impacts on existing trees inside or outside the TPZ may require an air spade to expose and identify the root zone. To be coordinated with and approved by the OSM.
- No equipment (including sod cutters) will be allowed inside the TPZ unless the university OSM approves a special provision for excavation, in which case it will be done by hand or with a soil vacuum
- If replacing the sidewalk, no roots larger than four inches in diameter will be cut and other alternatives must be used, such as ramping, a radius, or an arch around the existing trees.

- Roots that are damaged from backhoes or other mechanical or non-mechanical equipment, must be cut clean.
- If tree roots remain exposed for more than four to six hours, they must be covered with burlap, straw (if possible) and kept moist at all times.
- No cutting or filling inside the TPZ.
- Tree care contractors providing services to campus trees must be certified arborists with the International Society of Arboriculture, licensed to do business in Utah, registered with the Utah Division of Commercial Code, and insured against personal injury and property damage.
- Do not attach or hang scaffolding, signs, temporary utilities, or other devices on the trees.
- Sidewalks and paving levels should be contoured whenever possible to avoid root cutting. If damage occurs to a protected tree, immediately contact the university OSM.

SPECIAL CONSIDERATION FOR CONTRACTORS:

When a tree cannot have TPZ fencing due to proximity to construction, if there is an increase potential of damaging a tree trunk during any construction activity (including vehicle travel), it may be requested by the OSM to wrap the trunk of a tree to preserve it from getting damaged.

This can be done by installing 2-inch thick wood planks (2x4s or 2x6s) around the trunk, preferably on a closed cell-foam pad. Straps or wire are used to bind the planks in place with absolutely no fasteners driven into the tree. If trunk diameter growth is expected by arborist or OSM, trunk protection should be adjusted to allow growth.

See image below:



Trunk Protection Structure

SINGLE TREE



HIGH VISIBILITY PLASTIC MESH FENCES

TREE CLUSTER



HIGH VISIBILITY PLASTIC MESH FENCES

Example of protective fencing - fence diameter to equal 1.5 feet per inch of DBH OR tree dripline, whatever is greater

Section 2

Irrigation Impacts

Irrigation is often impacted by construction activities and without the proper coordination beforehand, can cause serious damage to not only the irrigation equipment, but also the surrounding landscape.

NOTE: Please coordinate these efforts with University of Utah Landscape Supervisor John Walker at 435-881-7117 or john.walker@fm.utah.edu

CONTRACTOR'S RESPONSIBILITY:

It is the responsibility of contractors to modify university irrigation to keep trees and landscapes thriving during construction. This includes the following:

- All repairs and modifications must be inspected and approved by the university's irrigation team.
- Identify irrigation zones, main lines, auxiliary equipment, valves, heads, drip and tree bubblers to determine the impacts during construction.
- If irrigation water is disrupted for longer than one week, you must provide supplemental water and set up temporary battery-powered valves.
- 72-hour utility shutdown notice is required if irrigation water is to be turned off. (April through November)

- The university's Landscape Supervisor is to be contacted to visit the site and mark the irrigation lines as this information cannot be found on the utility permit from the University surveyor or GIS.



Section 3

Tree Replacement, Removal and Damage

Trees removed *with* prior approval from the University of Utah are subject to the replacement quantity described below under *A/E Responsibility*. Per the judgment of the OSM, trees that have been removed, or which are otherwise damaged beyond recovery *without prior approval*, result in a fine paid by the contractor, based on the trees' value to campus, as depicted in the cost table on this page. Trees of Significance are highly valued and as a result, have an additional fee of \$10,000, in addition to the base fee. Trees of Significance (State Champion trees, memorial trees, Cottam's Oaks, unique cultivars, cultural trees (50+ years old), or allee trees) are identified in the [University of Utah Tree Viewer](#).

A/E RESPONSIBILITY:

The following must be included in the final **design drawing bid set**:

- Every tree removed over 2 inches DBH will be replaced with the same total DBH in replacement trees.
I.e. A 6" DBH tree removed is to be replaced with either three 2" DBH trees or two, 3" DBH trees.
- Failure to protect campus trees within or outside the TPZ may result in a replacement cost fee.

Tree Diameter at Breast Height (4.5" From Base on Downhill Side)	Fee Paid to the University of Utah by the Contractor)	Trees of Significance	Damage to Tree's Bark, Trunk, Limbs and/or Roots
2"	1 for 1 in. caliper replacement		\$5,000 + ISA certified arborist assessment of tree's value*.
3"-9"	\$5,000	+\$10,000 (\$15,000)	
10"-19"	\$15,000	+\$10,000 (\$25,000)	
20"-29"	\$35,000	+\$10,000 (\$45,000)	
30"+	\$55,000	+\$10,000 (\$65,000)	

**Assessment to be done at Contractor's expense by arborist approved by the University of Utah*

Tree Damage and Replacement Fine Table

- If a tree is damaged or improperly cared for during construction, a full tree appraisal by an ISA-certified arborist will be required to determine the extent of the damage and its lost value.

CONTRACTOR'S RESPONSIBILITY:

If a tree is damaged beyond recovery, the tree shall be replaced at the contractor's expense. Damages for lost trees will be assessed per the rates outlined in the Tree Damage and Replacement Cost Table on this page.

'Trees of Significance' are any trees that are State Champion Trees, Cottam's Oaks, Memorial Trees, Unique Cultivars, Cultural Trees (50+ years-old), or Allee Trees. Additional tree replacement, removal, and relocation details are as follows:

- Replacement trees will be planted on the existing site or another site on campus.
- The Campus Landscape Architect will determine the tree species to be purchased and the subsequent location (may require OSM approval).

- If a tree is viable to relocate, the two-for-one policy is voided. However, relocation expenses will be charged to the project. Tree relocation is best during the early fall and late winter. (November to April)
- If a tree is damaged or improperly cared for during construction, a full tree appraisal by an ISA-certified arborist will be required to determine the extent of the damage and its lost value.
- ***Once the value of the tree is determined, the contractor is to submit a negative change order for the amount of the fee to reduce the contract value.***

So long as great care is taken by the contractor and their subs to protect our campus arboretum during construction with TPZ fencing, watering, and proper handling of machinery, these fines are unlikely. In the event that damage occurs and it's determined by the project manager, OSM, and Grounds Manager that a fee is to be paid, it is expected that the contractor submits the negative change order within 30 days of the decision.



The University of Utah takes their role as the caretakers of the state of Utah's arboretum seriously and expects the same from our consultants and contractors. The campus tree canopy is an important asset and is to be protected at all cost.