

2022 Illinois Tree Care Plan

A Tree Campus Higher Education Plan for the University of Illinois at Urbana-Champaign

December 31, 2022

Contents

- 2022 Illinois Tree Care Plan 1
 - Contents 1
 - Standard 1: Campus Tree Advisory Committee 2
 - Background 2
 - Campus Tree Advisory Committee 2
 - 2022 Committee Members 3
 - 2022 Meeting Schedule 3
 - Standard 2: Campus Tree Care Plan 4
 - 1. Purpose of Tree Care Plan 4
 - 2. Responsible Department 4
 - 3. Campus Tree Advisory Committee 4
 - 4. Campus Tree Care Policies 4
 - 5. Protection and Preservation policies and procedures 9
 - 6. Goals and Targets 19
 - 7. Tree damage assessment 20
 - 8. Prohibited practices 20
 - 9. Definitions of terminology related to campus trees 21
 - 10. Communication strategy 21
 - Standard 3: Dedicated Tree Expenditures 21
 - Grounds Tree Program Budget 21
 - Tree Program Additional Details 22
 - Standard 4: Arbor Day Observance 22
 - Event Description 22
 - Standard 5: Service Learning Projects 23
 - Facilities & Services Internships for Increasing Trees on Campus 23
 - Re-census of Trelease Woods 24
 - Red Bison Biodiversity Improvements in South Arboretum Woods 24
 - Red Oak Rain Garden 25
 - Biodiversity plan for the Champaign Urbana Region 25
 - Conclusion 26

Standard 1: Campus Tree Advisory Committee

Background

The mission of the University of Illinois Urbana-Champaign (UIUC) is to enhance the lives of citizens in Illinois, across the nation, and around the world through our leadership in learning, discovery, innovation, engagement, and economic development. The mission of [Facilities & Services \(F&S\)](#) is to provide and maintain “a physical environment that is conducive to supporting learning, discovery, engagement, and economic development at the University of Illinois.” F&S is responsible for oversight of campus trees.

Campus is committed to educating the future leaders of the world, especially in regard to grand societal challenges like environmental sustainability. The Institute for Sustainability, Energy, and Environment (iSEE) oversees the development of the strategic plan for campus sustainability, called the Illinois Climate Action Plan (iCAP). One objective in our [iCAP 2020](#) is to increase the number of trees on campus by 1,500 by FY 24 and by 3,000 by FY30. Other objectives include developing a resilient landscape strategy, one that includes climate resilient trees.

At Illinois we recognize that trees are an important asset for our campus and the community. They provide habitat for diverse species, sequester carbon from the atmosphere, and have been shown to have a positive effect on human behavior. Each year, we celebrate the environment with major events during April for Earth Month and October for Sustainability Month. In 2015, we added an annual Arbor Day celebration and since 2016 we have been recognized as a Tree Campus Higher Education member by the [National Arbor Day Foundation](#).

Campus Tree Advisory Committee

The Campus Tree Advisory Committee was created in 2015 by the Executive Director of F&S in conjunction with seeking Tree Campus Higher Education designation. This committee is an advisory body to the Grounds department at F&S and to the campus community on matters relating to campus trees. Responsibilities for 2022 include:

1. Assist with maintaining Tree Campus Higher Education status, and submittal of annual application
2. Develop communication plan for announcing and celebrating the Tree Campus Higher Education designation.
3. Plan an Arbor Day observance event, in collaboration with the Institute for Sustainability, Energy, and Environment (iSEE) for Arbor Day, typically the last Friday in April.
4. Identify and support student service-learning projects related to trees, and collect information from the students involved to include in the annual Tree Care Plan summary in December.
5. Provide input regarding campus tree policies, such as the proposed Tree Replacement and Damage Policy.
6. Establish goals for inclusion in the Annual Tree Care Plan and assist with accomplishing these goals.

While responsibility for campus trees is assigned to specific units, including Grounds and the Arboretum, the Campus Tree Advisory Committee assists by providing guidance for future planning, input to a comprehensive campus tree plan, education of the campus community about the benefits of trees, and development of a community connection related to our campus and community trees.

The Campus Tree Advisory Committee is an important part of the overall Tree Care Plan, and it is complementary to other related committees on campus, including the Topical iCAP Teams, the Architecture Review Committee, the Campus Beautification Committee, the University Extension Master Gardeners and Master Naturalists, the Academic Senate's Committee on Campus Operations, and the Campus Landscape Master Plan Core Committee. All of these committees work together to support the physical infrastructure and beauty of the U of I campus.

The Campus Tree Advisory Committee is asked to meet regularly during the spring and fall semesters and as needed during the summer months. Committee members are identified annually in January by the Executive Director of F&S, and there is no term limit for committee membership.

2022 Committee Members

Kevin McSweeney, chair	Director of Arboretum
Ryan Welch	Superintendent of Grounds, F&S; acting Horticulturist
Morgan White	Associate Director for Sustainability, F&S
Brent Lewis	University Landscape Architect, F&S
Jay Hayek	Extension Specialist in Forestry
Andrew Lamoreux	Forestry Supervisor, City of Champaign
Meredith Moore	iSEE Sustainability Programs Coordinator
Sinead Soltis	F&S Sustainability Intern
Jack Reicherts	Civil and Environmental Engineering, Undergraduate
Gabe Harper-Hagen	Landscape Architecture, Graduate Student
Lucy Nifong	Undergraduate student
Maiah Caise	Undergraduate Student

2022 Meeting Schedule

The committee was continued from the original committee (started on January 22, 2015). In 2022, the first meeting was held on February 10, opening with a discussion on our goals for the year, in addition to revising our commitments as a committee. This led to an updated charge letter, for the committee to exist on campus, signed by Ehab Kamarah, the Interim Executive Director of Facilities and Services. Planning for our Arbor Day celebration also began at this meeting, with further discussion on updated the University's facility standards regarding replacement of trees on campus. The next meeting was held on March 29, with more planning for the 2022 Arbor Day event. The location of the tree to be planted on Arbor Day was selected, in addition to finalizing the attendees and speak list. Other events for the month of April, like Earth Day and community-wide Arbor Day events were also advertised. Both the F&S Grounds team and Landscape Architect went into detail about the revision of the campuses landscape master plan, being updated from the 2017 version.

Our first fall semester meeting was held on October 22, with an update on the final review of new facility standards pertaining to both damaged and removable trees on campus. Plans were compared to the City of Champaign's standards, which have been updated recently. A sub-committee was also formed to start planning for Arbor Day 2023. Other updates included planning for the winter work needed at the South Arboretum Woods, and a recap of student plantings of prairies. The final meeting of 2022 was held on December 9, with a focus on all that was needed for our Tree Care Plan. Tentative plans from the Arbor Day sub-committee were shared, in addition to ideas on outreaching to the community surrounding our campus. One of our members, a graduate student in landscape architecture also presented a landscape restoration plan for a diverse ecological corridor on campus.

Standard 2: Campus Tree Care Plan

1. Purpose of Tree Care Plan

The purpose of the Tree Care Plan is to document and clarify the campus commitment to maintaining our campus trees. The programs and policies previously in place have been updated to reflect the current industry standards and procedures for tree care on campus. With the goal of being continuously recognized as a Tree Campus Higher Education campus, this document describes the existing practices and identifies areas for improvement.

2. Responsible Department

The majority of trees on campus are under the responsibility of the Grounds department in F&S. This Tree Care Plan is the responsibility of F&S Grounds.

3. Campus Tree Advisory Committee

The Campus Tree Advisory Committee is described in Standard 1, above.

4. Campus Tree Care Policies

The campus tree care policies for this campus are formally documented in the campus' Facility Standards, published online at <http://www.fs.illinois.edu/resources/facilities-standards>. Sections of the Facility Standards applicable to the Campus Tree Care Plan are included in the text of this document, for convenience. The University Landscape Architect and the Horticulturist have the authority to approve deviations from tree policies, when needed.

The tree program at F&S is managed by two full-time certified arborists, known as “tree surgeons,” reporting to the Superintendent of Grounds. Each tree surgeon is supported by a full time grounds worker. The tree surgeons have international arborist accreditation, with annual membership fees and continuing education funded by F&S.

The following subsections describe the tree care policies for planting, landscaping, tree maintenance, cultural practices, and managing for catastrophic events.

This year, 2022, the standards were updated to better reflect our commitment to our trees on campus, adding requirements for replacement due to the measured diameter breast height (DBH). This standard will better the replacement of trees due to construction, as the previous standard did not account for the health or longevity of a tree that was deemed in need of replacement.

Tree Planting

Trees planted on the Urbana campus are selected from an *approved plant list* (see figure 1). The list includes trees native to Illinois as well as other desirable, non-native trees. Species diversity is very important; however, site conditions ultimately dictate what species will be selected. Native species will be considered wherever appropriate. Trees that are selected must be at least 2” in caliper and no more than 4”. Selected tree must be healthy, vigorous, well branched, and symmetric in form with well-developed root systems. The University Landscape Architect or Horticulturist may reject any tree that does not meet these standards. Planting shall only be performed during the acceptable times in the spring and fall, unless otherwise approved.

All tree planting will be in accordance to the latest American National Standards Institute (ANSI) A 300 standards for Tree Care Operations – Tree Shrub and Other Woody Plant Management Standard Practices (Planting and Transplanting).

The planting procedure starts first by digging a broad, shallow hole at least 2-3 times wider than the root ball. The tree is then placed so that the root flare is at or slightly above the existing grade. All burlap, rope, and wire baskets are cut away from the top third of the root ball. The tree is then straightened before back-filling around the base of the root ball with the existing soil. The soil is firmly tamped every few inches of soil added until it is even with the surrounding grade. The tree is then deeply watered and mulched at 2-4" in a saucer like pattern around the tree making sure to keep it 1-2" from the trunk. The tree is only staked if necessary in accordance with the latest ANSI standards. Fertilization is not done at the time of planting.

Tree Replacement Policy- Updated in 2022

When a university owned tree is scheduled for removal due to construction work on campus, the project is required to furnish and install a new replacement tree at the required replacement rate, unless otherwise approved by the F&S Landscape Architect or Horticulturist.

If a university tree is damaged by a contractor doing work on campus, and the F&S Landscape Architect or Horticulturist determines the tree should be removed due to damage, the contractor shall be required to furnish and install a replacement tree(s) at the required replacement rate. Costs for removal of the damaged tree, associated stump grinding and landscape restoration shall be included with the costs for furnishing and installing the replacement tree, and shall be at no additional cost to the University.

In the event that a tree maintained by an Auxiliary is removed due to poor condition, design changes, etc., the Auxiliary is required to furnish and install a new replacement tree(s) at the required replacement rate.

Replacement rate is guided by the measured diameter breast height (DBH) of the existing trees. Replacement rate is as follows:

<p>Single Stem Deciduous Trees: Removal of a tree less than 12" DBH requires 1 new tree. Removal of a tree greater than 12" but less than 18" DBH requires 2 new trees. Removal of a tree greater than 18" but less than 24" DBH requires 3 new trees. Removal of a tree greater than 24" requires 4 new trees.</p>
<p>Multistem Deciduous Trees: Removal of a tree less than 10 ft in height requires 1 new tree. Removal of a tree greater than 10 ft requires 2 new trees.</p>
<p>Evergreen Trees: Removal of a tree less than 10 ft in height requires 1 new tree. Removal of a tree greater than 10 ft but less than 20ft in height requires 2 new trees at 6' height, or 1 tree at 10' height. Removal of a tree greater than 20 ft in height requires 3 new trees at 6' height, or 2 trees at 10' height.</p>

In all cases of single stem deciduous tree replacement, trees shall be a minimum of 2" caliper and meet all F&S standards for species, sizing and installation. If a new tree selected is a multistem ornamental tree or an evergreen, minimum height for both is 6'. Replacement tree type and species will generally follow that of the removed tree type and species. However, final tree species selection and planting location to be approved by the F&S Landscape Architect or Horticulturist, in order to balance current species diversity on campus. In some cases replacement trees will be located away from the original planting location to equitable balance the campus canopy and aesthetics. All work for tree removal and tree planting shall be done by an International Society of Arborists (ISA) Certified Arborist.

Renewed Tree Inventory

Funding for a tree inventory was approved in May 2017. In early 2018 the full scope and total cost was defined, and the additional funding was approved, for a total of \$70,000. The University Landscape Architect worked with Davey Tree to put together a package that would include tree inventory and analysis of up to approximately 17,500 trees. Over the course of 4.5 months, Davey Tree inventoried and located 16,625 individual trees. They also used a sampling method to inventory three woodlots on the U of I campus, in order to capture an estimate of carbon sequestration benefits.

The inventory denoted species, DBH, GIS coordinates, maintenance needs, and general health condition. It also did a risk analysis. This information was then uploaded to the Davey Treekeeper website, which will now be used to track long-term maintenance. Tree Surgeons have mobile computers with internet access and will enter information at the jobsite, as it is occurring, directly into the inventory system. Treekeeper also assists our sustainability goals as it analyzes the data and provides an estimate of environmental benefits, such as carbon sequestration. It will also provide a platform for the public to interact with our tree data, which will include curated campus tree walks in the future.

Inventory of trees on campus is now the responsibility of both the F&S Grounds crew and the Landscape Architect, with support from their own budgets and active collaboration with others at the Arboretum and more. As of the end of 2022, 18,176 trees have been updated to the tree inventory.

With this information, we will also begin a process of identifying the various species represented on campus, and use that list to inform future species choice. We will work to minimize our risk exposure to the impact of future pest/disease/climate caused declines. The inventory can be viewed at <https://illinois.edu.treekeepersoftware.com/>.

ABIES BALSAMEA	CORNUS KOUSA	PINUS KORAIENSIS
ABIES CONCOLOR	CORNUS MAS	PINUS PARVIFLORA
ABIES FRASERI	CORNUS MAS GOLDEN GLORY	PINUS PEUCE
ABIES KOREANA	CORNUS OFFICINALIS	PINUS PONDEROSA
ABIES NORDMANNIANA	CORYLUS COLURNA	PINUS STROBUS
ABIES VEITCHII	COTINUS OBOVATUS	PINUS WALLICHIANA
ACER BUERGERANUM	CRATAEGUS CRUSGALLI var. INERMIS	PLATANUS X HISPANICA cultivars
ACER CAMPESTRE	CRATAEGUS X LAVALLEI	PRUNUS MAACKII
ACER X FREEMANII (cult.)	CRATAEGUS NITIDA	PRUNUS SARGENTI
ACER GRISEUM	CRATAEGUS VIRIDIS 'WINTER KING'	PRUNUS SUBHIRTELLA
ACER GRISEUM X NIKOENSIS	DIOSPYROS VIRGINIANA (male cult)	PRUNUS VIRGINIANA SHUBERT
ACER JAPONICUM	EUCOMMIA ULMOIDES	PSEUDOLARIX KAEMPFERI
ACER MIYABEI	FAGUS GRANDIFOLIA	PSEUDOTSUGA MENZIESII
ACER NIGRUM	FAGUS QUERCIFOLIA	PTEROSTYRAX HISPIDA
ACER PALMATUM (cult.)	FAGUS SYLVATICA	QUERCUS ALBA
ACER PSEUDOPLATANUS	GINKGO BILOBA (male cult.)	QUERCUS BICOLOR
ACER RUBRUM	GLEDITSIA TRICANTHOS var. INERMIS cultivars	QUERCUS COCCINEA
ACER SACCHARUM	GYMNOCLADUS DIOICUS	QUERCUS IMBRICARIA
ACER TATARICUM	HALESIA CAROLINA	QUERCUS LYRATA
ACER TRIFLORUM	HALESIA MONTICOLA	QUERCUS MACROCARPA
ACER TRUNCATUM	ILEX OPACA	QUERCUS MICHAUXII
AESCULUS X CARNEA	JUGLANS NIGRA	QUERCUS MONTANA
AESCULUS GLABRA	JUNIPERUS SCOPULORUM cultivars	QUERCUS MUEHLENBERGII
AESCULUS HIPPOCASTANUM	JUNIPERUS VIRGINIANA cultivars	QUERCUS PRINOIDES
AESCULUS OCTANDRA	KOELREUTERIA PANICULATA	QUERCUS PRINUS
AESCULUS PAVIA	LARIX DECIDUA	QUERCUS ROBUR
ALNUS INCANA	LARIX KAEMPFERI	QUERCUS RUBRA
ALNUS JAPONICA	LARIX LARICINA	QUERCUS SHUMARDII
ALNUS RUGOSA	LIQUIDAMBAR STYRACIFLUA	QUERCUS VELUTINA
ASIMINA TRILOBA	LIRIODENDRON TULIPIFERA	SASSAFRAS ALBIDUM
BETULA NIGRA	MACLURA POMIFERA (male thornless cultivars)	SOPHORA JAPONICA
CARPINUS BETULUS (cult.)	MAGNOLIA ACUMINATA	SORBUS ALNIFOLIA
CARPINUS CAROLINIANA	MAGNOLIA DENUDATA	STYRAX JAPONICUS
CARPINUS JAPONICA	MAGNOLIA LILIFLORA (cult.)	SYRINGA RETICULATA
CARPINUS ORIENTALIS	MAGNOLIA LOEBNERI	TAXODIUM ASCENDENS
CARYA CORDIFORMIS	MAGNOLIA SOULANGEANA	TAXODIUM DISTICHUM
CARYA GLABRA	MAGNOLIA STELLATA	TAXUS CUSPIDATA CAPITATA
CARYA ILLINOENSIS	MAGNOLIA VIRGINIANA	THUJA OCCIDENTALIS cultivars
CARYA LACINIOSA	MALUS (cultivars subject to approval)	THUJA PLICATA
CARYA OVATA	METASEQUOIA GLYPTOSTROBOIDES	TILIA AMERICANA
CATALPA BIGNONIODES	NYSSA SYLVATICA	TILIA CORDATA
CATALPA SPECIOSA	OSTRYA VIRGINIANA	TILIA EUCHLORA
CELTIS JESSEENSIS	PHELLODENDRON AMURENSE (male cult.)	TILIA HETEROPHYLLA
CELTIS LAEVIGATA	PICEA ABIES	TILIA MONGOLICA
CELTIS OCCIDENTALIS	PICEA GLAUCA	TILIA PETIOLARIS
CERCIDIPHYLLUM JAPONICUM	PICEA OMORIKA	TILIA PLATYPHYLLOS
CERCIDIPHYLLUM MAGNIFICUM	PICEA ORIENTALIS	TILIA TOMENTOSA
CERCIS CANADENSIS	PICEA PUNGENS	TSUGA CANADENSIS
CHAMAECYPARIS NOOTKA PENDULA	PINUS ALBICAULIS	TSUGA CAROLINIANA
CHAMAECYPARIS OBTUSA	PINUS AYACAHUITE	TSUGA DIVERSIFOLIA
CHIONANTHUS RETUSUS	PINUS BANKSIANA	ULMUS x cultivars
CHIONANTHUS VIRGINICUS	PINUS BUNGEANA	ULMUS PARVIFOLIA
CLADRASTIS LUTEA	PINUS CEMBRA	VIBURNUM PRUNIFOLIUM
CORNUS ALTERNIFOLIA	PINUS DENSIFLORA	ZELKOVA SERRATA
CORNUS FLORIDA	PINUS FLEXILIS	
Bold indicates Illinois native		
General Planting Notes:		
Generally avoid trees with heavy fruits/nuts/seeds near pathways and roadways.		
Provide for diversity in planting plans - avoid monocultures		
Preference is for Illinois native plants		

Figure 1: Approved Plant List

Landscaping

Landscaping on the Urbana campus is broadly divided into three distinct categories. Those are streetscapes, civic spaces, and intimate spaces.

Because the [street jurisdictions in the University District](#) are varied by location and historic agreements between the campus and local governments, design efforts are made to work harmoniously for streetscape design. Tree selection and right-of-way landscape treatment is also sensitive to the needs and requirements of each streetscape owner while still being identifiable as being on the University of Illinois campus.

Civic spaces are generally larger areas on campus, like those of the Main Quad, Bardeen Quad, and Military Axis. These spaces are defined by a simple and restrained landscape design, limiting the diversity of species within given groups or rows of trees. As these spaces contribute greatly to the campus landscape framework, tree plantings in these areas are focused on longer lived native Illinois trees.

Intimate spaces are those found in between buildings and in smaller spaces, such as the residential quads, courtyards and other interstitial spaces around campus. Here, a more diverse plant palette is used, and uses are more closely aligned with adjacent building and space uses.

Integrated Pest Management (IPM)

There is no chemical pest control program for campus trees. Pest control is limited to cultural and mechanical practices and non-chemical applications such as insecticidal soap and dormant oil. Trees that are in distress are mulched with composted wood mulch, put on a watering schedule, and deep root fed in the fall. In 2018, F&S formalized the IPM program and posted an overview online at <http://www.fs.illinois.edu/services/grounds/integrated-pest-management>.

Tree Maintenance

Both tree surgeons work together, so there is currently a single tree crew, handling all 930 acres (in the Grounds zones (see figure 2), and supporting other spaces upon request. There are certain cultural practices which are administered in concurrence with the prioritized needs of the campus trees. These cultural practices include adding mulch, watering, and late fall deep root feeding. Trees that have been planted two years or less or specimen trees that display significant stress are given mulch and added to a weekly watering schedule in years with inadequate precipitation. Trees that have been planted for less than two years and specimen trees that display significant stress receive a deep root feeding in late fall with fertilizer plus micro nutrients and mycorrhizae.

In addition to the cultural practices, each tree surgeon is required to submit a weekly work plan to the Grounds foreman at the beginning of every week. The weekly work plan is an outline of what the tree surgeon has scheduled for the upcoming week based on the following priorities:

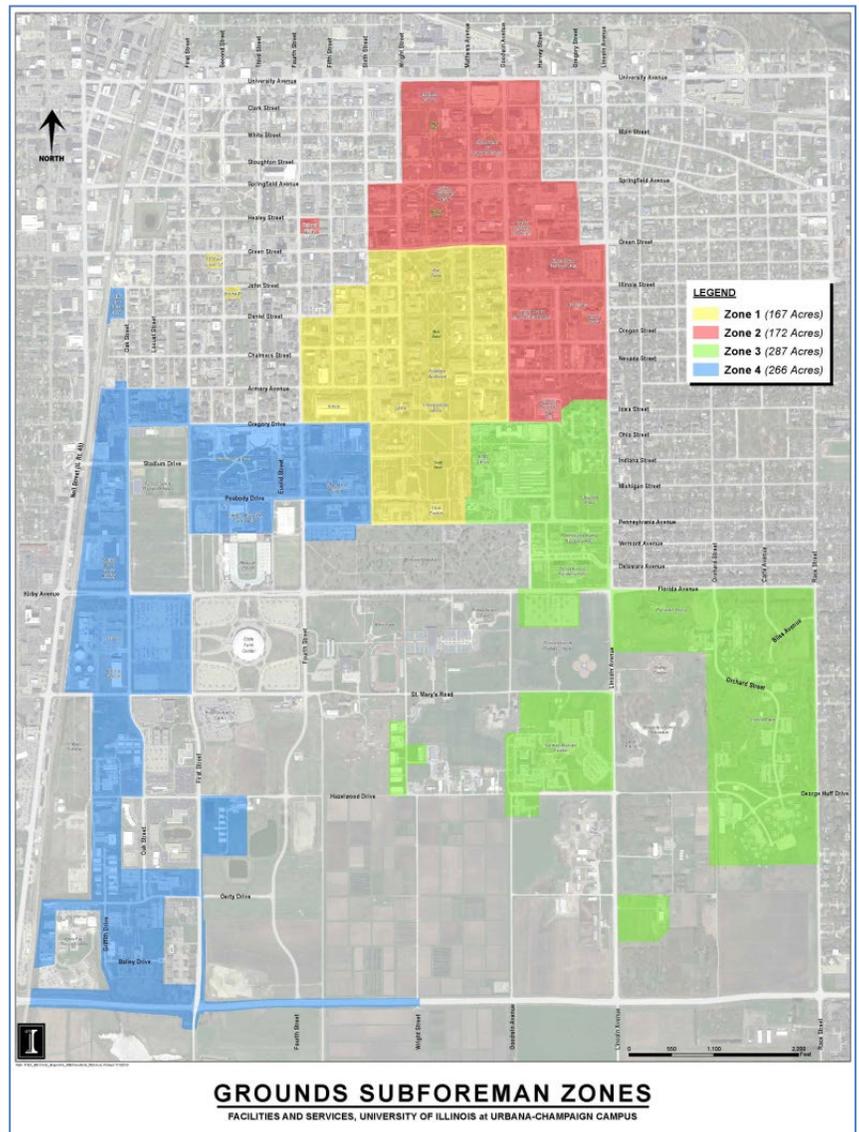


Figure 2: Grounds Maintenance Zones

Order of Priority

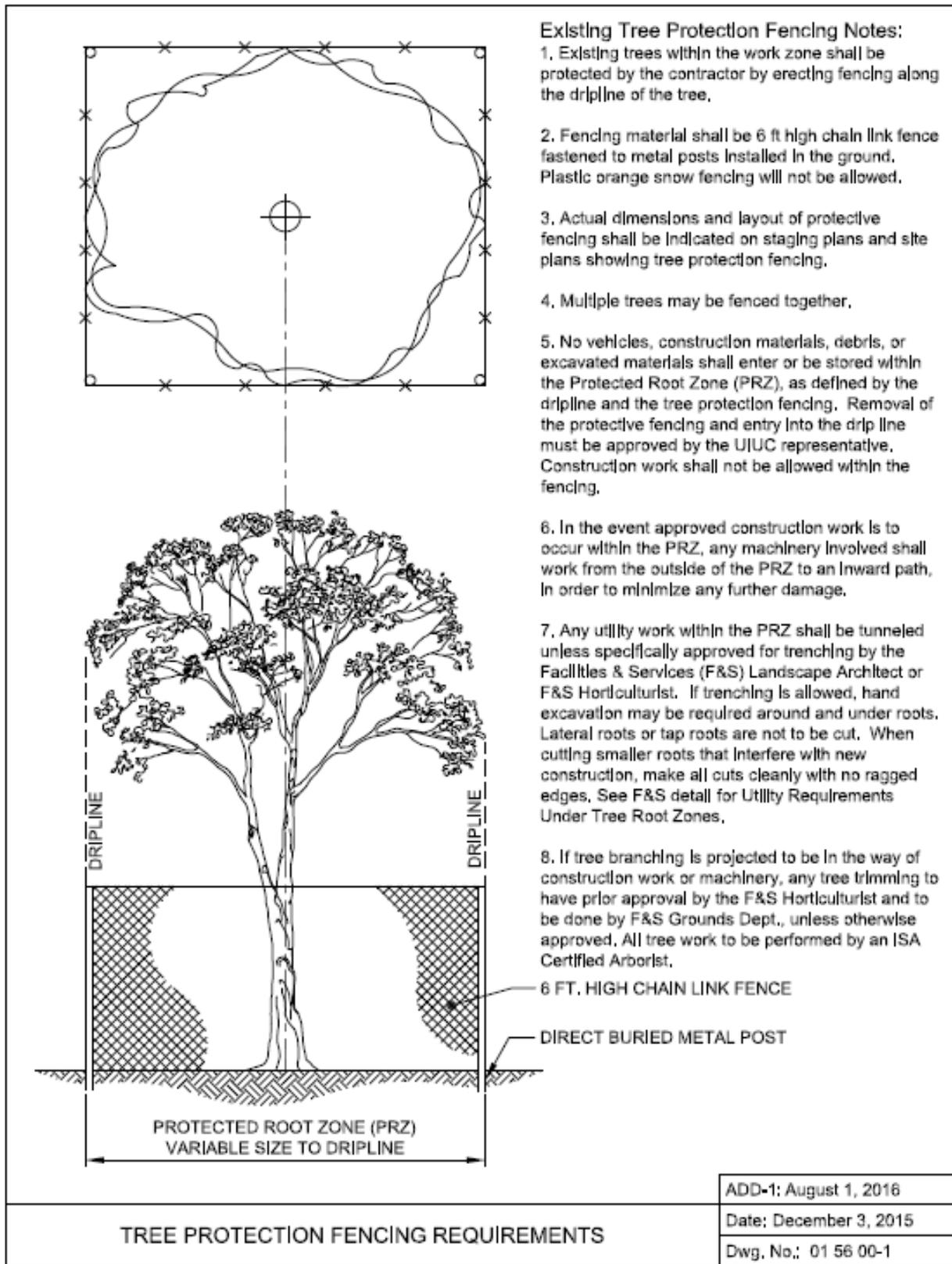
- 1) Safety: Removal of any tree that is deemed structurally unsafe; clearing a tree of dead, diseased, or broken branches that poses an imminent danger
- 2) Service Calls: Addressing various concerns that come in from the campus community
- 3) Raising: Pruning required for building clearance, sidewalk clearance, and street clearance
- 4) Removals: Trees that do not pose an imminent danger but require removal. Trees are removed when they are damaged in some way, possibly from disease or Emerald Ash Borer (EAB). The priority removals are based on structural integrity. The tree surgeons must fill out a tree removal form that includes basic information about the tree, a picture, and justification of removal. The form is reviewed and approved or denied by the F&S Horticulturist or Grounds foreman. All stumps are scheduled for grinding or removal. If the location is a favorable space for a tree, it will be replaced; otherwise a tree will be planted in the nearest suitable location.
- 5) Structural Pruning: Pruning may be required within 2-3 years after a tree is planted to ensure proper structure and form when it reaches maturity. Trees are then pruned on a biennial basis until they reach 10 years old. Trees older than 10 years of age are pruned as needed.

Managing for Catastrophic Events

F&S utilizes in-house resources in the wake of a catastrophic event such as a tornado, fire, straight line wind, or ice storm. Grounds, Operating Engineers, and Transportation drivers are called upon to clean up the campus. The first priority is clearing the major streets that provide access to campus, followed by sidewalks and entry ways to critical buildings, then general spaces within the core of campus moving outward as time progresses. If necessary, outside tree removal contractors can be hired to aid in the clean-up effort.

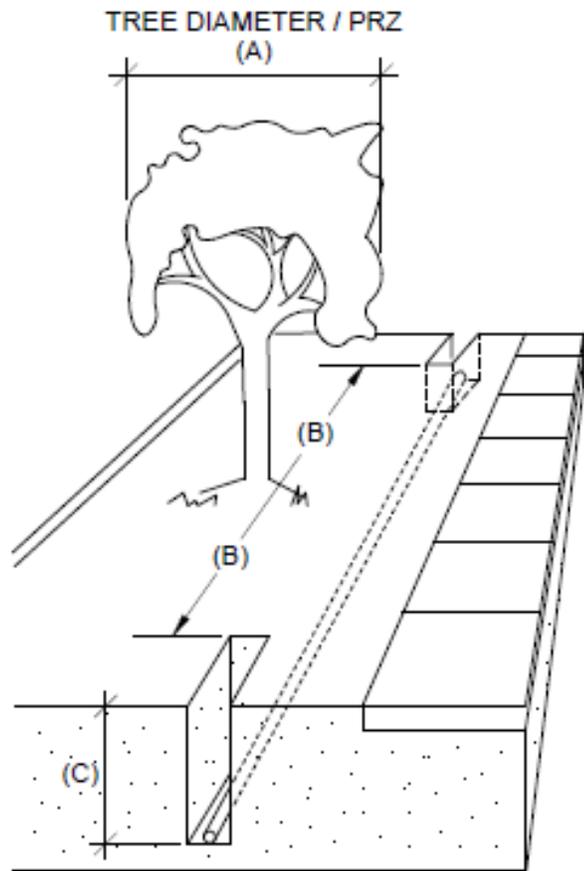
5. Protection and Preservation policies and procedures

All capital construction projects go through a review process that includes identifying the need for space and the anticipated interaction with the campus landscape. Whenever conflicts between construction and the campus landscape arise, projects are required to detail and furnish tree protection fencing. Included in the Facility Standards are Drawing 01-56-00-01 “Tree Protection Fencing Requirements” and Drawing 33-05-23-01 “Utility Requirements Under Tree Root Zones” (see figures 3 and 4 on the following pages).



UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN FACILITIES STANDARDS ADDENDUM 1, REVISION 2013

Figure 3: Tree Protection Fencing Requirements



DIRECTIONAL DRILLING SPECIFICATIONS FOR THE INSTALLATION OF PUBLIC UTILITIES WITHIN THE TREE DRIP LINE		
TREE DIAMETER (A)	MIN. DISTANCE OF TUNNEL FROM FACE OF TREE TRUNK-EA. SIDE (B)	RECOMMENDED DEPTH OF TUNNEL (C)
5 IN. - 9 IN.	6 FEET	2 1/2 FEET
10 IN. - 14 IN.	10 FEET	3 FEET
15 IN. - 19 IN.	12 FEET	3 1/2 FEET
20 IN. OR MORE	15 FEET	4 FEET

THE PROTECTED ROOT ZONE (PRZ) OF EACH TREE IS LOCATED WITHIN THE DRIP LINE OF THE TREE. NO OPEN TRENCHING IS TO OCCUR IN THE PRZ WITHOUT APPROVAL OF THE UIUC FACILITIES AND SERVICES LANDSCAPE ARCHITECT OR HORTICULTURIST. UTILITY LINES SHALL BE DIRECTIONAL DRILLED PER THE ABOVE GUIDELINES. VARIATIONS TO THE ABOVE GUIDELINES SHALL BE SUBMITTED FOR REVIEW AND APPROVAL PRIOR TO WORK.

UTILITY REQUIREMENTS UNDER TREE ROOT ZONES	Date: OCTOBER 1, 2017
	Dwg. No.: 33 05 23-1

UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN FACILITIES STANDARDS

Figure 4: Utility Requirements Under Tree Root Zones

Additionally, the Facility Standards include a specification for Planting and Landscaping, in the General Guidelines specification, and a Technical Section under Division 32 “Exterior Improvements” for Plants, section 32-93-00. The text from these sections is shown below.

General Guidelines for Planting and Landscaping

Quality Requirements: It is the intent of the U of I to receive high quality materials and workmanship both above and below ground level.

Certificates of Inspection: Shall accompany invoices for each shipment of plants as may be required by law for transportation. File certificates with F&S Landscape Architect or Horticulturist prior to acceptance of the material.

Lawns:

Sodding/Seeding: Sodding and seeding are both acceptable methods of lawn establishment or restoration; however, seeding is preferred.

Schedule: Sodding and seeding work should only be accomplished between April 15 and May 15 or between August 15 and October 15.

Methods: Sod handling, seedbed preparation, mulching, fertilizing, watering and ongoing lawn maintenance should be accomplished as directed in the technical sections of these Standards.

Drainage: Drainage tile that empties into a storm water drainage system should be extended to each undrained low point. Drainage should be installed as part of the landscaping work and not as a part of the building construction work.

Trees and Shrubs:

Approved Plants: All plant material should be selected from the list of approved plants for campus or be approved by the F&S Landscape Architect or Horticulturist, and conform to the requirements of the American Standard for Nursery Stock, published by AmericanHort as well as the requirements of the technical sections of these Standards. Native species are preferred. See Exhibit 32 93 00-1, Approved Plant List.

Planting Beds: Soil quality and planting bed preparation (including soil compaction level) should be as directed in the technical sections of these Standards.

Methods: When planting trees and/or shrubs, the guidelines in the most recent version of the ANSI A300 Standards, published by the Tree Care Industry Association should be followed. Guying, staking, wrapping, pruning, mulching, fertilizing, watering and other ongoing maintenance of trees and shrubs should be accomplished as directed in the technical sections of these Standards.

Drainage: Drainage tile that empties into a storm water drainage system should be installed into each planting bed. As mentioned above, it should be installed as part of the landscaping work and not as a part of the building construction work. Drainage tile should be installed in tree plantings if directed by the F&S Landscape Architect or Horticulturist

Documentation and Submittals: The AE shall review the Project Submittal Requirements.

Excavation within Protected Tree Root Zone: When excavation for utility work is required to occur within the protected root zone, all excavation is to be done by directional drilling the utility under the root zone.

See Exhibit 23 37 00-1 Utility Requirements Under Tree Root Zones. No trenching is to occur in the PRZ without prior approval by the F&S Landscape Architect or Horticulturist

Tree Replacement Policy: When a University owned tree is scheduled for removal due to construction work on campus, the project is required to furnish and install a new replacement tree unless otherwise approved by the F&S Landscape Architect or Horticulturist.

If a University tree is damaged by a contractor doing work on campus, and the F&S Landscape Architect or Horticulturist determines the tree should be removed due to damage, the contractor shall be required to furnish and install a replacement tree. Costs for removal of the damaged tree, associated stump grinding and landscape restoration shall be included with the costs for furnishing and installing the replacement tree, and shall be at no additional cost to the University.

In both cases of tree replacement, trees shall be a minimum of 2” caliper and meet all F&S standards for species, sizing and installation. Replacement tree type and species will generally follow that of the removed tree type and species. However, final tree species selection and planting location to be approved by the F&S Landscape Architect or Horticulturist. All work for tree removal and tree planting shall be done by an ISA Certified Arborist.

Division 32 “Exterior Improvements” Section 32 93 00 – Plants

PART I - GENERAL

1.1 SECTION INCLUDES

- A. Provide landscaping and restoration including:
 - 1. Tree planting, replacement, pruning, and protection.
 - 2. Shrub, groundcover, and perennial planting, replacement, and protection.

1.2 RELATED SECTIONS/DOCUMENTS

- A. Section 01 35 00 – Special Procedures
- B. Section 01 56 00 – Temporary Barriers and Enclosures
- C. Section 32 91 19.13 – Topsoil Placement and Grading
- D. Exhibit 32 93 00-1, Approved Plant List
- E. Drawing 01 56 00-1, Tree Protection Fencing Requirements
- F. Drawing 23 37 00 -1, Utility Requirements Under Tree Root Zones

1.3 REFERENCES

- A. Guide for Plant Appraisal, current edition, by Council of Tree and Landscape Appraisers
- B. Standardized Plant Names, Horticulture Nomenclature.
- C. American Standard for Nursery Stock, ANSI Z60.1, current edition by AmericanHort.
- D. ANSI A300 Standards, published by the Tree Care Industry Association.
- E. Planting Details and Specifications as published by the International Society of Arborists.

1.4 CERTIFICATION

A. Certificates of Inspection: Shall accompany invoices for each shipment of plants as may be required by law for transportation. File certificates with Owner prior to acceptance of the material.

1.5 ENVIRONMENTAL REQUIREMENTS

A. Planting: Shall be performed at normally accepted times in the spring and fall.

B. Variance: If special conditions exist which may warrant a variance in the normally approved planting dates, a written request shall be submitted to the Owner stating the special conditions and the proposed variance. Permission for the variance will be given if warranted in the opinion of the Owner.

1.6 WARRANTY

A. Substantial Completion: The guarantee period for trees, shrubs and groundcovers shall begin at the date of the Substantial Completion.

B. 1 Year: All plant material shall be guaranteed by the Contractor for a period of 1 year from the date of Substantial Completion to be in good, healthy, and flourishing condition.

C. Repair Damage: The Contractor shall further guarantee that during the period of the guarantee he will make good any defects to the Work and all damage caused to property of the Owner by such defects or by the Work required to remedy such defects.

D. Decision to Replace: At any time within the period of the guarantee, the Contractor is responsible for any plant that is dead, dying, in a declining condition, or that has failed to flourish in such a manner that its usefulness or appearance has been impaired due to inferior or defective materials, workmanship or inadequate protection. The decision of the Owner for making replacements shall be conclusive and binding upon the Contractor. The Contractor shall also make good all damage to persons or property caused by defective workmanship or materials.

E. Trees and Shrubs: Any trees or shrubs found to be unacceptable as described above shall be removed from the site and replaced during the next planting season.

F. Of Same Kind: Plant replacements shall be of the same kind and size as specified in the plant list. All plant replacements shall be inspected, furnished, planted, mulched, and otherwise installed as specified at the Contractor's expense.

G. Repair Damage: Where plants are replaced, the Contractor shall be responsible for repairing any damage caused by this replacement to lawns, pavements, or other areas involved with the replacement.

PART 2 - PRODUCTS

2.1 PLANT SELECTION AND TAGGING

A. Inspection: Plants shall be subject to inspection and approval at their place of growth and upon delivery for conformity to specifications. Such approval shall not impair the right of inspection and rejection during progress of the Work.

B. Written Requests: Written requests for inspection of plant material at their place of growth shall be submitted to the Owner at least 10 calendar days prior to digging. Written requests shall state the place of growth and quantity of plants to be inspected. The Owner may refuse inspection at this time if, in his judgment, a sufficient quantity of plants is not available for inspection.

C. Selected Specimen: Plants identified as "selected specimen" shall be approved and tagged at their place of growth. For distant material, submit photographs for pre-inspection review.

2.2 DIGGING AND HANDLING OF PLANT MATERIAL

A. Ball and Burlap: Ball and burlap (B&B) plants shall have natural balls of earth, of size not less than that recommended in the American Standard for Nursery Stock. Plants moved with a ball will not be accepted if the ball is dry, cracked, or broken before or during planting operations.

B. Freshly Dug: All plants shall be freshly dug. Heeled in plants or plants from cold storage will not be accepted. All nursery grown plants shall have been transplanted or root pruned at least once in the last 3 years.

C. Careful Handling: All plants shall be handled so that the roots, trunk, and branches are adequately protected at all times. During shipment, all plants shall be properly protected by a shade tarpaulin of approximately 90 percent shade material. No plant shall be so bound with rope or wire at any time as to damage the bark, break branches, or destroy its natural shape.

2.3 PLANTS

A. Grown in Accordance with Good Practice: Plants shall be true to species and variety specified and nursery grown in accordance with good horticultural practice under climatic conditions similar to those in the locality of the Project for at least 2 years. Plants shall be freshly dug, unless specified as container stock, and shall not be in leaf at time of digging.

B. Native Species: The use of native species is preferred.

C. Plant Quality: Unless specifically noted otherwise, all plants shall be of specimen quality, exceptionally heavy, symmetrical, so trained or favored in development and appearance as to be unquestionably and outstandingly superior in form, compactness, and symmetry. They shall be sound, healthy, vigorous, well branched and densely foliated when in leaf, free of disease, insects, eggs, or larvae and shall have healthy, well-developed root systems.

D. Pruning: Plants shall not be pruned before delivery. Trees with multiple leaders, unless specified, will be rejected. Trees with a damaged or crooked leader, abrasion of bark, sunscald, disfiguring knots, insect damage, or cuts of limbs over 3/4-inch in diameter not completely callused will be rejected.

E. Plant Size: All plants shall conform to the measurements specified in the plant list and shall conform to the American Standards for Nursery Stock. Plants larger than specified may be used if approved by the Owner. Use of such plants shall not increase the Contract price. If larger plants are approved, the root ball shall be increased in proportion to the size of the plant.

F. Measurement: All plants and all tree trunks shall be measured when the branches are in their normal position. Dimensions for height and spread refer to the main body of the plant and not from branch tip to branch tip. Measurements specified are minimum size acceptable after pruning where pruning is required. Plants that meet requirements but do not possess a normal balance between height and spread shall be rejected.

G. Labels: All plants shall be labeled with correct plant name and size. Labels shall be securely attached to all plants, bundles, and containers of plant materials delivered.

H. Substitutions: Substitution of plant materials is not permitted unless authorized in writing. If proof is submitted, substantiated in writing, that any plant specified is not obtainable, a proposal will be considered for the use of the nearest available size or similar variety with a corresponding adjustment of the Contract price. See Exhibit 32 93 00-1 for the approved list of plants and shrubs.

I. Replacement: When the plant list is complete, it shall include plants removed and/or damaged beyond reasonable repair during the Project, their correct spacing, and type (ball and burlap, container, etc.). Any damage will be evaluated by the Owner as to whether replacement is necessary. Such replacement shall be the sole responsibility of the Contractor.

2.4 MULCH

A. Mulch Quality: Mulch shall be shredded hardwood bark, chemically inert, nontoxic, free of weeds or any other substance injurious to plant growth. Shredded bark shall have a uniform fibrous texture, free from cakes and lumps. It shall be free of foreign material and of a uniform color. No individual piece shall be larger than 2 square inches.

2.5 TOPSOIL

A. Conform to Section 32 91 19.13 – Topsoil Placement and Grading. Topsoil depth for planting beds shall be a minimum of two (2) feet.

2.6 SLOW RELEASE WATER BAGS

A. Reinforced, UV treated, 10 mil polyethylene bags with heavy-duty nylon zippers with poly pro straps and heat sealed edges shall be provided for each tree over 2 inches in caliper. Each bag shall hold 20 gallons of water. Product shall be Treegator or Owner-approved equal. Treegators are available through Forestry Suppliers, Inc., 205 West Rankin Street, P.O. Box 8397 Jackson, MS 39284-8397 (800.647.5368).

PART 3 - EXECUTION

3.1 EXCAVATING OF PLANTED AREAS

A. Stake Out Excavation: Where required for planting operation, the Contractor shall perform all necessary excavations as part of the Contract price. Stake out plant locations and obtain approval from the Owner before excavation is begun. Excavations shall include complete removal of rock, old concrete, base materials, other debris, and necessary earth excavations.

B. Utilities: The Contractor shall be responsible for locating all underground utilities, and shall take all necessary precautions not to disturb or damage these utilities.

C. Obstructions: When an obstruction of rock, tree roots, utilities or any other object of substantial size and extent is encountered, an alternate location for the plant may be selected by the Owner. Where locations cannot be changed as determined by the Owner, submit cost required for moving or removing the obstruction. Proceed with such revisions only after approval by the Owner.

D. Schedule: Excavation shall be during the specified planting season and shall be scheduled so that it will be followed immediately by the placement of plant materials.

E. Depth: Excavate tree pits to the depth of the tree ball and at least twice the width of the tree ball. Excavate shrub pits to depth of shrub ball or container and one foot wider than the ball or container. Excavate groundcover pits to depth of container or sufficient to plant bare root ground cover to appropriate depth. Depth of all plant pits specified shall be measured from the finish grade.

F. Poor Soil Conditions: Detrimental soil conditions affecting plant growth shall be reported in writing to the Owner. State condition and submit proposal of correcting the condition to the Owner. Ensure proper drainage.

G. Remove Materials From Site: All excess excavated materials shall be disposed of off-site by the Contractor. The Contractor shall be responsible for removing all rubbish, waste materials, or other debris from the site at the completion of each working day.

3.2 PLANTING OPERATIONS

A. Protection: Protect plants at all times from conditions detrimental to the health of the plants. Plants that cannot be planted immediately on delivery shall be kept in shade or sun, according to their specific requirements, with B&B material well protected with soil, wood chips, shredded bark or other acceptable material. Plants shall be kept watered. Plants shall not remain unplanted for longer than 3 days after delivery.

B. Setting Plant: Set plants in planting pits with the root flare at slightly above finish grade. Set plant plumb and brace rigidly into position until prepared topsoil has been tamped solidly around ball and roots so that the plant will be at finish grade of the same depth 1 year later. See ISA Planting Details.

C. Remove Wrapping: Cut and remove ropes, strings and wrapping from the top 1/3 of the ball after plant has been set. Leave balance of wrapping intact around the ball. All waterproof, water repellent, or rot resistant wrappings shall be removed from the ball. Wire baskets shall be removed if the ball will hold together once it is removed. If the ball will not hold together, remove top half of the wire basket once the plant is in the planting hole.

D. Backfill and Water: Backfill plant pits with excavated material. When plant pits have been backfilled about 1/2 full, water thoroughly, eliminating all air pockets.

E. Fill and Repeat Water: After watering, install soil to top of pit and repeat watering. Avoid puddled soil conditions.

F. Saucer: Form saucer around tree and shrub pits as indicated in the Planting Details and Specifications as published by the International Society of Arborists

G. Firm Soil: Ensure the soil is firm around groundcover plants and water thoroughly.

H. Finish Grade: The finish grade around the planting area shall conform to the appropriate grade after full settlement of the soil has occurred.

I. Mulch: Mulch all tree and shrub pits with shredded hardwood bark to a depth of 3-inches immediately after planting. Mulching depth of perennial and groundcover beds will be from 1-inch to 3-inches as appropriate for the planting. Mulch around trees should be pulled back from the trunk with no more than 1" depth within 6" of the trunk.

J. Water: Water all plants thoroughly. The Owner will furnish water to the Contractor from existing facilities. Contractor shall furnish all hose, meters, back flow preventers and other connections necessary for watering plants.

K. Slow Release Water Bag: Connect and place two bags for each tree. Contractor shall fill with water and maintain water in the bag during the maintenance period.

L. All trees, shrubs, and planting beds shall be tiled with 4" plastic drain tile that is wrapped with drainage fabric. The top of tile is to be placed at a depth of 36" below finish grade. If conditions do not permit tile installation at a 36" depth, a 24" minimum depth is permitted after approval by the University.

3.3 GUYING, STAKING, WRAPPING AND PRUNING

A. Guys: If directed by the F&S Horticulturist or Landscape Architect, flag guys with 18-inch sections of 1-inch diameter white PVC pipe if guys extend outside planting area or pose a tripping hazard. Guys shall be completed immediately after planting. Drive anchors into the ground outside of the planting pit to a depth that will securely hold the tree. Attach cables with hose around the trunk. Leave cables with just enough slack that they will go tight in a wind.

B. Stakes: If directed by the F&S Horticulturist or Landscape Architect, use 3 stakes on trees over 2-inches in caliper.

C. Wrap: If directed by the F&S Horticulturist or Landscape Architect, wrap trunks of deciduous trees 1.5-inches or more in caliper with a spiral overlapping tree wrap to a minimum height of the first branch. Wrap from the bottom and tie wrapping securely in place. Consult the Owner for acceptable trunk wrap material.

D. Prune: Prune plants only at time of planting and according to horticultural standards to preserve the natural character of the plant, and only to remove broken, crossing, or damaged branches. Pruning shall be done only with approval from the Owner. Use only clean, sharp tools.

3.4 MAINTENANCE OF TREES, SHRUBS AND GROUNDCOVERS

A. Begin Immediately: Maintenance shall begin immediately after each plant is planted and shall continue until acceptance. The Contractor's maintenance period shall end one year after substantial completion of the Project.

B. Complete Maintenance: Maintenance shall consist of pruning, watering, cultivating, weeding, mulching, tightening, repairing of guys and stakes, wrapping repair, resetting plants to proper grades or upright condition, restoration of planting saucer, and furnishing and applying such sprays or other items as are necessary to keep the plantings free of insects and disease and in thriving condition.

C. Clean of Debris: Sidewalks and other paved areas shall be kept clean of debris and material resulting from planting and maintenance work.

3.5 FERTILIZING

A. Tree and Shrub Fertilizer: Commercial Fertilizer for trees and shrubs shall be Nutri-Pak controlled release plant food as manufactured by JRP International, Inc. of Fon du Lac, Wisconsin or Owner-approved equal.

Standard Formulation: Guaranteed analysis of 16 percent total Nitrogen, 8 percent available Phosphoric Acid and 8 percent soluble Potash (16/8/8) packaged in a patented controlled release packet.

B. Groundcover and Perennials Fertilizer: Commercial Fertilizer for groundcover and perennials shall be a General Purpose complete plant food (10-10-10), furnished in a uniform granular or pelletized form as approved by the Owner.

Standard Formulation: Guaranteed Analysis of 10 percent total Nitrogen, 10 percent available Phosphoric Acid and 10 percent soluble Potash.

Lightning Protection

There are also several specimen trees on campus that have a lightning protection system in place. The systems are inspected and adjusted as needed. All lightning protection systems will be installed in accordance to the latest ANSI A 300 standards for Tree Care Operations – Tree Shrub and Other Woody Plant Maintenance – Standard Practices (Lightning Protection Systems).

6. Goals and Targets

Tree Inventory – IN PROGRESS

As the Ash removal goal was reaching completion in 2019, the next major focus for this committee was the Tree Inventory, which was started in 2018. By September 2018, over 16,000 trees were identified and surveyed on the Urbana-Champaign campus. These totals excluded the University’s Arboretum, which is currently engaged in a separate effort to inventory their trees. It also excludes the actual number of trees found in three woodlots on campus. Using surveyed approximations, these areas will eventually contribute roughly 8,000 more trees to the database. In some cases, groups of trees were misidentified, or were missed entirely. We have been systematically resolving these outstanding issues with the database in order to most accurately assess our carbon sequestration values.

In 2019, student committee member, Maddie Smith, worked with the Horticulture Club to develop a Campus Tree Walk for Arbor Day. With support from this committee, the Horticulture Club created a flyer and promoted the Campus Tree Walk during Earth Week in April and during Sustainability Week in October. Donor Trees were highlighted in the inventory, as a tagged item to show up as an option for another tree walk. In 2021, the committee intended to incorporate the Arboretum’s existing inventory into the campus database; however that goal was postponed due to low staff availability. In 2022, adding to the inventory was once again a priority, with additions of counts from the Arboretum and assistance from an undergraduate independent project in the spring. Totals still do not reflect the true numbers on campus, especially seen with a comparison to the tree canopy analyses done over the past two years.

On-campus Nursery – IN PLANNING

The tree committee has begun conversations for adding a nursery on campus, to further our commitment to locally sourced trees for our campus. Many parties have shown interest, especially F&S Grounds and the UI Arboretum. The nursery will likely be added within the Arboretum, although planning is still in its initial stages. A feasibility study is the next step for this nursery, to further gauge interest, along with identify future leaders of this project in addition to surveying potential funding sources. In 2023, the committee hopes a student group, along with those with those with commitments to the newly published landscape master plan, will complete the feasibility study.

On-site milling at the South Arboretum Woods– IN PLANNING

With the need to constantly remove and replant trees on campus, the Committee discussed this year to start moving forward on plans to create a site on campus to both mill trees and repurpose the wood chips on campus. The site would be at the south arboretum woods, and the Forestry Extension Specialist of our committee has begun obtaining quotes for required machinery and has made plans for the precise location. Planning will continue in 2023, with input from F&S Grounds to see if the location would be sized enough to take in trees from across the whole campus.

Additional Goals

The committee continues to identify additional goals for the health of our campus trees, and we list them here:

1. Increase the number of Grounds tree crews from one tree crew with two Tree Surgeons (i.e., Arborists), to two tree crews with one Tree Surgeon and one Tree Assistant, each.
2. Hire a part-time student to assist the Landscape Architect's responsibilities
3. Initiate a service learning project related to more regular updates to the Lightning protection system.
4. Assist the University with insight for the newly published University of Illinois Landscape Masterplan

7. Tree damage assessment

When tree damage occurs during construction, the project manager or coordinator works with the University Landscape Architect or Horticulturist to document any damage. This includes any damage above or below ground to any protected part of the tree. A document is then prepared that contains images of the damage, citing sections of the approved contract documents that have been violated. This includes a discussion on the effect such damage has to the longevity and viability of the tree; for example, compaction to roots leading to a slow decline and ultimate death, even if death will occur several years after the construction has ended. This document serves as the violation notice and is given to the construction project team to allow them to respond. Although the University does not have a specific tree damage policy, damage to University property is broadly covered under a general specification for contracted work on campus. Any fines are then handled through the project manager or coordinator. In the future, the Campus Tree Advisory Committee plans to create a specific tree damage policy for approval on campus, as described above in the goals section.

8. Prohibited practices.

No person may perform any of the following acts without first obtaining written permission from the Campus:

1. Plant on University-owned property, or treat, prune, remove or otherwise disturb any tree, shrub or other plant located on university-owned property.
2. Damage, cut, tap, carve or transplant any tree, shrub, or other plant located on University-owned property. This also includes practices such as topping trees due to utilities, "volcano" mulching trees, and any activity to harvest tree seeds or fruit while still attached to the trees.
3. Attach any rope, wire, nail, sign, poster, or any other man-made object to any tree, shrub, or other plant located on University-owned property.
4. Deposit, store, or maintain any stone, brick, sand, concrete, lumber, tile, pipe, or other material which reasonably may be expected to impede the free passage of water, air, or nutrients to the roots of any tree, shrub, or other plant.
5. Cause any gaseous, liquid, or solid substance which because of the nature or amount reasonably may be expected to be toxic or otherwise harmful to trees, shrubs, or other plants to be located where such substance reasonably may be expected to affect trees, shrubs, or other plants located on University-owned property.
6. Cause any fire to burn on University-owned or private property if such fire, or the heat, smoke, or ash therefrom reasonably may be expected to injure any portion of any tree, shrub, or other plant located on University-owned property.

9. Definitions of terminology related to campus trees.

The campus tree terminology largely matches that of the ANSI A300 standards for tree care. The one exception is due to the State of Illinois Civil Service position terminology for certified arborists, which are called Tree Surgeons on this campus.

10. Communication strategy

F&S maintains a strong partnership with iSEE for sustainability-related communications. In order to promote the Tree Campus Higher Education recognition, F&S sends out a news release regarding the importance of campus trees and progress toward maintaining the designation.

The information in the news release and additional facts about the process is shared across campus by both F&S and iSEE through various distribution methods, including social media accounts and websites. The Arbor Day Event gets posted on the sustainability calendar and shared on the campus' e-week newsletter as well as the sustainability calendar for Earth Month. Invitations to the Arbor Day event are sent directly to list-serves on campus and in the community. There is also an event in the fall, in conjunction with Campus Sustainability Month each October. The fall event is promoted through the same means as the Arbor Day event.

Additionally, there is a webpage devoted to the [Tree Care Plan](#) on both the [Illinois Climate Action Plan \(iCAP\) Portal](#) and on the [F&S website](#). The Tree Campus Higher Education page is accessible by clicking either [Landscape Management](#) or [Sustainability](#) from the main F&S site. The requirements for protecting the campus trees are included in the Facility Standards, which all capital projects are required to follow. To raise awareness and understanding about these requirements, the project managers at F&S in the Capital Programs Division have been given a presentation about the Campus Tree Care Plan with an overview of the specific requirements.

Standard 3: Dedicated Tree Expenditures

Grounds Tree Program Budget

Annual state funding for the campus trees is managed by Grounds. The current budget is \$410,000 for the tree program, which includes \$50,000 for planting and initial care, \$315,000 for tree management, and \$45,000 for other costs, such as equipment maintenance, bucket and chipper truck rental fees, and equipment investments.

2022 Annual Expenses for Grounds Trees

Tree Program	Annual Budget
Tree Planting and Initial Care Costs	\$ 50,000
Campus Tree Management Costs	\$ 315,000
Other Costs	\$ 45,000
Total	\$ 410,000

Tree Program Additional Details

The Tree Campus Higher Education USA application webform requests total volunteer hours. The U of I does not currently track volunteer time on an hourly basis, and the majority of the volunteer time is spent in singular projects (such as the service learning projects described below). Therefore, the value in the webform is entered as zero, which is not truly reflective of the amazing support our campus receives from volunteers.

The number of trees planted in 2015 was listed as 54, which included only trees planted by the F&S Grounds department. In 2016, the number was as 103, which included 68 planted by Grounds and 35 planted at the Arboretum. In 2017, Grounds planted 116 and the Arboretum planted 60, for a total of 176 new trees. In 2018, Grounds planted 75 trees and the Arboretum planted 72 trees, totaling 147 new trees. In 2019, Grounds planted 71 trees and the Arboretum planted 66. In 2020, Grounds planted 533 trees. In 2021, Grounds planted a total of 303 trees. In 2022, Grounds planted 274 new trees.

The number of trees removed in 2015 was 135, which again includes only those removed by the Grounds department. In 2016, the number removed was 87, which included 65 Ash trees removed by Grounds and 22 removed at the Arboretum. In 2017, Grounds removed 225 Ash trees, and the Arboretum removed 20 trees (Ash and others of poor quality). In 2018, Grounds removed 105 trees and the Arboretum removed 7 trees, and in 2019 Grounds removed 212 trees. In 2020, Grounds removed 81 trees. In 2021, Grounds removed 109 trees. In 2022, Grounds removed 79 trees. The majority of trees removed were more than 60% dead due to a variety of factors such as; age, bacterial leaf scorch, pine wilt and environmental stress. There were only a handful of trees removed due to wind and construction.

The number of trees pruned by Grounds for 2022 is estimated at 1,500.

Standard 4: Arbor Day Observance

Event Description

In support of achieving the Tree Campus USA designation for the Urbana campus through the Arbor Day Foundation, the Tree Campus Advisory Committee hosted an Arbor Day Celebration on April 29, 2022. Returning to the tradition celebration format, the event was held outdoors on the South Quad centered around planting a new tree. The event commenced with Mike DeLorenzo, Vice Chancellor for Administration and Operations, reading the joint Arbor Day Proclamation that was signed by the Chancellor, in addition to our neighboring cities' respective mayors. The City of Champaign, the City of Urbana, and the Village of Savoy, which all share borders with the University, joined in by proclaiming the 29th of April 2022 as the day to observe Arbor Day, in addition to sharing their principles for the importance of biodiverse landscapes within our community. Each of the signees hold their own respective Tree City USA designations.

Following the proclamation, Brent Lewis, Landscape Architect, shared an inciteful amount on the progress made in regard to our campus' landscape, in addition to what is planned for the future. Being one of the main contributors to the newest Landscape Masterplan, detailed objectives were shared on planning to create a campus landscape that fosters an appreciation for the Illinois natural and cultural heritage and protects historic university landscapes. In taking in both feedback from the community and other experts, the newest Landscape Masterplan will serve as a guide to overall better our campus and the environment it encompasses.



With the second half of the event focusing on engagement, attendees were invited to place soil at the base of a sugar maple tree, which was prepared by the University Grounds department. With the removal of a previous sugar maple, the spot was chosen in addition to the focus on the once again placement of a native species to our campus. Concurrently, representatives from the Institute for Sustainability, Energy, and Environment facilitated a trivia game with mostly tree focused trivia, in addition to general sustainability facts.

Standard 5: Service Learning Projects

Facilities & Services Internships for Increasing Trees on Campus

In the spring semester 2022, we had a senior in the landscape architecture department, Kristen St. Pierre, assist the university landscape architect with trees on campus. Kristen was invaluable in learning how to use survey equipment, and then locating 94 trees in a densely planted new grove on campus. She also was instrumental in other tree plantings on campus with design work for 2022 and plantings scheduled for 2023 installs.



Figure 6: Integrated greenway on campus

This fall semester 2022, we had a high school student, Nathaniel Nevins, volunteer to assist with anything landscape architect related. One of the items that was on our list was to update the tree diversity charts and percentages. This was originally done in 2018 and it was time to see if our efforts to reduce the high percentage trees was working. At this time, the student is still working on the final graphics. We can say, based on the current numbers, our highest

quantity top 4 species have all seen a reduction at least 0.1-0.2% from 2018 levels. As these trees have been removed for various reasons, different species have been planted, with a focus on trees that consist of less than one percent of the current tree diversity.

Re-census of Trelease Woods

Trelease Woods is an exceptionally rare example of undisturbed, old growth eastern deciduous forest in Illinois and one of the most studied forests in North America. The university purchased the property in 1917 and unique datasets exist on the vegetative composition of Trelease Woods dating back to the 1920s. Until recently, there was no complete tree inventory of the forest. The Department of Natural Resources and Environmental Sciences and the School of Integrative Biology received funding from the Student Sustainability Committee (SSC) in 2018 to employ 70 students to complete the census. These students mapped, measured, and identified every tree (31,980 individual trees) over three years using the standardized protocol of ForestGeo – a global network of forest dynamics plots coordinated by the Smithsonian Institution. Trelease Woods is now the 73rd plot to join this network. Completion of this census has allowed the Department of Natural Resources and Environmental Sciences and the School of Integrative Biology to provide hands-on training opportunities in forest ecology to an unprecedented number of undergrads from four different university colleges.

In fall 2022, the Department of Natural Resources and Environmental Sciences and the School of Integrative Biology received funding from the Student Sustainability Committee again to complete a five-year recensus of the Trelease Woods. The recensus will allow researchers to synthesize data on how forest ecosystems are changing and determine what role forests play as either carbon sources or sinks in the global carbon budget. Recensusing Trelease will also contribute to local-scale carbon monitoring efforts, helping campus determine carbon storage trends for this property. The updated census will occur throughout 2023 and 2024 and the Department of Natural Resources and Environmental Sciences and the School of Integrative Biology expect to train over 50 undergraduate students to complete the census.

Red Bison Biodiversity Improvements in South Arboretum Woods

Red Bison is a Registered Student Organization focused on practicing restoration ecology throughout native Illinois landscapes in Champaign-Urbana. In fall 2023, Red Bison received funding from the Student Sustainability Committee to cultivate a biodiverse understory in the South Arboretum Woods. This will help the ecosystem host more native specialist moths and butterflies, which will help attract more birds. Campus is an important stopping point for migratory birds and hosts substantially more birds than the surrounding farmland, so providing migratory birds with nutritious native food must be a priority. By filling that ecological niche with native species, pressure from invasive species, specifically shade-tolerant fruiting shrubs, will decrease across campus. Student members of Red Bison will plant Pawpaw, Hazelnut, Plum, Elderberry, Viburnum, Willow, and Chokeberry seedlings in spring 2023.

Arboretum Student Engagement

Four students were employed at the Arboretum during Summer 2022. They spent about 50% of their time conducting restoration work in the Southern Arboretum Woodlands (SAW). The work included removal/treatment of invasive species including honeysuckle and garlic mustard, native wildflower planting and selective harvesting of non-native trees. They were also responsible for watering the recently planted native understory shrubs. For a second year, Prof Jim Miller's Restoration Ecology class (Spring 2022) worked with Arboretum Staff in planting 36 native understory shrubs selected to improve habitat for birds and small mammals in the SAW.

The annual Chain Saw Safety Class led by Professor Jay Hayak was held in the SAW during Spring 2022. Following tree removal eight oak trees native to central Illinois were planted. The freshman field day for students in the Department of Natural Resources and Environmental Sciences was held in September 2022 in the Southern Arboretum Woodlands. The event included an introduction to forestry led by Prof. Jan Fraterrigo. Several groups of high school students involved in Summer enrichment programs had field trips to the SAW. The programs focused on ‘hands-on’ activities centered on soils and trees.

Red Oak Rain Garden

The Red Oak Rain Garden, which features two mature trees, soaks up rainwater and snowmelt, enhances the campus and community aesthetic and educational experience, and promotes well-being for everyone who visits. The rain garden is located on the main campus near Allen Hall and Lincoln Avenue Residence Hall. Established in 2006 as an example of green stormwater infrastructure, it was one of the first living lab sustainability sites on campus. It redirects standing water away from its red oak towards its sycamore, as well as away from adjacent walkways, allowing rain to naturally absorb into the ground. Following renovation in 2019, the garden earned recognition from several conservation organizations. Six trees and nine shrubs were installed in 2021 to help frame views while enhancing the sustainability of the area. In 2022, an engagement event celebrated the completion of the rain garden’s boardwalk bridge, which is comprised of sustainably sourced lumber gifted by Allerton Park.

Learn more at: <https://redoakraingarden.org/>



Figure 7: Monarch butterfly photographed at the Red Oak Rain Garden

Biodiversity plan for the Champaign Urbana Region

A graduate student in landscape architecture has been working on a biodiversity master plan for the CU region at my Illinois Extension position that is still in the works. There will be recommendations in there that promote planting hardwood trees like oaks to help diversity of birds, bats, and insects, along with many other recommendations that are applicable to trees. Aiming for a proper tree family/genus/species ratio will be one of the recommendations for the region. I know campus is already at a good level ratio. There will also be a student survey planned for the spring tied to the bio plan that will measure the diversity of both plants and animals (including trees) that will help us understand the diversity of the region better and start a baseline data for the biodiversity in the region.

Conclusion

The University of Illinois is committed to prioritizing our campus landscape and enhancing their relationship with our diverse community of students, faculty, staff, and visitors. Earning Tree Campus Higher Education recognition reflects this commitment to the urban forest, while also becoming a tool to encourage our university to go above and beyond basic requirements as we strive to be an exemplary model for all peer institutions. Our work has become especially important during this pandemic as our community seeks both refuge and social connectedness in our campus landscapes and under our campus trees.

Our community is resilient, and we strive to cultivate that same resilience through our urban forestry practices. To this effect, our university's Climate Action Plan calls to expand native plantings, biodiversity, and pollinator-friendly spaces. Even amid the unprecedented circumstances of this past year, we continue to prioritize diversity in our arbor management, with a particular focus on increasing student engagement despite the limitations of social distancing. We recognize our role in helping to educate all members of the campus community on the importance and benefits of sustainable forestry and community involvement. This recognition affirms our commitment to lead by example, engaging and inspiring students to advocate for environmental stewardship in their lives and communities beyond the university. Earning Tree Campus Higher Education recognition is a reflection of our continuous recommitment to all aspects of this goal.