UF-623
Central Energy Plant
Thermal Utility Infrastructure
Electrical Utility Infrastructure

August 2019

Design phase

UF-623 ~ Central Energy Plant ~ Thermal Utility Infrastructure ~ Electrical Utility Infrastructure

University of Florida Central Energy Plant & Utilities Infrastructure — UF-623

UF-623 IMPORTANCE:

The campus utility infrastructure addressed by UF-623 provides crucial heating, cooling and electric delivery that keeps The University operating in a safe and reliable manner. Major portions of this infrastructure now exceed their useful life. Extensive upgrades and replacements are very capital intensive, but frequent system failures and increasing operational risks require action to allow these systems to support The University's core mission.

The contract which has provided most of the energy services for the campus for the past twenty-five years is expiring. A mere renewal of the contract is not feasible without significant capital upgrades. Rather than continue with status quo, a broad range of options was explored to determine a set of infrastructure solutions that will serve The University for the next 50 years and beyond.

Completion of UF-623 will position The University among the top higher education institutions in the country as a preeminent leader of campus energy sustainability, efficiency and reliability.

PROJECT DESCRIPTION:

The University of Florida must plan, design, and construct new utility infrastructure to provide reliable thermal and electrical services for campus operations. Recommendations have been developed that identify an optimal and holistic improvement strategy to address both immediate and long-term campus electrical and thermal utility needs. These recommendations were optimized around the following priorities and needs:

- Prepare the campus for a new energy source
- Renew expired campus infrastructure
- Optimize life cycle cost performance
- Boost resiliency of infrastructure systems
- Improve energy efficiency
- Reduce carbon emissions

Three distinct infrastructure projects are being developed as part of UF-623 to improve the campus electrical and thermal infrastructure:

1. Construction of a new 69kV electrical substation ($45M)
2. Construction of a new Central Energy Plant (CEP) to provide efficient steam, chilled water and electricity from a reliable and attractive facility on Gale Lemerand Drive ($150M)
3. Construction of a new South District thermal piping distribution loop to improve chilled water and steam delivery to campus and Hospital facilities ($55M)

COST:

Investment in UF-623 is a significant decision, but one which will positively impact The University for the next 50 years and beyond.

$250M

IMPLEMENTATION:

Extensive analysis of the campus infrastructure over the past two years, as well as a growing occurrence of system failures and campus outages have proven that decisive action is required to improve the campus thermal and electrical infrastructure. The elements of the improvements comprising UF-623 have been intensely vetted and reviewed by numerous parties. Two primary options exist for implementation:

- Self-performance by UF
- Outsourcing to a 3rd party provider

UF-Financed Project: $370M NPV Cost Savings compared to 3rd Party Financing

Third-party implementation options exist, but only as non-regulated structures due to utility laws in the state of Florida. As such, UF must finance the cost of the project themselves. Use of 3rd party financing greatly exceeds the cost of using UF-issued performance bonds. Therefore, self-performance is viewed as the most expedient and fiscally responsible solution for project implementation.

STATUS:

Three project components are currently in design with Jacobs:

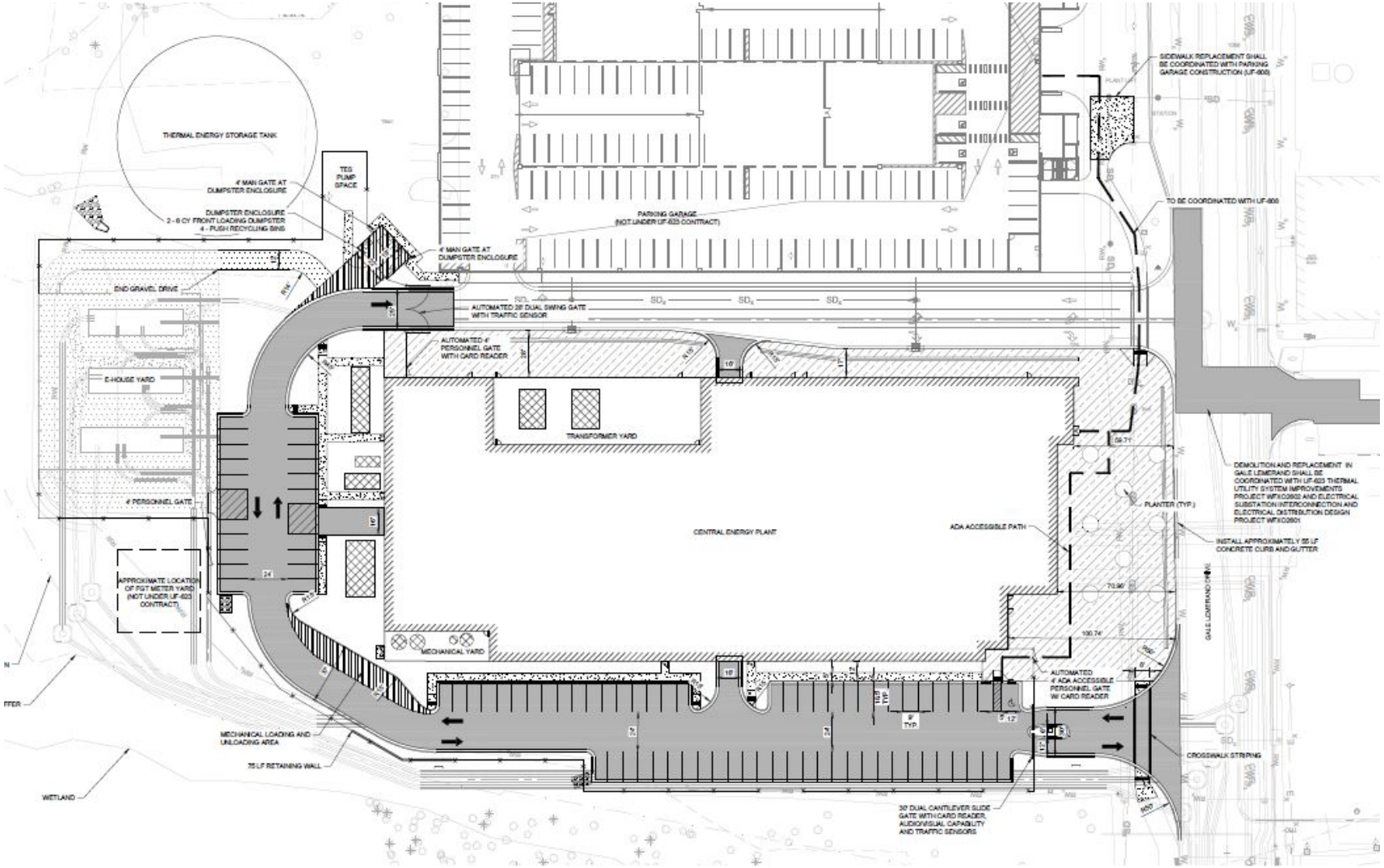
1. **Substation:** 50% CDs complete
   - Require Duke Energy Coordination to advance to 100%
2. **Central Energy Plant:** Completing Advanced Schematic Design
   - UF-608 Garage coordination ongoing
3. **Thermal Infrastructure:** In Design Development
   - CMAR coordination needed for campus planning and constructability
   - Ongoing campus coordination and phasing

IMPORTANT NEXT STEPS:

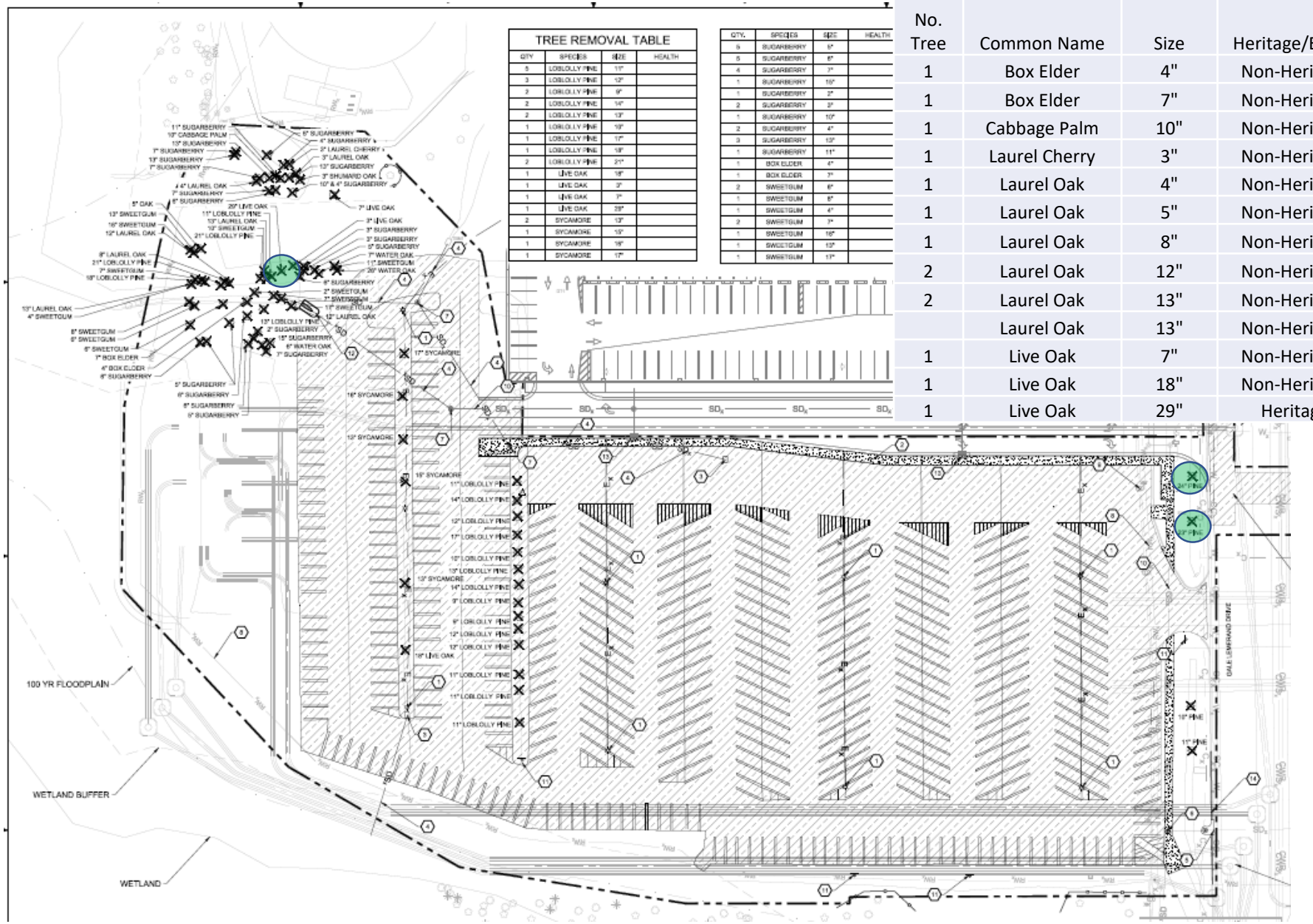
- Secure Board of Trustees approval for project UF self-performance
- Complete full CEP engineering design
- Secure project bond financing
- Re-engage Duke Energy for substation design completion
- Solicit and select CMAR for preconstruction services
- Initiate procurement of long-lead equipment

UF-623 ~ Central Energy Plant Advanced Schematic Design

Parking: 81 spaces on site



UF-623 ~ Central Energy Plant Advanced Schematic Design

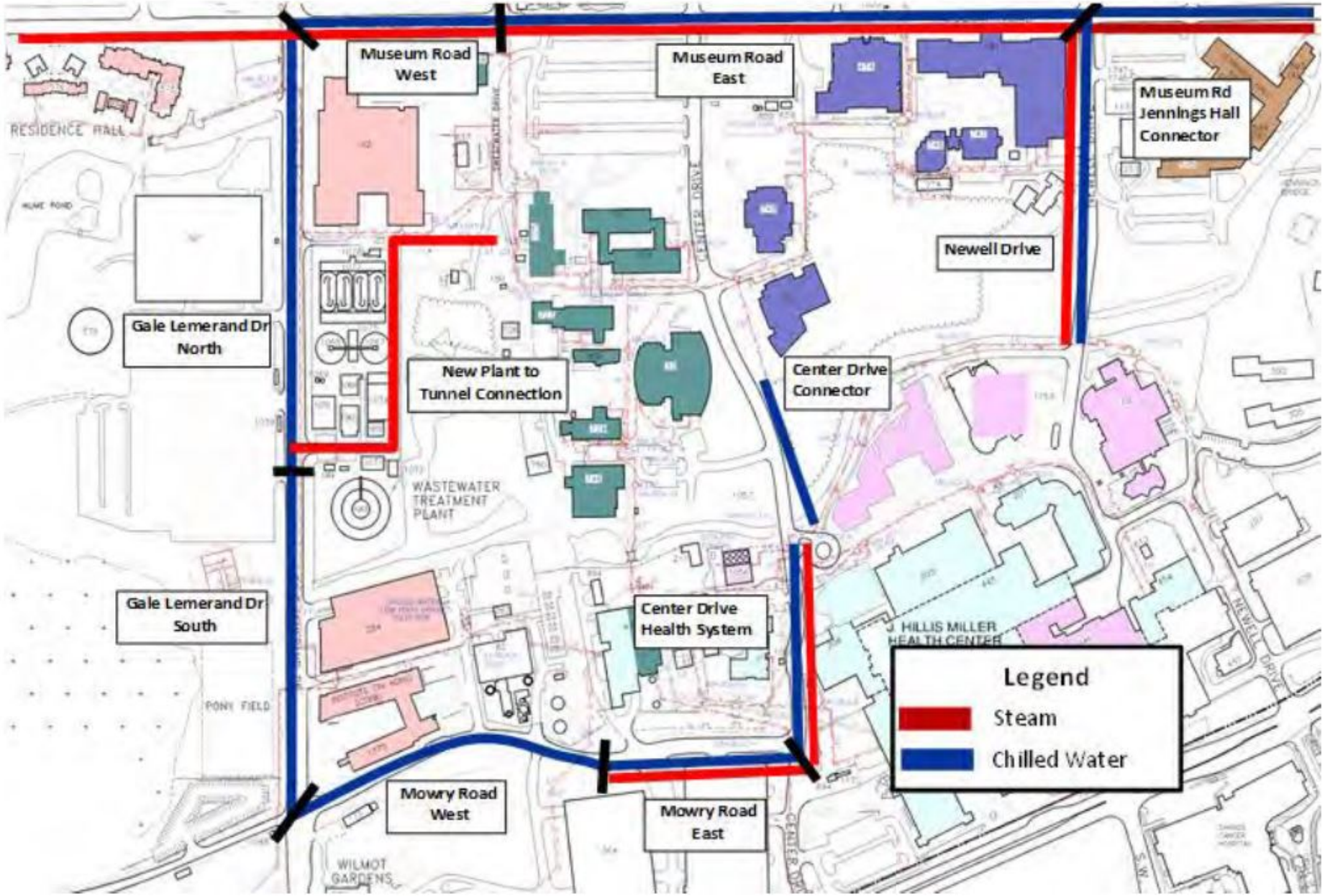


No. Tree	Common Name	Size	Heritage/Exotic
1	Box Elder	4"	Non-Heritage
1	Box Elder	7"	Non-Heritage
1	Cabbage Palm	10"	Non-Heritage
1	Laurel Cherry	3"	Non-Heritage
1	Laurel Oak	4"	Non-Heritage
1	Laurel Oak	5"	Non-Heritage
1	Laurel Oak	8"	Non-Heritage
2	Laurel Oak	12"	Non-Heritage
2	Laurel Oak	13"	Non-Heritage
	Laurel Oak	13"	Non-Heritage
1	Live Oak	7"	Non-Heritage
1	Live Oak	18"	Non-Heritage
1	Live Oak	29"	Heritage

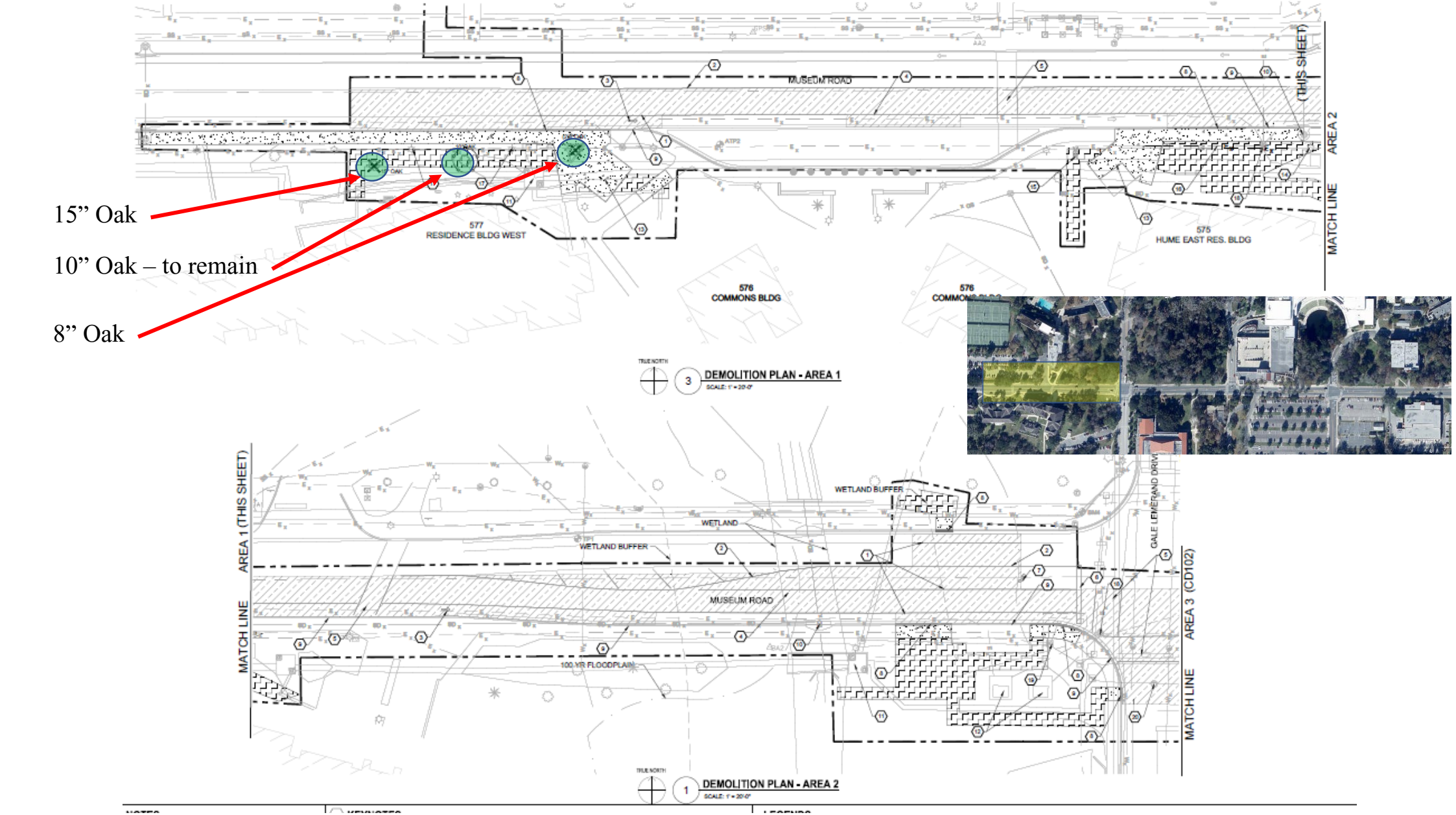
Tree Impacts:

2	Loblolly Pine	9"	Non-Heritage
1	Loblolly Pine	10"	Non-Heritage
5	Loblolly Pine	11"	Non-Heritage
3	Loblolly Pine	12"	Non-Heritage
2	Loblolly Pine	14"	Non-Heritage
1	Loblolly Pine	17"	Non-Heritage
1	Loblolly Pine	18"	Non-Heritage
2	Loblolly Pine	21"	Non-Heritage
1	Shumard Oak	3"	Non-Heritage
1	Slash Pine	10"	Non-Heritage
1	Slash Pine	11"	Non-Heritage
1	Spruce Pine	23"	Heritage
1	Spruce Pine	24"	Heritage
2	Sugarberry	4"	Non-Heritage
4	Sugarberry	5"	Non-Heritage
5	Sugarberry	6"	Non-Heritage
4	Sugarberry	7"	Non-Heritage
1	Sugarberry	10"	Non-Heritage
1	Sugarberry	11"	Non-Heritage
3	Sugarberry	13"	Non-Heritage
1	Sugarberry	15"	Non-Heritage
1	Sweetgum	4"	Non-Heritage
2	Sweetgum	6"	Non-Heritage
1	Sweetgum	7"	Non-Heritage
1	Sweetgum	8"	Non-Heritage
1	Sweetgum	10"	Non-Heritage
1	Sweetgum	11"	Non-Heritage
1	Sweetgum	13"	Non-Heritage
1	Sweetgum	16"	Non-Heritage
1	Sweetgum	17"	Non-Heritage
2	Sycamore	13"	Non-Heritage
1	Sycamore	15"	Non-Heritage
1	Sycamore	16"	Non-Heritage
1	Sycamore	17"	Non-Heritage
1	Water Oak	6"	Non-Heritage
1	Water Oak	7"	Non-Heritage
1	Water Oak	26"	Non-Heritage
75			

UF-623 ~ Thermal Utility Infrastructure – Construction Documents

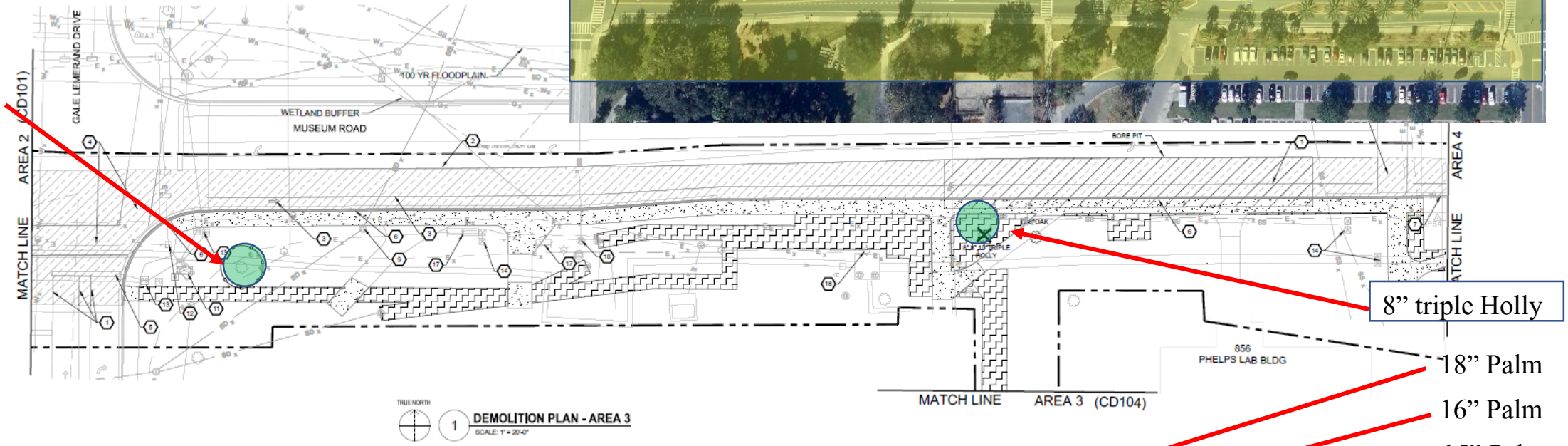


UF-623 ~ Thermal Utilities Infrastructure ~ Museum Road West



UF-623 ~ Thermal Utilities Infrastructure ~
Museum Road (Reitz & DSIT)

Tree to remain



8" triple Holly

18" Palm

16" Palm

15" Palm

13" Palm

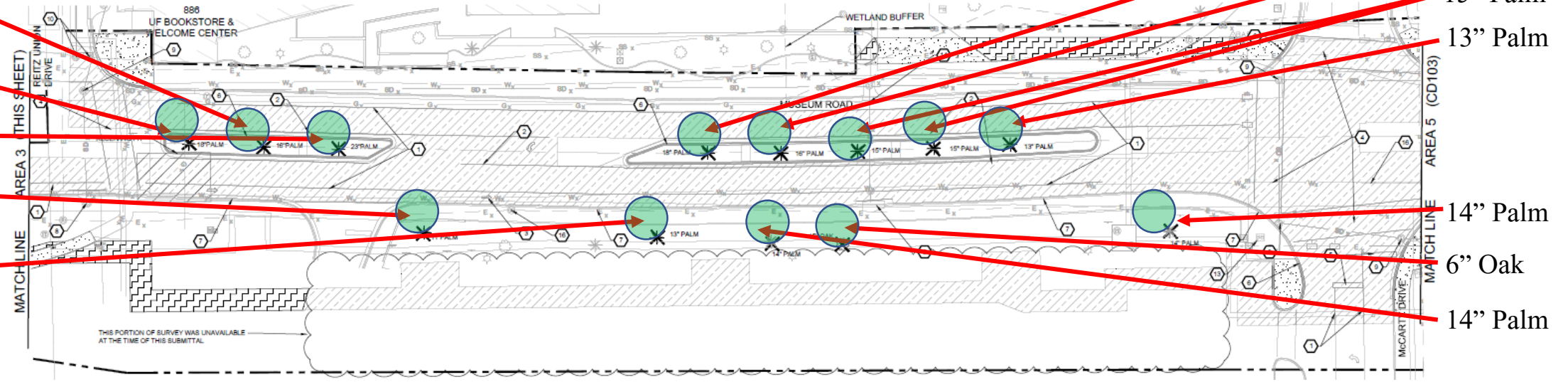
16" Palm

18" Palm

23" Palm

11" Palm

13" Palm

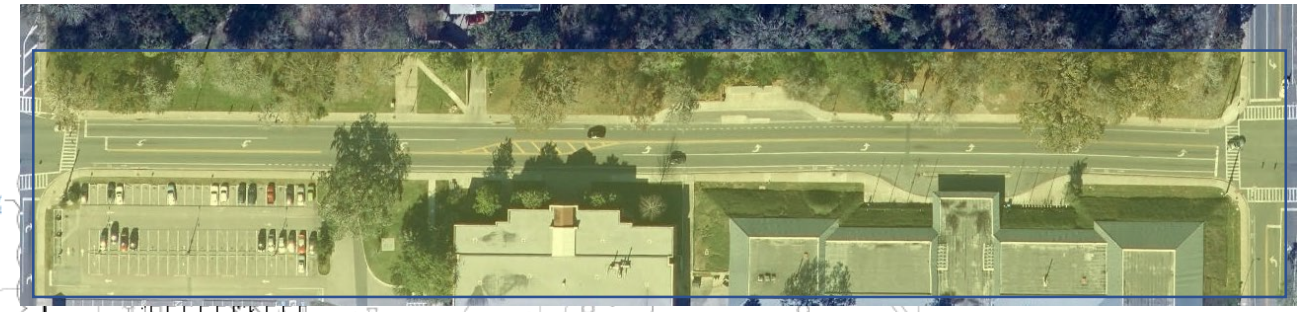


14" Palm

6" Oak

14" Palm

UF-623 ~ Thermal Utilities Infrastructure ~ Museum Road
Reitz to Dickinson

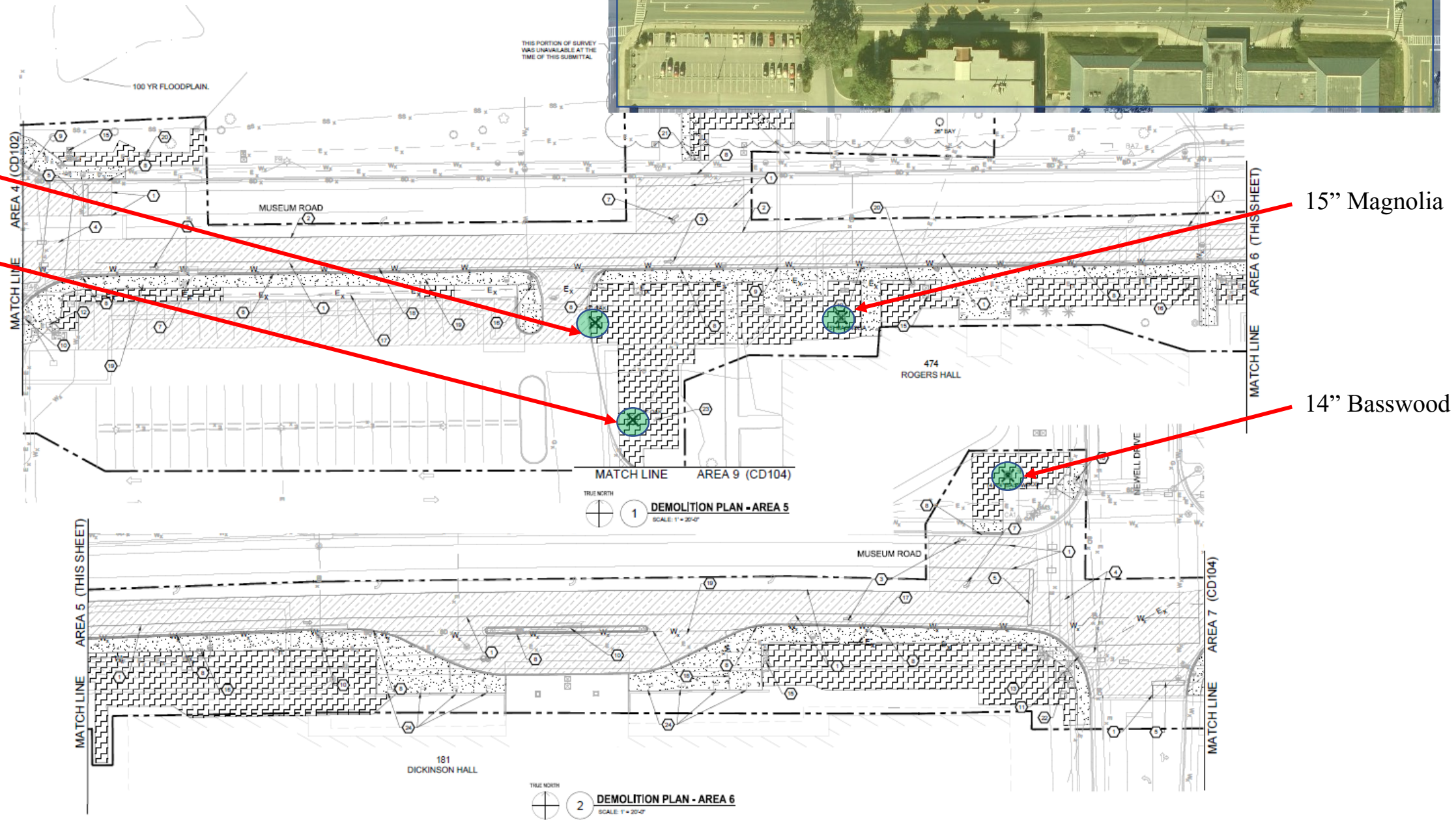


42” Oak

8” Oak

15” Magnolia

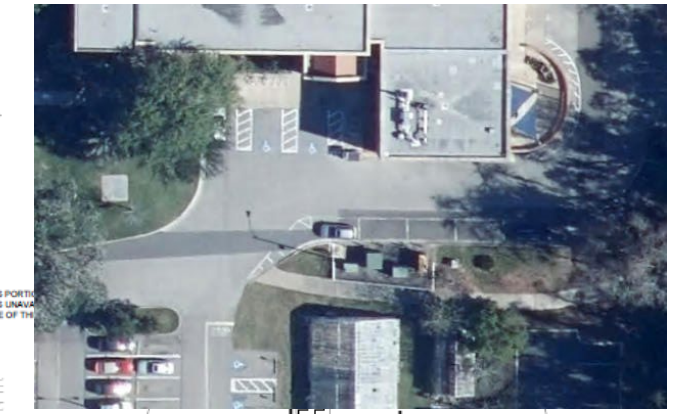
14” Basswood

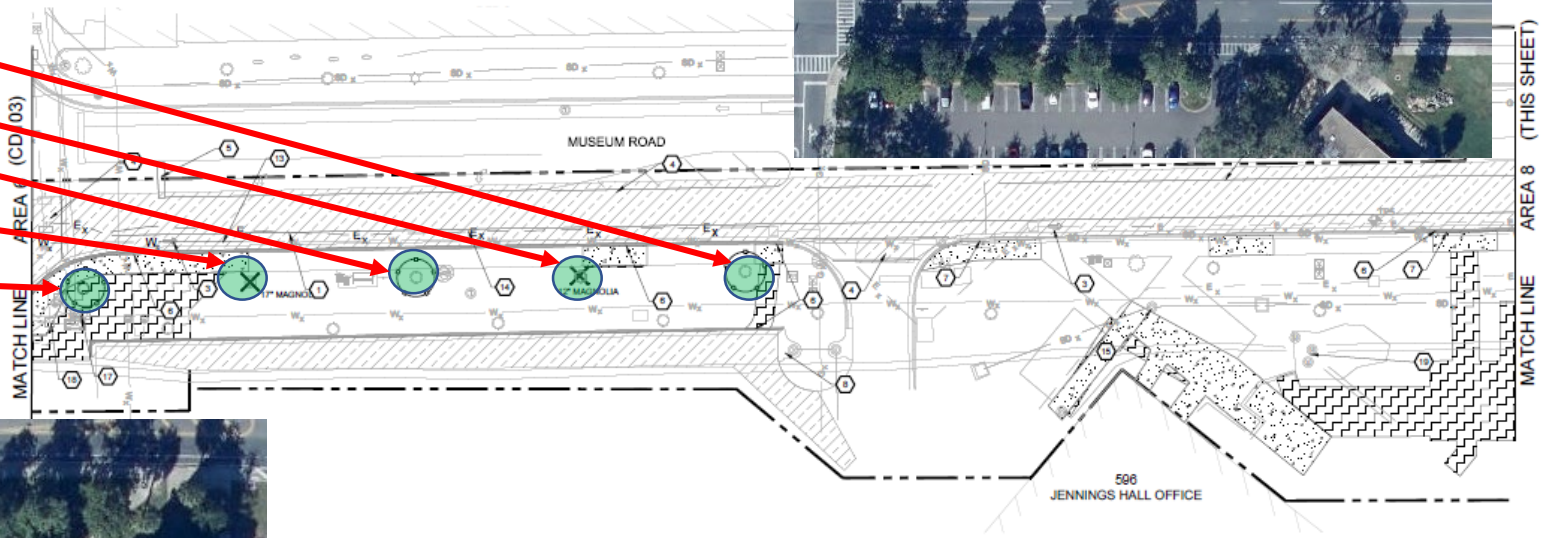


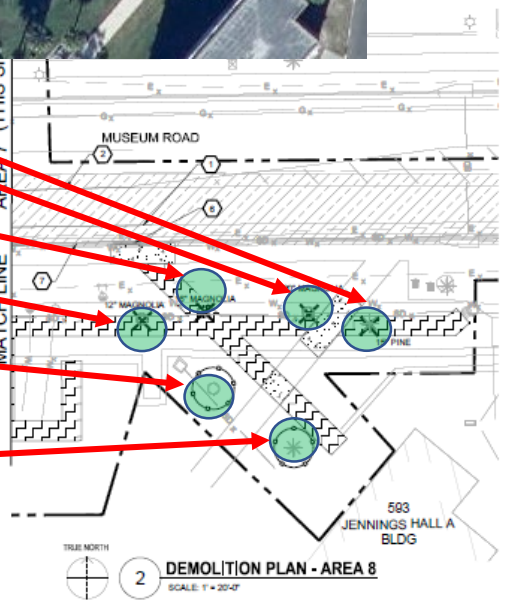
UF-623 ~ Thermal Utilities Infrastructure ~ Museum Road UPD & Housing

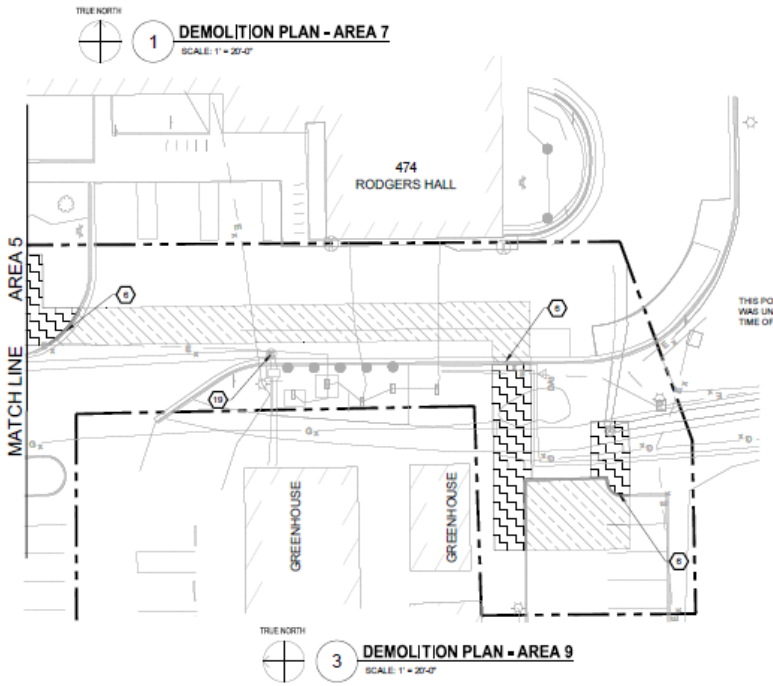
Tree to remain
12” Magnolia
Tree to remain
17” Magnolia
Tree to remain

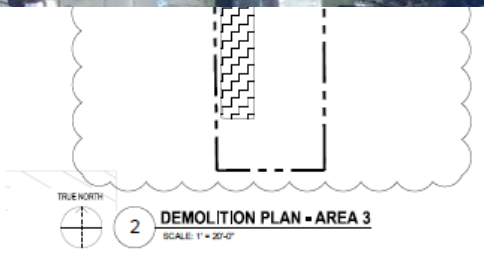
15” pine
20” Magnolia
16” Magnolia
12” Magnolia
Tree to remain
Tree to remain





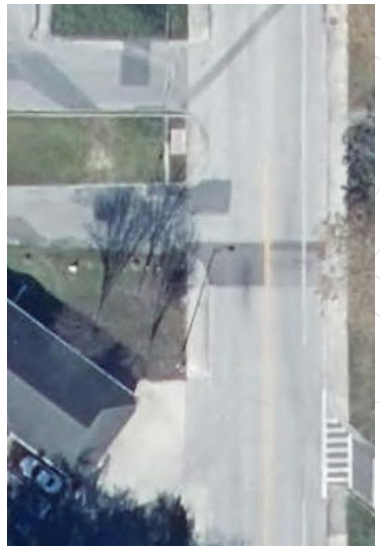


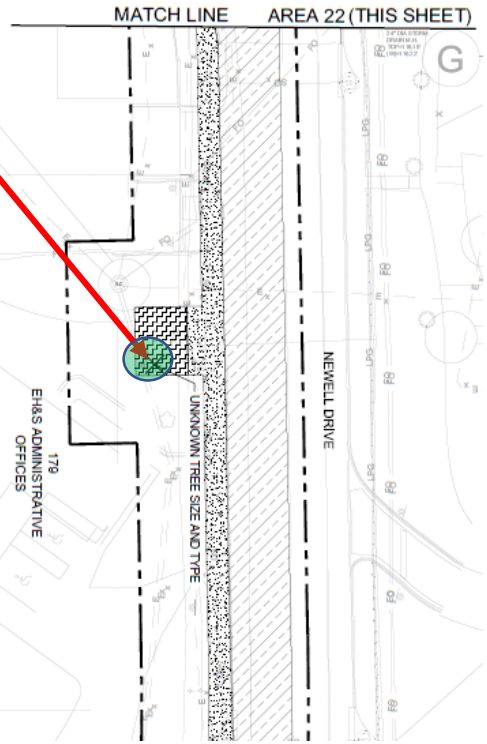




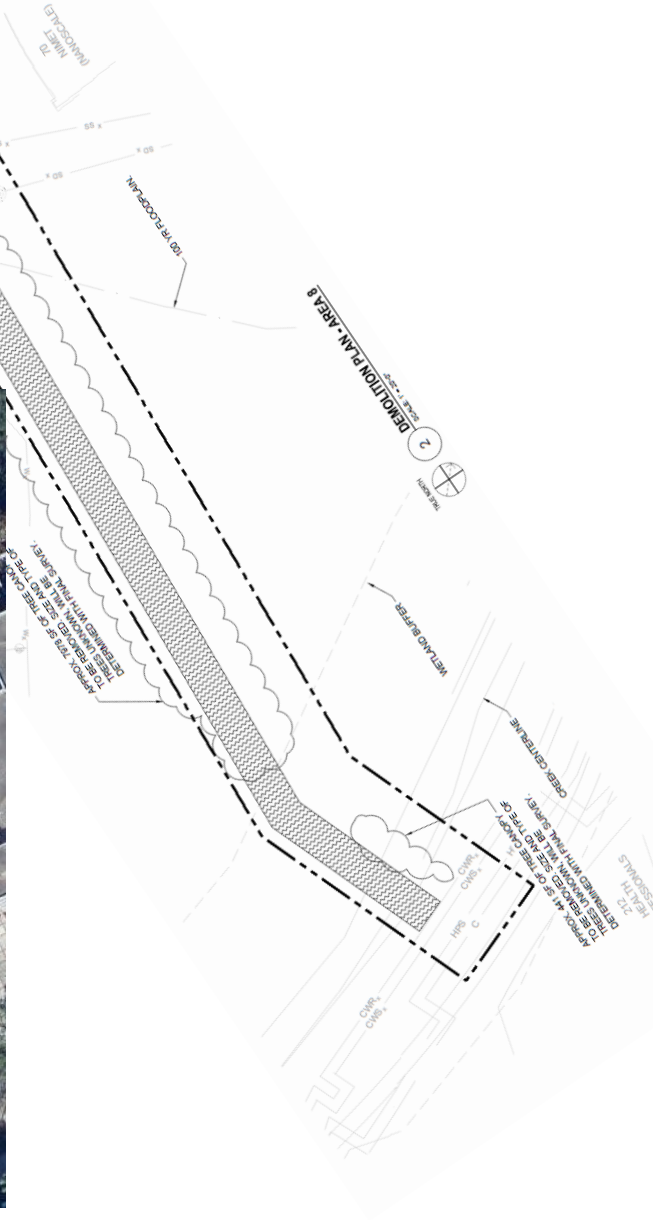
UF-623 ~ Thermal Utilities Infrastructure ~ Newell Road – Dickinson to EH&S; Nanotech to HPNP

Tree to be removed

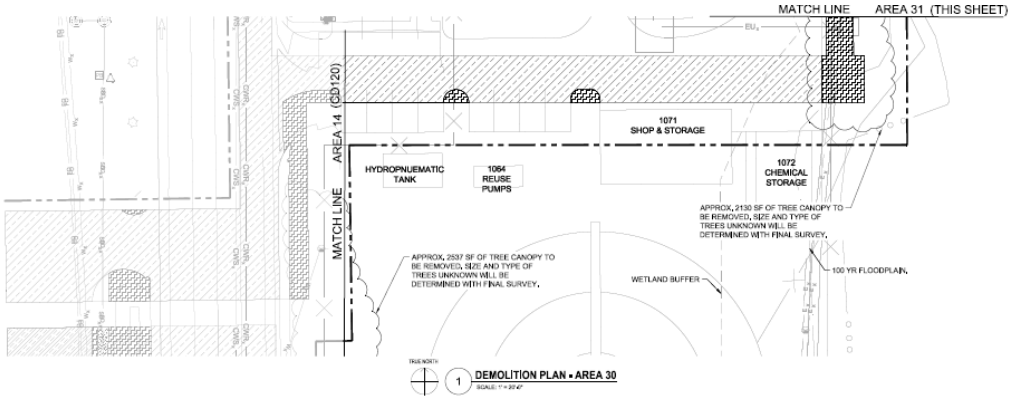


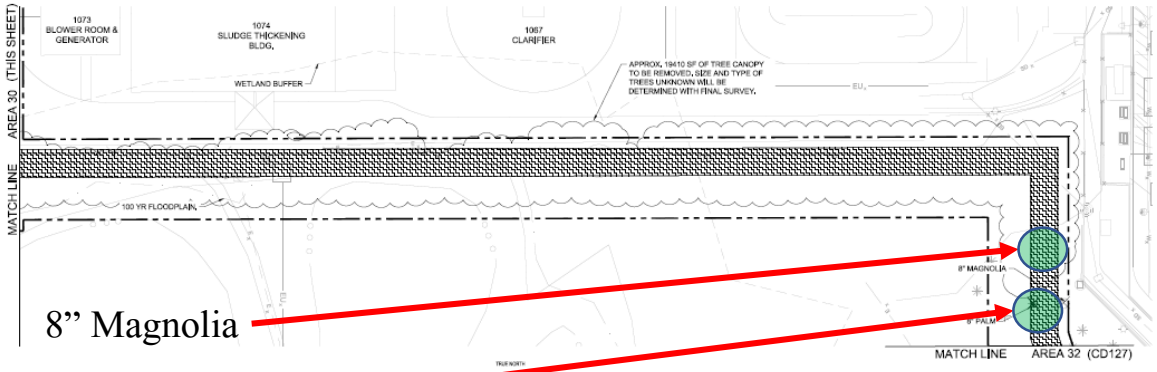


Tree Impact yet to be determined



UF-623 ~ Thermal Utilities Infrastructure ~ Gale Lemerand to DSIT





8” Magnolia

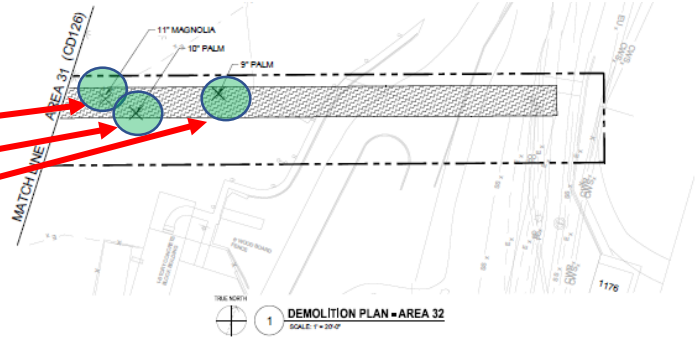
8” Palm

Trees to be impacted and trimmed –

11” Magnolia

10” Palm

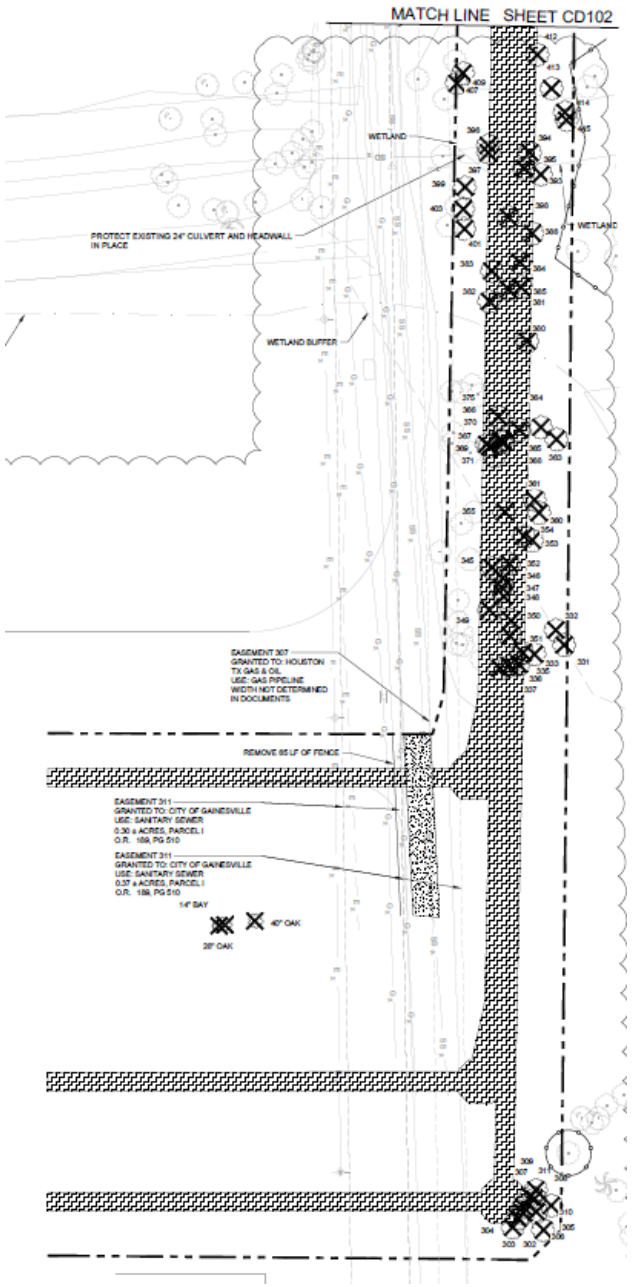
9” Palm

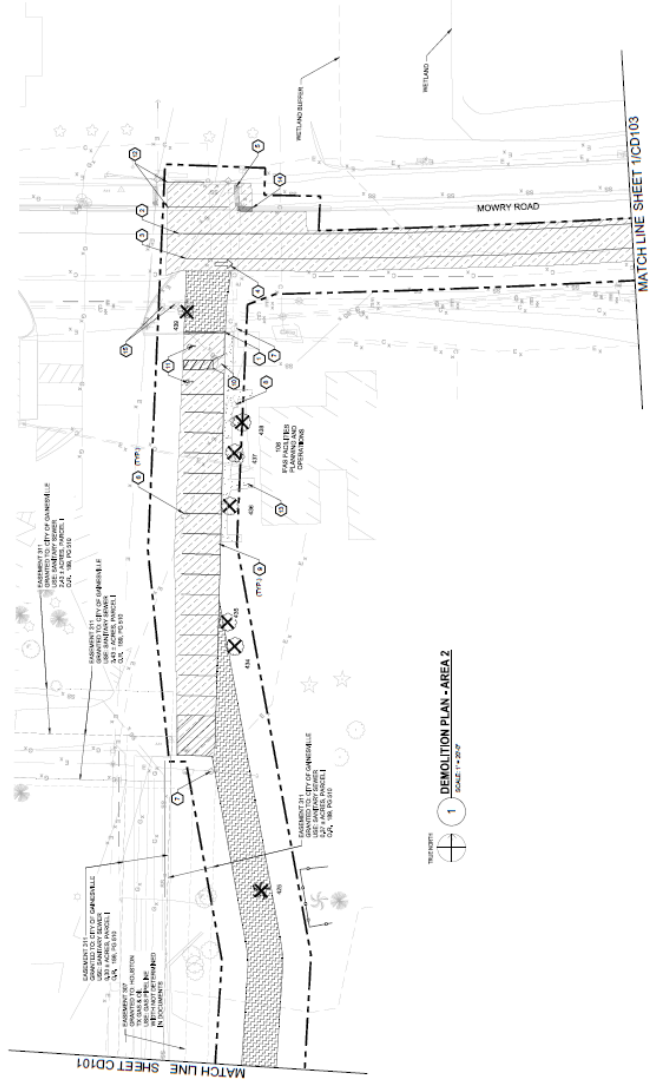


UF-623 ~ Thermal Utilities Infrastructure ~ Tree Impacts

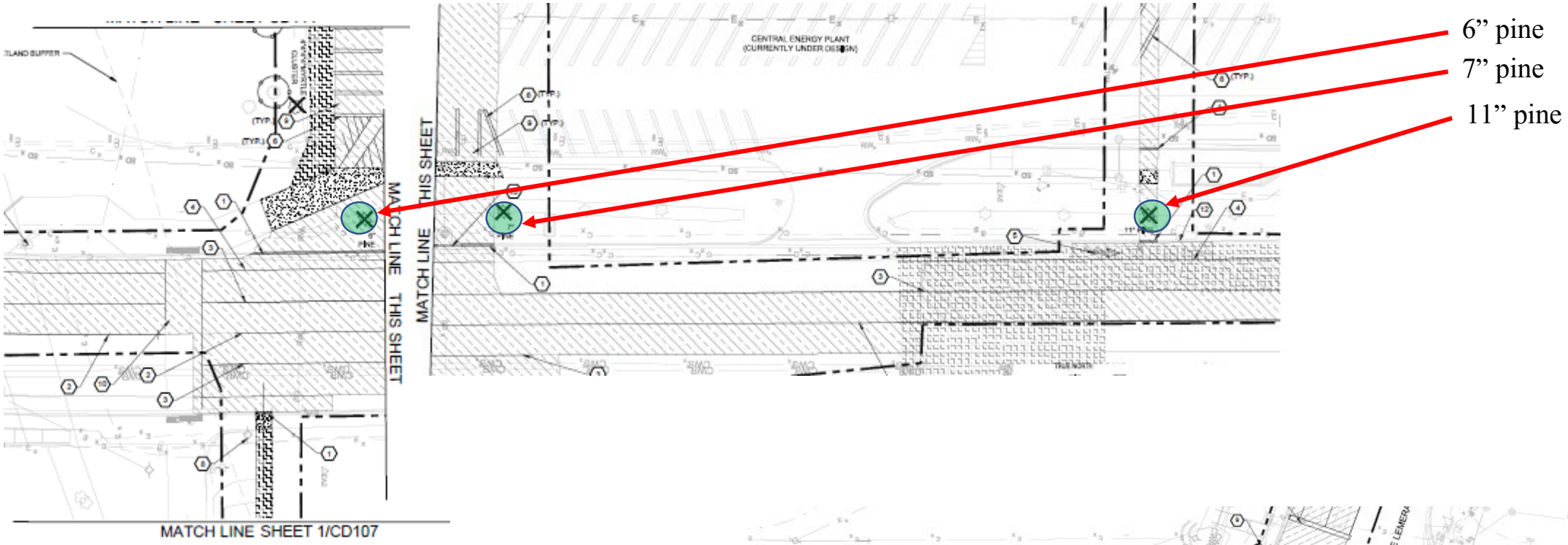
No. Tree	Common Name	Size	Heritage/Exotic	Energy Plant Removal, Parking Garage Removal, or Retain	location	location
1	Basswood	14		museum thermal	Rogers	
2	holly	8		museum thermal	DSIT	
1	holly	1		museum thermal		
1	Magnolia	8		Gale Lemerand thermal	DSIT connection	
1	Magnolia	11		Gale Lemerand thermal	DSIT connection	
2	Magnolia	12		museum thermal	UPD	UPD
1	Magnolia	15	Heritage	museum thermal	Rogers	
1	Magnolia	16	Heritage	museum thermal	UPD	
1	Magnolia	17	Heritage	museum thermal	UPD	
1	Magnolia	20	Heritage	museum thermal	UPD	
2	Oak	8		museum thermal	west	Rogers
1	Oak	15		museum thermal	west	
1	oak	6		museum thermal	DSIT	
1	Oak	42	Heritage	museum thermal	Rogers	
1	palm	9		Gale Lemerand thermal	DSIT connection	
1	palm	10		Gale Lemerand thermal	DSIT connection	
1	palm	11		Gale Lemerand thermal	DSIT connection	
1	palm	11		museum thermal	DSIT	
2	palm	13		museum thermal	DSIT	DSIT
2	palm	14		museum thermal	DSIT	DSIT
2	palm	15		museum thermal	DSIT	
2	palm	16		museum thermal	DSIT	DSIT
2	palm	18		museum thermal	DSIT	DSIT
1	palm	23		museum thermal	DSIT	
1	pine	15		museum thermal	UPD	
33						

UF-623 ~ Electrical Distribution Infrastructure ~ new energy plant to Mowry



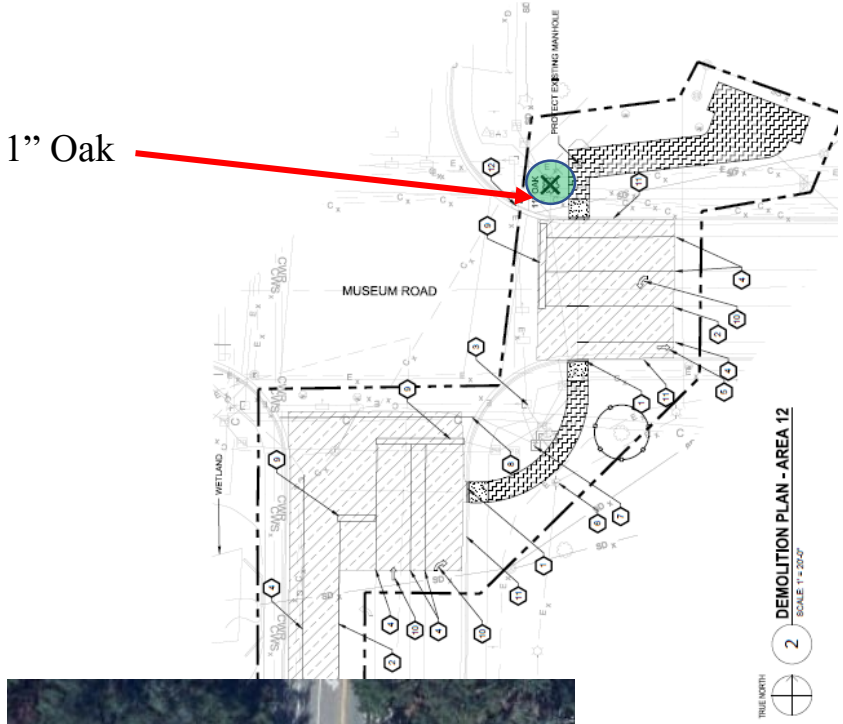


UF-623 ~ Electrical Distribution Infrastructure ~ Mowry & Gale Lemerand to new garage

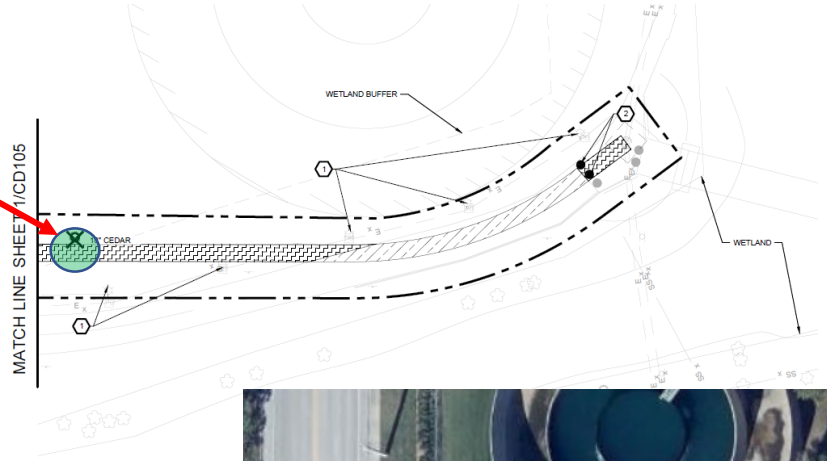


UF-623 ~ Electrical Distribution Infrastructure ~ Gale Lemerand

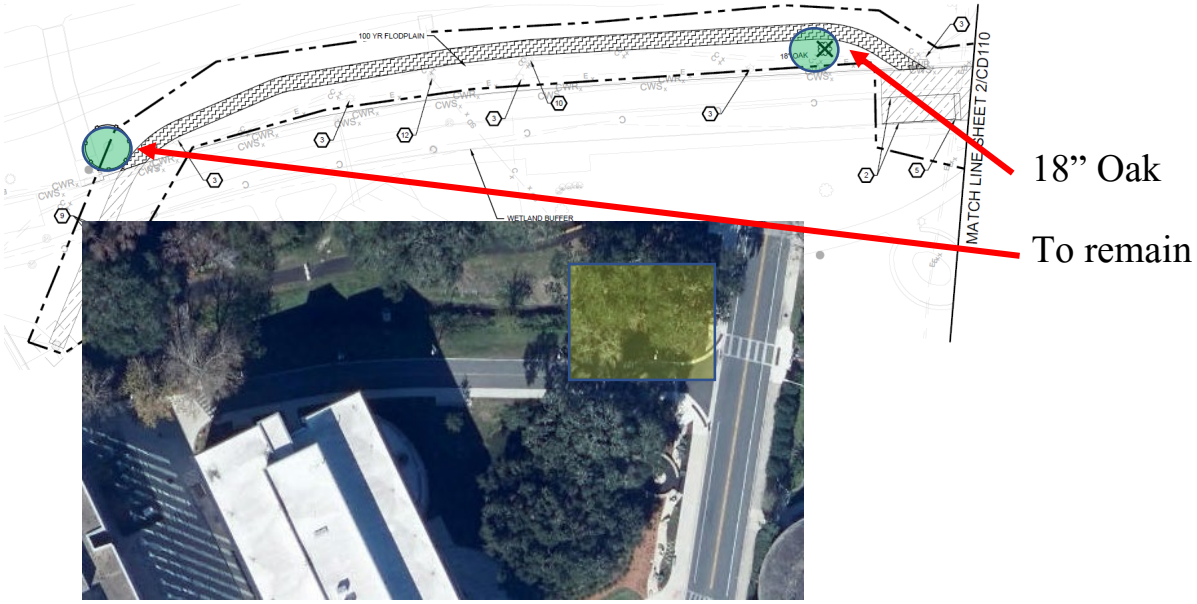
11” Oak



18” Cedar



UF-623 ~ Electrical Distribution Infrastructure ~ Harrell Building & Newell Drive

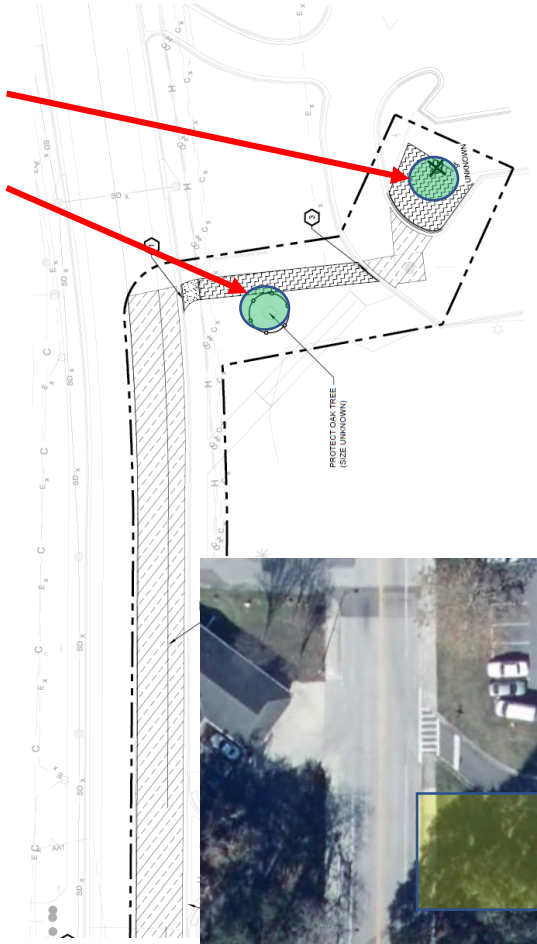


18” Oak

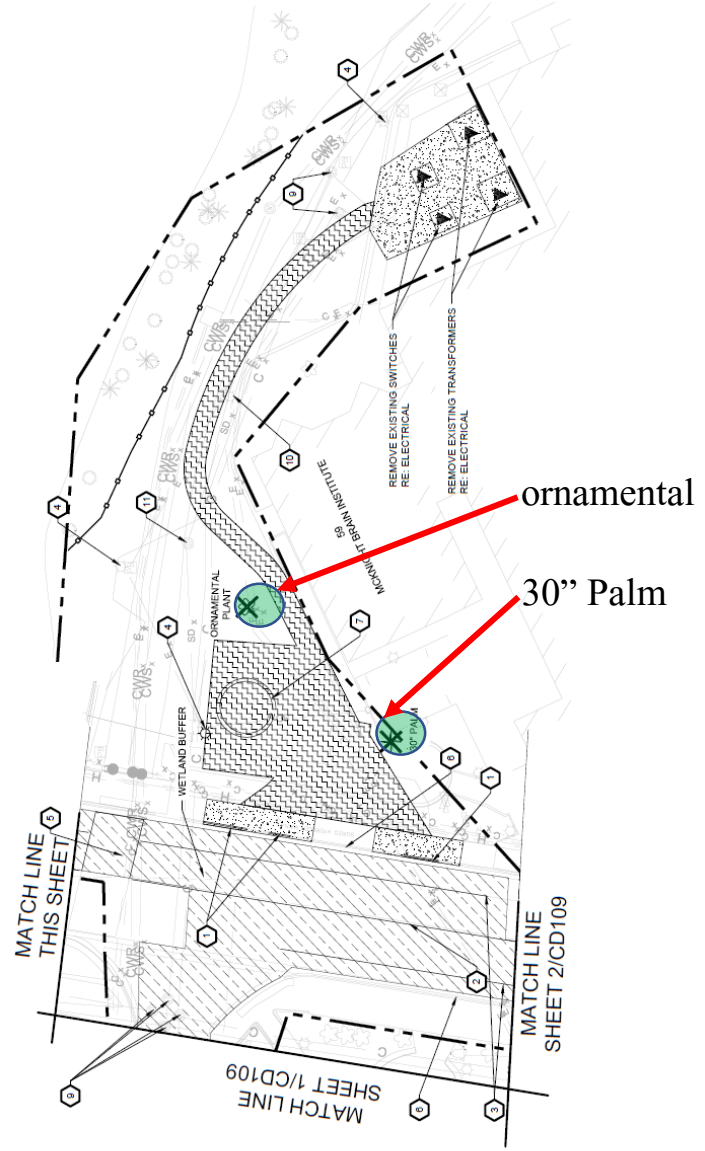
To remain

9” unknown

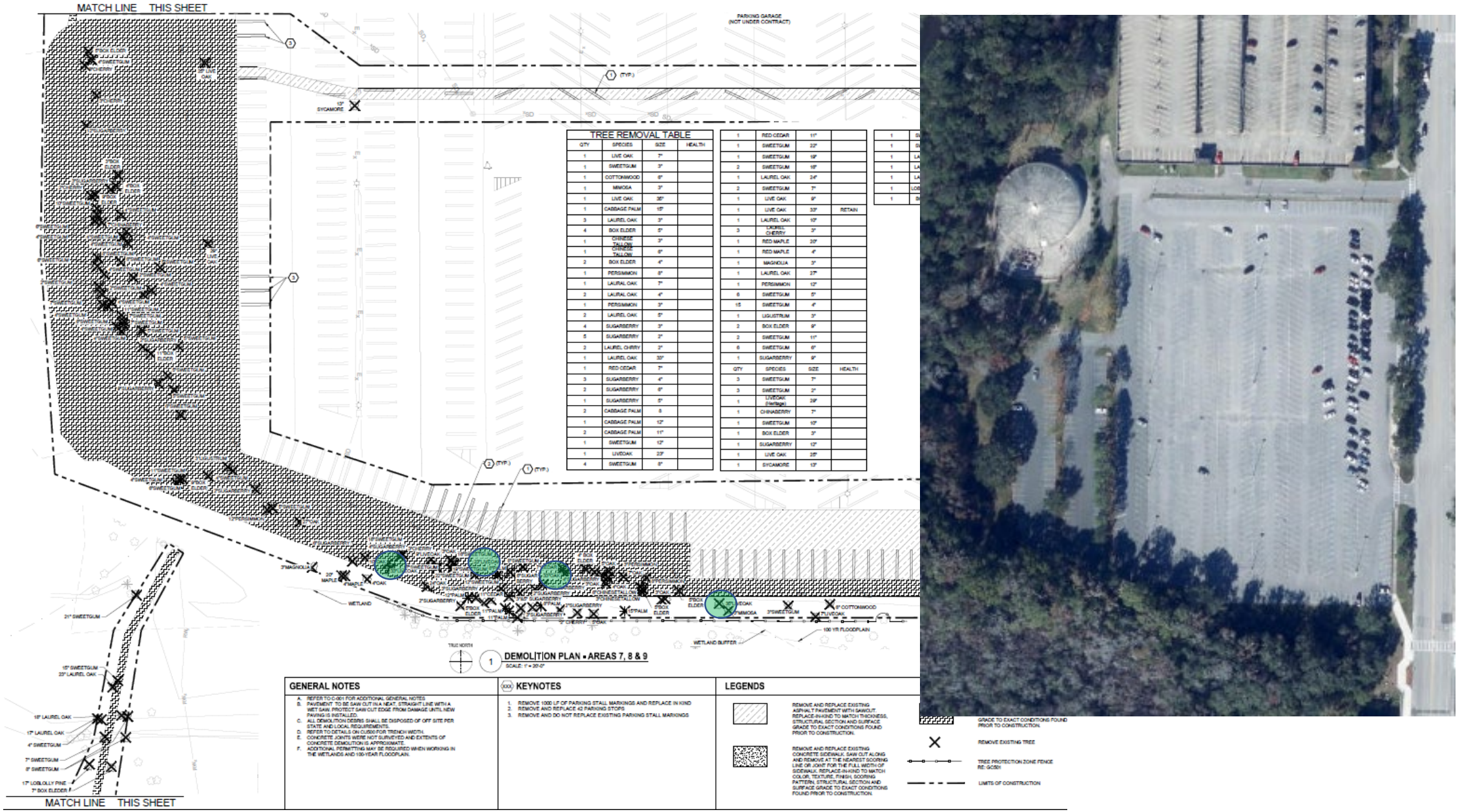
To remain



UF-623 ~ Electrical Distribution Infrastructure ~ Newell Drive & HSC



UF-623 ~ Electrical Distribution Infrastructure ~ CEP site



UF-623 ~ Electrical Distribution Infrastructure ~ Tree Impacts

No. Tree	Common Name	Size	Heritage/Exotic	location	location
1	Bay	14			
12	Box Elder	4", 5", 7" 9"		CEP	
2	Cabbage Palm	8		CEP	
2	Cabbage Palm	11			
1	Cabbage Palm	12			
1	Cabbage Palm	15		CEP	
1	Cedar	18	heritage	Gale Lemerand & water treat	
1	Chinaberry	7		CEP	
1	Chinese Tallow	6		CEP	
1	Cottonwood	6		CEP	
4	Laurel Cherry	4" & 5"		plant - Mowry	
1	Laurel Cherry	10		plant - Mowry	
2	Laurel Cherry	11		plant - Mowry	
1	Laurel Cherry	14		plant - Mowry	
2	Laurel Cherry	15	Heritage?	plant - Mowry	
5	Laurel Oak	4", 5", 7"		CEP	
1	Laurel Oak	10		CEP	
1	Laurel Oak	17		CEP	
1	Laurel Oak	18		CEP	
1	Laurel Oak	23		CEP	
1	Laurel Oak	24		CEP	
1	Laurel Oak	27		CEP	
1	Laurel Oak	33	Heritage	CEP	
1	Live Oak	7		CEP	
1	Live Oak	9		CEP	
1	Live Oak	23		CEP	
1	Live Oak	25		CEP	
1	Live Oak	29		CEP	
1	Live Oak	35	heritage	CEP	
1	Loblolly Pine	17		CEP	
3	Maple	5", 7", 11"		plant - Mowry	
19	Mulberry	4"-9"		plant - Mowry	
1	Mulberry	15	Heritage?	plant - Mowry	
1	Oak	11		Museum & Gale Lemerand	
1	Oak	12		Mowry & Gale Lemerand	
1	Oak	18		Harrell Building	
1	oak	28	heritage	new plant	
1	Oak	40	heritage	new plant	
1	palm	12		plant - Mowry	
1	palm	30		Brain Institute	
1	Persimmon	8		CEP	
1	Persimmon	12		CEP	
2	pine	6" & 7"		Mowry - Gale Lem to garage	
1	pine	11		Mowry - Gale Lem to garage	
1	Red Cedar	7		CEP	
1	Red Cedar	11		CEP	
1	Red Maple	4		CEP	
1	Red Maple	20	heritage?	CEP	
31	Sugarberry	4"-10"		plant - Mowry (6)	
1	Sugarberry	11		plant - Mowry	
1	Sugarberry	12		cep	
1	Sugarberry	15	Heritage	plant - Mowry	
1	Sugarberry	17	Heritage	plant - Mowry	
36	sweetgum	4" - 8"		CEP	
8	sweetgum	10"-16"		CEP	
1	sweetgum	18		plant - Mowry	
2	sweetgum	19		plant - Mowry (1)	
1	sweetgum	21		CEP	
1	sweetgum	22		CEP	
1	sweetgum	24		plant - Mowry	
1	Sycamore	13		CEP	
177					

Tree Mitigation Policy Revisions

The University's current Tree Mitigation Policy was last updated in 2007. Since then a number of issues have come up that warrant an update to the policy. These issues include the low size requirement for necessitating mitigation, prioritization of replacement on site, determining shrub vs tree, pruning of heritage trees, how to deal with palm trees and the low replacement cost for heritage tree mitigation in relation to the City of Gainesville's policy and inflation. The attached edited policy is PDC's draft update that addresses deficiencies and updates the policy's balance to reduce mitigation of small trees and increase protection of Heritage trees.

Issues:

1. The current policy sets tree mitigation being required beginning at 3" DBH, while the City of Gainesville is set at 8" DBH. The 3" DBH threshold tends to include a lot of volunteer trees, which are not caught before they increase to that size. This leads in some cases to trees that should be removed for aesthetic reasons, not being removed since there is no desire to pay mitigation. The revised policy recommends changing the minimum threshold to 5"DBH to be more align with the City's, but remains lower to reflect the lessor mitigation being collected.
2. The current policy prioritizes replacement mitigation on site. While this is fine in many instances, it sometimes leads to bad design and overcrowding. The revised policy recommends eliminating the preference for onsite mitigation.

3. The current policy does not address when certain species are shrubs or trees. Examples of species that can be considered both include Crape Myrtles, Podocarpus and certain hollies. The revised policy clarifies that the determination will be based on the tree / shrub form of the species being removed.

4. The current policy is silent on the pruning of heritage trees. Since the policy gives no direction, it is up to each project to determine the amount of pruning that should be done to heritage trees. This can lead to unhealthy and unsightly pruning of what are generally specimen trees. The revised policy requires that a certified arborist oversees the pruning of heritage trees.

5. The current policy does not address palm trees. LVL's informal policy has been to relocate palms to other locations on campus. Unfortunately, the Grounds Department has been having trouble identifying new locations. Additionally, the cost of moving can be more expensive and the likelihood of survival can be lower than just replacing with commercially installed healthy palms. The revised policy clarifies how palms will be mitigated based on type and size.

6. The current policy for Heritage trees was developed in 2007. Since then the City of Gainesville has increased their mitigation requirements for Heritage trees dramatically. For example a 30" DBH Live Oak's mitigation under the University's current policy would be $2,000, while the City of Gainesville's' would be $ 15,543. The proposed changes to the tree mitigation policy are not of the same magnitude in cost and are more in line with inflation. The revised policy increases the cost of mitigation as the size of the tree increases by an increasing amount, but the cost remains much less than the City's. Additionally, this increase serves to more accurately reflect the value of the tree being removed, provide sufficient funding to offset that value, and discourage removal of heritage trees where they can be avoided.

7. The revised policy continues to direct that Grounds receive the money from mitigation, however it eliminates the $50,000 threshold and directs that the money be spent for Open-space enhancement projects as approved by LVLC. This change will help to create a pool of money to finance campus improvements as identified in the Landscape Master Plan.

Lakes, Vegetation and Landscape Committee. The Lakes Vegetation and Landscape Committee consists of six faculty members, three appointed by the President or the President's designee and three elected by the Senate from the faculty at large, plus one student member. The Chair is elected. This Committee is responsible for items that affect the use of University lakes, including guidelines for use of such lakes in order to preserve their ecological integrity and research capabilities, and the management and well being of natural areas containing non-domesticated plants and animals. It provides recommendations concerning enforcement of policies regarding the removal of trees and other vegetation. It provides input to the University Land Use and Facilities Planning Committee regarding planning of major landscape elements such as green space, open space, and significant architectural features to ensure their compatibility with existing and planned landscaping and master planning. **It provides recommendations to the Vice President for Finance and Administration about construction on campus, specifically concerning: programming, including general site suitability having an impact on trees, landscape, natural areas and lakes; schematic design, including tree removal, plans for transplants, replacements and/or mitigation based on building footprint, utility corridors and other construction activities; and design development including new landscaping, appropriateness and inclusion of any mitigation for tree removal.**

TREE MITIGATION POLICY
Adopted by LVL, ~~October 2007~~December 2018

Tree mitigation is the act of compensating for healthy tree removal by planting a proportionate number of replacement trees on a site based upon the species and size of each existing tree that is lost or taking other actions to restore and biologically enhance existing green-space. Ideally, construction activities on the University of Florida campus should be designed and executed to avoid impacting trees, and when impacts are unavoidable~~, the trees are moved and re-located onsite~~, trees shall be mitigated as specified in this policy. ~~As this is not always possible, t~~The following tree mitigation policies are provided as a basis for offsetting the loss of values (aesthetic, ecological, monetary, etc.) from taking down a tree based upon its species, size, and relative health.

There are trees and shrubs on the University of Florida campus that have been designated as having particular significance. These plants are National/State Champions, Heritage Specimen trees, trees that are numbered and tagged as part of the University's "Tree Walk," and rare or unique plants used for teaching purposes. These plants are very difficult to replace and must be given special protection during any activity.

Heritage trees are defined as canopy species measuring 20 inches or more in diameter (DBH), except for Water Oaks, Laurel Oaks, Loblolly Pines, Sugarberry and Sweetgums ~~(i.e. "Large Canopy Trees")~~ that shall be classified as heritage trees at 30 inches in diameter (DBH). Understory species shall be considered heritage at 15 inches DBH. All trees below the heritage threshold must be ~~relocated or~~ replaced on a two for one basis ~~(two replacement trees for each removed)~~. Heritage trees shall be replaced at a greater value than non-heritage trees with an additional replacement tree required for every (2) inch gain in diameter over the heritage size threshold. Trees that are also considered large shrubs shall be mitigated based on whether the ones being removed are being maintained as a tree or a shrub. Examples of such trees /shrubs include, but are not limited to, Crape Myrtles, Podocarpus, and Ligustrum japonicum. Cabbage palm trees shall be mitigated on a 2:1 basis. Other palms shall be mitigated as specified by this policy. Species recognized by the Exotic Pest Plant Council as an "invasive" exotic and those trees whose health is confirmed to be "fair" or worse as determined by ~~the project team and/or UF Urban Forester~~ a certified arborist and confirmed by the Lakes, Vegetation & Landscaping Committee (LVLC) shall be exempt from mitigation. Pruning of heritage trees shall be discouraged except as needed for the health of the tree and safety of people in proximity. Pruning of heritage trees shall follow the recommendations of a certified arborist. Pruning of heritage trees that has not followed the recommendations of a certified arborist shall incur penalties as determined by LVLC. Facility Services' Grounds department shall be exempt from mitigation and pruning requirements.

Where it is not possible to plant replacement trees onsite, tree impacts shall be offset by contributing to a mitigation fund used to plant new trees or for ~~green-space~~ landscape enhancement projects in appropriate locations throughout campus. When planners and architects make every effort to incorporate existing trees into their designs and there is ~~still~~ not room within the project site for all of the required replacement plantings, the offsite mitigation fee shall be calculated using the formula above with a value of $250 per replacement tree as described in the UF Design & Construction Standards. ~~For example, a 4-inch diameter tree that is replaced 2:1 would require a fee of $250 x 2 = $500, while a 23-inch diameter heritage tree would be replaced 4:1 equal to $250 x 4 = $1000. These values should be used as a guide when seeking authorization for tree removal. At the discretion of the LVLC,~~ Heritage Trees ~~may~~ shall be mitigated at higher rates as shown in the table below. ~~consistent with this policy and to align more closely with actual costs of moving each tree.~~ Unauthorized tree removal is discouraged and shall increase the required mitigation to twice the rate applied to

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aauthorized removals. The table below provides the value of offsite mitigation fees including heritage trees.

The LVLC shall make recommendations to the VP for Business Affairs on the dispensation of tree mitigation monies ~~that exceed $50,000 for a single project~~. ~~Otherwise, t~~Tree mitigation monies shall be paid into the ~~PPD~~ Facilities Services tree account and held until ~~green~~Open-space enhancement projects are approved by the LVLC for use of these funds.

These steps shall ensure fiscal accountability for audit purposes of PECO, Federal, State and other funding sources.

TREE SIZE (DBH)	COST TO RELOCATE EXISTING TREE *	COST TO MITIGATE CANOPY TREES (ratios incorporated)	COST TO MITIGATE Water Oaks, Laurel Oaks, Loblolly Pines, Sugarberry and Sweetgums~~LARGE CANOPY TREES~~ (ratios incorporated)**	COST TO MITIGATE UNDERSTORY TREES (ratios incorporated)**
~~3 to 8~~	~~$500~~	~~$500~~	~~$500~~	~~$500~~
~~9~~	~~$1,000~~	~~$500~~	~~$500~~	~~$500~~
~~10~~	~~$1,000~~	~~$500~~	~~$500~~	~~$500~~
~~11~~	~~$3,500~~	~~$500~~	~~$500~~	~~$500~~
~~12~~	~~$3,500~~	~~$500~~	~~$500~~	~~$500~~
~~13~~	~~$3,500~~	~~$500~~	~~$500~~	~~$500~~
~~14~~	~~$3,500~~	~~$500~~	~~$500~~	~~$500~~
5-15~~15~~	~~$500~~$5,~~000~~	~~$500~~$5~~00~~	~~$500~~$5~~00~~	~~$500~~$5~~00~~
16	$6,500	$500	$500	$750
17	$8,000	$500	$500	$750
18	$9,500	$500	$500	$1,000
19	$11,000	$500	$500	$1,000
20	$12,000	$1,000 ~~$750~~	$500	$1,500 ~~$1,250~~
21	$13,500	$1,000 ~~$750~~	$500	$1,500 ~~$1,250~~
22	$15,000	$1,000 ~~$1,000~~	$500	$2,000 ~~$1,500~~
23	$16,500	$1,000 ~~$1,000~~	$500	$2,000 ~~$1,500~~
24	$18,000	$1,500 ~~$1,250~~	$500	$2,500 ~~$1,750~~
25	$19,500	$1,500 ~~$1,250~~	$500	$2,500 ~~$1,750~~
26	$21,000	$2,000 ~~$1,500~~	$500	$3,000 ~~$2,000~~
27	$22,500	$2,000 ~~$1,500~~	$500	$3,000 ~~$2,000~~
28	$24,000	$2,500 ~~$1,750~~	$500	$3,500 ~~$2,250~~
29	$25,500	$2,500 ~~$1,750~~	$500	$3,500 ~~$2,250~~
30	$27,000	$3,000 ~~$2,000~~	$750	$4,000 ~~$2,500~~
31	AVOID	$3,000 ~~$2,250~~	$750	$4,000 ~~$2,500~~

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32	AVOID	$3,500 ~~$2,250~~	$1,000	$4,500 ~~$2,750~~
33	AVOID	$3,500 ~~$2,500~~	$1,000	$4,500 ~~$2,750~~
34	AVOID	$4,000 ~~$2,500~~	$1,250	$5,000 ~~$2,750~~
35	AVOID	$4,000 ~~$2,750~~	$1,250	$5,000 ~~$3,000~~
36	AVOID	$4,500	$1,500	$5,500
37	AVOID	$4,500	$1,500	$5,500
38	AVOID	$5,000	$1,750	$6,000
39	AVOID	$5,000	$1,750	$6,000
40	AVOID	$6,000	$2,000	NA
41	AVOID	$6,000	$2,000	NA
43	AVOID	$6,500	$2,250	NA
44	AVOID	$6,500	$2,250	NA
45	AVOID	$7,000	$2,500	NA
46	AVOID	$7,000	$2,500	NA
47	AVOID	$8,000	$2,750	NA
48	AVOID	$8,000	$2,750	NA
49	AVOID	$8,500	$3,000	NA
50	AVOID	$8,500	$3,000	NA
51	AVOID	$9,000	$3,000	NA
52	AVOID	$9,000	$3,000	NA
53	AVOID	$9,500	$3,000	NA
55	AVOID	$9,500	$3,000	NA
55	AVOID	$10,000	$3,000	NA
56	AVOID	$10,000	$3,000	NA
57	AVOID	$10,500	$3,000	NA
58	AVOID	$10,500	$3,000	NA
59	AVOID	$11,000	$3,000	NA
60	AVOID	$11,000	$4,000	NA
61	AVOID	$11,500	$4,000	NA
62	AVOID	$11,500	$4,000	NA
63	AVOID	$12,000	$4,000	NA
64	AVOID	$12,000	$4,000	NA
65	AVOID	$12,500	$4,000	NA
66	AVOID	$12,500	$4,000	NA
67	AVOID	$13,000	$4,000	NA
68	AVOID	$13,000	$4,000	NA
69	AVOID	$13,500	$4,000	NA
70	AVOID	$13,500	$5,000	NA
71	AVOID	$14,000	$5,000	NA
72	AVOID	$14,000	$5,000	NA
73	AVOID	$14,500	$5,000	NA
74	AVOID	$14,500	$5,000	NA
75	AVOID	$15,000	$5,000	NA
76	AVOID	$15,000	$5,000	NA
77	AVOID	$15,500	$5,000	NA
78	AVOID	$15,500	$5,000	NA
79	AVOID	$16,000	$5,000	NA
80	AVOID	$16,000	$6,000	NA
81	AVOID	$16,500	$6,000	NA
82	AVOID	$16,500	$6,000	NA

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83	AVOID	$17,000	$6,000	NA
84	AVOID	$17,000	$6,000	NA
85	AVOID	$17,500	$6,000	NA
86	AVOID	$17,500	$6,000	NA
87	AVOID	$18,000	$6,000	NA
88	AVOID	$18,000	$6,000	NA
89	AVOID	$18,500	$6,000	NA
90	AVOID	$18,500	$6,000	NA

* Source: Davey Resource Group (www.davey.com)

~~** Large Canopy Trees are Laurel & Water Oaks, Sweet gum, Loblolly Pine and Sugarberry~~** An evergreen or deciduous tree whose mature height can be expected to range between 15 feet and 35 feet and which has an expected crown spread range between 15 feet and 25 feet as determined by the latest edition of “American Standards of Nursery Stock” as set forth by the American Association of Nurserymen.