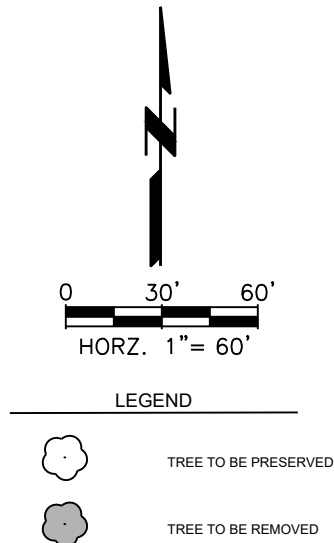
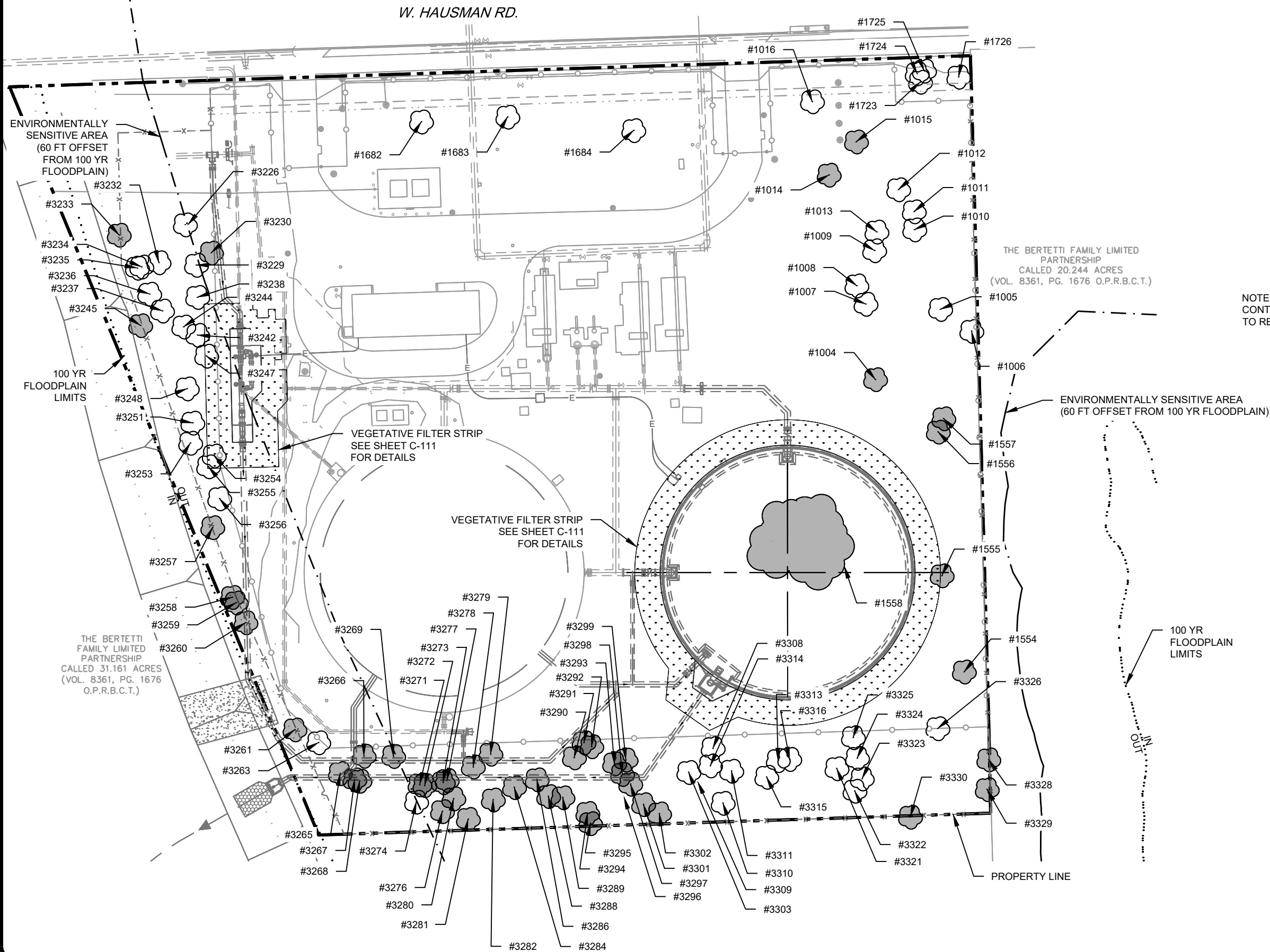


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NOTE:
CONTRACTOR TO HAND DIG AROUND TREES
TO REMAIN NEAR PROPOSED FENCE.

DESIGNED: GC/IBT		NO. BY CK APF	
DETAILED: GC		XREF1: BORDER.dwg	
CHECKED: EDT		XREF2:	
APPROVED: EDT		XREF3:	
DATE: August 22		XREF4:	
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE		XREF5:	
B&V PROJECT NO. 406743		USER: RAM48930	
SAWS JOB NO. 20-6009		DWG VER: 001	
L-101 SHEET 37 OF 41			

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SAN ANTONIO WATER SYSTEM
UNIVERSITY GROUND STORAGE TANK NO. 2

TREE PRESERVATION PLAN I

STATE OF TEXAS
ELVIS TREVIÑO
128759
PROFESSIONAL ENGINEER
L-15258

FD406748
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Upland - Tree Inventory Worksheet to Determine Preservation and Canopy Shade Coverage												
Tag #	Species	Understory Species* 5.0" - 11.5" Shade Value - 275 Sq. Ft.		Significant Tree 6" - 23.5" Shade Value - 875 sq. ft.		Significant Tree** 10.0" - 23.5" Shade Value 875 sq. ft.		Heritage 3:1 Shade Value 1200 HERITAGE TREES PRESERVED AT 100%		Heritage 1:1 Shade Value - 1200 HERITAGE TREES PRESERVED AT 100%		Additional Inches Preserved for Mitigation ***
		Removed	Preserved	Removed	Preserved	Removed	Preserved	Removed	Preserved	Removed	Preserved	
1004	Mesquite					22						
1005	Oak								29			
1006	Hackberry						15					
1007	Mesquite						12					
1008	Mesquite						14					
1009	Hackberry						16					
1010	Elm				9							
1011	Elm				9							
1012	Elm				17							
1013	Elm				9							
1014	Mesquite					15						
1015	Oak			11								
1016	Mesquite						14					
1554	Mesquite					17						
1555	Mesquite					12						
1556	Oak			23								
1557	Oak			16								
1558	Oak							41				
1682	Oak				17							
1683	Oak				8							
1684	Elm				11							
1723	Oak								25			
1724	Oak								25			
1725	Oak								30			
1726	Oak				17							
3230	Cedar			6								
3271	Mesquite					12						
3272	Cedar			7								
3273	Cedar			6								
3276	Cedar			7								
3277	Mesquite					15						
3278	Cedar			6								
3279	Hackberry					11						
3280	Mesquite					23						
3281	Cedar			9								
3282	Mesquite					12						
3284	Cedar			6								
3286	Mesquite					12						
3288	Cedar			7								
3289	Cedar			9								
3290	Cedar			8								
3291	Elm			6								
3292	Cedar			9								
3293	Cedar			9								
3294	Cedar			7								
3295	Cedar			12								
3297	Cedar			9								
3298	Cedar			8								
3299	Mesquite					15						
3301	Cedar			7								
3302	Cedar			8								
3303	Cedar				12							
3308	Mesquite									24		
3310	Cedar				8							
3311	Cedar				8							
3313	Cedar				8							
3314	Cedar				6							
3315	Mesquite					10						
3316	Mesquite					14						
3321	Cedar				6							
3322	Mesquite					22						
3323	Mesquite					22						
3324	Mesquite				8							
3325	Mesquite					13						
3326	Hackberry				7							
3327	China Berry											
3328	Cedar			21								
3329	Hackberry					11						
3330	Cedar			19								
Subtotal Inches		0	0	236	160	177	152	41	109	0	24	0
Subtotal Shade value (sq.ft.)		0	0	21000	14000	10500	8750	1200	4800	0	1200	0
Total Shade Value Calculation of Trees to Remain		28750										
Total Shade Value of all Existing Trees		61450										

* Small species: *Condalia, Redbud, Tx. Mountain Laurel, Tx. Persimmon, Hawthorn, Possumhaw* - these are mitigated at 1:1 for Heritage Trees

** *Ashe Juniper, Huisache, Mesquite, Arizona Ash, Hackberry* protected at 10" dbh and mitigated at 1:1 for heritage trees

*** Mitigation Trees: *Unprotected-sized trees to be used for mitigation calculations; subtract inches from mitigation owed*

TREE PRESERVATION NOTES:

- Existing trees and understory are to be selectively retained as directed by an Arborist. Trees to remain shall include protected trees 6" caliper and larger.
- All condition necessitating the removal or pruning of a tree shall be reviewed by an Arborist. The locations of any improvements with the potential of impacting trees shall be staked/delineated prior to the field review.
- Barricade fencing shall be placed to protect RPZ of all trees to remain that are adjacent to construction or disturbed areas unless otherwise approved by Landscape Architect to provide access to work. In these instances the minimum distance for barricade fencing from trunk shall be equal to 50% minimum of RPZ. Five foot (5'-0") from trunk of tree or clump of trees is allowed on one side of the tree with approved alternative construction methods only. Full RPZ is required on other side. Approval from City Arborist/Tree Inspector is required. Refer to detail 2/L-02 for tree barricade fencing.
- Maximum clearing limit within selective clearing areas around buildings to provide access for construction is 15'-0".
- Root Protection Zone (RPZ): RPZ requirements are defined as 12" diameter per 1" caliper of trunk at 42" height (Diameter Breast Height, DBH). Minimum RPZ requirements are 6" to each 1" caliper at DBH or 5' to trunk whichever is greater.
- Protected & heritage trees shall be removed only under the following situations:
 - Approval from City Arborist (210-207-8053) is required for removal of any significant/heritage tree.
 - Cut/fill greater than three (3") inches to take place beneath the dripline of a tree exceeds 50% of the Root Protection Zone (RPZ)
 - Construction of a building or other improvements require the removal of more than 30% of the viable portion of a tree crown.
 - Poor condition of tree.
- No equipment, vehicles, or materials shall be operated or stored within the root protection zone. No clean-out areas will be constructed so that the material will be in or migrate to the root protection zone.
- Roots or branches in conflict with construction shall be cut cleanly according to proper pruning methods. All Oak wounds shall be painted within 30 minutes to prevent Oak Wilt Infection.
- Exposed roots shall be covered at the end of the work day using techniques such as covering with soil, mulch or wet burlap.
- All woody material to be removed may be chipped into mulch & distributed on site within RPZ's at trees adjacent to construction & natural areas.
- Trees which are damaged or lost due to contractor's negligence during construction shall be mitigated at Contractor's expense.
- Existing protected trees on a project are to be maintained in a healthy condition at all times. This includes irrigating, fertilizing, pruning and other maintenance as needed on the project. Trees that die within twelve (12) months shall be replaced at a ratio of inch per inch for significant trees and at 3:1 for heritage trees per the Unified Development Code 35-523, Table 523-2.
- Contractor is responsible for providing a licensed tree maintenance professional throughout the project per City Ordinance, Article VIII 21-171.

NO. BY CK APF

REVISIONS AND RECORD OF ISSUE

DATE

5/30/12 - Templates

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PLOTTED:

USER: RAM49930

DWG: VER-1001

STATE OF TEXAS

ELVIS TREVIÑO

128759

PROFESSIONAL

7/27/2022

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Black & Veatch Corporation

10000 North Loop West

Houston, Texas 77037

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8122 DATAPoint DR., STE. 800 SAN ANTONIO, TX 78229

(210) 366-1988 TBE No.: F-333 TBE15 No.: 10194506

SAN ANTONIO WATER SYSTEM

UNIVERSITY GROUND STORAGE TANK NO. 2

TREE PRESERVATION

TREE PRESERVATION PLAN II

DESIGNED: GC/IBT

DETAILED: GC

CHECKED: EDT

APPROVED: EDT

DATE: July 22

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

B&V PROJECT NO.

406743

SAWS JOB NO.

20-6009

L-102

SHEET

38 OF 41

Total Shade Value Calculation of Trees to Remain	16625
Total Shade Value of all Existing Trees	27125

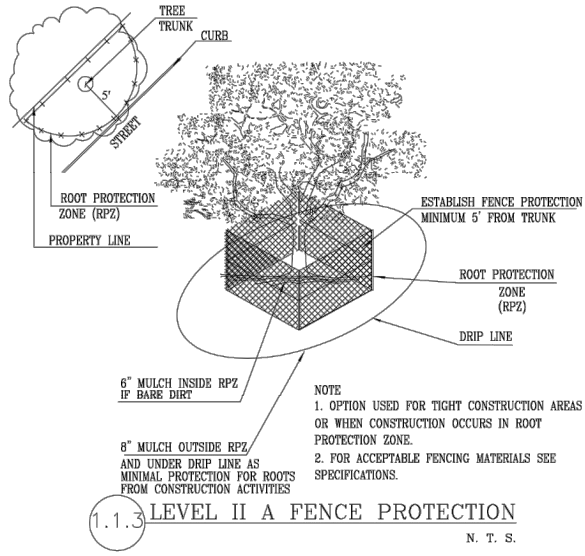
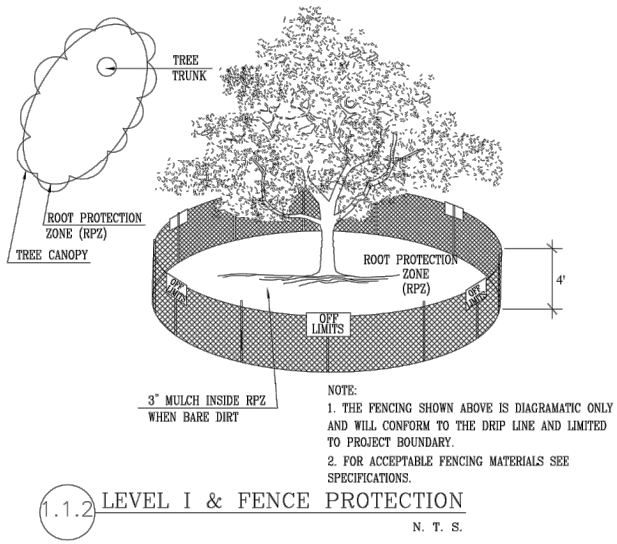
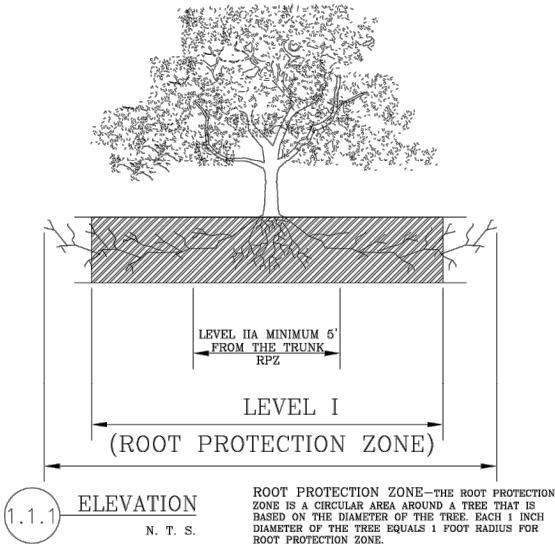
*** Mitigation Trees: Unprotected-sized trees to be used for mitigation calculations; subtract inches from mitigation owed

Understory Species	100%	Yes
Significant Trees	49%	Yes
Heritage Trees (3:1)	73%	Yes
Heritage Trees (1:1)	100%	Yes

MITIGATION	ESA (EARZ)		Total	Preserved	Removed
		Inches	337	206	131
		Required Preservation %	80%		
		Actual Preservation % (Understory)	None		
		Actual Preservation % (Significant)	61%		
		Actual Preservation % (Heritage 1:1)	None In ESA		
		Actual Preservation % (Heritage 3:1)	None In ESA		
		Required Preserved (In)	270		
		Actual Preserved (In)	206		
		Actual Preserved %	61%		
		Mitigation Rqrd (in)	64		
		Mitigation Provided (In)	0		
		Residual Mitigation (In)	0		
		Mitigation Provided (\$)	\$12,800.00		

DESIGNED:	GC/IBT
DETAILED:	GC
CHECKED:	EDT
APPROVED:	EDT
DATE:	July 22
<div style="text-align: center;">████████████████████</div> <p>IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE</p>	
B&V PROJECT NO. 406743	
SAWS JOB NO. 20-6009	
L-103 SHEET 39 OF 41	

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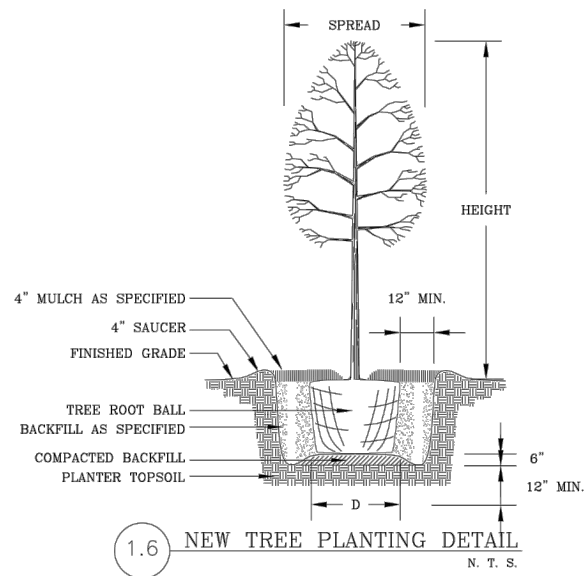
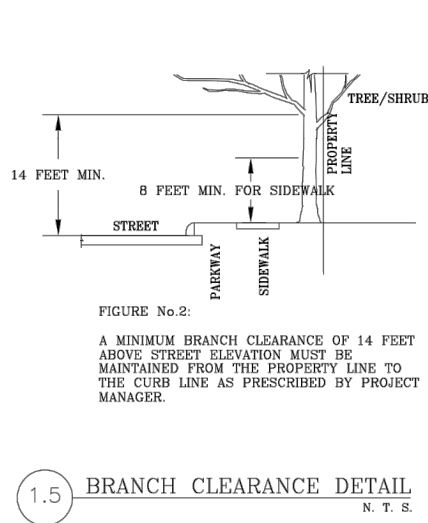
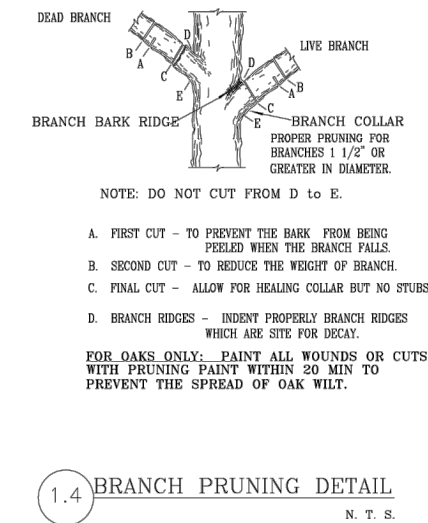
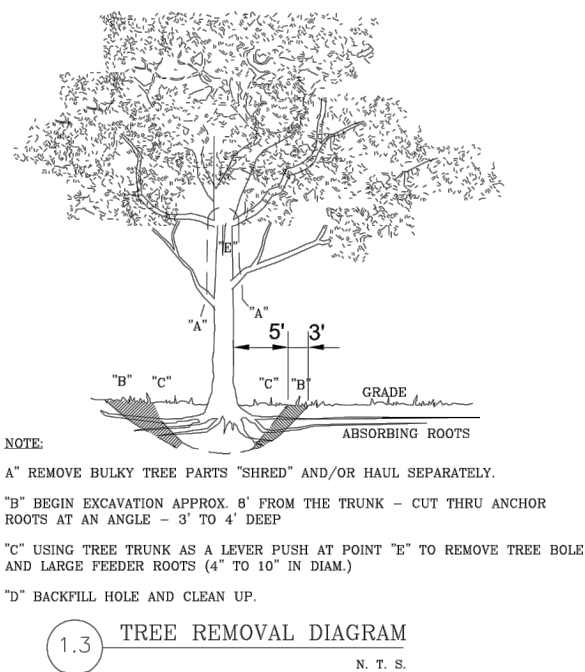
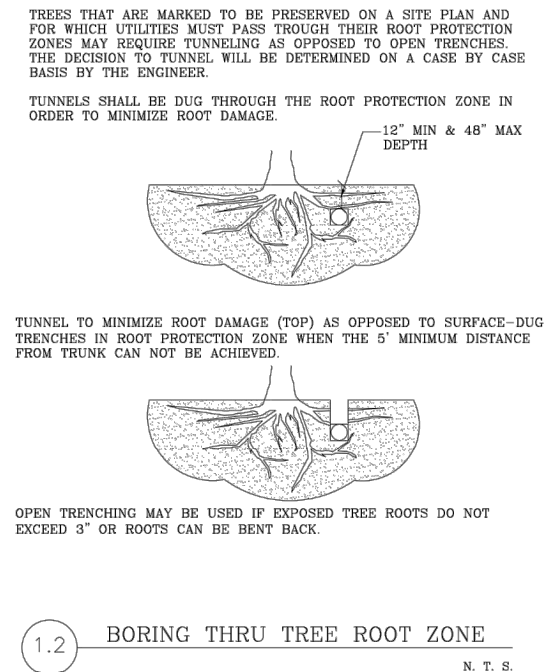
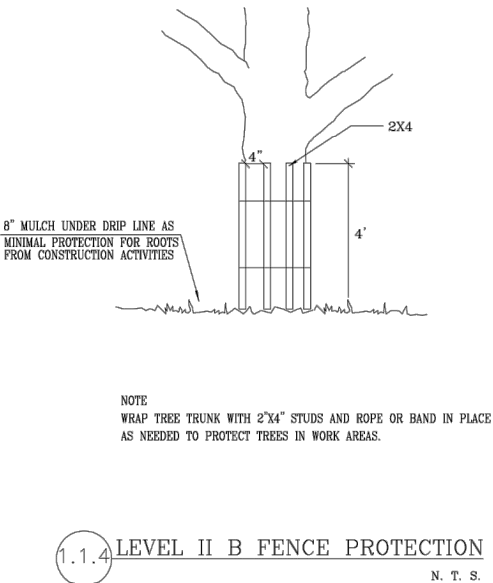
GENERAL NOTES

- ALL THE TREES WITH A DIAMETER GREATER THAN 3 INCHES AFFECTED BY CONSTRUCTION SHALL HAVE THE LIMBS AND ROOTS TRIMMED AND PRUNED ACCORDING TO ITEM No. 802. TREE PRUNING, SOIL AMENDING AND FERTILIZATION, UNLESS SPECIFIED TREES SHALL RECEIVE LEVEL 2 PROTECTION AS PER ITEM No. 802. TREES TO RECEIVE LEVEL 1 PROTECTION AS PER ITEM No. 802 ARE SHOWN ON TREE PROTECTION TABLE ON THIS SHEET.
- ALL TREES SHALL REMAIN UNLESS NOTED ON THE PLANS.
- NO SITE PREPARATION WORK SHALL BEGIN IN AREAS WHERE TREE PRESERVATION AND TREATMENT MEASURES HAVE NOT BEEN COMPLETED AND APPROVED.
- TREE PROTECTION FENCING SHALL BE REQUIRED. TREE PROTECTION FENCING SHALL BE INSTALLED, MAINTAINED AND REPAIRED BY THE CONTRACTOR DURING SITE CONSTRUCTION.
- THE CONTRACTOR SHALL AVOID CUTTING ROOTS LARGER THAN THREE INCHES IN DIAMETER WHEN EXCAVATING NEAR EXISTING TREES. EXCAVATION IN THE VICINITY OF TREES SHALL PROCEED WITH CAUTION. THE CONTRACTOR SHALL CONTACT THE CITY INSPECTOR.
- THE ROOT PROTECTION ZONE IS THAT AREA SURROUNDING A TREE, AS MEASURED BY A RADIUS FROM THE TREE TRUNK, IN WHICH NO EQUIPMENT, VEHICLES OR MATERIALS MAY OPERATE OR BE STORED. THE REQUIRED RADIUS LENGTH IS 1 FOOT PER DIAMETER INCH OF THE TREE. FOR EXAMPLE, A 10-INCH DIAMETER TREE WOULD HAVE A 5-FOOT RADIUS ROOT PROTECTION ZONE AROUND THE TREE. ROOTS OR BRANCHES THAT ARE IN CONFLICT WITH THE CONSTRUCTION SHALL BE CUT CLEANLY ACCORDING TO PROPER PRUNING METHODS. LIVE OAK WOUNDS SHALL BE PAINTED OVER, WITHIN 20 MINUTES TO PREVENT OAK WILT.
- ACCESS TO FENCED AREAS WILL BE PERMITTED ONLY WITH THE APPROVAL OF THE ENGINEER OR CITY INSPECTOR.
- GRADING, IF REQUIRED, SHALL BE LIMITED TO A 3 INCH CUT OR FILL WITHIN THE FENCED ROOT ZONE AREAS.
- TREES, SHRUBS OR BUSHES TO BE CLEARED FROM PROTECTED ROOT ZONE AREAS SHALL BE REMOVED BY HAND AS DIRECTED BY THE PROJECT MANAGER OR CITY INSPECTOR.
- TREES DAMAGED OR LOST DUE TO CONTRACTOR'S NEGLIGENCE DURING CONSTRUCTION SHALL BE MITIGATED TO THE ENGINEER'S SATISFACTION.
- EXPOSED ROOTS SHALL BE COVERED AT THE END OF EACH DAY USING TECHNIQUES SUCH AS COVERING WITH SOIL, MULCH OR WET BURLAP.
- ANY TREE REMOVAL SHALL BE APPROVED BY THE CITY ARBORIST PRIOR TO ITS REMOVAL.

1.3 GENERAL NOTES

TREE PROTECTION TABLE

SEE SHEET L-102 & L-103 FOR
TREE PROTECTION TABLES



1.3 TREE PROTECTION TABLE

TREE INVENTORY SUMMARY (8" DIAMETER AND LARGER)	
TOTAL DIAMETER INCHES, R.O.W	0
TOTAL DIAMETER INCHES REMOVED	585
TOTAL DIAMETER INCHES PRESERVED	651
TOTAL PERCENTAGE INCHES PRESERVED	52.7
TOTAL INCHES TO BE MITIGATED	64

1.3 TREE INVENTORY SUMMARY

PREPARED BY: FERNANDEZ FRAZER WHITE & ASSOC. INC. & C. F. ZAVALA GROUP	
CITY OF SAN ANTONIO	
DEPARTMENT OF PUBLIC WORKS	
CITY OF SAN ANTONIO TREE PROTECTION DETAILS TREE PRESERVATION	
DESIGNED:	FED. RD. NO. STATE SHF. NO.
CHECKED:	TEXAS 1 OF 4
DRAWN:	STATE DIST. NO. COUNTY CONTROL NO. SECT. NO. JOB NO. HIGHWAY NO.
CHECKED:	BEXAR

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(210) 366-1988 TBE No. F-333 TPLS No. 10194506

SAN ANTONIO WATER SYSTEM
UNIVERSITY GROUND STORAGE TANK NO. 2
TREE PRESERVATION
TREE PRESERVATION DETAILS

DESIGNED: GC/IBT
DETAILED: GC
CHECKED: EDT
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DATE: July 22
IF THIS BAR DOES NOT MEASURE 1" THEN
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L-104
SHEET
40 OF 41

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KREF3:
KREF4:
KREF5:
DATE
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