

# How it Works\$

The Plant Appraisal Process:  
Procedures, Field Records, Diagnostic Tools

# CAUTION - CAUTION - CAUTION

- Tree appraisal can be contentious!
- All weapons must be checked at the door!
- No cursing, spitting or foul language allowed!

# Procedures A to Z

- Fundamental questions the appraiser needs to ask:
  - Value to whom?
  - Purpose of the appraisal?
  - How will it be used?
  - Value of the property? How many other trees are there?
  - If the tree is gone, what records or photos are there?
  - If not, what records are there of maintenance?
  - When was it planted, what size, by whom?
  - If the tree is still there, will it be replaced?

# Basic Approaches to Value

- Income

- The income approach is used to appraise income producing property. For instance a tree outside an apartment is cut down making the unit hotter and harder to rent. The rent has to be reduced. See an accountant.

- Market

- “The most probable price, as of a specified date, in cash, or in real terms equivalent to cash, or in other precisely revealed terms, for which the specified property rights should sell after reasonable exposure in a competitive market under all conditions requisite to a fair sale, with the buyer and seller each acting prudently, knowledgeably, and for self-interest, and assuming that neither is under undue duress.” See a real estate appraiser.

- Cost

- The cost approach give an indication of value by adding the land value to the depreciated value of the improvements. We are calculating the value of the green improvements or the complimentary value of plants, trees and landscape features. See Steve Smith.

# The Plant Appraisal Process

- Before taking your first job invest in a good contract.
- Buy the 9<sup>th</sup> edition of the Guide for Plant Appraisal
- Buy the *Species Classification and Group Assignment*
- Check out the ASCA book store for helpful books:
- *Consultant's Guide to Writing Effective Reports, 1st Ed*
- *Example Report Book for Consulting Arborists, 2nd Ed*
- *Tree Law Cases in the USA* book by Lew Block
- Get an educated person to edit your reports

## Trunk Formula Method Worksheet

Case # URI Property 123 Maple St Date Soon  
 Appraiser Dudley Newby

### Field Observations

1. Species Acer palmatum
2. Condition \_\_\_\_\_ %
3. Trunk Circumference \_\_\_\_\_ in./cm Diameter \_\_\_\_\_ in./cm
4. Location % = [Site \_\_\_\_\_ % + Contribution \_\_\_\_\_ % + Placement \_\_\_\_\_ %]  
 $\div 3 =$  \_\_\_\_\_ %

### Regional Plant Appraisal Committee and/or Appraiser-Developed or -Modified Information

5. Species rating \_\_\_\_\_ %
6. Replacement Tree Size (diameter) \_\_\_\_\_ in./cm  
 (Trunk Area) \_\_\_\_\_ in<sup>2</sup>/cm<sup>2</sup> TA<sub>R</sub>
7. Replacement Tree Cost \$ \_\_\_\_\_  
 (see Regional Information to use Cost selected)
8. Installation Cost \$ \_\_\_\_\_
9. Installed Tree Cost (#7 + #8) \$ \_\_\_\_\_
10. Unit Tree Cost \$ \_\_\_\_\_ per in<sup>2</sup>/cm<sup>2</sup>  
 (see Regional Information to use Cost selected)

### Calculations by Appraiser using Field and Regional Information

11. Appraised Trunk Area:  
 (TA<sub>A</sub> or ATA<sub>A</sub>; use Tables 4.4-4.7)  
 or  $c^2$  (#3) \_\_\_\_\_  $\times 0.08$   
 or  $d^2$  (#3) \_\_\_\_\_  $\times 0.785$  ] = \_\_\_\_\_ in<sup>2</sup>/cm<sup>2</sup>
12. Appraised Tree Trunk Increase (TA<sub>INCR</sub>) =  
 TA<sub>A</sub> or ATA<sub>A</sub> \_\_\_\_\_ in<sup>2</sup>/cm<sup>2</sup> (#11) - TA<sub>R</sub> \_\_\_\_\_ in<sup>2</sup>/cm<sup>2</sup> (#6) = \_\_\_\_\_ in<sup>2</sup>/cm<sup>2</sup>
13. Basic Tree Cost = TA<sub>INCR</sub> (#12) \_\_\_\_\_ in<sup>2</sup>/cm<sup>2</sup>  $\times$  Unit Tree Cost (#10) \$  
 per in<sup>2</sup>/cm<sup>2</sup> + Installed Tree Cost (#9) \$ \_\_\_\_\_ = \$ \_\_\_\_\_
14. Appraised Value = Basic Tree Cost (#13) \$ \_\_\_\_\_  $\times$  Species rating  
 (#5) \_\_\_\_\_ %  $\times$  Condition (#2) \_\_\_\_\_ %  $\times$  Location (#4) \_\_\_\_\_ % = \$ \_\_\_\_\_
15. If the Appraised Value is \$5,000 or more, round it to the nearest \$100; if it is less, round to the nearest \$10.
16. Appraised Value = (#14) \$ \_\_\_\_\_

Items 5 through 10 are determined by the Regional Plant Appraisal Committee. The Wholesale Replacement Tree Cost, the Retail Replacement Tree Cost, or the Installed Tree Cost (#9) divided by the Replacement Tree Size (#6) can be used for the Unit Tree Cost (#10), or it can be set by the Regional Plant Appraisal Committee.

## Trunk Formula Method Worksheet

Case # UR1 Property 123 Maple St Date Soon  
 Appraiser Dudley Newby

### Field Observations

1. Species Acer palmatum
2. Condition 90 % average
3. Trunk Circumference 25 in./cm Diameter 8 in./cm
4. Location % = [Site 90 % + Contribution 90 % + Placement 90 %]  
 $\div 3 = 90$  %

### Regional Plant Appraisal Committee and/or Appraiser-Developed or -Modified Information

5. Species rating 70 %
6. Replacement Tree Size (diameter) 4.75 in./cm  
 (Trunk Area) 17.71 in<sup>2</sup>/cm<sup>2</sup> TA<sub>R</sub>
7. Replacement Tree Cost \$ 1482  
 (see Regional Information to use Cost selected)
8. Installation Cost \$ 1482
9. Installed Tree Cost (#7 + #8) \$ 2964
10. Unit Tree Cost \$ 84 per in<sup>2</sup>/cm<sup>2</sup>  
 (see Regional Information to use Cost selected)

### Calculations by Appraiser using Field and Regional Information

11. Appraised Trunk Area:  
 (TA<sub>A</sub> or ATA<sub>A</sub>; use Tables 4.4-4.7)  
 or c<sup>2</sup> (#3)          × 0.08  
 or d<sup>2</sup> (#3) 8 × 0.785  
 $\boxed{\hspace{1.5cm}} = 50.24$  in<sup>2</sup>/cm<sup>2</sup>
12. Appraised Tree Trunk Increase (TA<sub>INCR</sub>) =  
 TA<sub>A</sub> or ATA<sub>A</sub> 50.24 in<sup>2</sup>/cm<sup>2</sup> (#11) - TA<sub>R</sub> 17.71 in<sup>2</sup>/cm<sup>2</sup> (#6) 32.53 in<sup>2</sup>/cm<sup>2</sup>
13. Basic Tree Cost = TA<sub>INCR</sub> (#12) 32.53 in<sup>2</sup>/cm<sup>2</sup> × Unit Tree Cost (#10) \$  
 per in<sup>2</sup>/cm<sup>2</sup> + Installed Tree Cost (#9) \$ 2732. = \$ 5,696
14. Appraised Value = Basic Tree Cost (#13) \$ 5,696 × Species rating  
 (#5) 70 % × Condition (#2) 90 % × Location (#4) 90 % = \$ 3,230
15. If the Appraised Value is \$5,000 or more, round it to the nearest \$100; if it  
 is less, round to the nearest \$10.
16. Appraised Value = (#14) \$ 3,230

Items 5 through 10 are determined by the Regional Plant Appraisal Committee. The Wholesale Replacement Tree Cost, the Retail Replacement Tree Cost, or the Installed Tree Cost (#9) divided by the Replacement Tree Size (#6) can be used for the Unit Tree Cost (#10), or it can be set by the Regional Plant Appraisal Committee.



## Replacement Cost Method Worksheet

Appraised Value =

[Installed Plant Cost  $\times$  Species %  $\times$  Condition %  $\times$  Location %] +  
Removal and Cleanup Cost (if needed)

Installed Plant Cost = Replacement Plant Cost + Installation Cost

Case # UR2 Property 123 Maple St Date Soon

Appraiser Dudley Newby

Field Observations

1. Species Accr palmatum
2. Condition 90 %
3. Trunk Circumference \_\_\_\_\_ in/cm and/or Diameter 4.5 in/cm or  
Shrub or Vine Size (height/spread/volume) \_\_\_\_\_
4. Location % = [Site 90 % + Contribution 90 % + Placement 90 %]  $\div$   
3 = 90 %
5. Removal and Cleanup Costs for appraised  
plant or plant that will be replaced = \$ 200

Regional Plant Appraisal Committee and/or  
Appraiser-Developed or -Modified Information

6. Species rating 70 %
7. Replacement Plant Size (diameter) 4.75 in/cm
8. Replacement Plant Cost = \$ 1482
9. Installation Cost = \$ 1482
10. Other Regional Information \_\_\_\_\_

Calculations by Appraiser Using Field and/or  
Regional Information

11. Installed Plant Cost = Plant Cost (#8) \$ 1482  
+ Installation Cost (#9) \$ 1482 = \$ 2964
12. Adjusted Installed Plant Cost = Installed Plant  
Cost (#11) \$ 2964  $\times$  Species rating (#6) 70 %  $\times$   
Condition (#2) 90 %  $\times$  Location (#4) 90 % = \$ 1681
13. Add Removal and Cleanup Costs (#5) (if appraised  
plant is replaced). \$ 200 = \$ 1881
14. The Appraised Value is either #12 or #13. = \$ 1881
15. If the Appraised Value (#14) is \$5,000 or more, round  
it to the nearest \$100; if it is less, round to nearest \$10.
16. Appraised Value (#14) = \$ 1880.

\*A median cost is the most appropriate cost to use because there are an equal number of costs greater than and less than the median. Equally important, plants and installation are available at those specific costs.



PROGRAM FOR COMPUTING APPRAISED VALUE BASED ON TRUNK FORMULA METHOD

Tree	REPCOST	DIAM-A	DIAM-R	PRICE-R	SPECIES	CONDITION	SITE	CONTRIB	PLACEMNT	Location	BASIC PRICE	TA-A	TA-R	BASIC VAL	APPRAISAL
Platanus	\$2,964	17.1	5.5	\$1,482	70%	50%	90%	80%	100%	90%	62	229.54	23.75	15723.33	\$4,953
Platanus	\$2,964	16.5	5.5	\$1,482	70%	36%	90%	80%	100%	90%	62	213.72	23.75	14742.14	\$3,367
Platanus	\$2,964	13.9	5.5	\$1,482	70%	50%	90%	80%	100%	90%	62	151.67	23.75	10895.26	\$3,432
Washingtonia	45	57	1	22	90%	83%	90%	90%	100%	93%	45	57	1	2565.00	\$1,796
Washingtonia	45	56	1	22	90%	83%	90%	90%	100%	93%	45	56	1	2520.00	\$1,764
Washingtonia	45	53	1	22	90%	83%	90%	90%	100%	93%	45	53	1	2385.00	\$1,670
Washingtonia	45	54	1	22	90%	83%	90%	90%	100%	93%	45	54	1	2430.00	\$1,701
Washingtonia	45	80	1	22	90%	87%	90%	80%	100%	90%	45	80	1	3600.00	\$2,527
Phoenix	550	51	1	300	80%	87%	90%	80%	100%	90%	550	51	1	28050.00	\$17,503
Washingtonia	45	72	1	22	90%	83%	90%	80%	100%	90%	45	72	1	3240.00	\$2,187
Phoenix	550	33	1	300	80%	73%	90%	80%	100%	90%	550	33	1	18150.00	\$9,583
Washingtonia	45	65	1	22	90%	87%	90%	80%	100%	90%	45	65	1	2925.00	\$2,053
															\$52,536

Condition

Roots	Trunk	Scaffold	B&F	Branch	Foliage	Condition
60%	60%	40%	40%	40%	40%	50%
50%	20%	30%	45%	40%	50%	36%
70%	30%	50%	50%	50%	50%	50%
80%	70%				100%	83%
80%	70%				100%	83%
80%	70%				100%	83%
80%	70%				100%	83%
90%	70%				100%	87%
90%	90%				80%	87%
90%	60%				100%	83%
90%	60%				70%	73%
90%	70%				100%	87%

### **B. PLANT REPLACEMENT COST**

[illegible]

**Damaged Area (ft<sup>2</sup>)    ÷    Plot Areas (ft<sup>2</sup>) x Actual Plant Replacement Cost of Plots                 =    \$\_\_\_\_\_**

**Damaged Area (ft<sup>2</sup>)    ÷    Plot Areas (ft<sup>2</sup>) x Appraised Plant Replacement Cost of Plots    =    \$\_\_\_\_\_**

**Damaged Area (ft<sup>2</sup>) + Plot Areas x Total Number of Replacement Plants = ( )**

\* Cost of installation usually varies between 2 and 3 times the plant cost depending on region and type of plant. Cost includes but is not limited to all costs for transportation, equipment, labor, soil, mulch, guying, guarantee, profit, etc.

\*\* See directions for calculating Compounded Costs or Values on pages 8 and 9.



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Field Form Report  
for  
**Cost of Cure**

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A publication of the International Society of Arboriculture

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# FIELD FORM REPORT FOR COST OF CURE



Site Location Address 2019 Port

City \_\_\_\_\_ State \_\_\_\_\_ Zip Code \_\_\_\_\_

## OWNER INFORMATION

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip Code \_\_\_\_\_

Res. Phone ( ) \_\_\_\_\_ Bus. Phone ( ) \_\_\_\_\_ Fax ( ) \_\_\_\_\_

Inspection Date \_\_\_\_\_ Time \_\_\_\_\_ am/pm Weather \_\_\_\_\_

Information requested by \_\_\_\_\_

Reason for appraisal, type of damage and additional comments \_\_\_\_\_

## SUMMARY

**Cost of Cure** determines the cost of the replacement and/or repairing of plants and restoration of the property to its pre-casualty condition. Add **Debris Removal and Hardscape Restoration Cost**, **Plant Replacement Cost**, and **Plant Restoration and Establishment Cost** together in order to determine **Cost of Cure**. All Cost of Cure recommendations to recreate previous use, or intended passive recreational use shall be of good judgment, practical, reasonable, and shall not exceed the value before the casualty. These procedures (methodologies) can be used to estimate landscape value in the absence of a casualty, e.g. an inventory.

ACTUAL

APPRAISED

### A. Debris Removal and Hardscape

Restoration Cost..... \$ \_\_\_\_\_ \$ \_\_\_\_\_

### B. Plant Replacement Cost.....

\$ \_\_\_\_\_ \$ \_\_\_\_\_

### C. Plant Restoration and Establishment Cost .....

\$ \_\_\_\_\_ \$ \_\_\_\_\_

**COST OF CURE** ..... **A + B + C =** \$ \_\_\_\_\_ \$ \_\_\_\_\_

Prepared by \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip Code \_\_\_\_\_

Res. Phone ( ) \_\_\_\_\_ Bus. Phone ( ) \_\_\_\_\_ Fax ( ) \_\_\_\_\_

## CERTIFICATION

I certify that all the statements of fact in this Field Form Report are true, complete and correct to the best of my knowledge and belief and are made in good faith.

Signature of Appraiser \_\_\_\_\_

This form is published as an aid in determining Cost of Cure landscape values. While this form provides a detailed format for determining value, the integration of facts needed to determine value requires a high degree of knowledge and experience. This form is intended for use by or in consultation with adequately trained personnel. CTLA and its Sponsoring Organizations accept no liability for values determined through use of this form.

### CTLA's Sponsoring Organizations

American Association of Nurserymen—1250 I Street, N.W., Suite 500, Washington, DC 20005, (202) 789-2900  
American Society of Consulting Arborists—15245 Shady Grove Road, Suite 130, Rockville, MD 20850, (301) 947-0483  
Associated Landscape Contractors of America—12200 Sunrise Valley Drive, Suite 150, Reston, VA 22091, (703) 620-6363  
Association of Consulting Foresters of America—1403 King Street, Alexandria VA 22314, (703) 548-0990  
International Society of Arboriculture—P.O. Box 3129, Champaign, IL 61826-3129, (217) 355-9411  
National Arborist Association—P. O. Box 1094, Amherst, NH 03031, (603) 673-3311


Information entered on this form may be admissible as evidence. (Based on *Guide to Plant Appraisal, 8th Edition*)

A publication of the International Society of Arboriculture.


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# Sketch Showing Layout of Site\*



**LEGEND\*\***

	_____
	_____
	_____
	_____
	_____

\*Include North arrow where appropriate.

\*\*Include language for description of areas.

Explanation of Sketch \_\_\_\_\_  
 \_\_\_\_\_

Description of Photos

#1 _____	#5 _____	#9 _____
#2 _____	#6 _____	#10 _____
#3 _____	#7 _____	#11 _____
#4 _____	#8 _____	#12 _____

### A. DEBRIS REMOVAL and HARDSCAPE RESTORATION COST

Trunks, stumps, branches, dead shrubs, contaminated soil, broken hardscape structures, i.e., destroyed rock walls, damaged lightning protection, broken irrigation and any other damaged aspects of the landscape that should be removed. Repairs to the hardscape should restore any hardscape structure to its pre-casualty condition. Cost shall include hauling and dumping fees, hardscape materials costs, equipment costs, labor costs, license fees, and any other expenses associated with removing debris, cleaning the damaged site and restoring the hardscape structures. This form may be useful for estimating hardscape value in the absence of a casualty.

#	1 List Debris Removal, Cleaning and Hardscape Restoration Tasks	2 Debris Removal Cost	3 Cleaning Cost	4 Hardscape Restoration Cost	5 Pre-Casualty Hardscape Cond. (%)	6 Appraised Hardscape Restoration Value (4 x 5)
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
	COLUMN TOTALS				////////////////////	

#### SOURCE OF ESTIMATE(S) - CONTRACTOR(S)

<u>Estimate #(s)</u>	<u>Name</u>	<u>Address</u>	<u>Phone #</u>
_____	_____	_____	(     ) _____
_____	_____	_____	(     ) _____
_____	_____	_____	(     ) _____
_____	_____	_____	(     ) _____
_____	_____	_____	(     ) _____
_____	_____	_____	(     ) _____
_____	_____	_____	(     ) _____
_____	_____	_____	(     ) _____

**ACTUAL DEBRIS REMOVAL AND HARDSCAPE RESTORATION COST ... ADD COLUMNS (2 + 3 + 4) ...** \$ \_\_\_\_\_

**APPRAISED DEBRIS REMOVAL AND HARDSCAPE RESTORATION COST ... ADD COLUMNS (2 + 3 + 6) ...** \$ \_\_\_\_\_

Attach any additional contractor information, i.e., reports, management plans, schedules, maps etc. to this document relevant to debris removal and hardscape restoration.



### B. PLANT REPLACEMENT COST

Appraiser: \_\_\_\_\_ Notekeeper: \_\_\_\_\_  
 Damaged Area in (ft<sup>2</sup>, m<sup>2</sup>): \_\_\_\_\_ Appraised vegetation for inventory is located:  
 Plot Area in (ft<sup>2</sup>, m<sup>2</sup>): \_\_\_\_\_ On Site \_\_\_\_\_ Off Site \_\_\_\_\_ (check one)

Note: If the Appraiser is unable to measure all the damaged vegetation because of the size of the area or because plants are rare, the Restoration Cost can be determined by using plots.

**Example:** A Cost of Cure area encompasses 39,104 ft<sup>2</sup>. An "On Site" plot of 3,200 ft<sup>2</sup> is found with vegetation similar to what was described in the Cost of Cure area. The vegetation in this plot indicates that 37 undamaged plants were identified and measured within this plot. The cost to replace these plants within this plot is \$3,405.

<u>Then:</u>	Damaged Area (ft <sup>2</sup> )	÷	Plot Area(s) (ft <sup>2</sup> )	X	Plant Replacement Cost of Plots	=	Plant Replacement Cost
	39,104 (ft <sup>2</sup> )	÷	3,200 (ft <sup>2</sup> )	X	\$3,405	=	\$41,609

[illegible]
$$\text{Damaged Area (ft}^2\text{)} \div \text{Plot Areas (ft}^2\text{)} \times \text{Actual Plant Replacement Cost of Plots} = \$$$
$$\text{Damaged Area (ft}^2\text{)} \div \text{Plot Areas (ft}^2\text{)} \times \text{Appraised Plant Replacement Cost of Plots} = \$$$
$$\text{Damaged Area (ft}^2\text{)} + \text{Plot Areas} \times \text{Total Number of Replacement Plants} = \underline{\hspace{2cm}}$$

\*\* See directions for calculating Compounded Costs or Values on pages 8 and 9.

### C. PLANT RESTORATION and ESTABLISHMENT COST

Using good judgment, check and estimate the cost of those categories and tasks listed below which are necessary to re-establish the area to its pre-casualty condition. Which tasks, if any, under which categories are necessary will depend on the situation. Multiply current year cost times number of years for establishment to determine actual cost. Example: 1 year cost to fertilize = \$800; thus, for 3 years fertilization at 6% interest the compounded cost is the sum of the Annual Compound Interests ( $1.19 + 1.12 + 1.06 = 3.37$ ) multiplied by the annual cost of the fertilizer —  $\$800 \times 3.37 = \$2,696$ .\*

#### Category I. Pre-planting and/or Restoration and Establishment

- |                |  |
|----------------|--|
| _____ \$ _____ | a. Control vegetative composition and competitive vegetation by the removal of inferior species, herbicide use, or controlled burns. |
| _____ \$ _____ | b. Protect against erosion as needed. An example would be a soil stabilization system.   |
| _____ \$ _____ | c. Establish and operate irrigation and drainage system(s).  |
| _____ \$ _____ | d. Test the soil and fertilize and/or amend or replace as indicated.   |
| _____ \$ _____ | e. Minimize other environmental impacts, i.e., wind, cold, salt, intense sunlight, etc.  |
| _____ \$ _____ | f. Protect original recreational features of area.   |
| _____ \$ _____ | g. Minimize insect, disease, cultural problems and risk of fire (Plant Health Care Program).   |

Cost of I. Actual \$ \_\_\_\_\_ Appraised\* \$ \_\_\_\_\_

#### Source of Estimate (Contractor) \_\_\_\_\_

Attach any additional contractor information i.e., reports, management plans, schedules, maps, etc. to this document relevant to pre-planting and/or restoration and establishment.

#### Category II. Plant Removal to Re-establish and Maintain Planted Species

Note: These removals are made for the purpose of re-establishing original tree and shrub composition and quality by removing trees and shrubs of non-original undesirable species, form, or condition from the understory and main canopy of a damaged area.

- |                |  |
|----------------|--|
| _____ \$ _____ | a. Remove non-original trees and shrubs from the lower crown classes (Suppressed and Intermediate trees/shrubs) to release newly planted species.  |
| _____ \$ _____ | b. Remove damaged trees and shrubs with unreasonable risk or non-original species from the middle and upper portion of the canopy (Dominant and Codominant trees) to stimulate newly planted tree and shrub species. |
| _____ \$ _____ | c. Remove damaged Dominant trees with unreasonable risk to stimulate new plants in the lower crown classes.  |

##### Definitions:

1. Dominant - crowns extending above the general level of the crown cover and receiving full light from above and partly from the sides.
2. Codominant - crowns forming the general level of the crown cover and receiving full light from above, little from the sides.
3. Intermediate - crowns extending into the crown cover formed by dominant and codominant trees; receiving a little direct light from above (often referred to as understory trees).
4. Suppressed (overtopped) - crowns receive no direct light either from above or from the sides (often referred to as understory trees/shrubs).

Note: Selection of plants to be cut in thinnings based on original quality and density at the time of loss. Relative plant position and condition play important roles. Some plants grow vertically (geotropic). Other plants tend to lean toward the light (phototropic).

Cost of II. Actual \$ \_\_\_\_\_ Appraised\* \$ \_\_\_\_\_

#### Source of Estimate (Contractor) \_\_\_\_\_

Attach any additional contractor information i.e., reports, management plans, schedules, maps, etc. to this document relevant to plant removal to re-establish and maintain planted species.

\* See page 8 and 9 for more detail about Compounded Costs.

**Category III. Pruning to Improve Restoration of Damaged Plants**

- \_\_\_\_ \$ \_\_\_\_\_ a. Allow self-pruning of trees and shrubs (natural branch shedding).  
\_\_\_\_ \$ \_\_\_\_\_ b. Prune to *clean, thin, raise, reduce* and/or *restore* the crowns of trees to remain (Circle one or more types of pruning - See ISA *Tree Pruning Guidelines* 1995).

Cost of III. Actual \$ \_\_\_\_\_ Appraised\* \$ \_\_\_\_\_

**Source of Estimate (Contractor)** \_\_\_\_\_

Attach any additional contractor information, i.e., reports, management plans, schedules, maps, etc. to this document relevant to pruning to improve restoration of damaged trees.

**Category IV. Clear Cut to Regenerate Lost Plants**

- \_\_\_\_ \$ \_\_\_\_\_ a. Remove undesirable plants if the area has regrown with undesirable, non-original species.  
\_\_\_\_ \$ \_\_\_\_\_ b. Allow natural reproduction by seed from original trees and shrubs previously destroyed and sow seed in the soil duff.  
\_\_\_\_ \$ \_\_\_\_\_ c. Review suggested Tasks a-g in Category I and recommend any of those treatments for Category IV.

Cost of IV. Actual \$ \_\_\_\_\_ Appraised\* \$ \_\_\_\_\_

**Source of Estimate (Contractor)** \_\_\_\_\_

Attach any additional contractor information i.e., reports, management plans, schedules, maps, etc. to this document relevant to clear cutting to regenerate a lost wooded area.

**Category V. Leave Seed Trees and Shrubs to Regenerate Lost Plants**

**Note:** The area has been clear cut or selectively cut and/or damaged except for certain trees and shrubs, called seed trees and shrubs, left standing singly or in groups. These trees and shrubs furnish seed to naturally restock the damaged area if they are healthy and present no unreasonable risk. After new trees and shrubs are established, seed trees and shrubs may be left indefinitely.

- \_\_\_\_ \$ \_\_\_\_\_ a. Select seed trees and shrubs if they are dominant, healthy, wind firm and seed bearing. These trees should be managed for health and vigor.  
\_\_\_\_ \$ \_\_\_\_\_ b. Check soil pH, soil temperature, etc., and determine how much duff and soil needs to be replaced (see Category I-d).  
\_\_\_\_ \$ \_\_\_\_\_ c. Review suggested Tasks a-g in Category I and recommend any of those treatments for Category V.

Cost of V. Actual \$ \_\_\_\_\_ Appraised\* \$ \_\_\_\_\_

**Source of Estimate (Contractor)** \_\_\_\_\_

Attach any additional contractor information, i.e., reports, management plans, schedules, maps, etc. to this document relevant to leaving seed trees to regenerate a lost wooded area.

**Category VI. Use Stump Sprouts, Root Suckers and Layered Branches to Regenerate Lost Plants**

**Note:** Stump sprout regeneration is a practical, common method to regenerate many types of plants, especially in "clear cut" wooded areas. Tactics can be employed to manage selected dominant sprouts for future tree and shrub re-establishment based on individual species requirements, tolerances, and cultural problems during re-establishment of a damaged area.

- \_\_\_\_ \$ \_\_\_\_\_ a. Prune stump sprouts to one dominant sprout that may take 3-7 years of continual trimming depending on the species.  
\_\_\_\_ \$ \_\_\_\_\_ b. Encourage and thin (if necessary) root suckers for future plants.  
\_\_\_\_ \$ \_\_\_\_\_ c. Layer (if necessary) low-growing branches by covering with soil to stimulate roots and sprouts for future trees/shrubs.  
\_\_\_\_ \$ \_\_\_\_\_ d. Review suggested Tasks a-g in Category I and recommend any of those treatments for Category VI.

Cost of VI. Actual \$ \_\_\_\_\_ Appraised\* \$ \_\_\_\_\_

**Source of Estimate (Contractor)** \_\_\_\_\_

Attach any additional contractor information, i.e., reports, management plans, schedules, maps, etc. to this document relevant to using stump sprouts, root suckers and layered branches to regenerate lost plants.

\* See directions for calculating Compounded Costs or Values on pages 8 and 9.



### Category VII. Employ Shelterwood Method to Regenerate Lost Plants

Note: The gradual removal of dominant, live, damaged trees and shrubs in a series of partial removals which extend over the management period. You should be establishing new plants before the older, affected, damaged trees and shrubs die or are removed. The Shelterwood Method is often used in wooded areas with plants of the same size and age. This method is practical when plants have not been mortally injured, but they have incurred serious damage. Insect, disease, and cultural management must be employed to allow damaged, older plants to survive and new, healthy plants to thrive. A Plant Health Care Program may be utilized to help the damaged trees or shrubs to survive long enough to allow re-establishment of other species.

- |                |  |
|----------------|--|
| _____ \$ _____ | a. Remove certain damaged trees with unreasonable risk to allow crowns of remaining trees to enlarge for "wind firming" of roots and trunks of healthy trees.                    |
| _____ \$ _____ | b. Remove damaged shrubs and ground cover to create space that allows desirable tree and shrub seedlings to become established.  |
| _____ \$ _____ | c. Scarify soil in open spaces to promote seed germination of selected species.  |
| _____ \$ _____ | d. Remove vegetation which competes with desirable species. (Selective plant removal over many years may be necessary for original stocking of lost vegetation to be recreated.) |
| _____ \$ _____ | e. Review suggested Tasks a-g in Category I and recommend any of those treatments for Category VII.  |

Cost of VII. Actual \$ \_\_\_\_\_ Appraised\* \$ \_\_\_\_\_

### Source of Estimate (Contractor) \_\_\_\_\_

Attach any additional contractor information, i.e., reports, management plans, schedules, maps, etc. to this document relevant to employing Shelterwood Methods to regenerate lost wooded areas.

\*See Table 1 to determine appraised cost.

### Summary of Plant Restoration and Establishment Categories

Category	Actual Cost (\$)	Appraised Cost (\$)
I.	_____	_____
II.	_____	_____
III.	_____	_____
IV.	_____	_____
V.	_____	_____
VI.	_____	_____
VII.	_____	_____
TOTAL	_____	_____

**\*TABLE 1. ANNUAL INTEREST RATES COMPOUNDED**

Years	5%	6%	7%	8%	9%
1	1.05	1.06	1.07	1.08	1.09
2	1.10	1.12	1.14	1.17	1.19
3	1.16	1.19	1.23	1.26	1.30
4	1.22	1.26	1.31	1.36	1.41
5	1.28	1.34	1.40	1.47	1.54
6	1.34	1.42	1.50	1.59	1.68
7	1.41	1.50	1.61	1.71	1.83
8	1.48	1.59	1.72	1.85	1.99
9	1.55	1.69	1.83	2.00	2.15
10	1.63	1.79	1.97	2.16	2.34

Multiply the *actual cost* to be compounded by the *factor* shown for the *interest rate* chosen and the estimated number of *years* for the plant(s) to reach an equivalent size. If more years are estimated than covered by the Table, multiply the two figures in the Table whose years add to the number desired. For example, 8 years at 6% and another example, 15 years at 6%:

ex. 1 - 8 = 3 + 5 Then: 1.19 x 1.34 = 1.59

8 = 1 + 7 Then: 1.06 x 1.50 = 1.59

Hence: *actual cost* x *factor* = *appraised cost*

ex. 2 - 15 = 5 + 10 Then 1.34 x 1.79 = 2.39

15 = 8 + 7 Then: 1.50 x 1.59 = 2.39

### Determining the Compounded Cost of Plants and/or Operations

Select the Cost procedures below which are appropriate for the particular situation.  
Add the Compounded Costs for the selected procedures to obtain the total Cost.

1. Compounded Cost of Plant Pruning/Removal and Site Cleanup =  
*Plant Pruning/Removal & Cleanup Cost x Appropriate Annual Compound Interest Factor*
2. Compounded Adjusted Cost of Plants =  
*Adjusted Plant Cost x Appropriate Annual Compound Interest Factor*
3. Compounded Cost of Installation =  
*Installation Cost x Appropriate Annual Compound Interest Factor\**
4. Compounded Cost of Annual Maintenance:  
 $1st\ year = Maintenance\ Cost \times Appropriate\ Annual\ Compound\ Interest\ Factor^*$   
 $2nd\ year = Maintenance\ Cost \times Appropriate\ Annual\ Compound\ Interest\ Factor^{**}$   
 $3rd\ year\ to\ final\ year = Maintenance\ Cost \times Sum\ of\ Appropriate\ Annual\ Compound\ Interest\ Factors^{***}$

\* Annual Compound Interest Factor at the chosen interest rate for the total estimated years for the plants to reach equivalent size (parity).

\*\* Annual Compound Interest Factor at the chosen interest rate for the total estimated years minus 1 year for the plants to reach equivalent size (parity).

\*\*\* The sum of the Annual Compound Interest Factors for each of the years that the Maintenance Costs will be the same until equivalent size (parity) is reached.

**Add the above appropriate Costs to obtain the Compounded Appraised Value of the Plants or the Compounded Cost of the particular Operation(s).**

#### Example:

Compounded Cost of Annual Maintenance (#4 above) at 6% interest

Year	Years to Parity	Annual Compound Interest Factor		Annual Cost		Total
1	8	1.59	x	\$800	=	\$1,272
2	7	1.50	x	600	=	900
3	6	1.42	x	200		
4	5	1.34	x	200		
5	4	1.26	x	200		
6	3	1.19	x	200		
7	2	1.12	x	200		
8	1	1.06	x	200		
9						
10						
	6 — 1	7.39	x	200	=	\$1,478*
				Compounded Maintenance Cost	=	\$3,650

\* Since the Annual Costs for years 3 through 8 are each \$200, the Annual Compound Interest Factors for those years can be added together and multiplied by \$200 to obtain the Compounded Appraised Cost for those years.

# Certification

I, Gregory W. Applegate, certify to the best of my knowledge and belief:

That the statements of fact contained in this report are true and correct. That the report analysis, opinions, and conclusions are limited only by the reported assumptions and limiting conditions, and are my personal unbiased professional analysis, opinions and conclusions.

That I have no present or prospective interest in the vegetation that is the subject of this report, and I have no personal interest or bias with respect to the parties involved.

That my compensation is not contingent upon the reporting of a predetermined value, or direction in value, that favors the cause of the client, the amount of the value estimate, the attainment of stipulated result or the occurrence of a subsequent event.

That my analysis, opinions, and conclusions were developed, and this report has been prepared, in conformity with the Guide for Plant Appraisal, 9<sup>th</sup> Edition, by the Council of Tree & Landscape Appraisers and the standards of arboricultural practice. As of the date of this report, I have completed the requirements of continuing education for Registered Consulting Arborist and Certified Arborist status.

That methods found in this appraisal are based on a request to determine the value of plants considering reasonable factors of plant appraisal.

That my appraisal is based on the information known to me at this time. No internal dissection or decay investigation was made.

That I have made a personal inspection of the plants that are the subject of this report. No one provided significant professional assistance to the person signing this report.

Furthermore, the opinions above are held with reasonable degree of professional certainty, predicated on my 40 years of experience in the nursery, landscape, and arboricultural industries and the documents and information provided me.

I do not authorize out of context quoting from or partial reprinting of this appraisal report. Neither all or any part of this report shall be disseminated to the general public by the use of media for public communication without the prior written consent of the undersigned.

As a result of my examination, investigation, and analysis of the plants and all the data pertinent thereto, the value of the plants, as of \_\_\_\_\_, is estimated to be \$ \_\_\_\_\_.

Gregory W. Applegate, ASCA, ASLA \_\_\_\_\_ Date \_\_\_\_\_  
Registered Consulting Arborist #365  
Certified Arborist WC-0180



# Diagnostic Tools

Measurement Tools

Diagnostic Tools

Recording Tools

# Measurement Tools

- Laser distance and hypsometer
- Clinometer
- Diameter tape
- Calipers
- 50:1 Guide (Mattheck)

# Diagnostic Tools

- Soil augur
- Profile tube
- AirSpade/AirKnife
- Increment borer
- Battery operated drill
- Sounding mallet
- Resistograph
- Shigometer
- Sonic tomography, e.g. Picus
- Binoculars
- Hand lens
- pH meter
- Pole pruner / saw
- Pocket knife
- Sample bags
- Spade

# Recording Tools

- Digital camera with a wide angle and macro lens, or smart phone
- Clipboard, tablet, or smart phone
- Report forms or smart phone
- Calculator or smart phone
- Compass or smart phone
- Pen or pencil or smart phone
- Tags – labels
- Marker flags