Example Appraisal Report

Prepared for *CLIENT*
2225 Wintergreen St
Glendale, CA 91208

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Table of Contents

Background

I was contacted by *CLIENT* on January 15, 2017. *CLIENT* asked for an appraisal of damage that was done to a hedge growing along the southern property line of 2225 Wintergreen St. The hedge was pruned by a maintenance crew working for the commercial building at 5825 Cross St., to the south of the subject property.

CLIENT provided me several sets of images of the trees taken between January 2014 and September 2016. He also sent me a digital copy of an arborist report prepared by another arborist that appraised the damage to the hedge at $27,440.00. After reading the report, I had several questions about the other arborist's methodology of appraisal. I sent *CLIENT* a list of these questions on February 8, 2017.

On March 2, 2017, I was contacted by the legal assistant to *CLIENT*. She asked to schedule a site visit for Wednesday, March 8, 2017 from 9:30am to 12:30pm.

On March 6, 2017, *CLIENT* sent me a copy of a recent survey of the property showing that the property line between 2225 Wintergreen St and 5825 Cross St was located 8 inches north of the existing block wall. He informed me that there was a possibility that the property line may pass through one or more of the trees. He asked me to indicate in this report which of three categories each tree fell into:

1) The tree was located entirely south of the property line;
2) The tree was located entirely north of the property line; OR
3) Some part of the trunk was on both sides of the property line.

I met *CLIENT* at his office on March 8, 2017, and we walked together to the subject property at 9:30am to make observations and record data on the subject trees.

Subject Trees

Subject trees were a mix of Brush Cherry (*Syzygium australe*) and Indian Laurel Fig (*Ficus microcarpa*). Trunk diameters varied from 2 inches in diameter at breast height (DBH) up to 14 inches DBH. They were growing as part of a dense hedge along the southern property line of 2225 Wintergreen St. I observed two primary functions of the hedge:

1) Provide privacy to the property owners from line of sight into their property.
2) Screen the undesirable view of the commercial building to the south of the property.

Appraisal Methodology

I selected two approaches and within those approaches, several methods of tree appraisal to establish anchor points used in the conclusion in this report. The most strongly weighted approach to this appraisal was the cost approach due to the more readily available and dependable data. However, I also gave consideration to the market approach to provide an anchor point as a test of reasonableness for the cost approach.

Within the cost approach, I chose several methods:

- *Replacement Cost, Trunk Formula Method without depreciation*: This reflects the cost of replacing the hedge with notionally ideal trees that are the same size as the existing trees, thereby replacing the benefits provided by them.

- *Replacement Cost, Trunk Formula Method with depreciation*: This reflects the cost of replacing the hedge with trees that are identical copies of the existing trees, depreciated to reflect their pre-damage condition.

- *Cost of Cure, Trunk Formula Method*: This reflects the cost of replacing the hedge with trees that are functionally equivalent to the existing trees. This produces a smaller cost solution than replacement cost when the subject of the appraisal is superadequate.

- P*artial Loss, Percentage Canopy Loss*: This reflects the cost of replacing a portion of the hedge relative to the amount of canopy loss resulting from the pruning damage. This method can be used with trees that are identical copies of the existing trees in their pre-damage condition (replacement method) or with trees that are functionally equivalent to the existing trees (cost of cure). The cost of the entire hedge is summed and treated as a unit before calculating the percentage canopy loss.

- P*artial Loss, Trunk Formula Method, change in depreciation*: This reflects the difference between the cost of replacing the hedge with trees that are identical copies of the existing trees in their pre-damage condition and the cost of replacing the hedge with copies of the trees in their post-damage condition.

- *Cost of Repair*: This reflects the costs incurred beyond ordinary maintenance to adjust for damage and mitigate further losses. This method assumes the trees will not be restored to their identical pre-loss condition, but a substantial amount of their functional benefits will be restored.

For the market approach, I used one method:

- *Percentage contribution, hedonic regression*: This method reflects the contributory market value of the hedge by calculating its percentage contribution to the value of the property as a whole. Published peer-reviewed studies show the percentage contribution of an entire landscape to the resale value of the property. I assigned a percentage contribution weight to the hedge relative to the rest of the landscaping and then multiplied that percentage by the estimated real estate property value. The biggest disadvantage to this method is its limited level of precision. Rather than being used to determine the final appraised value, this method is often used as a test of reasonableness for other methods.

The income approach was rejected because it would be difficult to find comparable rental properties and determine the difference in rent they would pay as influenced solely by the presence or absence of the subject trees. The capitalized income generated by these trees is not an appropriate representation of the loss incurred by the property owner. Also, the ecological benefits as represented by a calculator such as iTree Eco do not fully illustrate the benefits provided by the intended function of the hedge in the landscape.

Overview of the Trunk Formula Method

The theory of the Trunk Formula Method is to scale up the costs of the largest available tree relative to the total cross sectional area of the tree trunks. The unit cost per square inch of nursery stock is calculated for the largest commonly available transplantable nursery stock, and it is multiplied by the cross sectional area of the subject plant being appraised to arrive at the basic cost of the tree.

After calculating the basic cost of the tree, depreciating factors are introduced. Since hand-selected nursery stock is in theory the best quality, the basic cost must be adjusted downward by a condition factor to reflect any defects in form, health, or vigor. This is a subjective rating between 0% and 100% as determined by the appraising arborist. The same is true for the location of the tree: the optimal location can be selected for transplantable nursery stock, but not for an established tree. Therefore, the basic cost is multiplied by a location factor between 0% and 100% as well. Lastly, the species of the tree may be more or less valuable than other trees of the same size, location, and condition. So there is a third factor introduced: the species rating, also between 0% and 100%.

The final appraised cost solution of the tree is the product of the total cross sectional area, the unit cost of trunk area, and the three depreciating factors: species, location, and condition. See the appraisal tables at the end of this report for detailed calculations beginning on page 26.

Trunk Area

First, the diameter of the subject trunk is measured. The height of the measurement is conventionally made at 4.5 feet above natural grade. However, if that measurement is distorted by a swelling of the trunk or cannot be obtained due to a damage cut made below 4.5 feet, a reasonable approximation of the trunk diameter at 4.5 feet may be used. The intention is to choose a measurement height that best reflects the size of the tree. If the subject tree has multiple trunks branching below 4.5 feet, the diameter of each individual trunk is measured.

I made my measurements with a regular measuring tape and then used my circumference measurements to calculate the diameter and then the cross sectional area of each tree. When a tree was topped at 5.5 feet, I directly measured the exposed stem diameter.

The cross sectional area (A) is calculated by the formula $A = \pi/4\ d^2$ for trees with circular trunks. The trunk formula method assumes that the trunk of a tree can be approximated by a perfect circle. When irregular shapes are distorted from a perfect circle, they contain less cross sectional area than a circle of the same perimeter/circumference. Therefore, to simplify the data collection process, the appraised cross sectional area of the trees in this report can be considered to be an upper bound of the true cross sectional area.

Unit Cost

The unit cost of the nursery stock is published in the Western Chapter ISA Regional Species Classification Guide (WCISA, 2004), and it varies based on the growth rate of the tree and its trunk size in various box sizes. This unit cost is expressed in dollars per square inch of trunk cross sectional area.

Syzygium australe is not listed in the WCISA Species Classification Guide because it was erroneously mislabeled as *Syzygium paniculatum*, a rare species not often found in the landscape. After publication of the regional guide, the species was renamed by taxonomists (Ritter, 2011). In the preparation of this report, I used the species information listed as *Syzygium australe* in the regional guide. It is from Southern California Nursery Group 2 and has a unit cost of $84 per square inch of trunk area.

Ficus microcarpa is from Southern California Nursery Group 3 and has a unit cost of $62 per square inch of trunk area.

The WCISA Regional Guide was most recently published in 2004. One of its weaknesses is it has not been adjusted for inflation and current market pricing. As an alternative to using the published values in the guide, a more detailed analysis of the unit cost could be performed at a much greater expense: wholesale nursery pricing catalogs from many growers can be obtained and analyzed for size and price information to determine a more accurate unit cost. Due to budget and time limitations, that additional level of research was not undertaken for this appraisal report, and the unit costs published in the most recent version of the regional guide were used.

Species Rating

The species ratings of many trees grown in the western United States are also published in the Western Chapter ISA Species Classification Guide. The ratings are designed to reflect the suitability of the tree for the region. The appraising arborist has the discretion to adjust the species rating up or down by up to 10% to reflect localized benefits or problems related to the species of the subject tree.

The published rating of *Syzygium paniculatum* is 50% for Southern California. I applied this species rating to the *Syzygium australe* trees in this appraisal report. I did not have any reason to adjust it. The published rating for *Ficus microcarpa* is 90% for Southern California. I did not have any reason to adjust this published rating.

Location Rating

The location rating has three components that are averaged together: site, contribution, and placement. The site is the relative market value of the property on which the tree is sited. The contribution is the value the tree adds to the landscape; higher points are awarded for prominent specimens. The placement rating reflects how effective the tree is at providing its functional and aesthetic attributes. It is also adjusted for the value of the growing location to the tree itself. The average of these three values is the location rating.

I rated the site for all of the subject trees at 80% because Glendale is among the higher-valued real estate in the greater Los Angeles region. However, I discounted the site rating by 10% due to the relatively unmaintained aesthetic appearance of the landscaping as a whole (Figures 35 and 46). If the property were maintained at a similar level of cleanliness as the adjacent single family residences, I would have assessed the site rating as 90%.

For both contribution and placement, I began with a base value of 80% for each of the trees due to their strong value contribution for privacy and greenery. They were deliberately planted and maintained in a hedge form for the intended purpose of creating a visual separation between the subject property and the commercial property to the south. These trees were growing in the side yard, so they did not have the same amount of visibility and prominence as a specimen tree growing in the front yard would have, but they contributed so much to the landscape value that they were assigned high contribution and placement ratings.

Trees 13 and 19 were growing up against the adjacent wall. Over time, their trunks would have been expected to expand and push on the wall, causing it to crack. These trees were adjusted down to 50% placement ratings because although their placement provided screening benefit, it also created a liability for the tree owners as well.

Condition Rating

The Guide to Plant Appraisal 9th Edition divides the condition rating into 8 subcategories, each rated on a scale of 1-4 (CTLA 2000). A rating of 4 is assigned to "no apparent problems," and 1 is assigned to "extreme problems." These subcategories are summed and divided by the maximum score of 32 to arrive at a final percentage condition rating. The subcategories are: Root Structure (RS), Root Health (RH), Trunk Structure (TS), Trunk Health (TH), Scaffold Branch Structure (SS), Scaffold Branch Health (SH), Branches and Twigs Health (BH), and Foliage and Buds Health (FH). For all of the trees, I rated their respective condition attributes as "no apparent problems" unless a defect was apparent from photos or from my site inspection.

I rated the condition of the subject trees both before and after the damage occurred. The replacement cost method with depreciation was the result of the pre-loss condition rating assessment. One of the partial loss methods was the result of the difference between the hedge's pre- and post-loss condition.

Pre-Loss Condition

All of the subject trees began with a "minor problems" rating for root structure because of the presence of the adjacent cinderblock wall. The presence of a wall footing in close proximity to their trunks is likely to result in an imbalanced root system. It did not appear that the roots were so deformed that they were unable to support the trunk and scaffold, so they were not rated as having "major" defects.

Trees 1, 3, 4, 6, 10, 14, 19 all had co-dominant stem defects in their trunks. This is a minor trunk structure defect that can concentrate wind forces on the union and become more susceptible to tear out. I did not rate these trees as having a major trunk structure defect because it is relatively common for this species and can often become strengthened over time as tissue is deposited around the trunk union. Trees 1, 6, 7, 10, 14, and 18 all had co-dominant scaffold branch defects. Like the previous defect, this is a minor scaffold structure defect that can increase the likelihood of branch failure. It is not a major defect because it is relatively common for this species and the impact to tree condition if one of the scaffold unions were to fail is relatively small.

Tree 15 had a substantial cavity on the north side of the trunk. It was in the process of rolling in a callous over the wound site, but decay had advanced into the main stem. I rated this as a major trunk structure defect. The decay has a potential to substantially detract from the structural integrity of the tree over time, but this was not at the point of being an extreme defect at the time of my observation. I rated Tree 15 Trunk structure as a 2 for "major problems." The presence of cavity reduced the conductivity of water along the main stem in a minor way, so I also reduced the trunk health rating from 4 to 3.

I did not observe any defects in the root health, scaffold health, branch health, or foliage health of any of the trees, so I rated those attributes as 4 for "no apparent problems."

Post-Loss Condition

Trees 2, 3, 5, 8, 13, 14, 15, 16, 19, and 21 were all topped at a height of approximately 5.5 feet. From my observations in January of 2017, all of these trees were still alive after the severe topping cuts. Their root systems were not impacted by the pruning, so their pre-loss root condition ratings remained the same. However, their trunk structure, trunk health, scaffold structure, scaffold health, branch health, and foliage health were all severely impacted. I reduced all of these ratings down to 1 for "extreme problems."

The remaining trees were side-pruned, causing varying levels of damage to the trunk, scaffold, branches, and foliage.

- Tree 1: The south-facing scaffold branches were removed, leaving an asymmetric canopy. I rated scaffold structure as 2 for "major problems." The remainder of the canopy appeared healthy, so I did not deduct for health problems.
- Trees 4, 6, 7, 9, 10, 11, 12, 18, 20, and 22: These trees received severe side pruning that damaged the scaffold structures and reduced the health of the scaffolds, branches, and foliage. I reduced all of these ratings down to 2 for "major problems" for each of these trees.
- Tree 17: Like Tree 1, the south-facing scaffold branches were removed, leaving an asymmetric canopy. I rated scaffold structure as 2 for "major problems." The pruning was a little more severe than on Tree 1, so I also reduced the scaffold health, branch health, and foliage health down to 3 for "minor problems." This tree should have no problem recovering from the damage.
- Tree 23, 24, and 25: These relatively young *Ficus* trees were severely side pruned. Their central stems were growing over the property line and were topped. Because they were young enough, a substantial portion of the trunk remained intact. I marked the trunk structure and health as 2 for "major problems." The topping substantially damaged the scaffold structure, scaffold health, branch health, and foliage health, so I rated them as 1 for "extreme problems."

Trees 1, 6, 18, 20, and 22 all had evidence of spike wounds in their trunks (Figure 38). Climbing living trees with spikes is not acceptable by ISA Best Management Practices because the wounds create entry points for decay organisms. The spike wounds on these trees were not especially harmful, so they did not constitute a "major problem" for trunk health. The subject trees should have no problem rolling a callous over these wounds before decay can advance into their trunks. I reduced the trunk health rating down to 3 for "minor problems" due to the spike wounds.

Tree 18 was listed in the other arborist's appraisal report as having spike wounds, but I did not observe any spike wounds. The bark cracks I observed on the north side of the trunk at a height of 4 and 6 feet were due to natural bark expansion and were indications of a healthy pre-loss condition. I did not deduct for trunk health damage to Tree 18.

Trunk Formula Method Cost Solution

The basic cost is multiplied by the species, condition, and location ratings. The calculated amount is then rounded to reflect the level of precision in the appraisal. If the amount is less than $5000, then it is rounded to the nearest $10. If the amount is greater than $5000, then it is rounded to the nearest $100. The rounded amount is the final appraised cost solution by using the trunk formula method.

I repeated the trunk formula for each of the subject trees and for both replacement cost and cost of cure, each time using the applicable permutation of inputs. The results of my analysis are discussed in the next section. Detailed calculations begin on page 26.

Results

The following section describes the results of each of the appraisal methods used. Detailed calculations for each of these methods can be found beginning on page 26.

Replacement Cost, Trunk Formula Method (without depreciation)

This reflects the cost of replacing the hedge with an equal number of notionally ideal trees that are the same size as the existing trees, thereby replacing the benefits provided by them. It makes the critical assumption that the hedge must be completely replaced with an identical hedge of defect-free trees.

I used only two inputs for this method: trunk measurements and unit cost. I calculated the total trunk area from the measurements and multiplied it by the unit cost published in the Western Chapter Regional Species Classification Guide. I used 100% depreciation ratings, so there was no reduction of the basic cost of the trees.

This method resulted in the largest output value for the hedge. It is an inappropriate reflection of the damage to the hedge because the critical assumption is not true. The benefits provided by this hedge can be produced at a lower expense by using a more economical arrangement of replacement trees (see cost of cure) or they can be restored with repair work (see cost of repair).

Another weakness to this method is it assumes that replacing the damaged trees with new trees in perfect condition is adequate compensation for the loss. This is also not the case because the trees had attributes that reduced their pre-loss species, location, and condition values. A more appropriate measurement of damages would be the difference in pre- and post-loss condition (see partial loss, change in depreciation) to parse out the tree value reduction that resulted directly from the pruning event.

Replacement Cost, Trunk Formula Method (with depreciation)

This reflects the cost of replacing the hedge with trees that are identical copies of the existing trees, depreciated to reflect their pre-damage condition. See the description of the Trunk Formula Method for an explanation of the pre-loss ratings I assigned to the hedge.

Although it discounts the replacement cost of the hedge for pre-loss condition, it still makes the critical assumption that the hedge must be replaced entirely. This assumption is also not true because the hedge may be more quickly and prudently restored to its functional benefits through repair and remediation (see cost of repair).

Like the replacement cost method without depreciation, this method assumes that replacing the hedge with an equal number of trees of identical sizes is the optimal method of restoring the benefits provided by the hedge. Again, this assumption is false because there is an alternative arrangement of trees that would more prudently restore the same functional benefits (see cost of cure).

Cost of Cure, Trunk Formula Method

Cost of Cure reflects the cost of replacing the hedge with trees that are functionally equivalent to the existing trees. Cost of cure is based on the principle of substitution where a prudent buyer would not spend more than it would cost to acquire an asset of similar utility. If the benefits of privacy and a thorough screening of the views of the commercial building could be replicated with fewer or smaller trees, then the cost of replacing the benefits would be less than the cost of replacing the hedge with an equal number of identical trees. The difference between cost of cure and replacement method is cost of cure appraises the replacement of the subject trees' function in the landscape while the replacement method appraises the replacement of the subject trees with identical copies.

In cost of cure, I first establish the function of the asset to be appraised. I then choose a selection of trees that would provide the same functional benefits, and I appraise them using the Trunk Formula Method as notionally ideal plants. Lastly, I depreciate that amount by the species, location, and condition ratings of the pre-loss hedge.

The subject hedge has two primary functions:

1) It provides privacy from people looking into the tree owner's property.
2) It provides screening from the undesirable view of the property to the south.

The primary function of the subject trees is not specimen trees. The subject trees perform their function as a screening hedge without regard to the specific number of trees or the sizes of individual trees. As long as there is a continuous mass of foliage, the hedge performs its function of screening views of the commercial building and providing privacy to the subject property. Therefore, the loss of an individual tree does not necessarily significantly diminish the value of the hedge as a whole. This is especially true for those trees with trunk diameters of 3" or less.

The trunks of the subject trees are etiolated, indicating overplanting. Etiolation is stem elongation that occurs in a dense planting. It is a naturally occurring response to low-light conditions. Dormant nodes along the stems do not grow into lateral branches, and the affected trees focus their resources on growing upward as quickly as possible to reach the light at the top of the canopy. Stem etiolation is evidence that a hedge consisting of trees spaced further apart may be an adequate substitute.

The primary functions of the hedge diminish with height. When the hedge grows beyond 35 feet tall, the appearance of the building is obscured, and any view from the commercial building is obscured. The functions also diminish with density after the view is obscured. An overly-dense planting is a condition of superadequacy; a hedge of evenly-spaced trees would have a functional equivalence of the existing hedge.

Using the dimensions of the site, published plant species size data, and professional experience, I developed a plan for a replacement hedge that would serve the same landscape function but would have a lower trunk formula method cost solution. I adjusted the number, species, and size of the trees for this hypothetical replacement hedge.

First, I began by selecting an appropriate replacement species. Brush cherry is listed in the Western Chapter Regional Guide as being in Southern California Nursery Group 2 with a unit cost of $84 per square inch of trunk cross sectional area. *Ficus microcarpa* has a similar screening function and is often used as a hedge in the Southern California landscape, but it is in Nursery Group 3 with a unit cost of $62 per square inch of trunk area. The lower unit cost signifies that this species is less expensive to reproduce. Since *Ficus microcarpa* is commonly used as a hedge tree, I determined it was an adequate substitute for determining the cost of cure.

Next, I needed to determine the size and spacing of the hedge. Using the survey I was provided by *CLIENT*, I approximated that there were 125 linear feet of the southern property line covered by the subject trees. Although tree height and DBH do not correlate perfectly, I used my professional judgment to approximate that *Ficus microcarpa* reaches 35 feet in height at a DBH of 8 inches. Adequate spacing would be every 8 feet to allow the lower branches to grow together and form a continuous visual wall. Therefore, 16 trees spaced every 8 feet along the span of 125 feet would be an adequate substitute for the subject hedge. These trees would adequately screen views of the commercial building and provide privacy. They would each have a DBH of 8 inches.

I applied the tree size to the trunk formula method to calculate the basic cost of each hypothetical 8-inch *Ficus microcarpa* tree. I depreciated each tree by the species, location, and condition ratings of the pre-loss hedge. I used the species rating of the Brush Cherry trees because this value reflects the climate suitability and diminished overall desirability of the subject trees as compared to the notionally ideal tree. I used the same starting location rating that I used in the depreciated replacement method because of the subject trees' diminished pre-loss location value. Since the number of hypothetical trees was different from the actual number of trees, I used the average condition rating for all 25 of the subject trees as the uniform condition rating for all 16 hypothetical trees.

Lastly, I multiplied the cost solution for one tree by 16, the total number of trees necessary to replace the functional benefits of the existing hedge. The result was the depreciated cost of cure.

P*artial Loss, Percentage Canopy Loss*

Partial loss makes the assumption that the subject trees are not a total loss and that some portion of their reproduction cost may be directly attributed to the damage incurred. Percentage Canopy Loss is a relatively simple method of appraising a portion of loss. The canopy area projection of the subject trees is visually approximated and multiplied by the depreciated replacement cost or cost of cure.

This method assumes the canopy area projection is proportional to the amount of loss. In the case of assessing damage to a hedge, canopy projection area may be considered a good approximation of the amount of functional benefit lost by side-pruning to the hedge because successive vertical planes removed from a hedge proportionately diminish its screening function.

From a visual approximation on site, I determined that a 40% loss was an appropriate articulation of the amount of canopy projection removed in the pruning. I then multiplied this percentage by the depreciated cost of cure and the depreciated cost of replacement as two different iterations of the same appraisal method.

Using replacement cost for percentage canopy loss represents a portion of the cost of replacing the existing hedge with an equal number of identical trees, reduced for depreciation. Using cost of cure for percentage canopy loss represents a portion of the cost of replacing the existing hedge with trees that are functionally equivalent, reduced for depreciation. The cost of cure percentage canopy loss is less than replacement cost percentage canopy loss because the hedge's screening function could be replicated with a less costly hedge consisting of fewer and smaller trees.

One limitation to the canopy projection method is only the subject trees are considered when evaluating the percentage damage. Taken in the context of the whole landscape of the subject property, the subject trees are not the only component contributing to the visual screen function provided by the hedge. There is a second row of *Ficus* trees growing to the north of the subject trees that also contributes to the visual screen. This second tier of the hedge extends northward for approximately the same distance as the width of the pre-loss subject trees (Figures 1 and 41).

Since the second row of Ficus trees also serves as the northern edge of the hedge, it may be considered as well when making the determination of percentage canopy loss of the hedge as a whole. A 40% reduction may not accurately represent the percentage of lost screening of the combined hedge as a whole. Rather, the pruning damage may have diminished the amount of screening by a smaller amount. For purposes of this appraisal report, I did not quantify this percentage of lost screening, but qualitatively it is apparent from Figure 40 that the hedge still retained a substantial amount of its screening function after the loss. Therefore, this partial loss method may be expected to represent an upper bound for the reconciliation process.

P*artial Loss, Trunk Formula Method, Change in Depreciation*

Another method for appraising partial loss reflects the difference in Replacement Cost Trunk Formula Method appraisal between the hedge's pre- and post-loss condition. Some defects existed prior to the loss, so this method seeks to isolate only the loss in value directly relating to the pruning damage.

One limitation to this formula is the limited rating system for condition attributes. There are only four possible ratings for each of the eight tree part subcategories: extreme problems, major problems, minor problems, and no apparent problems. In some cases, a tree had a pre-existing condition that was a minor problem for one or more of the tree part subcategories, but the post-loss damage was not significant enough to change the rating of those tree part subcategories to "major problems," so this partial loss method gave the appearance that no damage was done to that tree part subcategory.

Another limitation is this method is based on replacement cost. Its calculations are based on the cost of replacing the hedge with an identical copy, less depreciation. It is not based on the cost of cure, which would calculate the cost of replacing the functional benefits of the hedge.

Cost of Repair

Cost of Repair reflects the costs incurred beyond ordinary maintenance to adjust for damage and mitigate further losses. Unlike the other methods, the cost of repair does not usually estimate the cost to return the plant to its pre-damage condition. It makes two key assumptions:

- The subject of the appraisal will remain in place
- The subject of the appraisal will continue to provide benefits similar to those prior to damage.

Because damaged structures cannot typically be reattached, cost of repair tends include the cost of selective structural pruning and of cultural practices that promote future growth. Taken on an individual tree basis, trees pruned to stumps cannot be reasonably appraised by the cost of repair method. However, taken as a continuous unit, a hedge can be reasonably appraised using the cost of repair method.

The function of the hedge was to screen undesirable views of the adjacent commercial building and to provide privacy for the subject property. Although the contribution to the hedge's function by some individual trees was eliminated when they were cut to stumps at 5.5 feet above grade, the overall function of the screen was still repairable through cultural practices.

All of the topped trees were still alive at the time of my site visit. Although their trunk and crown structure and health had been strongly devalued, they still had intact root systems and stored photosynthates in their vascular system. With this stored energy, they were able to produce new shoots between February 2016 and March 2017. The trees that were topped at 5.5 feet will not return to their former height in the foreseeable future, but the hedge as a whole will likely fill in completely by the end of four years. The topped trees will produce screening foliage that will fill the gaps between the taller trees with few or no low branches. Therefore, the cost of repair is an appropriate measure of the damage to the hedge.

Over the four year period, there are two to four stages of restoration pruning that would be applied to the damaged trees, depending on the extent of the damage. For the topped trees, the first stage focuses on selecting existing shoots to be cultured into the future scaffold. All other shoots are treated as temporary structures and are pruned off in successive years. The next two stages involve directing growth to fill in the gaps in the canopy. Branches headed in desirable directions are retained, and branches headed in undesirable directions are either destimulated or removed, depending on the needs of the plant. A certified arborist would be necessary to make these plant-specific decisions in the field. The last restoration phase cleans up the redundant structures, removes the temporary shoots, and removes any deadwood or temporary branch defects that may have accumulated in the restoration process.

To appraise the cost of repair, I created a list of repair tasks itemized by year and by tree. Restoration pruning is not useful to every tree, and different trees require a different number of years of restoration work. Also, different trees require different amounts of restoration pruning time. For each itemized task, I assigned a time estimate and a cost estimate based on an hourly labor rate.

After each tree receives its final restoration pruning as indicated on the itemized restoration list, it may be returned to its regular maintenance schedule. Any further work performed on each of these trees would not be considered "repair."

I used an estimated labor cost of $64 per man-hour for a certified arborist to perform the pruning and $500 per fertilization. Time estimates for restoration pruning are based on my professional experience and estimated future plant size. I did not obtain contractor quotes for the cost of restoring the hedge.

Fertilization is recommended as a cultural practice that will improve the rate of growth of the existing trees and encourage them to quickly grow to restore their former canopy density. Slow-release granulized nitrogen fertilizer will encourage vegetative growth on the trees, speeding the restoration of the canopy. This recommended type of fertilizer is the most cost effective method of delivery.

The spike wounds on several of the trees cannot be repaired (Figure 38). However, the trees will naturally close those wound sites over time if they are maintained with good cultural practices. Ultimately, it is unlikely that the spike wounds will have any significant impact on the longevity of the affected trees.

One advantage to appraising the cost of repair is it models the quickest time to recover the benefits provided by the hedge. All other cost approach methods are based on the cost to grow a replacement hedge or a substitute hedge. Cost of repair is the only method that is based on the cost to retain the existing one. If the hedge were replaced, it could be expected to take 20 or more years before the new trees would grow to an adequate replacement size. The cost of repair for this appraisal estimates a return to parity within four years. It is also the lowest cost of all the other cost-approach methods, making it the most prudent choice for allocating funds to restore the functional benefit of the hedge.

The disadvantage of the cost of repair is it does not account for the interim loss of benefits between when the damage occurred and when the hedge grows back to parity in four years. The tree owner experienced a real loss in privacy and visual screen for a finite period of time, and the cost of repair does not account for this loss. Cost of repair can be thought of as a lower bound for the appraisal of damages in this case.

Percentage Contribution, Hedonic Regression

This method reflects the diminution of market value of the real estate on which the trees are growing. This is the only method from the market approach that I used in this appraisal. This method was intended to only be a test of reasonableness for the cost approach methods.

The most commonly used approach to tree appraisal is the cost approach because it has the most readily available and defensible data. Appraising diminution of market value has relatively low precision because it relies on comparable sales of real estate and estimates of landscape contributory value – both of which have large margins of error.

The premise of this method is based on peer reviewed research quantifying the market value that landscapes contribute (Luttik 2000, Henry 1994, Henry 1999). According to this research, the contributory market value of a well-maintained landscape can range from 6-10%. The appraiser calculates the percentage contribution of the whole landscape and then allocates that value among the various components of the landscape to isolate the market value added by the subject of the appraisal.

For this appraisal, I relied upon readily accessible appraisal data. To obtain real estate market value, I queried six web services that provide free estimates of property value based on recent comparable sales: Realtor.com, Chase.com, eAppraisal, Bank of America, Zillow, and Redfin. I used the median estimated market value of the subject property in my calculation of landscape contributory value.

I selected a contribution percentage of 6% because although there were mature trees on the property, there was an overall unkempt aesthetic appearance of the landscape relative to the neighboring properties (Figures 35 and 42). Other trees on the property including the hedge on the northern property line had been maintained with topping and heading cuts (Figures 43 through 46). I multiplied this percentage contribution by the median estimated market value of the whole property to arrive at the contributory market value of the landscape.

Lastly, I allocated the total landscape contributory value into six categories of value: the south hedge, the north hedge, the west hedge, the mature trees, the shrubs and plants, and the other landscape elements. My estimates were roughly guided by the square footage covered by each component, but I made small adjustments based on my professional judgment regarding the contribution of each component to the overall landscape value. These percentages were multiplied by the overall value of the landscape to arrive at a contributory value of each component.

Lastly, I deducted 40% from the value of the south hedge to reflect the partial loss incurred as a result of the pruning damage.

Reconciliation

The final step in the appraisal process is reconciliation. Each method of appraisal is evaluated for precision, accuracy, and appropriateness to the appraisal assignment. In this stage I selected a final assignment result for the appraisal of damages. For a summary of the results from all of the methods I used, see Figure 11.

As stated earlier, diminution of market value has limited precision and is only used in this appraisal as a test of reasonableness. Since the diminution of real estate market value of the subject property as a result of the pruning damage is greater than or similar to the cost to replace or repair the damage, the cost approach is supported as a more appropriate method of appraising damages. If the diminution of market value were less than the cost to replace or repair the damaged hedge, then the cost approach may have been considered to be excessive. Therefore, this appraisal method shows that using the cost approach is appropriate for this appraisal case. The limited level of precision of the market approach precludes any further application of its output in the reconciliation phase.

The cost of replacement and cost of cure both with and without depreciation may be rejected because they assume that the hedge is a total loss. The hedge is not a total loss, and it will likely return to parity within the next four years with some minor restoration work. These methods are only useful in this assignment as bases for the partial loss methods of appraisal.

The replacement cost percentage canopy loss represents an upper bound for this appraisal. It assumes that the number and size of the existing trees holds significance to the overall value of the hedge. From my observations of the relatively neglected appearance of the site, the specific orientation, quantity, and sizes of the subject trees did not hold any significance to the tree owners. Rather, it appeared that the primary function of the hedge was simply to provide privacy and a visual screen, regardless of the number, size, or orientation of the trees necessary to accomplish that objective. Therefore, I rejected the replacement cost percentage canopy loss method.

The cost of cure percentage canopy loss improves upon the defensibility of the partial loss method because it appraises a hypothetical substitute hedge that would still serve the functional purpose of the original hedge. However, being a hypothetical scenario drawn from professional judgment, it has a lower degree of precision than the replacement cost counterpart. It also serves as an upper bound for the loss because the second tier of trees to the north of the subject trees contributes to the screening function (Figure 41), and the overall loss of screening and privacy may be less than the 40% canopy loss to the subject trees.

The partial loss difference in depreciation provided a similar output to the replacement cost percentage canopy loss. Both methods assume that the number, size, and orientation of the existing hedge is significant to its overall value. If this assumption is held, then these two methods provide strong support for a claim of about $20,000 in damages. However, as stated earlier, the suboptimal aesthetic appearance of the landscape and condition of the other trees was evidence that the assumption is false. Therefore, I rejected the partial loss difference in depreciation method as well.

The cost of repair represents the cost to implement a plan that would restore the functional benefits of the existing hedge. It includes fertilization to stimulate new growth and then pruning to train the new growth to restore a long-term scaffold. This method will serve as a lower bound for this appraisal assignment because it reflects the most prudent cost to restore the functional benefits provided by the former hedge, but it does not account for the interim loss of benefits.

Regardless of whatever amount is decided to fairly compensate the tree owner for the loss, the proposed repair plan is the optimal recommended course of action. All of the subject trees are still alive, and the hedge will eventually return to its former landscape function within four years. Replacement of the hedge with either identical trees or substitute trees will still take 20 or more years to return to parity. Repair is the fastest and most economical strategy to restore benefits.

Ultimately, I chose the cost of cure percentage canopy loss to represent the final appraised value of the loss incurred. It only accounts for the amount of canopy that would have been lost from a prudently designed hedge. It is more than the cost of repair, so it provides some amount of compensation for the lost interim benefits until the hedge is fully restored with pruning and fertilization. The final assignment result is $7,680 for the damage to the entire hedge.

Property Line Significance

As part of my appraisal assignment, I was asked to segment the appraisal by the trees that were located entirely to the north of the property line, entirely to the south of the property line, and along the property line. I used the survey provided to me that stated the true property line was located 8 inches to the north of the existing wall.

There were no trees that were located entirely to the south of the property line. Tree 13 was the only tree growing along the property line (Figure 37). All other trees were growing entirely to the north of the property line. I repeated the aforementioned methods of appraisal for Tree 13 by itself to appraise the loss to Tree 13 alone. I leave my conclusion of loss to Tree 13 as separate additional information in this report.

Cost of cure and diminution of market value could not be itemized meaningfully for the one tree, so I did not use these methods. Cost of replacement was used to calculate the difference in depreciation and percentage canopy loss. I believe these two methods overstate the amount of loss because they assume that the hedge should be replaced as-is. This assumption is not supported because Tree 13 was poorly located in a narrow space between Tree 12, Tree 14, and the wall. With limited growing space and high competition from its neighbors, replacement of this tree is not warranted. Therefore, percentage canopy loss and difference in depreciation may be considered upper bounds for this appraisal.

Cost of repair for this one tree understates the damage done because it does not include an amortized amount of fertilization that the other trees in the hedge would receive according to the complete repair plan presented in this report. Therefore, cost of repair may be considered a lower bound for the appraisal of Tree 13. With only an upper bound of $1280 and lower bound of $160 to anchor my opinion, I used my professional discretion to select $800 as the appraised damage for Tree 13.

Conclusion

I appraised the damage to the hedge as a result of the pruning event along the southern property line to be $7,680. Tree 13 had an itemized appraised damage of $800. Regardless of the amount of loss ultimately decided between the parties involved, the best course of action for managing the hedge is to allow the existing hedge to regrow and return to its former density over the next four years.

Limits of Assignment

My investigation was limited to above-ground observations of the subject trees and the surrounding site. My investigation was based solely upon my site inspection on March 8, 2017 and any information provided to me. All of the information provided to me regarding the history of the project and the trees was assumed to be true. If any information is found to be false, the conclusions in this report may be invalidated.

This report is not a risk assessment. My expertise in this matter is limited to arboriculture, and this report is not intended to be legal advice. I do not guarantee the safety, health, or condition of the subject trees. There is no warranty or guarantee, expressed or implied, that problems or deficiencies in the subject trees may not arise in the future.

Arborists are tree specialists who use their knowledge, education, training, and experience to examine trees, recommend measures to enhance the beauty and health of trees, and attempt to reduce the risk of living trees. Clients may choose to accept or disregard the recommendations of the arborist, or to seek additional advice.

Arborists cannot detect every condition that could possibly lead to structural failure of a tree. Trees are living organisms that fail in ways we do not fully understand. Conditions are often hidden within trees and below ground. Arborists cannot guarantee that a tree will be healthy or safe under all circumstances, or for a specified period of time. Likewise, remedial treatments, like any medicine, cannot be guaranteed.

Trees can be managed, but they cannot be controlled. To live near trees is to accept some degree of risk. The only way to eliminate all risk associated with trees is to eliminate all trees.

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Appraisal Calculations

Tree	Species	Circ Ft	Circ In	Circ Ft	Circ In	Circ Tot 1	Circ Tot 2	DBH1	DBH2	TA 1	TA 2	Total Trunk Area
1	Syzygium australe	3	9			45''	''	14''	''	161 sq in	sq in	161 sq in
2	Syzygium australe					''	''	11''	''	95 sq in	sq in	95 sq in
3	Syzygium australe		5.5			6''	''	2''	''	2 sq in	sq in	2 sq in
4	Syzygium australe	1	6	1	7	18''	19''	6''	6''	26 sq in	29 sq in	55 sq in
5	Syzygium australe		8			8''	''	3''	''	5 sq in	sq in	5 sq in
6	Syzygium australe	2	4			28''	''	9''	''	62 sq in	sq in	62 sq in
7	Syzygium australe	2	3			27''	''	9''	''	58 sq in	sq in	58 sq in
8	Syzygium australe	1	1			13''	''	4''	''	13 sq in	sq in	13 sq in
9	Syzygium australe	2	4			28''	''	9''	''	62 sq in	sq in	62 sq in
10	Syzygium australe	1	11	1	8	23''	20''	7''	6''	42 sq in	32 sq in	74 sq in
11	Syzygium australe	2	6			30''	''	10''	''	72 sq in	sq in	72 sq in
12	Syzygium australe	1	7			19''	''	6''	''	29 sq in	sq in	29 sq in
13	Syzygium australe					''	''	12''	''	113 sq in	sq in	113 sq in
14	Syzygium australe	1	4			16''	''	5''	''	20 sq in	sq in	20 sq in
15	Syzygium australe					''	''	14''	''	154 sq in	sq in	154 sq in
16	Syzygium australe					''	''	4''	''	13 sq in	sq in	13 sq in
17	Ficus microcarpa	1	6			18''	''	6''	''	26 sq in	sq in	26 sq in
18	Syzygium australe	1	9			21''	''	7''	''	35 sq in	sq in	35 sq in
19	Syzygium australe					''	''	11''	''	95 sq in	sq in	95 sq in
20	Syzygium australe	4	6			54''	''	17''	''	232 sq in	sq in	232 sq in
21	Syzygium australe					''	''	4''	''	13 sq in	sq in	13 sq in
22	Syzygium australe	3	5			41''	''	13''	6''	134 sq in	28 sq in	162 sq in
23	Ficus microcarpa		8.5			9''	''	3''	''	6 sq in	sq in	6 sq in
24	Ficus microcarpa	1	3			15''	''	5''	''	18 sq in	sq in	18 sq in
25	Ficus microcarpa	1	4			16''	''	5''	''	20 sq in	sq in	20 sq in

Figure 2: Trunk measurements for each of the subject trees and their respective calculated Trunk Area.

NO DEPRECIATION

								Location						Condition						
Tree	Latin Name	Common Name	Trunk Area	Unit Cost	Base Cost	Species	Site	Cont	Place	Total Loc	RS	RH	TS	TH	SS	SH	BH	FH	Total Cond	Cost Solution
1	Syzygium australe	Brush Cherry	161 sq in	$84.00	$13,536.13	100%	100%	100%	100%	100%	4	4	4	4	4	4	4	4	100%	$13,500.00
2	Syzygium australe	Brush Cherry	95 sq in	$84.00	$7,982.79	100%	100%	100%	100%	100%	4	4	4	4	4	4	4	4	100%	$8,000.00
3	Syzygium australe	Brush Cherry	2 sq in	$84.00	$202.21	100%	100%	100%	100%	100%	4	4	4	4	4	4	4	4	100%	$200.00
4	Syzygium australe	Brush Cherry	55 sq in	$84.00	$4,578.89	100%	100%	100%	100%	100%	4	4	4	4	4	4	4	4	100%	$4,600.00
5	Syzygium australe	Brush Cherry	5 sq in	$84.00	$427.81	100%	100%	100%	100%	100%	4	4	4	4	4	4	4	4	100%	$400.00
6	Syzygium australe	Brush Cherry	62 sq in	$84.00	$5,240.65	100%	100%	100%	100%	100%	4	4	4	4	4	4	4	4	100%	$5,200.00
7	Syzygium australe	Brush Cherry	58 sq in	$84.00	$4,873.01	100%	100%	100%	100%	100%	4	4	4	4	4	4	4	4	100%	$4,900.00
8	Syzygium australe	Brush Cherry	13 sq in	$84.00	$1,129.68	100%	100%	100%	100%	100%	4	4	4	4	4	4	4	4	100%	$1,100.00
9	Syzygium australe	Brush Cherry	62 sq in	$84.00	$5,240.65	100%	100%	100%	100%	100%	4	4	4	4	4	4	4	4	100%	$5,200.00
10	Syzygium australe	Brush Cherry	74 sq in	$84.00	$6,209.91	100%	100%	100%	100%	100%	4	4	4	4	4	4	4	4	100%	$6,200.00
11	Syzygium australe	Brush Cherry	72 sq in	$84.00	$6,016.06	100%	100%	100%	100%	100%	4	4	4	4	4	4	4	4	100%	$6,000.00
12	Syzygium australe	Brush Cherry	29 sq in	$84.00	$2,413.11	100%	100%	100%	100%	100%	4	4	4	4	4	4	4	4	100%	$2,400.00
13	Syzygium australe	Brush Cherry	113 sq in	$84.00	$9,500.18	100%	100%	100%	100%	100%	4	4	4	4	4	4	4	4	100%	$9,500.00
14	Syzygium australe	Brush Cherry	20 sq in	$84.00	$1,711.23	100%	100%	100%	100%	100%	4	4	4	4	4	4	4	4	100%	$1,700.00
15	Syzygium australe	Brush Cherry	154 sq in	$84.00	$12,930.80	100%	100%	100%	100%	100%	4	4	4	4	4	4	4	4	100%	$12,900.00
16	Syzygium australe	Brush Cherry	13 sq in	$84.00	$1,055.58	100%	100%	100%	100%	100%	4	4	4	4	4	4	4	4	100%	$1,100.00
17	Ficus microcarpa	Indian Laurel Fig	26 sq in	$62.00	$1,598.55	100%	100%	100%	100%	100%	4	4	4	4	4	4	4	4	100%	$1,600.00
18	Syzygium australe	Brush Cherry	35 sq in	$84.00	$2,947.87	100%	100%	100%	100%	100%	4	4	4	4	4	4	4	4	100%	$2,900.00
19	Syzygium australe	Brush Cherry	95 sq in	$84.00	$7,982.79	100%	100%	100%	100%	100%	4	4	4	4	4	4	4	4	100%	$8,000.00
20	Syzygium australe	Brush Cherry	232 sq in	$84.00	$19,492.02	100%	100%	100%	100%	100%	4	4	4	4	4	4	4	4	100%	$19,500.00
21	Syzygium australe	Brush Cherry	13 sq in	$84.00	$1,055.58	100%	100%	100%	100%	100%	4	4	4	4	4	4	4	4	100%	$1,100.00
22	Syzygium australe	Brush Cherry	162 sq in	$84.00	$13,611.70	100%	100%	100%	100%	100%	4	4	4	4	4	4	4	4	100%	$13,600.00
23	Ficus microcarpa	Indian Laurel Fig	6 sq in	$62.00	$356.47	100%	100%	100%	100%	100%	4	4	4	4	4	4	4	4	100%	$400.00
24	Ficus microcarpa	Indian Laurel Fig	18 sq in	$62.00	$1,110.11	100%	100%	100%	100%	100%	4	4	4	4	4	4	4	4	100%	$1,100.00
25	Ficus microcarpa	Indian Laurel Fig	20 sq in	$62.00	$1,263.05	100%	100%	100%	100%	100%	4	4	4	4	4	4	4	4	100%	$1,300.00
																			Total	**$132,400.00**

Figure 3: Replacement Cost, Trunk Formula Method without depreciation. This reflects the cost of replacing the hedge with notionally ideal trees that are the same size as the existing trees.

DEPRECIATED FOR PRE-LOSS SPECIES, LOCATION, AND CONDITION

Tree	Latin Name	Common Name	Trunk Area	Unit Cost	Base Cost	Species	Location				Condition									
							Site	Cont	Place	Total Loc	RS	RH	TS	TH	SS	SH	BH	FH	Total Cond	Cost Solution
1	Syzygium australe	Brush Cherry	161 sq in	$84.00	$13,536.13	50%	80%	80%	90%	83%	3	4	3	4	3	4	4	4	91%	$5,100.00
2	Syzygium australe	Brush Cherry	95 sq in	$84.00	$7,982.79	50%	80%	80%	90%	83%	3	4	4	4	4	4	4	4	97%	$3,200.00
3	Syzygium australe	Brush Cherry	2 sq in	$84.00	$202.21	50%	80%	80%	90%	83%	3	4	3	4	4	4	4	4	94%	$100.00
4	Syzygium australe	Brush Cherry	55 sq in	$84.00	$4,578.89	50%	80%	80%	90%	83%	3	4	3	4	4	4	4	4	94%	$1,800.00
5	Syzygium australe	Brush Cherry	5 sq in	$84.00	$427.81	50%	80%	80%	90%	83%	3	4	4	4	4	4	4	4	97%	$200.00
6	Syzygium australe	Brush Cherry	62 sq in	$84.00	$5,240.65	50%	80%	80%	90%	83%	3	4	3	4	3	4	4	4	91%	$2,000.00
7	Syzygium australe	Brush Cherry	58 sq in	$84.00	$4,873.01	50%	80%	80%	90%	83%	3	4	4	4	3	4	4	4	94%	$1,900.00
8	Syzygium australe	Brush Cherry	13 sq in	$84.00	$1,129.68	50%	80%	80%	90%	83%	3	4	4	4	4	4	4	4	97%	$500.00
9	Syzygium australe	Brush Cherry	62 sq in	$84.00	$5,240.65	50%	80%	80%	90%	83%	3	4	4	4	4	4	4	4	97%	$2,100.00
10	Syzygium australe	Brush Cherry	74 sq in	$84.00	$6,209.91	50%	80%	80%	90%	83%	3	4	3	4	3	4	4	4	91%	$2,300.00
11	Syzygium australe	Brush Cherry	72 sq in	$84.00	$6,016.06	50%	80%	80%	90%	83%	3	4	4	4	4	4	4	4	97%	$2,400.00
12	Syzygium australe	Brush Cherry	29 sq in	$84.00	$2,413.11	50%	80%	80%	90%	83%	3	4	4	4	4	4	4	4	97%	$1,000.00
13	Syzygium australe	Brush Cherry	113 sq in	$84.00	$9,500.18	50%	80%	80%	50%	70%	3	4	4	4	4	4	4	4	97%	$3,200.00
14	Syzygium australe	Brush Cherry	20 sq in	$84.00	$1,711.23	50%	80%	80%	60%	73%	3	4	3	4	3	4	4	4	91%	$600.00
15	Syzygium australe	Brush Cherry	154 sq in	$84.00	$12,930.80	50%	80%	80%	90%	83%	3	4	2	3	4	4	4	4	88%	$4,700.00
16	Syzygium australe	Brush Cherry	13 sq in	$84.00	$1,055.58	50%	80%	80%	90%	83%	3	4	4	4	4	4	4	4	97%	$400.00
17	Ficus microcarpa	Indian Laurel Fig	26 sq in	$62.00	$1,598.55	90%	80%	80%	90%	83%	3	4	4	4	4	4	4	4	97%	$1,200.00
18	Syzygium australe	Brush Cherry	35 sq in	$84.00	$2,947.87	50%	80%	80%	90%	83%	3	4	4	4	3	4	4	4	94%	$1,200.00
19	Syzygium australe	Brush Cherry	95 sq in	$84.00	$7,982.79	50%	80%	80%	50%	70%	3	4	3	4	4	4	4	4	94%	$2,600.00
20	Syzygium australe	Brush Cherry	232 sq in	$84.00	$19,492.02	50%	80%	80%	90%	83%	3	4	4	4	4	4	4	4	97%	$7,900.00
21	Syzygium australe	Brush Cherry	13 sq in	$84.00	$1,055.58	50%	80%	80%	90%	83%	3	4	4	4	4	4	4	4	97%	$400.00
22	Syzygium australe	Brush Cherry	162 sq in	$84.00	$13,611.70	50%	80%	80%	50%	70%	3	4	4	4	4	4	4	4	97%	$4,600.00
23	Ficus microcarpa	Indian Laurel Fig	6 sq in	$62.00	$356.47	90%	80%	80%	90%	83%	3	4	4	4	4	4	4	4	97%	$300.00
24	Ficus microcarpa	Indian Laurel Fig	18 sq in	$62.00	$1,110.11	90%	80%	80%	90%	83%	3	4	4	4	4	4	4	4	97%	$800.00
25	Ficus microcarpa	Indian Laurel Fig	20 sq in	$62.00	$1,263.05	90%	80%	80%	90%	83%	3	4	4	4	4	4	4	4	97%	$900.00
																			Total	$51,400.00

Figure 4: Replacement Cost, Trunk Formula Method with depreciation. This reflects the cost of replacing the hedge with trees that are identical copies of the existing trees, depreciated to reflect their pre-damage condition.

DEPRECIATED FOR POST-LOSS SPECIES, LOCATION, AND CONDITION

Tree	Latin Name	Base Cost	Species	Total Loc	Condition: RS	RH	TS	TH	SS	SH	BH	FH	Total Cond	Cost Solution	Notes
1	Syzygium australe	$13,536.13	50%	83%	3	4	3	3	2	4	4	4	84%	$4,760.00	spike wounds in trunk, side pruning, branches still healthy
2	Syzygium australe	$7,982.79	50%	83%	3	4	1	1	1	1	1	1	41%	$1,350.00	topped @ 5.5', still alive
3	Syzygium australe	$202.21	50%	83%	3	4	1	1	1	1	1	1	41%	$30.00	topped @ 5.5'; still alive
4	Syzygium australe	$4,578.89	50%	83%	3	4	3	4	2	2	2	2	69%	$1,310.00	side pruning, topping cuts, branch health limited by aggressive pruning
5	Syzygium australe	$427.81	50%	83%	3	4	1	1	1	1	1	1	41%	$70.00	topped @ 5.5', still alive
6	Syzygium australe	$5,240.65	50%	83%	3	4	3	3	2	2	2	2	66%	$1,430.00	spike wounds in trunk, side pruning, topping cuts, branch health limited by aggressive pruning
7	Syzygium australe	$4,873.01	50%	83%	3	4	4	4	2	2	2	2	72%	$1,460.00	side pruning, topping cuts, branch health limited by aggressive pruning
8	Syzygium australe	$1,129.68	50%	83%	3	4	1	1	1	1	1	1	41%	$190.00	topped @ 5.5', still alive
9	Syzygium australe	$5,240.65	50%	83%	3	4	4	4	2	2	2	2	72%	$1,570.00	side pruning, topping cuts, branch health limited by aggressive pruning
10	Syzygium australe	$6,209.91	50%	83%	3	4	3	4	2	2	2	2	69%	$1,780.00	side pruning, topping cuts, branch health limited by aggressive pruning
11	Syzygium australe	$6,016.06	50%	83%	3	4	4	4	2	2	2	2	72%	$1,800.00	side pruning, topping cuts, branch health limited by aggressive pruning
12	Syzygium australe	$2,413.11	50%	83%	3	4	4	4	2	2	2	2	72%	$720.00	side pruning, topping cuts, branch health limited by aggressive pruning
13	Syzygium australe	$9,500.18	50%	70%	3	4	1	1	1	1	1	1	41%	$1,350.00	topped @ 5.5', still alive
14	Syzygium australe	$1,711.23	50%	73%	3	4	1	1	1	1	1	1	41%	$250.00	topped @ 5.5', still alive
15	Syzygium australe	$12,930.80	50%	83%	3	4	1	1	1	1	1	1	41%	$2,190.00	topped @ 5.5', still alive
16	Syzygium australe	$1,055.58	50%	83%	3	4	1	1	1	1	1	1	41%	$180.00	topped @ 5.5', still alive
17	Ficus microcarpa	$1,598.55	90%	83%	3	4	4	4	2	3	3	3	81%	$970.00	side pruned, trunk intact, tree will have no trouble recovering
18	Syzygium australe	$2,947.87	50%	83%	3	4	4	4	2	2	2	2	72%	$880.00	side pruning, topping cuts, branch health limited by aggressive pruning, trunk cracks are normal (not spiked)
19	Syzygium australe	$7,982.79	50%	70%	3	4	1	1	1	1	1	1	41%	$1,140.00	topped @ 5.5', still alive
20	Syzygium australe	$19,492.02	50%	83%	3	4	2	2	2	2	2	2	59%	$4,820.00	spike wounds in trunk, major co-dominant stem removed, topping cuts, branch health limited by aggressive pruning
21	Syzygium australe	$1,055.58	50%	83%	3	4	1	1	1	1	1	1	41%	$180.00	topped @ 5.5', still alive
22	Syzygium australe	$11,256.00	50%	70%	3	4	2	2	2	2	2	2	59%	$2,340.00	spike wounds in trunk, major co-dominant stem removed, topping cuts, branch health limited by aggressive pruning
23	Ficus microcarpa	$356.47	90%	83%	3	4	2	2	1	1	1	1	47%	$130.00	severe side pruning, tree still has vigor
24	Ficus microcarpa	$1,110.11	90%	83%	3	4	2	2	1	1	1	1	47%	$390.00	severe side pruning, tree still has vigor
25	Ficus microcarpa	$1,263.05	90%	83%	3	4	2	2	1	1	1	1	47%	$440.00	severe side pruning, tree still has vigor
													Total	**$31,730.00**	

Figure 5: Trunk Formula method appraisal of the subject trees in their post-loss condition.

COST OF CURE, replacement of functional benefits, NO DEPRECIATION		
Replace named trees with optimally planted hedge to restore screening and privacy		
		Notes
Wall Length	125 ft	Length of wall along named trees
Unit Cost of Replacement	$62/sq in	Ficus microcarpa is less-expensive alternative for hedge
Spacing of Trees	8 ft	
DBH of given Mature Tree	8 in	
Number of Trees Necessary	16	
Each Tree:		
Trunk Area	50 sq in	
Unit Cost	$62/sq in	
Basic Cost	$3,116.46	
Species Rating	100%	
Site	100%	
Contribution	100%	
Placement	100%	
Location Rating	100%	
Condition Rating	100%	
Cost Solution	$3,100.00	
Total Hedge:	$49,600.00	

Figure 6: Cost of cure, no depreciation. This reflects the cost of replacing the hedge with notionally ideal trees that are functionally equivalent to the existing trees.

COST OF CURE, replacement of functional benefits, DEPRECIATED		
Replace named trees with optimally planted hedge to restore screening and privacy		
		Notes
Wall Length	125 ft	Length of wall along named trees
Unit Cost of Replacement	$62/sq in	Ficus microcarpa is less-expensive alternative for hedge
Spacing of Trees	8 ft	
DBH of given Mature Tree	8 in	
Number of Trees Necessary	16	
Each Tree:		
Trunk Area	50 sq in	
Unit Cost	$62/sq in	
Basic Cost	$3,116.46	
Species Rating	50%	rating of existing species
Site	80%	
Contribution	80%	
Placement	90%	
Location Rating	83%	
Condition Rating	95%	Avg of pre-loss condition
Cost Solution	$1,200.00	
Total Hedge:	$19,200.00	

Figure 7: Cost of cure with depreciation. This reflects the cost of replacing the hedge with trees that are functionally equivalent to the existing trees, reduced for the pre-loss condition of the existing hedge.

COST OF REPAIR - Itemized

Hr Rate $64

Item	Tree	Task	Ye	Time (h	Cost	Notes
1	2	Selective scaffold pruning	1	0.25	$ 16.00	choose existing shoots to be new scaffold
2	2	Selective scaffold pruning	2	0.5	$ 32.00	direct growth to fill opening in canopy
3	2	Selective scaffold pruning	3	0.5	$ 32.00	final restoration of scaffold
4	3	Selective scaffold pruning	1	0.25	$ 16.00	choose existing shoots to be new scaffold
5	3	Selective scaffold pruning	2	0.25	$ 16.00	final restoration of scaffold
6	5	Selective scaffold pruning	1	0.25	$ 16.00	choose existing shoots to be new scaffold
7	5	Selective scaffold pruning	2	0.5	$ 32.00	direct growth to fill opening in canopy
8	5	Selective scaffold pruning	3	0.5	$ 32.00	final restoration of scaffold
9	8	Selective scaffold pruning	1	0.5	$ 32.00	choose existing shoots to be new scaffold
10	8	Selective scaffold pruning	2	0.5	$ 32.00	direct growth to fill opening in canopy
11	8	Selective scaffold pruning	3	0.75	$ 48.00	continue scaffold training
12	8	Selective scaffold pruning	4	1	$ 64.00	final restoration of scaffold
13	13	Selective scaffold pruning	1	0.25	$ 16.00	choose existing shoots to be new scaffold
14	13	Selective scaffold pruning	2	0.5	$ 32.00	direct growth to fill opening in canopy
15	13	Selective scaffold pruning	3	0.75	$ 48.00	continue scaffold training
16	13	Selective scaffold pruning	4	1	$ 64.00	final restoration of scaffold
17	14	Selective scaffold pruning	1	0.5	$ 32.00	direct growth to fill opening in canopy
18	14	Selective scaffold pruning	2	1	$ 64.00	final restoration of scaffold
19	15	Selective scaffold pruning	1	0.5	$ 32.00	choose existing shoots to be new scaffold
20	15	Selective scaffold pruning	2	0.5	$ 32.00	direct growth to fill opening in canopy
21	15	Selective scaffold pruning	3	0.75	$ 48.00	continue scaffold training
22	15	Selective scaffold pruning	4	1	$ 64.00	final restoration of scaffold
23	16	Selective scaffold pruning	1	0.5	$ 32.00	choose existing shoots to be new scaffold
24	16	Selective scaffold pruning	2	0.5	$ 32.00	direct growth to fill opening in canopy
25	16	Selective scaffold pruning	3	0.75	$ 48.00	final restoration of scaffold
26	19	Selective scaffold pruning	1	0.25	$ 16.00	choose existing shoots to be new scaffold
27	19	Selective scaffold pruning	2	0.5	$ 32.00	direct growth to fill opening in canopy
28	19	Selective scaffold pruning	3	0.75	$ 48.00	final restoration of scaffold
29	20	Selective scaffold pruning	1	0.25	$ 16.00	choose existing shoots to be new scaffold
30	20	Selective scaffold pruning	2	0.5	$ 32.00	direct growth to fill opening in canopy
31	20	Selective scaffold pruning	3	0.75	$ 48.00	final restoration of scaffold
32	21	Selective scaffold pruning	1	0.25	$ 16.00	choose existing shoots to be new scaffold
33	21	Selective scaffold pruning	2	0.5	$ 32.00	final restoration of scaffold
34	22	Selective scaffold pruning	1	0.25	$ 16.00	choose existing shoots to be new scaffold
35	22	Selective scaffold pruning	2	0.5	$ 32.00	direct growth to fill opening in canopy
36	22	Selective scaffold pruning	3	0.75	$ 48.00	final restoration of scaffold
37	All	Spring Fertilization	1		$ 500.00	Improve vegetative growth with nitrogen
38	All	Spring Fertilization	2		$ 500.00	Improve vegetative growth with nitrogen
39	All	Spring Fertilization	3		$ 500.00	Improve vegetative growth with nitrogen
39	All	Spring Fertilization	3		$ 500.00	Improve vegetative growth with nitrogen

Figure 8: Itemized list of repair actions recommended for the hedge listed by tree number, year number, estimated labor hours, and cost.

COST OF REPAIR - Summary by Tree and by Year

Tree	Cost
All	$2,000.00
1	$ -
2	$ 80.00
3	$ 32.00
4	$ -
5	$ 80.00
6	$ -
7	$ -
8	$ 176.00
9	$ -
10	$ -
11	$ -
12	$ -
13	$ 160.00
14	$ 96.00
15	$ 176.00
16	$ 112.00
17	$ -
18	$ -
19	$ 96.00
20	$ 96.00
21	$ 48.00
22	$ 96.00
23	$ -
24	$ -
25	$ -
Total	$3,248.00

Year	Cost
1	$ 756.00
2	$ 900.00
3	$ 900.00
4	$ 692.00
Total	$3,248.00

Figure 9: Summary of the cost of repair tasks, listed by individual tree and by year.

PERCENTAGE CONTRIBUTION - Hedonic Regression				
Value of Property	$ 4,404,880.50		**Source**	**Value of Property**
Landscape contribution %	6%		Realtor.com	$ 1,786,925.00
Landscape contribution $	$ 264,292.83		Chase.com	$ 3,661,000.00
			eAppraisal	$ 4,369,074.00
South Hedge	**20%**		BofA	$ 4,440,687.00
North Hedge	20%		Zillow	$ 4,524,766.00
West Hedge	20%		Redfin	$ 5,043,514.00
Trees	15%			
Shrubs and plants	15%			
Hardscape and other	10%			
South Hedge contribution $	$ 52,858.57			
Damge to south hedge	40%			
Property value diminution	$ 21,143.43			

Figure 10: Percentage contribution, hedonic regression reflects the contributory market value of the hedge by calculating its percentage contribution to the value of the property as a whole. Six property value estimation sources are listed as well as the subjective allocation of landscape value among the landscape components. This method is only intended to be a test of reasonableness for the cost approach, and the result of this method should not be used as the final appraised value of the loss.

Summary of Methods

Approach	Method	Amount	Notes
Cost	Cost of replacement, no depreciation	$132,400.00	Replace entire hedge with an equal number of new, notionally ideal trees of an identical size
Cost	Cost of replacement, with depreciation	$ 51,400.00	Replace entire hedge with an equal number of new trees; reduced for the pre-loss condition of hedge
Cost	Cost of cure, no depreciation	$ 49,600.00	Replace with minimum number of trees to restore functional benefits of hedge with notionally ideal trees
Cost	Cost of cure, with depreciation	$ 19,200.00	Replace with minimum number of trees to restore functional benefits of hedge; reduced to pre-loss condition of hedge
Cost	Partial loss, difference in depreciation	$ 19,670.00	Difference between pre- and post-loss condition of hedge by adjusting depreciation ratings
Cost	Partial loss, % canopy loss of replacement cost	$ 20,560.00	40% canopy of named trees lost; calculated as a percentage of cost of replacement with depreciation
Cost	Partial loss, % canopy loss of cost of cure	$ 7,680.00	40% canopy of named trees lost; calculated as a percentage of cost of cure with depreciation
Cost	Cost of repair	$ 3,248.00	Work necessary to return guide new growth to partially or fully restore functional benefits of hedge
Market	Percentage contribution, hedonic regression	$ 21,143.43	Real estate market value diminution as percentage of landscape contribution

Summary of Methods - TREE 13 ONLY

Approach	Method	Amount	Notes
Cost	Cost of replacement, no depreciation	$ 9,500.00	Replace entire hedge with an equal number of new, notionally ideal trees of an identical size
Cost	Cost of replacement, with depreciation	$ 3,200.00	Replace entire hedge with an equal number of new trees; reduced for the pre-loss condition of hedge
Cost	Cost of cure, no depreciation	N/A	Cannot be itemized meaningfully for the one tree
Cost	Cost of cure, with depreciation	N/A	Cannot be itemized meaningfully for the one tree
Cost	Partial loss, difference in depreciation	$ 1,850.00	Difference between pre- and post-loss condition of hedge by adjusting depreciation ratings
Cost	Partial loss, % canopy loss of replacement cost	$ 1,280.00	40% canopy of named trees lost; calculated as a percentage of cost of replacement with depreciation
Cost	Partial loss, % canopy loss of cost of cure	N/A	Cannot be itemized meaningfully for the one tree
Cost	Cost of repair	$ 160.00	Work necessary to return guide new growth to partially or fully restore functional benefits of hedge
Market	Percentage contribution, hedonic regression	N/A	Cannot be itemized meaningfully for the one tree

Figure 11: Summary of the appraisal methods used and their respective outputs for all 25 subject trees and Tree 13 only.

Site Photos

Figure 12: Looking south at Tree 1. This tree was side-trimmed, but it will likely recover its former density without any repair work.

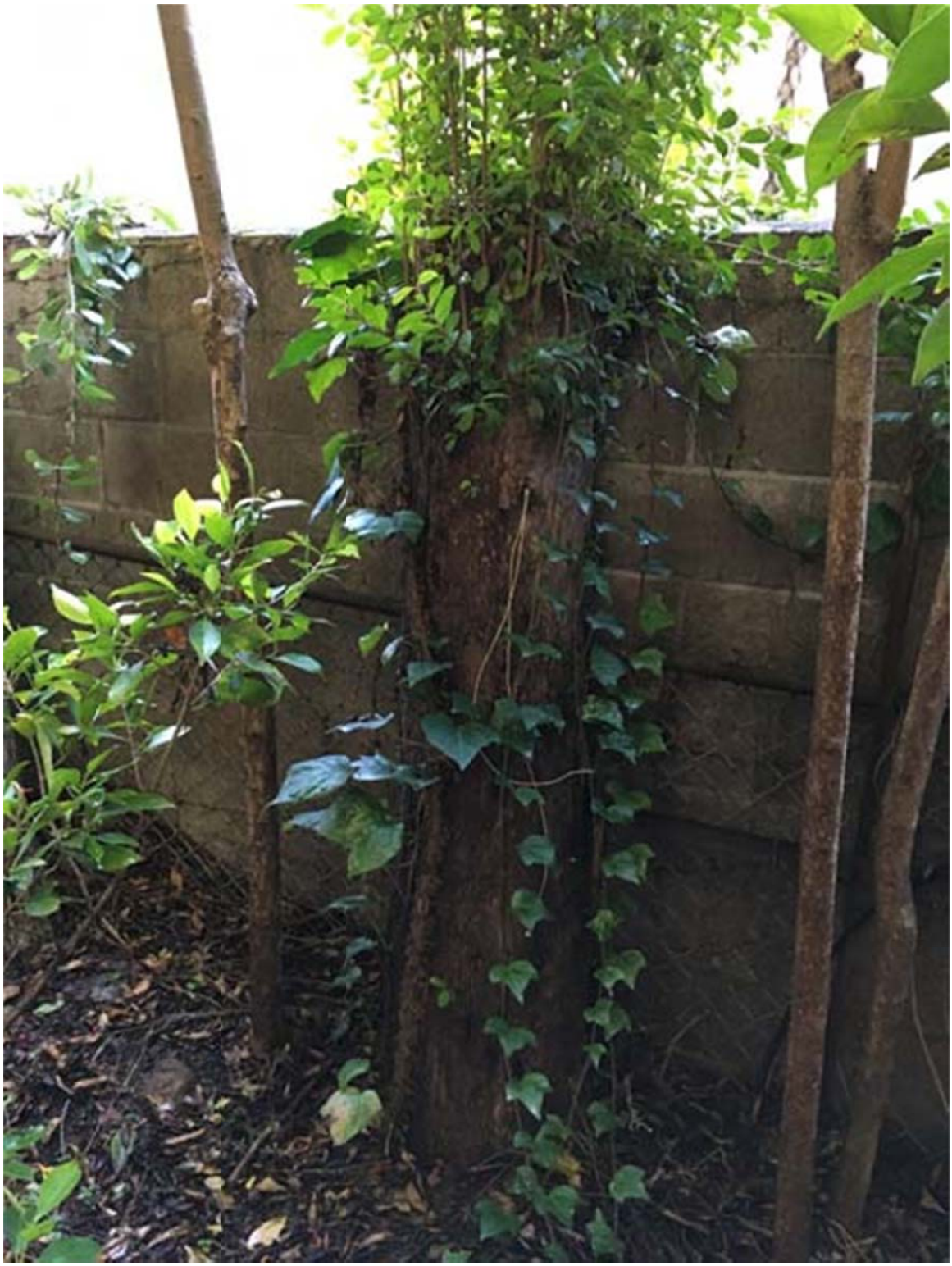

Figure 13: Looking south at Tree 2. This tree was topped at a height of 5.5 feet. It is still alive and some of its benefits can be restored within the context of the hedge as a whole.

Figure 14: Looking south at Tree 3. This tree was topped at a height of 5.5 feet. It is still alive and most of its benefits can be restored within the context of the hedge as a whole.

Figure 15: Looking southwest at Tree 4. This tree was side-trimmed, but it will likely recover its former density without any repair work.

Figure 16: Looking south at Tree 5. This tree was topped at a height of 5.5 feet. It is still alive and most of its benefits can be restored within the context of the hedge as a whole.

Figure 17: Looking southwest at Tree 6. This tree was side-trimmed, but it will likely recover its former density without any repair work.

Figure 18: Looking southwest at Tree 7. This tree was side-trimmed, but it will likely recover its former density without any repair work.

Figure 19: Looking south at Tree 8. This tree was topped at a height of 5.5 feet. It is still alive and most of its benefits can be restored within the context of the hedge as a whole.

Figure 20: Looking south at Tree 9. This tree was side-trimmed, but it will likely recover its former density without any repair work.

Figure 21: Looking south at Tree 10. This multi-stem tree was side-trimmed, but it will likely recover its former density without any repair work.

Figure 22: Looking west at Tree 11. This tree was side-trimmed, but it will likely recover its former density without any repair work.

Figure 23: Looking south at Tree 12. This tree was side-trimmed, but it will likely recover its former density without any repair work.

Figure 24: Looking south at Tree 13 (center, behind). This tree was topped at a height of 5.5 feet. It is still alive and some of its benefits can be restored within the context of the hedge as a whole. The trunk of this tree was growing partially on both sides of the property line shown in the survey I was provided.

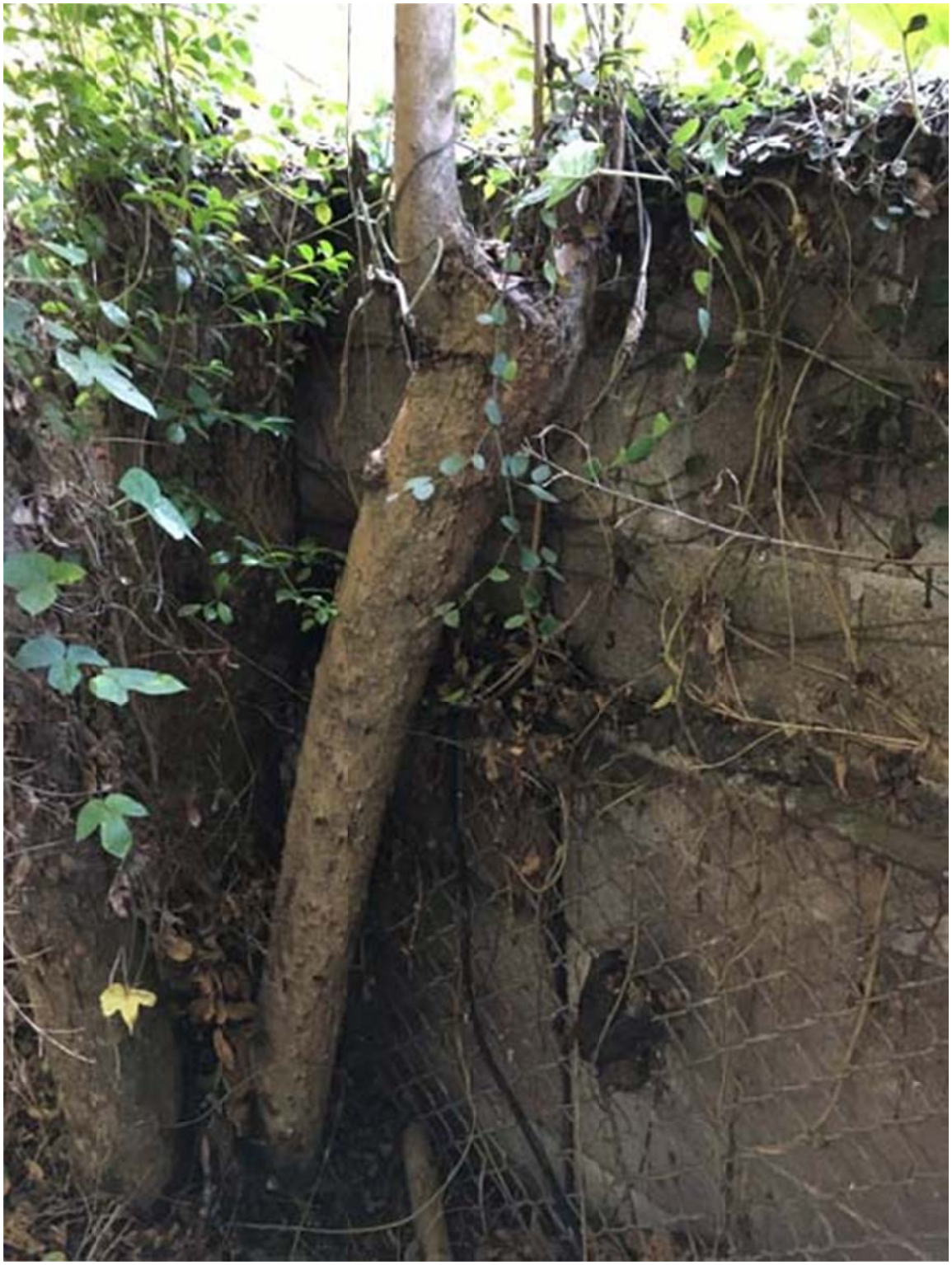

Figure 25: Looking southeast at Tree 14. This tree was topped at a height of 5.5 feet. It is still alive and some of its benefits can be restored within the context of the hedge as a whole.

Figure 26: Looking southwest at Tree 15. This tree was topped at a height of 5.5 feet. It is still alive and some of its benefits can be restored within the context of the hedge as a whole. There is a large pre-existing cavity in the trunk.

Figure 27: Looking southeast at Tree 16. This tree was topped at a height of 5.5 feet. It is still alive and some of its benefits can be restored within the context of the hedge as a whole.

Figure 28: Looking west at Tree 17. This tree was side-trimmed, but it will likely recover its former density without any repair work.

Figure 29: Looking south at Tree 18. This tree was side-trimmed, but it will likely recover its former density without any repair work.

Figure 30: Looking south at Tree 19. This tree was topped at a height of 5.5 feet. It is still alive and some of its benefits can be restored within the context of the hedge as a whole.

Figure 31: Looking southwest at Tree 20. One of the trunks of this tree was topped at a height of 5.5 feet. The whole tree is still alive, and most of its benefits can be restored within the context of the hedge as a whole.

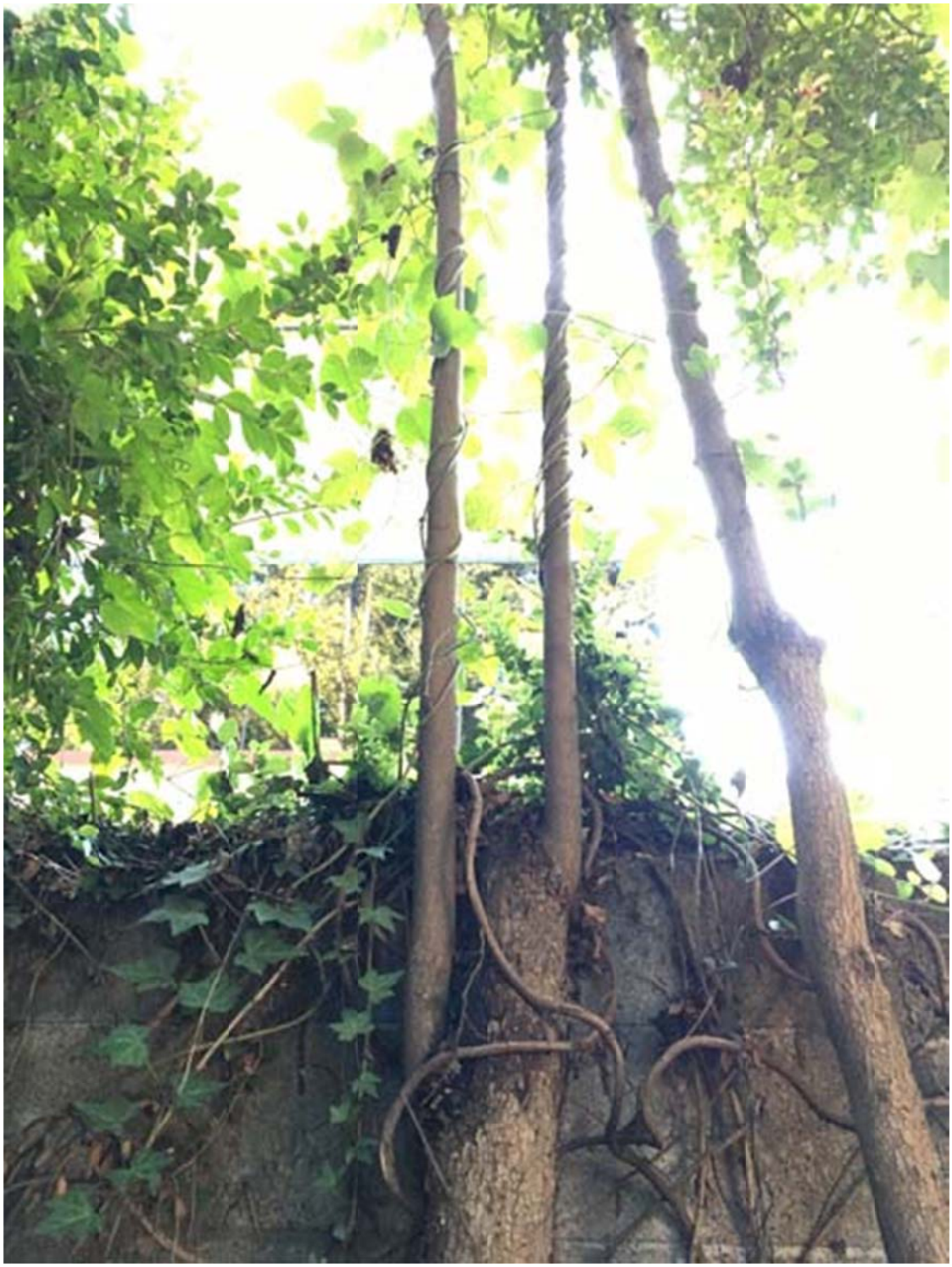

Figure 32: Looking south at Tree 21. This tree was topped at a height of 5.5 feet. It is still alive and most of its benefits can be restored within the context of the hedge as a whole.

Figure 33: Looking southwest at Tree 22. One of the trunks of this tree was topped at a height of 5.5 feet. The whole tree is still alive, and most of its benefits can be restored within the context of the hedge as a whole.

Figure 34: Looking south at Tree 23. This tree was side-trimmed and topped, but it will likely recover its former density without any repair work.

Figure 35: Looking southwest at Tree 24. This tree was side-trimmed and topped, but it will likely recover its former density without any repair work. An old lawn chair was leaning against the trunk.

Figure 36: Looking southeast at Tree 25. This tree was side-trimmed and topped, but it will likely recover its former density without any repair work.

Figure 37: Close up of Tree 13's proximity to the wall. The survey I was provided showed the true property line was 8 inches to the north of the wall. If this is true, then it partially passed through the trunk of Tree 13.

Figure 38: Spike wounds on Tree 1. Though unsightly, these wounds will eventually be compartmentalized and will have no effect on the long-term health of the tree.

Figure 39: Looking north at Tree 11. Many of the trees were side-trimmed, leaving an asymmetric canopy.

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Figure 41: Looking east along the north side of the subject trees. There is a second tier of the hedge (left) to the north of the subject trees that was not named in the other arborist's report or appraised in this report. These trees were not damaged, but they significantly contribute to the screening function of the hedge.

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Figure 43: Close up of a section of the north hedge along the driveway. This hedge of Brush Cherry has been historically maintained with topping and heading cuts that pre-dated the damage to the subject trees.

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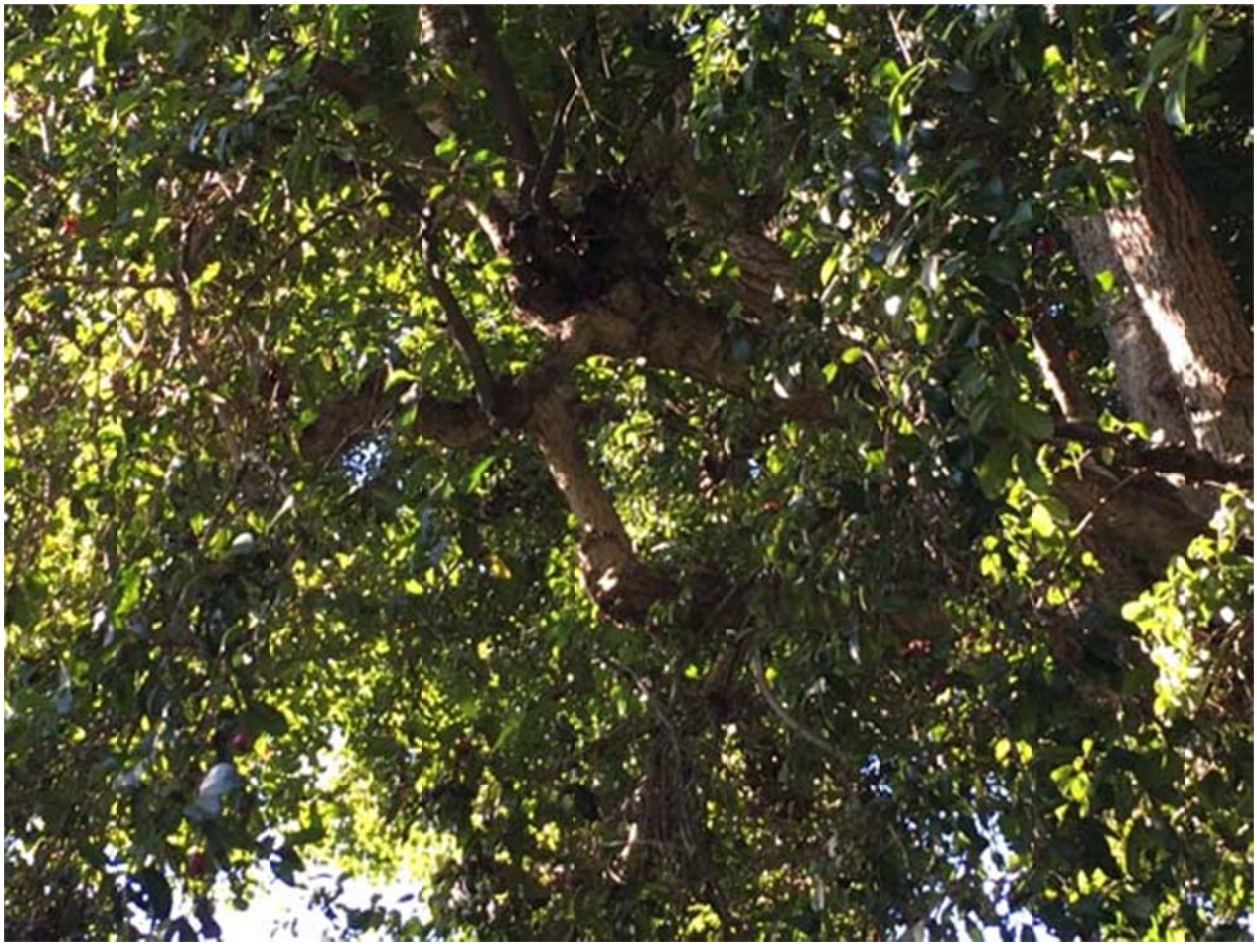

Figure 45: Close up of the canopy of a brush cherry tree growing next to the house on the subject property. This tree was historically maintained with topping and heading cuts that pre-dated the damage to the subject trees.

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Figure 47: Tree 2 photographed in February of 2016 by the other arborist (top) and by me on March 8, 2017 (bottom) showing vigorous response growth.

Figure 48: Tree 5 photographed in February of 2016 by the other arborist (top) and by me on March 8, 2017 (bottom) showing vigorous response growth.