Charlotte Historic District Commission	***Application for a Certificate of Appropriateness***
Staff Review	***Date: February 13, 2019***
HDC 2019-00003	***PID# 12305701***

LOCAL HISTORIC DISTRICT: Dilworth

PROPERTY ADDRESS: 601 Berkeley Avenue

SUMMARY OF REQUEST: New Construction

APPLICANT/OWNER: John Fryday

The application was continued from January for the following items:

1. Tree save plan for canopy trees on the property (rear yard Oak, front yard trees).
2. Address the coplanar dormers and/or appearance of a two-story house.
3. Indicate height of tallest historic building on the block.
4. Re-arrangement of three cluster windows on first and second story.
5. Provide window trim details for the wood shingle walls.
6. Alternate design detail for the pork chop eave returns.
7. Provide a study of the windows on the right side of the house.
8. Revised deck rail design.

Details of Proposed Request

Existing Conditions

The existing property is a corner lot with a one story single family house constructed in 1951. Lot dimensions are 65' wide in front, 55' wide in rear and 148' in length. There are three large mature trees on the property. The house is a one-story brick ranch style home with a hipped roof. A 365-day delay of demolition was approved by the HDC on May 9, 2018.

Proposal

The proposal is a hybrid New Construction/Addition project due to the zoning setback constraints on this lot and the active demolition approval for the property. The existing ridge height is 16'-3" and the proposed ridge height is 31'-1". Materials include brick to match existing, wood shake siding, wood trim and wood windows with Simulated True Divided Lights (STDL). The garage shown on the proposed site plan is not for approval at this time.

Note: The requested Zoning setback variance was approved by the ZBA on January 29, 2019.

Revised Proposal – February 13

1. Tree protection plan for the 54" oak in the rear yard.
2. Dormer design revised
3. Proposed ridge height is 24'
4. Provided ridge heights of comparable historic heights of houses in the surrounding area.
5. Modified window arrangement on front and right elevations
6. Provided window trim details
7. Changed eave return design

	All New Construction Projects Will be Evaluated for Compatibility by the Following Criteria		Page #
	Setback	in relationship to setback of immediate surroundings	6.2
	Spacing	the side distance from adjacent buildings as it relates to other buildings	6.3
	Orientation	the direction of the front of the building as it relates to other buildings in the district	6.4
	Massing	the relationship of the buildings various parts to each other	6.5
	Height and Width	the relationship to height and width of buildings in the project surroundings	6.6
	Scale	the relationship of the building to those around it and the human form	6.7
	Directional Expression	the vertical or horizontal proportions of the building as it relates to other buildings	6.8
	Foundations	the height of foundations as it relates to other buildings in project surroundings	6.9
	Roof Form and Materials	as it relates to other buildings in project surroundings	6.10
	Cornices and Trim	as it relates to the stylistic expression of the proposed building	6.11
	Doors and Windows	the placement, style and materials of these components	6.12
	Porches	as it relates to the stylistic expression of the proposed building and other buildings in the district.	6.14
	Materials	proper historic materials or approved substitutes	6.15
	Size	the relationship of the project to its site	6.2 & 3
	Rhythm	the relationship of windows, doors, recesses and projections	6.12
	Context	the overall relationship of the project to its surroundings.	6.1-16
	Landscaping	a tool to soften and blend the project with the district	8.1-11

All projects should use this summary checklist to ensure a submittal addresses all the new construction criteria.

Staff Recommendation

Staff has the following concerns with the proposal:

1. Rear porch rail design is not compliant.
2. Minor revisions may be reviewed by staff.

CHARLOTTE
HISTORIC DISTRICT COMMISSION
Established 1976

HDC-2019-00003

PID: 12305701

LOCAL HISTORIC DISTRICT: DILWORTH

PROPOSED PROJECT: ADDITION

Monday, January 7, 2019

601 BERKELEY AVENUE
EXISTING CONDITIONS

FRONT ELEVATION

RIGHT ELEVATION

REAR ELEVATION

LEFT ELEVATION

601 BERKELEY AVENUE

605 BERKELEY AVENUE

609 BERKELEY AVENUE

613 BERKELEY AVENUE

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ARCHITECTURE • INTERIOR DESIGN
118 East Kingston Avenue
Suite 20
Charlotte, NC 28203
Tel: 704-372-0001
Fax: 704-372-2517
www.fryday-doyne.com

PROJECT NAME:

MORRISON RESIDENCE
601 BERKELEY AVENUE
CHARLOTTE, NC 28203

DATE: 01/07/2019

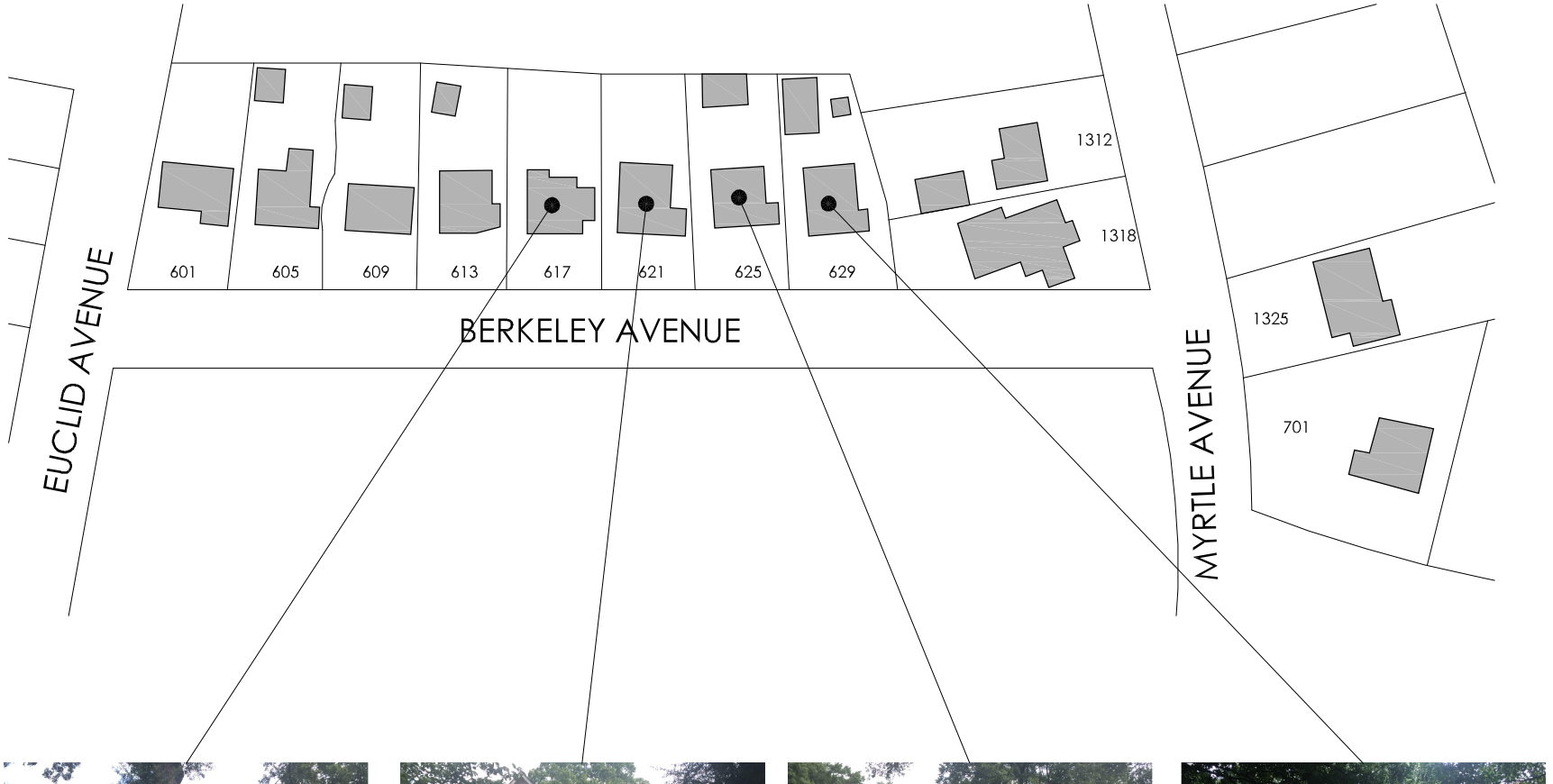
DRAWN BY: JCL

SHEET TITLE:

BERKELEY AVENUE RESIDENCE PHOTOS

SHEET NUMBER:

HDC - 2



617 BERKELEY AVENUE

621 BERKELEY AVENUE

625 BERKELEY AVENUE

629 BERKELEY AVENUE

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ARCHITECTURE • INTERIOR DESIGN
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PROJECT NAME:

MORRISON RESIDENCE
601 BERKELEY AVENUE
CHARLOTTE, NC 28203

DATE: 01/07/2019

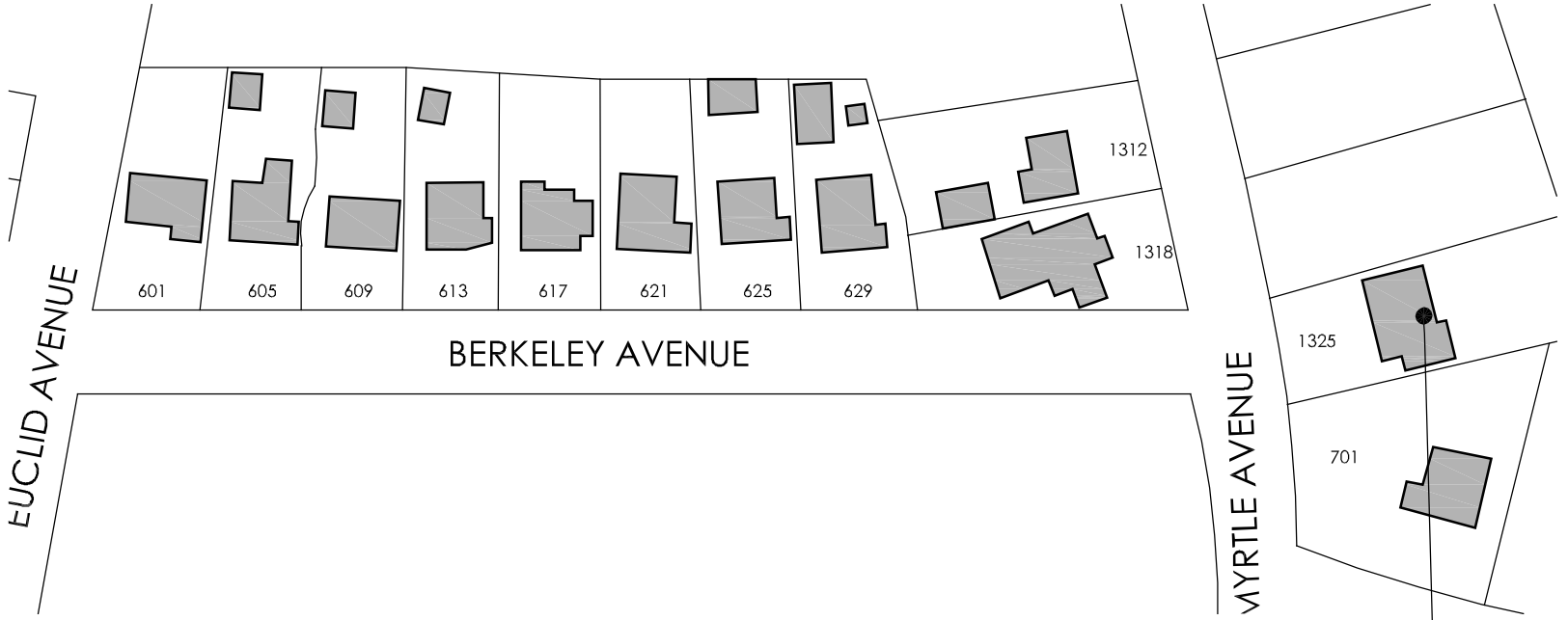
DRAWN BY: JCL

SHEET TITLE:

BERKELEY AVENUE RESIDENCE PHOTOS

SHEET NUMBER:

HDC - 3



ADDITIONAL DILWORTH HOMES

1325 MYRTLE AVENUE

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PROJECT NAME:

MORRISON RESIDENCE
601 BERKELEY AVENUE
CHARLOTTE, NC 28203

DATE: 01/07/2019

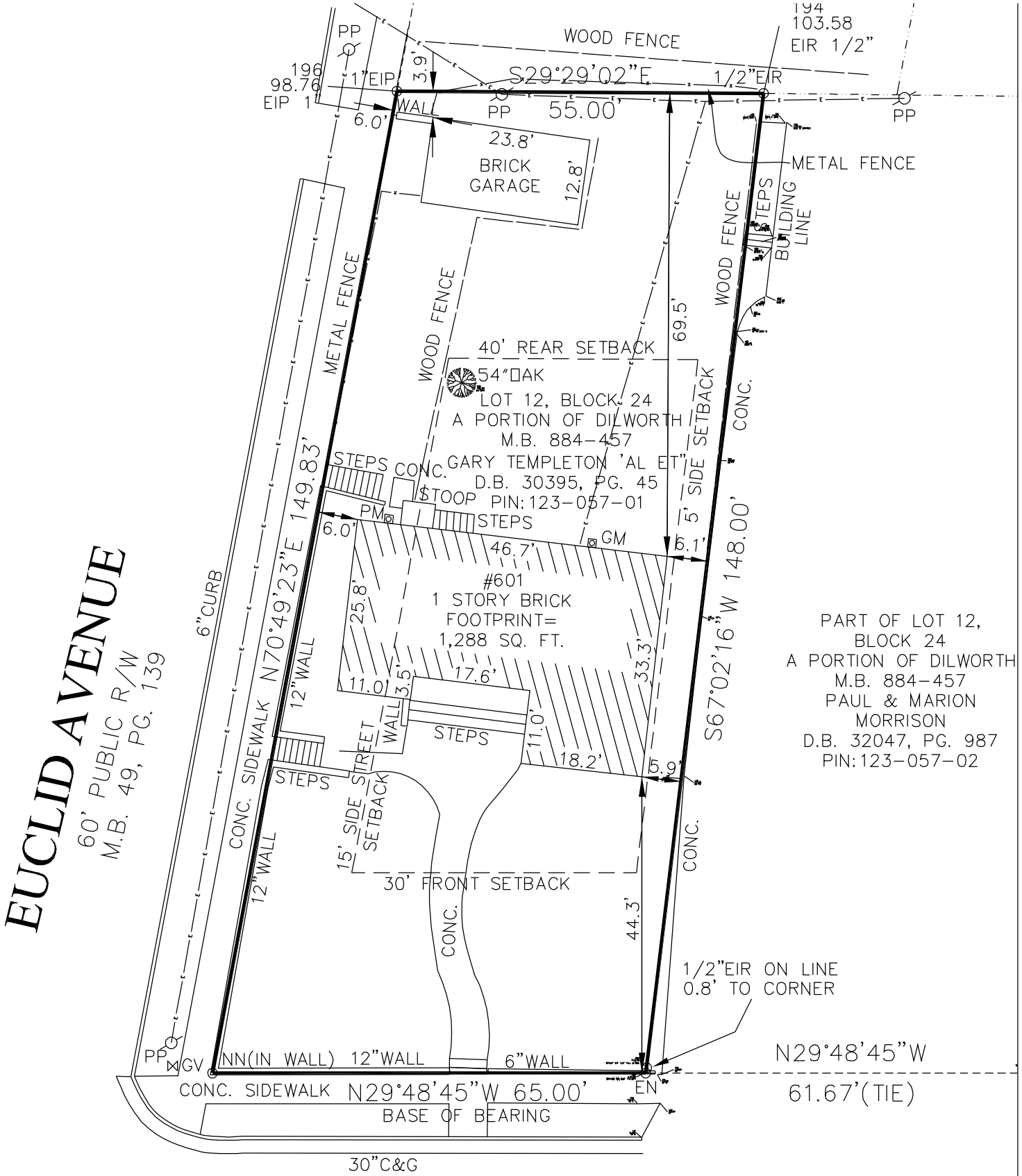
DRAWN BY: JCL

SHEET TITLE:

REFERENCE PHOTO

SHEET NUMBER:

HDC-4



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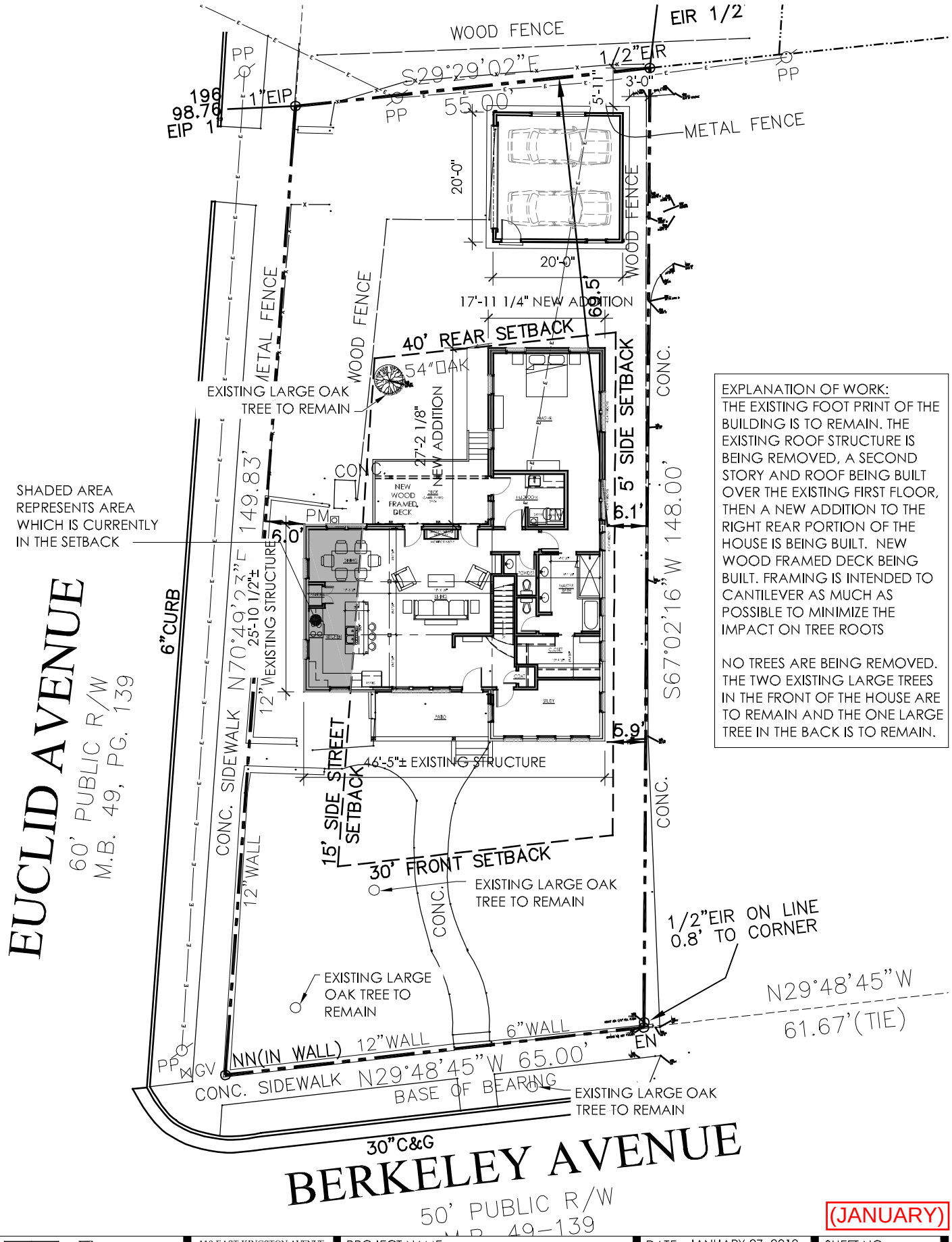
PROJECT NAME:
601 BERKELEY AVENUE,
EXISTING SITE SURVEY

DATE: JAN. 07, 2019
REVISION:
DETAIL:
DRAWN BY:

SHEET NO:
EX. SITE



EXPLANATION OF WORK:

THE EXISTING FOOT PRINT OF THE BUILDING IS TO REMAIN. THE EXISTING ROOF STRUCTURE IS BEING REMOVED, A SECOND STORY AND ROOF BEING BUILT OVER THE EXISTING FIRST FLOOR, THEN A NEW ADDITION TO THE RIGHT REAR PORTION OF THE HOUSE IS BEING BUILT. NEW WOOD FRAMED DECK BEING BUILT. FRAMING IS INTENDED TO CANTILEVER AS MUCH AS POSSIBLE TO MINIMIZE THE IMPACT ON TREE ROOTS

NO TREES ARE BEING REMOVED. THE TWO EXISTING LARGE TREES IN THE FRONT OF THE HOUSE ARE TO REMAIN AND THE ONE LARGE TREE IN THE BACK IS TO REMAIN.

(JANUARY)

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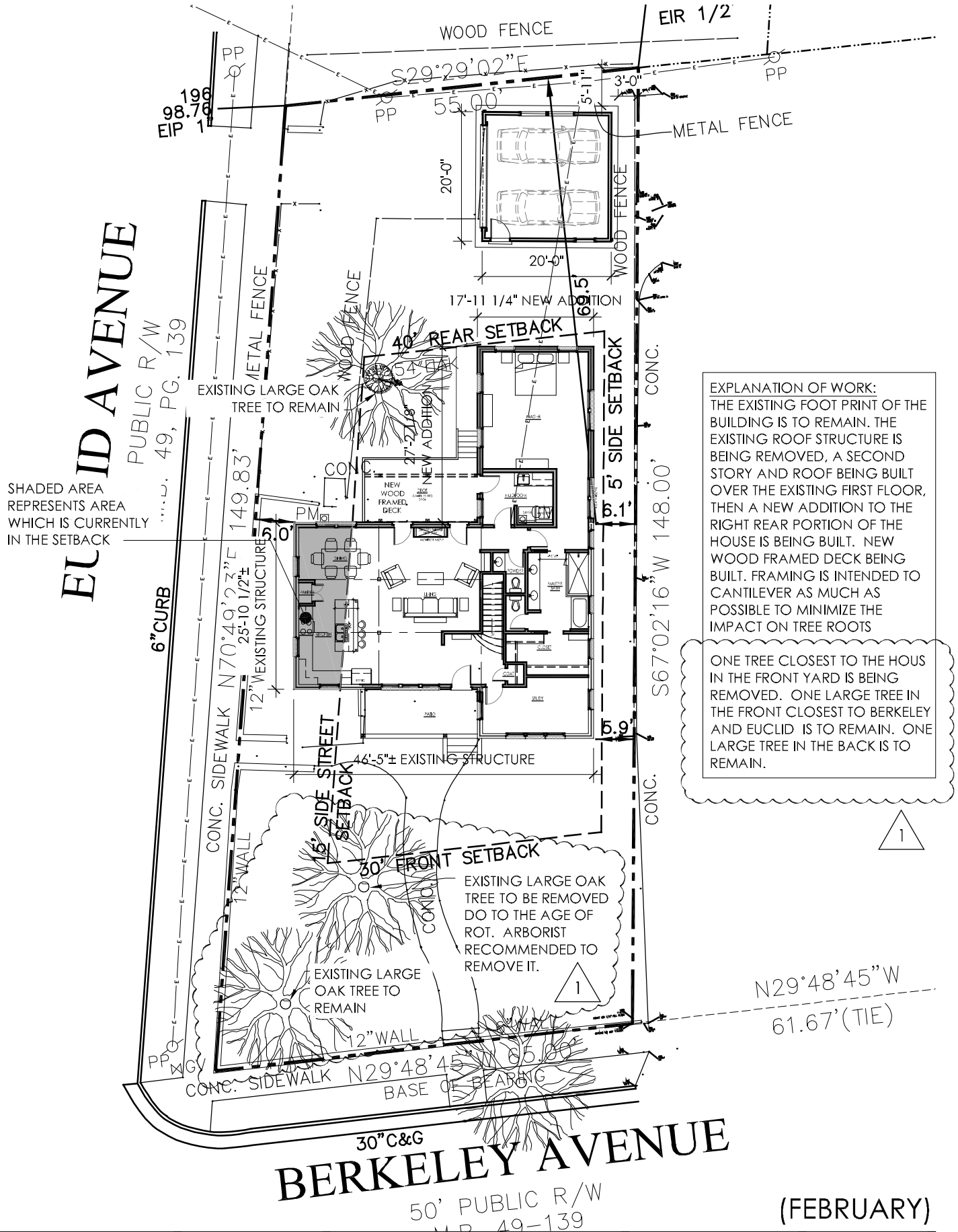
PROJECT NAME:
601 BERKELEY AVE
PROPOSED SITE PLAN

DATE: JANUARY 27, 2019
REVISION:
SCALE: 1" = 20'
DRAWN BY:

SHEET NO:
SITE PLAN



EXPLANATION OF WORK:

THE EXISTING FOOT PRINT OF THE BUILDING IS TO REMAIN. THE EXISTING ROOF STRUCTURE IS BEING REMOVED, A SECOND STORY AND ROOF BEING BUILT OVER THE EXISTING FIRST FLOOR, THEN A NEW ADDITION TO THE RIGHT REAR PORTION OF THE HOUSE IS BEING BUILT. NEW WOOD FRAMED DECK BEING BUILT. FRAMING IS INTENDED TO CANTILEVER AS MUCH AS POSSIBLE TO MINIMIZE THE IMPACT ON TREE ROOTS

ONE TREE CLOSEST TO THE HOUS IN THE FRONT YARD IS BEING REMOVED. ONE LARGE TREE IN THE FRONT CLOSEST TO BERKELEY AND EUCLID IS TO REMAIN. ONE LARGE TREE IN THE BACK IS TO REMAIN.

1

(FEBRUARY)

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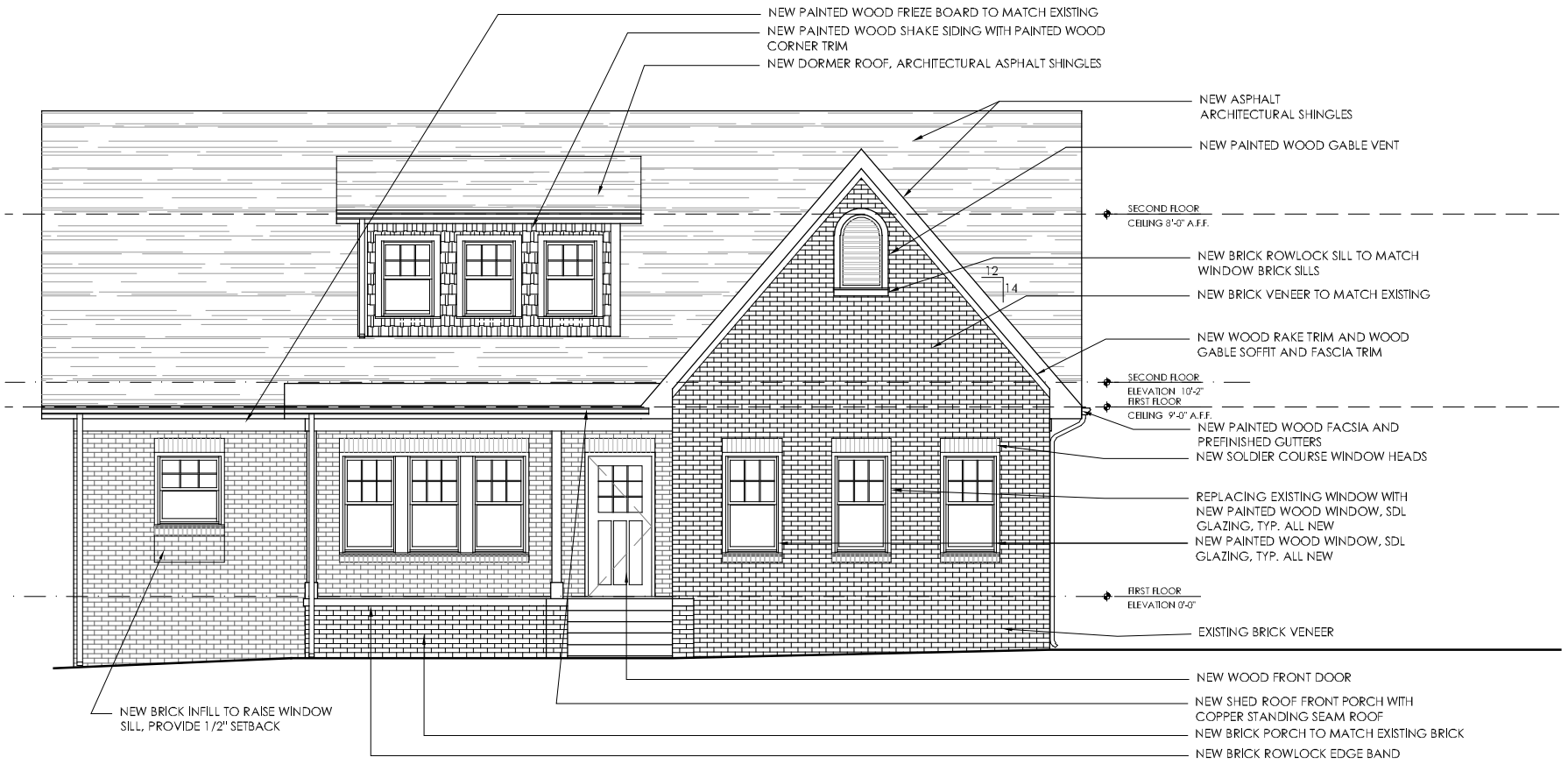
PROJECT NAME:
601 BERKELEY AVE
PROPOSED SITE PLAN

DATE: FEBRUARY 07, 2019
REVISION:
SCALE: 1" = 20'
DRAWN BY:

SHEET NO:
SITE PLAN
REVISED



SCALE: 1/8" = 1'-0"

FIRST REVIEW (JANUARY)

PROPOSED FRONT ELEVATION

01

DATE: JANUARY 07, 2019
REVISION:
DETAIL:
DRAWN BY:

SHEET NO: HDC-7

PROJECT NAME:
601 BERKELEY AVE,
CHARLOTTE, NC 28203

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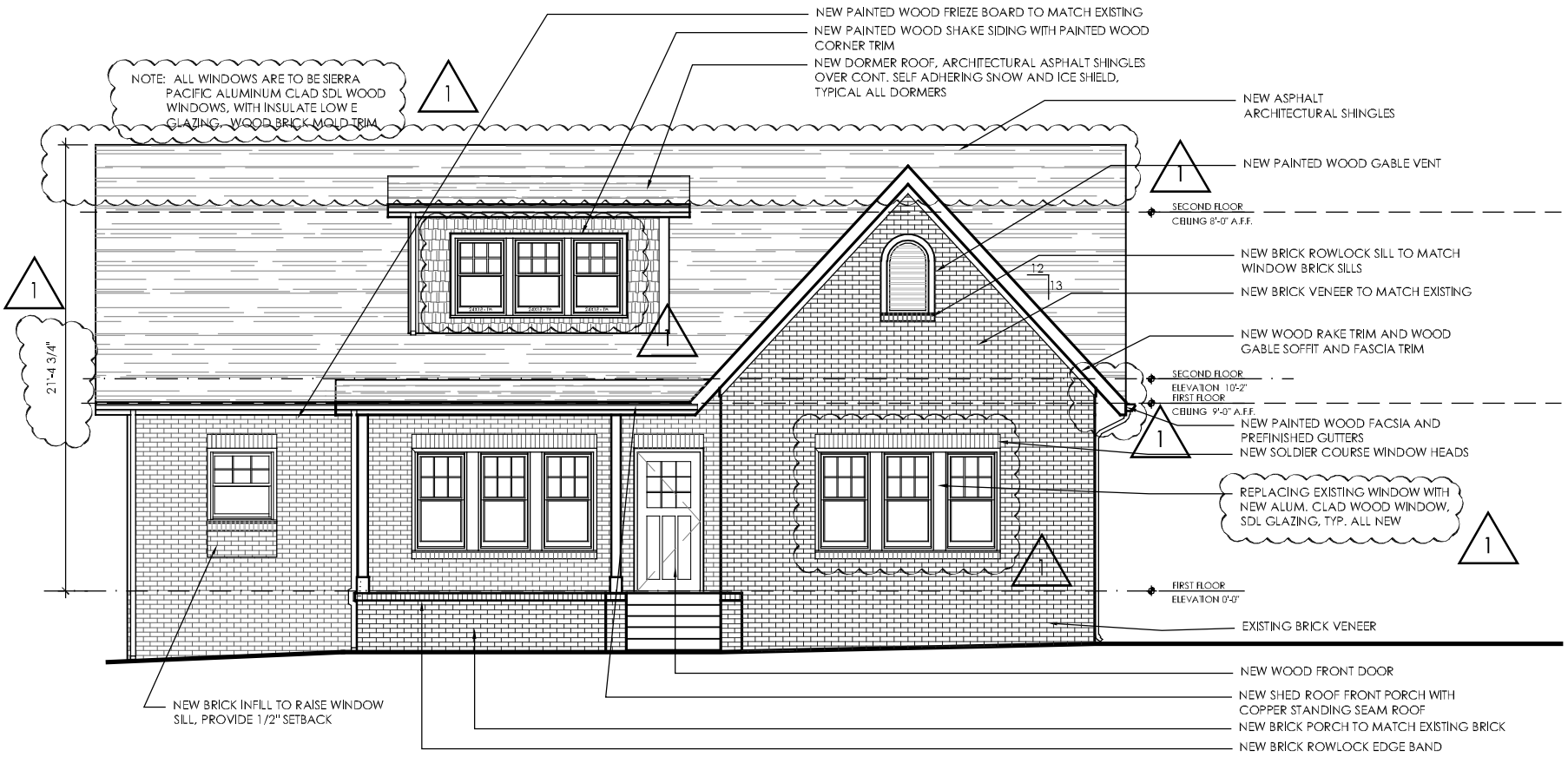

SCALE: 1/8" = 1'-0"

(FEBRUARY) REVISED PROPOSED FRONT ELEVATION | 01

SHEET NO: HDC-7.1

DATE: JANUARY 30, 2019
REVISION:
DETAIL:
DRAWN BY:

PROJECT NAME:
601 BERKELEY AVE,
CHARLOTTE, NC 28203

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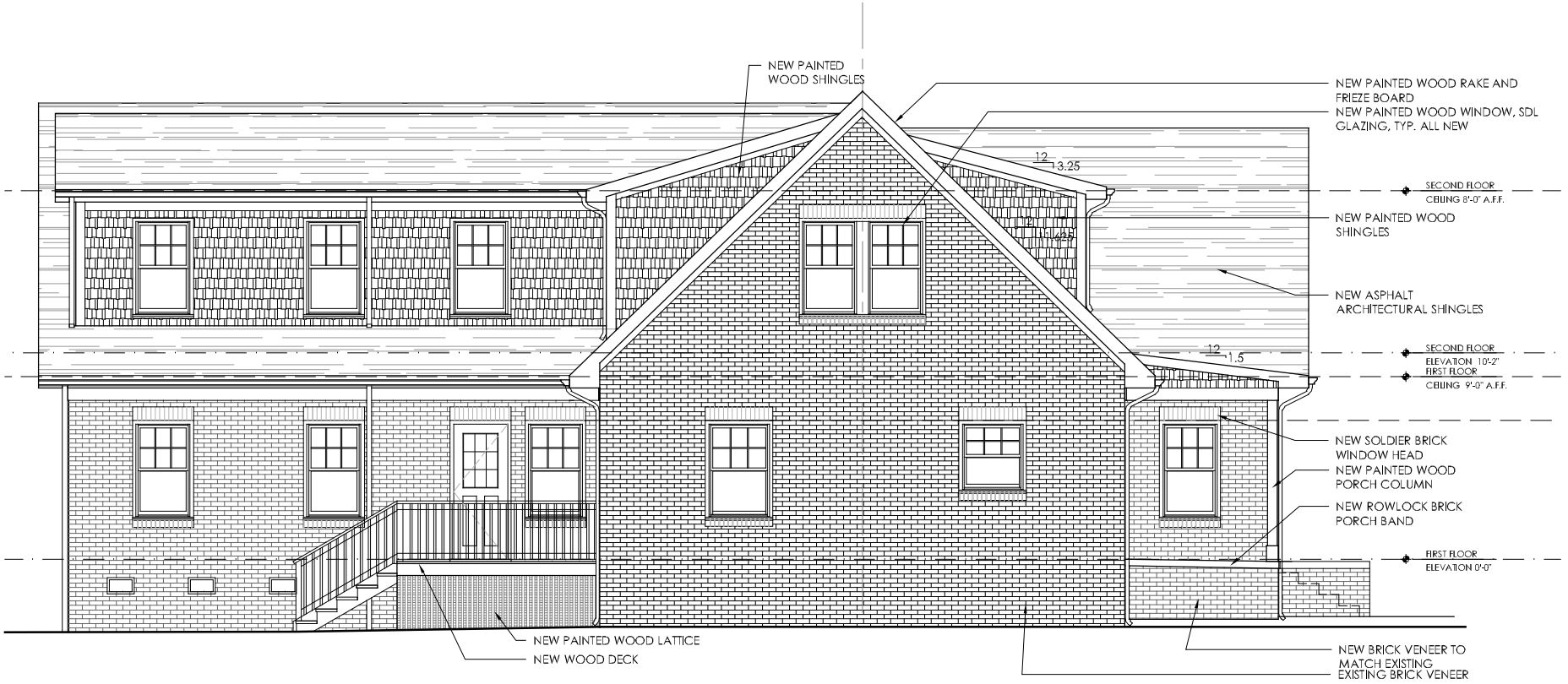
Fax: 704-372-2517
www.fryday-doyne.com



ALL NEW MATERIALS ARE AS INDICATED ON HDC-7

SCALE: 1/8" = 1'-0"

FIRST REVIEW (JANUARY)

PROPOSED LEFT ELEVATION 01

SHEET NO: HDC-8

DATE: JANUARY 07, 2019
REVISION:
DETAIL:
DRAWN BY:

PROJECT NAME:
601 BERKELEY AVE,
CHARLOTTE, NC 28203

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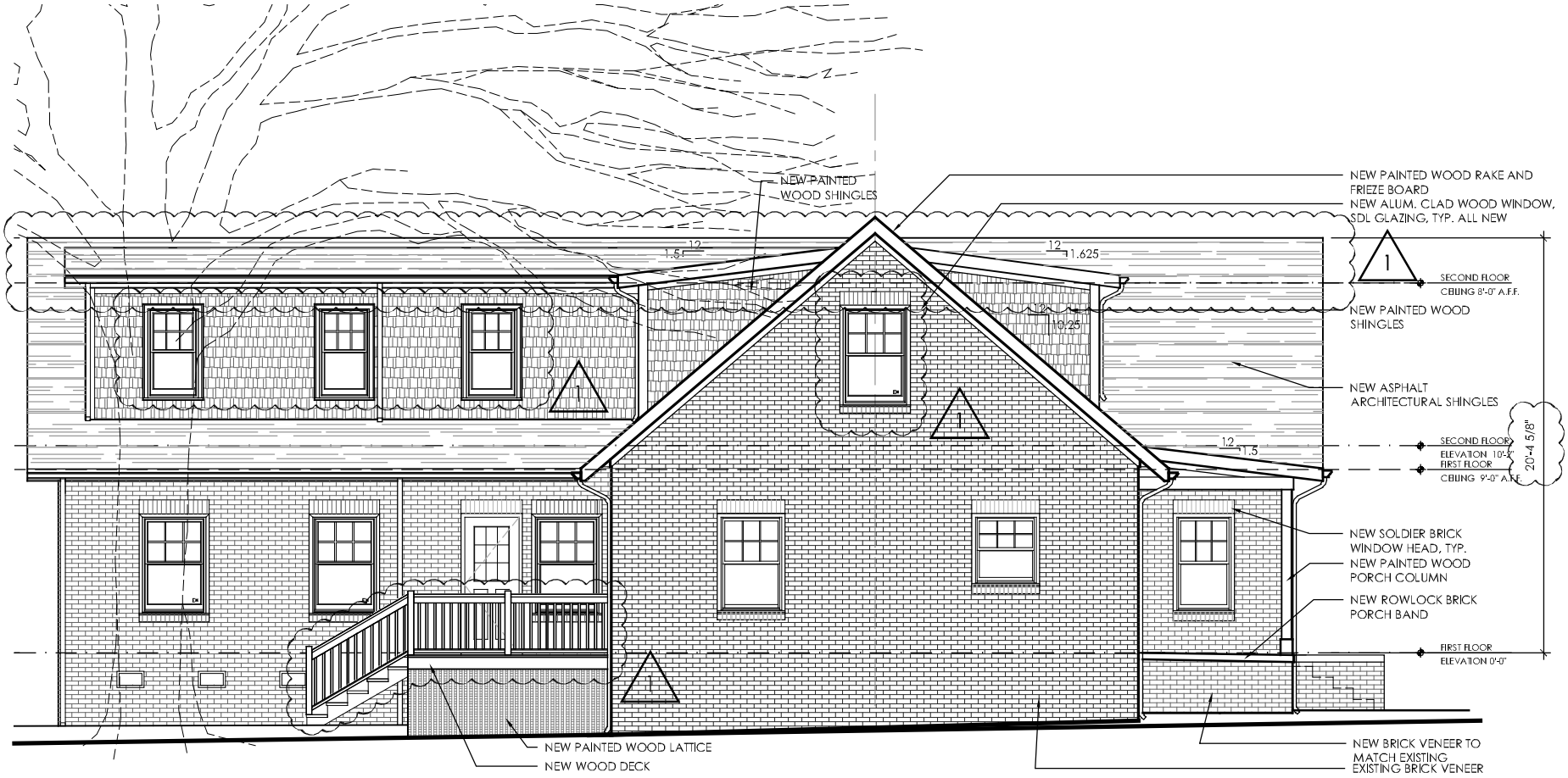

ALL NEW MATERIALS ARE AS INDICATED ON HDC-7.1

SCALE: 1/8" = 1'-0"

(FEBRUARY) REVISED PROPOSED LEFT ELEVATION | 01

SHEET NO: HDC-8.1

DATE: JANUARY 30, 2019
REVISION:
DETAIL:
DRAWN BY:

PROJECT NAME:
601 BERKELEY AVE,
CHARLOTTE, NC 28203

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SCALE: 1/8" = 1'-0"

FIRST REVIEW (JANUARY)

PROPOSED REAR ELEVATION

01

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PROJECT NAME:
601 BERKELEY AVE,
CHARLOTTE, NC 28203

DATE: NOVEMBER 30, 2018
REVISION:
DETAIL:
DRAWN BY:

SHEET NO:
HDC-9

ALL NEW MATERIALS ARE AS INDICATED ON HDC-7.1

SCALE: 1/8" = 1'-0"

(FEBRUARY) REVISED PROPOSED REAR ELEVATION | 01

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PROJECT NAME:
601 BERKELEY AVE,
CHARLOTTE, NC 28203

DATE: JANUARY 30, 2019
REVISION:
DETAIL:
DRAWN BY:

SHEET NO:
HDC-9.1

SCALE: 1/8" = 1'-0"

FIRST REVIEW (JANUARY)

PROPOSED RIGHT ELEVATION

01

PROJECT NAME:
601 BERKELEY AVE,
CHARLOTTE, NC 28203

DATE: JANUARY 07, 2019
REVISION:
DETAIL:
DRAWN BY:

SHEET NO:
HDC-10

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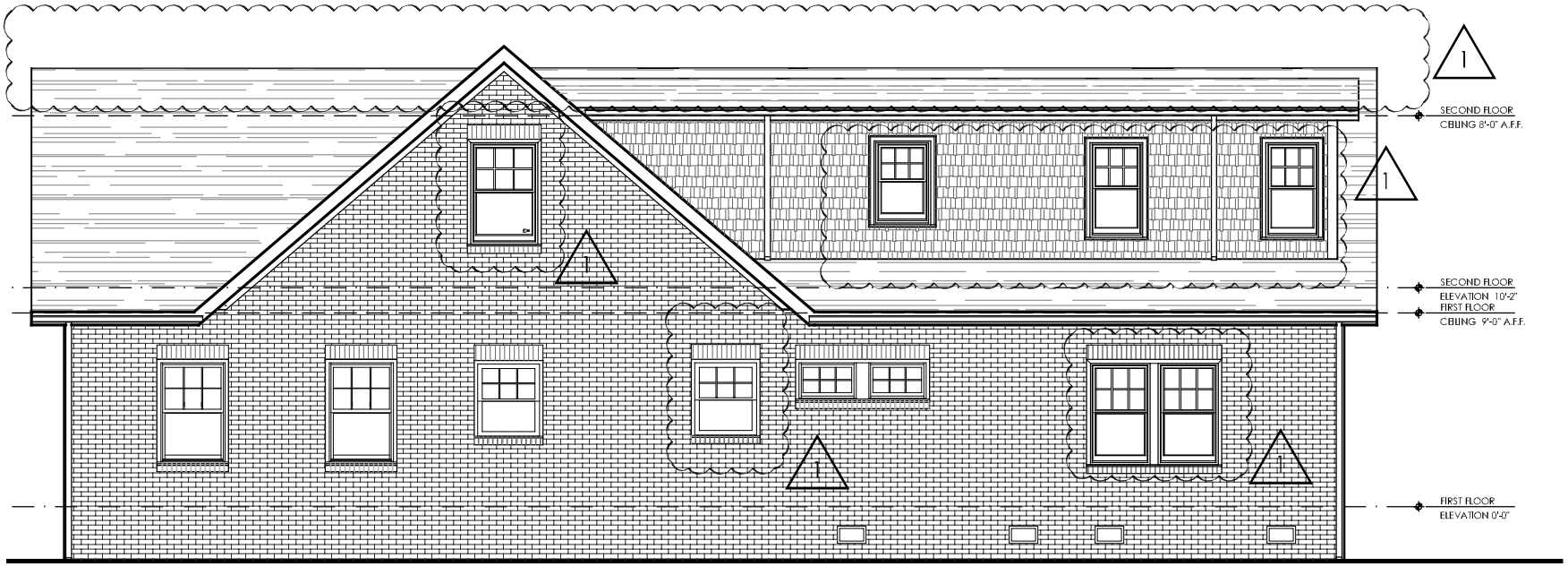

SCALE: 1/8" = 1'-0"

(FEBRUARY) REVISED PROPOSED RIGHT ELEVATION | 01

PROJECT NAME:
601 BERKELEY AVE,
CHARLOTTE, NC 28203

DATE: JANUARY 30, 2019
REVISION:
DETAIL:
DRAWN BY:

SHEET NO:
HDC-10.1

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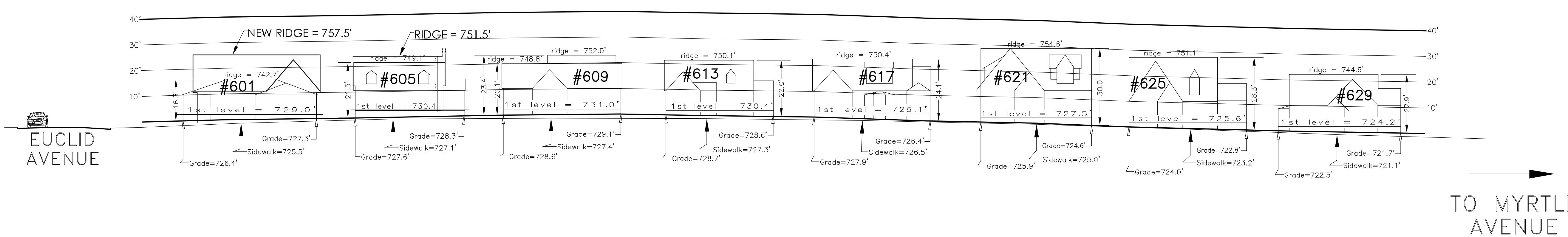


FIRST REVIEW (JANUARY)

FRYDAY & DOYNE
ARCHITECTURE · INTERIOR DESIGN

SEAL:

PROJECT NAME:
MORRISON RESIDENCE
605 BERKELEY AVENUE
CHARLOTTE, NC
28203

DATE, DATE ISSUED
REVISIONS:

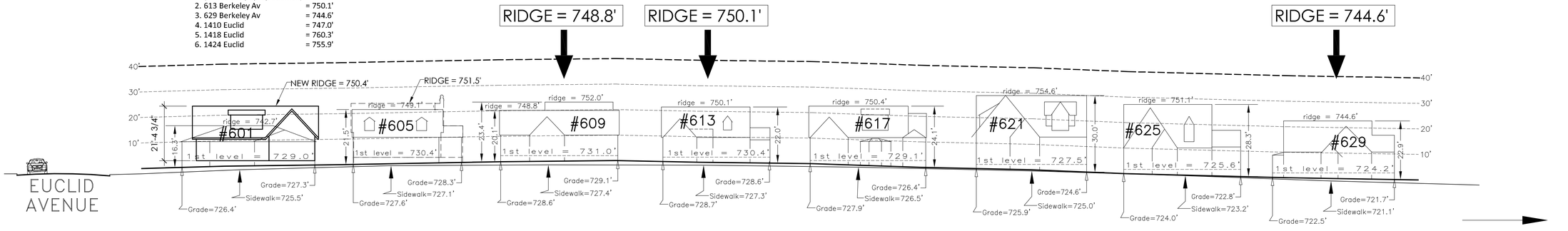
DRAWN BY:

SHEET TITLE:
BERKELEY AVENUE
SURVEY

SHEET NUMBER:
HDC-13

RIDGE HEIGHTS OF ORIGINAL HOUSES NEARBY:

1. 609 Berkeley (minus the pop-up addition) = 748.8'
2. 613 Berkeley Av = 750.1'
3. 629 Berkeley Av = 744.6'
4. 1410 Euclid = 747.0'
5. 1418 Euclid = 760.3'
6. 1424 Euclid = 755.9'



FRYDAY & DOYNE
ARCHITECTURAL ARTISTRY
ARCHITECTURE
INTERIOR DESIGN
110 East Kingsbridge Avenue
Charlotte, NC 28203
Suite 2A
Tel: 704-372-0691
Fax: 704-372-0311
www.fryday-doyne.com

SEAL:

PROJECT NAME:
MORRISON RESIDENCE
605 BERKELEY AVENUE
CHARLOTTE, NC
28203

DATE: JANUARY 30, 2019
REVISIONS:

DRAWN BY:

SHEET TITLE:
BERKELEY AVENUE SURVEY
REVISED

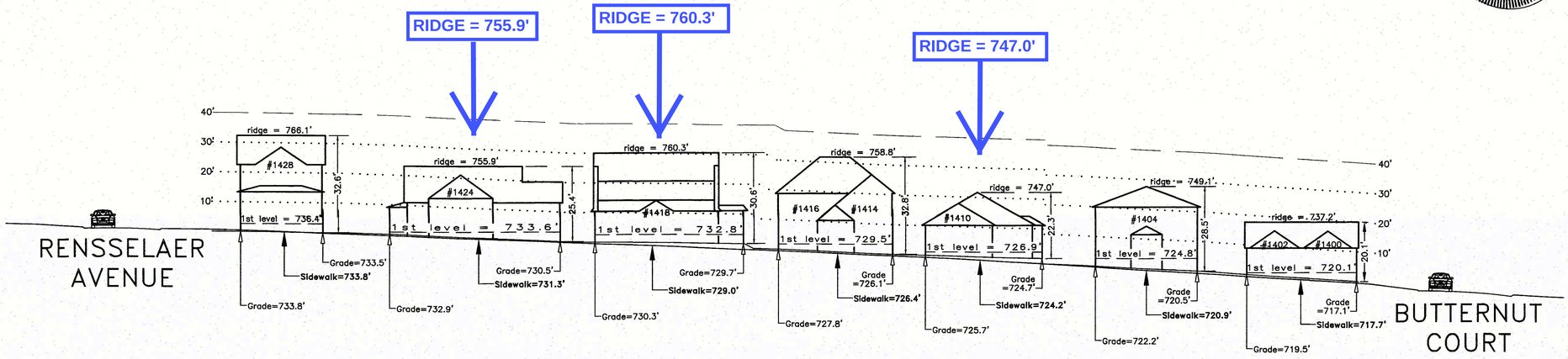
SHEET NUMBER:
HDC-13.1

I hereby certify that this schematic drawing was prepared based on field–surveyed elevation measurements of the points shown hereon. This map is not intended to meet G.S. 47–30 recording requirements.

This 4th day of May, 2018.

NORTH CAROLINA PROFESSIONAL SEAL L-3098 LAND SURVEYOR ANDREW G. ZOUTEWELLE

Andrew G. Zoutewelle
Professional Land Surveyor
NC License No. L–3098



E U C L I D A V E N U E

General Notes:
1. The purpose of this Building Heights Sketch is to show existing building facade heights relative to the elevation points at the public sidewalk or top of curb, front yard grade ("Grade"), 1st level, and ridgeline of the houses depicted hereon. No rearyard or sideyard measurements were made. The heights shown hereon were derived from indirect measurements and are not intended for structural design.
2. The vertical datum for these elevation measurements is the North American Vertical Datum of 1988 (i.e., sea level). All other information and graphics are conceptual in nature and are not intended to represent accurate architectural or landscape features.

A.G. ZOUTEWELLE
SURVEYORS
1418 East Fifth St. Charlotte, NC 28204
Phone: 704–372–9444 Fax: 704–372–9555
Firm Licensure Number C–1054

Building Heights Sketch of

1400 BLOCK of EUCLID AVENUE

FACING NORTHWEST – EVEN SIDE

CHARLOTTE, MECKLENBURG COUNTY, N.C.

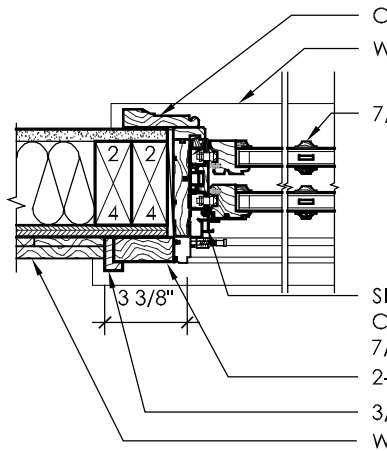
for Charlotte–Mecklenburg Planning Department

April 26, 2018

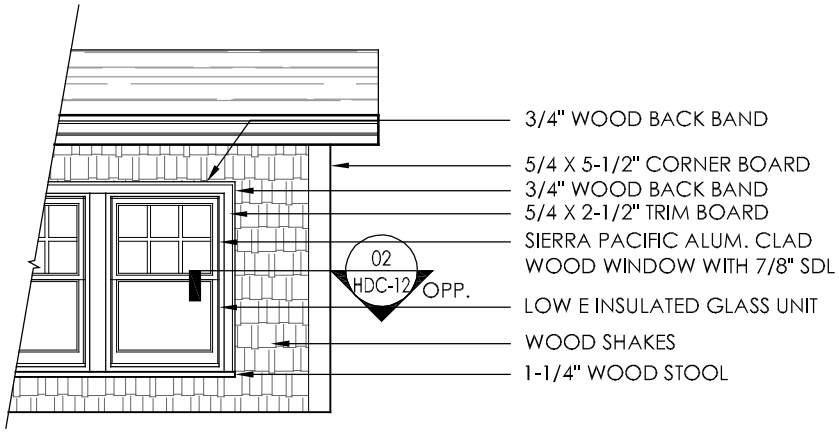
Scale 1" = 20'

0' 20' 40' 60' 80'

Z:\2018DWGS\ZAC\EUCLID AVENUE 1400 BLOCK EVEN\EUCLID AVENUE 1400 BLOCK EVEN



. SCALE: 1/4" = 1'-0" **EXTERIOR WINDOW DETAIL** | **02**



. SCALE: 1/4" = 1'-0" **EXTERIOR WINDOW DETAIL** | **01**

SHEET NO: HDC-12

DATE: FEBRUARY 04, 2019
REVISION:
DETAIL:
DRAWN BY:

PROJECT NAME:
601 BERKELEY AVE,
CHARLOTTE, NC 28203

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Charlotte, NC 28203
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Fax: 704-372-2517
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FRYDAY &DOYNE
ARCHITECTURE • INTERIOR DESIGN

BARTLETT TREE EXPERTS
14627 Youngblood Road, Charlotte, North Carolina 28278 · (704)588-3713 · www.bartlett.com

January 30, 2019

Mr. Lee Morrison
601 Berkeley Ave
Charlotte, NC 28203

Re: Willow oak inspection and construction site recommendations and tree protection

On Tuesday January 29, 2019 I visually inspected the property at 601 Berkeley Ave to review current tree conditions and make recommendations for tree protection and pre/post construction tree care.

At the back left of the existing residential home (as facing from the front / Berkeley Ave) is a 51" DBH (diameter at breast height) mature Willow oak. The tree did not have any visual signs of lower stem or root flare fungal conks, or stem defects. It appears that the tree has not been pruned for a number of years given the large diameter dead limbs on the ground and in the canopy, and given the low hanging limb level over adjacent structures.

Given the proposed site changes, per the Proposed Site Plan dated 1/27/19, I would recommend several items to help maintain the health of the tree prior to, during and post construction.
-Tree Structure Evaluation. Climbing inspection of the mid-level stem to inspect unions of large scaffold limbs to the main stem. Confirm and adjust recommendations for further care based upon conclusion of advanced evaluation.
-Tree Protection Zone. Install and maintain around the critical root zone. This zone should extend 6" for every one foot of tree diameter, (25.5') and be covered with 3-4" of hardwood mulch. This zone should be fenced if possible, and maintained throughout construction.
-Fertilization. We recommend a soil test to confirm current nutrient and pH levels, and scheduling 2x annual liquid injected fertilization during construction to help correct nutrient imbalances, and promote root growth following any construction stress.
-Pest Control. During early winter, cankerworm banding is recommended to minimize spring defoliation potential from caterpillar defoliators.
Treat lower stem to suppress ambrosia beetle infection, which is highly likely following impact from construction activities.
-Pruning. Remove dead and otherwise defective limbs throughout the canopy. Raise lower limb level to clear existing understory structures and provide additional clearance for proposed new / renovated structures. Additional pruning may be warranted to reduce over-extended limb length and tip weight to help reduce limb failure potential.

Client:

Printed on: 1/30/2019

Mr Lee Morrison
601 Berkeley Ave
Charlotte, NC 28203

Bartlett Tree Experts
Austin Proctor - Representative
14627 Youngblood Road
Charlotte, NC 28278

Business: 704-588-3713
Fax Number: 704-588-4824
E-Mail Address: aproctor@bartlett.com

The following program is recommended for certain trees and shrubs on your property. In addition to a thorough plant health care program, Bartlett Tree Experts recommends having a qualified arborist inspect your property periodically to assist you in identifying potential risks or hazardous conditions relating to your trees or shrubs. THIS IS NOT AN INVOICE.

Tree Risk Assessment

Perform a Level 2, Basic Assessment to the following tree:

- willow oak located at the back left

A written report with results and recommendations will be provided following the assessment. The assessment will utilize the process described in the International Society of Arboriculture Best Management Practices for Tree Risk Assessment.

An aerial inspection will be performed to assess the condition of major scaffold branches and crown.

Amount: $725.00

Soil Care Program

Implement Bartlett's Soil Care Program to address soil and nutritional needs of the following landscape plant.

- willow oak located at the back left

This program is custom designed for your landscape based on an inspection of your plants and a soil analysis test. The program will consist of nutrient treatments, pH adjustments, organic components and other soil treatments as needed.

1: Winter - Soil sample analysis - Cost: $85
2: Spring - Boost NK 20-0-6 - Cost: $255
3: Summer - Boost NK 20-0-6 - Cost: $255

Amount: $595.00

Caterpillar Defoliator Treatment

Perform a tree banding to the following plant to help suppress cankerworms.

- willow oak located at the back left

Client:

Printed on: 1/30/2019

Mr Lee Morrison
601 Berkeley Ave
Charlotte, NC 28203

Bartlett Tree Experts
Austin Proctor - Representative
14627 Youngblood Road
Charlotte, NC 28278

Business: 704-588-3713
Fax Number: 704-588-4824
E-Mail Address: aproctor@bartlett.com

The following program is recommended for certain trees and shrubs on your property. In addition to a thorough plant health care program, Bartlett Tree Experts recommends having a qualified arborist inspect your property periodically to assist you in identifying potential risks or hazardous conditions relating to your trees or shrubs. THIS IS NOT AN INVOICE.

Boost Liquid Treatment

Apply Boost Liquid 20-0-6 to the following plant and location to help maintain tree health.

- willow oak located at the front left near Berkeley Ave

Provide 2 treatments at 145.00 per treatment.

Estimated Treatment Dates: 3/15/2019, 9/15/2019.

Amount: $290.00

Caterpillar Defoliator Treatment

Perform a tree banding to the following plant to help suppress cankerworms.

- willow oak located at the front left near Berkeley Ave

Provide 1 treatment at 85.00 per treatment.

Estimated Treatment Date: 12/15/2019.

Amount: $85.00

Borer Treatment

Perform a bark treatment to the following plant to help suppress ambrosia beetles.

- willow oak located at the front left near Berkeley Ave

Provide 4 treatments at 110.00 per treatment.

Estimated Treatment Dates: 3/15/2019, 6/15/2019, 9/15/2019, 12/15/2019.

Amount: $440.00

Natural Pruning

Species: **willow oak**

Location: front left near Berkeley Ave

Goals:

- Reduce risk of branch failure

Specifications:

- Remove all dead branches, 2-3 inches in diameter
- Remove all debris

Amount: $1,470.00

Please review the information and the terms and conditions attached, which become part of the agreement, and sign and return one copy authorizing the program.

(Customer Signature) (Date)

(Bartlett Representative - Austin Proctor)

1/30/2019

(Date)

Prices are guaranteed if accepted within thirty days.
All accounts are net payable upon receipt of invoice.
Work is done in accordance with ANSI A300 Tree Care Standards.

To access a certificate of liability insurance for Bartlett Tree Experts, please navigate to http://www.bartlett.com/BartlettCOI.pdf

A Job Site Safety Analysis was completed for your property, please contact your arborist for further details.

Provide 1 treatment at 95.00 per treatment.

Estimated Treatment Date: 12/15/2019.

Amount: $95.00

Borer Treatment

Perform a bark treatment to the following plant to help suppress ambrosia beetles.
- willow oak located at the back left

Provide 4 treatments at 110.00 per treatment.

Estimated Treatment Dates: 3/15/2019, 6/15/2019, 9/15/2019, 12/15/2019.

Amount: $440.00

Natural Pruning

Species: **willow oak** **Location:** back left

Goals:

- Reduce risk of branch failure
- Provide 10-12' of clearance over roof of house and adjacent structures

Specifications:

- Remove all dead branches, 2-3 inches in diameter
- Remove all debris
- Pruning requires removal of all shrubs at the right side of the house to permit access to the backyard and for debris removal.

Amount: $4,315.00

Natural Pruning

Species: **willow oak** **Location:** back left

Goals:

- Reduce weight of branch ends

Specifications:

- Reduce approximately 10 to 12 over-extended branches, 20-30 feet length reduction, reduce limb length and tip weight
- Remove all debris
- Priced for completion in conjunction with above listed willow oak pruning (cleaning and limb raising). Completion as a separate stand-alone work option incurs additional cost.

Amount: $1,570.00

Please review the information and the terms and conditions attached, which become part of the agreement, and sign and return one copy authorizing the program.

(Customer Signature)	(Date)
	1/30/2019
(Bartlett Representative - Austin Proctor)	(Date)

Prices are guaranteed if accepted within thirty days.
All accounts are net payable upon receipt of invoice.
Work is done in accordance with ANSI A300 Tree Care Standards.

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A Job Site Safety Analysis was completed for your property, please contact your arborist for further details.

Given the potential for maintaining the willow oak in the front yard, closest to Berkeley Ave, we would also recommend that many of these same tree protection measures be implemented for this tree as well.

The following are general tree protection measures that are recommended for trees and sites to help maintain the highest level the health of trees throughout the construction process:

Pre-Construction Activities:

Building Site Preparation
Define areas for roads, structures and utilities as well as tree preservation areas. Locate specific sites for storage of building supplies and fill soil, worker and equipment parking areas and washout areas for concrete trucks. These areas should not interfere with tree preservation areas.

Worker Education
Pre-construction meetings should be held to advise construction crews of tree preservation areas and procedures to avoid damage to remaining vegetation. A system of fines should be developed and imposed on workers, including subcontractors, who damage plants through negligence.

Pre-Construction Site Preparation (Site Clearing)
Trees that will not be preserved should be removed from the site in a manner to avoid injury to remaining trees. Trees should be felled away from remaining vegetation. Heavy equipment should not encroach on the root systems of high value plants. If necessary, trees should be removed manually with chain saws, and stumps should be ground out instead of using heavy equipment.

Delineating Protection Areas
Tree protection areas should be delineated with fencing to prevent encroachment of equipment. Whenever possible, the tree protection zone should be extended to the dripline of open-grown trees. The **minimum** distance from the trunk of the tree protection zone should never be less than 6" for every inch of trunk diameter (ideally 12” for each inch of trunk diameter). For old trees, declining trees and those sensitive to construction, a larger tree protection zone is required. Fences should be erected at a **minimum** distance from the tree of six inches for every inch of trunk diameter. Signs should be placed visible from all directions, along the fence to inform workers of the purpose of the boundary. Mulch should be applied to a depth of 3-4” in protection areas to help reduce moisture stress.

Preservation Activities During Construction:

Excavations
Where excavations are performed in the root zone of plants, roots should be cut cleanly using a vibratory plow, root cutter, trencher or rock cutter. Backhoes can rip roots at considerable distances from the point of excavation and should not be used.

Monitoring
An arborist should inspect the project site at bi-monthly intervals or more often on large projects. The arborist should inspect fences, cuts and fills, as well as the general health and condition of the trees. Violations and tree problems should be reported to the project coordinator in writing.

Tree Maintenance During Construction
Trees with root injuries should be irrigated during droughts, especially in summer. Root damaged trees should receive a minimum of one inch of water per week from the combination of rainfall and irrigation. This is equivalent to 750 gallons of water per 1000 square feet within the root zone (preservation area) of the plant. Deadwood branches, storm damaged limbs and low limbs that interfere with construction, should be pruned properly on an as-needed basis. Trees also should be monitored for presence of damaging pests. Attention should be given to insect borers, including bark beetles, defoliating pests and canker diseases. Appropriate control procedures should be implemented on an as-needed basis. Treatments such as fertilization and maintenance pruning generally should be deferred until construction is complete, while treatments such as bark-tracing wounds may need more immediate attention.

Grade Changes
Grade changes should be avoided around trees whenever possible. Site development should utilize existing contours in order to preserve feature trees.

Post Construction Tree Maintenance:

Trees damaged by construction generally require a high level of maintenance due to stress caused by root loss. Demands for water and mineral nutrients (fertilizer) are critical due to root loss. Pruning requirements on construction-damaged plants are high due to a greater likelihood of branch dieback. Stressed trees are more sensitive to certain pest problems particularly borers, bark beetles and canker disease fungi.

Tree Structure Evaluation
A thorough inspection and evaluation of tree structure should be performed before any maintenance is conducted. Careful inspection of the root zone and root flares should be undertaken to assess hazardous conditions. Branch structure, wood decay and other defects also must be evaluated.

Final Grading:

Final site grading should provide drainage systems that divert ground water from tree preservation areas. Grading should be avoided in preservation areas. Whenever possible, maintain trees under a layer of mulch in natural areas rather than grading and establishing turf or other ground cover. Trees that were once part of a natural forested area have many fine roots in the duff layer. Removal or addition of just a few inches of soil for turf establishment can cause significant root mortality, which can result in tree decline and death.

Root Collar Excavation

During construction, soil is frequently placed against root collars of trees due to grade changes. Ensure that root flares are visible on all trees during the initial inspection.

Mulching

Any organic mulch, such as wood chips, shredded bark, bark nuggets, pine straw or leaves, is suitable around trees. The benefits of mulch on plant growth include conserving soil moisture, supplying nutrients and organic matter, eliminating competition from weeds and ground cover plants and preventing erosion. Mulches should be applied to a depth of two to four inches. Excessive mulch can encourage shallow rooting which can be detrimental during droughts. Avoid annually top dressing mulched areas where the mulch exceeds depths of four inches. Avoid placing mulches against the root collar.

Irrigation

Irrigation to supplement low rainfall is a critical factor in preserving trees that have sustained root injury. Approximately one inch of rainfall or irrigation per week during the growing season is advisable for on stressed trees. This is equivalent to 750 gallons of water per 1000 square feet of ground area inside the dripline. The recommended quantity of water can be applied gradually using a drip system or applied in one or two applications per week. Tensiometers can be installed to monitor soil moisture and determine when irrigation is required.

Fertilization

Due to root loss during construction, nutrient absorption is reduced. Maintaining a high soil fertility level is essential in preventing nutrient deficiencies. Adjusting soil pH for the specific species is essential in ensuring nutrient availability. Slow release fertilizers, in which the nitrogen source is formulated to be released gradually to the plant, are most efficient for application. Fertilization and soil amendment applications should be based on soil chemistry analysis. Frequent light applications (annual treatments) may be necessary during the first three to five years following construction. The interval and frequency depends on soil conditions, plant species and plant health. Where nitrogen is the only element required and trees are growing in natural areas, surface applications of fertilizers are effective. In turf areas, compacted soils or on slopes, subsurface application of the fertilizer should be used to prevent runoff or turf injury. Phosphorus and potassium

are very immobile in the soil and must be installed subsurface in the root zone if these nutrients are to be immediately available. Subsurface applications can be efficiently performed by injecting suspension or solution fertilizers into the soil using conventional tree equipment. Soil analysis must be used to determine micronutrient requirements, pH modifications and organic matter additions.

Soil Compaction
On new construction sites soils subjected to pedestrian and vehicular traffic on new construction sites are prone to compaction. Compacted soils restrict root development due to physical impedance of the soil. Compacted soils have less air space and reduced water holding capacity. This further reduces root development. Within the root zone of existing trees, treatments for compacted soil may involve mulching, fertilization or soil replacement / de-compaction techniques.

Pruning
Following construction, trees should be pruned of dead, dying, interfering and objectionable branches to improve health and vigor. If crowns of trees are exceptionally dense, thinning of branches should be performed to compensate for root damage. Thinning, if necessary, should be performed in such a manner to maintain branch distribution throughout the canopy. Approximately 50% of the foliage should be maintained on the lower two-thirds of the crown or leader. Crown reduction or "cutting back" trees should be avoided except where severe root damage has occurred or where major structural deficiencies exist.

Lightning Protection
Tall trees in exposed locations are prone to lightning strikes. Oaks, tuliptree, and pines are particularly prone to lightning injury. Lightning protection systems should be considered for trees that are prone to lightning especially high value, feature or historic trees.

Final Landscaping
Installation of lighting and irrigation systems, and soil preparation for turf and landscaping can cause significant root damage to trees if not carefully planned. Ideally all these activities should be restricted from the root protection zones for a period of two years after construction to allow time for trees to recover and regenerate new roots. If some of these activities must occur within these protected zones, techniques such as soil boring and air-spading should be employed to minimize additional root damage.

Respectfully Submitted,

Austin K. Proctor

Austin K. Proctor
ISA Certified Arborist SO-2392A