Bret Horton ARCHITECT PLLC

1308 Broad Street Durham, NC 27705 919.619.2258 www.brethorton.com

Thursday, October 17, 2019

Becky McDonnell, Planner II
Planning Department
405 Martin Luther King Jr Blvd.
Chapel Hill NC 27514

Re: 203 Battle Lane

Dear Becky:

Thank you for the comments you shared with me on 8/27/19 regarding our submitted plans and documents for our Site Plan Review application for 203 Battle Lane. Below, you will find our responses to these comments. You will also find the Site Plan Review application form, on which we have made revisions, which are marked red in color. Lastly, you will find revised drawings sheets and some additional drawing sheets since our first submittal on 8/9/19.

Please reach out to me with any comments or questions. I look forward to hearing from you.

Sincerely,

Bret Horton
Bret Horton Architect, PLLC

10.17.19 Designer Responses to Town's 8.27.19 Site Plan Review Application Comments

Current Development (Becky McDonnell – 919-969-5054)

1. Please include a cover sheet with a site data table showing existing and proposed impervious surface, vehicle and bike parking numbers, floor area, land disturbance, etc (see attached example).
   Response: Please see Cover Sheet, sheet C1.1, with the requested site data, attached as part of our responses.

2. Call out the number of bike and vehicular parking spaces on the site plan.
   Response: The number of vehicular spaces in each sub-parking area is noted and encircled on the Site Plan, sheet C3.1., attached as part of our responses. The bike parking pad has been expanded to accommodate eight bikes with space of 17 ft- 7 in. and bike racks set 4 ft apart. Two long-term spaces have been provided in a 7'-3" x 4'-2" addition to the new shed. The numbers of bike and vehicular spaces are also indicated in the cover sheet data table.

3. The HDC asked for the existing shed to be preserved. Clarify if the new shed will still be constructed or not.
   Response: The existing shed will be preserved, and the new shed will still be constructed. Please see Site Plan, sheet C3.1, attached as part of our responses. Also, please see Utility Plan, sheet C6.1, which indicates a bid alternate for re-purposing the existing shed.

4. Delineate the area of land disturbance on the site plan.
   Response: The extents of proposed land disturbance are shown graphically on drawing sheet C4.1. Also, the area of proposed land disturbance is noted in the cover sheet data table.

5. For a place of worship, there is a minimum of 8 bike parking spaces plus 1 per 50 seats, for a total of 9 required bike parking spaces. Please update the application and site plan accordingly. Additionally, the Design Manual specifies 80% long-term bicycle parking and 20% short-term. Please show 2 spaces as long-term (i.e. covered/lockers/indoors).
   Response: Per correspondence with Becky McDonnell, 80% of spaces should be short-term and 20% should be long-term. Eight short-term spaces have been provided at the north side of the house. Two long-term spaces have been provided in a 7'-3" x 4'-2" addition to the new shed. The addition will accommodate two bicycles, each with their own space, each space with a lockable door. Please see the Site Plan, sheet C3.1. Also, please see revisions to Section G. Parking Information in the application.

6. Provide information on buffers – the canopy count and coverage for each buffer (see attached materials on how to provide this information) (and indicate which alternate buffers you are requesting).

Response: Please see the Buffer Plan, sheet L1.0, for detailed description of required buffers and existing landscape that meets intent of the buffer requirements.
The LUMO requires buffers on projects to meet Section 5.6 and as outlined in the Design Manual. The proposed use for the NC Study Center will be as Place of Worship/Study Center will be Use Type B. Across S. Boundary Street to the south (which is zoned R-2) is Forest Theater and is UNC land, managed by the NCBG and part of Battle Park and will be Buffer Type C. Across Battle Lane and to the and west is UNC land (zoned OI-4) and part of the Battle Grove stream restoration area and adjacent to residential halls (Kenan-McIver dorms) will be Buffer Type B. To the north and across Senlac Ln is single-family residential and zone R-2 as well as to the east and across the private alley (also zoned R-2) S-F residential also be Buffer Type C. This requirement is met by providing a buffer width of the property as well as the required number of trees and shrubs and/or other screening, such as and existing historic stone wall and screen fence. The southern boundary along South Boundary Street meets the requirements with extensive existing vegetation in the buffer strip, and the eastern boundary meets the requirement with an existing 6' high fence along with canopy trees and other vegetation and northern and western boundary meets intent of requirement with existing mature trees and rubble stone wall.

Urban Forestry (Adam Nicholson – 919-969-5006)

7. Please provide construction detail for note J on site plan, noting the new brick edging along the CH grit path. Also include a narrative on the tree health of 26" Elm noted to be removed. Staff would like to determine if the tree can be saved. Detail and report will help to determine amount of disturbance currently proposed.
   Response: Please see "Brick Edging Border" detail on the Hardscape Plan, sheet L3.0. The 28" elm, which shows up on our Existing Conditions Map, sheet L1.0, which we submitted on 8/9/19, was mistakenly shown on that sheet. It was removed late spring/early summer of 2019 by Bartlett Tree Services. According to Bryan Lowrance from Barlett, the tree was half dead and an "obvious removal". Please see the Existing Conditions & Demolition Plan, sheet C2.2, which no longer shows this tree.

8. Clearly mark all trees to be removed w/ 'x'.
   Response: Significant trees proposed to be removed are indicated with an "X" on the Existing Conditions & Demolition Plan, sheet C2.2.

9. Please provide a plant schedule for all landscape material for staff review. Also include specifications on size of material at planting.
   Response: Please see the Landscape Plan, sheet L2.0, which provides a plant schedule and specifications on size of material at planting.

10. Please include tree protection fencing and Chapel Hill standard detail. At a minimum, tree protection fencing should be installed around trees that are too be saved adjacent to the construction zone. Specifically noting the north and south side of the house

where construction will impact various trees. As well as the apron along Boundary called out to be improved.
Response: Please see the Landscape Protection Plan, sheet L1.1, which indicates tree protection fencing and the Chapel Hill standard detail.

11. Also please note where construction staging area will be located.
Response: The proposed area for temporary construction staging is shown graphically on the Construction Staging Plan, sheet C5.1.

Fire (Chris Kearns – 919-969-5080)

12. While making the improvements to the two (2) entrances concerning grade and pavement it is important to keep the grade below 10% on both drives and the width must be widened to meet current code. I measured the widths at 11' and 12'. Because these entrances would be considered fire access they should be widened to 20' with a clear height of 13'6".
Response: Per email correspondence from Chris Kearns on 8/29, modifications requested in this comment are not required due to the historic nature of the property. However, at the northern driveway entrance, we propose to remove an unused utility pole that is located very close to the eastern edge of the driveway apron. Removing this pole will improve turning movements for larger vehicles. We also propose to remove the existing driveway cut and several feet of broken curb on the western side and replace these removed elements with a standard curb cut with radius turnouts. For both driveway entrances, we propose removal of existing broken asphalt paving and replacement with new pavement surfaces.

Inspections (Travis Crabtree – 919-969-5042)

13. A new fire hydrant and fire department connection should be located along S Boundary near the 16 inch Walnut tree in the area where the asphalt alley connects to S Boundary. The hydrant and FDC must be placed within 100 feet of each other.
Response: A proposed new fire hydrant and FDC are shown on the Utility Plan, sheet C6.1, in the general area requested.

Stormwater

14. No comment.

Orange County Solid Waste

15. No comment.

SITE PLAN REVIEW APPLICATION

TOWN OF CHAPEL HILL
Planning Department
405 Martin Luther King Jr. Blvd
phone (919) 969-5066 fax (919 969-2014
www.townofchapelhill.org

Please note that this application has been revised since our 8/9/19 submittal. Revisions are RED in color.

Parcel Identifier Number (PIN): 9788672508 Date: 8/8/19

Section A: Project Information

Project Name: Additions & Renovations to the Battle House: NC Study Center

Property Address: 203 Battle Lane Zip Code: 27514

Use Groups (A, B, and/or C): B Existing Zoning District: R-2, HD-1

Project Description: Our project involves additions and renovations to a historic, 1840's era building. Originally built as a single-family residence, the building has been used as a center for public worship continuously since the mid-1960s, when it was deeded to the Baptist State Convention of North Carolina. In 2015, the building was deeded to the Carolina Christian Study Center, which continues to use the building as a center for public worship. We are submitting this application in order to have officially recorded its change of use, from single-family residential (use group A) to a place of worship (use group B).

Section B: Applicant, Owner, and/or Contract Purchaser Information

Applicant Information (to whom correspondence will be mailed):

Name: Bret Horton, owner of Bret Horton Architect, PLLC

Address: 1308 Broad Street

City: Durham State: NC Zip Code: 27705

Phone: (919) 619-2258 Email: bret@brethorton.com

The undersigned applicant herby certifies that, to the best of their knowledge and belief, all information supplied with this application is true and accurate.

Signature: Bret H Date: 8/9/19

Owner/Contract Purchaser Information:

☒ **Owner** ☐ **Contract Purchaser**

Name: Madison Perry, Executive Director of the North Carolina Study Center

Address: 203 Battle Lane

City: Chapel Hill State: NC Zip Code: 27514

Phone: (919) 391-8394 Email: madison@ncstudycenter.org

The undersigned applicant herby certifies that, to the best of their knowledge and belief, all information supplied with this application is true and accurate.

Signature: Madison Perry Date: 8/9/19

Click here for application submittal instructions.

PROJECT FACT SHEET

TOWN OF CHAPEL HILL
Planning Department

Section A: Project Information

Use Type: *(check/list all that apply)*

☒ Office/Institutional ☐ Residential ☐ Mixed-Use ☒ Other: Place of Worship

Overlay District: *(check all that apply)*

☒ Historic District ☐ Neighborhood Conservation District ☐ Airport Hazard Zone

Section B: Land Area

Net Land Area (NLA): Area within zoning boundaries		NLA=	87,736	sq. ft.
Choose one, or both, of the following (a or b), not to exceed 10% of NLA	a) Credited Street Area (total adjacent frontage) x ½ width of public right-of-way	CSA=	17,082	sq. ft.
	b) Credited Permanent Open Space (total adjacent frontage) x ½ public or dedicated open space	COS=	N/A	sq. ft.
TOTAL: NLA + CSA and/or COS = Gross Land Area (not to exceed NLA + 10%)		GLA=	96,510	sq. ft.

Section C: Special Protection Areas, Land Disturbance, and Impervious Area

Special Protection Areas: *(check all those that apply)*

☐ Jordan Buffer ☒ Resource Conservation District ☐ 100 Year Floodplain ☒ Watershed Protection District

Land Disturbance	**Total (sq. ft.)**
Area of Land Disturbance (Includes: Footprint of proposed activity plus work area envelope, staging area for materials, access/equipment paths, and all grading, including off-site clearing)	18,227
Area of Land Disturbance within RCD	0
Area of Land Disturbance within Jordan Buffer	0

Impervious Areas	**Existing (sq. ft.)**	**Demolition (sq. ft.)**	**Proposed (sq. ft.)**	**Total (sq. ft.)**
Impervious Surface Area (ISA)	19,050	2,297	4,070	20,823
Impervious Surface Ratio: Percent Impervious Surface Area of Gross Land Area (ISA/GLA)%	19.7%	2.4%	4.2%	21.6%
If located in Watershed Protection District, % of impervious surface on 7/1/1993	19.7%			

PROJECT FACT SHEET

TOWN OF CHAPEL HILL
Planning Department

Section D: Dimensions

Dimensional Unit (sq. ft.)	Existing (sq. ft.)	Demolition (sq. ft.)	Proposed (sq. ft.)	Total (sq. ft.)
Number of Buildings (1)	5,856 (not incl. attic)	0	230	6,086
Number of Floors	3 (not incl. attic)		3	3
Recreational Space	N/A			N/A

Residential Space (N/A)				
Dimensional Unit (sq. ft.)	**Existing (sq. ft.)**	**Demolition (sq. ft.)**	**Proposed (sq. ft.)**	**Total (sq. ft.)**
Floor Area (all floors – heated and unheated)				
Total Square Footage of All Units				
Total Square Footage of Affordable Units				
Total Residential Density				
Number of Dwelling Units				
Number of Affordable Dwelling Units				
Number of Single Bedroom Units				
Number of Two Bedroom Units				
Number of Three Bedroom Units				

Non-Residential Space *(Gross Floor Area in Square Feet)*					
Use Type	**Existing**	**Proposed**	**Uses**	**Existing**	**Proposed**
Commercial					
Restaurant			**# of Seats**		
Government					
Institutional					
Medical					
Office					
Hotel			**# of Rooms**		
Industrial					
Place of Worship	5,856 (not incl.attic)	+/- 6,086	**# of Seats**	+/- 73 (folding chairs)	+/- 73 (folding chairs)
Other					

Dimensional Requirements		Required by Ordinance	Existing	Proposed
Setbacks (minimum)	Street (Senlac, Battle, S. Boundary)	26’	58.2'/197.8'/151.6'	58.2'/197.0'/130.8’
	Interior (neighboring property lines)	11’	44.4’	44.4’
	Solar (northern property line)	13’	58.2’	64.1’
Height (maximum)	Primary	29’		
	Secondary	50’	30’-10”	30’-10”

Streets	Frontages	52’	Senlac 302’, Battle 287’, S. Boundary 302’	All Unchanged
	Widths	N/A	Senlac 23’-9”, Battle 19’-2”, S. Boundary 22’-4”*	All Unchanged

* Battle Lane is 26’-0” wide where there is on-street parking. S. Boundary street width varies, and is as wide as 24’ where there is on-street parking.

PROJECT FACT SHEET

TOWN OF CHAPEL HILL
Planning Department

Section D: Dimensions

(Note: For approval of proposed street names, contact the Engineering Department)

Street Name	Right-of-Way Width	Pavement Width	Number of Lanes	Existing Sidewalk*	Existing Curb/Gutter
Senlac Road	+/- 37’	23’-9”	2	☐ Yes	☒ Yes
Battle Lane	+/- 40’	19’-2”	2	☒ Yes	☒ Yes
S.Boundary Street	+/- 30’	22’-4”	2	Yes	Yes

List Proposed Points of Access (Ex. Number, Street Name):

*If existing sidewalks do not exist and the applicant is adding sidewalks, please provide the following information:

Sidewalk Information			
Street Names	**Dimensions**	**Surface**	**Handicapped Ramps**
S. Boundary (existing sidewalk)	+/- 5’	Concrete/Brick	☒ Yes ☐ No ☐ N/A
Battle Lane (existing sidewalks)	irregular	Chapel Hill Grit	☒ Yes ☐ No ☐ N/A
Senlac Road (no sidewalks)	N/A	N/A	No

Section G: Parking Information

Parking Spaces	Minimum	Maximum	Proposed
Regular Spaces	13	34	29
Handicap Spaces	2	2	2
Total Spaces	15	36	31
Loading Spaces			0
Bicycle Spaces	9	9	10 (8 short-term and 2 long-term)
Surface Type	Regular spaces are existing gravel. Proposed handicap spaces are asphalt.		

Section H: Landscape Buffers

Note. Because of the historic nature of the property, alternate landscape buffers are proposed, which are to be reviewed by the Historic District Commission.

Location (North, South, Street, Etc.)	Minimum Width	Proposed Width	Alternate Buffer	Modify Buffer

			☐ Yes	☐ Yes
			☐ Yes	☐ Yes
			☐ Yes	☐ Yes
			☐ Yes	☐ Yes

PROJECT FACT SHEET

TOWN OF CHAPEL HILL
Planning Department

Section I: Land Use Intensity

Existing Zoning District: R-2
Proposed Zoning Change *(if any)*: N/A

Note: Refer to Table 3.8-1 (Dimensional Matrix) in the Land Use Management Ordinance for help completing this table.

Zoning – Area – Ratio			Impervious Surface Thresholds			Minimum and Maximum Limitations	
Zoning District(s)	**Floor Area Ratio (FAR)**	**Recreation Space Ratio (RSR)**	**Low Density Residential (0.24)**	**High Density Residential (0.50)**	**Non-Residential (0.70)**	**Maximum Floor Area (MFA) = FAR x GLA**	**Minimum Recreation Space (MSR = RSR x GLA)**
R-2	86,377 sf @ 0.093				0.70	8,033	
RCD total (see below)						735	
TOTAL						8,768	
RCD Streamside	0 sf @ 0.01				0.10	0	
RCD Managed	2,803 sf @ 0.019				0.20	53	
RCD Upland	7,330 sf @ 0.093				0.20	682	

Section J: Utility Service

Check all that apply:				
Water	☒ OWASA	☐ Individual Well	☐ Community Well	☐ Other
Sewer	☒ OWASA	☐ Individual Septic Tank	☐ Community Package Plant	☐ Other
Electrical	☐ Underground	☒ Above Ground		
Telephone	☐ Underground	☒ Above Ground		
Solid Waste	☒ Town	☐ Private		

SITE PLAN REVIEW APPLICATION
SUBMITTAL REQUIREMENTS

TOWN OF CHAPEL HILL
Planning Department

The following must accompany your application. Failure to do so will result in your application being considered incomplete. For assistance with this application, please contact the Chapel Hill Planning Department (Planning) at (919) 969-5066 or at planning@townofchapelhill.org. For detailed information, please refer to the Description of Detailed Information handout.

	Application Fee (including Engineering Review Fee) – refer to fee schedule	Amount Paid $
	Pre-application meeting –with appropriate staff	
	Digital Files – provide digital files of all plans and documents	
	Recorded Plat or Deed of Property	
	Project Fact Sheet	
	Traffic Impact Statement – completed by Town's consultant (or exemption)	
	Mailing list of owners of property within 1,000 feet perimeter of subject property (see GIS notification tool)	
	Mailing fee for above mailing list (mailing fee is double due to 2 mailings)	Amount Paid $
	Written Narrative describing the proposal	
	Resource Conservation District, Floodplain, & Jordan Buffers Determination – necessary for all submittals	
	Jurisdictional Wetland Determination (if applicable)	
	Resource Conservation District Encroachment Exemption or Variance (determined by Planning)	
	Jordan Buffer Authorization Certificate or Mitigation Plan Approval (determined by Planning)	
	Reduced Site Plan Set (reduced to 8.5" x 11")	

Stormwater Impact Statement (1 copy to be submitted)

a) Written narrative describing existing & proposed conditions, anticipated stormwater impacts and management structures, and strategies to mitigate impacts
b) Description of land uses and area (in square footage)
c) Existing and proposed impervious surface area in square feet for all subareas and project area
d) Ground cover and uses information
e) Soil information (classification, infiltration rates, depth to groundwater and bedrock)
f) Time of concentration calculations and assumptions
g) Topography (2-foot contours)

h) Pertinent on-site and off-site drainage conditions
i) Upstream and/or downstream volumes
j) Discharges and velocities
k) Backwater elevations and effects on existing drainage conveyance facilities
l) Location of jurisdictional wetlands and regulatory FEMA Special Flood Hazard Areas
m) Water quality volume calculations
n) Drainage areas and sub-areas delineated
o) Peak discharge calculations and rates (1, 2, and 25-year storms)
p) Hydrographs for pre- and post-development without mitigation, post-development with mitigation
q) Volume calculations and documentation of retention for 2-year storm
r) 85% TSS removal for post-development stormwater run-off

s) Nutrient loading calculations
t) BMP sizing calculations
u) Pipe sizing calculations and schedule (include HGL & EGL calculations and profiles)

Plan Sets (10 copies to be submitted no larger than 24” x 36”)

Plans should be legible and clearly drawn. All plan set sheets should include the following:

- Project Name
- Legend
- Labels
- North Arrow (North oriented toward top of page)
- Property boundaries with bearing and distances
- Scale (Engineering), denoted graphically and numerically
- Setbacks
- Streams, RCD Boundary, Jordan Riparian Buffer Boundary, Floodplain, and Wetlands Boundary, where applicable
- Revision dates and professional seals and signatures, as applicable

Area Map

a) Project name, applicant, contact information, PIN, & legend
b) Dedicate open space, parks, greenways
c) Overlay Districts, if applicable
d) Property lines, zoning district boundaries, land uses, project names of site and surrounding properties, significant buildings, & corporate limit lines
e) Existing roads (public & private), rights-of-way, sidewalks, driveways, vehicular parking areas, bicycle parking, handicapped parking, street names
f) 1,000’ notification boundary

Existing Conditions Plan

a) Slopes, soils, environmental constraints, existing vegetation, and any existing land use features
b) Location of all existing structures and uses
c) Existing property line and right-of-way lines
d) Existing utilities & easements including location & sizes of water, sewer, electrical, & drainage lines

e) Nearest fire hydrants
f) Nearest bus shelters and transit facilities
g) Existing topography at minimum 2-foot intervals and finished grade
h) Natural drainage features & water bodies, floodways, floodplain, RCD, Jordan Buffers, & Watershed boundaries

Detailed Site Plan

a) Existing and proposed building locations
b) Description & analysis of adjacent land uses, roads, topography, soils, drainage patterns, environmental constraints, features, existing vegetation, vistas (on & off-site)
c) Location, arrangement, & dimension of vehicular parking, width of aisles and bays, angle of parking, number of spaces, handicapped parking, bicycle parking. Typical pavement sections and surface type.
d) Location of existing and proposed fire hydrants
e) Location and dimension of all vehicle entrances, exits, and drives
f) Dimensioned street cross-sections and rights-of-way widths
g) Pavement and curb & gutter construction details
h) Dimensioned sidewalk and tree lawn cross-sections
i) Proposed transit improvements including bus pull-off and/or bus shelter
j) Required landscape buffers (or proposed alternate/modified buffers)
k) Required recreation area/space (including written statement of recreation plans)
l) Refuse collection facilities (existing and proposed) or shared dumpster agreement
m) Construction parking, staging, storage area, and construction trailer location
n) Sight distance triangles at intersections
o) Proposed location of street lights and underground utility lines and/or conduit lines to be installed
p) Easements
q) Clearing and construction limits
r) Traffic Calming Plan – detailed construction designs of devices proposed & associated sign & marking plan

Detailed Site Plan

a) Topography (2-foot contours)
b) Existing drainage conditions
c) RCD and Jordan Riparian Buffer delineation and boundary (perennial & intermittent streams, note ephemeral streams on site)
d) Proposed drainage and stormwater conditions
e) Drainage conveyance system (piping)
f) Roof drains
g) Easements
h) BMP plans, dimensions, details, and cross-sections

i) Planting and stabilization plans and specifications

Detailed Site Plan

a) Rare, specimen, and significant tree survey within 50 feet of construction area
b) Rare and specimen tree critical root zones
c) Rare and specimen trees proposed to be removed
d) Certified arborist tree evaluation, if applicable
e) Significant tree stand survey
f) Clearing limit line
g) Proposed tree protection/silt fence location
h) Pre-construction/demolition conference note
i) Landscape protection supervisor note
j) Existing and proposed tree canopy calculations, if applicable

Planting Plan

a) Dimensioned and labeled perimeter buffers
b) Off-site buffer easement, if applicable
c) Landscape buffer and parking lot planting plan (including planting strip between parking and building, entryway planting, and 35% shading requirement

Steep Slope Plan

a) Classify and quantify slopes 0-10%, 10-15%, 15-25%, and 25% and greater
b) Show and quantify areas of disturbance in each slope category
c) Provide/show specialized site design and construction techniques

Grading and Erosion Control Plan

a) Topography (2-foot contours)
b) Limits of disturbance
c) Pertinent off-site drainage features
d) Existing and proposed impervious surface tallies

Streetscape Plan, if applicable

a) Public right-of-way existing conditions plan
b) Streetscape demolition plan
c) Streetscape proposed improvement plan
d) Streetscape proposed utility plan and details
e) Streetscape proposed pavement/sidewalk details
f) Streetscape proposed furnishing details
g) Streetscape proposed lighting details

Solid Waste Plan

a) Preliminary Solid Waste Management Plan

b) Existing and proposed dumpster pads
c) Proposed dumpster pad layout design
d) Proposed heavy duty pavement locations and pavement construction detail
e) Preliminary Shared dumpster agreement, if applicable

Construction Management Plan

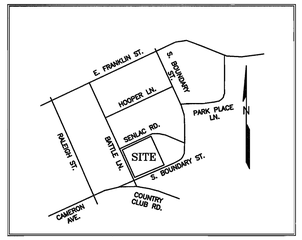
a) Construction trailer location
b) Location of construction personnel parking and construction equipment parking
c) Location and size of staging and materials storage area
d) Description of emergency vehicle access to and around project site during construction
e) Delivery truck routes shown or noted on plan sheets

Energy Management Plan

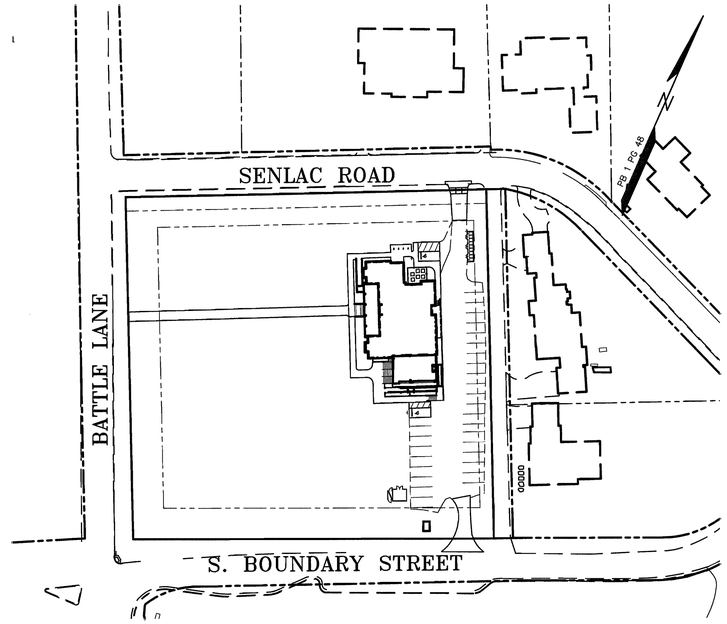
a) Description of how project will be 20% more energy efficient than ASHRAE standards
b) Description of utilization of sustainable forms of energy (Solar, Wind, Hydroelectric, and Biofuels)
c) Participation in NC GreenPower program
d) Description of how project will ensure indoor air quality, adequate access to natural lighting, and allow for proposed utilization of sustainable energy
e) Description of how project will maintain commitment to energy efficiency and reduced carbon footprint over time
f) Description of how the project's Transportation Management Plan will support efforts to reduce energy consumption as it affects the community

Exterior Elevations

a) An outline of each elevation of the building, including the finished grade along the foundation (height of building measured from mean natural grade)



VICINITY MAP
NTS



ADDITIONS AND RENOVATIONS TO THE BATTLE HOUSE NC STUDY CENTER

203 BATTLE LANE

CHAPEL HILL, NORTH CAROLINA

SITE DATA:

OWNER: CAROLINA CHRISTIAN STUDY CENTER, INC.
203 BATTLE LANE
CHAPEL HILL, NC 27514
MADISON PERRY, EXECUTIVE DIRECTOR

APPLICANT: BRET HORTON ARCHITECT, PLLC
1308 BROAD STREET
DURHAM, NC 27705
BRET HORTON

PROJECT DESCRIPTION: BUILDING RENOVATION AND ADDITION

EXISTING USE: PLACE OF WORSHIP

PROPOSED USE: PLACE OF WORSHIP

PIN: 9788-67-2508

DEED REFERENCE: DEED 6044 PAGE 61

PARCEL ACREAGE: 2.014 ACRES

CURRENT ZONING: R-2

OVERLAY ZONING: FRANKLIN ROSEMARY HISTORIC DISTRICT (HD-1)
JORDAN LAKE WATERSHED PROTECTION DISTRICT
RESOURCE CONSERVATION DISTRICT

RESOURCE CONSERVATION DISTRICT SUMMARY (RCD)
STREAM SIDE ZONE: 0 SF
MANAGED USE ZONE: 2,803 SF
UPLAND ZONE: 7,330 SF
TOTAL RCD: 10,133 SF

RIVER BASIN: CAPE FEAR RIVER BASIN (JORDAN LAKE)

ADJACENT ZONING: R-2, OI-4

UPLAND: NO FLOOD ZONE PER MAP #3710978800 K

SOILS: APPLING (AuC)

ENVIRONMENTAL: NO STREAMS, NO WETLANDS;
RCD PRESENT AT SW CORNER

NO. OF LOTS: 1 LOT

BUILDING SETBACKS REQUIRED:
STREET: 26'
INTERIOR: 11'
SOLAR: 13'

BUILDING SETBACKS PROVIDED:
STREET: 58'
INTERIOR: 44'
SOLAR: 64'

MAXIMUM BUILDING HEIGHT: 29'

MINIMUM LOT SIZE REQUIRED: 10,000 SF

MINIMUM LOT SIZE PROPOSED: 2.014 ACRES

NET LAND AREA (NLA): 87,736 SF
GROSS LAND AREA (GLA): 96,510 SF

IMPERVIOUS AREA

EXISTING: 19,050 SF
NET NEW: 1,773 SF
POST DEVELOPMENT: 20,823 SF
TOTAL IMPERVIOUS % BY GLA: 21.6%
LAND DISTURBANCE AREA: 18,227 SF

PARKING SUMMARY

PLACE OF WORSHIP (73 SEATS)
MIN. PARKING = 1 SPACE PER 5 SEATS = 15 SPACES
MAX. PARKING = 1 SPACE PER 2 SEATS = 36 SPACES
PARKING PROVIDED = 31 SPACES
ACCESSIBLE SPACES REQUIRED = 2 SPACES
ACCESSIBLE SPACES PROVIDED = 2 SPACES
BICYCLE SPACES REQUIRED = 9 SPACES
BICYCLE SPACES PROVIDED = 10 SPACES

BUILDING SUMMARY

EXISTING FLOOR AREA: 5,856 SF
NEW FLOOR AREA: 230 SF
TOTAL PROPOSED FLOOR AREA: 6,086 SF

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ANGUS CLARK ENGINEERING, PC
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C2.2	EXISTING CONDITIONS & DEMOLITION PLAN
C3.1	SITE LAYOUT PLAN
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LEGEND

	NEW	EXISTING
DRAINAGE STRUCTURE		
SANITARY SEWER MANHOLE	S	S
SANITARY SEWER CLEANOUT	C.O.	C.O.
WATER VALVE		
FIRE HYDRANT		
OVERHEAD UTILITY LINE	OH	XOH
UNDERGROUND ELECTRIC LINE	UE	XE
UNDERGROUND TELECOM/DATA LINE	TD	XTD
FIBER OPTIC CABLE	FO	XFO
GAS LINE	G	XG
STORM DRAINAGE PIPE	SD	XSD
SANITARY SEWER LINE	SS	XSS
WATER LINE	W	XW
SURFACE ELEVATION CONTOUR	400	400
SURFACE SPOT ELEVATION	356.44	356.44
CLEARING LIMIT/TREE LINE		
LIMIT OF DISTURBANCE	LOD LOD	
ELECTRICAL TRANSFORMER PAD	T	
TYPICAL KEYED NOTE LABEL	1	T

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NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 14999 TONY M. WHITAKER
10-16-19

ADDITIONS AND RENOVATIONS
THE BATTLE HOUSE
NC STUDY CENTER
CHAPEL HILL, NORTH CAROLINA
COVER SHEET

REV.	DATE	DESCRIPTION

DATE: OCTOBER 16, 2019

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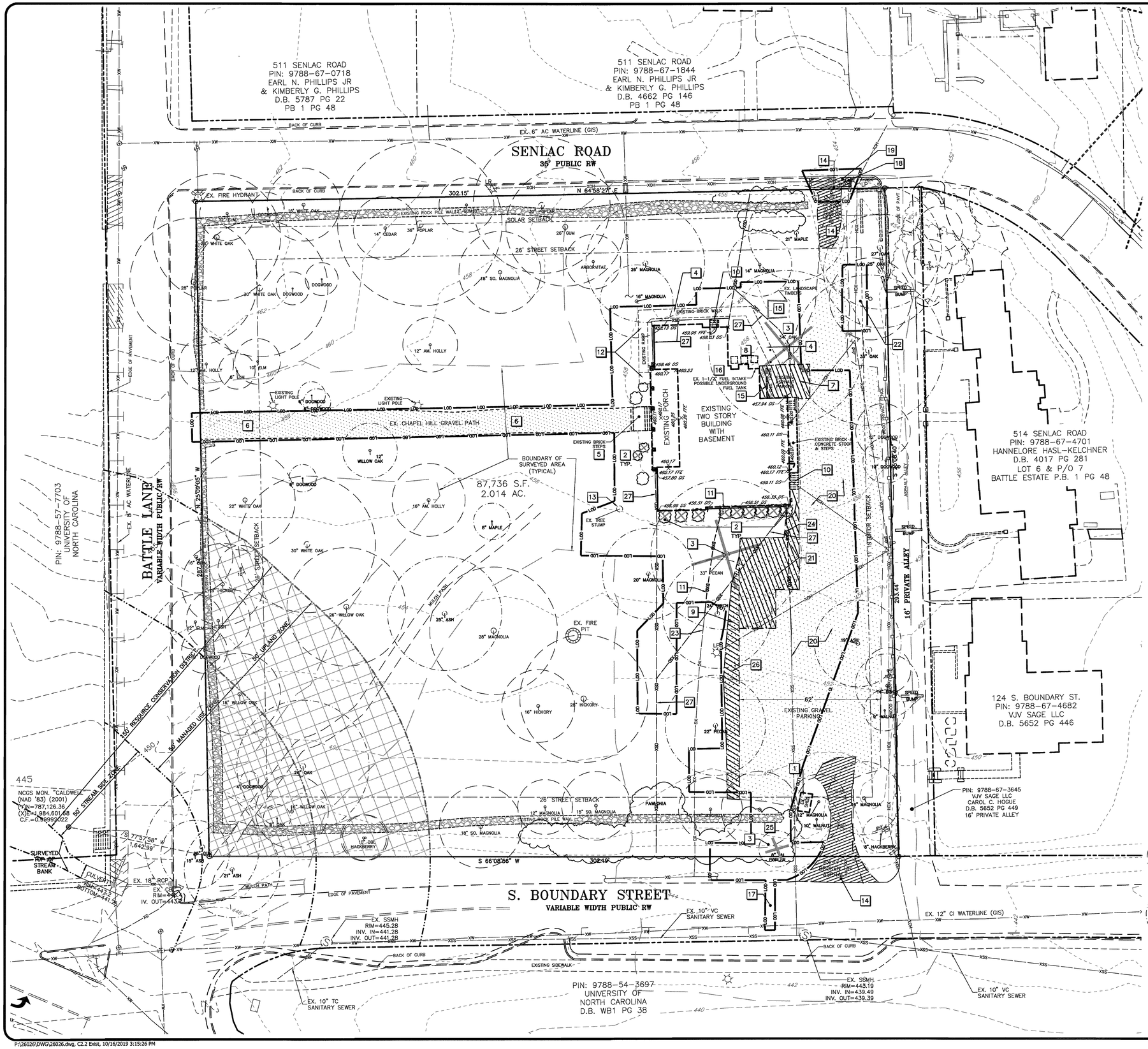

KEY — KEYED NOTES – DEMOLITION

1. EXISTING SHED TO REMAIN ON-SITE. SEE UTILITY PLAN FOR ADAPTIVE RE-USE OF SHED
2. REMOVE EXISTING SHRUBS.
3. REMOVE EXISTING TREE AND STUMP. REPLACE VOID WITH LOAMY SOIL
4. REMOVE EXISTING BRICK WALKWAY.
5. SEE ARCHITECTURAL DRAWINGS FOR IMPROVEMENTS TO STEPS.
6. RENOVATE GRAVEL PATH (SEE LANDSCAPE DRAWINGS). REMOVE EXCESS GRAVEL FROM EDGES BEFORE PLACING NEW BORDER.
7. REMOVE EXISTING ASPHALT PAVING AND STONE BASE TO MAKE ROOM FOR NEW BUILDING ADDITION.
8. REMOVE EXISTING HVAC UNITS AND REPLACE WITH NEW HVAC UNITS.
9. REMOVE EXISTING LANDSCAPE TIMBERS ALONG EDGE OF GRAVEL PARKING. REMOVE GRAVEL AS INDICATED AND REPLACE WITH LOAMY SOIL. TILL AND AMEND SOIL FOR GRASS SEEDING.
10. REMOVE EXISTING STEPS.
11. COORDINATE WITH GAS SERVICE PROVIDER FOR RELOCATION OF GAS METER AND PORTION OF GAS SERVICE PIPE FOR TERRACE CONSTRUCTION. SEE UTILITY PLAN FOR NEW LOCATION.
12. REMOVE RAMP AND LANDING.
13. REMOVE TREE STUMP. REPLACE VOID WITH LOAMY SOIL.
14. REMOVE EXISTING BROKEN ASPHALT.
15. REMOVE EXISTING LANDSCAPE TIMBERS AND WHEELSTOPS.
16. OWNER WILL REMOVE EXISTING UNDERGROUND TANK PRIOR TO START OF CONSTRUCTION.
17. SEE UTILITY DRAWINGS FOR PAVEMENT CUT AND PATCH FOR WATERLINE EXTENSION.
18. COORDINATE WITH DUKE POWER FOR REMOVAL OF UN-USED UTILITY POLE #1AHE25
19. REMOVE CONCRETE CURB-CUT AND SHORT LENGTH OF BROKEN CURB ON WEST SIDE OF DRIVEWAY IN PREPARATION FOR INSTALLING NEW CONCRETE DRIVEWAY APRON. OBTAIN STREET-CUT PERMIT FROM CHAPEL HILL AS REQUIRED
20. REMOVE GRAVEL AS NEEDED FOR UTILITY WORK WITHIN DRIVEWAY. REPLACE PER DETAIL FOR GRAVEL PARKING.
21. REMOVE GRAVEL AS NEEDED FOR INSTALLATION OF NEW PARKING PAD, TERRACE, AND PEDESTRIAN/ACCESSIBILITY WORK.
22. CONTACT UTILITY PROVIDERS AND REQUEST REMOVAL OF VINES FROM OVERHEAD UTILITY LINES IN THIS AREA.
23. PORTION OF GAS SERVICE LINE TO REMAIN.
24. REMOVE A PORTION OF EXISTING SANITARY SEWER SERVICE PIPING FOR NEW TERRACE WORK. SEE UTILITY PLAN FOR NEW PIPING.
25. 15' WIDE CLEARING FOR UTILITY INSTALLATION. SALVAGE AND RE-USE EXISTING ROCKS TO RESTORE ROCK-PILE WALL WHERE DISTURBED BY UTILITY CONSTRUCTION.
26. REMOVE EXCESS GRAVEL WIDTH FOR PARKING AREA.
27. SEE SHEET C4.1 FOR TREATMENT OF EXISTING ROOF DRAINS.

EXISTING TREE LEGEND

- 8" MAPLE — EXISTING TREE LOCATED BY SURVEY.
- 10" AM. HOLLY — EXISTING TREE LOCATED BY GOOGLE MAPS AERIAL.
- EXISTING TREE TO BE REMOVED

STREAM ZONES

- 50' UPLAND ZONE AREA ON SITE=7,330 SF
- 50' MANAGED USE ZONE AREA ON SITE=2,803 SF

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10-16-19

ADDITIONS AND RENOVATIONS
THE BATTLE HOUSE
NC STUDY CENTER
CHAPEL HILL, NORTH CAROLINA
EXISTING CONDITIONS & DEMOLITION PLAN

REV.	DATE	DESCRIPTION

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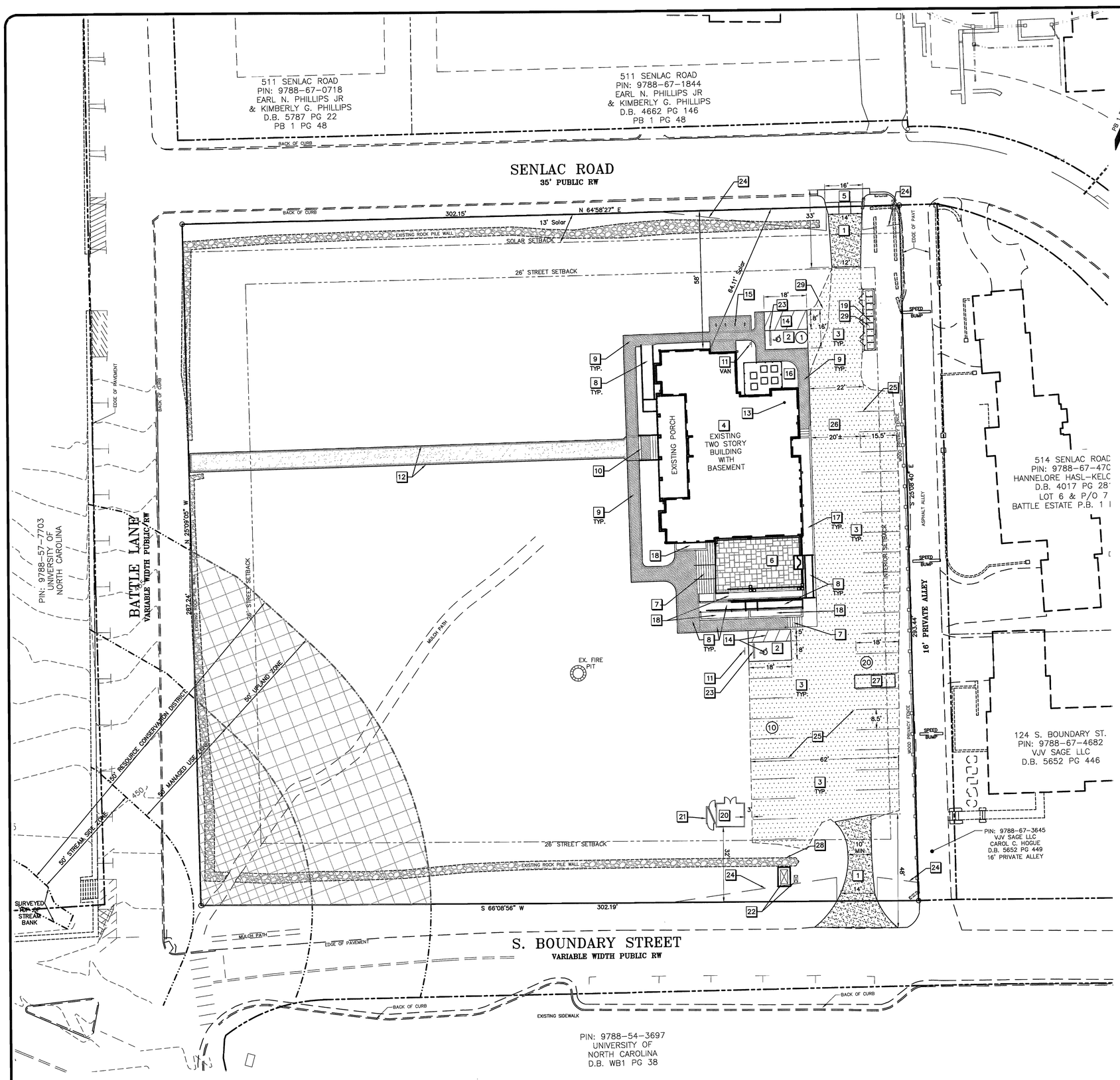

KEY

KEYED NOTES – SITE PLAN

1. NEW BITUMINOUS PAVING (SEE DETAIL).
2. NEW STONE BASE AND BITUMINOUS PAVING FOR ACCESSIBLE PARKING PAD AND AISLE.
3. SEE DETAIL FOR TREATMENT OF EXISTING GRAVEL SURFACES THAT WILL REMAIN.
4. SEE ARCHITECTURAL DRAWINGS FOR EXTERIOR AND INTERIOR BUILDING IMPROVEMENTS.
5. NEW CONCRETE DRIVEWAY CUT AND SIDEWALK APRON
6. NEW ELEVATED TERRACE. (SEE ARCHITECTURAL DRAWINGS).
7. NEW STEPS WITH HANDRAILS. (SEE ARCHITECTURAL DRAWINGS).
8. NEW ACCESSIBLE RAMP AND LANDINGS. (SEE ARCHITECTURAL DRAWINGS).
9. NEW BRICK WALK. (SEE LANDSCAPE DRAWINGS).
10. RENOVATE EXISTING BRICK LANDING AND STEPS. (SEE ARCHITECTURAL DRAWINGS).
11. HANDICAPPED PARKING SIGNS ON POST.
12. RENOVATE EXISTING CHAPEL HILL GRAVEL WALK. (SEE LANDSCAPE DRAWINGS).
13. NEW BUILDING ADDITION.
14. PAINTED ACCESSIBLE PARKING SPACE AND AISLE MARKINGS.
15. FOUR NEW BICYCLE RACKS, (8 BICYCLE SPACES) ON BRICK PAD. (SEE LANDSCAPE DRAWINGS).
16. NEW HVAC UNITS ON CONCRETE SUPPORT PADS, WITH SCREEN ENCLOSURE. (SEE ARCHITECTURAL DRAWINGS).
17. EXTEND EXISTING ELEVATED WALK (SEE ARCHITECTURAL DRAWINGS).
18. NEW PLANTER. (SEE ARCHITECTURAL DRAWINGS).
19. NEW SOLID WASTE/RECYCLING CENTER ON 6" THICK COMPACTED GRAVEL PAD WITH WOODEN FENCE AND GATES. (SEE ARCHITECTURAL DRAWINGS).
20. NEW GARDEN STORAGE SHED. (SEE ARCHITECTURAL DRAWINGS).
21. TWO NEW ENCLOSED BICYCLE SPACES (SEE ARCHITECTURAL DRAWINGS).
22. BACKFLOW PREVENTER ENCLOSURE; SEE UTILITY PLAN.
23. CONCRETE WHEELSTOP.
24. 10'x70' SIGHT DISTANCE TRIANGLE
25. THEORETICAL PARKING SPACE DELINEATION; NO PHYSICAL MARKING
26. EXISTING GRAVEL WIDTH AT THIS LOCATION IS NON-STANDARD FOR PARKING PURPOSES, BUT THE OWNER HAS BEEN SUCCESSFULLY USING THIS CONDITION FOR DRIVEWAY AND PARKING. SPACES SHOWN IN THIS AREA ARE INDICATED AT STANDARD WIDTH(8.5) BUT COMPACT LENGTH(15.5)
27. EXISTING TREE IN THIS AREA PREVENTS USE AS A PARKING SPACE.
28. SALVAGE AND RE-USE EXISTING ROCKS TO RESTORE ROCK-PILE WALL WHERE DISTURBED BY UTILITY CONSTRUCTION.
29. NEW GRAVEL ADDITIONS FOR PARKING ACCESS AND SOLID WASTE/RECYCLING CENTER.

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10-16-19

ADDITIONS AND RENOVATIONS THE BATTLE HOUSE NC STUDY CENTER

CHAPEL HILL, NORTH CAROLINA

SITE LAYOUT PLAN

REV.	DATE	DESCRIPTION

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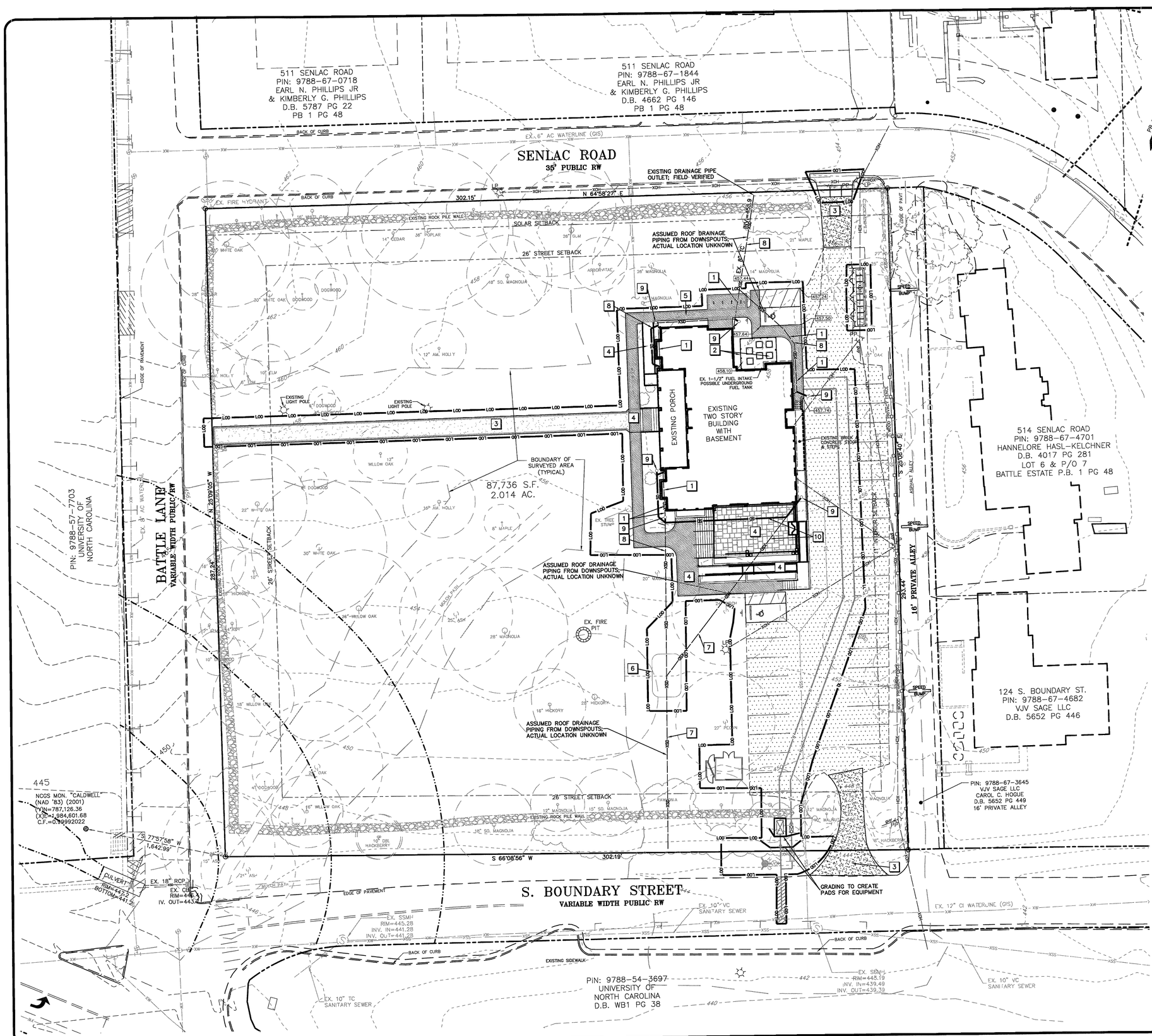

KEY — KEYED NOTES – GRADING & STORM DRAINAGE PLAN

1. USE CARE WORKING ON EXISTING ROOF DRAIN PIPES(LOCATIONS UNKNOWN). RE-CONSTRUCT PIPING AS NEEDED WHEN IT CONFLICTS WITH NEW WORK – MINIMUM SLOPE = 2.0%
2. GRADE TO DRAIN AWAY FROM BUILDING.
3. INSTALL NEW SURFACES TO MATCH EXISTING FINISHED ELEVATIONS.
4. SEE ARCHITECTURAL DRAWINGS FOR FINISHED ELEVATIONS FOR TERRACE, STEPS, AND RAMPS. (LATER)
5. SEE HARDSCAPE PLAN FOR FINISHED ELEVATIONS OF WALKWAYS AND BIKE RACK PAD. (LATER)
6. UNCOVER EXISTING ROOF DRAIN PIPING AND RE-GRADE TO DRAIN TO DAYLIGHT. REMOVE PORTIONS OF PIPING AS NEEDED.
7. ABANDON PORTION OF EXISTING ROOF DRAIN PIPING IN PLACE WHERE IT OCCURS OUTSIDE LIMIT OF DISTURBANCE.
8. CONDUCT VISUAL EXAMINATION OF ROOF DRAIN PIPING WITH FLOWING WATER TO VERIFY FUNCTIONALITY; RESOLVE ANY DEFICIENCIES FOUND TO THE ARCHITECT'S SATISFACTION.
9. ADD CLEANOUT ASSEMBLY TO ROOF DRAIN, SIMILAR TO SANITARY SEWER CLEANOUT DETAIL.
10. REMOVE SECTION OF ROOF DRAIN PIPING THAT CONFLICTS WITH NEW TERRACE AND RAMP WORK, AND INSTALL NEW 4" PVC DRAIN AS SHOWN.

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10-16-19

ADDITIONS AND RENOVATIONS
THE BATTLE HOUSE
NC STUDY CENTER
CHAPEL HILL, NORTH CAROLINA
GRADING AND STORM DRAINAGE PLAN

REV.	DATE	DESCRIPTION

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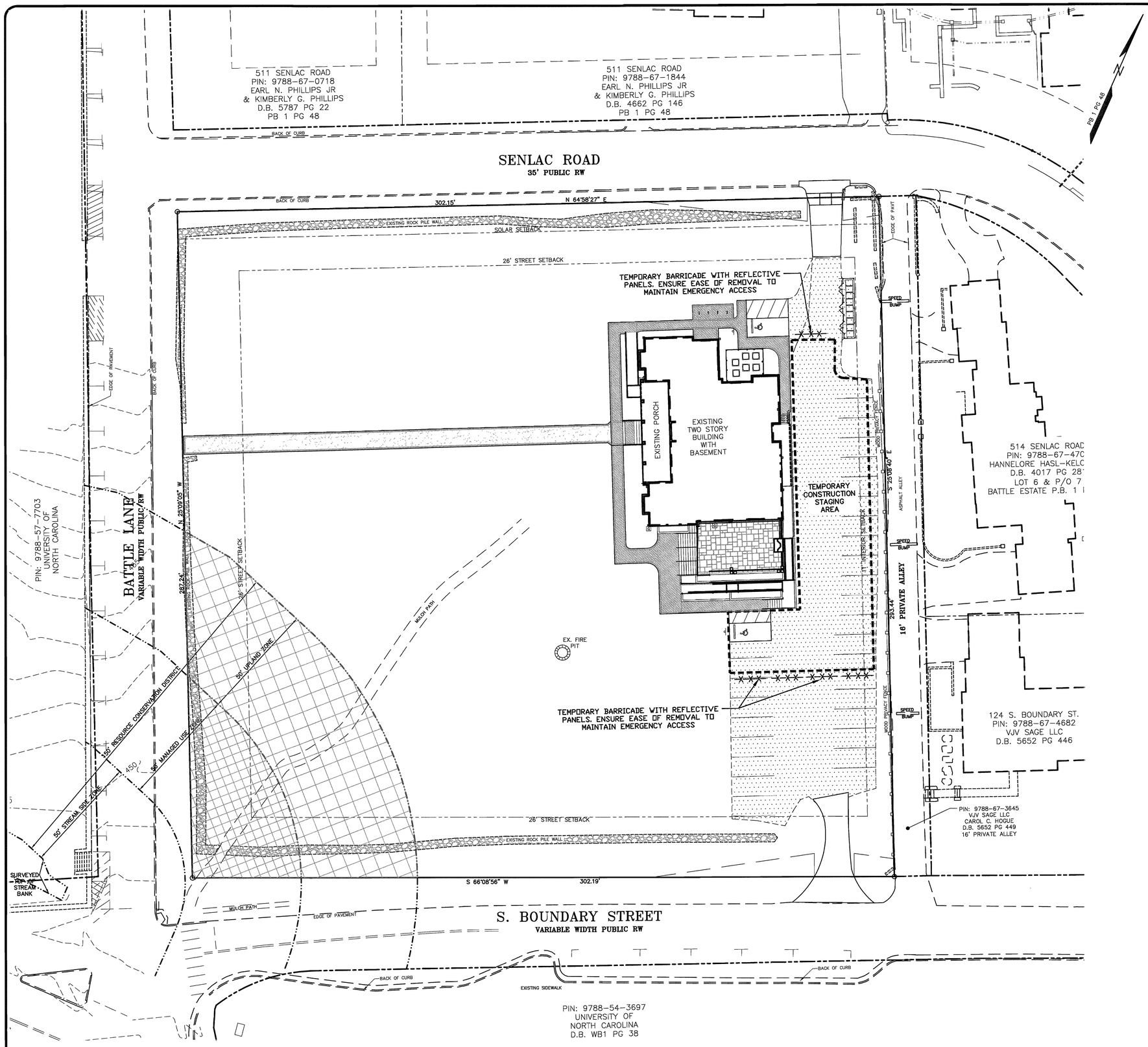

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ADDITIONS AND RENOVATIONS
THE BATTLE HOUSE
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CONSTRUCTION STAGING PLAN

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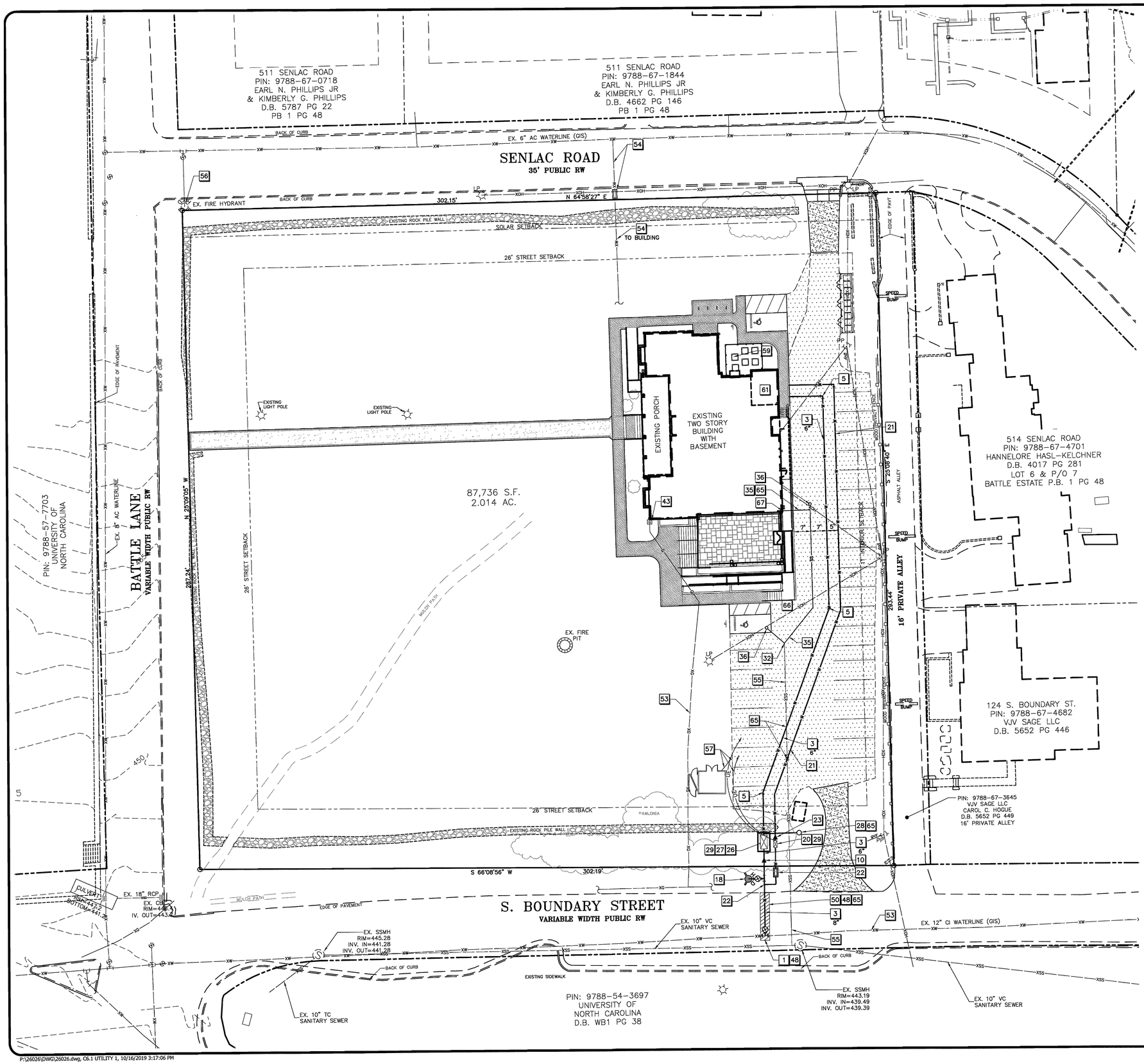

KEY — KEYED NOTES – UTILITY PLAN

KEY	
1	CONNECT TO EXISTING WATERLINE USING 8" X 12" TAPPING SLEEVE AND 8" TAPPING VALVE, WITH THRUST RESTRAINT. VERIFY EXISTING PIPE SIZE & MATERIAL, AND PROVIDE SUITABLE SLEEVE AND EQUIPMENT FOR THE TAP. INSTALL SLEEVE WITH AT LEAST 12" SEPARATION FROM ANY JOINT, BELL, FITTING, OR TAP.
3	DUCTILE IRON WATERLINE, SIZE AS NOTED.
5	MJ BEND MATCHING PIPE SIZE, ANGLE AS NEEDED. PROVIDE THRUST RESTRAINT AS NEEDED.
10	8" X 6" MJ REDUCER FITTING. PROVIDE THRUST RESTRAINT AS REQUIRED.
18	8" X 6" MJ HYDRANT TEE, 6" GATE VALVE WITH VALVE BOX AND CONCRETE COLLAR, AND FIRE HYDRANT ASSEMBLY. PROVIDE HYDRANT EXTENSION AS NEEDED FOR PIPE DEPTH AND FINISHED HEIGHT REQUIREMENT PROVIDE HYDRANT WITH 5" STORZ FITTING.
20	BACKFLOW PREVENTER DEVICE FOR DOMESTIC WATER SERVICE, INSTALLED IN A HEATED ABOVE-GROUND ENCLOSURE. DEVICE SHALL BE A 1" REDUCED PRESSURE PRINCIPLE LEAD-FREE ASSEMBLY, MODEL LF909 BY WATTS OR APPROVED EQUAL. PROVIDE AN ENCLOSURE THAT WILL ACCOMMODATE DEVICE SIZE, CONFIGURATION, CLEARANCE, ACCESS, AND MAINTENANCE REQUIREMENTS. PROVIDE ELECTRICAL SERVICE FROM DEDICATED CIRCUIT IN BUILDING ELECTRICAL PANEL FOR HEATING PURPOSES. COORDINATE AS NEEDED FOR PROPER SIZING AND INSTALLATION OF ALL ELECTRICAL COMPONENTS.
21	1½" HDPE WATER SERVICE PIPING (DR11) WITH 36" BURY.
22	1" SADDLE TAP AND COPPER SERVICE WITH 1" METER ASSEMBLY IN METER BOX.
23	1"X1½" INCREASER FITTING, PRESSURE RATED TO 150 PSI.
26	BACKFLOW PREVENTER DEVICE FOR FIRE PROTECTION SPRINKLER SERVICE INSTALLED IN ABOVE-GROUND ENCLOSURE. DEVICE SHALL BE A 6" REDUCED-PRESSURE PRINCIPLE ASSEMBLY WITH A BYPASS DETECTOR METER, MODEL LF957RPDA-OSY BY WATTS OR APPROVED EQUAL. THE ENTIRE ASSEMBLY SHALL BE RATED AS LEAD-FREE. EACH GATE VALVE SHALL BE IN OS&Y CONFIGURATION, FITTED WITH A VALVE SUPERVISORY SWITCH, MODEL OSYSU-2 BY POTTER. PROVIDE AN ENCLOSURE THAT WILL ACCOMMODATE DEVICE SIZE, CONFIGURATION, CLEARANCE, ACCESS, AND MAINTENANCE REQUIREMENTS. PROVIDE ELECTRICAL SERVICE FROM DEDICATED CIRCUIT IN BUILDING ELECTRICAL PANEL FOR HEATING PURPOSES. COORDINATE AS NEEDED FOR PROPER SIZING AND INSTALLATION OF ALL ELECTRICAL COMPONENTS.
27	BID ALTERNATE: RE-PURPOSE EXISTING METAL SHED FOR BACKFLOW PREVENTER ENCLOSURE IN LIEU OF MANUFACTURED ENCLOSURE. ESTABLISH SHED ON CONCRETE SLAB AND SECURE SHED TO SLAB. RE-CONFIGURE SIDE PANEL ON SHED FOR EASY REMOVAL FOR MAINTENANCE OR PROVIDE MECHANISM FOR TILTING SHED OVER TO ONE SIDE FOR DEVICE ACCESS.
28	FIRE DEPARTMENT CONNECTION INSTALLED IN YARD, WITH SIGNAGE AS REQUIRED BY LOCAL FIRE CODE OFFICIAL. VERIFY LOCATIONS WITH FIRE CODE OFFICIAL.
29	PROVIDE 4" THICK CONCRETE PAD FOR BACKFLOW PREVENTER ENCLOSURES. GRADE AS NEEDED AND PROVIDE A TURN-DOWN SLAB CONFIGURATION TO OVERCOME EXISTING GROUND SLOPE.
32	CONNECT TO EXISTING SANITARY SEWER SERVICE USING PVC FITTINGS AND NO-HUB TRANSITION FITTING.
35	4" PVC SANITARY SEWER SERVICE LINE INSTALLED IN ACCORDANCE WITH THE NC PLUMBING CODE.
36	PVC SANITARY SEWER CLEANOUT ASSEMBLY WITH CONCRETE COLLAR. MINIMALLY PROVIDE SPACING AND LOCATIONS SHOWN. PROVIDE ADDITIONAL CLEANOUT ASSEMBLIES ON NEW PIPING IN ACCORDANCE WITH N.C. PLUMBING CODE REQUIREMENTS.
43	RELOCATION OF GAS SERVICE LINE AND METER, BY GAS COMPANY. SHOWN SCHEMATICALLY. SIZING AND INSTALLATION BY GAS COMPANY.
48	PROVIDE ADEQUATE TRAFFIC CONTROL AND SAFETY MEASURES FOR PUBLIC AND WORKER SAFETY DURING ALL PHASES OF THE WORK. CONFORM TO STANDARDS OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD), THE NORTH CAROLINA SUPPLEMENT TO THE MUTCD, AND REQUIREMENTS OF APPLICABLE ROADWAY AUTHORITIES(SEE TRAFFIC CONTROL DRAWINGS).
50	PAVEMENT CUT AND PATCH AS NEEDED FOR UTILITY LINE INSTALLATION. CONFORM TO ALL RIGHT-OF-WAY ENCROACHMENT CONDITIONS FOR THE WORK.
53	APPROXIMATE LOCATION OF EXISTING UNDERGROUND UTILITY SERVICE. VERIFY LOCATION WITH PROVIDER.
54	APPROXIMATE LOCATION OF EXISTING 3/4" WATER SERVICE AND 5/8" METER. TO BE ABANDONED IN PLACE. COORDINATE WITH OWASA FOR METER REMOVAL AFTER NEW WATER SERVICE IS ACTIVATED.
55	ASSUMED LOCATION OF EXISTING TERRA COTTA SANITARY SEWER SERVICE (NOT VERIFIED).
56	APPROXIMATE LOCATION OF EXISTING FIRE HYDRANT.
57	INSTALL CONDUIT AS REQUIRED WITH 30" MIN. BURY, FOR ELECTRICAL SERVICE TO BACKFLOW PREVENTERS. SEE KEY NOTE 26. ALSO SEE ELECTRICAL SITE PLAN (LATER).
59	HVAC UNITS, SHOWN SCHEMATICALLY, SYSTEM DESIGN AND SPECIFICATIONS BY OTHERS. PROVIDE SITE PREPARATION AND CONCRETE PADS AS REQUIRED.
61	THE DOMESTIC WATER SERVICE DEMAND FOR THIS FACILITY IS 24 GPM AT A RESIDUAL PRESSURE OF NO MORE THAN 43 PSI AT GROUND FLOOR LEVEL, WITH THE FACILITY HAVING PREDOMINANTLY FLUSH TANK TOILET FIXTURES.
65	PRIOR TO UTILITY INSTALLATION, FIELD DETERMINE LOCATIONS AND ELEVATIONS OF BURIED UTILITIES OR OTHER FEATURES THAT WILL BE CROSSED BY THE NEW UTILITY. VERIFY THAT ADEQUATE CLEARANCES (AND SLOPES, IF APPLICABLE) WILL BE MAINTAINED. CONSULT ENGINEER AS NEEDED TO RESOLVE ANY NON-CONFORMING CONDITIONS.
66	ASSESS HEIGHT OF EXISTING OVERHEAD ELECTRIC LINE IN RELATION TO THE NEW STAIR LANDING. CONTACT DUKE POWER FOR LINE RELOCATION AS NEEDED.
67	CONNECT TO EXISTING SANITARY SEWER SERVICE WITHIN THE BUILDING FOOTPRINT AND EXTEND THROUGH BUILDING WALL.

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ADDITIONS AND RENOVATIONS
THE BATTLE HOUSE
NC STUDY CENTER
CHAPEL HILL, NORTH CAROLINA

UTILITY PLAN

REV.	DATE	DESCRIPTION

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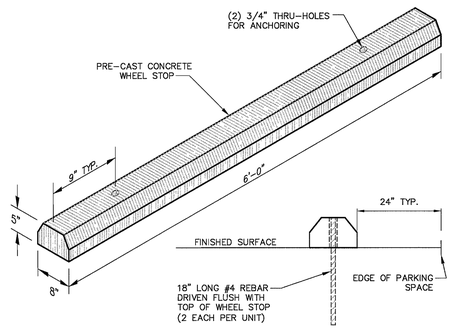

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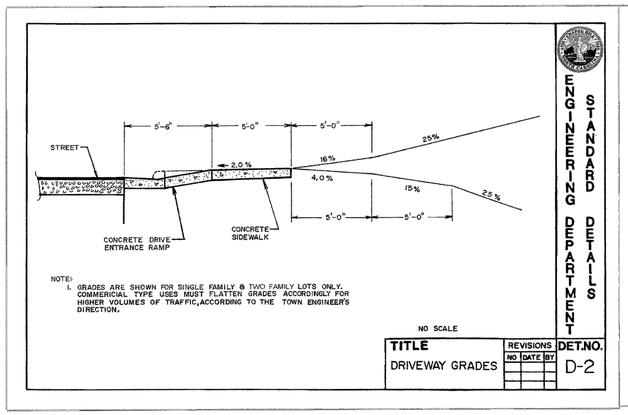
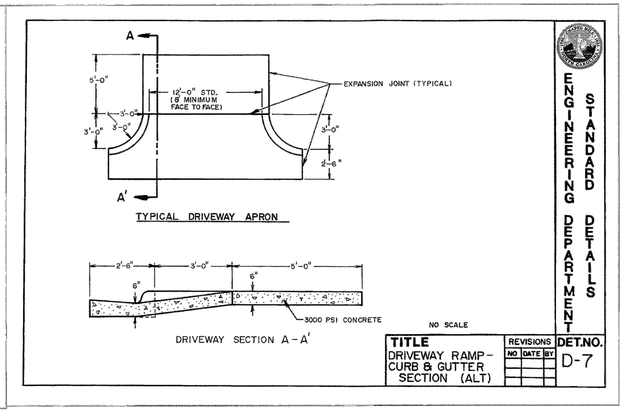
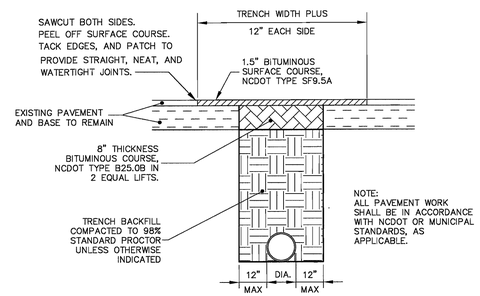
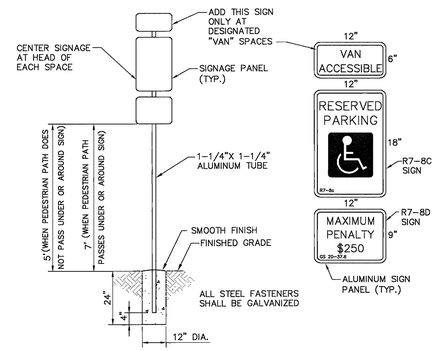


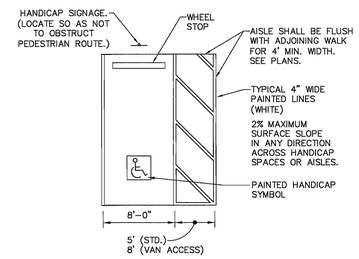




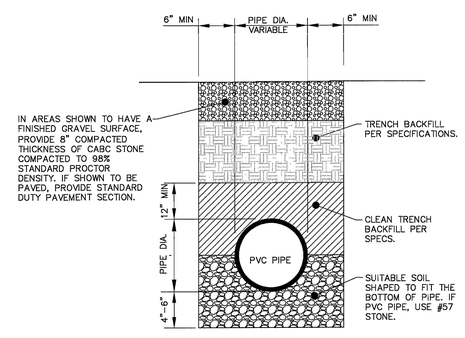
PAVEMENT REPAIR AT TRENCH
IN PUBLIC STREET
NTS



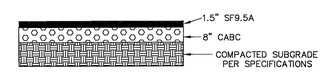
HANDICAP PARKING SIGNAGE
NTS



HANDICAP PARKING SPACE
NTS



TYPICAL PRIVATE UTILITY
TRENCH DETAIL
NTS



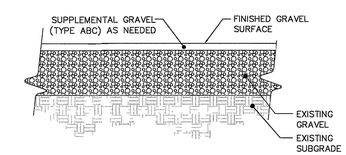
STANDARD DUTY
PAVEMENT SECTION

NOTES:

1. CONSTRUCTION PROCEDURES, MIX RATIOS, AGGREGATE SIZES, AND COMPACTED DENSITIES SHALL BE IN ACCORDANCE WITH NCDOT STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES LATEST EDITION.
2. INDICATED THICKNESS REFLECTS COMPACTED THICKNESS, WITH TOLERANCES AS ALLOWED BY NCDOT STANDARDS.

NOTES:

1. WHERE FINISHED SURFACE ELEVATIONS ARE HIGHER THAN EXISTING ELEVATIONS, OR WHERE THE EXISTING SURFACE IS DISTURBED, SCARIFY EXISTING GRAVEL AND MIX NEW ABC STONE TO AT LEAST A SIX-INCH DEPTH.
2. ROLL AND COMPACT RESULTING GRAVEL COURSE TO AT LEAST 98% STANDARD PROCTOR DENSITY.
3. FINE GRADE SURFACES TO MAINTAIN POSITIVE SLOPE OF AT LEAST 1.5% AT ALL LOCATIONS.



GRAVEL-SURFACED PARKING
AND DRIVEWAY
(NTS)

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NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 14999 TONY M. WHITAKER
10-16-19

ADDITIONS AND RENOVATIONS
THE BATTLE HOUSE
NC STUDY CENTER
CHAPEL HILL, NORTH CAROLINA
SITE
DETAILS

REV.	DATE	DESCRIPTION

DATE: OCTOBER 16, 2019

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C11.1

Buffer Explanation

The LUMO requires buffers on projects to meet Section 5.6 and as outlined in the Design Manual. The proposed use for the NC Study Center will be as Place of Worship/Study Center will be Use Type B.

- Across S. Boundary Street to the south (which is zoned R-2) is Forest Theater and is UNC land, managed by the NCBG and part of Battle Park and will be Buffer Type C.
- Across Battle Lane and to the and west is UNC land (zoned OI-4) and part of the Battle Grove stream restoration area and adjacent to residential halls (Kenan-McIver dorms) will be Buffer Type B.
- To the north and across Senlac Ln is single-family residential and zone R-2 as well as to the east and across the private alley (also zoned R-2) S-F residential also be Buffer Type C.
- This requirement is met by providing a buffer width of the property as well as the required number of trees and shrubs and/or other screening, such as and existing historic stone wall and screen fence.
- The southern boundary along South Boundary Street meets the requirements with extensive existing vegetation in the buffer strip, and the eastern boundary meets the requirement with an existing 6' high fence along with canopy trees and other vegetation and northern and western boundary meets intent of requirement with existing mature trees and rubble stone wall.

BUFFER CALCULATIONS:

External Buffer B
Use Group B

BUFFER 1: South side toward S Boundary St. with Type C/UNC land across street and
BUFFER 2: West side toward Battle Lane with Type B/UNC land across street and
BUFFER 3: North side toward Senlac Ln with Type C Single Family Residential across street
BUFFER 4: East side toward private alley with Type C Single Family across alley

CURRENT BUFFER REQUIREMENTS:
Type B Buffer Width = 15 ft. (External)
Recommended Standard ~ 100 ft.
6 Large Trees
8 Small Trees
15 Shrubs

Type C Buffer Width = 20 ft. (External)
Recommended Standard ~ 100 ft.
5 Large Trees
10 Small Trees
36 Shrubs

Buffer 1: South side along S. Boundary St. adjoining UNC Forest Theater - Type C Buffer
Existing for current buffer
(2) 16" Ash 21 Dbl Ash
(2) 6" Oak, (1) 22" Hickory, (2) 10" Hackberry, (1) 10" Walnut
(3) evergreen 18", 12", 15", 14", 12" and 16" Magnolias
(approx. 15) small deciduous trees and understory vegetation
stone retaining wall and approx 3-5 ft sloped embankment.

Buffer 2: West side along Battle Ln. adjoining UNC Battle Grove - Type B Buffer
Existing for current buffer
(2) 16" Oaks, 18" Oak, 29" Oak, 22" Oak, 30" Oak, 30" Oak
(1) 18" Hickory, (2) 14" Ash and
(4) 12" Elm, 10" Elm, 8" Elm and 16" Elm
(1) 12" Am. Holly
(3) 10" Dogwoods
Historic rubble stone wall

Buffer 3: North Side along Senlac Ln./SF R-2 Residential - Type C Buffer
Existing current buffer along Senlac Lane
(4) 12" Oak, 12" Elm, 14" Cedar, 12" Gum
(2) 16" Oaks
(1) 21" Maple, (1) 26" Gum, (1) 36" Poplar, (1) 30" Poplar,
(3) 18" Magnolia, 26" Magnolia, 14" Magnolia
(3) small deciduous flowering Dowoods tree
rubble stone retaining wall

Buffer 4: East side toward Private Alley/SF R-2 Residential
Type C Buffer - Existing for current buffer along Private Alley
(3) 25" Oak, 27" Oak, 12" Oak,
(1) 14" Elm, (1) 9" Walnut, (1) 19" Dbl Ash "
(1) 10" Dogwood
partial stone wall and 6 ft. hgt. wood screen fence over entire length of property line.

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SECTION 3 LANDSCAPING AND TREE PROTECTION

3-1 DESIGN STANDARDS

3-1.1 Buffer Requirements

The following chart indicates the minimum width and planting requirements for each buffer type established in Section 5.6 of the Land Use Management Ordinance. The arrangement of plants within each buffer should be integral to the design concept of the project as a whole, as well as responsive to the landscapes of adjacent properties. The room required for plants to develop their natural form, especially large trees, should also be considered when determining plant spacing. Allowing greater than minimum buffer widths can therefore provide more design flexibility. The buffer locations shown in the chart refer to whether the buffer area is adjacent to a street (external) or adjacent to some other property line (internal). When developing external buffers, large trees may be planted within the public right-of-way if they are consistent with adjacent street tree plantings and are acceptable to the Town and the North Carolina Department of Transportation, if applicable.

Plants per 100 Linear Feet

Buffer Type	Minimum Width	Location	Large Trees	Small Trees	Shrubs
"A"	15	External	2	4	6
		Internal	2	4	6
"B"	15	External	6	8	15
	10	Internal	4	7	12
"C"	20	External	5	10	36
		Internal	4	8	30
"D"	30	External	6	12	40
		Internal	5	10	30
"E"	100	External	10	15	70

Examples of appropriate varieties of large and small trees and shrubs can be found in the Plant Selection Standards. When selecting shrub species, a minimum of 50% of the total number of required shrubs should be evergreen.

When it is acceptable to the Town, existing vegetation can be used to satisfy some or all of the required buffer plantings. In these cases, the existing vegetation shall be in good health and be protected during the development process. In most locations where existing vegetation is retained, supplemental plantings of evergreen shrubs along buffer edges will still be needed in order to meet the planting requirements noted above.

TREE STANDS:

An evaluation of the existing tree canopy was made and plan shows the shaded area of existing trees with a canopy of 5,000 s.f. that are contiguous as defined by 5.7.5 in the Tree Protection Ordinance. However, this site is an urban site and does not contain 'woods'. There are single trees that have been identified with a total canopy of approx. 44,955 s.f. The canopy for the hardwood/evergreen trees shown hatched represent the 'continguous' canopy, however the trunks are separated by existing pavement.

Total Site Area = 87,736 sf
(2.014 ac)

PARKING LOT CANOPY COVERAGE:

The proposed drive aisle and parking area is approx. 10,710 sf. The requirement is that 35% of this be covered representing 1,692 sf.
The existing canopy for the trees in the parking area meets approx. 2,140 SF, exceeding the required area.

Total Existing Tree Canopy Area = 44,955 sf
51% of Site Area
Total New Tree Canopy Area = 4,800 sf
Total Tree Canopy Coverage = 49,755 sf
Total percentage coverage = 57% of Site Area

Total Tree Canopy over Parking = 4,653 sf
Tota; percentage of canopy coverage over parking = 43%

LEGEND for SIGNIFICANT TREE STANDS/CANOPY and SHADE:

Tree Canopy
44,955 s.f.

Tree Shade Canopy over Parking
4,653 sf

New Tree Shade Canopy (assume at maturity)
4,800 sf

Existing Gravel Paved and Parking Areas
~12,064 sf

New Gravel Paved and Parking Areas including ADA parking
~11,167 sf

Limits of Disturbance

Landscape Plan with Tree Canopy Area/Shading Plan

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Scale : 1" = 20'-0"

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ADDITIONS AND RENOVATIONS
THE BATTLE HOUSE
NC STUDY CENTER
CHAPEL HILL, NORTH CAROLINA
TREE CANOPY COVERAGE PLAN
BUFFER PLAN

REV.	DATE	DESCRIPTION	BY

DATE: OCTOBER 16, 2019

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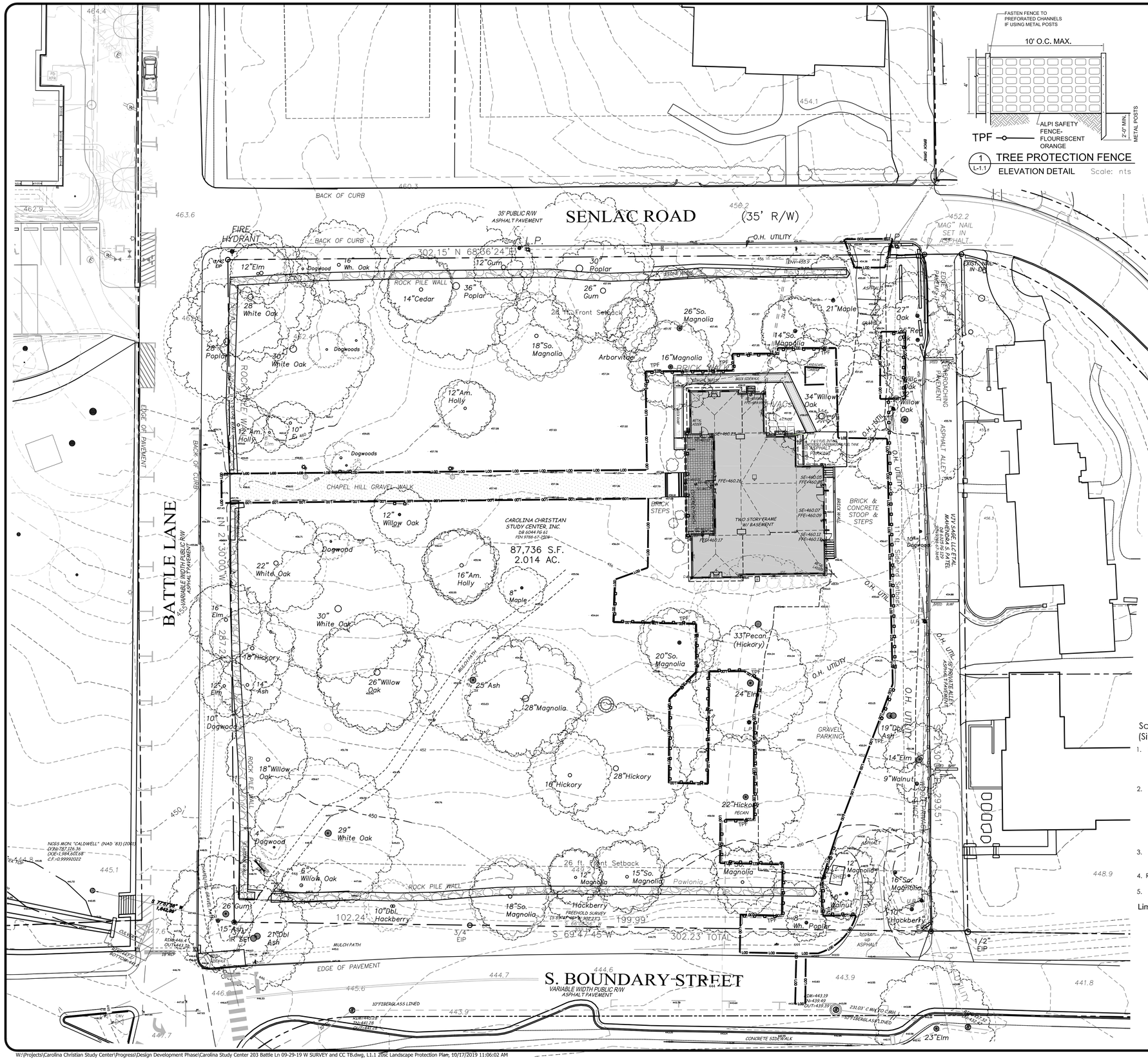

1 L-1.1 TREE PROTECTION FENCE
ELEVATION DETAIL Scale: nts

Construction Waste:

1. All existing structures 500 Square Feet and larger in size shall be assessed prior to demolition to ensure compliance with the County's Regulated Recyclable Materials Ordinance (RRMO) and to assess the potential for de-construction and/or the re-use of salvageable materials.
2. By Orange County Ordinance, clean wood waste, scrap metal, and corrugated cardboard present in construction or demolition waste must be recycled.
3. By Orange County Ordinance, all haulers of mixed construction and demolition waste that includes any regulated recyclable materials shall be licensed by Orange County.
4. Prior to any demolition or construction activity on the site the Applicant shall hold a pre-demolition/pre-construction conference with the Solid Waste staff. This may be the same pre-construction meeting held with other development/enforcement officials.
5. The presence of any asbestos containing materials ('ACM') and/or other hazardous materials in construction and demolition waste shall be handled in accordance with any and all local, state, and federal regulations and guidelines.

TREE PROTECTION NOTES:

1. A preconstruction conference must be held with the Town's Urban Forester before any site work begins.

2. A Landscape Protection Supervisor who is registered with the Town of Chapel Hill must be present on site at all times when the following activities are taking place: clearing, grubbing, excavation, grading, trenching, moving of soil, installation and removal of tree protection fencing, and the delivery, transporting, and placement of construction materials and equipment.

3. Care shall be taken to protect remaining trees and other landscape elements that are to remain. All parties working on this project shall take necessary action to prevent severe compaction of soil within existing tree drip lines. Heavy construction equipment shall be restricted from under the drip lines of trees to remain. material storage, topsoil or earth stockpiles shall not be allowed under drip unes. Any roots of trees to remain impacted during contruction should be cut clean.

4. Contractor shall refer to construction staging plans for allowable access, material delivery and staging areas that will avoid damage to existing trees.

5. Any limbing of trees to remain shall be performed by a certified arborist. Contractor shall notify the Town Urban Forester of such needs.

6. Tree protection fencing shall be inspected and maintained daily.

7. Signs in both English and Spanish shall be placed on tree protection fencing stating "Tree Protection Area, Do Not Enter".

8. Do not dispose of any chemicals or remove soil outside the limit of work.

9. When installing new landscape plants, do not drive equipment upon or disturb the soil within the critical root zone of existing trees.

10. The tree protection fencing should be installed and inspected at limits of distiurbance prior to any exterior work or pavement removal operations and continue until all major construction and uility work has been completed.

11. For utility connections (gas line, elec, etc.) a zone should be established to go through the existing trees without disturbing the tree roots - trenches to be installed no closer than 9 ft x DBH of the tree.

Scope of Project Demolition:
(Site Only)

1. Existing stone and concrete stoop and steps as shown to be demolished and removed. Stockpile existing materials to be salvaged off site or in mulched area away from all trees. Fence areas where stockpiling will occur.
2. Remove existing stone wall as shown or indicated on plans:
   a) portion of stone wall along N Boundary St.in failing condition to be removed and replaced with stone to match .
   b) wall along north side of building that is failing and in disrepair (to be replaced with new stone wall to match)
3. Remove portion of existing curb and gutter as shown (by proposed dumpster and water fire line) and also along N Boundary St.
4. Remove existing asphalt as needed for water fire line work in drive and in N Boundary St.
5. Protect existing trees to remain (see notes)

Limits of Disturbance

LEGEND - Site Work
Property Line and Setback Line
Existing Contour
Proposed Contour
Existing Significant Tree
Existing Tree Line
Tree to be Removed
Existing Area Light
Tree Protection Fencing
Silt Fencing/Erosion Control
Limits of Construction
Staging Area
Sanitary Sewer
Water - Electric
Pipe (Storm Drain)
Existing Pole/Overhead Line
Existing Edge of Pavement
Paving Area (hatched material as shown)
Brick Walk
Area of Brick Walk to be renovated
Existing Building
Existing Feature or Spot Elevation (In Italics)
Proposed Feature or Grade (Normal font)

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Landscape Protection Plan

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LANDSCAPE PROTECTION PLAN

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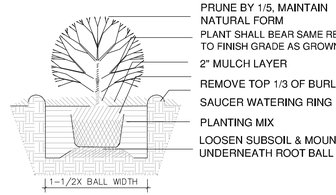

1 Shrub Detail
L2.0 N.T.S.

2 Tree Detail
L2.0 Scale: N.T.S.

PLANT SCHEDULE NC Study Center			
QTY	BOTANICAL NAME	COMMON NAME	SIZE
TREES			
	Acer rubrum	**Red Maple**	2"
	Cornus florida	**Dogwood**	5-6 ft
1	**Chionanthus virginicus**	**Fringe Tree**	3-4 ft
	Ilex opaca	**American Holly**	6-8 ft
3	**Quercus palustris**	**Pin Oak**	2-1/2" cal.
	Alt. 1: Quercus shumardii	*Shumard Oak*	
	Quercus lyrata	*Overcup Oak*	
2	**Quercus michauxii**	**Swamp Chestnut White Oak**	2-1/2" cal.
SHRUBS			
	Abelia x grandiflora "Canyon Creek"	Canyon Creek Abelia	1 gal.
	Buxus microphylla var. japonica "Green Beauty"	Green Beauty Boxwood	36"
	Camellia japonica	Camellia "Taylor's Perfection" or similar	3-4'
	Alt 1: Ilex x aquifolium	*English Holly "San Gabriel" or similar*	
	Alt 2: Ilex cofrnuta "Burfordii"	*Burford Holly (tree-form)*	
4	Cephalotaxus harringtonia "Duke Gardens"	Duke Gardens Plum Yew	5 gal.
20	Ilex vomitoria nana	Dwarf Yaupon Holly	3 gal
4	Illicium parviflorum	Anise	5 gal

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PLANTING NOTES:

1. EXACT LOCATION OF UNDERGROUND UTILITIES SHALL BE VERIFIED IN THE FIELD BY THE INSTALLER. PLANTINGS SHALL BE ADJUSTED AS NECESSARY TO AVOID CONFLICT WITH UTILITIES.
2. SUBSOIL CONDITIONS AND ADDITIONAL SUBSURFACE DRAINAGE REQUIREMENTS SHALL BE DETERMINED IN THE FIELD BY THE INSTALLER. ANY CONDITIONS DETRIMENTAL TO THE GROWTH AND HEALTH OF PROPOSED PLANT MATERIALS SHALL BE ADJUSTED TO MEET SITE CONDITIONS AND BROUGHT TO THE ATTENTION OF THE ARCHITECT AND/OR LANDSCAPE ARCHITECT PRIOR TO PLANTING.
3. PLANT MATERIAL SHALL BE PLANTED SO AS TO BEAR THE SAME RELATIONSHIP TO GRADE AS IN THE FIELD OR CONTAINER IN WHICH IT WAS GROWN.
4. THE INSTALLER SHALL STAKE OUT ALL TREE, SHRUB AND BED EDGE LOCATIONS FOR THE LANDSCAPE ARCHITECT APPROVAL PRIOR TO BEGINNING PLANTING OPERATIONS. NOTIFY LANDSCAPE ARCHITECT IF FIELD CONDITIONS WARRANT ADJUSTMENT OF PLANT LOCATIONS.
5. MULCH ALL DISTURBED AREAS WITH A MINIMUM OF 3" DEEP LAYER OF (DOUBLE) SHREDDED HARDWOOD BARK MULCH AS SHOWN ON PLANS. ALL DISTURBED SOIL SURFACES SHALL BE COVERED EITHER WITH LAWN, PLANTS, OR MULCH.
6. BED LINES SHALL CONFORM TO CONFIGURATION SHOWN ON THE PLANS. BED LINES SHALL MEET CURBS, WALKS, BUILDINGS, ETC. AT RIGHT ANGLES UNLESS SHOWN OTHERWISE.
7. IN CASE OF A DISCREPANCY BETWEEN THE PLANT COUNT ON THE PLANT LIST AND THE NUMBER OF PLANTS SHOWN ON THE PLAN, THE NUMBER OF PLANTS ACTUALLY DRAWN SHALL BE THE NUMBER REQUIRED. ALL PLANT MATERIAL TO MEET AAN STANDARDS FOR SIZE AND QUALITY.
8. ALL PLANTS TO HAVE MIN. 1 YEAR WARRANTEE. LAWN AREAS TO HAVE MIN. 3 MONTH WARRANTEE WITH MIN. 6 MOWINGS BY CONTRACTOR BEFORE TURNING OVER TO OWNER.

TREE PLANTING NOTES

STAKING:
TREES WILL BECOME STRONGER FASTER WHEN THE TOP 2/3 OF THE TREE IS FREE TO SWAY. TIE THE TRUNK LOOSELY WITH WIDE STRIPS OF RUBBER OR CLOTH ABOUT 1/3 UP THE TRUNK AND TIE TO THREE STAKES POSITIONED EVENLY AROUND THE TRUNK. STAKES SHOULD BE DRIVEN DEEPLY INTO THE GROUND TO PREVENT DISLODGING. CHECK AT LEAST EVERY THREE MONTHS FOR BINDING OR OTHER PROBLEMS. STAKES AND TIES SHOULD BE REMOVED SIX MONTHS TO ONE YEAR AFTER PLANTING.

WRAPPING:
WRAP ONLY THIN BARKED TREES IF THEY HAVE BEEN MOVED FROM SHADE TO WHERE THE TRUNK IS EXPOSED TO DIRECT SUNLIGHT DURING THE DAY. WRAPPING SHOULD BEGIN AT THE BOTTOM AND WORK UP. WRAPPING MATERIAL SHOULD NOT TRAP OR HOLD WATER.

ALL TREES WHICH ARE SMOOTH BARKED AT THE TIME OF PLANTING AND HAVE MORE THAN 2' OF CLEAR TRUNK SHALL BE WRAPPED.

ALL TREE WRAPPING SHALL EXTEND FROM THE TOP OF THE BACKFILL TO THE LOWER MOST TREE BRANCHES.

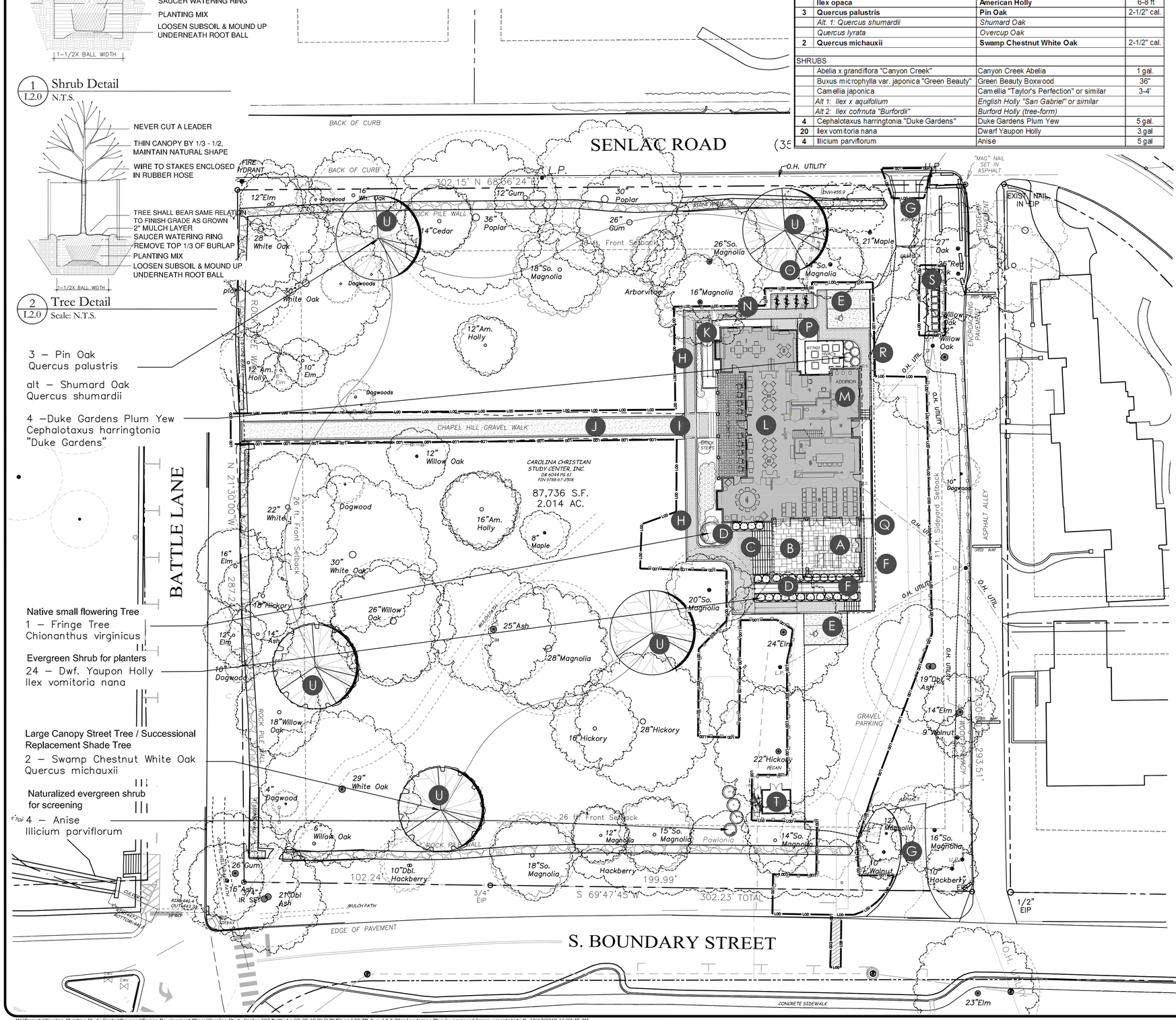
PRUNING:
CLEANLY PRUNE DAMAGED BRANCHES AND ROOTS AT THIS TIME. ADDITIONAL PRUNING SHOULD BE ONLY FOR SHAPING PURPOSES.

PLANTING:
ALL SYNTHETIC MATERIALS SHOULD BE REMOVED FROM THE ROOTS, TRUNK OR CROWN OF THE PLANT. THE ROOT BALL MEDIUM SHOULD BE SHAKEN GENTLY FROM THE ROOT BALL IF IT IS A SOILLESS MIXTURE. LOOSEN AND SPREAD THE ROOTS IN THE PLANTING HOLE. DAMAGED ROOTS AND ROOTS WHICH ENCIRCLE THE TRUNK SHOULD BE CLEANLY PRUNED. SET THE PLANT SO THAT IT WILL BE AT ITS ORIGINAL DEPTH OR SLIGHTLY ABOVE THE EXISTING GRADE. BACKFILL WITH SOIL FROM THE HOLE.

REMOVE BURLAP FROM TOP OF ROOT BALL BEFORE BACKFILLING AROUND BALL IS COMPLETED.

TAMP AND WATER THE SOIL TO PREVENT AIR POCKETS. DO NOT AMEND THE SOIL AT THIS TIME EXCEPT TO ADJUST THE PH.

WATERING:
THE BACKFILL AND ROOTS OF ALL NEWLY SET PLANT MATERIAL SHOULD BE WATERED AS BACKFILLING IS DONE SO THAT THE SOIL AND ROOTS ARE THOROUGHLY SOAKED.



Site Improvements Legend

A. New covered elevated terrace (with roof).
Open on three sides with bluestone floor.
See Architectectural Plans A105
B. New elevated terrace with bluestone floor
C. New steps with brick treads
D. New raised planting bed
E. New accessible parking pad
(see Civil Plans)
F. New ADA accessible ramp (all brick)
G. Renovate existing driveway
(see Civil Plans)
H. New brick walk
I. Renovate existing brick landing and steps
Expand to meet new brick walk
J. New brick border for existing Chapel Hill gravel walk.
Install stabilizer to meet accessibility requirements
K. New brick ramp.
L. Renovate existing building.
Existing Basement: 770 sf Existing First Floor: 3,540 sf Second Floor: 1,546 sf
M. New Addition: single story - 186 sf Bay Windows - 22 sf ea
N. Renovate existing brick walkway
O. New bicycle loops (four)on brick pad
P. Replace HVAC units with more efficient units
New wood screen fence around HVAC
Q. Extend existing elevated walk.
with brick border and brick foundation wall.
R. Plant Bed
S. New wood fence trash/recycling bin screen
with three double gates.
T. New Garden Storage Shed
U. New Succession Trees (native Oaks)

CONTRACTOR'S RECORD DRAWING MARKUP OF AS-BUILT CHANGES DURING CONSTRUCTION.

CONTRACTOR'S INITIALS: _____

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ADDITIONS AND RENOVATIONS
THE BATTLE HOUSE
NC STUDY CENTER
CHAPEL HILL, NORTH CAROLINA

LANDSCAPE PLAN

REV.	DATE	DESCRIPTION	BY

DATE: OCTOBER 16, 2019

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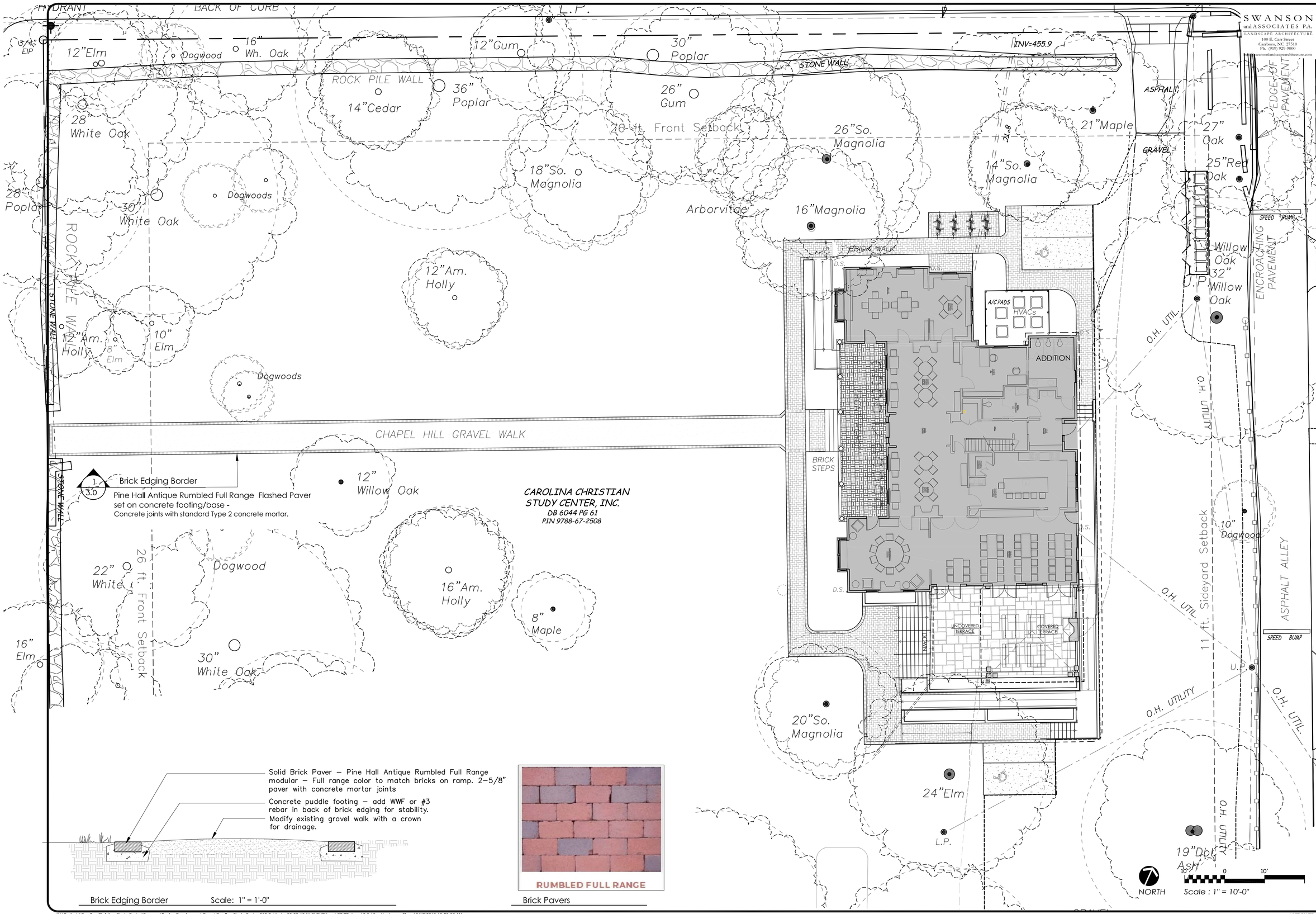

Brick Edging Border Scale: 1" = 1'-0"

Brick Pavers

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ADDITIONS AND RENOVATIONS THE BATTLE HOUSE NC STUDY CENTER

CHAPEL HILL, NORTH CAROLINA

HARDSCAPE PLAN

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