TOWN OF CHAPEL HILL, ORANGE COUNTY, NORTH CAROLINA
SITE IMPROVEMENT PLANS
FOR
CHAPEL HILL RETIREMENT RESIDENCE
JANUARY 18, 2017

Approved Zoning Notes:

Development

1. Construction Deadline: That construction begin two years from date of approval and to be completed four years from date of approval.
2. Community Design Commission Approval: That the applicant obtain Community Design Commission approval of final plans for building elevations, alternate buffers, and lighting prior to issuance of a Zoning Compliance Permit. [LUMO 8.4.6]
3. Utility/Lighting Plan Approval: That the final utility/lighting plan shall be approved by Orange Water and Sewer Authority, Duke Energy other local utility service providers, and the Town Manager before issuance of a Zoning Compliance Permit. The property owner shall be responsible for assuring that these utilities can continue to serve the development. In addition, detailed construction drawings shall be submitted to OWASA for review/approval prior to issuance of a Zoning Compliance Permit.[LUMO 4.5.3]

Engineering

4. Prior to a Certificate of Occupancy, a fee in-lieu for associated improvements along North Estes Drive shall be coordinated and paid to the Town of Chapel Hill. Prior to a Zoning Compliance Permit submit detailed construction estimate for approval by the North Carolina Department of Transportation and the Town of Chapel Hill.
5. Prior to a Certificate of Occupancy construct the parking lot to Town standard for dimensions and pavement design. The plans should show the minimum heavy duty pavement design as 3 inches of asphalt on 10 inches of CABC.
6. Prior to a Certificate of Occupancy construct a 5 feet wide concrete sidewalk located at least 3 feet behind the curb to Town standard with street lighting along the Somerset Drive site frontage from Estes Drive to the proposed driveway. If the pedestrian path along the northern property line is approved, extend the sidewalk and street lights along the street frontage to the path. Prior to a Zoning Compliance Permit provide detailed construction plans for approval by the Town of Chapel Hill.
7. Prior to a Certificate of Occupancy dedicate public right-of-way along the North Estes Drive frontage to provide for the proposed improvements along North Estes Drive.
8. Prior to a Certificate of Occupancy provide Town of Chapel Hill standard sight distance triangles at the proposed driveway.
9. Prior to a Zoning Compliance Permit, submit a Construction Management Plan to address hours of construction, construction worker parking, material staging areas, construction trailer location, and construction vehicle haul routes for approval by the Town of Chapel Hill Planning and Sustainability Department.
10. Prior to Zoning Compliance Permit the design and location of the proposed fire access from Estes Drive is subject to the approval of The Town and North Carolina Department of Transportation.

Long Range Transportation

11. Prior to issuance of a Zoning Compliance Permit, it will be necessary to submit a Transportation Management Plan, subject to Town Manager approval.

Sustainability

12. Energy Management Plan: That the final plan application include an Energy Management Plan (EMP) to be approved by the Town Manager prior to issuance of a Zoning Compliance Permit. The plan shall: a) consider utilizing sustainable energy, currently defined as solar, wind, geothermal, biofuels, hydroelectric power; b) consider purchase of carbon offset credits and green power production through coordination with the NC GreenPower program; c) provide for 20 percent more efficiency that also ensures indoor air quality and adequate access to natural lighting, and allows for the proposed utilization of sustainable energy in the project; and (d) that, if requested, the property owner reports to the Town of Chapel Hill the actual energy performance of the plan, as implemented, during the period ending one year after occupancy.
13. Energy Efficiency: That the final plans shall incorporate a '20 percent more energy efficient' feature relative to the 2010 energy efficiency standard of the American Society of Heating, Refrigeration, and Air Conditioning Engineers (ASHRAE), as amended and in effect at the time of Special Use Permit issuance. Comparable standards generally recognized as applicable to building energy consumption, as amended and in effect at the time of building permit issuance, may be used by the applicant when incorporating the '20 percent more energy efficient' feature into the final plans.
14. LEED Certified Construction: LEED certification will not be pursued as part of this project.

Fire

15. A secure key box, mounted on the address side of the building, near the main entrance, shall be provided to ensure adequate access to building based on life safety and/or fire protection needs. The Town of Chapel Hill requires a SUPRA key box. Contact Town of Chapel Hill Fire Department for order form.

ADJOINING PROPERTY OWNERSHIP TABLE

① N/F CAROLYN BAUCOM & DANIEL BRUCE DB 4754 PG 339 PID 9789556110 Zoning:R-1	⑤ N/F MICHAEL & ALTON HARRIS, ETAL DB 1564 PG 1950 PID 9789550006 Zoning: R-1	⑨ N/F HELEN & GEORGE TOUCHEN DB 734 PG 615 PID 9789552904 Zoning: R-1
② N/F MICHAEL ALBRITTON & JESSICA GUICE DB 5178 PG 383 PID 9789554170 Zoning: R-1	⑥ N/F LUCY DAVIS & FRED EMMERSON, ETAL DB 1874 PG 50 PID 9789456088 Zoning: R-1	⑩ N/F JACQUELINE MACDONALD DB 4098 PG 313 PID 9789553920 Zoning: R-1
③ N/F PAUL BAKER DB 4586 PG 108 PID 9789553131 Zoning: R-1	⑦ N/F WHITCOMB RUMMEL DB 1331 PG 63 PID 9789455646 Zoning: R-1	⑪ N/F GOLD AVRAM TRUSTEE DB 5496 PG 175 PID 9789554845 Zoning: R-1
④ N/F JEFFERY & LISA ROMERO DB 5167 PG 423 PID 9789551221 Zoning: R-1	⑧ N/F DAVID & CHERYL FLIPUS DB 892 PG 64 PID 9789550975 Zoning: R-1	⑫ N/F PHILLIPS JUNIOR HIGH DB 160 PG 651 PID 9789554784 Zoning: R-1

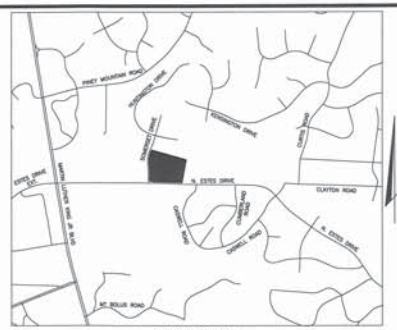
BENCHMARK SCHEDULE

BM#1
Elev. = 437.77 (NAVD 88)
Northing= 795337.91 Easting= 1985004.65
Utility Manhole located at the northeast corner of North Estes Drive and Somerset Drive.

BM#2
Elev. = 436.84 (NAVD 88)
Northing= 795311.27 Easting= 1985674.81
Water Valve Lid located on the north side of North Estes Drive, approximately 130 feet west of the intersection between Caswell Road and North Estes Drive.

BM#3
Elev. = 463.33 (NAVD 88)
Northing= 795880.45 Easting= 1985031.39
Gas Valve located on the east side of Somerset Drive, approximately 245 feet south of the intersection between Huntington Drive and Somerset Drive.

INDEX MAP
Scale: 1" = 100'



LOCATION MAP
Not to Scale

Sheet Index

NOTE:
"A payment-in-lieu of construction of the required road widening of North Estes Drive in the amount of $107,237.27 (amount reduced for sidewalk installation) is being provided as part of this project."

NOTE:
Unless explicitly specified in the notes on this site plan, the development of this project shall comply with the Chapel Hill Land Development Ordinance (LDO) and all other applicable regulations and guidelines. In the event of a discrepancy between the approved site plan and the applicable regulations or guidelines, and absent clarification or approval of such stated on the site plan or other related approval, the applicable regulation or guideline shall apply.

ALL CONSTRUCTION SHALL CONFORM TO TOWN OF CHAPEL HILL AND NCDOT STANDARDS AND SPECIFICATIONS

ENGINEER
EMHT
Evans, Mechwart, Hambleton & Tilton, Inc.
Engineers • Surveyors • Planners • Scientists
301 McCullough Dr., Ste. 109, Charlotte, NC 28262
Phone: 704.548.0333 Toll Free: 888.775.3648
emht.com
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fcantrell@emht.com

DEVELOPER
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9310 NE Vancouver Mall Drive, Suite 200
Vancouver, WA 98662
Tel: (360) 213-1550

ARCHITECT
Daniel Roach
Lenity Architecture
3150 Kettle Court SE
Salem, OR 97301
Tel: (503) 389-1090
lenityarchitecture.com

GRAPHIC SCALE
0 50 100 200
1 inch = 100 feet

North Carolina One-Call Center
2300 W. Meadowview Road, Suite 227
Greensboro, North Carolina 27407
(910) 855-5760
2 DAYS BEFORE DIGGING IN NORTH CAROLINA
CALL 1-800-632-4949
UNDERGROUND LOCATORS. CONTRACTOR SHALL CONTACT THE UNDERGROUND LOCATORS EVERY 10 DAYS FOR AN UPDATE TO UTILITY LOCATIONS.
Call BEFORE you DIG!
"It's The Law"

NORTH CAROLINA CERTIFICATE OF AUTHORIZATION — EVANS MECHWART HAMBLETON, & TILTON, INC. No. P-1016

NORTH CAROLINA SEAL 029412 ENGINEER FRANK L. CANTRELL

MARK	DATE	DESCRIPTION
		REVISIONS

HAWTHORN RETIREMENT GROUP
9310 NE Vancouver Mall Dr., Suite 200
Vancouver, WA 98662
(360) 213-1550 Fax (360) 213-1544
8712 NE 92nd Vancouver, WA 98662

TOWN OF CHAPEL HILL, ORANGE COUNTY, NORTH CAROLINA
SITE IMPROVEMENT PLANS
CHAPEL HILL RETIREMENT RESIDENCE
COVER SHEET

EMHT
Evans, Mechwart, Hambleton & Tilton, Inc.
Engineers • Surveyors • Planners • Scientists
301 McCullough Dr., Ste. 109 Charlotte, NC 28262
Phone: 704.548.0333 Toll Free: 888.775.3648
emht.com

DATE: January 18, 2017
SCALE: As Noted
JOB NO.: 2014-1832
SHEET: **C1.0**

LEGEND

- R-1 – Residential 1, 3 units/ac
- R-2 – Residential 2A, 3.5 units/ac
- R-5 – High Residential, 15 units/ac
- OI-4 – Office & Institutional 4
- Proposed Site

GRAPHIC SCALE

1 inch = 200 feet

TOWN OF CHAPEL HILL, ORANGE COUNTY, NORTH CAROLINA
SITE IMPROVEMENT PLANS

CHAPEL HILL RETIREMENT RESIDENCE
AREA MAP

HAWTHORN RETIREMENT GROUP

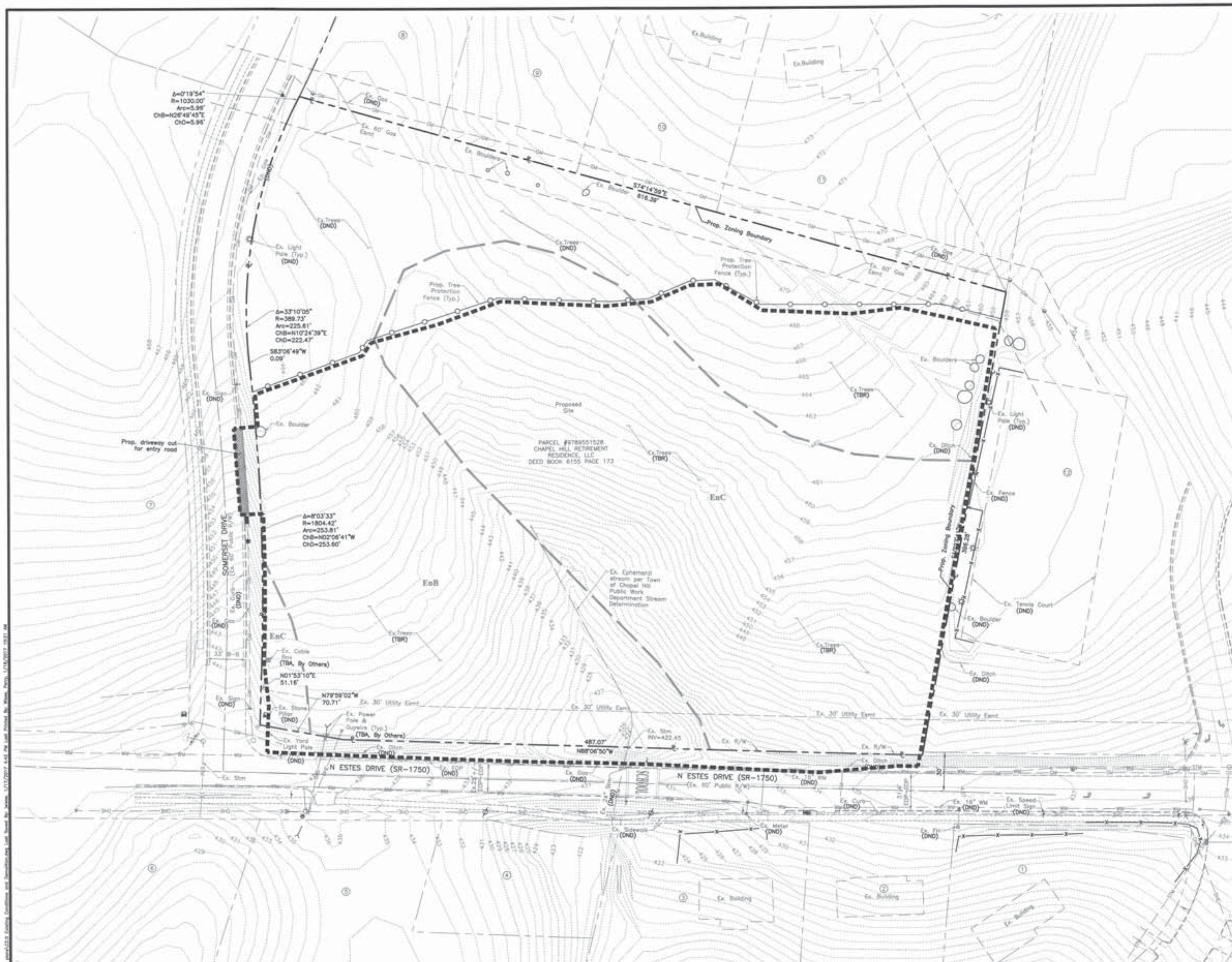
EMHT
Evans, Mechwart, Hambleton & Tilton, Inc.

DATE: January 18, 2017

SCALE: 1" = 200'

JOB NO.: 2014-1832

SHEET: C1.1



LOCATION MAP
Not to Scale

LEGEND

EXISTING
- Right of way
- Property Line
- Parcel Line
- Existing Building Setback
- Easement
- Contours
- Building
- Pavement
- Curb
- Fence
- Sign
- Bollard
- Storm Service
- Catch Basin
- Storm Manhole
- Sanitary Service
- Sanitary Cleanout
- Sanitary Manhole
- Watermain
- Fire hydrant
- Water Valve
- Overhead Electric Line
- Telephone Pole
- Guy Wire
- Electric Transformer
- Light Pole
- Ex. Trees
- Tree Protection
- Limits of Disturbance

Soil Survey Legend		
Symbol	Unit Name	Hydrologic Soil Group
EnB	Enon loam, 2 to 6 percent slopes	C
EnC	Enon loam, 6 to 12 percent slopes	C

Soil Boundary

FEMA Notes

The proposed site is located outside of the 100-year floodplain according to the Federal Emergency Management Agency's Flood Insurance Map 3710978900015, dated February 02, 2007, shown herein no subject tract lies within any annual chance floodplain area.

Note: The proposed site is located outside the limits of the Resource Conservation District and the Jordan Buffer.

Rock Excavation Notes

Refer to Geotechnical Report performed by NOVA for suggested excavation techniques pertaining to the site.

TBR – To Be Removed
TBA – To Be Adjusted
DND – Do Not Disturb

Demolition Notes

1. The location of all utilities shown on these plans shall be verified in the field. Contractor is responsible for contacting North Carolina "One Call" (811) for assistance in locating existing utilities. Call at least 48 hours prior to digging.
2. Prior to beginning any work in the street or right-of-way it will be necessary to contact Larry Tucker (919-969-5084) in the Town of Chapel Hill Engineering and Design Services Division to apply for an engineering construction permit.
3. Contractor is responsible for demolition, removal and disposal of all infrastructure including, but not limited to, sanitary and storm sewer, water lines, gas and electrical services, cable systems, utility poles, buildings and foundations that may interfere with proposed construction.
4. Contractor is responsible for coordination with appropriate utility personnel at the Town of Chapel Hill, OWASA, Duke Energy, PSNC and other providers for steps required for temporary or permanent shut down of services as required for demolition.
5. All demolition debris becomes property of the contractor once off-site. It is the responsibility of the contractor to properly dispose of or recycle demolition materials in accordance with the Solid Waste Management Plan.
6. Contractor shall maintain access and utility services to all adjacent businesses and residences throughout building demolition and construction.
7. Contractor shall report any discrepancies to engineer/owner rep immediately.
8. Contractor shall hold a pre-construction/pre-demolition meeting with Orange County Solid Waste Staff (919-996-2788) prior to any demolition.
9. Removal of existing hydrants, water and/or sewer services shall be completed in accordance with OWASA standards and specifications.
10. Construction Waste:
    - 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.
    - By Orange County ordinance, clean wood waste, scrap metal, and corrugated cardboard present in construction or demolition waste must be recycled.
    - By Orange County ordinance, all haulers of mixed construction and demolition waste that includes and regulated recyclable materials shall be licensed by Orange County.
    - 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.
    - The presence of any Asbestos Containing Materials ("ACMs") 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.

Geotech Note

Contractor shall refer to the Geotechnical Report prepared by Nova Engineering and Environmental dated December 29, 2014 for demolition & subsurface excavation recommendations. The contractor shall coordinate the limits of removal of unsuitable material(s) with the Geotechnical engineer prior to beginning construction.

GRAPHIC SCALE
0 20 40 80
1 inch = 40 feet

NORTH CAROLINA
EVANS MECHWART HAMBLETON & TILTON, INC.
No. F-1016
CERTIFICATE OF AUTHORIZATION

NORTH CAROLINA
SEAL
029811
ENGINEER
FRANK L. CANTRELL
1/18/2017

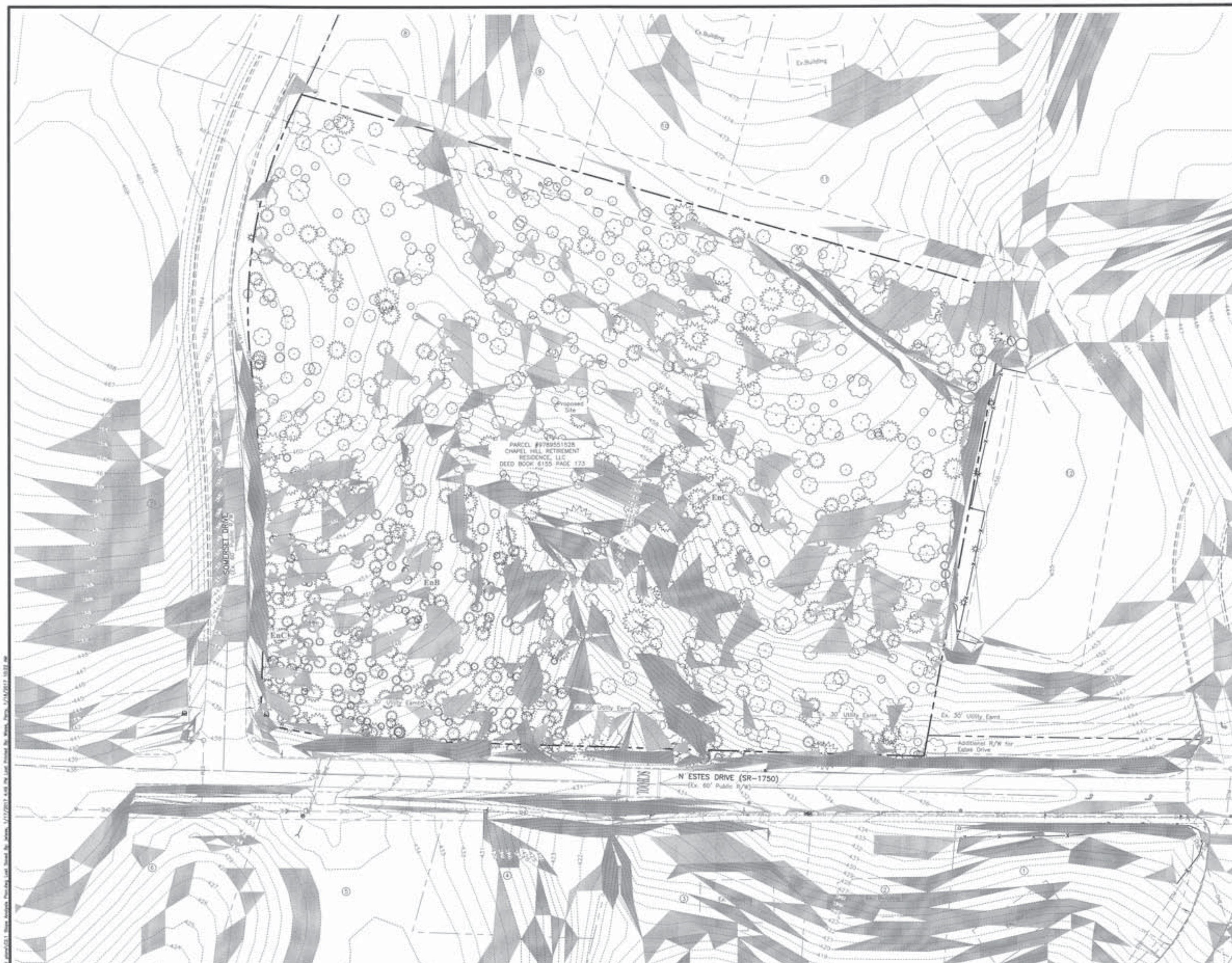
MARK | DATE | DESCRIPTION
REVISIONS

HAWTHORN RETIREMENT GROUP

TOWN OF CHAPEL HILL, ORANGE COUNTY, NORTH CAROLINA
SITE IMPROVEMENT PLANS
CHAPEL HILL RETIREMENT RESIDENCE
EXISTING CONDITIONS AND DEMOLITION PLAN

EMHT
Evans, Mechwart, Hambleton & Tilton, Inc.
emht.com

DATE: January 18, 2017
SCALE: 1" = 40'
JOB NO.: 2014-1832
SHEET: C2.0



LOCATION MAP
Not to Scale

Slope Analysis Table			
Number	**Minimum Slope**	**Maximum Slope**	**Color**
1	0.00%	15.00%	
2	8.00%	15.00%	
3	15.00%	25.00%	
4	25.00%	100.00%	

GRAPHIC SCALE
1 inch = 40 feet

REVISIONS

MARK	DATE	DESCRIPTION

HAWTHORN RETIREMENT GROUP

TOWN OF CHAPEL HILL, ORANGE COUNTY, NORTH CAROLINA
SITE IMPROVEMENT PLANS
CHAPEL HILL RETIREMENT RESIDENCE
SLOPE ANALYSIS PLAN

EMHT
Evans, Mechwart, Hambleton & Tilton, Inc.
emht.com

DATE: January 18, 2017
SCALE: 1" = 40'
JOB NO. 2014-1832
SHEET: C2.1

GRAPHIC SCALE

1 inch = 30 feet

EROSION CONTROL LEGEND

- Flow Arrow
- Temporary Diversion Channel
- Tributary Area
- Proposed Limits of Disturbance
- Proposed Silt Fence
- Silt Fence Outlet (see details)
- Proposed Basin Baffle (jute or coir mesh)
- Proposed Tree Protection Fence
- Catch Basin Inlet Protection
- Curb Inlet Protection
- Stabilized Construction Entrance
- Emergency Spillway (line with erosion control matting North American Green SC-150 or equivalent)
- Check Dam

Total Site Area – 6.4 Acres

Total Denuded Area – 5.35 Acres

PHASE 1 CONSTRUCTION SEQUENCE

1. Hold a Pre-Construction meeting and obtain grading permit.
2. Install temporary construction entrance. Install tire wash if directed by NCDOT or Erosion Control Inspector.
3. Install temporary silt fencing, and tree protection at locations shown on plans.
4. Install temporary sediment basins, baffles, and outlet structure as shown on plans. Stabilization of basins to be established immediately after installation.
   *Note: Outlet structures to be installed as per Sheets C5.5–C5.7 for sediment basins 1 and 3. All orifices and windows are to be blocked during Phase 1 & 2, until notification from inspector.
5. Install diversion ditches as shown. Along with ditches, install any other remaining erosion control measures.
6. Perform clearing and grubbing operations upon inspector approval.
7. Clean sediment basins when one-half full
8. Establish permanent ground cover within 7 calendar days. All slopes must be stabilized within 14 days.
9. Maintain soil and erosion control measures until permanent ground cover is established.

PHASE 1 EROSION CONTROL NOTE

1. Refer to sheet C2.0 for items to be removed.
2. Contractor to minimize impacts to existing trees where possible.
3. See Erosion Control Details on sheet C9.0–C9.2
4. Riser structures and barrels must be on site before the grading permit is issued.
5. The tree protection fence shall be maintained on the site until all site work is completed and the final site inspection prior to the certificate of occupancy (CO) is scheduled. The fencing shall be removed prior to final site inspection for the CO.
6. Permanent ground cover shall be established in 15 working days or 90 calendar days, which ever is shorter.
7. Cut and fill slopes shall be stabilized within 15 days of any phase of grading.
8. All slopes 2:1 and steeper shall be stabilized with permanent slope retention devices or suitable combination of planting and retention devices, Slopes greater than 3:1 shall be stabilized with turf grass (E.G. grasses that need to be mowed) but with other permanent ground cover such as weeping love grass (eragrostis curvala), low junipers etc. no permanent overhead spray-type irrigation is allowed on slopes greater than 2:1, unless allowed by planning director.
9. Streets in front of the project shall be kept clean at all times or wash station will be required.
10. Retaining walls to be design / build by contractor.

PHASE #1 - BASIN #1

Denuded Area = 0.65 Ac.
Volume To Be Detained = (0.65 Ac)(1800 cu.ft/Ac) = 1,170 cu.ft.

Basin Volumes		
Elevation	Square Footage (ft²)	Volume (ft³)
437	4,326	3,877
436	3,428	3,033
435	2,638	[illegible]
434	1,829	1,873
433	1,388	

Volume of Basin = 10,884 ft³ Total 10,884

Volume To Be Detained < Volume of Basin
1,170 cu.ft. < 10,884 cu.ft.

PHASE #1 - BASIN #2

Denuded Area = 2.33 Ac.
Volume To Be Detained = (2.33 Ac)(1800 cu.ft/Ac) = 4,194 cu.ft.

Basin Volumes		
Elevation	Square Footage (ft²)	Volume (ft³)
437	2,951	2,726
436	2,551	2,112
435	1,674	1,423
434	1,171	957
433	743	

Volume of Basin = 7,219 ft³ Total 7,219

Volume To Be Detained < Volume of Basin
4,194 cu.ft. < 7,219 cu. ft.

PHASE #1 - BASIN #3

Denuded Area = 1.10 Ac.
Volume To Be Detained = (1.10 Ac)(1800 cu.ft/Ac) = 1,980 cu.ft.

Basin Volumes		
Elevation	Square Footage (ft²)	Volume (ft³)
436	5,247	5,035
435	4,823	4,479
434	4,136	3,802
433	3,468	3,144
432	2,820	

Volume of Basin = 16,460 ft³ Total 16,460

Volume To Be Detained < Volume of Basin
1,980 cu.ft. < 16,460 cu. ft.

Soil Survey Legend		
Symbol	Unit Name	Hydrologic Soil Group
EnB	Enon loam, 2 to 6 percent slopes	C
EnC	Enon loam, 6 to 12 percent slopes	C

Soil Boundary

NORTH CAROLINA – EVANS, MECHWART, HAMBLETON & TILTON, INC. No. F-1016 – CERTIFICATE OF AUTHORIZATION

NORTH CAROLINA – SEAL 039811 – ENGINEER – FRANK L. CANTRELL – 1/18/2017

MARK	DATE	DESCRIPTION

REVISIONS

HAWTHORN RETIREMENT GROUP

TOWN OF CHAPEL HILL, ORANGE COUNTY, NORTH CAROLINA
SITE IMPROVEMENT PLAN
CHAPEL HILL RETIREMENT RESIDENCE
EROSION CONTROL PLAN - PHASE 1

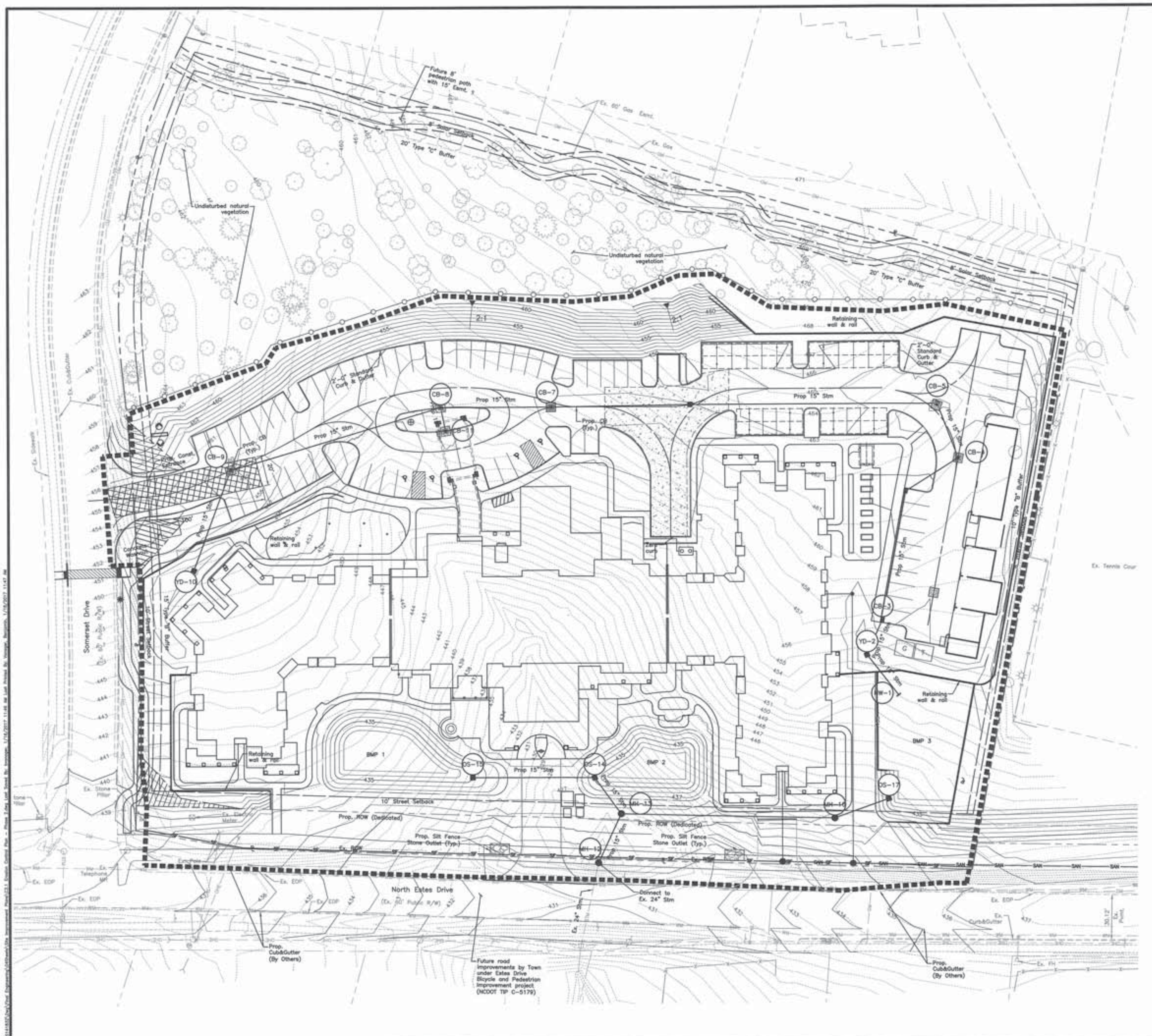
EMH&T – Evans, Mechwart, Hambleton & Tilton, Inc. – emht.com

DATE: January 18, 2017

SCALE: 1" = 30'

JOB NO.: 2014-1832

SHEET: C3.0



EROSION CONTROL LEGEND

- Flow Arrow
- Temporary Diversion Channel
- Tributary Area
- Proposed Limits of Disturbance
- Proposed Silt Fence
- Silt Fence Outlet (see details)
- Proposed Basin Baffle (jute or coir mesh)
- Proposed Tree Protection Fence
- Catch Basin Inlet Protection
- Curb Inlet Protection
- Stabilized Construction Entrance
- Emergency Spillway (line with erosion control matting North American Green SC-150 or equivalent)
- Check Dam

Total Site Area – 6.4 Acres

Total Denuded Area – 5.35 Acres

PHASE 2 CONSTRUCTION SEQUENCE

1. Contractor to begin mass excavation activities.
2. Contractor to install remaining storm structures and sewer per plans. Contractor to ensure storm sewer is installed with positive drainage to the skimmer basins.
3. The contractor shall diligently and continuously maintain all erosion control devices and structure until all site construction is complete. See separate Site Improvement Plan set for final site improvement detail.
4. For phased erosion control plans, contractor shall meet with Erosion Control Inspector prior to commencing with each phase of erosion control measures.
5. Stabilize site as areas are brought to finished grade.
6. Coordinate with Erosion Control Inspector prior to removal of erosion control measures.
7. Prior to removal of Skimmer Basins, contractor to flush underground detention system and cleanout all Skimmer Basins.

PHASE 1 EROSION CONTROL NOTE

1. Refer to sheet C2.0 for items to be removed.
2. Contractor to minimize impacts to existing trees where possible.
3. See Erosion Control Details on sheet C9.0–C9.2
4. Riser structures and barrels must be on site before the grading permit is issued.
5. The tree protection fence shall be maintained on the site until all site work is completed and the final site inspection prior to the certificate of occupancy (CO) is scheduled. The fencing shall be removed prior to final site inspection for the CO.
6. Permanent ground cover shall be established in 15 working days or 90 calendar days, which ever is shorter.
7. Cut and fill slopes shall be stabilized within 15 days of any phase of grading.
8. All slopes 2:1 and steeper shall be stabilized with permanent slope retention devices or suitable combination of planting and retention devices, Slopes greater than 3:1 shall be stabilized with turf grass (E.G. grasses that need to be mowed) but with other permanent ground cover such as weeping love grass (erogrostis curvala), low junipers etc. no permanent overhead spray-type irrigation is allowed on slopes greater than 2:1, unless allowed by planning director.
9. Streets in front of the project shall be kept clean at all times or wash station will be required.
10. Retaining walls to be design / build by contractor.

PHASE #2 - BASIN #1

Denuded Area = 0.65 Ac.
Volume To Be Detained = (0.65 Ac)(1800 cu.ft/Ac) = 1,170 cu.ft.

Basin Volumes

Elevation	Square Footage (ft^2)	Volume (ft^3)
437	4,326	3,877
436	3,428	3,033
435	2,636	[illegible]
434	[illegible]	[illegible]
433	1,388	1,672

Volume of Basin = 10,884 ft^3 — Total 10,884

Volume To Be Detained < Volume of Basin
1,170 cu.ft. < 10,884 cu.ft.

PHASE #2 - BASIN #2

Denuded Area = 2.33 Ac.
Volume To Be Detained = (2.33 Ac)(1800 cu.ft/Ac) = 4,194 cu.ft.

Basin Volumes

Elevation	Square Footage (ft^2)	Volume (ft^3)
437	2,801	2,726
436	2,551	2,112
435	1,674	1,424
434	1,171	957
433	743	

Volume of Basin = 7,219 ft^3 — Total 7,219

Volume To Be Detained < Volume of Basin
4,194 cu.ft. < 7,219 cu. ft.

PHASE #2 - BASIN #3

Denuded Area = 1.10 Ac.
Volume To Be Detained = (1.10 Ac)(1800 cu.ft/Ac) = 1,980 cu.ft.

Basin Volumes

Elevation	Square Footage (ft^2)	Volume (ft^3)
436	5,247	5,035
435	4,823	4,479
434	4,136	3,802
433	3,468	3,144
432	2,820	

Volume of Basin = 16,460 ft^3 — Total 16,460

Volume To Be Detained < Volume of Basin
1,980 cu.ft. < 16,460 cu. ft.

GRAPHIC SCALE

0 15 30 60

1 inch = 30 feet

NORTH CAROLINA — EVANS MECHWART HAMBLETON & TILTON, INC. No. F-1016 — CERTIFICATE OF AUTHORIZATION

NORTH CAROLINA — SEAL 029818 — FRANK L. CANTRELL — 1/18/2017

REVISIONS

MARK	DATE	DESCRIPTION

HAWTHORN RETIREMENT GROUP

TOWN OF CHAPEL HILL, ORANGE COUNTY, NORTH CAROLINA
SITE IMPROVEMENT PLAN

CHAPEL HILL RETIREMENT RESIDENCE

EROSION CONTROL - PHASE 2

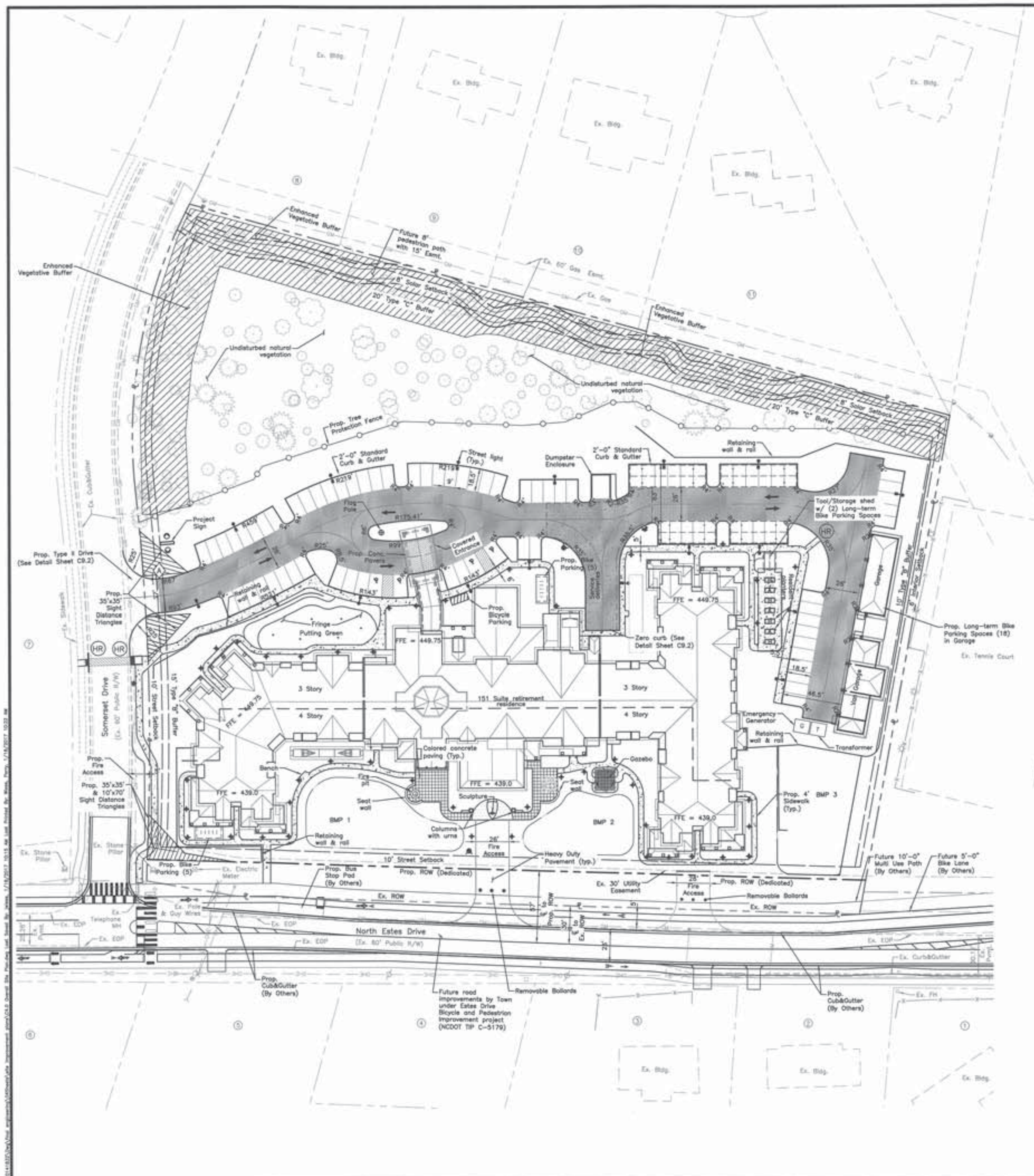
EMHT — Evans, Mechwart, Hambleton & Tilton, Inc. Engineers • Surveyors • Planners • Scientists — emht.com

DATE: January 18, 2017

SCALE: 1" = 30'

JOB NO. 2014-1832

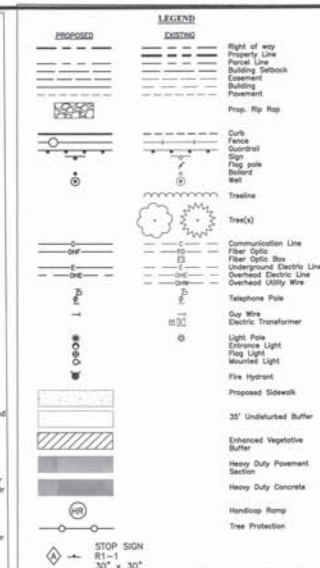
SHEET C3.1



Development Data

Existing Tax Parcel No		9789551528
Jurisdiction		Town of Chapel Hill
Site Acreage		
Proposed:		6.44 Acres (±280,439 SF)
Zoning		
Existing:		R-1 (Residential 1)
Proposed:		R-5-C (Residential 5 Conditional)
Proposed Use:		Independent Senior Living Facility
Building Data		
Proposed Number of Units:		151 Suites
Floor Area Ratio		
Allowable:		.303 x 2 = .606
Provided:		138,673 SF/280,439 SF = 0.494
Density		
Allowable:		15 Units/Acre X 2 = 30 Units/Acre
Provided:		151 Units/6.44 Acres = 23.45 Units/Acre
Maximum Building Height		
Setback Height Allowable:		39'
Setback Height Provided:		48'-4"
Core Height Allowable:		60'
Core Height Provided:		53'-9.5"
Number of Building Stories		3-4 split (3 from front view, 4 from North Estes Drive)
Setbacks/Yards		
Required:		Street Setback: 20' Solar Setback: 8' Interior Setback: 6'
Provided:	(Modification)	Street Setback: 10' (along N. Estes Dr and Somerset Dr) Solar Setback: 8' Interior Setback: 6'
Buffers		
Required:		20' Type C Buffer Adjacent to Residential
	(Modification)	30' Type D Buffer Adjacent to N. Estes Dr
	(Modification)	20' Type C Buffer Adjacent to Somerset Dr
	(Modification)	10' Type B Buffer Adjacent to School
Provided:		20' Type C Buffer Adjacent to Residential 0' Buffer Adjacent to N. Estes Dr 15' Type B Buffer Adjacent to Somerset Dr 10' Type B Buffer Adjacent to School
Parking		
Auto Parking Required:		0.5 space per Senior Unit (minimum) 151 Senior Units x 0.5 = 76 (minimum) 0.7 space per Senior Unit (maximum) 151 Suites x 0.70 = 106 Spaces
Provided:		97 Spaces 4 Spaces (handicap) 22 Spaces (covered) 60 Spaces (open) 11 Spaces (garage)
Bike Parking Required:		10% x 97 Auto Spaces = 10
Long Term:		2 (20% of required) (inside building)
Short Term:		8 (80% of required) (outside building)
Provided: Long Term:		20
Short Term:		10 (Note: Long term bike parking shall be located inside the building (See Architecturals)
Tree Save Area		
Required:		280,439 SF x 30% = 84,132 SF
Provided:		98522 SF (35%) (See sheet L1.0)
Recreation Area		
Required		280,439 SF x 0.050 = 14,021 SF
Provided		Exterior: 9,329 SF Interior: 8,878 SF Total: 18,207 SF
Solid Waste Provided		6 CY Garbage Compactor 3 Recycling Bins 4 CY Cardboard Dumpster (See plan sheets C3.2, A1.0 and A1.3)
Impervious/Pervious Area		
Impervious Area:		37.5%
Pervious Area:		62.5%

LEGEND



General Notes

1. This property is not located in a flood hazard area as defined by the USDOH and Urban Development Ref: FIRM panel #3710978900IJ dated Feb 2, 2007
2. Prior to any work in the public right-of-way, contact Larry Tucker (919-969-5084) with Town of Chapel Hill Engineering to apply for an Engineering Construction Permit.
3. Seven calendar days prior to any proposed street lane closure, contact Ernie Rogers (919-969-5100) with Town of Chapel Hill Traffic Engineering to apply for a Lane Closure Permit.
4. All damage to Town maintained streets due to project construction will be required to be repaired at no cost to the Town prior to issuance of a certificate of occupancy.
5. Signage shall comply with MUTCD, ICC A 117.1 and NC requirements
6. See Sheet A1.3 for Site Details
7. Refuse, corrugated cardboard and commingled recycling will be by a private contractor.

ADA ACCESSIBLE ROUTE INSTRUCTIONS TO CONTRACTOR

Contractors shall exercise appropriate care and precision in construction of ADA accessible components indicated on this sheet. These components, as constructed, must comply with State and Federal accessibility rules and regulations. Finished surfaces along the accessible route of travel from parking space, public transportation, pedestrian access, inter-building access, to points of accessible building entrance/egress, shall comply with ADA & building code requirements. These include, but are not limited to the following:

Parking spaces and parking aisles – slope shall not exceed 2.0% in any direction.

Curb ramps – slope shall not exceed 8.3% for a maximum of six (6) feet.
Landings – shall be provided at each end of ramps, shall provide positive drainage, and shall not exceed 2.0% slope in any direction.
Path of travel along accessible route – shall provide a 36 inch or greater unobstructed width of travel, (car overhangs cannot reduce this minimum width), the slope shall be no greater than 5.0% in the direction of travel, and shall not exceed 2.0% in cross slope.
Doorways – shall have a "level" landing area on the exterior side up the door that is sloped no more than 2.0% for positive drainage. This landing area shall be no less than 60 inches (5 feet) long, except where otherwise permitted by ADA standards for alternative doorway opening conditions (see ICC/ANSI A117.1-2003 and other references incorporated by code).
Contractor to warp existing asphalt as necessary to ensure slopes are ADA accessible (see note this sheet). Contractor shall ensure no ponding occurs due to pavement modifications.

Curb cuts and accessible routes shall comply with ICC A117.1 2009 Ed. Cross slopes limited to 2%. Call for inspection before placement of concrete. Slopes greater than 5% require construction as a ramp.

GRAPHIC SCALE

1 inch = 40 feet

REVISIONS

MARK | DATE | DESCRIPTION

HAWTHORN RETIREMENT GROUP

TOWN OF CHAPEL HILL, ORANGE COUNTY, NORTH CAROLINA
SITE IMPROVEMENT PLAN

CHAPEL HILL RETIREMENT RESIDENCE

OVERALL SITE PLAN

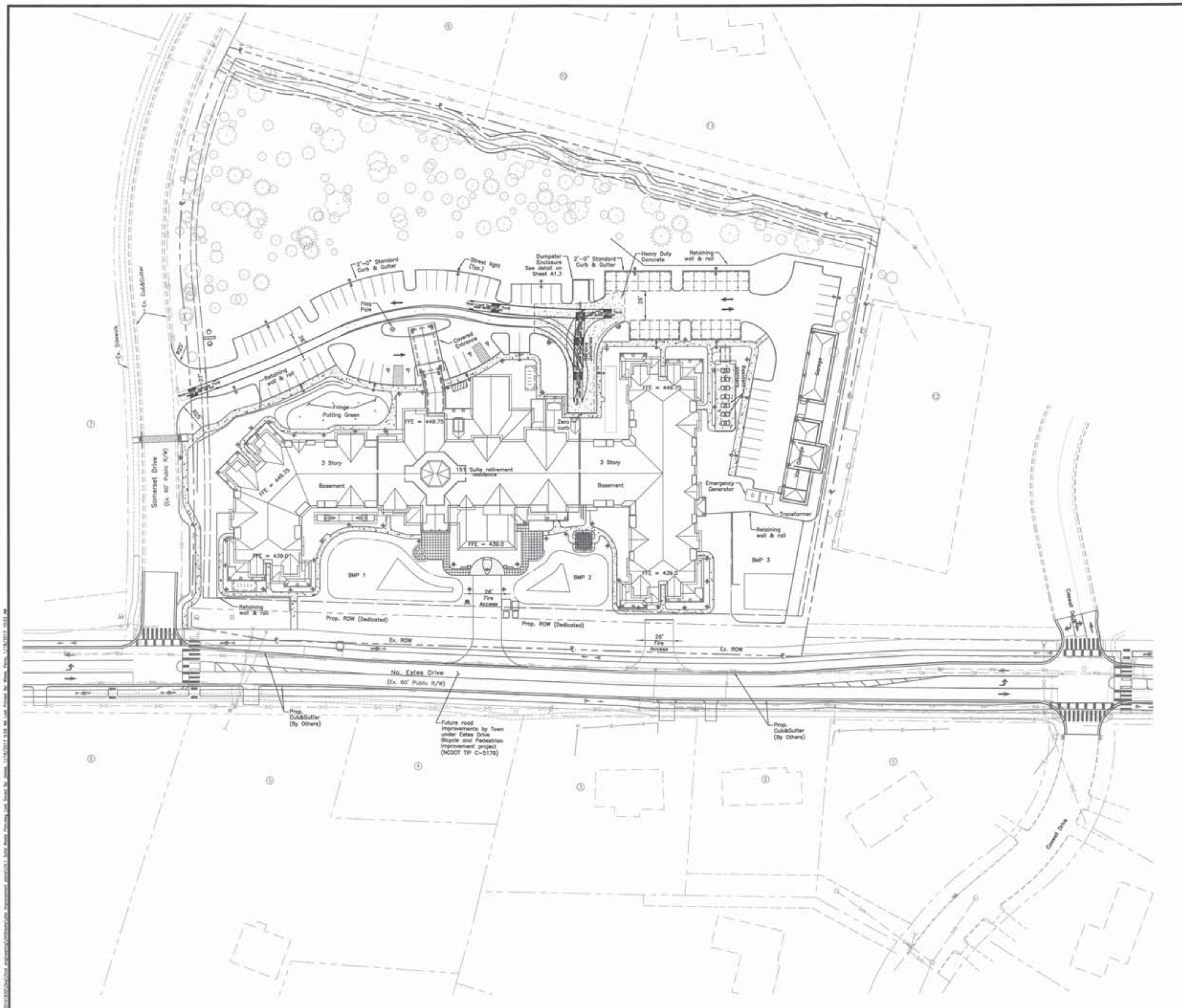
EMHT

DATE: January 18, 2017

SCALE: 1" = 40'

JOB NO.: 2014-1832

SHEET: C4.0



LEGEND

PROPOSED | EXISTING

- Right of way
- Property Line
- Parcel Line
- Building Setback
- Easement
- Building
- Pavement
- Prop. Rip Rap
- Curb
- Fence
- Guardrail
- Sign
- Flag pole
- Bollard
- Well
- Treeline
- Tree(s)
- Communication Line
- Fiber Optic
- Fiber Optic Box
- Underground Electric Line
- Overhead Electric Line
- Overhead Utility Wire
- Telephone Pole
- Guy Wire
- Electric Transformer
- Light Pole
- Entrance Light
- Flag Light
- Mounted Light
- Fire Hydrant

Solid Waste Notes

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 (919-996-2788). This may be the same pre-construction meeting held with other development/enforcement officials.
5. The presence of any Asbestos Containing Materials ("ACMs") and/or other hazardous materials in construction and demolition waste shall be handled in accordance with and all local, state, and federal regulations and guidelines.
6. If any vehicles are parked in the refuse or recyclables collection vehicle access area, the containers will not receive service until the next scheduled collection day.
7. Mixed recycling will be in roll out carts to be collected by private waste collection contractor. Owner acknowledges that rights are being waived for public collection of mixed recyclables by Orange County and that payment of annual fee with real estate taxes will still be required.
8. Trash will be in a trash compactor and cardboard will be in a recycling dumpster to be collected by a private waste collection contractor.
9. All construction waste materials shall be recycled whenever possible. Contractors shall retain pickup slips to record/validate recycling as may be required for environmental credits.
10. Trash and recycle collection includes 1 - 6 CY garbage compactor, 1-4 CY cardboard dumpser and 3 recycling bins.
11. The owner, or their designee, shall be responsible for maintaining a fire watch during construction and demolition where materials subject to spontaneous combustion or other hazardous construction or demolition is occurring.
12. All construction and demolition shall be conducted in compliance with the current edition of chapter 14 of the NC FPC.

Rear-Load Garbage Truck

feet

Width	: 8.00
Track	: 8.00
Lock to Lock Time	: 6.0
Steering Angle	: 27.4

GRAPHIC SCALE

0 20 40 80

1 inch = 40 feet

REVISIONS

MARK	DATE	DESCRIPTION

HAWTHORN RETIREMENT GROUP

TOWN OF CHAPEL HILL, ORANGE COUNTY, NORTH CAROLINA
SITE IMPROVEMENT PLANS

CHAPEL HILL RETIREMENT RESIDENCE

SOILD WASTE PLAN

EMHT

DATE: January 18, 2017

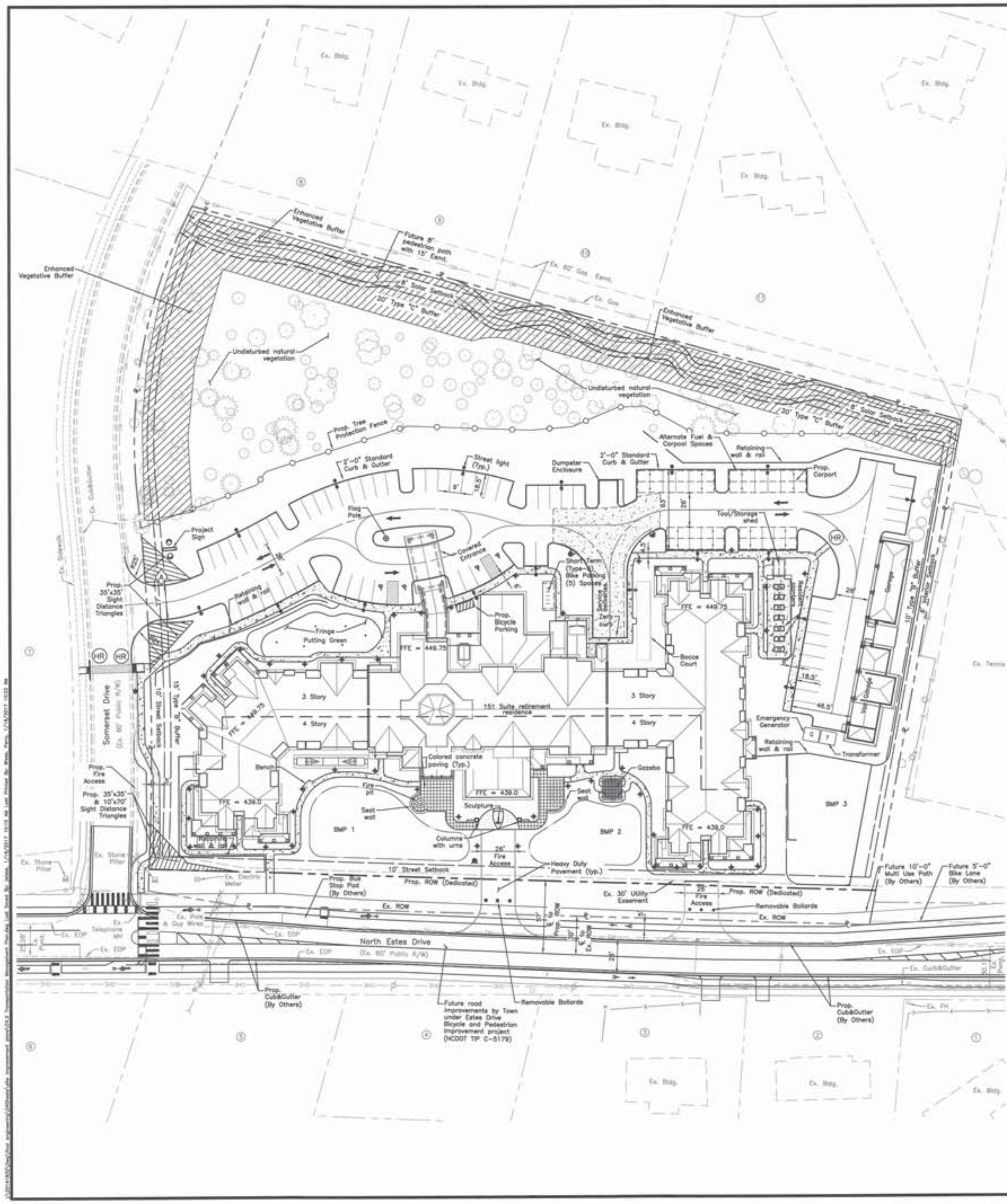
SCALE: 1" = 40'

JOB NO.: 2014-1832

SHEET: C4.1

NORTH CAROLINA EVANS, MECHWART, HAMBLETON & TILTON, INC. CERTIFICATE OF AUTHORIZATION

NORTH CAROLINA SEAL FRANK L. CANTRELL



LEGEND

PROPOSED	EXISTING	
		Right of way
		Property Line
		Parcel Line
		Building Setback
		Easement
		Building
		Pavement
		Prop. Rip Rap
		Curb
		Fence
		Guardrail
		Sign
		Flag pole
		Bollard
		Well
		Treeline
		Tree(s)
		Communication Line
		Fiber Optic
		Fiber Optic Box
		Underground Electric Line
		Overhead Electric Line
		Overhead Utility Wire
		Telephone Pole
		Guy Wire
		Electric Transformer
		Light Pole
		Entrance Light
		Flag Light
		Mounted Light
		Fire Hydrant
		Proposed Sidewalk
		35' Undisturbed Buffer
		Enhanced Vegetative Buffer
		Handicap Ramp
		Tree Protection

STOP SIGN
R1-1
30" x 30"

General Notes

1. A shower for use by any building employees utilizing alternative transportation shall be installed.
   - Owner shall designate a Transportation Management Plan (TMP) Coordinator. The name, title, email, phone, and address of the TMP Coordinator shall be provided to the Town.
   - Regularly communicate and promote alternate modes of transportation, year round, to all those employed in the building.
   - Attend the annual Go Chapel Hill TMP Conference to receive updates and training regarding TMP information distribution and application.
   - Submit to the Town of Chapel Hill Planning an Occupancy Survey due 90 days after issuance of the final Certificate of Occupancy.
   - Submit to the Town of Chapel Hill Planning Department an updated annual Transportation Management Plan Report.
   - Conduct Employee and Resident survey during survey years. Employee surveys will be distributed to each employee working in the building and then returned to the Town of Chapel Hill Planning Department by specified deadline.
   - Will take steps to gradually attain the goals of the Go Chapel Hill TMP Program
   - Conduct annual survey of employees for any increased demand for additional bicycle parking and installation of those facilities on an as-needed basis, if determined to be appropriate by the Town Manager.

GRAPHIC SCALE

0 20 40 80

1 inch = 40 feet

MARK	DATE	DESCRIPTION

REVISIONS

HAWTHORN RETIREMENT GROUP

TOWN OF CHAPEL HILL, ORANGE COUNTY, NORTH CAROLINA
SITE IMPROVEMENT PLAN

CHAPEL HILL RETIREMENT RESIDENCE

TRANSPORTATION MANAGEMENT PLAN

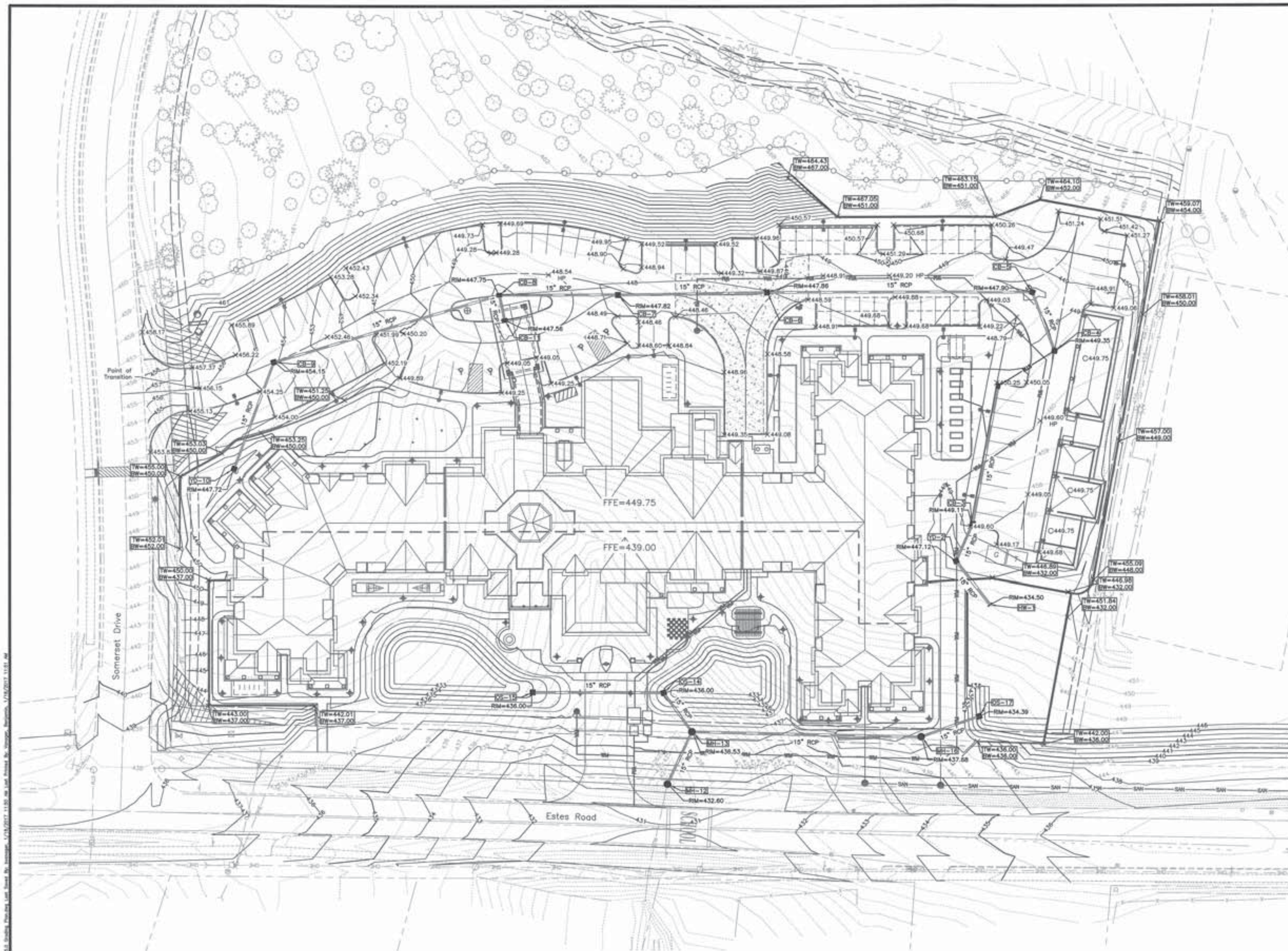
EMHT

DATE: January 18, 2017

SCALE: 1" = 40'

JOB NO.: 2014-1832

SHEET: C4.2



GRADING LEGEND

Prop. Manhole / STM	Proposed Storm Sewer
Ex Manhole	Existing Storm Sewer
Prop. Manhole / SAS	Proposed Sanitary Sewer
Ex Manhole	Existing Sanitary Sewer
Prop Water Valve / Prop Fire Hydrant	Proposed Water Line
920	Proposed Contour
920	Existing Contour
STM	Proposed Headwall/Endwall
	Proposed Perforated Under Drain
	Proposed Catch Basin
	Proposed Curb & Gutter Inlet
	Proposed Double Curb & Gutter Inlet
	Proposed Water Service Meter
	Proposed Yard Drain
	Proposed Sanitary Service Cleanout
	Light Pole Entrance Light Flag Light Mounted Light
	Proposed Fire Hydrant
Rim=XXX.XX	Proposed Top of Casting at Back of Curb
XXX.XX	Proposed Top of Curb/ Proposed Grade
Pvmt XXX.XX	Proposed Pavement Shot
TW=XXX.XX	Proposed Top of Wall
FG=XXX.XX	Proposed Bottom of Wall/Finished Grade
ExRim=XXX.XX	Existing Top of Casting
Ex XXX.XX	Existing Top of Curb
Ex PVMT XXX.XXX	Existing Pavement Shot
	Proposed Storm Drainage Easement
	Grade Break Line
	Tree Protection
	Limits of Disturbance

Grading/Stormwater Notes

1. The proposed elevators, which may require sumps if hydraulic, will be required to be equipped with oil separators and plumbed to the sanitary sewer system.
2. All storm drainage pipes shown are to be Class III reinforced concrete (RCP) unless noted otherwise.
3. All storm drainage construction shall be in accordance with the Town of Chapel Hill latest standards and specifications.
4. Downspouts shall be sized according to building code and shown on the architectural plans. Roof leaders to tie to the proposed storm drain system underground.
5. All damage to streets maintained by the Town of Chapel Hill due to project construction shall be repaired at no cost to the town prior to a certificate of occupancy being issued.

Disturbed Area = 5.30 Ac

GRAPHIC SCALE

0 15 30 60

1 inch = 30 feet

REVISIONS

MARK	DATE	DESCRIPTION

HAWTHORN RETIREMENT GROUP
9310 NE Vancouver Mall Dr., Suite 200
Vancouver, WA 98662-8210
(360) 213-1050 Fax (360) 213-1040

TOWN OF CHAPEL HILL, ORANGE COUNTY, NORTH CAROLINA
SITE IMPROVEMENT PLAN

CHAPEL HILL RETIREMENT RESIDENCE

GRADING PLAN

EMHT
Evans, Mechwart, Hambleton & Tilton, Inc.
Engineers • Surveyors • Planners • Scientists
emht.com

NORTH CAROLINA EVANS MECHWART HAMBLETON & TILTON, INC. No. F-1016 CERTIFICATE OF AUTHORIZATION

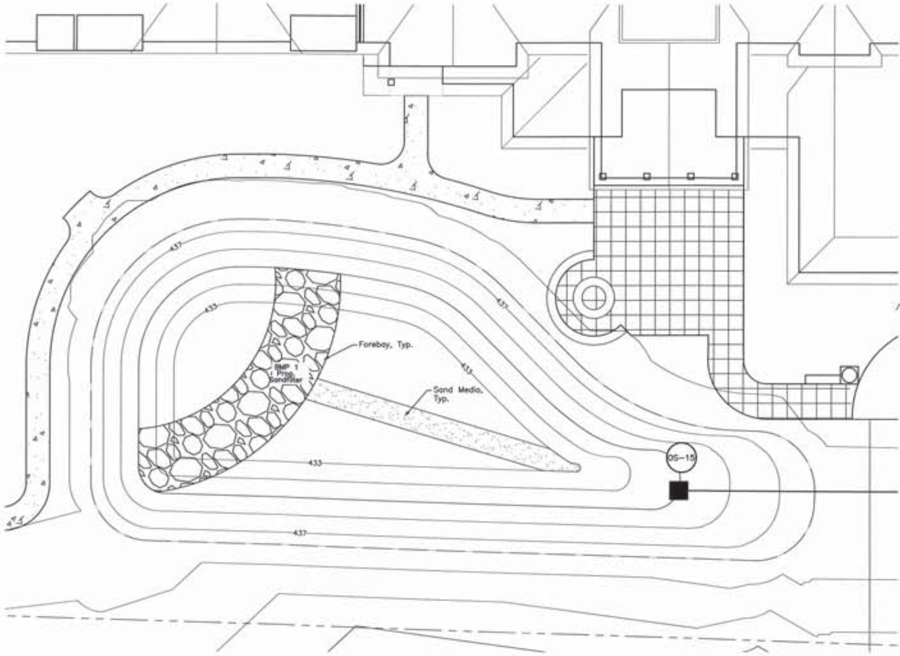
NORTH CAROLINA SEAL 039871 FRANK L. CANTRELL 1/18/2017

DATE: January 18, 2017

SCALE: As Noted

JOB NO.: 2014-1832

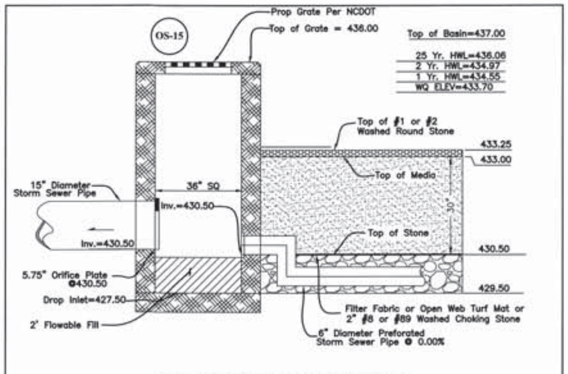
SHEET: C5.0



BMP 1 - Sand Filter

Scale: 1"=20'

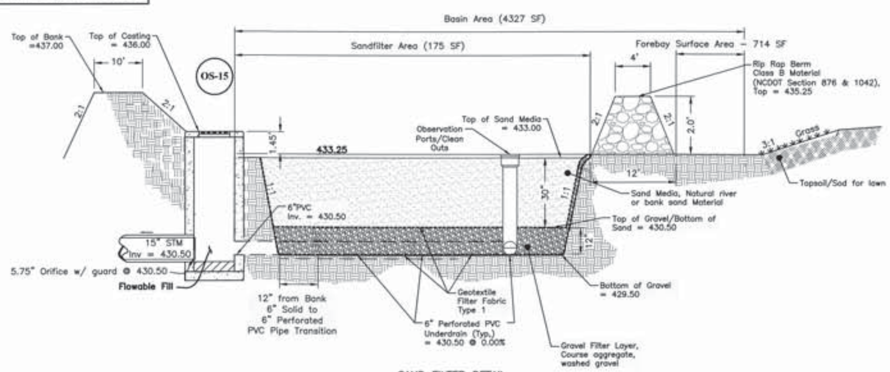
NOTE: All side slopes to be sodded.



PROPOSED BMP OUTLET STRUCTURE DETAIL

Not To Scale

Basin Storage Volume		
Elevation	Surface Area (ft²)	Storage (ft³)
437.0	4,327	
436.0	3,428	3,878
435.0	2,639	3,034
434.0	1,959	2,299
433.0	1,388	1,674
	Total	10,883.50



SAND FILTER DETAIL

No Scale

Fill embankments shall be formed of suitable material placed in successive layers not to exceed more than six (6) inches in depth for the full width of the cross-section, including the width of the slope area. No stumps, trees, brush, rubbish or other unsuitable materials or substances shall be placed in the embankment. Each successive six (6) inch layer shall be thoroughly compacted by the sheepsfoot tamping roller, 10-ton power roller, pneumatic-tired roller, or other methods approved by the Town/County Engineer. Embankments over and around all pipe culverts shall be of select material, placed and thoroughly tamped and compacted as directed by the Town/County Engineer or his representative.

Pond embankments shall be installed in this same manner and shall be compacted to meet a density of 95% Standard Proctor Test.

NOTES:
1. Class B Material is to be quarry stone, field stone, or natural stone only, broken concrete not permitted.
2. Sand Media material is to be free of silt, clay, loam, friable or soluble materials, organic matter graded in accordance with ANSI/ASTM C 136.
3. Surface Course Aggregate is to be used at the top course of the surface sand filter. Aggregate to fully cover the underlying washed filter sand to depth as shown in the plans and details. Surface course aggregate shall be washed and free of debris, dirt, sawdust, and foreign material. Surface course aggregate shall be rounded, natural river or bank aggregate stone and not crushed, chipped or broken stone. The stone is to be a natural color, earth tones, and undyed, while the sizes range from #1 and #2.
4. Underdrain pipes should be min. 6" perforated schedule 40 PVC (per AASHTO M278) or double wall HDPE (per AASHTO M252). Perforations should be spaced 3" on center along 4 longitudinal rows spaced 90° apart.

GRAPHIC SCALE

0 5 10 20

1 inch = 10 feet

NORTH CAROLINA CERTIFICATE OF AUTHORIZATION — EVANS, MECHWART, HAMBLETON & TILTON, INC. No. F-1016

SEAL 039911 FRANK L. CANTRELL 1/18/2017

MARK | DATE | DESCRIPTION — REVISIONS

HAWTHORN RETIREMENT GROUP

TOWN OF CHAPEL HILL, ORANGE COUNTY, NORTH CAROLINA
SITE IMPROVEMENT PLANS
CHAPEL HILL RETIREMENT RESIDENCE
BMP DETAILS

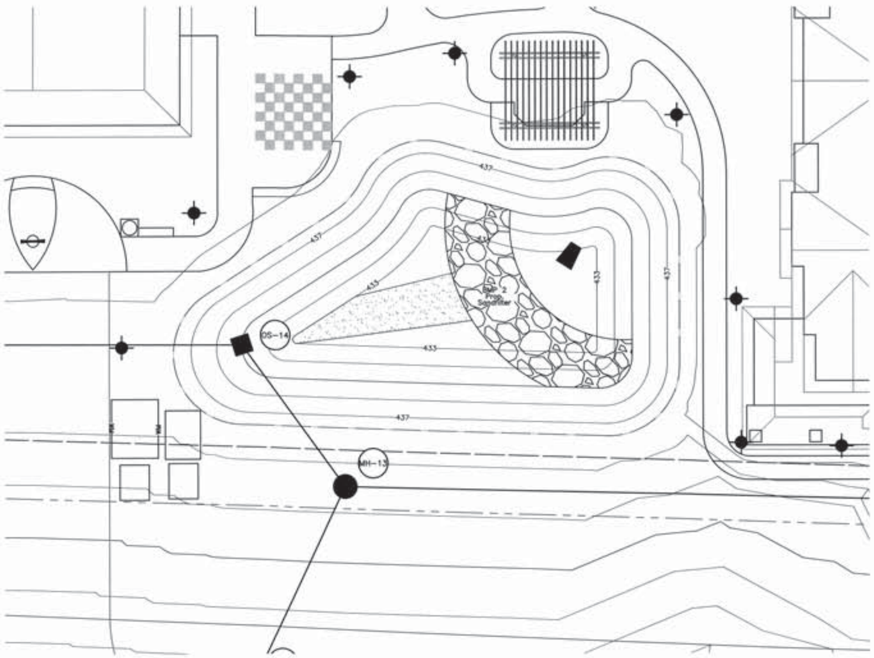
EMHT — Evans, Mechwart, Hambleton & Tilton, Inc. Engineers • Surveyors • Planners • Scientists

DATE: January 18, 2017

SCALE: As Noted

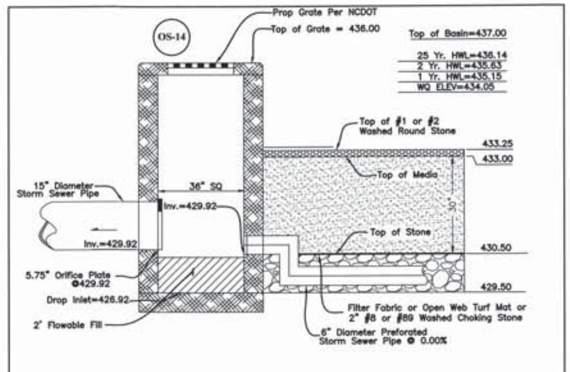
JOB NO.: 2014-1832

SHEET: C5.5



BMP 2 - Sand Filter

Scale: 1"=20'

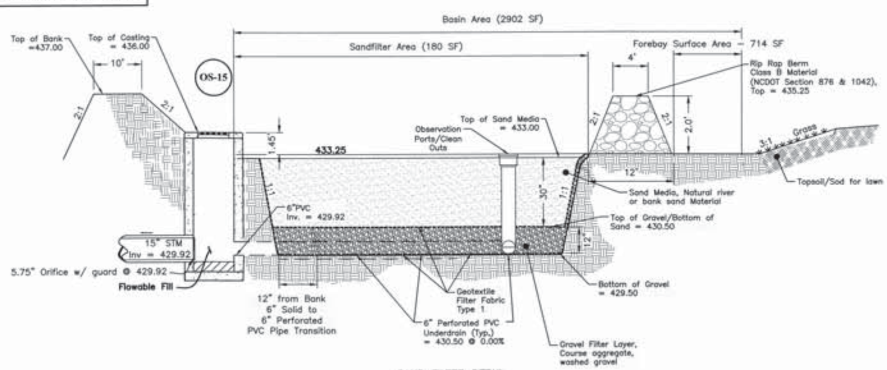


PROPOSED BMP OUTLET STRUCTURE DETAIL

Not To Scale

Basin Storage Volume		
Elevation	Surface Area (ft²)	Storage (ft³)
437.0	2,902	
436.0	2,251	2,577
435.0	1,674	1,963
434.0	1,172	1,423
433.0	743	958
	Total:	6,919.50

NOTE: All side slopes to be sodded.



SAND FILTER DETAIL

No Scale

Fill embankments shall be formed of suitable material placed in successive layers not to exceed more than six (6) inches in depth for the full width of the cross-section, including the width of the slope area. No stumps, trees, brush, rubbish or other unsuitable materials or substances shall be placed in the embankment. Each successive six (6) inch layer shall be thoroughly compacted by the sheepsfoot tamping roller, 10-ton power roller, pneumatic-tired roller, or other methods approved by the Town/County Engineer. Embankments over and around all pipe culverts shall be of select material, placed and thoroughly tamped and compacted as directed by the Town/County Engineer or his representative.

Pond embankments shall be installed in this same manner and shall be compacted to meet a density of 95% Standard Proctor Test.

NOTES:

1. Class B Material is to be quarry stone, field stone, or natural stone only, broken concrete not permitted.
2. Sand Media material is to be free of silt, clay, loam, friable or soluble materials, organic matter graded in accordance with ANSI/ASTM C 136.
3. Surface Course Aggregate is to be used at the top course of the surface sand filter. Aggregate to fully cover the underlying washed filter sand to depth as shown in the plans and details. Surface course aggregate shall be washed and free of debris, dirt, sawdust, and foreign material. Surface course aggregate shall be rounded, natural river or bank aggregate stone and not crushed, chipped or broken stone. The stone is to be a natural color, earth tones, and undyed, while the sizes range from #1 and #2.
4. Underdrain pipes should be min. 6" perforated schedule 40 PVC (per AASHTO M278) or double wall HDPE (per AASHTO M252). Perforations should be spaced 3" on center along 4 longitudinal rows spaced 90° apart.

MARK	DATE	DESCRIPTION

REVISIONS

HAWTHORN RETIREMENT GROUP

TOWN OF CHAPEL HILL, ORANGE COUNTY, NORTH CAROLINA
SITE IMPROVEMENT PLANS

CHAPEL HILL RETIREMENT RESIDENCE

BMP DETAILS

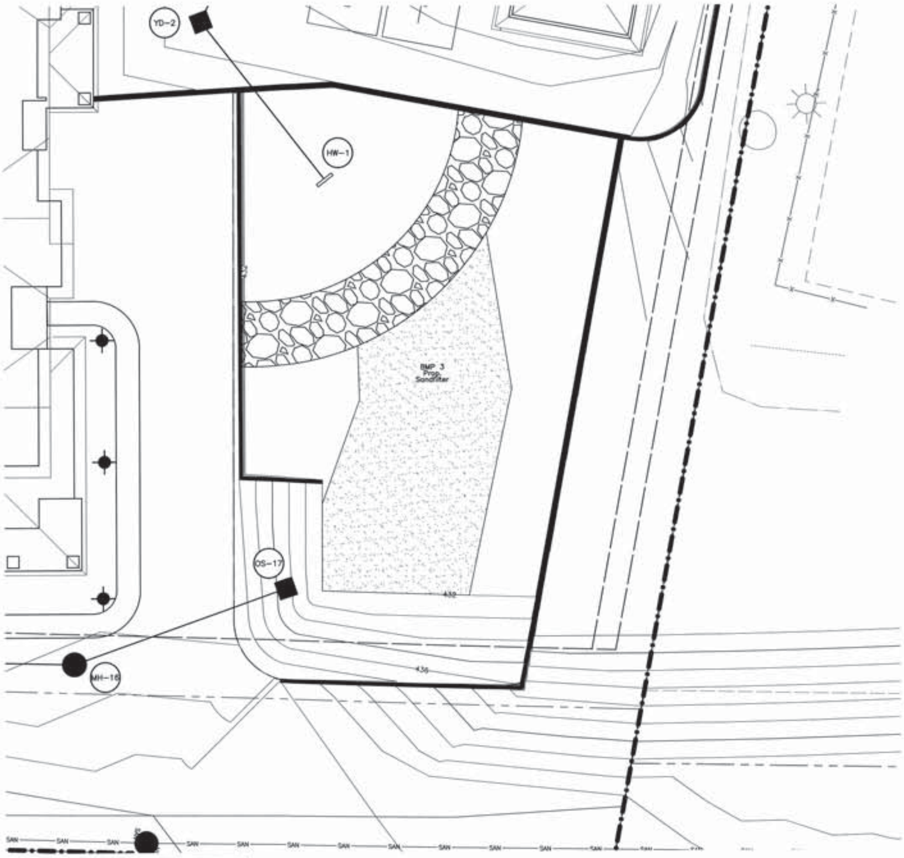
EMH&T

DATE: January 18, 2017

SCALE: As Noted

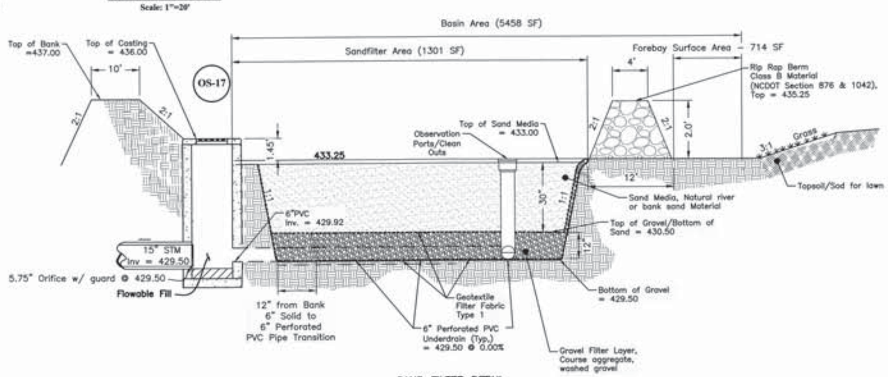
JOB NO. 2014-1832

SHEET: **C5.6**



BMP 3 - Sand Filter

Scale: 1"=20'



SAND FILTER DETAIL

No Scale

SAND FILTER 3 DETAIL (BMP 3)

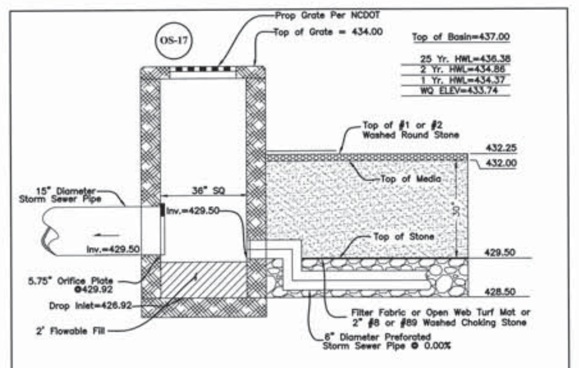
Scale: None

NOTES:
1. Class B Material is to be quarry stone, field stone, or natural stone only, broken concrete not permitted.
2. Washed Sand Media material (course masonry sand, ASTM C33) is to be free of silt, clay, loam, friable or soluble materials, organic matter graded in accordance with ANSI/ASTM C 136.
3. Surface Course Aggregate is to be used at the top course of the surface sand filter. Aggregate to fully cover the underlying washed filter sand to depth as shown in the plans and details. Surface course aggregate shall be washed and free of debris, dirt, sawdust, and foreign material. Surface course aggregate shall be rounded, natural river or bank aggregate stone and not crushed, chipped or broken stone. The stone is to be a natural color, earth tones, and undyed, while the sizes range from #1 and #2.
4. Forebay to be stabilized with seed or sod.
5. 6" perforated underdrain system shall be sch40 PVC, ADS Double Wall Smooth (N-12), or equivalent.

Fill embankments shall be formed of suitable material placed in successive layers not to exceed more than six (6) inches in depth for the full width of the cross-section, including the width of the slope area. No stumps, trees, brush, rubbish or other unsuitable materials or substances shall be placed in the embankment. Each successive six (6) inch layer shall be thoroughly compacted by the sheepsfoot tamping roller, 10-ton power roller, pneumatic-tired roller, or other methods approved by the Town/County Engineer. Embankments over and around all pipe culverts shall be of select material, placed and thoroughly tamped and compacted as directed by the Town/County Engineer or his representative.

Pond embankments shall be installed in this same manner and shall be compacted to meet a density of 95% Standard Proctor Test.

Basin Storage Volume		
Elevation	Surface Area (ft²)	Storage (ft³)
437.0	5,458	
436.0	5,270	5,364
435.0	5,061	5,166
434.0	4,851	4,956
433.0	4,640	4,746
432.0	4,428	4,534
	Total:	24,765.00



PROPOSED BMP OUTLET STRUCTURE DETAIL

Not To Scale

GRAPHIC SCALE

0 5 10 20

1 inch = 10 feet

NORTH CAROLINA CERTIFICATE OF AUTHORIZATION EVANS MECHWART HAMBLETON & TILTON, INC. No. F-1016

NORTH CAROLINA SEAL 039814 FRANK L. CANTY 1/18/2017

MARK | DATE | DESCRIPTION | REVISIONS

HAWTHORN RETIREMENT GROUP

TOWN OF CHAPEL HILL, ORANGE COUNTY, NORTH CAROLINA
SITE IMPROVEMENT PLANS
CHAPEL HILL RETIREMENT RESIDENCE
BMP DETAILS

EMHT
Evans, Mechwart, Hambleton & Tilton, Inc.
Engineers • Surveyors • Planners • Scientists

DATE: January 18, 2017

SCALE: As Noted

JOB NO.: 2014-1832

SHEET: C5.7

PRE-TRIBUTARY AREA PLAN

Scale: 1"=60'

POST-TRIBUTARY AREA PLAN

Scale: 1"=60'

DRAINAGE PATTERNS:

Existing Conditions:

The existing site drainage generally flows overland from North to South to the existing culvert crossing along the southern prpoerty line and down to the existing streams/ditches on the southern side of N Estes Drive

Proposed Conditions:

The proposed development will include a drainage system on the West and East side of the existing stream, that will convey the stormwater runoff from rooftops, sidewalks, lawns and roadways to three BMP's. The three sandfilter's will discharge the development stormwater to the existing culvert crosing N Estes Drive along the southern property line, all conforming with the Town of Chapel Hill and NCDENR Stormwater Management Regulations.

BMP's provided are shown for general conformance with the Town of Chapel Hill Requirements. Size, shape and type of proposed BMP's are subject to change and will be finalized with details as part of final engineering/construction documents, subject to Town of Chapel Hill engineering approval.

STORMWATER SUMMARY:

Volume Reduction:

The site is currently wooded on Type C soils. Sand filters are being used as the infiltration BMP for the site and will provide groundwater recharge to the maximum extent practical to meet the 2-year storm runoff reduction requirement.

Water Quality:

Three sand filters will be used to treat water quality. The tributary area to the west and middle sand filters are less than an acre. The tributary area to the east sand filter is 3.14 acres of onsite runoff and 4.33 acres of offsite/undeveloped runoff. Since most of the offsite/undeveloped runoff is from vegetated land, the majority of the runoff volume will be from the 4.33 acre development. Sand filters have a maximum tributary area of 5 acres, however, since most of the runoff will come from the 4 acre development, we feel this is the appropriate BMP for the east basin.

Peak Flow Rate Control:

The 1-year, 2-year, and 25-year peak flow rates will be mitigated by the three sand filters and an underground detention system. An underground system is required upstream of the east sand filter since the sand filter does not have sufficient volume on its own. The underground system will attenuate the peak flow sufficiently enough to insure that the sand filter doesn't overtop for the design storms and meet the allowable release rate requirements at the ultimate outfall.

Outlet:

The existing outlet for the site is a 24" culvert at Estes Road. A capacity analysis will be provided to insure Estes Road is not overtopped prematurely and additional detention added to the site if necessary.

Nutrient Management:

The site is in the Jordan Lake watershed. The mandatory 40% reduction in nitrogen and phosphorus will be achieved onsite using sand filters. The additional mitigation to meet Jordan Lake requirements will be provided by credits achieved from private mitigation banks or NC DENR if no local banks have credit available.

Floodplain:

There are no FEMA floodplains on the site

Pre-development

Undeveloped Area Onsite/Offsite

Area = 2.98 Acres
TC = 16.6 MIN
RCN = 72

Developed Area

Area = 4.99 Acres
TC = 14.6 MIN
RCN = 70

Post-development

Sandfilter 1Stormwater Summary

25-year Used Volume=	9,009 cu-ft
Provided Volume=	12,638 cu-ft

Sandfilter 2 Stormwater Summary

25-year Used Volume=	5,704 cu-ft
Provided Volume=	8,740 cu-ft

Sandfilter 3 Stormwater Summary

25-year Used Volume=	17,110 cu-ft
Provided Volume=	19,126 cu-ft

NOTE:
A 5 min Tc Path was used for all onsite Post-Tributary Analysis.

NOTE:
All roof drains from the building must discharge into the stormwater treatment basins.

GRAPHIC SCALE

0 30 60 120

1 inch = 60 feet

NORTH CAROLINA SEAL 035811 FRANK L. CANTRELL 1/18/2017

NORTH CAROLINA EVANS MECHWART HAMBLETON & TILTON, INC. No. F-1016 CERTIFICATE OF AUTHORIZATION

TOWN OF CHAPEL HILL, ORANGE COUNTY, NORTH CAROLINA
SITE IMPROVEMENT PLANS

CHAPEL HILL RETIREMENT RESIDENCE

STORMWATER MANAGEMENT PLAN

HAWTHORN RETIREMENT GROUP

MARK	DATE	DESCRIPTION

REVISIONS

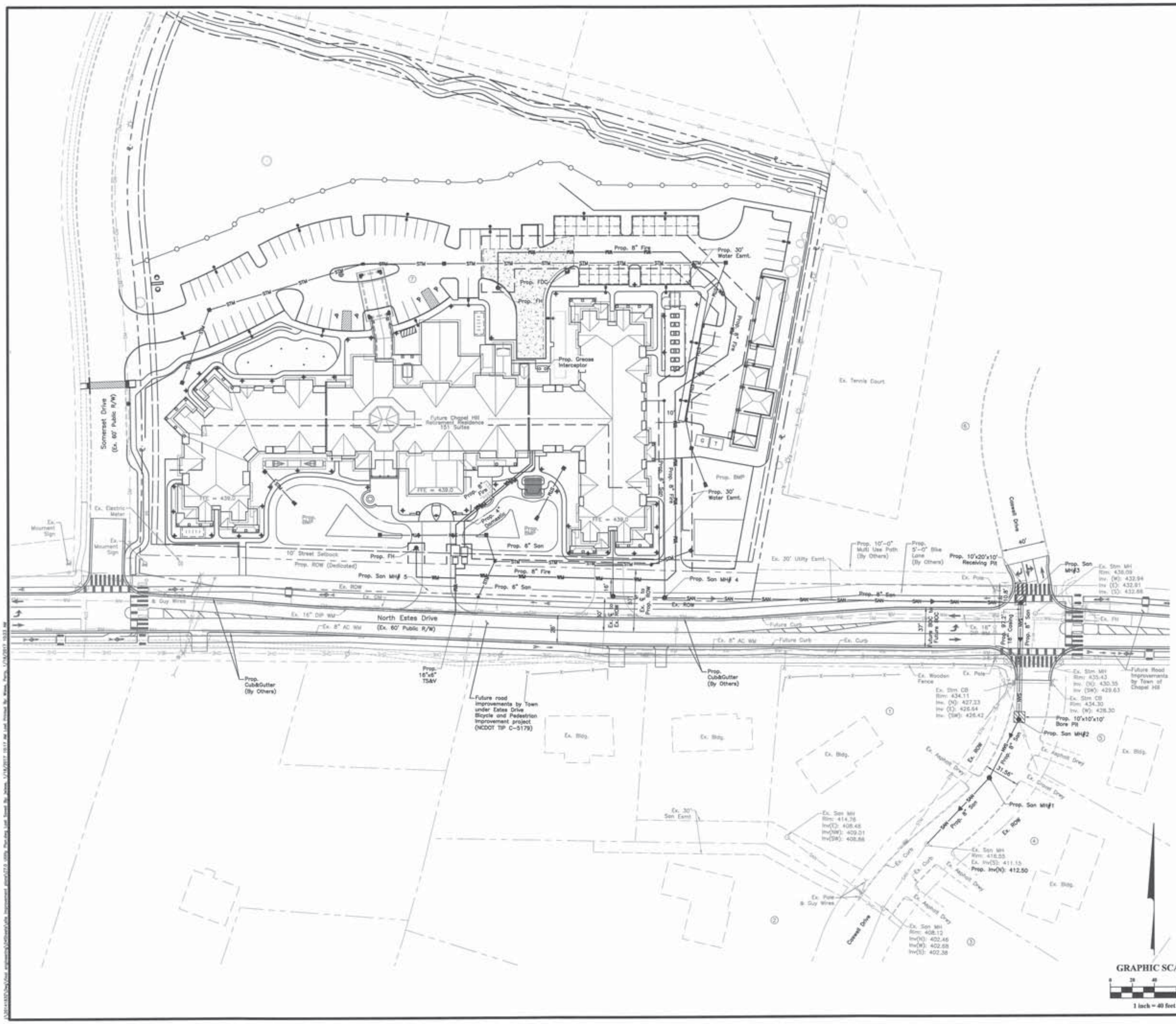
EMH&T
Evans, Mechwart, Hambleton & Tilton, Inc.
Engineers • Surveyors • Planners • Scientists
emht.com

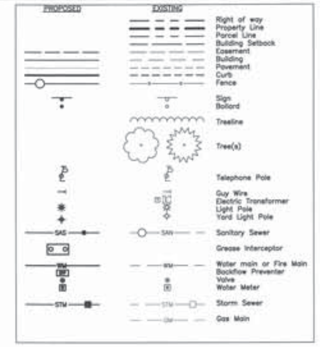
DATE: January 18, 2017

SCALE: As Noted

JOB NO. 2014-1832

SHEET: C6.0





Utility Notes

1. Standards and Specifications – All construction shall be in accordance with OWASA Standards and Specifications dated August, 2003, latest revised version.
2. Please be advised that OWASA approval of this project is for compliance with OWASA Policies, Standards, and Specifications only. All other matters pertaining to this project are the responsibility of the Design Engineer. The issuance of this letter does not preclude the Developer, Project Engineer, Contractor, or other Agents or Parties acting on their behalf from full compliance with OWASA current Standards, Specifications, and Procedures or from complying with any and all statues, rules, regulations, and ordinances which may be imposed by other government agencies (local, state, and federal) which may have jurisdiction. Violations will result in the OWASA Project approval being rescinded.
3. Preconstruction Conference – A preconstruction conference with the OWASA Construction Inspector is required before beginning any water or sewer utility construction.
4. Contact the National One Call Before You Dig 811 to have OWASA facilities located before beginning any excavation.
5. Field Changes are not considered approved by OWASA unless revised plans have been submitted to OWASA for review and approval. Contractors that proceed with construction prior to this approval do so at their own risk.
6. Sewer Statement – Sewer lines under construction shall be plugged with a mechanical plug at the first manhole upstream from the point of connection. Plug shall be placed in the outlet connection and secured with steel cable. Plug shall remain in place until acceptance of lines by OWASA. Before any construction is to begin on the site, Contractor shall protect all existing OWASA Sewer Manholes with iron fence post and orange tree protection fencing. Water, stone, dirt, or any other debris shall not be allowed to enter the OWASA Sanitary Sewer System during flushing operations or at any other time. Construction taking place in the vicinity of any existing OWASA sewer lines or manholes shall not cause any inflow of surface water or debris to enter the OWASA Sanitary Sewer System. Existing OWASA manholes located in construction sites are to be kept clear and accessible to OWASA personnel at all times. The Owner and/or Contractor shall be responsible for any damages incurred to the OWASA Sanitary Sewer System and any fines imposed by the State of North Carolina Division Of Water Quality due to sewer spills or overflows."
7. Water Valves – Existing valves shall be operated by OWASA personnel only. Valves that separate purity approved water and unapproved water are to remain closed at all times. Valves may be temporarily opened for loading and flushing by the OWASA Inspector only.
8. Protection of Existing OWASA Facilities – Before any construction is to begin on the site, Contractor shall protect all OWASA Meter Vaults, Fire Hydrants, Valve Boxes, and Manholes with iron fence post and orange tree protection fencing. All existing OWASA facilities are to be kept clear and accessible to OWASA personnel at all times.
9. Sewer Use Ordinance – Discharge from this project must be in compliance with the OWASA Sewer Use Ordinance. A grease interceptor shall be provided when in the opinion of OWASA it is necessary for the proper handling of wastewater containing excessive amounts of grease. All interception units must be of the type and capacity which is certified by the Project Engineer as meeting the requirements of OWASA.
10. Sewer Services – Each building connected to the sewer system shall be served by a separate building sewer of not less than 4 inch diameter. Sewer services located within public right-of-ways or OWASA sewer easements must be constructed of ductile iron pipe from the tap up to and including the first clean-out. Except for dead end manholes, all 4 inch sewer services must be tapped into the sewer main. All 6 inch services must be connected to a manhole.
11. Existing Valves – Contractor responsible for verifying that existing valve at the point of connection to the OWASA system is adequate for performing and passing hydrostatic pressure and leakage test. Contractor, at his expense, may optionally replace valve or install a new valve for the purpose of performing a pressure test for new main installation. If Contractor elects to pressure test against existing valve, Contractor accepts responsibility for ensuring passing pressure test in accordance with OWASA requirements. In any case, no claim whatsoever shall be made against OWASA for failure of pressure test.
12. Dechlorination Requirements – The Contractor shall be responsible for neutralization of chlorinated water at the point of discharge from the main being tested. This shall occur following chlorination to disinfect a main or any other time when elevated levels of chlorine could potentially be discharged into the environment by the Contractor. At the time the disinfection and purity testing procedures are discussed with the OWASA Construction Inspector, the procedure for dechlorination will be covered. Absolutely no flushing, disinfection, or purity sampling is to take place without prior approval of a sampling plan by the OWASA Inspector.
13. Cross-Connection Control Ordinance – Backflow Prevention will be required in accordance with OWASA Cross-Connection Control Ordinance and Manual.
14. Fire Protection Systems – Pressure testing, chlorination, and purity testing shall be completed before the installation of the RPDA unit.
15. Remote Read-out Devices – RPDA devices located inside buildings must be equipped with an AMR Meter to be purchased from OWASA and installed by the Contractor. Meter purchase will include an OWASA provided box that is to be mounted on the outside of the building (see OWASA Detail 515.03). The box contains an ERT (transmitter) and a remote read-out device.
16. Existing water and/or sewer lines encountered during construction must be supported in a manner acceptable to the OWASA Construction Inspector. The OWASA Construction Inspector under the direction of the OWASA Engineering Manager may require existing pipes to be replaced with new ductile iron pipe.
17. Water outages necessary for the connection of new construction to existing pipelines must be coordinated in advance with the OWASA Construction Inspector and the affected parties in accordance with OWASA Policy. A two week notice is required

MARK	DATE	DESCRIPTION

REVISIONS

HAWTHORN RETIREMENT GROUP

TOWN OF CHAPEL HILL, ORANGE COUNTY, NORTH CAROLINA
SITE IMPROVEMENT PLANS

CHAPEL HILL RETIREMENT RESIDENCE
UTILITY PLAN

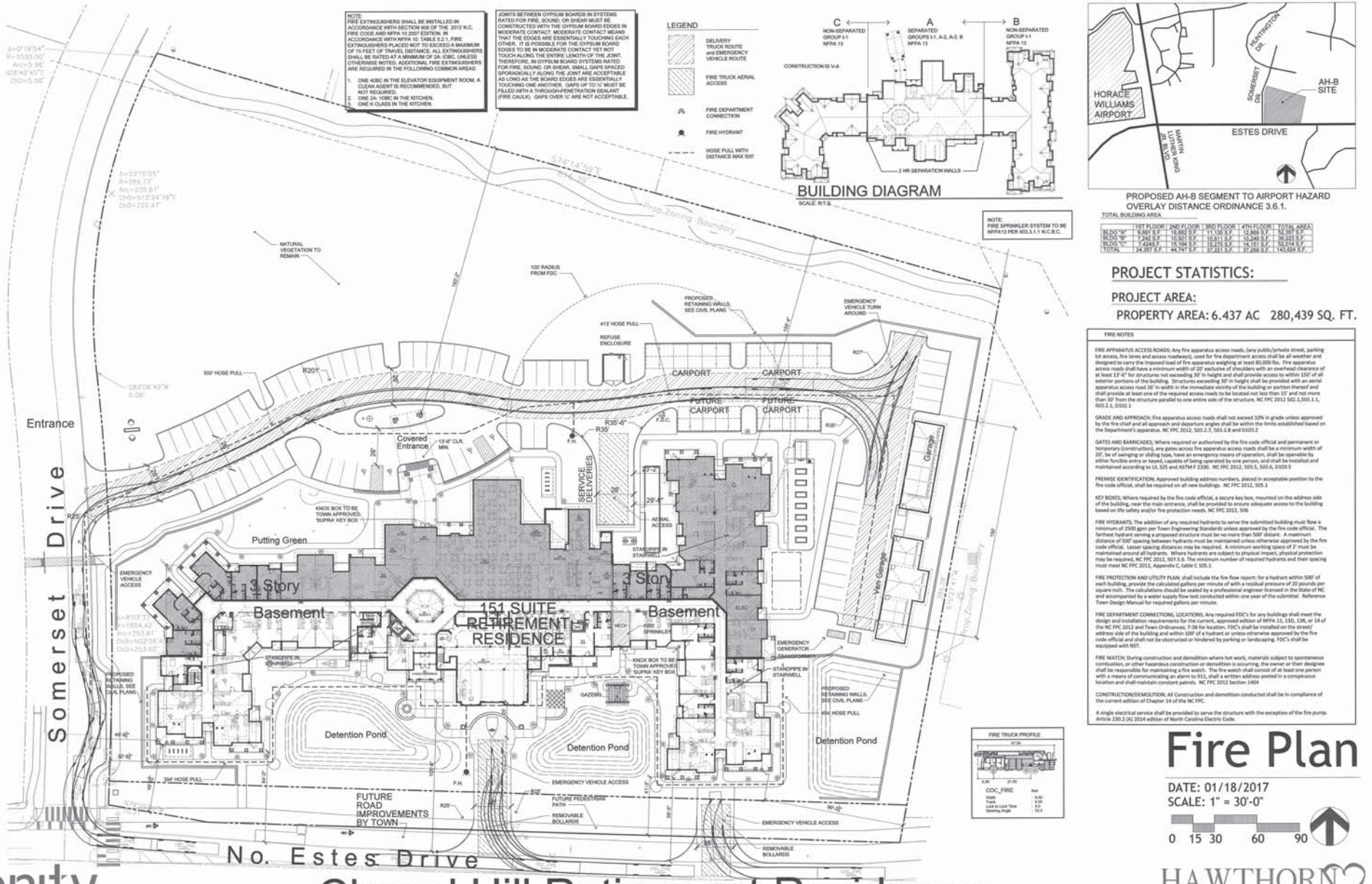
EMHT

DATE: January 18, 2017

SCALE: 1" = 40'

JOB NO. 2014-1832

SHEET: C7.0



PROPOSED AH-B SEGMENT TO AIRPORT HAZARD OVERLAY DISTANCE ORDINANCE 3.6.1.

TOTAL BUILDING AREA

	1ST FLOOR	2ND FLOOR	3RD FLOOR	4TH FLOOR	TOTAL AREA
BLDG "A"	5,691 S.F.	18,662 S.F.	11,136 S.F.	12,869 S.F.	52,357 S.F.
BLDG "B"	7,242 S.F.	10,921 S.F.	10,811 S.F.	10,249 S.F.	39,223 S.F.
BLDG "C"	11,424 S.F.	15,164 S.F.	14,274 S.F.	14,151 S.F.	53,014 S.F.
TOTAL	24,357 S.F.	44,747 S.F.	37,221 S.F.	37,269 S.F.	143,594 S.F.

PROJECT STATISTICS:

PROJECT AREA:

PROPERTY AREA: 6.437 AC 280,439 SQ. FT.

FIRE NOTES

FIRE APPARATUS ACCESS ROADS; Any fire apparatus access roads, (any public/private street, parking lot access, fire lanes and access roadways), used for fire department access shall be all weather and designed to carry the imposed load of fire apparatus weighing at least 80,000 lbs. Fire apparatus access roads shall have a minimum width of 20' exclusive of shoulders with an overhead clearance of at least 13'-6" for structures not exceeding 30' in height and shall provide access to within 150' of all exterior portions of the building. Structures exceeding 30' in height shall be provided with an aerial apparatus access road 26' in width in the immediate vicinity of the building or portion thereof and shall provide at least one of the required access roads to be located not less than 15' and not more than 30' from the structure parallel to one entire side of the structure. NC FPC 2012 502.1,503.1.1, 503.2.1, D102.1

GRADE AND APPROACH; Fire apparatus access roads shall not exceed 10% in grade unless approved by the fire chief and all approach and departure angles shall be within the limits established based on the Department's apparatus. NC FPC 2012, 503.2.7, 503.2.8 and D103.2

GATES AND BARRICADES; Where required or authorized by the fire code official and permanent or temporary (construction), any gates across fire apparatus access roads shall be a minimum width of 20', be of swinging or sliding type, have an emergency means of operation, shall be openable by either forcible entry or keyed, capable of being operated by one person, and shall be installed and maintained according to UL 325 and ASTM F 2200. NC FPC 2012, 503.5, 503.6, D103.5

PREMISE IDENTIFICATION; Approved building address numbers, placed in acceptable position to the fire code official, shall be required on all new buildings. NC FPC 2012, 505.1

KEY BOXES; Where required by the fire code official, a secure key box, mounted on the address side of the building, near the main entrance, shall be provided to ensure adequate access to the building based on life safety and/or fire protection needs. NC FPC 2012, 506

FIRE HYDRANTS; The addition of any required hydrants to serve the submitted building must flow a minimum of 2500 gpm per Town Engineering Standards unless approved by the fire code official. The farthest hydrant serving a proposed structure must be no more than 500' distant. A maximum distance of 500' spacing between hydrants must be maintained unless otherwise approved by the fire code official. Lesser spacing distances may be required. A minimum working space of 3' must be maintained around all hydrants. Where hydrants are subject to physical impact, physical protection may be required, NC FPC 2012, 507.5.6. The minimum number of required hydrants and their spacing must meet NC FPC 2012, Appendix C, table C 105.1

FIRE PROTECTION AND UTILITY PLAN; shall include the fire flow report: for a hydrant within 500' of each building, provide the calculated gallons per minute of with a residual pressure of 20 pounds per square inch. The calculations should be sealed by a professional engineer licensed in the State of NC, and accompanied by a water supply flow test conducted within one year of the submittal. Reference Town Design Manual for required gallons per minute.

FIRE DEPARTMENT CONNECTIONS, LOCATIONS; Any required FDC's for any buildings shall meet the design and installation requirements for the current, approved edition of NFPA 13, 13R, or 14 of the NC FPC 2012 and Town Ordinances; 7-38 for location. FDC's shall be installed on the street/address side of the building and within 100' of a hydrant or unless otherwise approved by the fire code official and shall not be obstructed or hindered by parking or landscaping. FDC's shall be equipped with NST.

FIRE WATCH; During construction and demolition where hot work, materials subject to spontaneous combustion, or other hazardous construction or demolition is occurring, the owner or their designee shall be responsible for maintaining a fire watch. The fire watch shall consist of at least one person with a means of communicating an alarm to 911, shall a written address posted in a conspicuous location and shall maintain constant patrols. NC FPC 2012 Section 1404

CONSTRUCTION/DEMOLITION; All Construction and demolition conducted shall be in compliance of the current edition of Chapter 14 of the NC FPC.

A single electrical service shall be provided to serve the structure with the exception of the fire pump. Article 230.2 (A) 2014 edition of North Carolina Electric Code.

Fire Plan

DATE: 01/18/2017

SCALE: 1" = 30'-0"

0 15 30 60 90

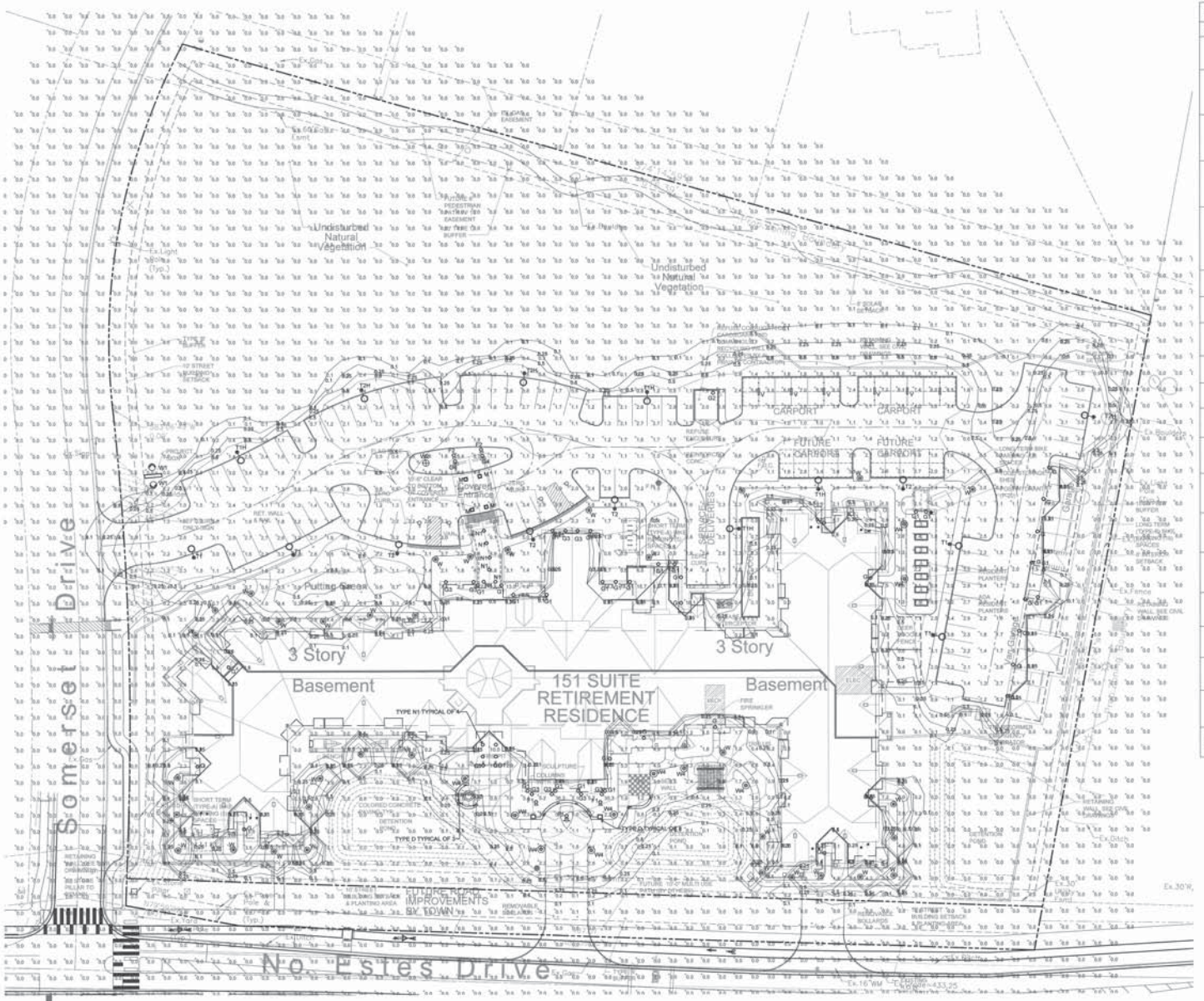
Chapel Hill Retirement Residence

Chapel Hill, NC

lenity architecture, inc.
3150 Kettle Court SE, Salem, Oregon 97301
P 503 399 1090 F 503 399 0565 W lenityarchitecture.com

HAWTHORN RETIREMENT GROUP
9310 NE Vancouver Mall Dr., Suite 200
Vancouver, WA 98662-8210
(360) 213-1550 Fax (360) 213-1540

C7.1



LUMINAIRE SCHEDULE

Symbol	Label	Mounting Height	Catalog Number	Description	Lamp	Lumens	LLF	Watts
	D	1'-8" A.F.G.	LITHONIA WSL1F	RECESSED STEP LIGHT, DIE CASTING ALUMINUM HOUSING WITH LOUVERED DOOR.	ONE 13-WATT FLUORESCENT	900	0.75	22.41
	F1	8" A.F.G.	E-CONOLIGHT E-GL3L01NDK	7.8"L, X 3"DIA, X 5-13/16"H, KNUCKLE MOUNT ACCENT LIGHT FLOOD REFLECTOR TEMPERED GLASS LENS	LED 7 WATT 600 LUMENS	600	0.85	7
	F2	8" A.F.G.	E-CONOLIGHT E-GL15D3NDK	7.8"L, X 3"DIA, X 5-13/16"H, KNUCKLE MOUNT ACCENT LIGHT SPOT REFLECTOR TEMPERED GLASS LENS	LED 38 WATT 2000 LUMENS	2000	0.85	38
	F3	8" A.F.G.	E-CONOLIGHT E-GL1F03NDK	7.8"L, X 3"DIA, X 5-13/16"H, KNUCKLE MOUNT ACCENT LIGHT FLOOD REFLECTOR TEMPERED GLASS LENS	LED 38 WATT 2000 LUMENS	2000	0.85	38
	G	8' A.F.G.	E-CONOLIGHT E-MPBL03NZ	CAST BLACK PAINTED FINNED METAL HOUSING, 120 LED ARRAY, FORMED WHITE PAINTED METAL REFLECTOR WITH 1.0625 X 1.8125" APERTURE, CLEAR CONVEX GLASS LENS	LED 36 WATT 3,350 LUMENS 4,000 K	3350	0.85	36
	G1	8' A.F.G.	E-CONOLIGHT E-S12L014U	WALL MOUNTED LED FIXTURE	LED 16 WATT 950 LUMENS 4,000 K	950	0.95	16
	G2	5' A.F.G.	E-CONOLIGHT E-WWYL21NMP	WALL MOUNTED LED FIXTURE	LED 22 WATT 1228 LUMENS 4,000 K	1,228	0.95	22
	G3	8' A.F.G.	E-CONOLIGHT E-S22L03AU	Up/Down Wall LED Sconce	LED 30 WATT 1,850 LUMENS 4,000 K	1,850	0.95	30
	G4	14' A.F.G.	E-CONOLIGHT E-DG1L13USK	ENTRY CANOPY WALL SCONCE WITH	LED 15 WATT 1,260 LUMENS 4,000 K	1,260	0.95	15
	M	14' A.F.G.	E-CONOLIGHT E-RC2L04CW	16" RECESSED CANOPY LIGHT	LED 42 WATT 4,100 LUMENS 4,000 K	4,100	0.95	42
	N1	9' A.F.G.	HALO SLD612040WH	6" SURFACE MOUNT DOWNLIGHT, WHITE PAINTED TRIM.	LED 15 WATT 1,000 LUMENS 4,000 K	1,000	0.95	15
	T1	13'-6" A.F.G. (12' POLE WITH 1'-6" POLE BASE)	Lithonia Lighting DSXO LED 40C 530 40K T4M MVOLT HS	DSXO LED WITH (2) 20 LED LIGHT ENGINES, TYPE T4M OPTIC, 4000K, @ 530mA WITH HOUSE SIDE SHIELD	LED	7,700	0.95	68
	T2	13'-6" A.F.G. (12' POLE WITH 1'-6" POLE BASE)	Lithonia Lighting DSXO LED 40C 530 40K T4M MVOLT	DSXO LED WITH (2) 20 LED LIGHT ENGINES, TYPE T4M OPTIC, 4000K, @ 530mA	LED	7,700	0.95	68
	T3	13'-6" A.F.G. (12' POLE WITH 1'-6" POLE BASE)	Lithonia Lighting DSXO LED 40C 530 40K T3M MVOLT HS	DSXO LED WITH (2) 20 LED LIGHT ENGINES, TYPE T3M OPTIC, 4000K, @ 530mA WITH HOUSE SIDE SHIELD	LED	7,700	0.95	68
	T4	13'-6" A.F.G. (12' POLE WITH 1'-6" POLE BASE)	Lithonia Lighting DSXO LED 40C 530 40K T3M MVOLT	DSXO LED WITH (2) 20 LED LIGHT ENGINES, TYPE T3M OPTIC, 4000K, @ 530mA	LED	7,700	0.95	68
	W	2'-6" A.F.G.	VISTA 1447-B-CR-13	WALKWAY - FLOURESCENT LANDSCAPE LIGHT	ONE 13-WATT CPF - FLOURESCENT	1200	0.95	18
	W1	8" A.F.G.	E-CONOLIGHT E-CF3L03NDZ	LED FLOODLIGHT	LED 30 WATT 3,000 LUMENS 4,000 K	3,000	0.95	30
	W2	6" A.F.G.	E-CONOLIGHT E-HL5S09NDZ	LED SPOT LIGHT WITH 20° BEAM.	LED 72 WATT 6,150 LUMENS 4,000 K	6,150	0.90	72
	WA	9' A.F.G. (8' POLE FIXTURE HEIGHT 1')	LIGHTWAY TRZP-21-U-1T42-4-WZ	21"DIA, X 16-3/8"H, POST TOP FIXTURE WHITE REFLECTOR HOOD CLEAR TEMPERED GLASS JAR LENS	ONE 42-WATT FLOURESCENT	3200	0.75	43.86
	V	CEILING	LITHONIA CMW 2 32	4FT WET LOCATION ENCLOSURE WITH (2) T8 LAMPS, 50% DR HIGH IMPACT ACRYLIC LENS.	TWO 32-WATT LINEAR FLUORESCENT T8, 730	2800	0.9	56.1

Site Lighting Photometric Plan

DATE: 01/18/2017
SCALE: 1" = 30'-0"

0 15 30 60 90

Chapel Hill Retirement Residence

Chapel Hill, NC

lenity architecture, inc.
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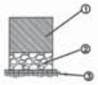
HAWTHORN RETIREMENT GROUP
9310 NE Vancouver Mall Dr., Suite 200
Vancouver, WA 98662-8210
(360) 213-1550 Fax (360) 213-1540

C7.2

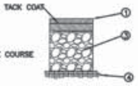
① SURFACE COURSE
8" CONCRETE
4000 PSI @ 28 DAYS
W/ 6X6 10/10 WWM
② BASE COURSE
4" COMPACTED AGGREGATE BASE COURSE (ABC) STONE
③ SUBGRADE
COMPACTED SUBGRADE



NOTE TO OWNER/DEVELOPER:
PAVEMENT SECTION IS A GENERAL RECOMMENDATION ONLY. A LICENSED GEOTECHNICAL ENGINEER SHALL MAKE A FINAL DETERMINATION ON PAVEMENT SECTION DESIGN BASED ON UPON ACTUAL FIELD CONDITIONS. GEOTECHNICAL ENGINEER TO BE RETAINED BY OWNER.

TYPICAL HEAVY DUTY 8" CONCRETE PAVEMENT SECTION
Not To Scale

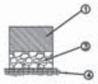
① SURFACE COURSE
3" S-9.5B
INSTALLED IN 2-1.5" LIFTS
③ BASE COURSE
8" COMPACTED AGGREGATE BASE COURSE (ABC) STONE
④ SUBGRADE
COMPACTED SUBGRADE



NOTE: ALL MATERIALS AND CONSTRUCTION METHODS SHOULD CONFORM TO THE 2006 EDITION OF THE NCDOT "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES.
NOTE TO OWNER/DEVELOPER:
PAVEMENT SECTION IS A GENERAL RECOMMENDATION ONLY. A LICENSED GEOTECHNICAL ENGINEER SHALL MAKE A FINAL DETERMINATION ON PAVEMENT SECTION DESIGN BASED ON UPON ACTUAL FIELD CONDITIONS. GEOTECHNICAL ENGINEER TO BE RETAINED BY OWNER.

TYPICAL LIGHT DUTY PAVEMENT SECTION
Not To Scale

① SURFACE COURSE
6" CONCRETE
4000 PSI @ 28 DAYS
W/ 6X6 10/10 WWM
② BASE COURSE
4" COMPACTED AGGREGATE BASE COURSE (ABC) STONE
③ SUBGRADE
COMPACTED SUBGRADE



NOTE CONTRACTOR TO STAMP CONCRETE SURFACE.

NOTE TO OWNER/DEVELOPER:
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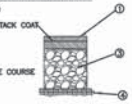
TYPICAL STAMPED CONCRETE ENTRANCE SECTION
Not To Scale

① SURFACE COURSE
3" S-9.5B
INSTALLED IN 2-1.5" LIFTS
③ BASE COURSE
10" COMPACTED AGGREGATE BASE COURSE (ABC) Stone
④ SUBGRADE
COMPACTED SUBGRADE



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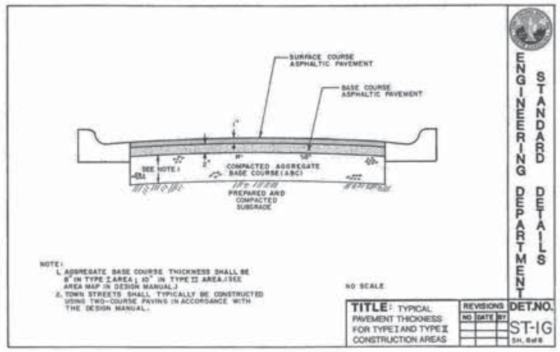
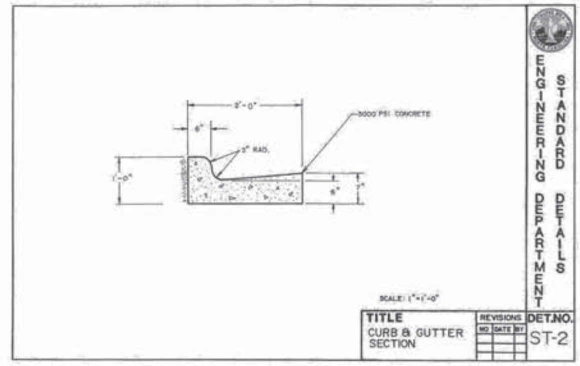
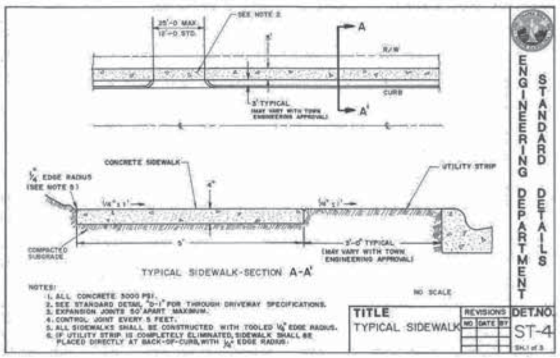
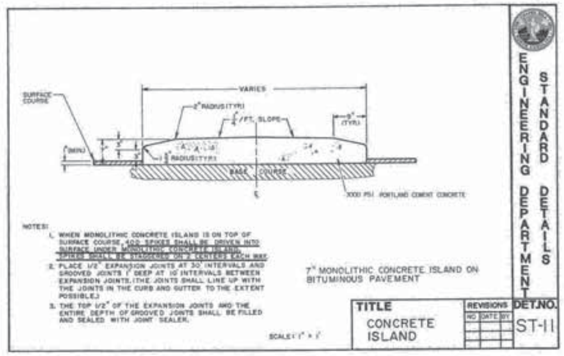
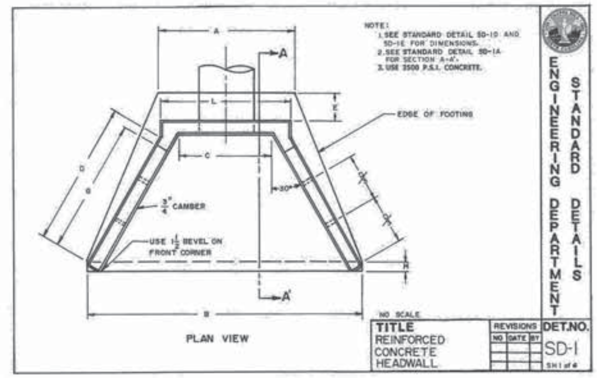
TYPICAL HEAVY DUTY PAVEMENT SECTION
Not To Scale

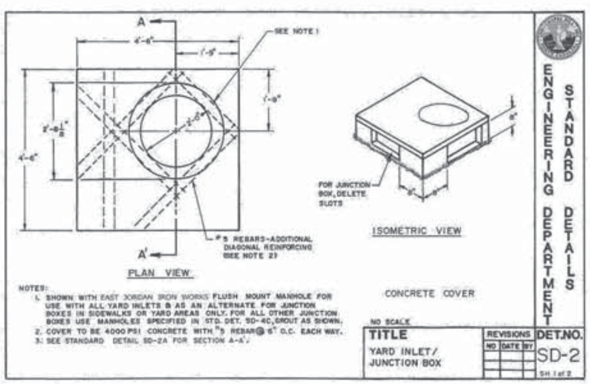


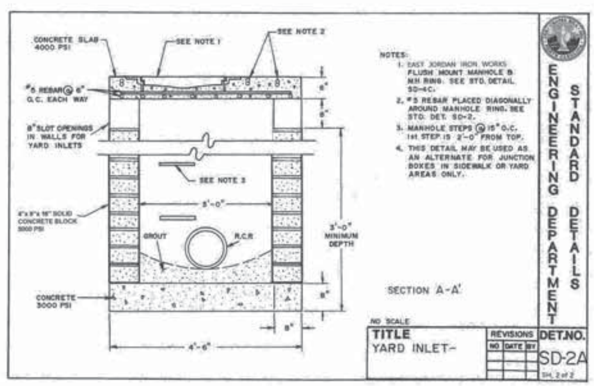


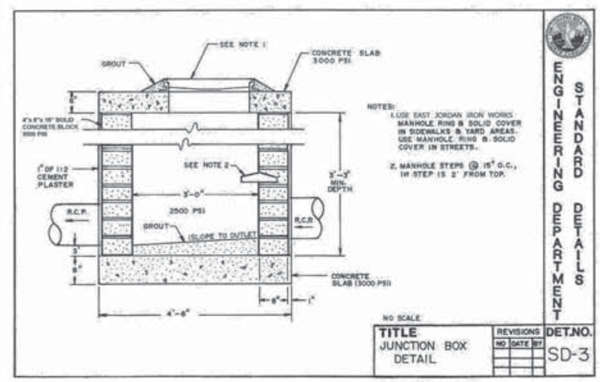












MARK	DATE	DESCRIPTION
		REVISIONS

HAWTHORN RETIREMENT GROUP
8510 NE Vancouver Mall Dr., Suite 200
Vancouver, WA 98662-8210
(360) 213-1550 Fax (360) 213-1940

TOWN OF CHAPEL HILL, ORANGE COUNTY, NORTH CAROLINA
SITE IMPROVEMENT PLANS
CHAPEL HILL RETIREMENT RESIDENCE
SITE DETAILS

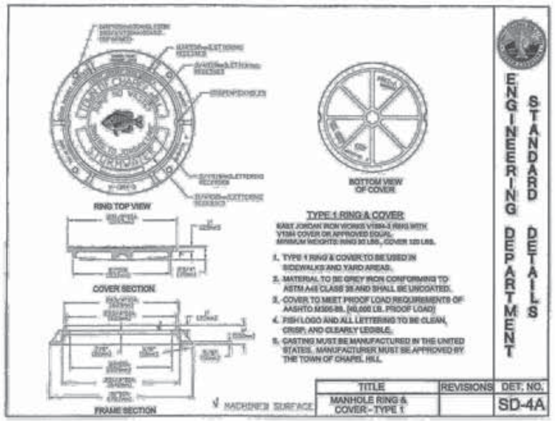
EMH&T
Evans, Mechwart, Hambleton & Tilton, Inc.
Engineers • Surveyors • Planners • Scientists
emht.com

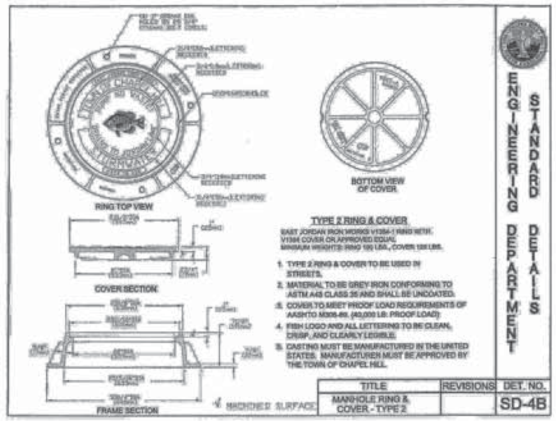
DATE
January 18, 2017

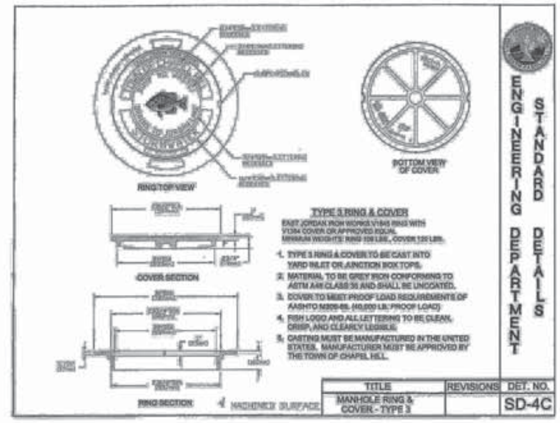
SCALE
None

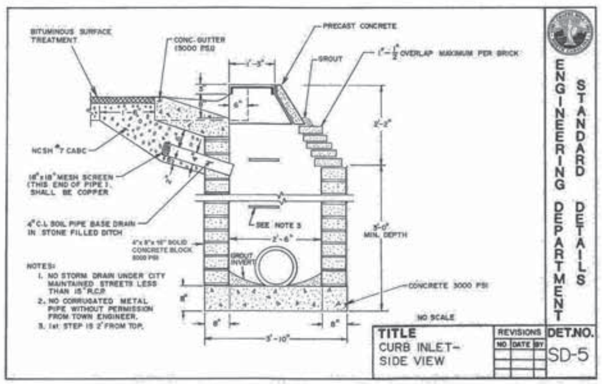
JOB NO.
2014-1832

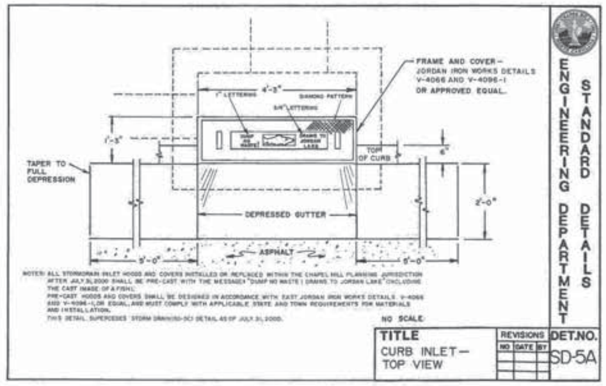
SHEET
C9.0

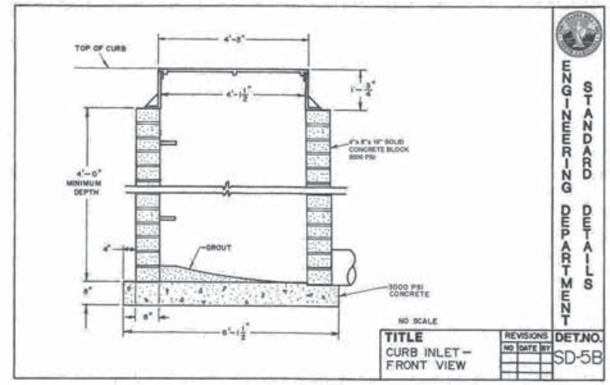


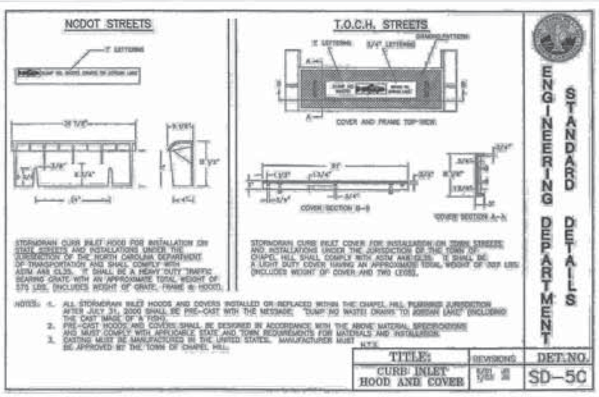


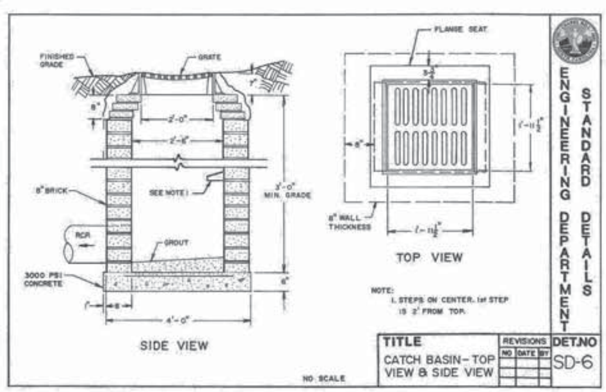


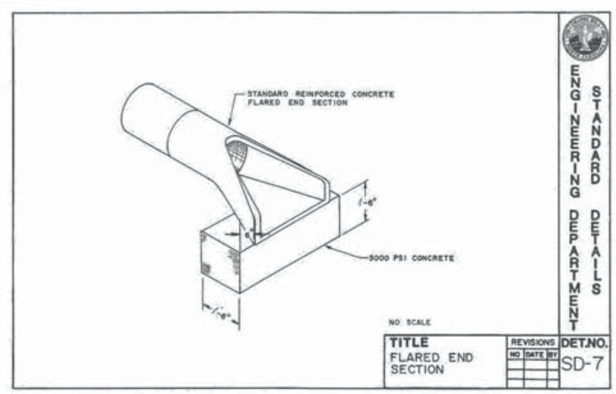












MARK	DATE	DESCRIPTION

REVISIONS

HAWTHORN RETIREMENT GROUP

TOWN OF CHAPEL HILL, ORANGE COUNTY, NORTH CAROLINA
SITE IMPROVEMENT PLANS
CHAPEL HILL RETIREMENT RESIDENCE
SITE DETAILS

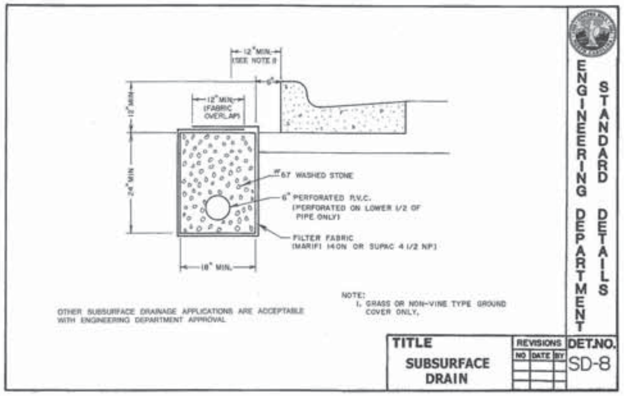
EMHT
Evans, Mechwart, Hambleton & Tilton, Inc.
emht.com

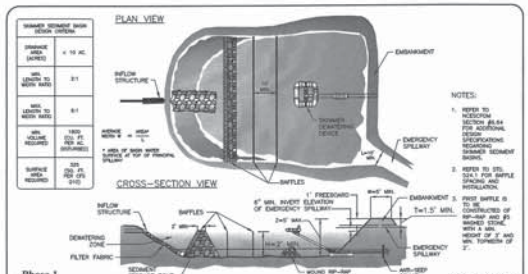
DATE: January 18, 2017

SCALE: None

JOB NO.: 2014-1832

SHEET: C9.1

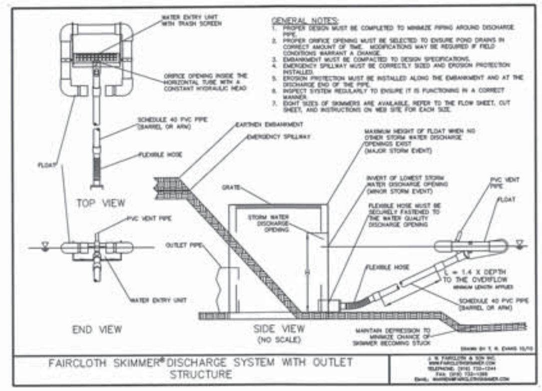


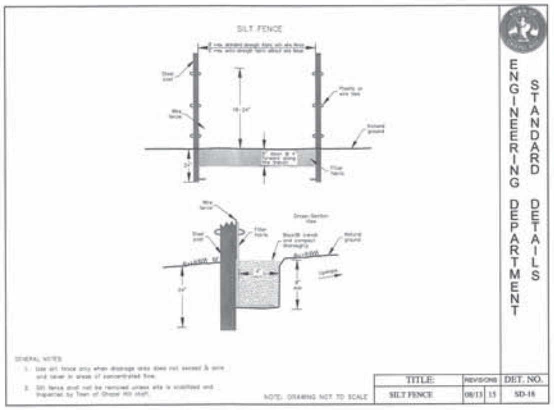


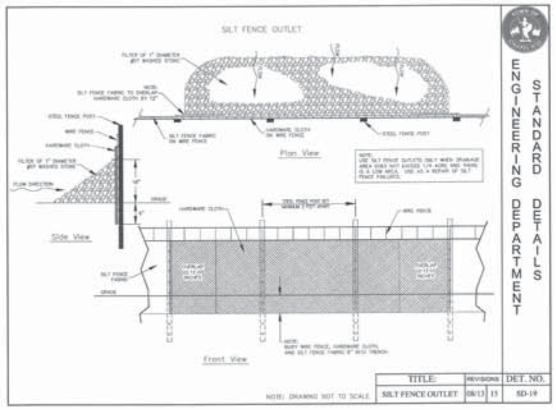
Phase 1
DATA BLOCK

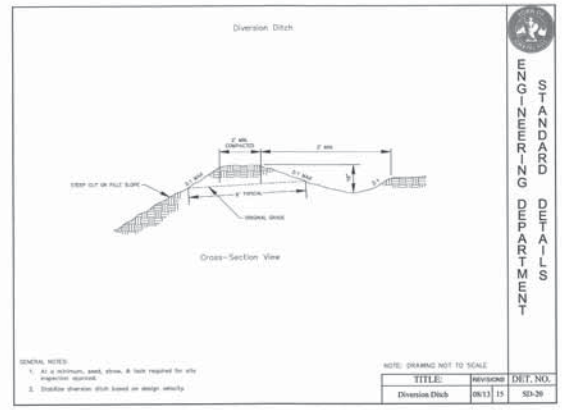
BASIN NO.	DRAINAGE AREA (ACRES)	DENUDED AREA (ACRES)	Q25	BASIN VOLUME REQUIRED (C.F.)	BASIN VOLUME PROVIDED (C.F.)	BASIN SURFACE AREA REQUIRED (S.F.)	BASIN SURFACE AREA PROVIDED (S.F.)	CLEANOUT DEPTH H/2 (FT.)	H (FEET)	L (FEET)	T (FEET)	W (FEET)	Z (FEET)	SKIMMER PIPE DIAMETER	SKIMMER ORIFICE DIAMETER
1	0.65	0.65	2.12	1,170	10,884	686	4,327	1.00	2.0	10	N/A	10	5	2.5 in	1.20 in
2	2.33	2.33	5.59	4,194	7,316	1,817	2,901	1.00	2.0	10	N/A	10	5	2.5 in	1.00 in
3	1.10	1.10	4.64	1,980	16,460	1,508	5,247	1.00	2.0	10	N/A	10	5	3.0 in	1.40 in

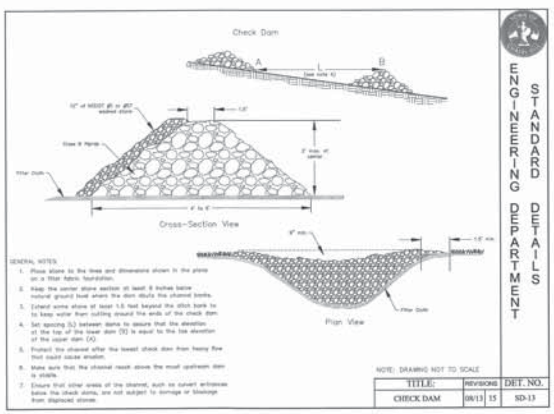
MODIFIED — SKIMMER SEDIMENT BASIN

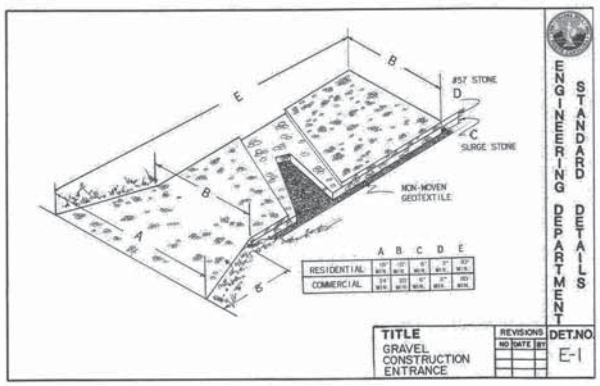


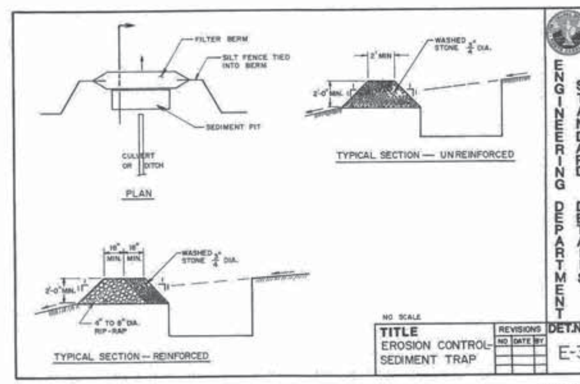












TOWN OF CHAPEL HILL, ORANGE COUNTY, NORTH CAROLINA
SITE IMPROVEMENT PLANS

CHAPEL HILL RETIREMENT RESIDENCE
SITE DETAILS

HAWTHORN RETIREMENT GROUP

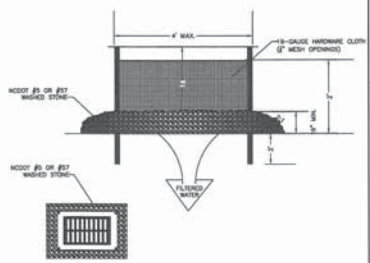
EMHT

MARK	DATE	DESCRIPTION

REVISIONS

DATE: January 18, 2017
SCALE: None
JOB NO. 2014-1832
SHEET C9.2

NORTH CAROLINA SEAL — FRANK L. CANTRELL



GENERAL NOTES:

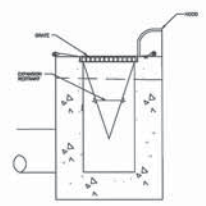
1. UNIFORMLY GRADE A SHALLOW DEPRESSION APPROACHING THE INLET.
2. DRIVE 5-FOOT STEEL POSTS 2 FEET INTO THE GROUND SURROUNDING THE INLET. SPACE POSTS EVENLY AROUND THE PERIMETER OF THE INLET, A MAXIMUM OF 4 FEET APART.
3. SURROUND THE POSTS WITH WIRE MESH HARDWARE CLOTH. SECURE THE WIRE MESH TO THE STEEL POSTS AT THE TOP, MIDDLE, AND BOTTOM. PLACING A 2-FOOT FLAP OF THE WIRE MESH UNDER THE GRAVEL FOR ANCHORING IS RECOMMENDED.
4. PLACE CLEAN GRAVEL (NC DOT #5 OR #57 STONE) ON A 2:1 SLOPE WITH A HEIGHT OF 16 INCHES AROUND THE WIRE, AND SMOOTH TO AN EVEN GRADE.
5. ONCE THE CONTRIBUTING DRAINAGE AREA HAS BEEN STABILIZED, REMOVE ACCUMULATED SEDIMENT, AND ESTABLISH FINAL GRADING ELEVATIONS.
6. COMPACT THE AREA PROPERLY AND STABILIZED IT WITH GROUNDCOVER.

NOT TO SCALE

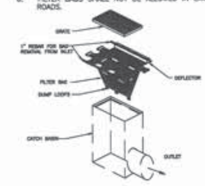
HARDWARE CLOTH AND GRAVEL INLET PROTECTION

NOTES

1. INLET MAINTENANCE SHALL BE DOCUMENTED IN PROJECT LOG BOOK.
2. FILTER TYPES SHALL BE APPROVED BY THE INSPECTOR PRIOR TO INSTALLATION.
3. FILTER BAGS MAY BE REMOVED WHEN SITE IS STABILIZED AT THE DIRECTION OF THE ENGINEER.
4. FILTER BAGS SHALL BE REMOVED PRIOR TO STREET ACCEPTANCE.
5. FILTER BAGS SHALL BE CLEANED OR REPLACED ON A REGULAR BASIS (NOT BE MORE THAN HALF FULL AT ANY TIME).
6. FILTER BAGS SHALL NOT BE ALLOWED IN EXISTING TOWN OR NCDOT ROADS.



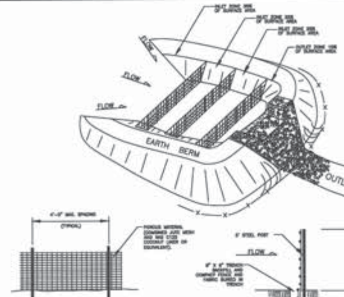
SECTION



INSTALLATION

NOT TO SCALE

CATCH BASIN INLET PROTECTION

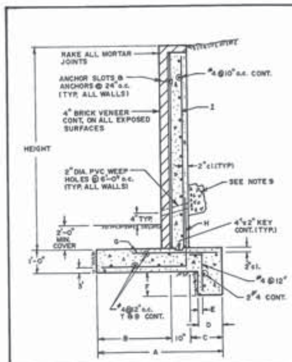


GENERAL NOTES:

1. DRIVE 5' STEEL POST AT LEAST 24" INTO SOLID GROUND.
2. USE STAPLES 1" APART HORIZONTALLY AND VERTICALLY TO ATTACH THE POROUS MATERIAL TO THE WIRE FENCE.
3. MINIMUM BAFFLE SPACING IS 10'.
4. THE FLOOR OF THE BASIN IN THE OUTLET ZONE AND BERMS SHOULD BE SEEDED IMMEDIATELY AFTER THE BASIN IS CONSTRUCTED.
5. REFER TO NCESCPDM SECTION #6.65 FOR ADDITIONAL SPECIFIATIONS.

NOT TO SCALE

BAFFLE INSTALLATION



DIMENSIONS FOR RETAINING WALLS

HEIGHT MAX.	A	B	C	D	E	F	G REBARS	H REBARS	I REBARS
5'	3'-6"	2'-0"	1'-0"	8"	3"	8"	#4x2-6" @12" o.c.	#4 @ 12" o.c.	#4 @ 12" o.c.
6'	3'-10"	2'-0"	1'-0"	8"	3"	8"	#4x3-2" @12" o.c.	#4 @ 12" o.c.	#4 @ 12" o.c.
7'	4'-6"	2'-4"	1'-4"	1'-0"	3"	1'-0"	#4x3-6" @12" o.c.	#4 @ 12" o.c.	#4 @ 12" o.c.
8'	5'-0"	2'-10"	1'-4"	1'-0"	3"	1'-0"	#4x3-6" @ 12" o.c.	#4 @ e 10" o.c.	#6 @ 10" o.c.
9'-6"	5'-8"	3'-6"	1'-4"	1'-0"	3"	1'-0"	#4x3-6" @ 12" o.c.	#4 @ e 10" o.c.	#5 @ e 10" o.c.

NOTES:

1. CONCRETE f'c = 3000 P.S.I. MIN.
2. REINFORCEMENT STEEL fy = 60,000 P.S.I.
3. REINFORCEMENT STEEL LAPS = CLASS "C"
4. BACKFILL TO BE LEVEL.
5. PLACE EXP. JOINTS @ 90'-0" MAX.
6. PLACE CONSTR. JOINTS @ 30'-0" o.c.
7. EARTH LATERAL FORCE EQ. 30 PSF EQUIV. FLUID PRESSURE.
8. FOOTINGS TO BE PLACED ON NATIVE MATERIAL, COMPACTED TO 95% MAX. DENSITY.
9. 12" WIDE x 12" DEEP x 12" HIGH CRUSHED STONE @ WEEP HOLES WRAPPED IN FABRIC (TYP.) ALL WALLS.

NO SCALE

ENGINEERING DEPARTMENT — STANDARD DETAILS

TITLE	REVISIONS			DET.NO.
RETAINING WALLS	NO	DATE	BY	ST-13

DRIVEWAY DIMENSIONS		
OPERATION/RADIUS	MINIMUM	MAXIMUM
ONE-WAY WITH 6-12 FT. RADII	20'	30'
ONE-WAY WITH 13+ FT. RADII	16'	20'
TWO-WAY WITH 6-12 FT. RADII	26'	30'
TWO-WAY WITH 13+ FT. RADII	22'	40'

NOTES:

1. ALL CONCRETE TO BE 3600 P.S.I. COMPRESSIVE STRENGTH.

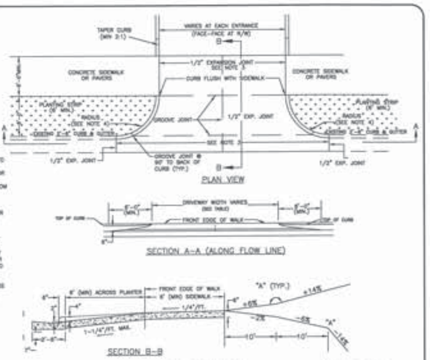
2. AT ALL DRIVEWAYS, SIDEWALKS TO BE REMOVED TO THE NEAREST JOINT BEYOND NEW CONSTRUCTION OR CUT WITH A SAW AND REMOVED. SAW CUT OR JOINT TO BE PERPENDICULAR TO EDGE OF EXISTING PAVEMENT. SEE STD. NO. 10.17 FOR JOINT DETAIL. PAY LIMITS FOR WORK DONE UNDER CITY OF CHARLOTTE CONTRACTS ARE FROM EXPANSION JOINT TO EXPANSION JOINT, FROM LIP OF CURB TO BACK OF SIDEWALK.

3. ALL DRIVEWAYS MUST MEET THE CURRENT CITY DRIVEWAY REGULATIONS AND NCDOT REQUIREMENTS FOR SPACING, SIGHT DISTANCE, AND OFFSETS FROM PROPERTY LINES AND INTERSECTIONS.

4. RADII MUST BE MINIMUM 8 FEET OR THE WIDTH OF THE PLANTING STRIP, WHICHEVER IS GREATER. RADII GREATER THAN THESE MINIMUMS MAY BE REQUIRED BY CDOT ON A CASE-BY-CASE BASIS. FOR RADII GREATER THAN 8 FEET, THE RADII ARE TO CONTINUE AS A BAND AT-GRADE THROUGH THE SIDEWALK.

5. PAVERS USED IN DRIVEWAY MUST HAVE A THICKNESS OF 3 INCHES.

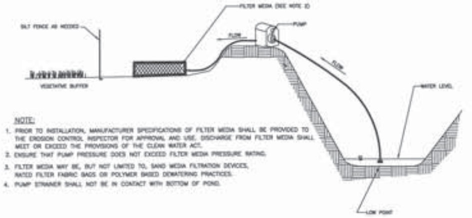
6. ALGEBRAIC DIFFERENCE IN GRADE ("X") BETWEEN SLOPES SHALL BE 8% OR LESS.



NOT TO SCALE

APPROVED DATE

TYPE II-MODIFIED DRIVEWAY DETAIL WITH WIDE PLANTING STRIP AND STANDARD CURB

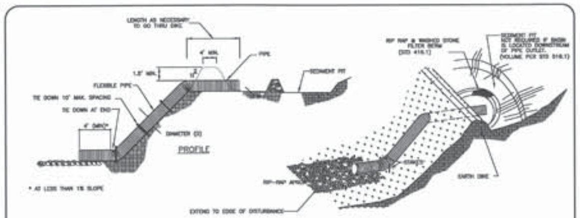


NOTE:

1. PRIOR TO INSTALLATION, MANUFACTURER SPECIFICATIONS OF FILTER MEDIA SHALL BE PROVIDED TO THE EROSION CONTROL INSPECTOR FOR APPROVAL AND USE. DISCHARGE FROM FILTER MEDIA SHALL MEET OR EXCEED THE PROVISIONS OF THE CLEAN WATER ACT.
2. ENSURE THAT PUMP PRESSURE DOES NOT EXCEED FILTER MEDIA PRESSURE RATING.
3. FILTER MEDIA MAY BE, BUT NOT LIMITED TO, SAND MEDIA FILTRATION DEVICES, RATED FILTER FABRIC BAGS OR POLYMER BASED DEWATERING PRACTICES.
4. PUMP STRAINER SHALL NOT BE IN CONTACT WITH BOTTOM OF POND.

EROSION CONTROL DEWATERING

N.T.S.



CONSTRUCTION SPECIFICATIONS:

1. THE TOP OF THE EARTH DIKE OVER THE INLET PIPE AND THOSE DIKES CARRYING WATER TO THE PIPE SHALL BE AT LEAST 1.5 FEET HIGHER AT ALL POINTS THAN THE TOP OF THE INLET PIPE.
2. THE PIPE SHALL BE FLEXIBLE WITH WATER TIGHT CONNECTING BANDS. FLEXIBLE PIPE SHOULD BE STAKED ON EITHER SIDE.
3. A RIP RAP APRON SHALL BE PROVIDED AT THE OUTLET, IF EMPTYING INTO A DISTURBED AREA.
4. THE SOIL AROUND AND UNDER THE INLET PIPE AND ENTRANCE SECTION SHALL BE HAND TAMPED IN 4" LIFTS TO THE TOP OF THE EARTH DIKE.
5. FOLLOW-UP INSPECTION AND ANY NEEDED MAINTENANCE SHALL BE PERFORMED AFTER EACH STORM BY THE FINANCIALLY RESPONSIBLE PARTY OR HIS AGENT.
6. OUTLET PIPE SHOULD BE TAKEN OVER OR THROUGH ANY SILT FENCE, TAKING CARE NOT TO VOID THE EFFECTIVENESS OF THE SILT FENCE.

NOT TO SCALE

FLEXIBLE PIPE SLOPE DRAIN

MARK | DATE | DESCRIPTION | REVISIONS

HAWTHORN RETIREMENT GROUP

TOWN OF CHAPEL HILL, ORANGE COUNTY, NORTH CAROLINA
SITE IMPROVEMENT PLANS
CHAPEL HILL RETIREMENT RESIDENCE
SITE DETAILS

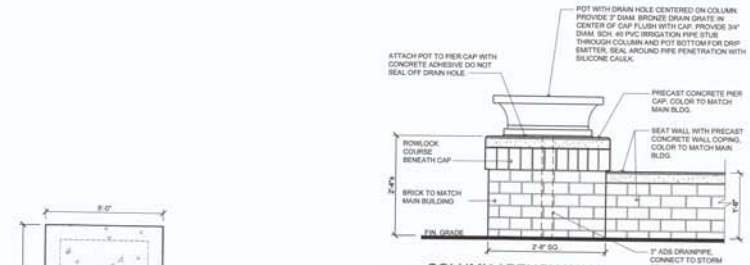
EMH&T — Evans, Mechwart, Hambleton & Tilton, Inc.
Engineers • Surveyors • Planners • Scientists
emht.com

DATE: January 18, 2017

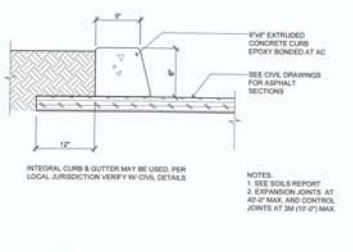
SCALE: None

JOB NO.: 2014-1832

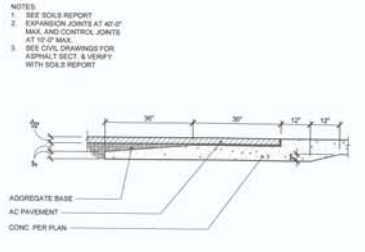
SHEET: C9.3



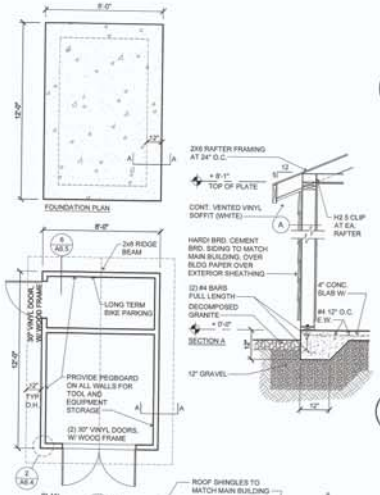
9 COLUMN / BENCH WALL
SCALE: 3/4" = 1'-0"



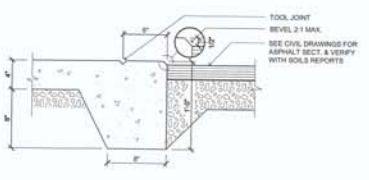
5 CURB DETAIL
(CURB / ASPHALT)
SCALE: 1 1/2" = 1'-0"



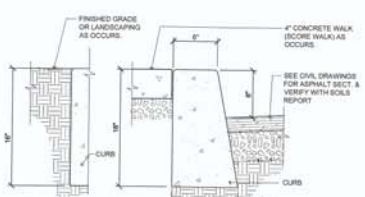
2 PAVEMENT TRANSITION
(PAVEMENT AND CONCRETE)
SCALE: 1/2" = 1'-0"



8 TOOL SHED
(GARDEN TOOL AND EQUIPMENT STORAGE)
SCALE: 1/4" = 1'-0"

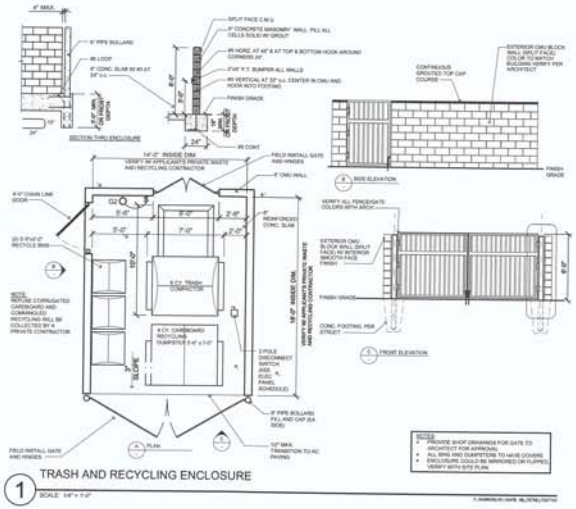


7 WALK DETAIL
(WALK / PAVING AT ENTRY)
SCALE: 1 1/2" = 1'-0"

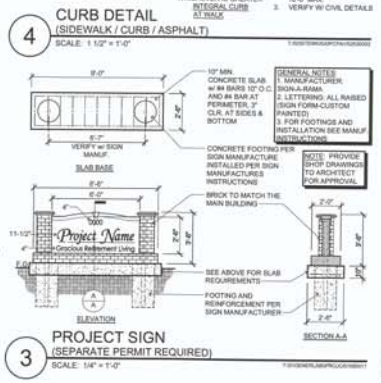


4 CURB DETAIL
(SIDEWALK / CURB / ASPHALT)
SCALE: 1 1/2" = 1'-0"

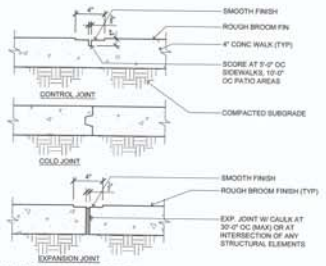
VERIFY ALL DETAILS WITH CIVIL DRAWINGS AND SOILS REPORT



1 TRASH AND RECYCLING ENCLOSURE
SCALE: 1/4" = 1'-0"



3 PROJECT SIGN
(SEPARATE PERMIT REQUIRED)
SCALE: 1/4" = 1'-0"



6 WALK/PATIO DETAIL
(CONCRETE WALK JOINTS)
SCALE: 1 1/2" = 1'-0"

Site Details

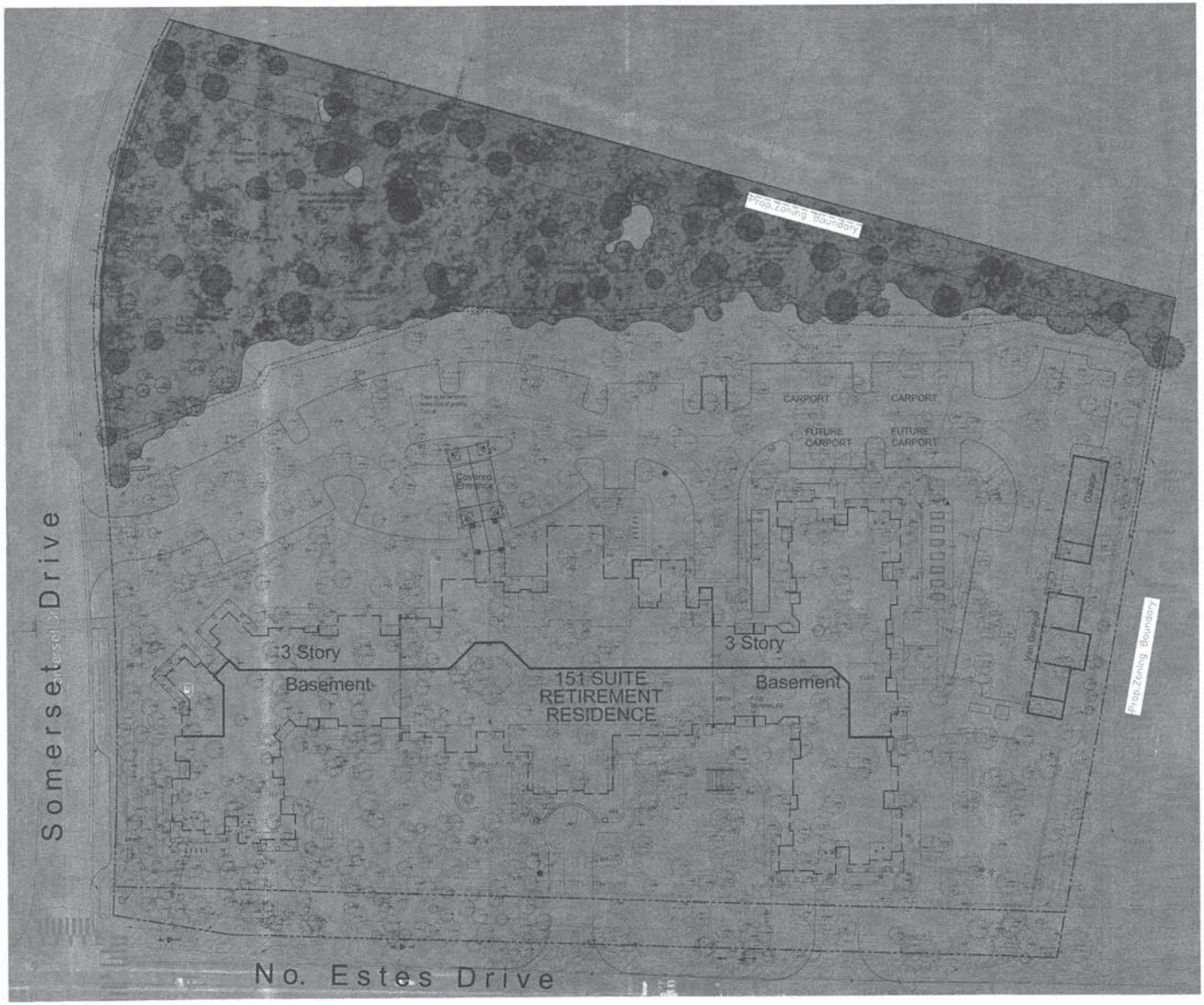
DATE: 01/18/2017
SCALE: AS NOTED

lenity
architecture, inc.
3150 Kettle Court SE, Salem, Oregon 97301
p 503 399 1090 f 503 399 0565 w lenityarchitecture.com

Chapel Hill Retirement Residence

Chapel Hill, NC

HAWTHORN RETIREMENT GROUP
9310 NE Vancouver Mall Dr., Suite 200
Vancouver, WA 98662-8210
(360) 213-1550 Fax (360) 213-1540



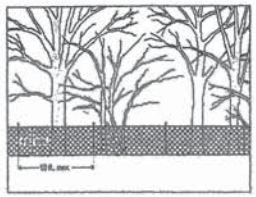
TREE CANOPY CALCULATIONS:

SITE DATA:

SITE AREA:	280,439 SQ. FT.
30% TREE CANOPY REQUIREMENT:	84,125 SQ. FT.
PROTECTED TREE CANOPY AREA: (areas beyond property lines not included)	66,522 SQ. FT.
REPLACEMENT TREE CANOPY AREA: (51- 2.50" caliper trees @ 500 s.f.)	25,500 SQ. FT.
TOTAL TREE CANOPY AREA:	92,022 SQ. FT. (32.8%)

Note- Trees used to meet buffer and parking lot shade requirements are not included in calculations.

TREE PROTECTION FENCING - TYPICAL



A pre-construction conference shall be held with the project manager and the Town's Landscape Architect before any site work begins.

Any tree roots exposed by construction shall be severed cleanly with a pruning tool.

The soil within the protected area around existing trees shall not be driven upon after fence removal for the purpose of installing landscaping.

Landscape Protection Plan

SCALE: 1" = 30'

DATE: Jan.18, 2017

0 15 30 60 90

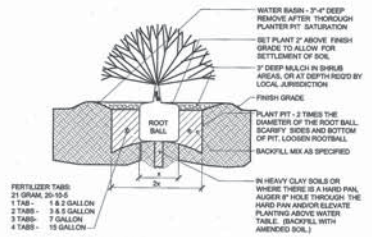
lenity architecture, inc.
3150 Kettle Court SE, Salem, Oregon 97301
p 503 399 1090 f 503 399 0585 w lenityarchitecture.com

Chapel Hill Retirement Residence

Chapel Hill, NC

HAWTHORN RETIREMENT GROUP
9310 NE Vancouver Mall Dr., Suite 200
Vancouver, WA 98662-8210
(360) 213-1550 Fax (360) 213-1540

L1.0



3 SHRUB/GROUNDCOVER PLANTING (SECTION)
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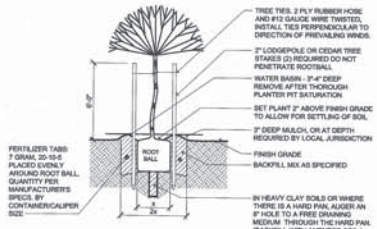

2 TREE PLANTING (SECTION)
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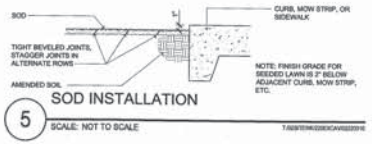

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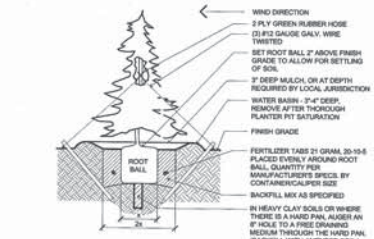

1 CONIFER TREE PLANTING (SECTION)
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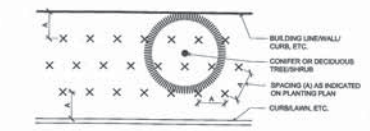

4 GROUNDCOVER PLANTING
SCALE: NOT TO SCALE

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Landscape Details

NOT TO SCALE DATE: Jan.18, 2017

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Vancouver, WA 98662-8210
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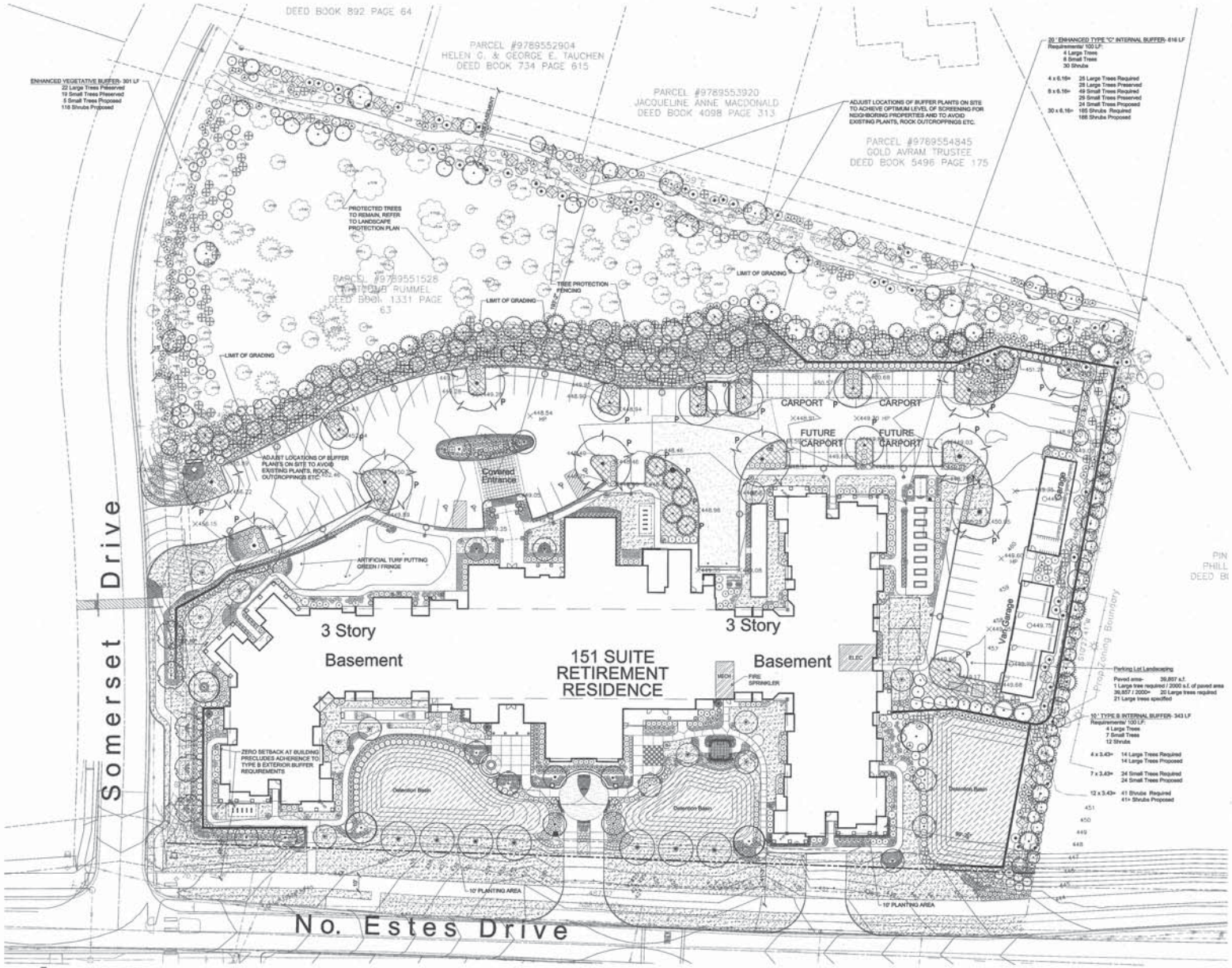

Planting Legend

Symbol	Botanical Name / Common Name	Quantity	Size / Comments
	Boulevard Trees: (some symbols reduced in scale in Legend)		
	Ginkgo biloba 'Princeton Sentry' / Princeton Sentry Maidenhair Tree	7	2.50" caliper x 12 ft. B&B Standard- limbed at 7 ft.
	Ostrya virginiana / Eastern Hop Hornbeam	5	2.50" caliper x 12 ft. B&B Standard- limbed at 7 ft.
	Trees: (some symbols reduced in scale in Legend)		
	Cercis canadensis / Eastern Redbud	19	1.50" caliper x 10 ft. B&B Standard- small tree
	Chionanthus virginicus / Fringe Tree	37	1.50" caliper x 10 ft. B&B Standard- small tree
	Cryptomeria japonica / Japanese Cryptomeria	13	7-8 ft. B&B or container-low branching- large tree
	Ilex x. 'Hollis ft. Stevens' / Nellie Stevens Holly	33	5 ft. B&B or container Fully branched- small tree
	Lagerstroemia 'Muskogee' / Muskogee Crape Myrtle	22	30 gal. container x 8 ft. Multiple-trunk- small tree
	Magnolia grandiflora 'Little Gem' / Little Gem Magnolia	4	45 gal. container x 10 ft. Low-branched- small tree
	Pinus taeda / Loblolly Pine	35	7-8 ft. B&B or container large tree
	Quercus laurifolia / Laurel Oak	21	2.50" caliper x 12 ft. B&B Standard-large tree
	Quercus shumardii / Shumard Oak	10	2.50" caliper x 12 ft. B&B Standard- limbed at 7 ft.-large tree
	Zelkova serrata 'Green Vase' / Green Vase Sawleaf Zelkova	7	2.50" caliper x 12 ft. B&B Standard- limbed at 7 ft.-large tree
	Shrubs/Vines:		
	Abelia x grandiflora 'Kaleidoscope' / Kaleidoscope Abelia	140	3 gal. container 18" min. height
	Buxus microphylla 'Winter Gem' / Winter Gem Boxwood	119	12-15" B&B formal low hedge
	Buxus microphylla 'Winter Gem' / Winter Gem Boxwood	2	21-24" B&B Topiary- globe form
	Camellia sasanqua 'Hana Jiman' / Hana Jiman Camellia	3	3 gal. container 24" min. height
	Cleyera japonica / Cleyera	19	7 gal. container 36" min. height
	Cornus sericea baileyi / Redtwig Dogwood	82	3 gal. container 24" min. height
	Diervilla sessilifolia / Southern Bush-honeysuckle	344	3 gal. container 18" min. height
	Gardenia jasmoides 'Klein's Hardy' / Gardenia	21	3 gal. container 18" min. height
	Hydrangea quercifolia / Oakleaf Hydrangea	6	3 gal. container 24" min height
	Ilex crenata 'Sky Pencil' / Sky Pencil Holly	7	7 gal. container 42" min. height
	Ilex crenata 'Soft Touch' / Soft Touch Holly	141	3 gal. container 18" min. height
	Ilex glabra 'Compacta' / Compact Inkberry Holly	134	B&B or container 24" min. height
	Itea virginica 'Henry's Garnet' / Sweetspire	116	3 gal. container 24" min. height
	Juniperus chinensis 'Nedseyki' / Nedseyki Juniper	79	3 gal. container 18" min. height
	Juniperus procumbens / Garden Juniper	126	3 gal. container ground cover
	Loropetalum chinense 'Chang's Ruby' / Chang's Ruby Loropetalum	87	3 gal. container 18" min. height
	Mahonia eurybracteata 'Soft Caress' / Soft Caress Mahonia	17	3 gal. container 18" min. height
	Myrica cerifera / Southern Wax Myrtle	56	7 gal. container 36" min. height
	Nandina domestica 'Harbor Dwarf' / Harbor Dwarf Heavenly Bamboo	78	3 gal. container 18" min. height
	Picea glauca albertiana 'Conica' / Dwarf White Spruce (native)	2	36" B&B Full & Symmetrical
	Rhaphiolepis indica 'Georgia Petite' / Georgia Petite India Hawthorn	204	B&B or container 24" min. height
	Rhododendron satsuki 'Osakazuki' / Osakazuki Azalea	52	3 gal. container 18" min. height
	Rhododendron spp. / Native Rhododendron (5 assorted vars.)	154	3 gal. container 18" min. height
	Rosa 'Meijocos' / Pink Drift Rose	214	3 gal. container 18" min. height
	Grasses / Perennials:		
	Coreopsis grandiflora 'Sunray' / Sunray Coreopsis	62	1 gal. container
	Cyrtomium falcatum / Holly Fern	39	1 gal. container
	Liriope muscari / Blue Lily Turf	485	1 gal. container
	Heuchera 'Plum Pudding' / Alum Root	71	1 gal. container
	Iberis sempervirens / Evergreen Candytuft	403	1 gal. container
	Panicum virgatum 'RR1' / Red Switch Grass	55	1 gal. container
	Pennisetum alopecuroides 'Little Bunny' / Little Bunny Fountain Grass	76	1 gal. container
	Ground Covers:		
	Cotoneaster dammeri 'Coral Beauty' / Beerberry Cotoneaster		1 gal. @ 36" o.c. triangularly spaced
	Detention Basin Native Seed Mix		Hydroseed
	Annual Flowers by season Spring-Summer-Fall rotations		4" Pots@ 9" o.c. triangularly spaced
	Lawn Areas- Geo Zoysia Grass		Sod or Seed areas to be determined
P	Indicates Parking Lot large shade tree		
	Indicates 4 ft. Tree Protection Fence, See Detail 1 on Landscape Protection Plan		

Notes-

1. An automated permanent irrigation system shall be installed using SMART Technology, providing 100% coverage to all landscaped areas.
2. Provide 4 ft. high Tree Protection fencing around Critical Root Zones of all trees or tree groups to be preserved prior to commencement of construction. Tree Protection fencing shall remain in place throughout entire construction activity period.
3. All shrub/ground cover beds to receive a 3" layer of pine bark mulch.

Planting Plan

SCALE: 1" = 30'

DATE: Jan.18, 2017

0 15 30 60 90

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NORTH CAROLINA REGISTERED LANDSCAPE ARCHITECT 1750 ALAN D. LIND 11/8/17

HAWTHORN RETIREMENT GROUP
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Vancouver, WA 98662-8210
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L1.2

A FRONT ELEVATION
SCALE: 1/8"=1'-0" (TYP. ALL DWG's THIS SHEET U.O.N.)

KEY NOTES/COLORS

1 ROOF	= ARCH. COMP. 25 YR. ELK COLOR: WEATHERWOOD
2 SIDING	= CEMENT BOARD SIDING POP OUTS COLOR: JAMES HARDIE - MOUNTAIN SAGE
3 SIDING	= CEMENT BOARD SIDING COLOR: JAMES HARDIE - HEATHERED MOSS
4 SIDING	= CEMENT BOARD SIDING COLOR: JAMES HARDIE - AUTUMN TAN
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9 RAILING	= PRE-MANUFACTERED ALUMINUM RAILING. COLOR: WHITE
10 VENTS	= TRIANGLE GABLE VENTS COLOR: WHITE
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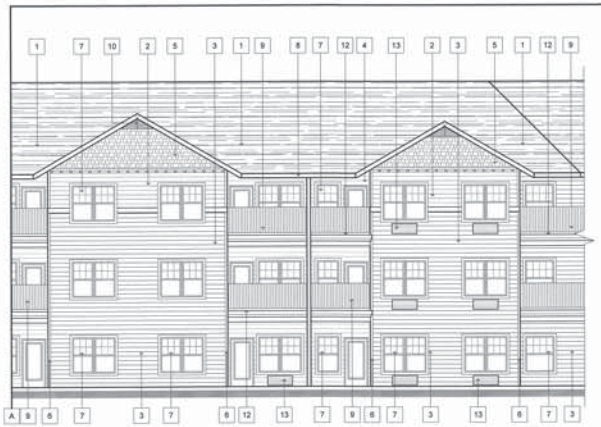

A FRONT ELEVATION
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B WING B ELEVATION
SCALE: 1/8"=1'-0" (TYP. ALL DWG's THIS SHEET U.O.N.)

C WING B ELEVATION
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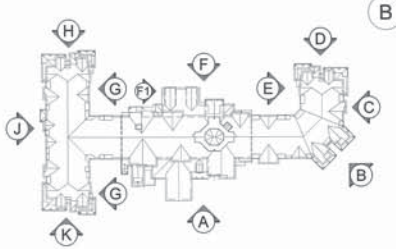

ELEVATION KEY
SCALE: N.T.S.

NOTE: FOR ALL LIGHTING TYPES, STYLES AND COLORS, PLEASE SEE SEPARATE LIGHTING CUT SHEETS

Building Elevations

DATE: 01/18/2017
SCALE: AS NOTED

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D WING END ELEVATION
SCALE: 1/8"=1'-0" (TYP. ALL DWG's THIS SHEET U.O.N.)

E WING B ELEVATION
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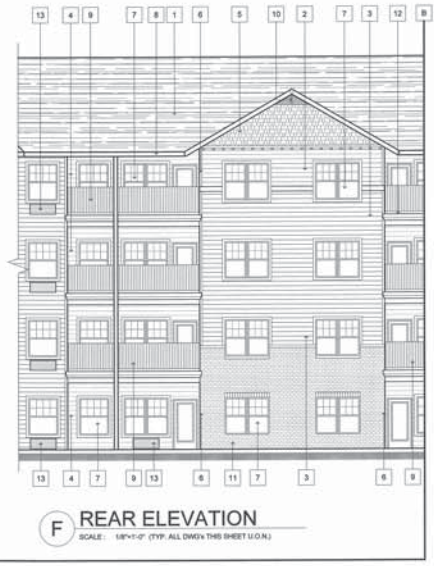

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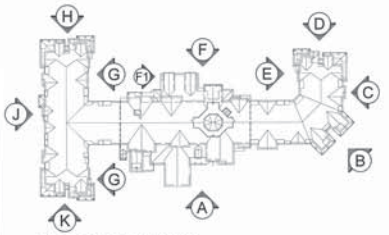

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Building Elevations

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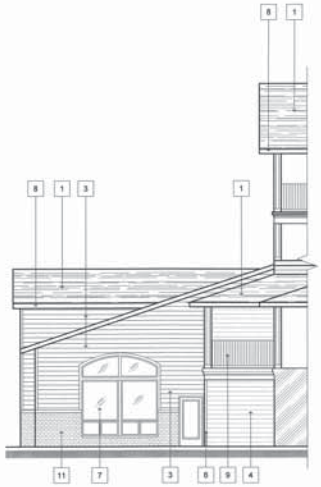

F1 WING B ELEVATION
SCALE: 1/8"=1'-0" (TYP. ALL DWG's THIS SHEET U.O.N.)

H WING END ELEVATION
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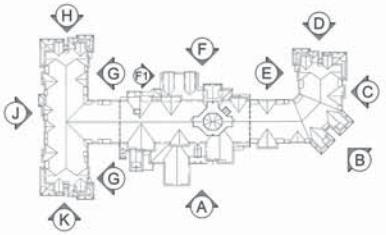

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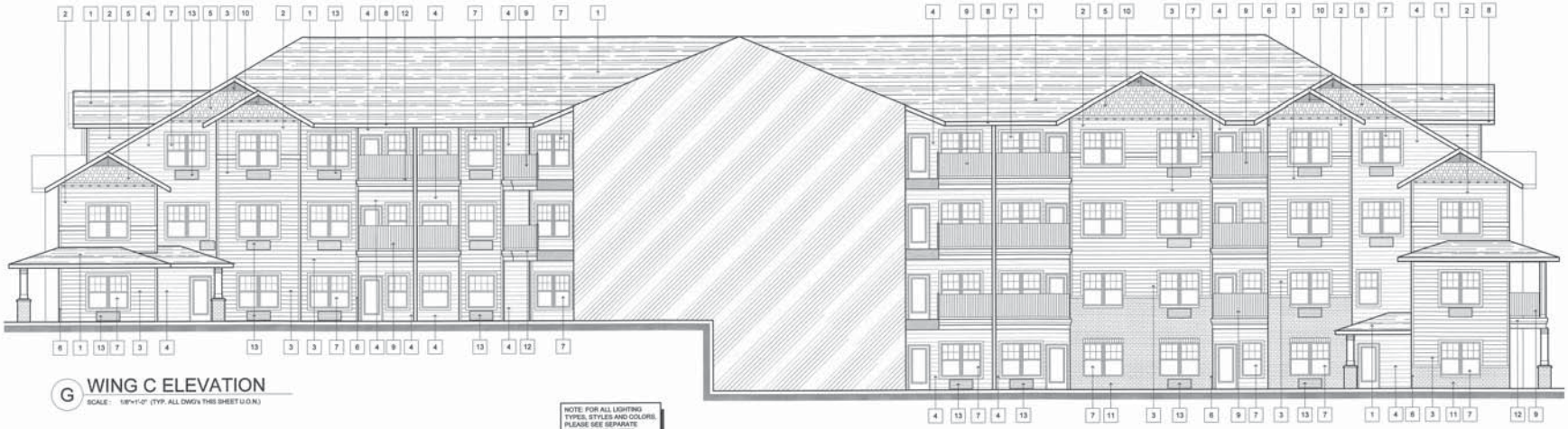

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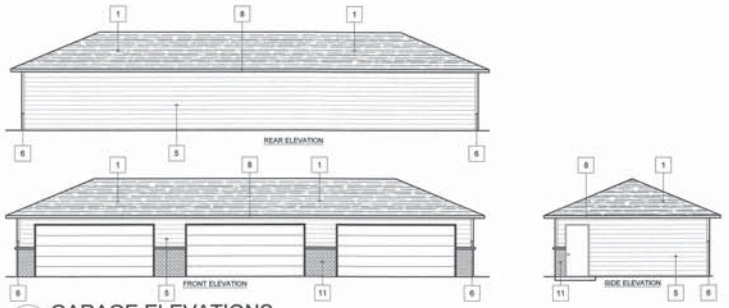

L GARAGE ELEVATIONS
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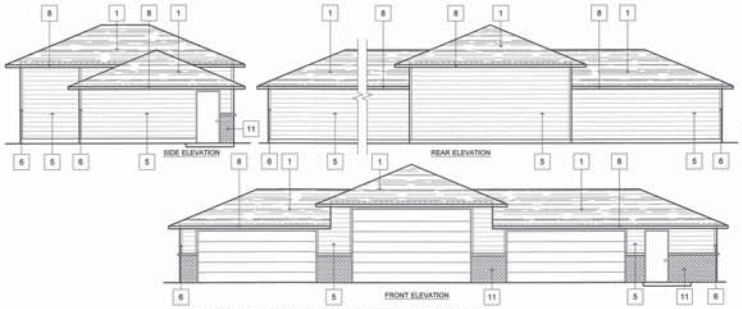

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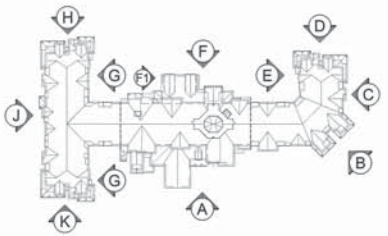
J WING C ELEVATION
SCALE: 1/8"=1'-0" (TYP. ALL DWG's THIS SHEET U.O.N.)



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