

1.1 GENERAL

RIDGEROCK RETAINING WALL SYSTEMS ARE DESIGNED AS A GRAVITY RETAINING WALL UTILIZING A HIGH DENSITY POLYESTER GEOGRID TO REINFORCE THE SOIL ZONE BEHIND THE WALL. THE GEOGRID IS POSITIVELY CONNECTED TO THE MODULAR CONCRETE BLOCK CREATING A REINFORCED SOIL MASS CAPABLE OF RESISTING LATERAL EARTH PRESSURES AND SURCHARGED LOADS. ALL REFERENCES TO THE ENGINEER REFER TO VENTURE ENGINEERING, P.A.

1.2 QUALITY ASSURANCE

CONTRACTOR SHALL BE QUALIFIED TO BUILD RETAINING WALLS AND SHALL SUBMIT CERTIFICATION, PRIOR TO START OF WORK THAT THEY HAVE SUCCESSFULLY INSTALLED ON A MINIMUM OF 5 SIMILAR PROJECTS, I.E., HEIGHT, SOIL FILL TYPES, ERECTION TOLERANCES, ETC.

1.3 BACK FILL MATERIALS

THE SOIL MATERIAL ASSOCIATED WITH THE RETAINING WALL IN THE REINFORCED ZONE, THE RETAINED ZONE, OR THE FOUNDATION BEDDING SHALL HAVE THE FOLLOWING PROPERTIES:

- A.) FOUNDATION SOILS $\phi = 28$ DEGREES, COHESION = 0 PSF, UNIT WEIGHT = 120 LBS/CU.F.T.
- B.) RETAINED SOILS $\phi = 28$ DEGREES, COHESION = 0 PSF, UNIT WEIGHT = 120 LBS/CU.F.T.
- C.) REINFORCED SOILS $\phi = 28$ DEGREES, COHESION = 0 PSF, UNIT WEIGHT = 120 LBS/CU.F.T.

D.) UNIT FILL SHALL CONSIST OF CLEAN 1" MINUS CRUSHED STONE OR CRUSHED GRAVEL MEETING THE FOLLOWING:

THE SOILS CHARACTERISTICS ABOVE WERE ASSUMED BASED ON SOILS CONDITIONS ON SIMILAR PROJECTS IN THAT AREA. IF THIS INFORMATION DOES NOT REPRESENT THE ACTUAL SOIL TO BE USED, THE ENGINEER SHALL BE NOTIFIED IMMEDIATELY AND THE WALL SHALL BE REDESIGNED.

SIEVE SIZE	% PASSING
2"	100
3/4"	75-100
No. #4	0-10
No. #50	0-5

E.) REINFORCED BACKFILL SOILS SHALL BE FREE OF DEBRIS OR ORGANIC MATERIAL MEETING THE FOLLOWING GRADATION:

SIEVE SIZE	% PASSING
2"	100
3/4"	100-75
No. #40	< 0-60
No. #200	< 25-30

1.4 FOUNDATION LOADS

RETAINING WALLS UNDER 20 FEET IN HEIGHT SHALL HAVE A MINIMUM BEARING OF 3,000 PSF. RETAINING WALLS OVER 20 FEET IN HEIGHT SHALL HAVE A MINIMUM BEARING OF 5,000 PSF.

1.5 CONCRETE MASONRY WALL UNITS

CONCRETE WALL UNITS SHALL BE RIDGEROCK UNITS MANUFACTURED IN ACCORDANCE WITH ASTM-C1372 AND ASTM C140 AND SHALL HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 3000 PSI. UNITS SHALL BE INTERLOCKED WITH NON-CORROSIVE FIBERGLASS PINS.

1.6 GEOGRID REINFORCEMENT

THE GEOGRID REINFORCING MATERIAL SHALL BE HIGH TENACITY POLYESTER MANUFACTURED BY SYNTEEN AND SHALL MEET THE SPECIFICATION REQUIREMENTS PUBLISHED BY STRATAGRID FOR:

GRIDLOK 370

1.7 WALL BATTER

BATTER FOR THE ENTIRE WALL SHALL BE MAINTAINED AT A 4.4° SETBACK.

2.0 FOUNDATION REQUIREMENTS

THE FOUNDATION BEARING CAPACITY THAT WAS ASSUMED FOR DESIGN SHALL BE VERIFIED IN THE FIELD, AND COPIES OF THE TEST DATA FILED WITH THE ENGINEER. THE FOOTING SHALL BE CLEARED OF LOOSE SOIL. A MINIMUM OF 12" OF WASHED STONE SHALL BE PLACED AT THE BACK OF EACH BLOCK AS INDICATED ON THE DETAILS.

2.1 LEVELING PAD

MATERIAL SHALL CONSIST OF COMPACTED SAND, GRAVEL, CRUSHED ROCK, OR UNREINFORCED CONCRETE. THE PAD SHALL BE 4" - 6" THICK. SAND OR GRAVEL MATERIAL SHALL BE COMPACTED TO 95% STANDARD PROCTOR. AGGREGATE MATERIAL SHALL RECEIVE A MINIMUM OF ONE PASS OF THE COMPACTION EQUIPMENT.

2.2 UNIT FILL

THE VOID WITHIN EACH UNIT SHALL BE FILLED WITH A WASHED STONE HAVING 100% OF THE AGGREGATE PASSING THE 2" SIEVE. A MINIMUM OF 3/8" WASHED STONE SIZE IS REQUIRED (NO MORE THAN 5% PASSING THE #200 SIEVE.) PLACE THIS MATERIAL BEHIND THE BLOCK AS WELL. ALL EXCESS MATERIAL SHALL BE SWEEPED CLEAN FROM THE TOP OF THE BLOCK PRIOR TO INSTALLING THE NEXT COURSE. EACH COURSE OF BLOCK SHALL BE COMPLETELY FILLED BEFORE PROCEEDING TO THE NEXT COURSE.

2.3 FIRST BLOCK COURSE

THE FIRST COURSE OF BLOCK SHALL BE PLACED ON TOP OF AND IN FULL CONTACT WITH THE LEVELING PAD. THE UNITS SHALL MAINTAIN A DISTANCE OF MINIMUM 6" FROM THE FRONT AND BACK OF THE LEVELING PAD. PROPER ALIGNMENT MAY BE ACHIEVED WITH THE AID OF A STRING LINE. AFTER PLACING PINS IN EACH OF THE APPROPRIATE HOLES PROCEED TO THE NEXT COURSE OF BLOCK. EACH UNIT SHALL CONTACT THE UNITS ON BOTH SIDES AS WELL AS ABOVE AND BELOW. SOME ADJUSTMENTS MAY BE REQUIRED FOR WALLS WITH CURVES AND A BATTER.

2.4 CAPS

APPLY A CONSTRUCTION ADHESIVE TO THE UNITS TO PREVENT THEIR REMOVAL.

3.0 GEOGRID INSTALLATION

THE GEOGRID REINFORCEMENT SHALL BE LAID HORIZONTALLY ON COMPACTED BACK FILL AND CONNECTED TO THE CONCRETE WALL UNITS (RIDGEROCK UNITS SHALL BE USED FOR THIS PROJECT). GEOGRID SHALL BE PULLED TAUT REMOVING ALL SLACK FROM THE MATERIAL AND ANCHORED BEFORE ADDING FILL. GEOGRID SHALL BE INSTALLED AT THE ELEVATIONS AND LENGTHS REQUIRED AS SHOWN ON THE PLANS. (REFER TO DETAILS FOR THE APPROPRIATE ORIENTATION) SOIL SURFACE SHALL BE SMOOTH AND LEVEL AND HAVE COMPACTED TO 95% STANDARD PROCTOR BEFORE INSTALLING THE GRID.

3.1 FILL PLACEMENT

BACK FILL MATERIAL SHALL BE AND COMPACTED 95% STANDARD PROCTOR ON EVERY GEOGRID LIFT LAYER INTERVAL. ONLY HAND OPERATED EQUIPMENT SHALL BE ALLOWED WITHIN 3 FEET OF THE KEYSTONE UNITS. BACK FILL SHALL BE PLACED FROM THE WALL REARWARD TO INSURE TAUTNESS OF THE GEOGRID. CONSTRUCTION EQUIPMENT SHALL NOT BE OPERATED DIRECTLY ON THE GEOGRID.

3.2 UNSUITABLE MATERIAL

SOILS CONTAINING ROOTS, BRUSH, SOD, OR THE OTHER ORGANIC MATERIAL SHALL NOT BE ALLOWED. FROZEN SOILS, SNOW, ICE, HEAVY CLAYS, OR WET SOILS SHALL NOT BE ALLOWED. MATERIAL PASSING THE #40 SIEVE SHALL HAVE A LIQUID LIMIT OF LESS THAN 30 AND A PLASTIC LIMIT OF LESS THAN 15, UNLESS WRITTEN CONSENT IS OBTAINED FROM THE ENGINEER PRIOR TO PLACEMENT.

3.3 SOIL PROPERTIES

MINIMUM INTERNAL ANGLE OF FRICTION SHALL EQUAL OR BE GREATER THAN REFERENCE IN SECTION 1.3 VERIFICATION SHALL BE FILED WITH THE ENGINEER THAT THE SOIL WILL MEET THIS CRITERIA.

4.0 SOIL TESTING

COMPACTION TESTING SHALL BE PERFORMED FOR EVERY LIFT ELEVATION REQUIRING GEOGRID OR EVERY 3RD LIFT AS A MINIMUM TEST SHALL BE FILED WITH THE ENGINEER'S OFFICE.

5.0 HYDROSTATIC PRESSURE POTENTIAL

THE ENGINEER SHALL BE NOTIFIED IF ANY OF THE FOLLOWING SHOULD BECOME EVIDENT:

- WATER OR WETNESS FROM OR IN A CUT BANK.
- LOCAL SPRINGS, LOCAL STORM DRAINS, SEWER, WATER LINES UNDER OR BEHIND THE WALL

6.0 ACCEPTABLE BLOCK

RIDGEROCK UNITS SHALL BE USED & KEPT FREE OF DEFECTS THAT WOULD INTERFERE WITH THE PLACING OR POSITIONING OF THE UNIT OR IMPAIR ITS STRENGTH. MINOR CRACKS INCIDENTAL TO THEIR USUAL METHOD OF MANUFACTURING OR MINOR CHIPPING RESULTING FROM SHIPMENT & DELIVERY ARE NOT GROUNDS FOR REJECTION.

7.0 ACCEPTABLE GEOGRID

GEOGRID SHALL BE REJECTED IF 20% OR MORE OF A STRUCTURAL RIB HAS BEEN CUT OR RIPPED. THE CONTRACTOR SHALL INSPECT ALL GEOGRID DELIVERED TO THE SITE AND REJECT MATERIALS THAT MEET THIS CRITERIA. IF THE GEOGRID IS DAMAGED ON THE CONSTRUCTION SITE, IT SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE.

8.0 DRAINAGE COMPOSITE

(APPLIES TO CUT WALL APPLICATIONS ONLY), WHERE SITE CONDITIONS WARRANT, DRAINAGE COMPOSITE SHALL BE INSTALLED TO COVER 30% OF THE CUT BEHIND THE GEOGRID LAYERS. STRATA-DRAIN (6 FT. WIDE SECTIONS) PROVIDE 30% COVERAGE WHEN INSTALLED ON 15 FT. CENTERS AND 2/3 THE WALL HEIGHT.

9.0 SPECIAL PROVISIONS

- A. GENERAL CONTRACTOR SHALL COORDINATE UPPER GEOGRID LAYERS INSTALLATION WITH PAVING INSTALLATION.
- B. MAINTAIN THE DIRECTION OF DRAINAGE AWAY FROM THE WALL FACE AT TIMES DURING CONSTRUCTION OF THE WALL AND FINISH GRADING AS SHOWN ON PLANS.
- C. PLACEMENT OF GEOGRID SHALL BE AS PER PLANS REFERENCE TO LENGTH AND ELEVATIONS.
- D. THE ENGINEER SHALL BE NOTIFIED BY THE INSTALLING CONTRACTOR SHOULD THE EMBEDMENT DEPTH OF THE BLOCK BE LESS THAN 8" FOR WALLS UNDER OR EQUAL TO 7 FT., 12" FOR WALLS GREATER THAN 7 FT. AND 2'-0" FOR WALLS GREATER THAN OR EQUAL TO 14 FT.
- E. THE REINFORCED SOIL IS ASSUMED TO BE SANDY TYPE MATERIAL.

10.0 QUALIFICATION OF DESIGN

- A. STABILITY OF ANY TEMPORARY SLOPES REQUIRED BY THE INSTALLATION OF A SEGMENTAL RETAINING WALL SHALL BE ADDRESSED BY A QUALIFIED GEOTECHNICAL ENGINEER. RESPONSIBILITY OF THESE TEMPORARY SLOPES RESTS WITH THE OWNER AND/OR ARCHITECT OF THIS PROJECT AND THE SLOPES SHALL MEET ALL OSHA STANDARDS. SLOPES STEEPNESS = 1.5H:1V.
- B. HANDRAIL/GUARDRAIL REQUIREMENTS SHALL BE DETERMINED BY THE CIVIL SITE ENGINEER OF RECORD, NOT VENTURE ENGINEERING, P.A.
- C. NOTIFY VENTURE ENGINEERING, P.A. PRIOR TO MODIFYING IF EXISTING SITE TOPOGRAPHY DOES NOT MATCH CONDITIONS OUTLINED ON RETAINING WALL PROFILE.

GEOTECHNICAL GENERAL NOTE:

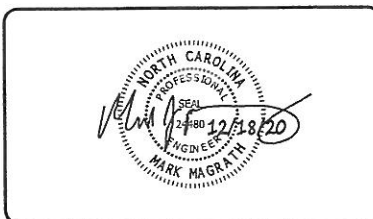
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2. A GLOBAL STABILITY ANALYSIS HAS NOT BEEN DONE FOR THIS PROJECT. WE RECOMMEND THAT A GLOBAL STABILITY ANALYSIS BE PERFORMED BY A 3RD PARTY GEOTECHNICAL ENGINEER FOR RETAINING WALLS THAT HAVE SLOPES ABOVE, BELOW, BOTH (SLOPES ABOVE & BELOW THE RETAINING WALL) & MULTI-TIERED RETAINING WALLS.

GENERAL DESIGN NOTE:

1. WALL PROFILES WERE CREATED & DESIGNED BY VENTURE ENGINEERING, P.A. PER EXISTING & PROPOSED GRADES AS SHOWN IN PLAN VIEW ON SHEET C-2 AS PROVIDED BY THE TIMMONS GROUP SEALED & DATED 05/07/20.
2. ALL GRADES SHOWN ON RETAINING WALL SITEPLAN IN THIS SET OF DRAWINGS ARE NOT KNOWN TO BE ORIGINAL DESIGN GRADES OR AS-BUILT GRADES. ALL GRADES TO BE SURVEY STAKED PRIOR TO CONSTRUCTION.

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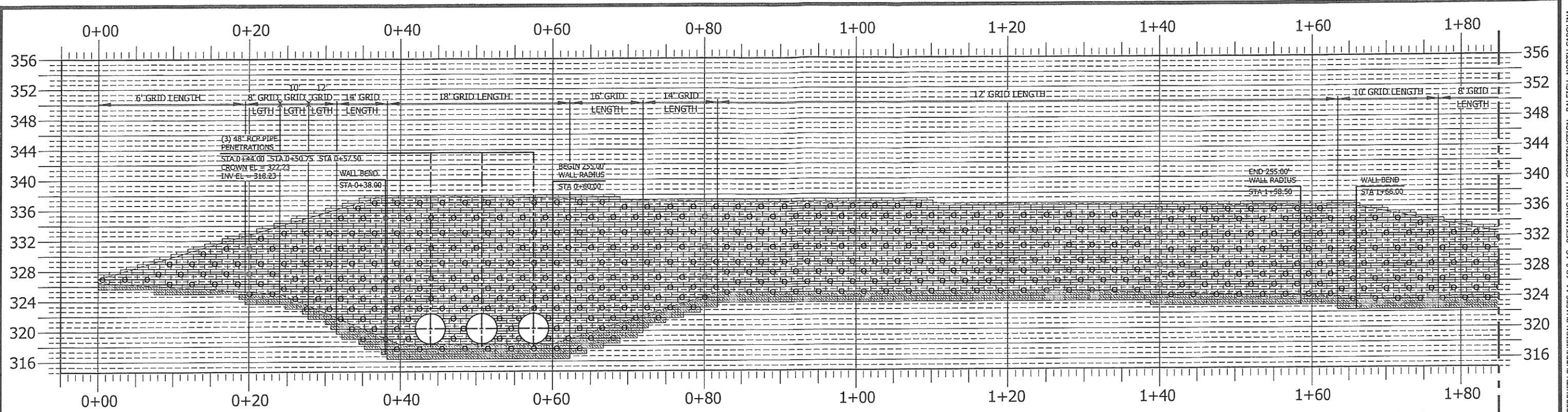
SERENITY SUBDIVISION
 RETAINING WALLS
 SNEED LANE (PIN #0655-03-4488 & #0655-13-8762)
 FUQUAY-VARINA, NC

SERENITY SUBDIVISION - FUQUAY-VARINA, NC
 PHASES 1A, 1B & 1C

DATE: DECEMBER 18, 2020
DES: TLH
DRAWN: TLH
APPROVED: MJM

SCALE
HORIZONTAL: N/A
VERTICAL: N/A

DRAWING NUMBER
C-1



RETAINING WALL PROFILE #1
 NOT TO SCALE
 SNEED LANE (PIN #0655-03-4488 & #0655-13-8762)
 SERENITY SUBDIVISION - FUQUAY-VARINA, NC
 REFER TO SHEET C4.1 - CIVIL GRADING PLANS (TIMMONS GROUP)

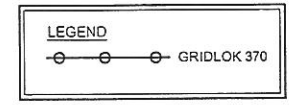
MATCHLINE A
 SEE SHEET C-4 FOR CONTINUATION OF
 MATCHLINE A (STA 1+85)

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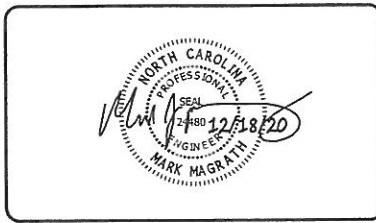
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 RETAINING WALLS
 SNEED LANE (PIN #0655-03-4488 & #0655-13-8762)
 FUQUAY-VARINA, NC

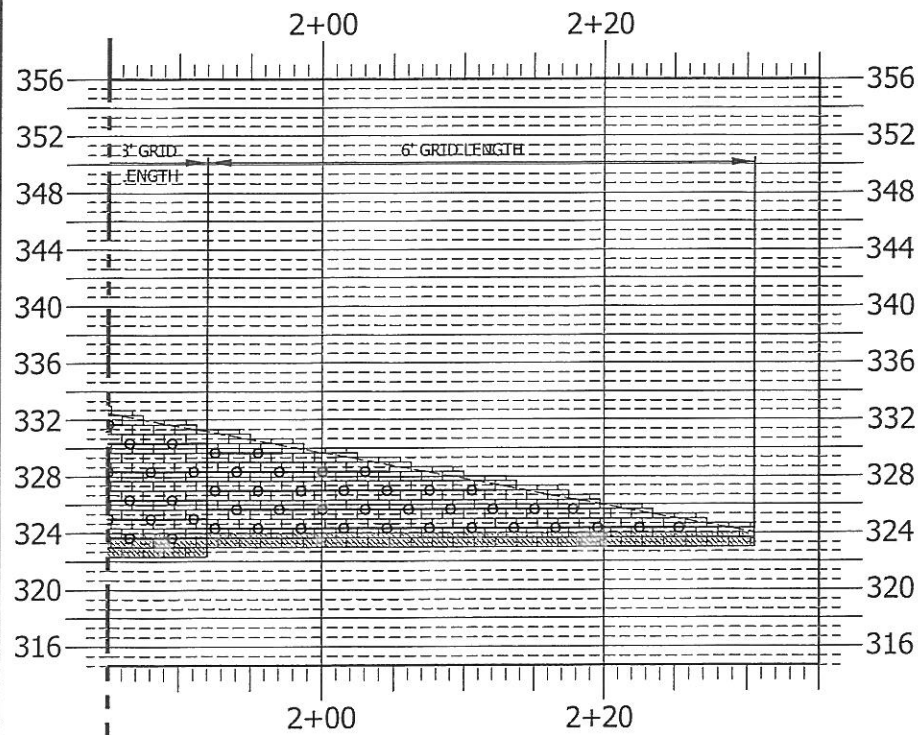
RETAINING WALL PROFILE #1
 SERENITY SUBDIVISION - FUQUAY-VARINA, NC
 PHASES 1A, 1B & 1C

DATE: DECEMBER 18, 2020
DES: TLH
DRAWN: TLH
APPROVED: MDM

SCALE
HORIZONTAL: N/A
VERTICAL: N/A

DRAWING NUMBER
C-3

SERENITY SUBDIVISION - PHASES 1A, 1B & 1C RETAINING WALL CONSTRUCTION - RALEIGH, NORTH CAROLINA

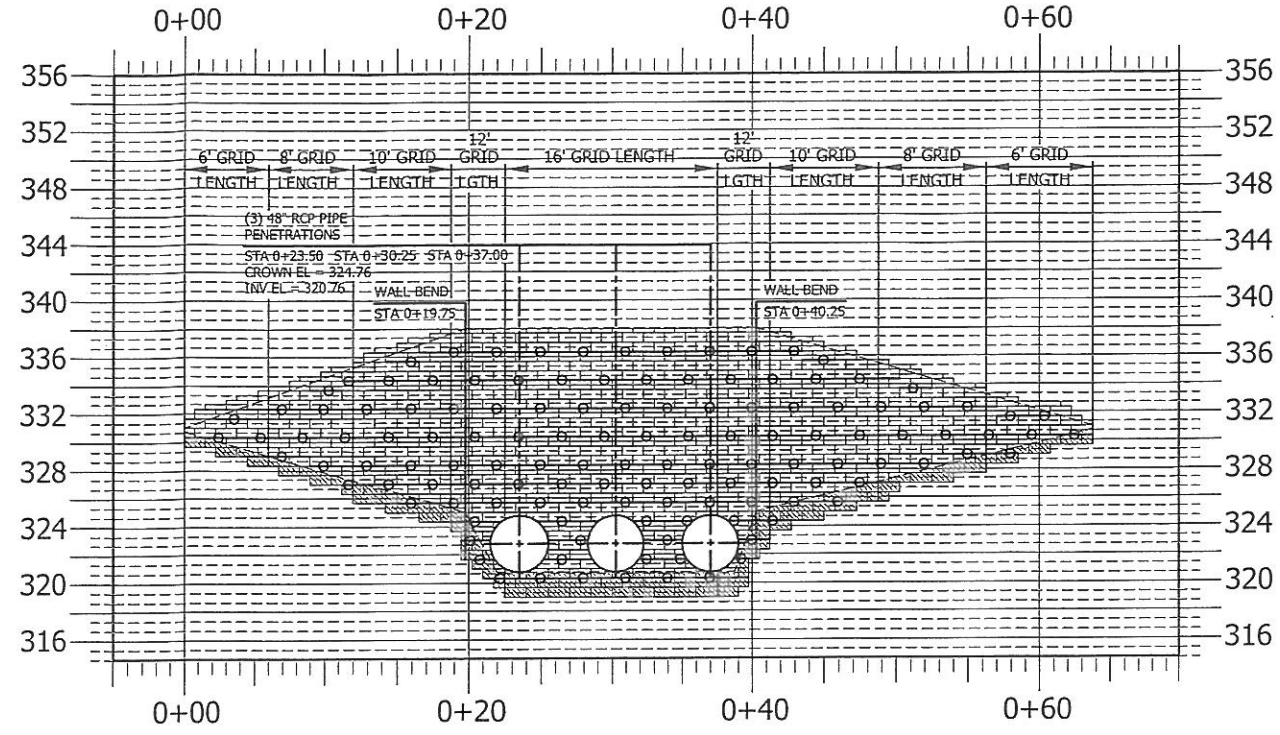


MATCHLINE A

SEE SHEET C-3 FOR CONTINUATION OF MATCHLINE A (STA 1+85)

RETAINING WALL PROFILE #1 (Continued)

NOT TO SCALE
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 SERENITY SUBDIVISION - FUQUAY-VARINA, NC
 REFER TO SHEET C4.1 - CIVIL GRADING PLANS (TIMMONS GROUP)



RETAINING WALL PROFILE #2

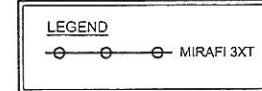
NOT TO SCALE
 SNEED LANE (PIN #0655-03-4488 & #0655-13-8762)
 SERENITY SUBDIVISION - FUQUAY-VARINA, NC
 REFER TO SHEET C4.1 - CIVIL GRADING PLANS (TIMMONS GROUP)

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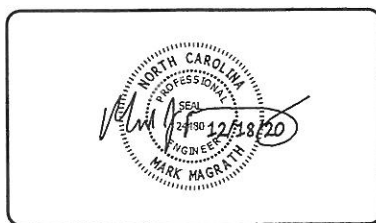
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 RETAINING WALLS
 SNEED LANE (PIN #0655-03-4488 & #0655-13-8762)
 FUQUAY-VARINA, NC

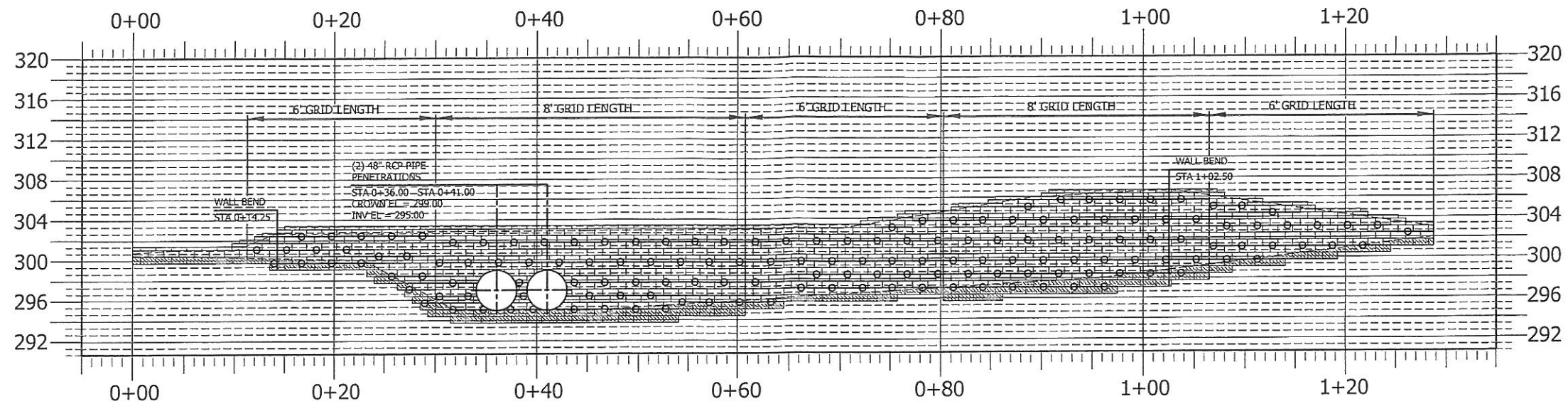
RETAINING WALL PROFILE #1 (Continued) & #2
 SERENITY SUBDIVISION - FUQUAY-VARINA, NC
 PHASES 1A, 1B & 1C

DATE: DECEMBER 18, 2020
DES: TLH
DRAWN: TLH
APPROVED: MJM

SCALE
HORIZONTAL: N/A
VERTICAL: N/A

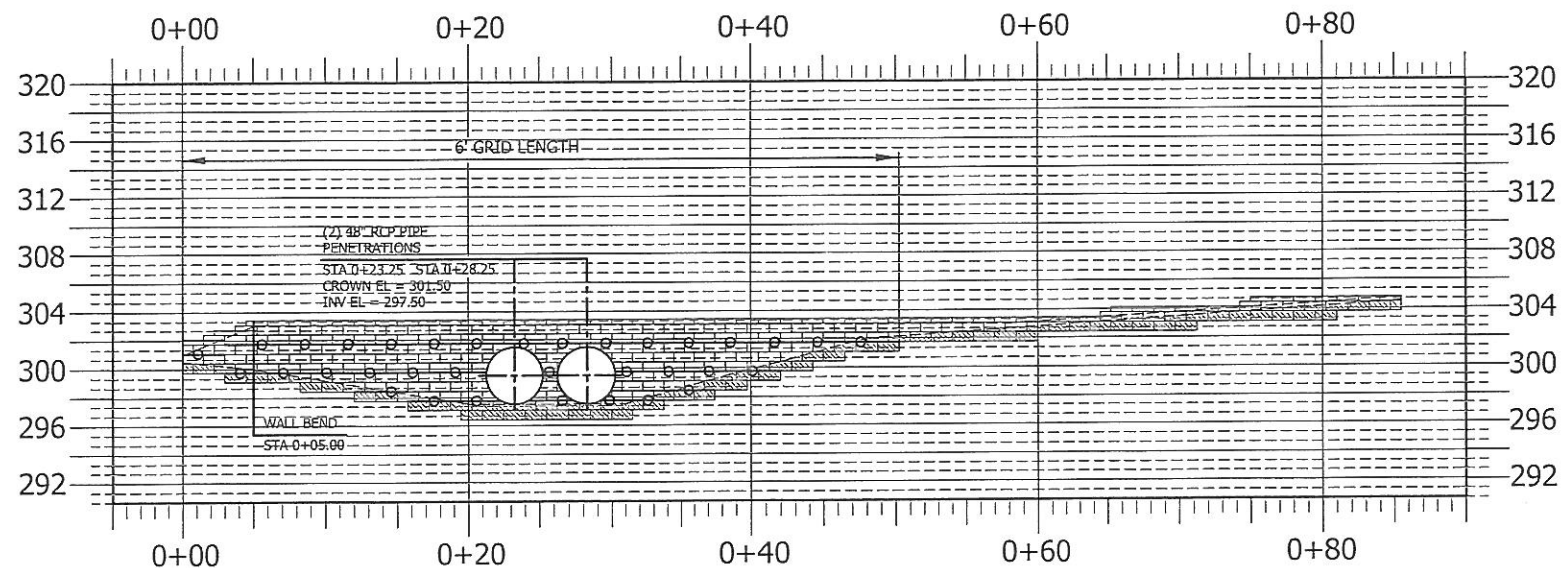
DRAWING NUMBER
C-4

SERENITY SUBDIVISION - PHASES 1A, 1B & 1C RETAINING WALL CONSTRUCTION - RALEIGH, NORTH CAROLINA



RETAINING WALL PROFILE #3

NOT TO SCALE
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 SERENITY SUBDIVISION - FUQUAY-VARINA, NC
 REFER TO SHEET C4.1 - CIVIL GRADING PLANS (TIMMONS GROUP)



RETAINING WALL PROFILE #4

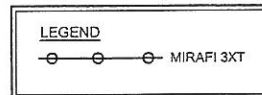
NOT TO SCALE
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 SERENITY SUBDIVISION - FUQUAY-VARINA, NC
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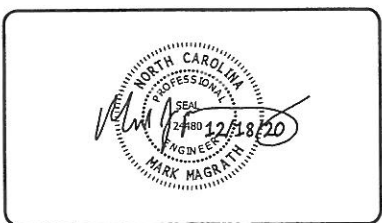
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SERENITY SUBDIVISION
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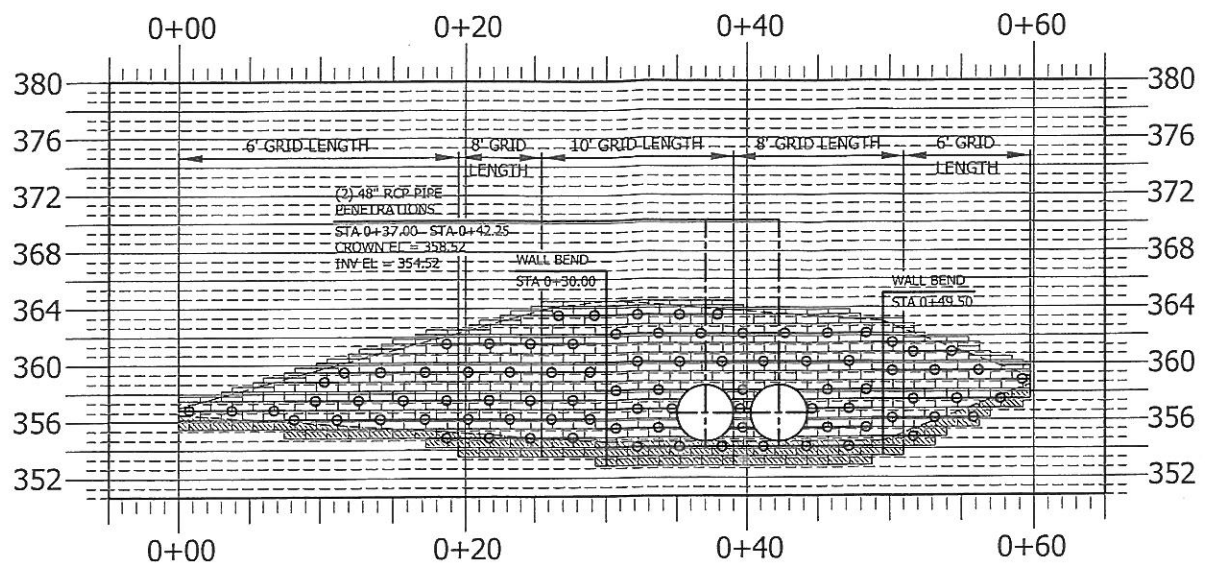
RETAINING WALL PROFILE #3 & #4
 SERENITY SUBDIVISION - FUQUAY-VARINA, NC
 PHASES 1A, 1B & 1C

DATE: DECEMBER 18, 2020
DES: TLH
DRAWN: TLH
APPROVED: MIM

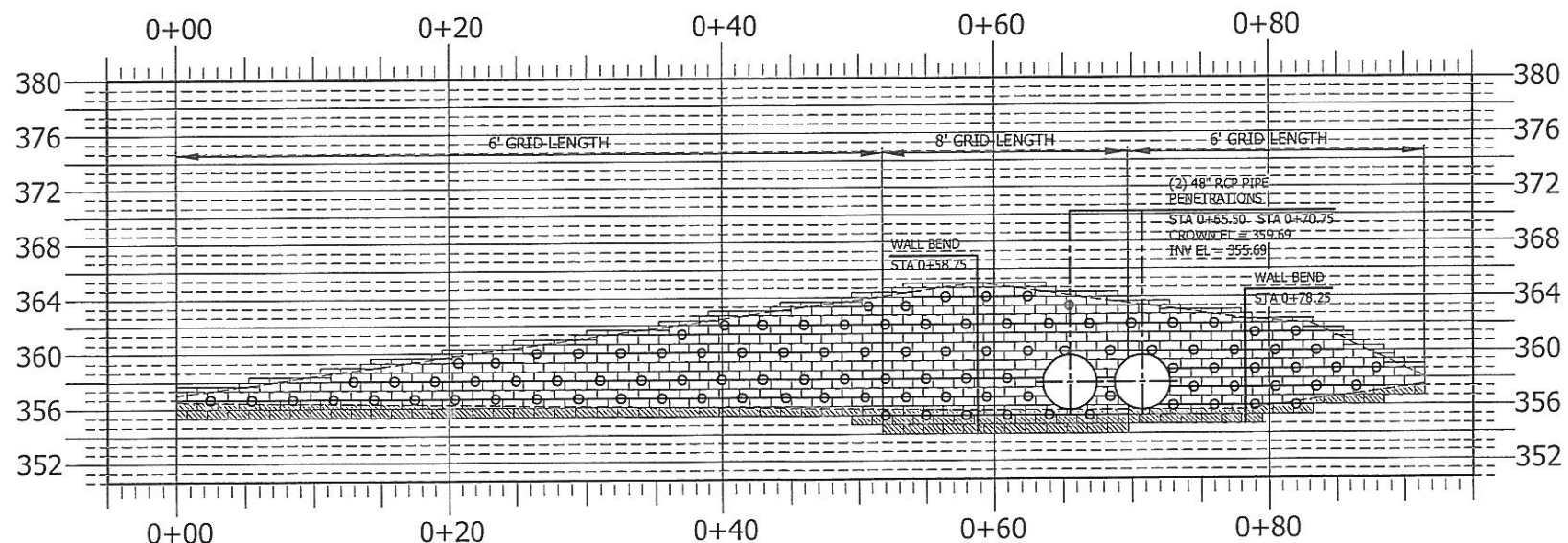
SCALE
HORIZONTAL: N/A
VERTICAL: N/A

DRAWING NUMBER
C-5

VE PROJECT NO: 00200001 SERENITY SUBDIVISION - PHASES 1A, 1B & 1C



RETAINING WALL PROFILE #5
 NOT TO SCALE
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 SERENITY SUBDIVISION - FUQUAY-VARINA, NC
 REFER TO SHEET C4.4 - CIVIL GRADING PLANS (TIMMONS GROUP)



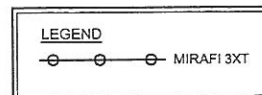
RETAINING WALL PROFILE #6
 NOT TO SCALE
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2. A GLOBAL STABILITY ANALYSIS HAS NOT BEEN DONE FOR THIS PROJECT. WE RECOMMEND THAT A GLOBAL STABILITY ANALYSIS BE PERFORMED BY A 3RD PARTY GEOTECHNICAL ENGINEER FOR RETAINING WALLS THAT HAVE SLOPES ABOVE, BELOW, BOTH (SLOPES ABOVE & BELOW THE RETAINING WALL) & MULTI-TIERED RETAINING WALLS.

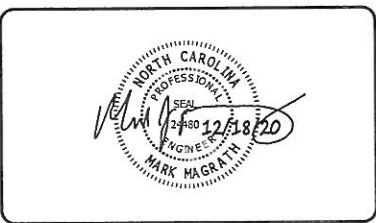
GENERAL DESIGN NOTE:

1. WALL PROFILES WERE CREATED & DESIGNED BY VENTURE ENGINEERING, P.A. PER EXISTING & PROPOSED GRADES AS SHOWN IN PLAN VIEW ON SHEET C-2 AS PROVIDED BY THE TIMMONS GROUP SEALED & DATED 06/07/20.
2. ALL GRADES SHOWN ON RETAINING WALL SITEPLAN IN THIS SET OF DRAWINGS ARE NOT KNOWN TO BE ORIGINAL DESIGN GRADES OR AS-BUILT GRADES. ALL GRADES TO BE SURVEY STAKED PRIOR TO CONSTRUCTION.



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 Venture Engineering, P.A.

DESCRIPTIONS	DATE



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Venture Engineering, P.A.
 312 WEST MILLBROOK ROAD SUITE 237
 RALEIGH, NC 27609
 P: 919-602-1894 F: 919-676-0301
 EMAIL ADDRESS: MMAGRATH@VENTURE-E.COM
 LICENSE NO. C-2590

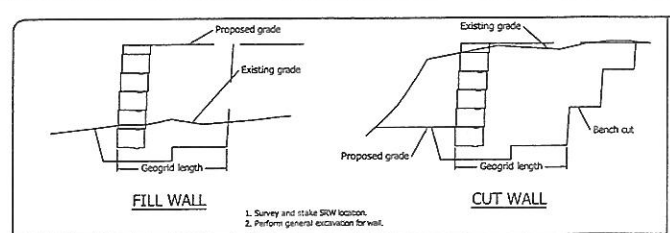
SERENITY SUBDIVISION
 RETAINING WALLS
 SNEED LANE (PIN #0655-03-4488 & #0655-13-8762)
 FUQUAY-VARINA, NC

RETAINING WALL PROFILE #5 & #6
 SERENITY SUBDIVISION - FUQUAY-VARINA, NC
 PHASES 1A, 1B & 1C

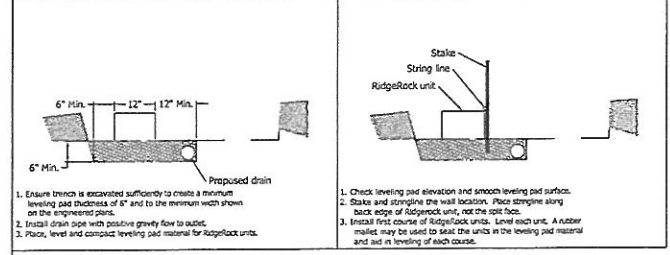
DATE: DECEMBER 18, 2020
DES: TLH
DRAWN: TLH
APPROVED: MM

SCALE
HORIZONTAL: N/A
VERTICAL: N/A

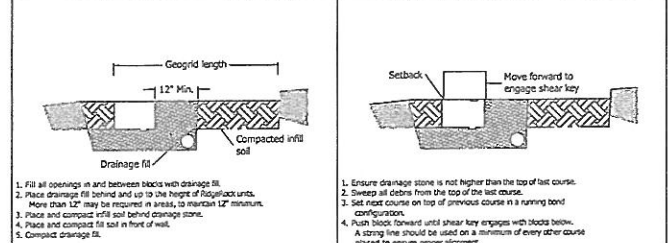
DRAWING NUMBER
C-6



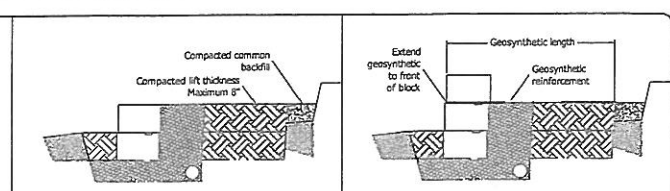
STEP 1, WALL LAYOUT AND GENERAL EXCAVATION



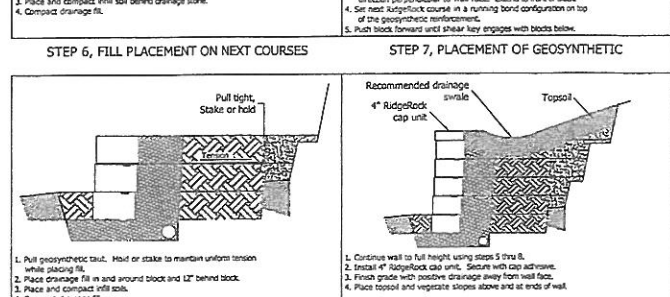
STEP 2, LEVELING PAD **STEP 3, SETTING FIRST RIDGEROCK COURSE**



STEP 4, BACKFILLING FIRST COURSE **STEP 5, SETTING NEXT RIDGEROCK COURSES**



STEP 6, FILL PLACEMENT ON NEXT COURSES **STEP 7, PLACEMENT OF GEOSYNTHETIC**

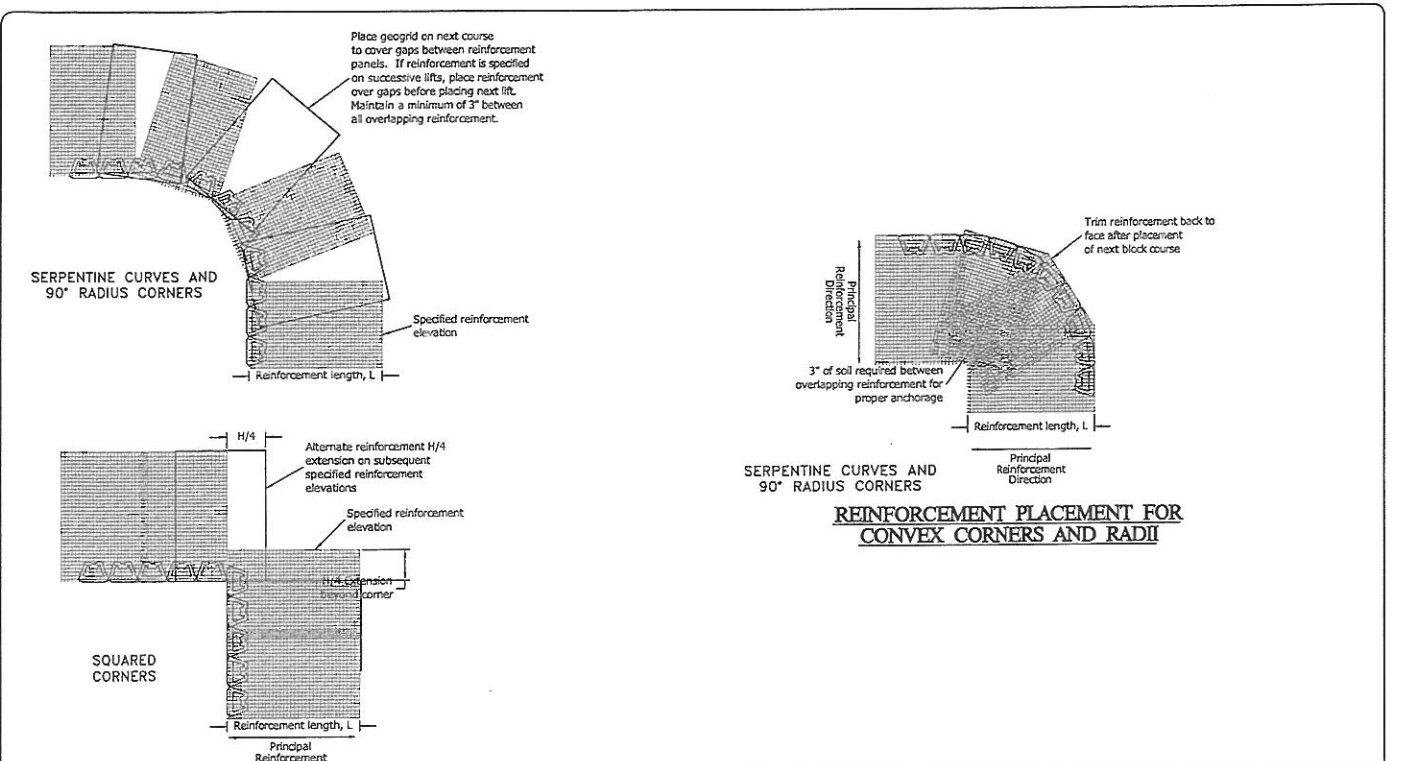


STEP 8, BACKFILLING OVER GEOSYNTHETIC **STEP 9, COMPLETE THE WALL**

**RIDGEROCK RETAINING WALL
INSTALLATION PROCEDURE**

RidgeRock Retaining Walls Inc.
P.O. Box 241233
Charlotte, NC 28224
704-504-3358
Fax: 504-3038

Information contained herein is supplied for general use only. All walls should be designed by an engineer registered in the state of the project. Design provided in the final design should be used when available. RidgeRock Retaining Walls Inc. assumes no liability for the accuracy or completeness of the information. Users should verify dimensions through independent measurement and inspection and design can be used safely.



**REINFORCEMENT PLACEMENT FOR
CONCAVE CORNERS AND RADII**

**RIDGEROCK RETAINING WALL
GEOGRID PLACEMENT ON CORNERS AND RADII**

RIDGEROCK DETAILS 1 of 1 SHEET NO. 12/2005 DATE

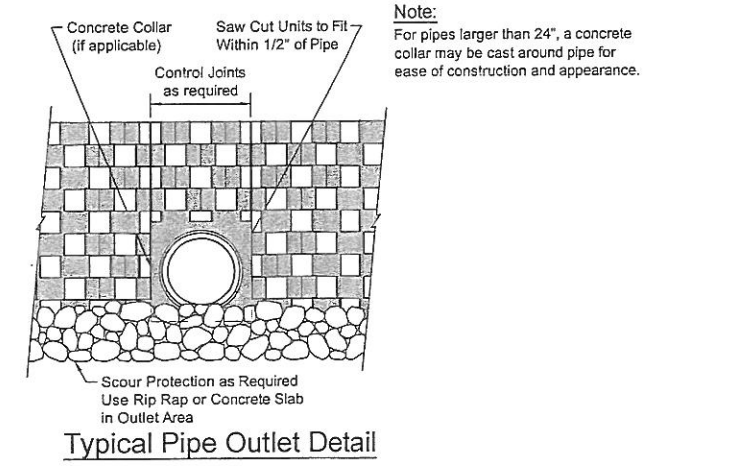
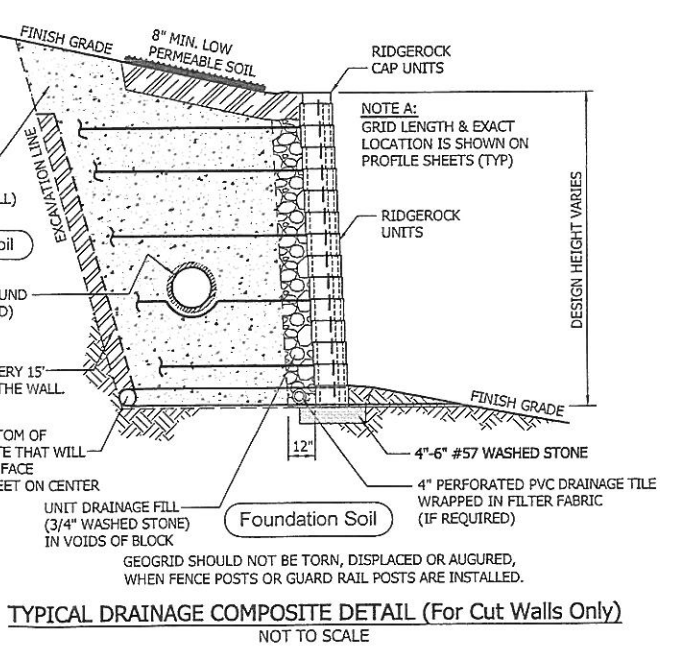
RidgeRock Retaining Walls Inc.
P.O. Box 241233
Charlotte, NC 28224
704-504-3358
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GENERAL DESIGN NOTE:

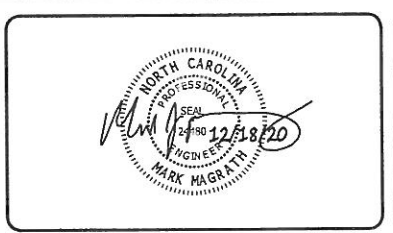
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Note:
For pipes larger than 24", a concrete collar may be cast around pipe for ease of construction and appearance.

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Venture Engineering, P.A.

NO.	DESCRIPTIONS	DATE



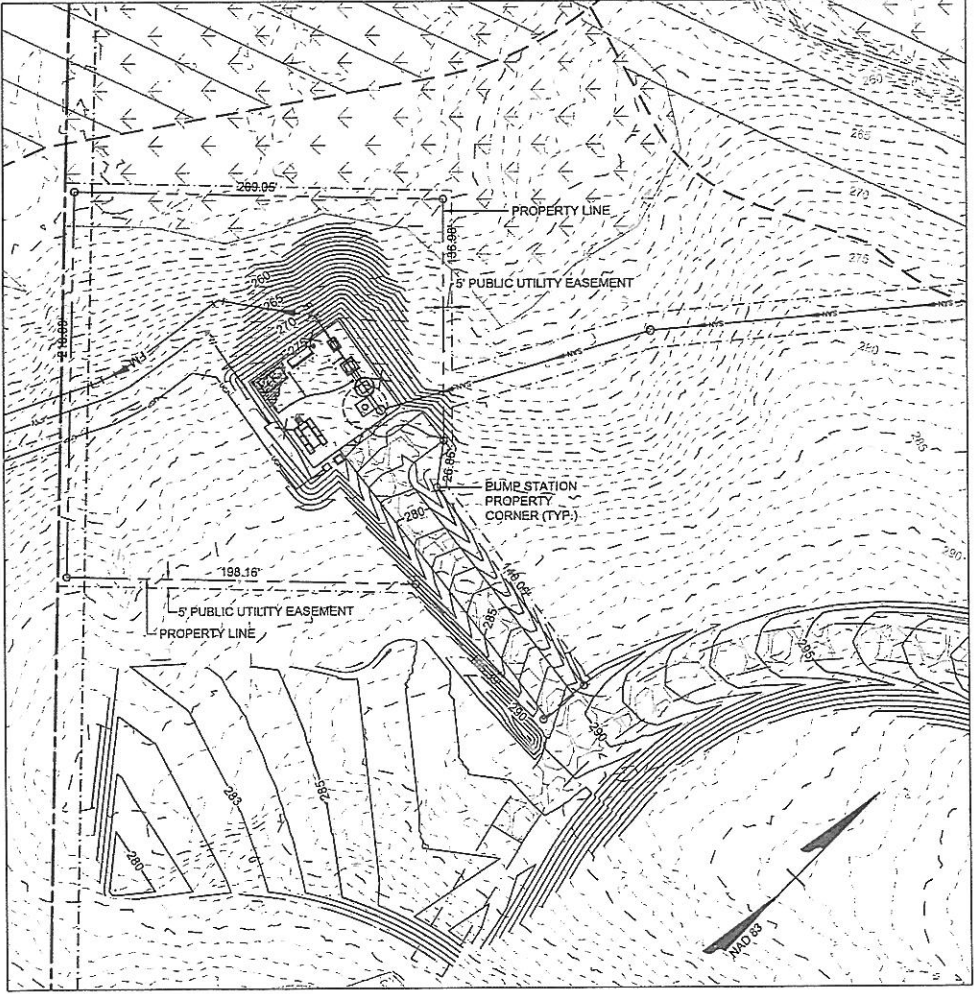
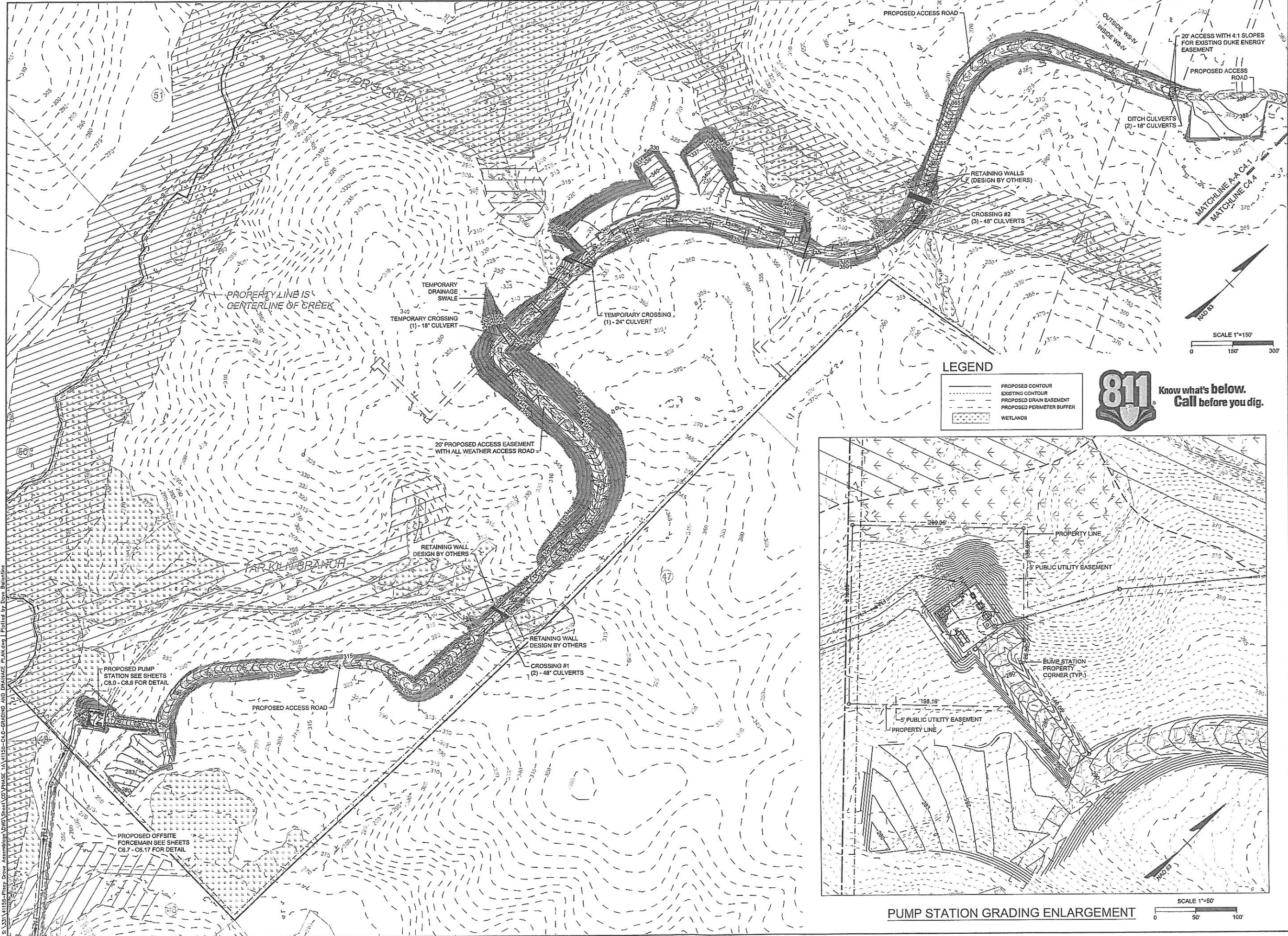
VE
Venture Engineering, P.A.
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P: 919-602-1894 F: 919-676-0301
EMAIL ADDRESS: MMAGRATH@VENTURE-E.COM
LICENSE NO. C-2590

**SERENITY SUBDIVISION
RETAINING WALLS**

SNEED LANE (PIN #0655-03-4488 & #0655-13-8762)
FUQUAY-VARINA, NC

DETAIL SHEET - SHEET 2 OF 2
SERENITY SUBDIVISION - FUQUAY-VARINA, NC
PHASES 1A, 1B & 1C

DATE: DECEMBER 18, 2020	SCALE	DRAWING NUMBER C-8
DES: TLH		
DRAWN: TLH		
APPROVED: MJM		
	HORIZONTAL: N/A	
	VERTICAL: N/A	



PUMP STATION GRADING ENLARGEMENT



THIS DRAWING PREPARED BY THE
 RALEIGH OFFICE
 5410 Trinity Road, Suite 102 | Raleigh, NC 27607
 TEL 919.866.4951 FAX 919.833.8124 www.timmons.com

YOUR VISION ACHIEVED THROUGH OURS.

DATE	REVISION DESCRIPTION
05/07/2020 <td></td>	
	DRAWN BY 331
	DESIGNED BY 331
	CHECKED BY JFC
	SCALE AS SHOWN



TIMMONS GROUP

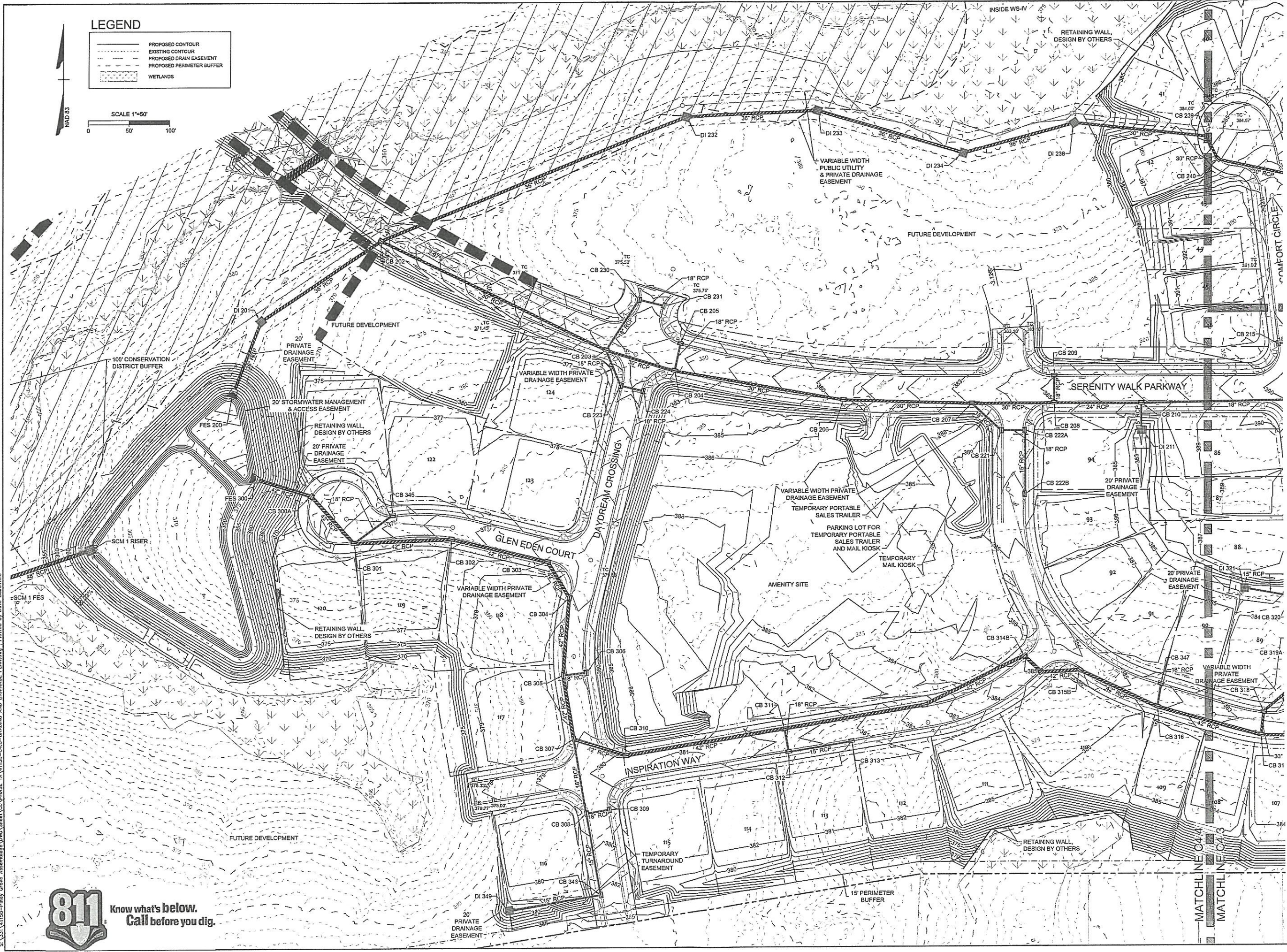
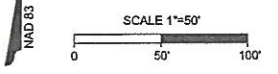
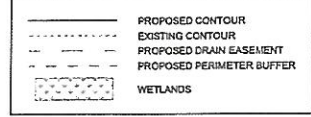
NORTH CAROLINA LICENSE NO. C-1652
 SERENITY PHASE 1A, 1B, & 1C
 PINEY GROVE RAWLS RD, HARRNETT COUNTY, NORTH CAROLINA
 OFFSITE ACCESS ROAD AND PUMP STATION GRADING & DRAINAGE

JOB NO. 41158
 SHEET NO. C4.1

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S:\331\41158-Piney Grove Assembly\DWG\Sheet\CVT\PHASE 1A\11158-C4.1-GRADING AND DRAINAGE PLAN.dwg | Plotted by Dave Bellantre

LEGEND



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REVISION DESCRIPTION	DATE
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DRAWN BY	331
DESIGNED BY	331
CHECKED BY	JFC
SCALE	1" = 50'

TIMMONS GROUP
NORTH CAROLINA LICENSE NO. C-1652

SERENITY PHASE 1A, 1B, & 1C
PINEY GROVE RAWLINS RD., HARNETT COUNTY, NORTH CAROLINA

DETAILED GRADING AND DRAINAGE PLAN - SHEET 3 OF 3

JOB NO.	41158
SHEET NO.	C4.4

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