RETAINING WALL PLANS
FOR

SERENITY SUBDIVISION - PHASE 3- 5

RETAINING WALLS

PINEY GROVE RAWLS ROAD
HARNETT COUNTY, NC

SERENITY SUBDIVISION - PHASE 3- 5 RETAINING WALL CONSTRUCTION - HARNETT COUNTY, NORTH CAROLINA

SHEET INDEX

GEOTECHNICAL GENERAL NOTE:

1. GEOTECHNICAL INFORMATION HAS NOT BEEN PROVIDED FOR THIS PROJECT. THEREFORE, ASSUMPTIONS WERE MADE BASED ON SOIL CHARACTERISTICS IN THE AREA (REFER TO SHEET C-1). IF SOILS ARE DIFFERENT IN THE FIELD THAN LISTED IN THE GEOTECHNICAL REPORT, VENTURE ENGINEERING, P.A. MUST BE NOTIFIED IMMEDIATELY BEFORE WORK CAN CONTINUE.
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 WALL.

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 THRU C-2C AS PROVIDED BY 4D SITE SOLUTIONS CIVIL ENGINEERING & LAND SURVEYING SEALED 09/17/24.
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.

NOTE:
RETAINING WALL #1 HAS BEEN REMOVED FROM THE DESIGN.

	DESCRIPTIONS	DATE
	REVISIONS	

NORTH CAROLINA PROFESSIONAL SEAL 44480 ENGINEER MARK MAGRATH
10/14/24

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312 WEST MILLBROOK ROAD SUITE 237
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SERENITY SUBDIVISION
PHASE 3-5 - RETAINING WALLS
PINEY GROVE RAWLS ROAD
HARNETT COUNTY, NC

COVER SHEET
SERENITY SUBDIVISION - PHASE 3- 5 - HARNETT COUNTY, NC

DATE: October 14, 2024
DES: TLH
CHECKED: KLY
APPROVED: MJM

SCALE
HORIZONTAL: N/A
VERTICAL: N/A

DRAWING NUMBER
G-1

VE PROJECT NO: 00240001 *SERENITY SUBDIVISION - PHASE 3- 5*

1.1 GENERAL

SRW 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 WALL 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 Ø = 28 DEGREES, COHESION = 0 PSF, UNIT WEIGHT = 120 LBS/CU.F.T.

B.) RETAINED SOILS Ø = 28 DEGREES, COHESION = 0 PSF, UNIT WEIGHT = 120 LBS/CU.F.T.

C.) REINFORCED SOILS Ø = 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	0-60
No. #200	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	60
No. #200	< 25-30

1.4 FOUNDATION LOADS

RETAINING WALL UNDER 20 FEET IN HEIGHT SHALL HAVE A MINIMUM BEARING OF 3,000 PSF.
RETAINING WALL 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 SRW UNITS MANUFACTURED IN ACCORDANCE WITH ASTM-C1372 AND ASTM C140 AND SHALL HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 3000 PSI.

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:

GRIDLOCK 370
GRIDLOCK 540

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 SWEPT 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.

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(SRW 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 SRW 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

SRW 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. GRIDLOCK (4 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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DESCRIPTIONS	DATE

REVISIONS

NORTH CAROLINA PROFESSIONAL SEAL 4480 ENGINEER MARK MAGRATH 10/14/24

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LICENSE NO. C-2590

SERENITY SUBDIVISION

PHASE 3-5 - RETAINING WALLS
PINEY GROVE RAWLS ROAD
HARNETT COUNTY, NC

SPECIFICATIONS
SERENITY SUBDIVISION - PHASE 3- 5 - HARNETT COUNTY, NC

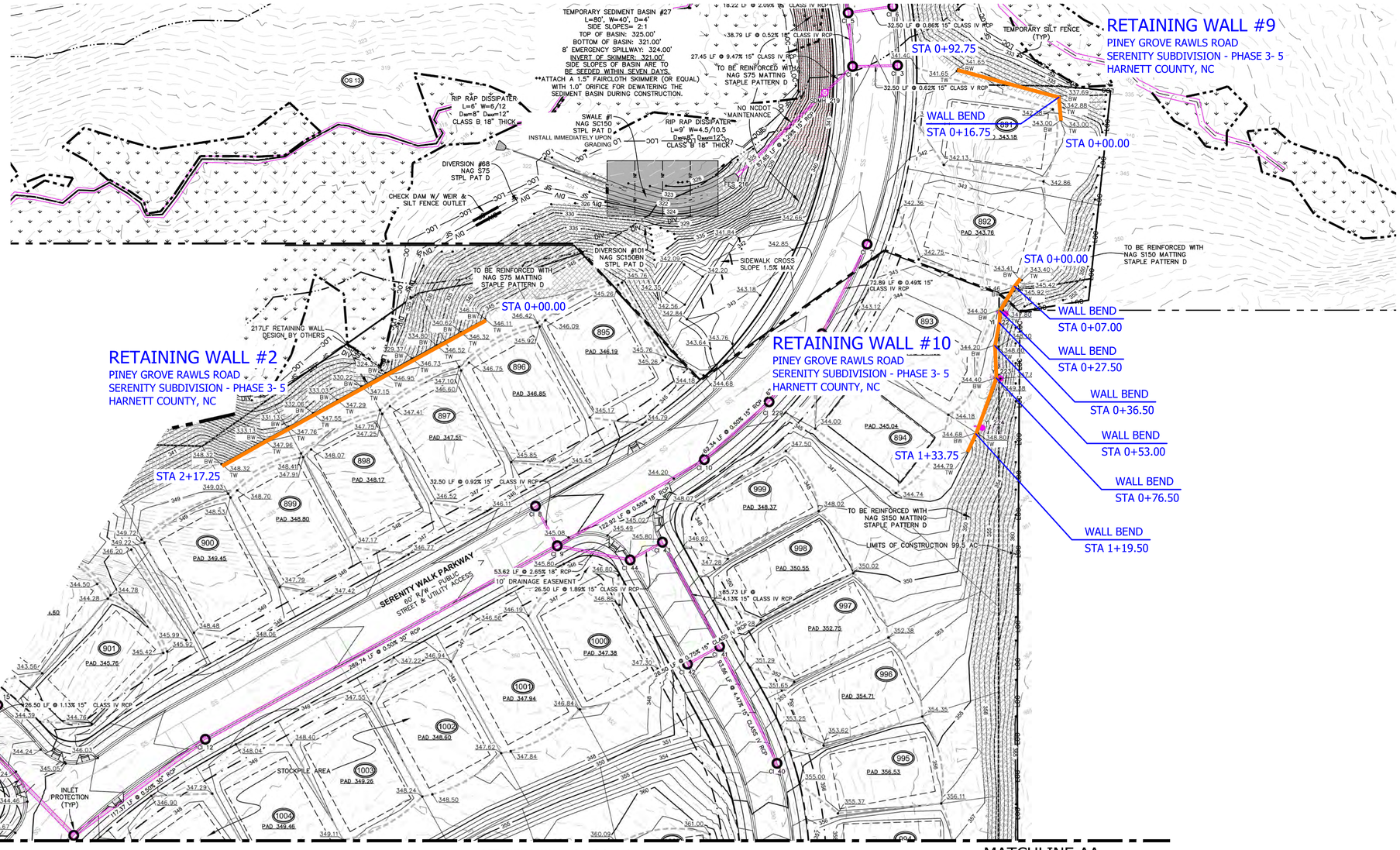
DATE: October 14, 2024
DES: TLH
CHECKED: KLY
APPROVED: MJM

SCALE
HORIZONTAL: N/A
VERTICAL: N/A

DRAWING NUMBER
C-1

SERENITY SUBDIVISION - PHASE 3- 5 RETAINING WALL CONSTRUCTION - HARNETT COUNTY, NORTH CAROLINA

VE PROJECT NO: 00240001 *SERENITY SUBDIVISION - PHASE 3- 5*



MATCHLINE AA
SEE SHEET C-2C FOR CONTINUATION OF MATCHLINE AA

MATCHLINE AA
SEE SHEET C-2C FOR CONTINUATION OF MATCHLINE AA

RETAINING WALL #2, #9 & #10
RETAINING WALL SITE PLAN - SERENITY SUBDIVISION - PHASE 3- 5
SCALE: 1" = 40'
PINEY GROVE RAWLS ROAD
SERENITY SUBDIVISION - PHASE 3- 5 - HARNETT COUNTY, NC

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NORTH

40' 0 40' 80'
SCALE: 1"= 40' (Horiz.)

DESCRIPTIONS	DATE
REVISIONS	

NORTH CAROLINA PROFESSIONAL SEAL 14480 ENGINEER MARK MAGRATH 10/14/24

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SERENITY SUBDIVISION
PHASE 3-5 - RETAINING WALLS
PINEY GROVE RAWLS ROAD
HARNETT COUNTY, NC

RETAINING WALL SITE PLAN - SHEET 1 OF 4
SERENITY SUBDIVISION - PHASE 3- 5 - HARNETT COUNTY, NC
RETAINING WALL #2, #9 & #10

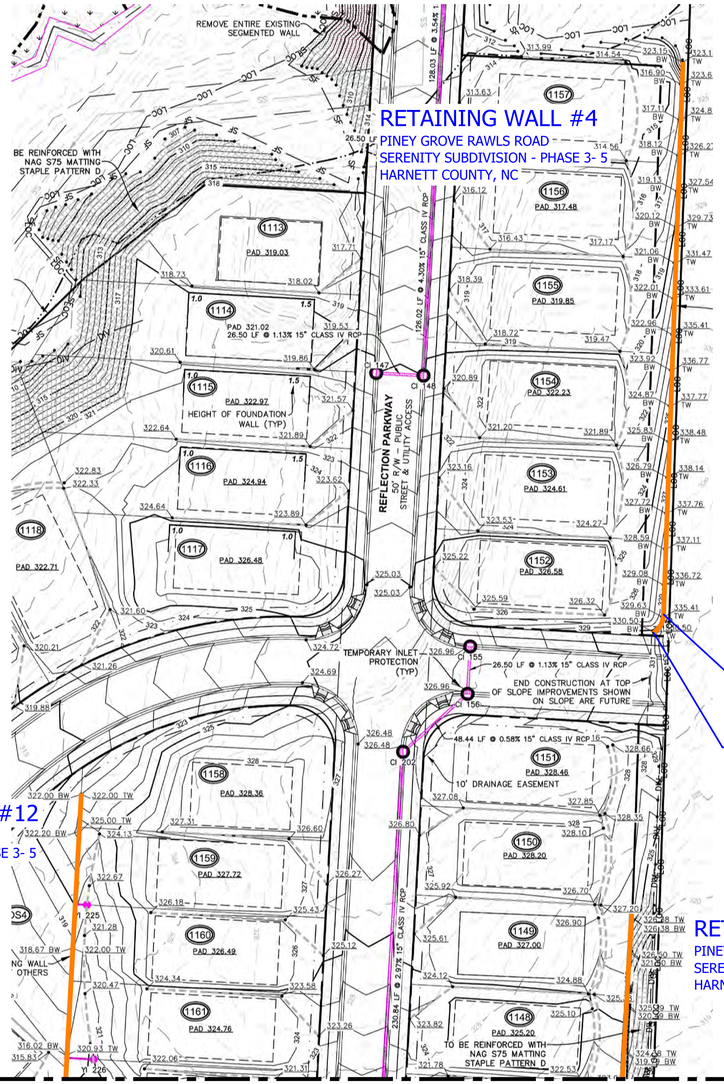
DATE: October 14, 2024
DES: TLH
CHECKED: KLY
APPROVED: MJM

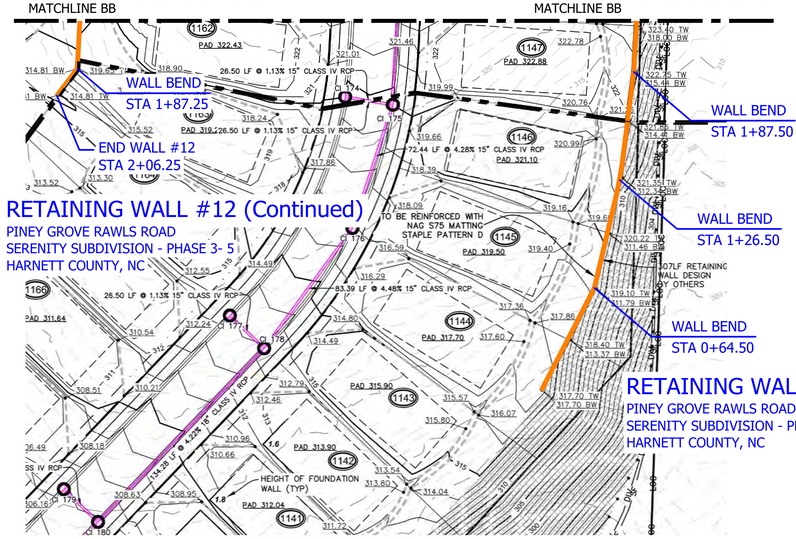
SCALE
HORIZONTAL: 1" = 40'
VERTICAL: N/A

DRAWING NUMBER
C-2

VE PROJECT NO: 00240001 *SERENITY SUBDIVISION - PHASE 3- 5*

SERENITY SUBDIVISION - PHASE 3- 5 RETAINING WALL CONSTRUCTION - HARNETT COUNTY, NORTH CAROLINA





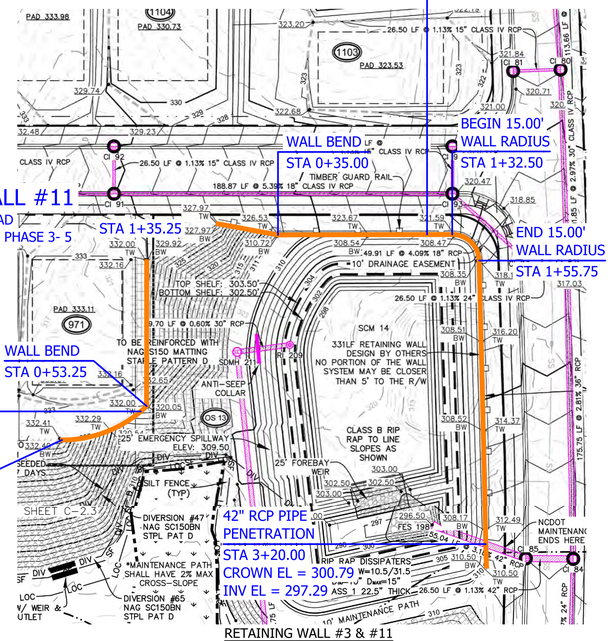
RETAINING WALL #4, #5 & #12

RETAINING WALL SITE PLAN - SERENITY SUBDIVISION - PHASE 3- 5

SCALE: 1" = 40'

PINEY GROVE RAWLS ROAD

SERENITY SUBDIVISION - PHASE 3- 5 - HARNETT COUNTY, NC



RETAINING WALL #3 & #11

RETAINING WALL SITE PLAN - SERENITY SUBDIVISION - PHASE 3- 5

SCALE: 1" = 40'

PINEY GROVE RAWLS ROAD

SERENITY SUBDIVISION - PHASE 3- 5 - HARNETT COUNTY, NC

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DESCRIPTIONS	DATE
REVISIONS	

NORTH CAROLINA PROFESSIONAL SEAL 4480 ENGINEER MARK MAGRATH 10/14/24

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SERENITY SUBDIVISION

PHASE 3-5 - RETAINING WALLS

PINEY GROVE RAWLS ROAD
HARNETT COUNTY, NC

RETAINING WALL SITE PLAN - SHEET 2 OF 4
SERENITY SUBDIVISION - PHASE 3- 5 - HARNETT COUNTY, NC
RETAINING WALL #3 Thru #5, #11 & #12

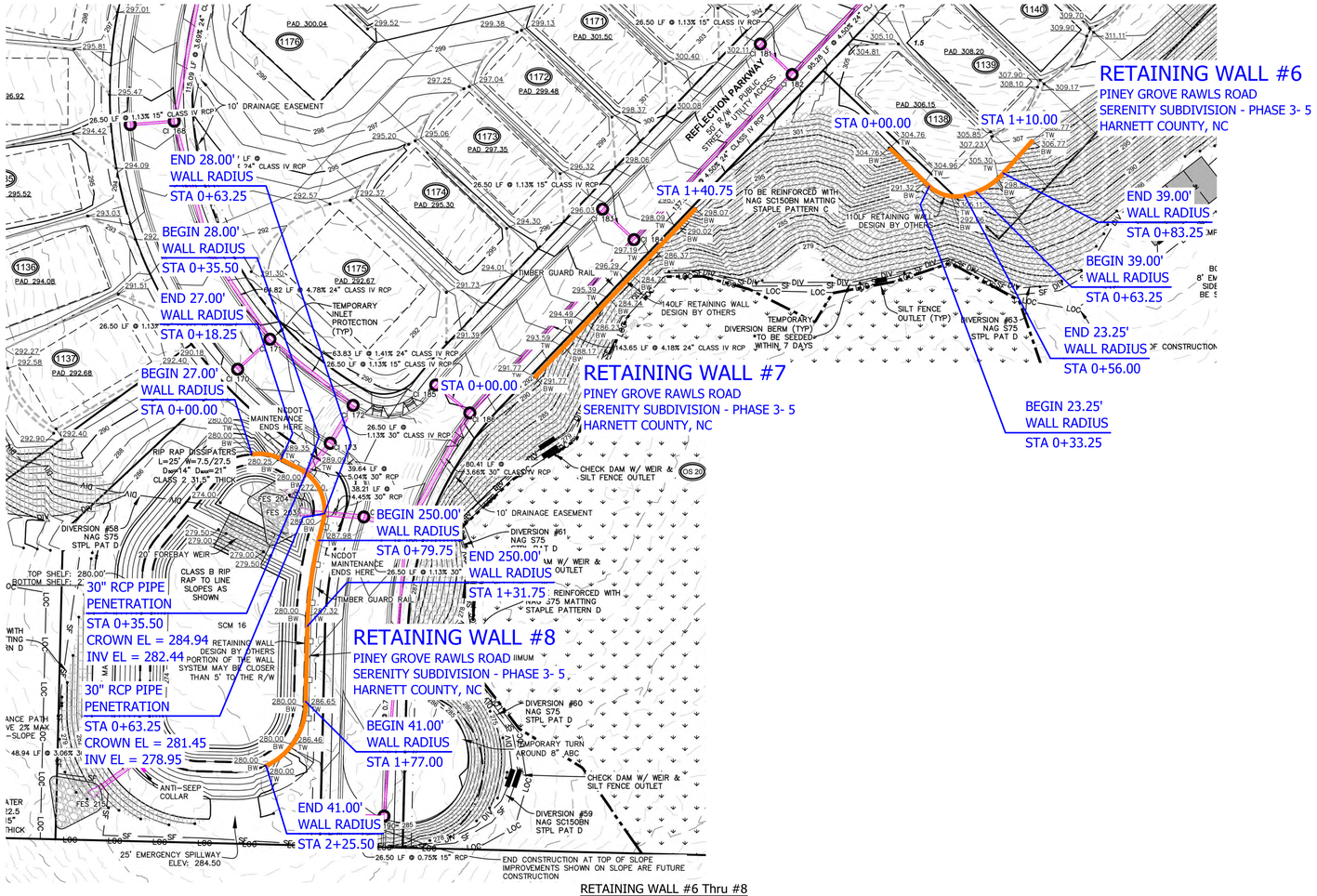
DATE: October 14, 2024
DES: TLH
CHECKED: KLY
APPROVED: MJM

SCALE
HORIZONTAL: 1" = 40'
VERTICAL: N/A

DRAWING NUMBER
C-2A

SERENITY SUBDIVISION - PHASE 3- 5 RETAINING WALL CONSTRUCTION - HARNETT COUNTY, NORTH CAROLINA

VE PROJECT NO: 00240001 SERENITY SUBDIVISION - PHASE 3- 5



RETAINING WALL #6 Thru #8

RETAINING WALL SITE PLAN - SERENITY SUBDIVISION - PHASE 3- 5

SCALE: 1" = 40'

PINEY GROVE RAWLS ROAD

SERENITY SUBDIVISION - PHASE 3- 5 - HARNETT COUNTY, NC

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SERENITY SUBDIVISION

PHASE 3-5 - RETAINING WALLS

PINEY GROVE RAWLS ROAD

HARNETT COUNTY, NC

RETAINING WALL SITE PLAN - SHEET 3 OF 4

SERENITY SUBDIVISION - PHASE 3- 5 - HARNETT COUNTY, NC

RETAINING WALL #6 Thru #8

DATE: October 14, 2024
DES: TLH
CHECKED: KLY
APPROVED: MJM

SCALE
HORIZONTAL: 1" = 40'
VERTICAL: N/A

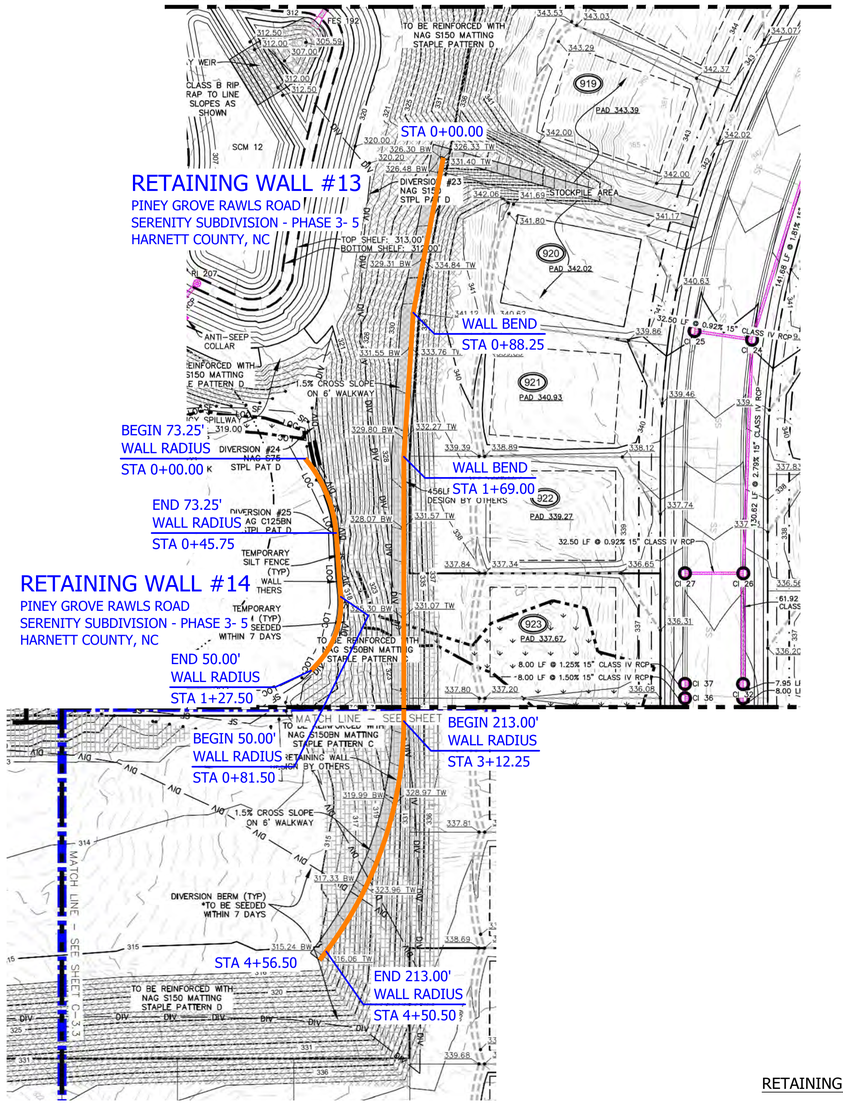
DRAWING NUMBER
C-2B

VE PROJECT NO: 00240001 *SERENITY SUBDIVISION - PHASE 3- 5*

SERENITY SUBDIVISION - PHASE 3- 5 RETAINING WALL CONSTRUCTION - HARNETT COUNTY, NORTH CAROLINA

MATCHLINE AA

SEE SHEET C-2 FOR CONTINUATION OF MATCHLINE AA



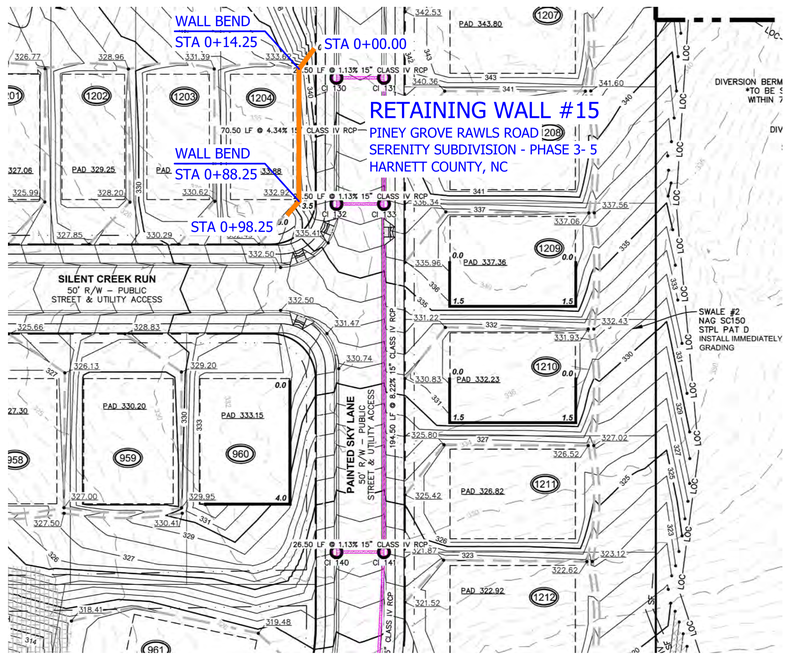
RETAINING WALL #13 & #14

RETAINING WALL SITE PLAN - SERENITY SUBDIVISION - PHASE 3- 5

SCALE: 1" = 40'

PINEY GROVE RAWLS ROAD

SERENITY SUBDIVISION - PHASE 3- 5 - HARNETT COUNTY, NC



RETAINING WALL #15

RETAINING WALL SITE PLAN - SERENITY SUBDIVISION - PHASE 3- 5

SCALE: 1" = 40'

PINEY GROVE RAWLS ROAD

SERENITY SUBDIVISION - PHASE 3- 5 - HARNETT COUNTY, NC

GEOTECHNICAL GENERAL NOTE:

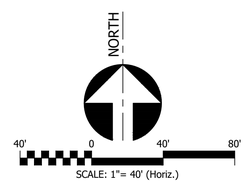
1. GEOTECHNICAL INFORMATION HAS NOT BEEN PROVIDED FOR THIS PROJECT. THEREFORE, ASSUMPTIONS WERE MADE BASED ON SOIL CHARACTERISTICS IN THE AREA (REFER TO SHEET C-1). IF SOILS ARE DIFFERENT IN THE FIELD THAN LISTED IN THE GEOTECHNICAL REPORT, VENTURE ENGINEERING, P.A. MUST BE NOTIFIED IMMEDIATELY BEFORE WORK CAN CONTINUE.
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 WALL.

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 THRU C-2C AS PROVIDED BY 4D SITE SOLUTIONS CIVIL ENGINEERING & LAND SURVEYING SEALED 09/17/24.
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.

NOTE:

THIS CIVIL SITE GRADING PLAN SHOWN HERE & PLAN VIEWS WERE DONE BY 4D SITE SOLUTIONS CIVIL ENGINEERING & LAND SURVEYING SEALED 09/17/24. VENTURE ENGINEERING, P.A. IS NOT RESPONSIBLE FOR ERRORS/OMMISIONS ON CIVIL ENGINEERING GRADING PLAN.



SCALE: 1"= 40' (Horiz.)

DESCRIPTIONS	DATE
REVISIONS	

NORTH CAROLINA PROFESSIONAL SEAL 4480 ENGINEER MARK MAGRATH — 10/14/24

Venture Engineering, P.A.
312 WEST MILLBROOK ROAD SUITE 237
RALEIGH, NC 27609
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EMAIL ADDRESS: BMONDSCHEIN@VENTURE-E.COM
LICENSE NO. C-2590

SERENITY SUBDIVISION

PHASE 3-5 - RETAINING WALLS

PINEY GROVE RAWLS ROAD

HARNETT COUNTY, NC

RETAINING WALL SITE PLAN - SHEET 4 OF 4

SERENITY SUBDIVISION - PHASE 3- 5 - HARNETT COUNTY, NC

RETAINING WALL #13 Thru #15

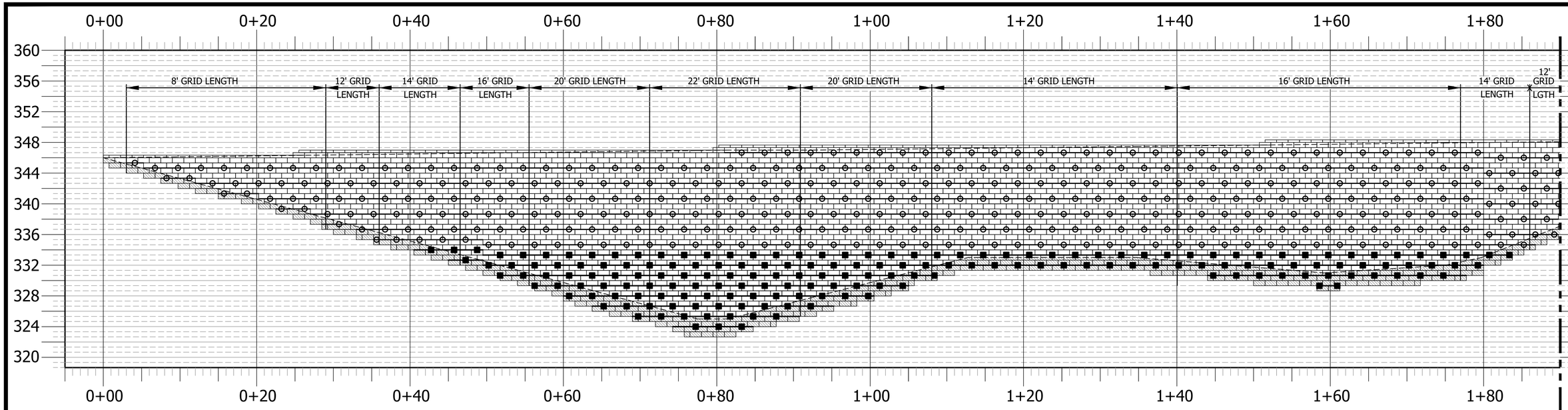
DATE: October 14, 2024
DES: TLH
CHECKED: KLY
APPROVED: MJM

SCALE
HORIZONTAL: 1" = 40'
VERTICAL: N/A

DRAWING NUMBER
C-2C

SERENITY SUBDIVISION - PHASE 3- 5 RETAINING WALL CONSTRUCTION - HARNETT COUNTY, NORTH CAROLINA

VE PROJECT NO: 00240001 SERENITY SUBDIVISION - PHASE 3- 5



RETAINING WALL PROFILE #2

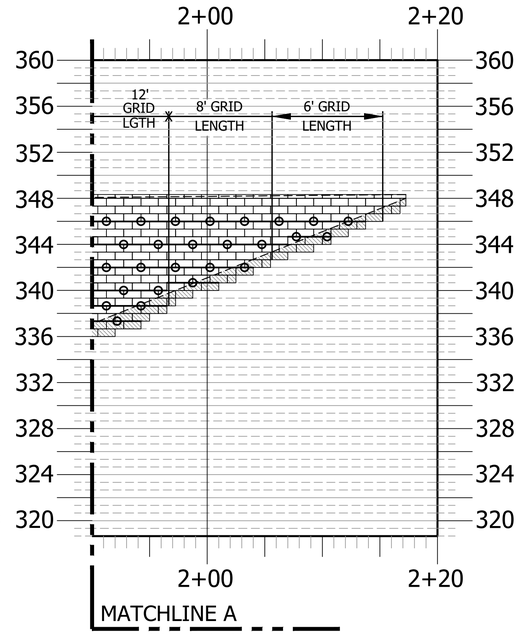
NOT TO SCALE

PINEY GROVE RAWLS ROAD

SERENITY SUBDIVISION - PHASE 3- 5 - HARNETT COUNTY, NC

MATCHLINE A

SEE THIS SHEET FOR CONTINUATION OF MATCHLINE A (STA 1+90)



RETAINING WALL PROFILE #2 (Continued)

NOT TO SCALE

PINEY GROVE RAWLS ROAD

SERENITY SUBDIVISION - PHASE 3- 5 - HARNETT COUNTY, NC

SEE THIS SHEET FOR CONTINUATION OF MATCHLINE A (STA 1+90)

GEOTECHNICAL GENERAL NOTE:

1. GEOTECHNICAL INFORMATION HAS NOT BEEN PROVIDED FOR THIS PROJECT. THEREFORE, ASSUMPTIONS WERE MADE BASED ON SOIL CHARACTERISTICS IN THE AREA (REFER TO SHEET C-1). IF SOILS ARE DIFFERENT IN THE FIELD THAN LISTED IN THE GEOTECHNICAL REPORT, VENTURE ENGINEERING, P.A. MUST BE NOTIFIED IMMEDIATELY BEFORE WORK CAN CONTINUE.
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 WALL.

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 THRU C-2C AS PROVIDED BY 4D SITE SOLUTIONS CIVIL ENGINEERING & LAND SURVEYING SEALED 09/17/24.
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LEGEND

GRIDLOK 370

GRIDLOK 540

DESCRIPTIONS	DATE
REVISIONS	

NORTH CAROLINA PROFESSIONAL SEAL 44480 ENGINEER MARK MAGRATH 10/14/24

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SERENITY SUBDIVISION

PHASE 3-5 - RETAINING WALLS

PINEY GROVE RAWLS ROAD

HARNETT COUNTY, NC

RETAINING WALL PROFILE #2

SERENITY SUBDIVISION - PHASE 3- 5 - HARNETT COUNTY, NC

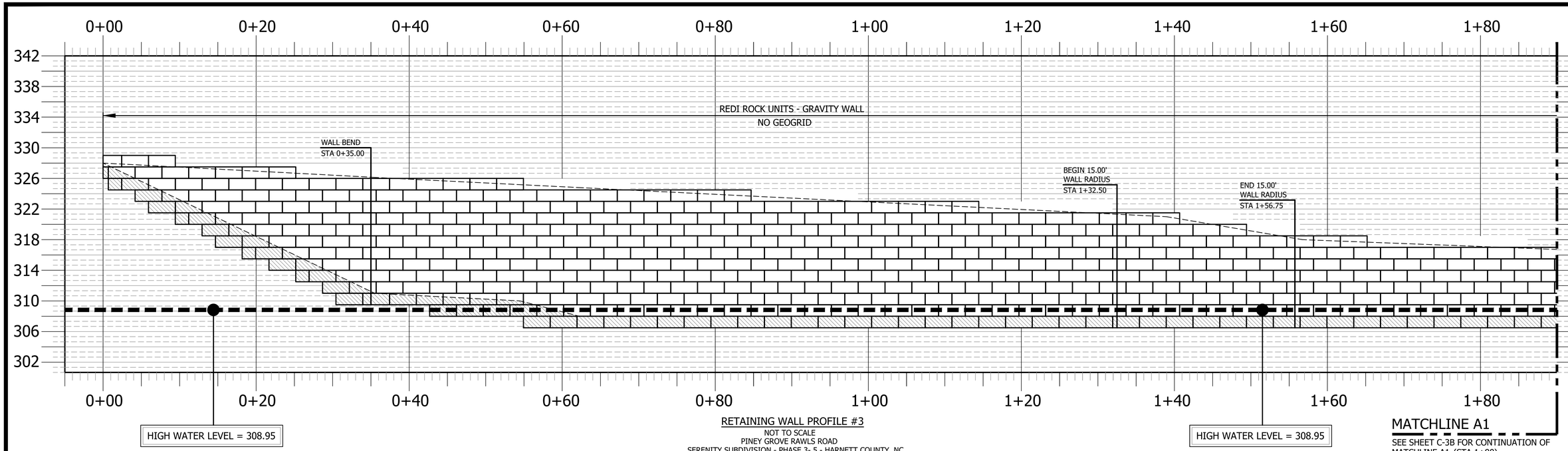
DATE: October 14, 2024
DES: TLH
CHECKED: KLY
APPROVED: MJM

SCALE
HORIZONTAL: N/A
VERTICAL: N/A

DRAWING NUMBER
C-3

VE PROJECT NO: 00240001 *SERENITY SUBDIVISION - PHASE 3- 5*

SERENITY SUBDIVISION - PHASE 3- 5 RETAINING WALL CONSTRUCTION - HARNETT COUNTY, NORTH CAROLINA



RETAINING WALL PROFILE #3

NOT TO SCALE

PINEY GROVE RAWLS ROAD

SERENITY SUBDIVISION - PHASE 3- 5 - HARNETT COUNTY, NC

SERENITY SUBDIVISION - PHASE 3- 5 RETAINING WALL CONSTRUCTION - HARNETT COUNTY, NORTH CAROLINA

GEOTECHNICAL GENERAL NOTE:

1. GEOTECHNICAL INFORMATION HAS NOT BEEN PROVIDED FOR THIS PROJECT. THEREFORE, ASSUMPTIONS WERE MADE BASED ON SOIL CHARACTERISTICS IN THE AREA (REFER TO SHEET C-1). IF SOILS ARE DIFFERENT IN THE FIELD THAN LISTED IN THE GEOTECHNICAL REPORT, VENTURE ENGINEERING, P.A. MUST BE NOTIFIED IMMEDIATELY BEFORE WORK CAN CONTINUE.
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GENERAL DESIGN NOTE:

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REVISIONS

DESCRIPTIONS	DATE

NORTH CAROLINA PROFESSIONAL SEAL 4480 ENGINEER MARK MAGRATH 10/14/24

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SERENITY SUBDIVISION

PHASE 3-5 - RETAINING WALLS

PINEY GROVE RAWLS ROAD
HARNETT COUNTY, NC

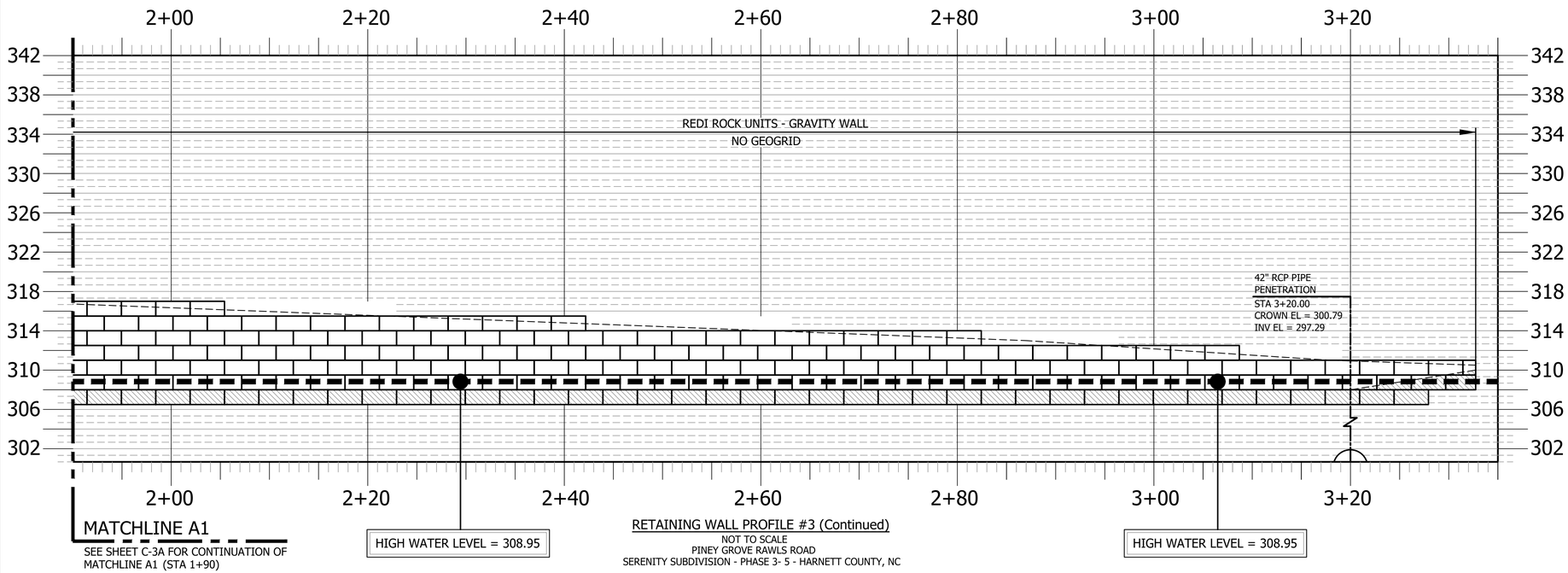
RETAINING WALL PROFILE #3
SERENITY SUBDIVISION - PHASE 3- 5 - HARNETT COUNTY, NC

DATE: October 14, 2024
DES: TLH
CHECKED: KLY
APPROVED: MJM

SCALE
HORIZONTAL: N/A
VERTICAL: N/A

DRAWING NUMBER
C-3A

VE PROJECT NO: 00240001 *SERENITY SUBDIVISION - PHASE 3- 5*



RETAINING WALL PROFILE #3 (Continued)
NOT TO SCALE
PINEY GROVE RAWLS ROAD
SERENITY SUBDIVISION - PHASE 3- 5 - HARNETT COUNTY, NC

GEOTECHNICAL GENERAL NOTE:

1. GEOTECHNICAL INFORMATION HAS NOT BEEN PROVIDED FOR THIS PROJECT. THEREFORE, ASSUMPTIONS WERE MADE BASED ON SOIL CHARACTERISTICS IN THE AREA (REFER TO SHEET C-1). IF SOILS ARE DIFFERENT IN THE FIELD THAN LISTED IN THE GEOTECHNICAL REPORT, VENTURE ENGINEERING, P.A. MUST BE NOTIFIED IMMEDIATELY BEFORE WORK CAN CONTINUE.
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	DESCRIPTIONS	DATE
	REVISIONS	

NORTH CAROLINA PROFESSIONAL SEAL 4480 ENGINEER MARK MAGRATH
10/14/24

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LICENSE NO. C-2590

SERENITY SUBDIVISION

PHASE 3-5 - RETAINING WALLS
PINEY GROVE RAWLS ROAD
HARNETT COUNTY, NC

RETAINING WALL PROFILE #3 (Continued)
SERENITY SUBDIVISION - PHASE 3- 5 - HARNETT COUNTY, NC

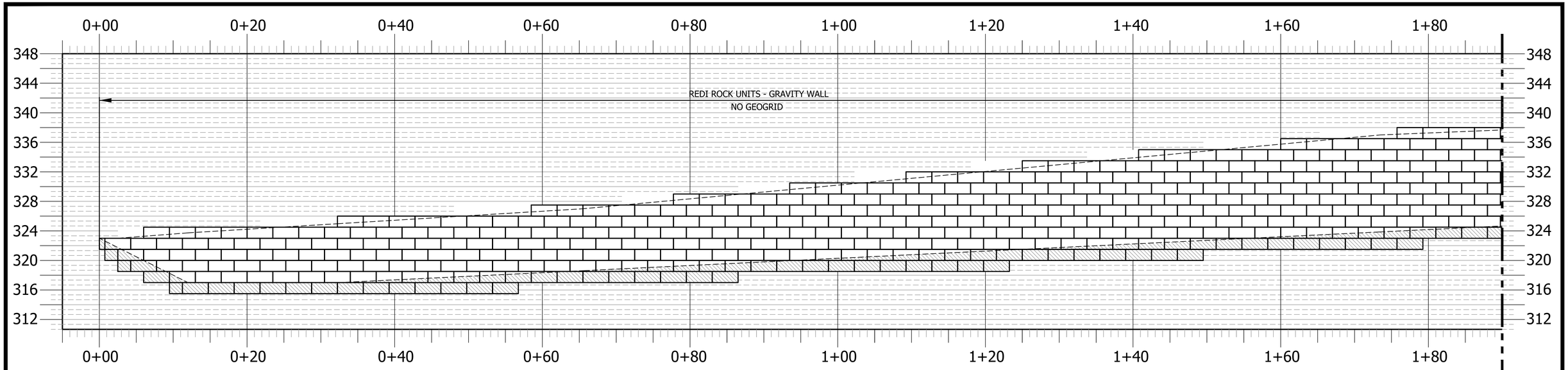
DATE: October 14, 2024
DES: TLH
CHECKED: KLY
APPROVED: MJM

SCALE
HORIZONTAL: N/A
VERTICAL: N/A

DRAWING NUMBER
C-3B

SERENITY SUBDIVISION - PHASE 3- 5 RETAINING WALL CONSTRUCTION - HARNETT COUNTY, NORTH CAROLINA

VE PROJECT NO: 00240001 *SERENITY SUBDIVISION - PHASE 3- 5*



RETAINING WALL PROFILE #4
NOT TO SCALE
PINEY GROVE RAWLS ROAD
SERENITY SUBDIVISION - PHASE 3- 5 - HARNETT COUNTY, NC

MATCHLINE B
SEE SHEET C-5 FOR CONTINUATION OF MATCHLINE B (STA 1+90)

SERENITY SUBDIVISION - PHASE 3- 5 RETAINING WALL CONSTRUCTION - HARNETT COUNTY, NORTH CAROLINA

GEOTECHNICAL GENERAL NOTE:

1. GEOTECHNICAL INFORMATION HAS NOT BEEN PROVIDED FOR THIS PROJECT. THEREFORE, ASSUMPTIONS WERE MADE BASED ON SOIL CHARACTERISTICS IN THE AREA (REFER TO SHEET C-1). IF SOILS ARE DIFFERENT IN THE FIELD THAN LISTED IN THE GEOTECHNICAL REPORT, VENTURE ENGINEERING, P.A. MUST BE NOTIFIED IMMEDIATELY BEFORE WORK CAN CONTINUE.
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 WALL.

GENERAL DESIGN NOTE:

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DESCRIPTIONS	DATE
REVISIONS	

NORTH CAROLINA PROFESSIONAL SEAL 44480 ENGINEER MARK MAGRATH 10/14/24

Venture Engineering, P.A.
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LICENSE NO. C-2590

SERENITY SUBDIVISION
PHASE 3-5 - RETAINING WALLS
PINEY GROVE RAWLS ROAD
HARNETT COUNTY, NC

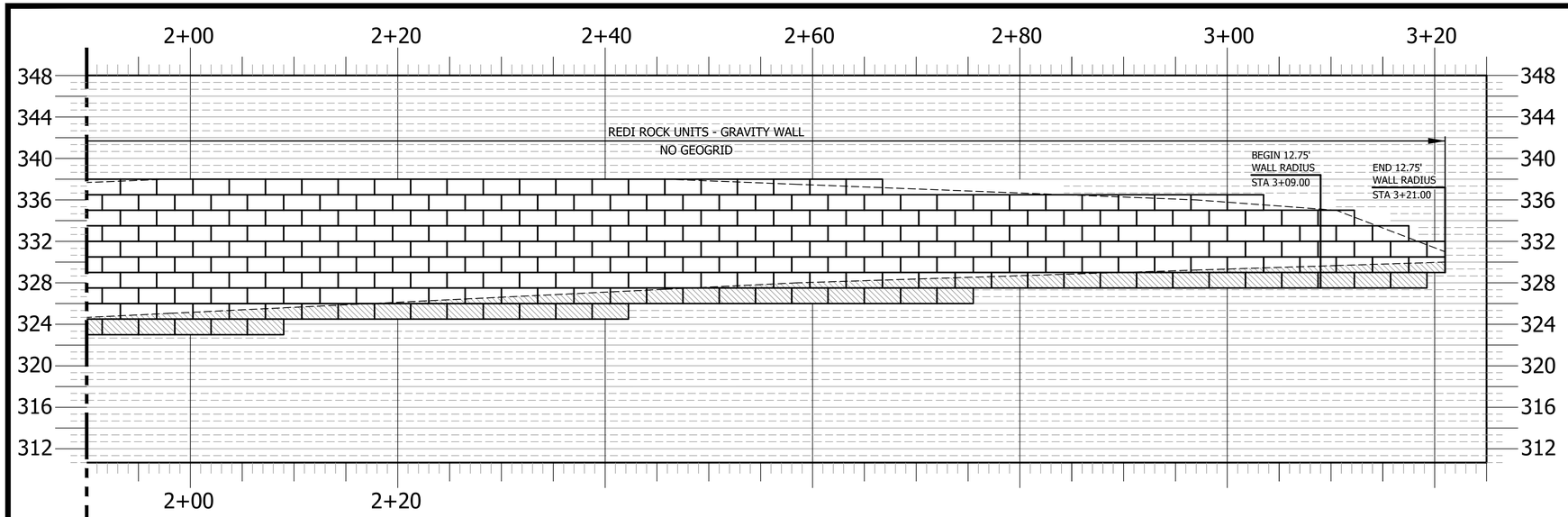
RETAINING WALL PROFILE #4
SERENITY SUBDIVISION - PHASE 3- 5 - HARNETT COUNTY, NC

DATE: October 14, 2024
DES: TLH
CHECKED: KLY
APPROVED: MJM

SCALE
HORIZONTAL: N/A
VERTICAL: N/A

DRAWING NUMBER
C-4

VE PROJECT NO: 00240001 *SERENITY SUBDIVISION - PHASE 3- 5*

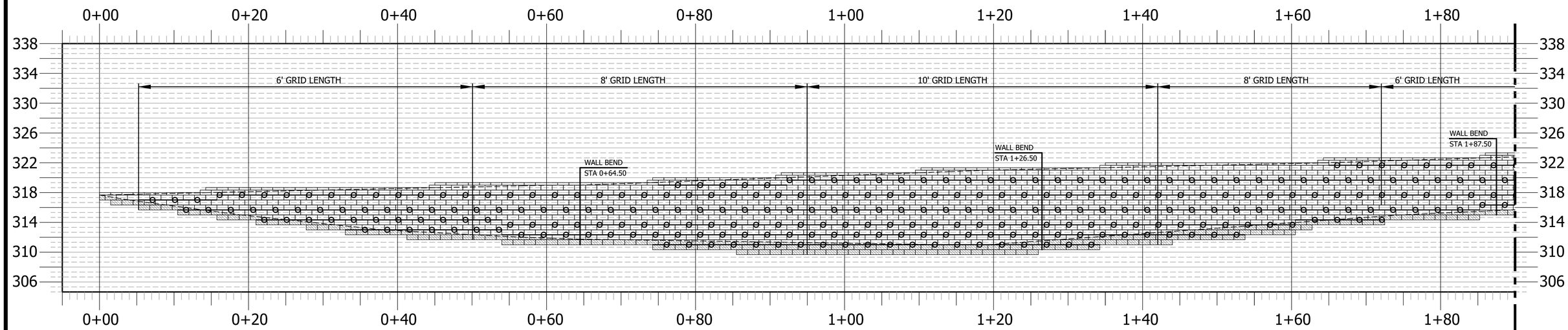


MATCHLINE B

SEE SHEET C-4 FOR CONTINUATION OF MATCHLINE B (STA 1+90)

RETAINING WALL PROFILE #4 (Continued)

NOT TO SCALE
PINEY GROVE RAWLS ROAD
SERENITY SUBDIVISION - PHASE 3- 5 - HARNETT COUNTY, NC



RETAINING WALL PROFILE #5

NOT TO SCALE
PINEY GROVE RAWLS ROAD
SERENITY SUBDIVISION - PHASE 3- 5 - HARNETT COUNTY, NC

MATCHLINE C

SEE SHEET C-6 FOR CONTINUATION OF MATCHLINE C (STA 1+90)

GEOTECHNICAL GENERAL NOTE:

1. GEOTECHNICAL INFORMATION HAS NOT BEEN PROVIDED FOR THIS PROJECT. THEREFORE, ASSUMPTIONS WERE MADE BASED ON SOIL CHARACTERISTICS IN THE AREA (REFER TO SHEET C-1). IF SOILS ARE DIFFERENT IN THE FIELD THAN LISTED IN THE GEOTECHNICAL REPORT, VENTURE ENGINEERING, P.A. MUST BE NOTIFIED IMMEDIATELY BEFORE WORK CAN CONTINUE.
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GENERAL DESIGN NOTE:

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LEGEND

GRIDLOK 370

DESCRIPTIONS	DATE
REVISIONS	

NORTH CAROLINA PROFESSIONAL SEAL 44480 ENGINEER MARK MAGRATH
10/14/24

Venture Engineering, P.A.
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LICENSE NO. C-2590

SERENITY SUBDIVISION

PHASE 3-5 - RETAINING WALLS
PINEY GROVE RAWLS ROAD
HARNETT COUNTY, NC

RETAINING WALL PROFILE #4 (Continued) & #5
SERENITY SUBDIVISION - PHASE 3- 5 - HARNETT COUNTY, NC

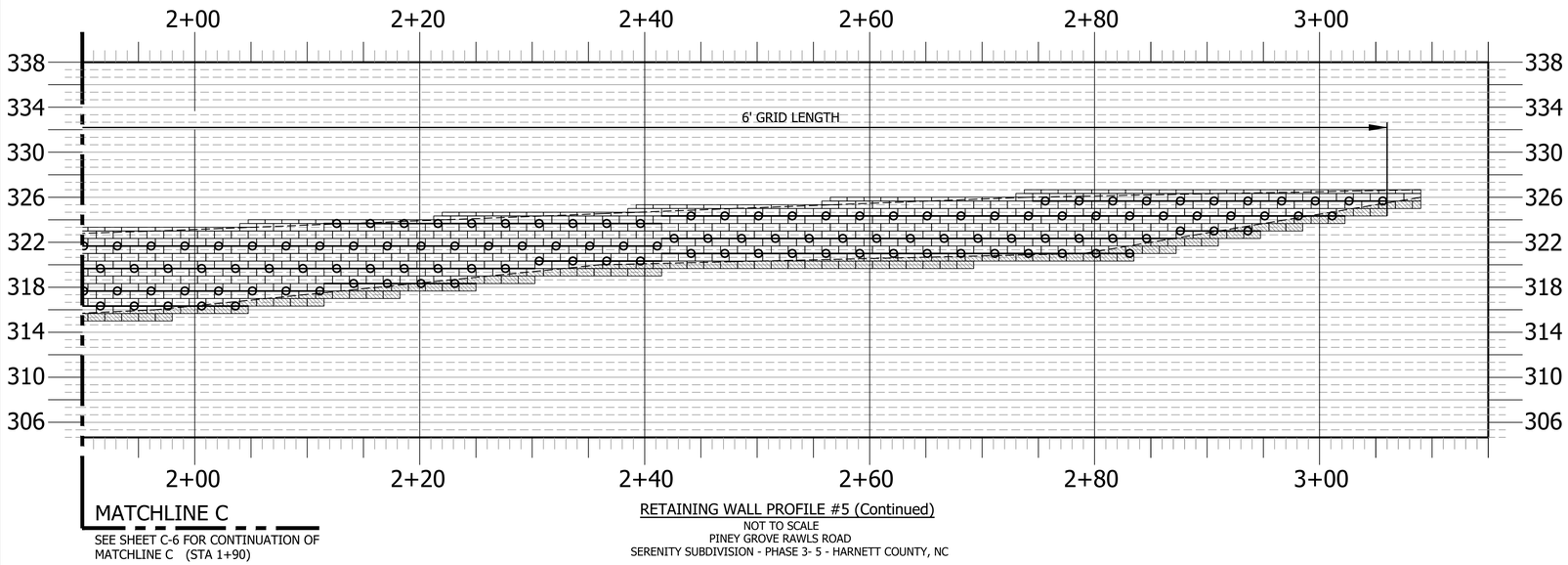
DATE:	October 14, 2024
DES:	TLH
CHECKED:	KLY
APPROVED:	MJM

SCALE
HORIZONTAL: N/A
VERTICAL: N/A

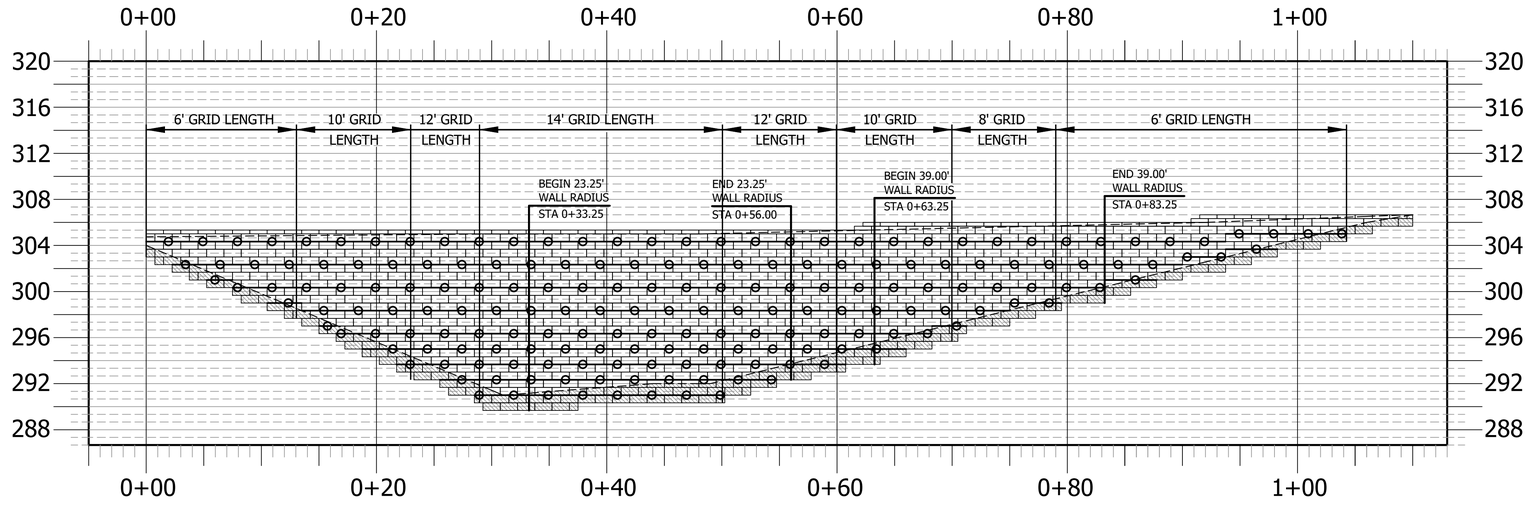
DRAWING NUMBER
C-5

SERENITY SUBDIVISION - PHASE 3- 5 RETAINING WALL CONSTRUCTION - HARNETT COUNTY, NORTH CAROLINA

VE PROJECT NO: 00240001 *SERENITY SUBDIVISION - PHASE 3- 5*



RETAINING WALL PROFILE #5 (Continued)
NOT TO SCALE
PINEY GROVE RAWLS ROAD
SERENITY SUBDIVISION - PHASE 3- 5 - HARNETT COUNTY, NC



RETAINING WALL PROFILE #6
NOT TO SCALE
PINEY GROVE RAWLS ROAD
SERENITY SUBDIVISION - PHASE 3- 5 - HARNETT COUNTY, NC

GEOTECHNICAL GENERAL NOTE:

1. GEOTECHNICAL INFORMATION HAS NOT BEEN PROVIDED FOR THIS PROJECT. THEREFORE, ASSUMPTIONS WERE MADE BASED ON SOIL CHARACTERISTICS IN THE AREA (REFER TO SHEET C-1). IF SOILS ARE DIFFERENT IN THE FIELD THAN LISTED IN THE GEOTECHNICAL REPORT, VENTURE ENGINEERING, P.A. MUST BE NOTIFIED IMMEDIATELY BEFORE WORK CAN CONTINUE.
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GENERAL DESIGN NOTE:

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LEGEND
GRIDLOK 370

DESCRIPTIONS	DATE
REVISIONS	

NORTH CAROLINA PROFESSIONAL SEAL 4480 ENGINEER MARK MAGRATH
10/14/24

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SERENITY SUBDIVISION
PHASE 3-5 - RETAINING WALLS
PINEY GROVE RAWLS ROAD
HARNETT COUNTY, NC

RETAINING WALL PROFILE #5 (Continued) & #6
SERENITY SUBDIVISION - PHASE 3- 5 - HARNETT COUNTY, NC

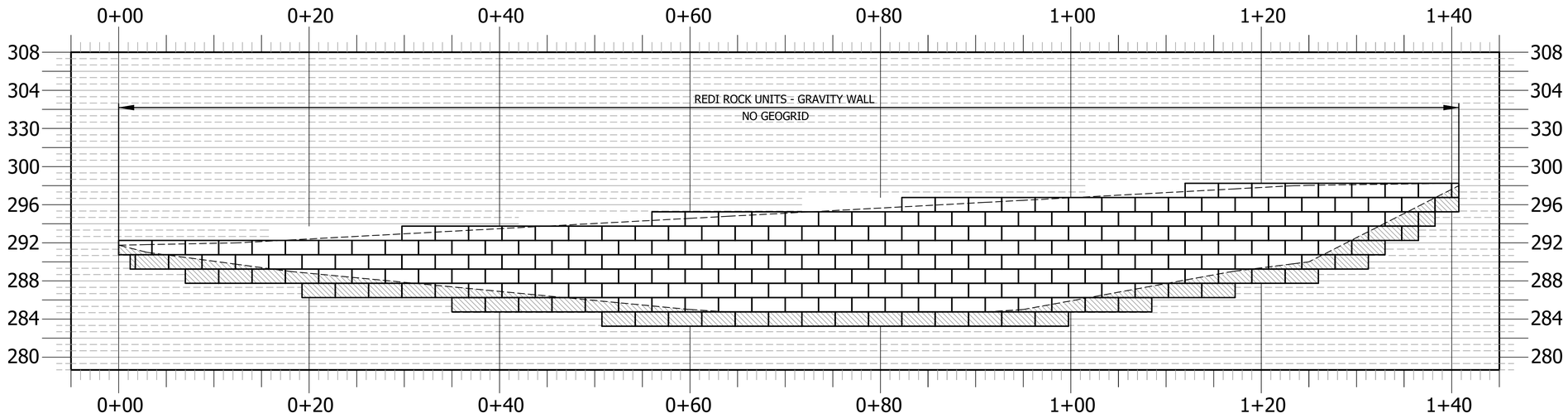
DATE: October 14, 2024
DES: TLH
CHECKED: KLY
APPROVED: MJM

SCALE
HORIZONTAL: N/A
VERTICAL: N/A

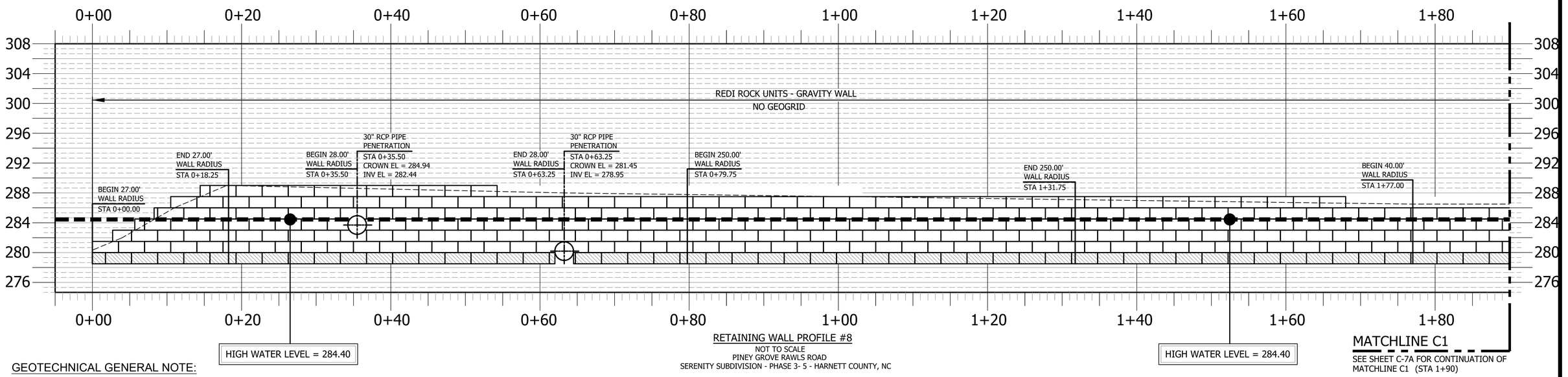
DRAWING NUMBER
C-6

SERENITY SUBDIVISION - PHASE 3- 5 RETAINING WALL CONSTRUCTION - HARNETT COUNTY, NORTH CAROLINA

VE PROJECT NO: 00240001 SERENITY SUBDIVISION - PHASE 3- 5



RETAINING WALL PROFILE #7
NOT TO SCALE
PINEY GROVE RAWLS ROAD
SERENITY SUBDIVISION - PHASE 3- 5 - HARNETT COUNTY, NC



RETAINING WALL PROFILE #8
NOT TO SCALE
PINEY GROVE RAWLS ROAD
SERENITY SUBDIVISION - PHASE 3- 5 - HARNETT COUNTY, NC

MATCHLINE C1
SEE SHEET C-7A FOR CONTINUATION OF MATCHLINE C1 (STA 1+90)

GEOTECHNICAL GENERAL NOTE:

1. GEOTECHNICAL INFORMATION HAS NOT BEEN PROVIDED FOR THIS PROJECT. THEREFORE, ASSUMPTIONS WERE MADE BASED ON SOIL CHARACTERISTICS IN THE AREA (REFER TO SHEET C-1). IF SOILS ARE DIFFERENT IN THE FIELD THAN LISTED IN THE GEOTECHNICAL REPORT, VENTURE ENGINEERING, P.A. MUST BE NOTIFIED IMMEDIATELY BEFORE WORK CAN CONTINUE.
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 WALL.

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 THRU C-2C AS PROVIDED BY 4D SITE SOLUTIONS CIVIL ENGINEERING & LAND SURVEYING SEALED 09/17/24.
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.

DESCRIPTIONS	DATE
REVISIONS	

NORTH CAROLINA PROFESSIONAL SEAL 24480 ENGINEER MARK MAGRATH 10/11/24

Venture Engineering, P.A.
312 WEST MILLBROOK ROAD SUITE 237
RALEIGH, NC 27609
P: 919-676-0303 F: 919-676-0301
EMAIL ADDRESS: BMONDSCHEIN@VENTURE-E.COM
LICENSE NO. C-2590

SERENITY SUBDIVISION
PHASE 3-5 - RETAINING WALLS
PINEY GROVE RAWLS ROAD
HARNETT COUNTY, NC

RETAINING WALL PROFILE #7 & #8
SERENITY SUBDIVISION - PHASE 3- 5 - HARNETT COUNTY, NC

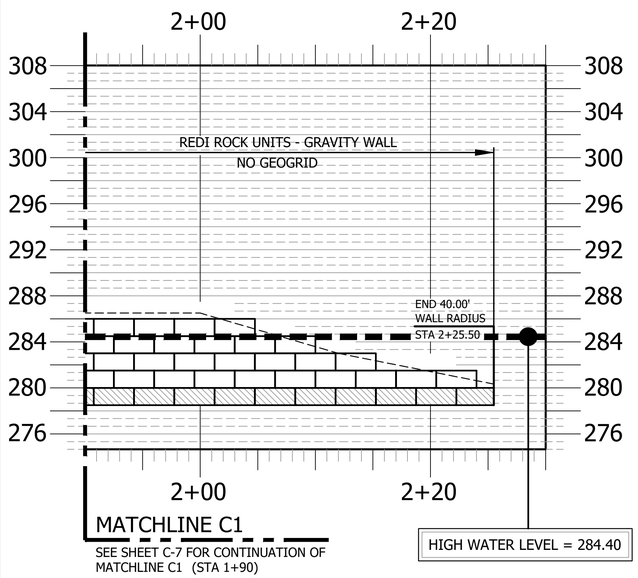
DATE:	October 14, 2024
DES:	TLH
CHECKED:	KLY
APPROVED:	MJM

SCALE
HORIZONTAL: N/A
VERTICAL: N/A

DRAWING NUMBER
C-7

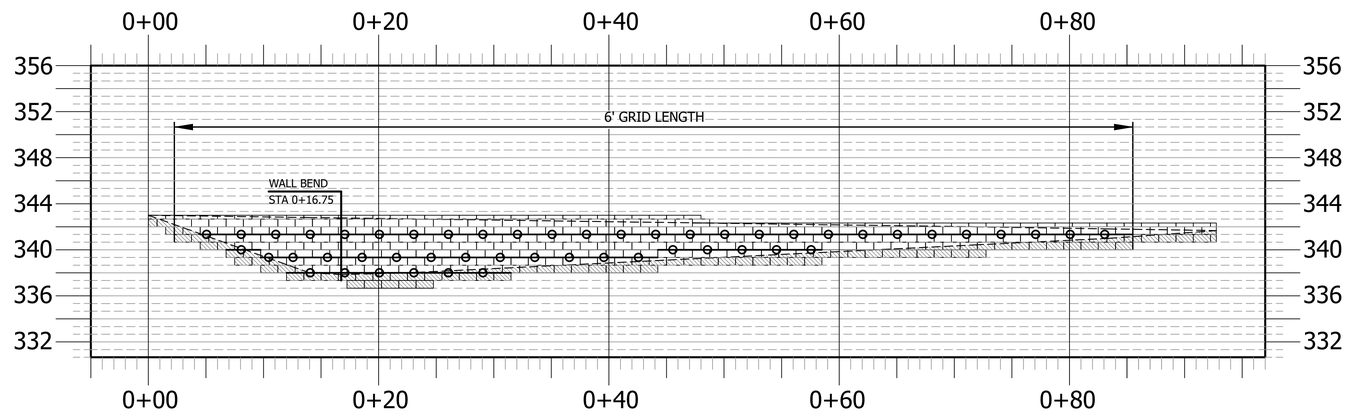
SERENITY SUBDIVISION - PHASE 3- 5 RETAINING WALL CONSTRUCTION - HARNETT COUNTY, NORTH CAROLINA

VE PROJECT NO: 00240001 SERENITY SUBDIVISION - PHASE 3- 5



SEE SHEET C-7 FOR CONTINUATION OF MATCHLINE C1 (STA 1+90)

RETAINING WALL PROFILE #8 (Continued)
NOT TO SCALE
PINEY GROVE RAWLS ROAD
SERENITY SUBDIVISION - PHASE 3- 5 - HARNETT COUNTY, NC



RETAINING WALL PROFILE #9
NOT TO SCALE
PINEY GROVE RAWLS ROAD
SERENITY SUBDIVISION - PHASE 3- 5 - HARNETT COUNTY, NC

GEOTECHNICAL GENERAL NOTE:

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LEGEND
GRIDLOK 370

DESCRIPTIONS	DATE
REVISIONS	

NORTH CAROLINA PROFESSIONAL SEAL 4480 ENGINEER MARK MAGRATH 10/14/24

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SERENITY SUBDIVISION
PHASE 3-5 - RETAINING WALLS
PINEY GROVE RAWLS ROAD
HARNETT COUNTY, NC

RETAINING WALL PROFILE #8 (Continued) & #9
SERENITY SUBDIVISION - PHASE 3- 5 - HARNETT COUNTY, NC

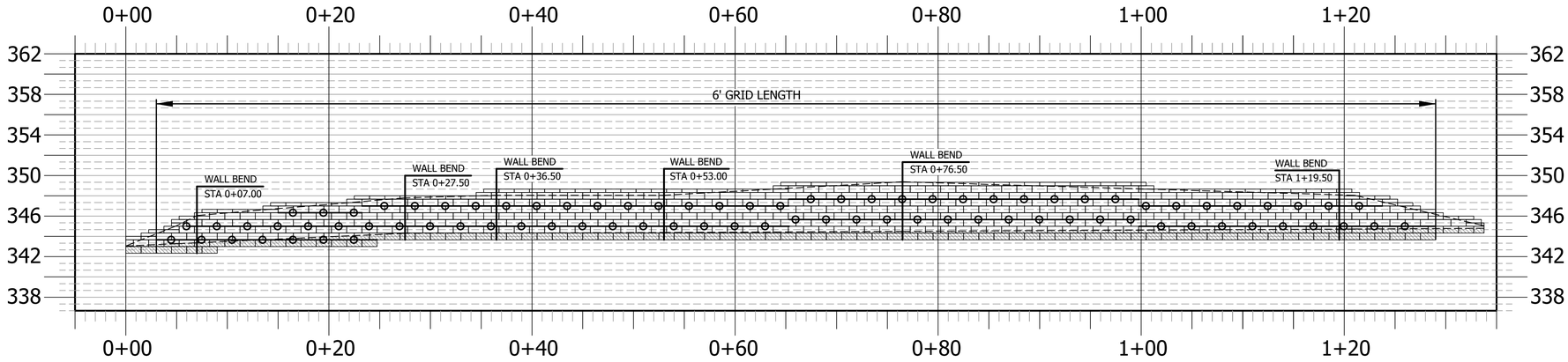
DATE: October 14, 2024
DES: TLH
CHECKED: KLY
APPROVED: MJM

SCALE
HORIZONTAL: N/A
VERTICAL: N/A

DRAWING NUMBER
C-7A

SERENITY SUBDIVISION - PHASE 3- 5 RETAINING WALL CONSTRUCTION - HARNETT COUNTY, NORTH CAROLINA

VE PROJECT NO: 00240001 *SERENITY SUBDIVISION - PHASE 3- 5*

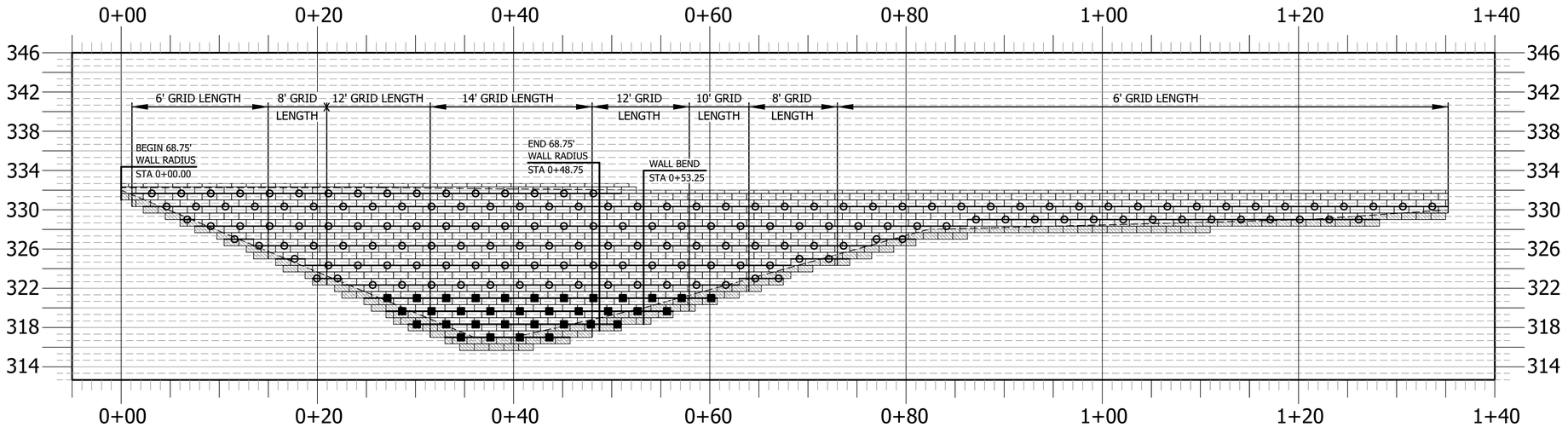


RETAINING WALL PROFILE #10

NOT TO SCALE

PINEY GROVE RAWLS ROAD

SERENITY SUBDIVISION - PHASE 3- 5 - HARNETT COUNTY, NC



RETAINING WALL PROFILE #11

NOT TO SCALE

PINEY GROVE RAWLS ROAD

SERENITY SUBDIVISION - PHASE 3- 5 - HARNETT COUNTY, NC

GEOTECHNICAL GENERAL NOTE:

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LEGEND

GRIDLOK 370

GRIDLOK 540

DESCRIPTIONS	DATE

REVISIONS

NORTH CAROLINA PROFESSIONAL SEAL 4480 ENGINEER MARK MAGRATH 10/14/24

Venture Engineering, P.A.
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SERENITY SUBDIVISION

PHASE 3-5 - RETAINING WALLS

PINEY GROVE RAWLS ROAD

HARNETT COUNTY, NC

RETAINING WALL PROFILE #10 & #11

SERENITY SUBDIVISION - PHASE 3- 5 - HARNETT COUNTY, NC

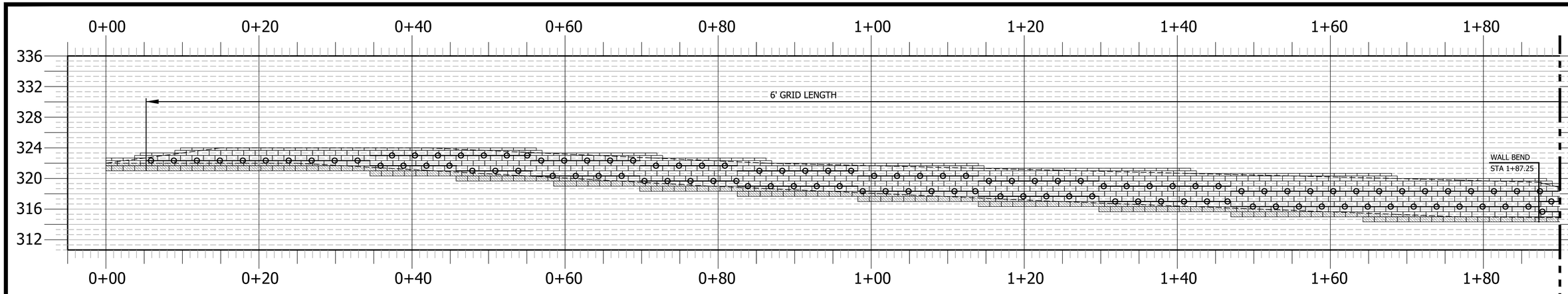
DATE: October 14, 2024
DES: TLH
CHECKED: KLY
APPROVED: MJM

SCALE
HORIZONTAL: N/A
VERTICAL: N/A

DRAWING NUMBER
C-8

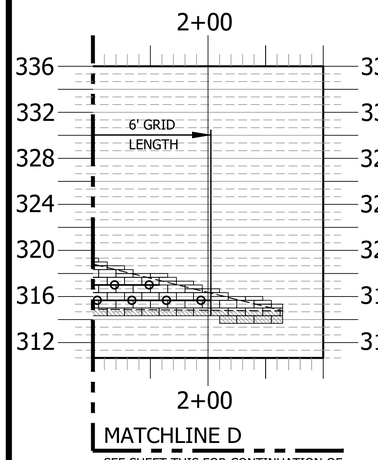
VE PROJECT NO: 00240001 *SERENITY SUBDIVISION - PHASE 3- 5*

SERENITY SUBDIVISION - PHASE 3- 5 RETAINING WALL CONSTRUCTION - HARNETT COUNTY, NORTH CAROLINA



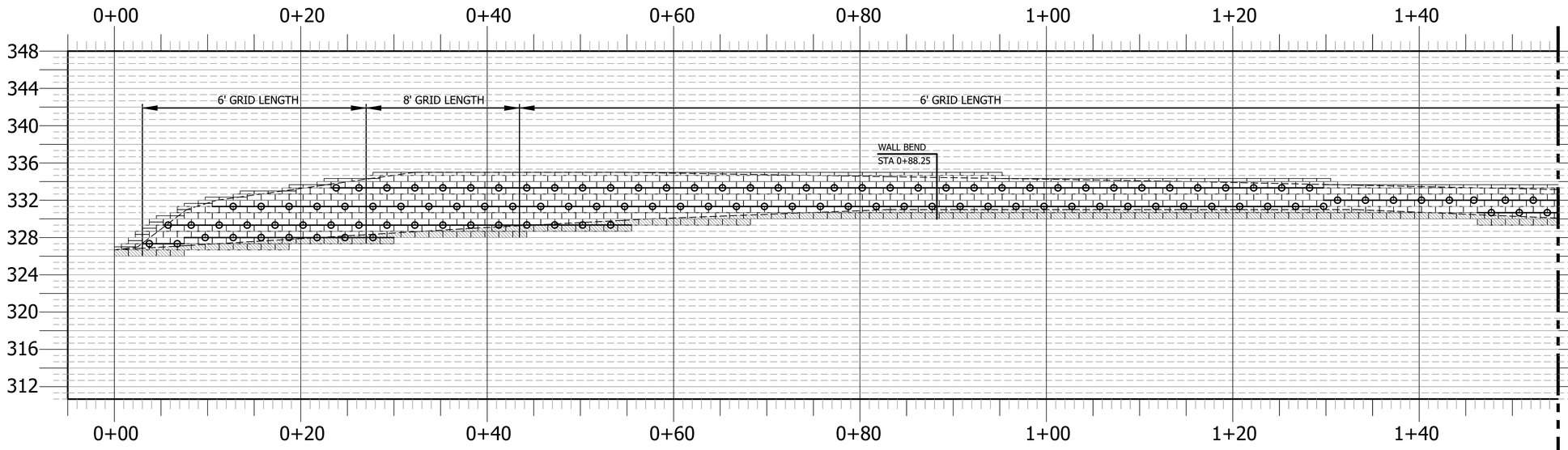
RETAINING WALL PROFILE #12
NOT TO SCALE
PINEY GROVE RAWLS ROAD
SERENITY SUBDIVISION - PHASE 3- 5 - HARNETT COUNTY, NC

MATCHLINE D
SEE SHEET THIS FOR CONTINUATION OF MATCHLINE D (STA 1+90)



MATCHLINE D
SEE SHEET THIS FOR CONTINUATION OF MATCHLINE D (STA 1+90)

RETAINING WALL PROFILE #12 (Continued)
NOT TO SCALE
PINEY GROVE RAWLS ROAD
SERENITY SUBDIVISION - PHASE 3- 5 - HARNETT COUNTY, NC



RETAINING WALL PROFILE #13
NOT TO SCALE
PINEY GROVE RAWLS ROAD
SERENITY SUBDIVISION - PHASE 3- 5 - HARNETT COUNTY, NC

MATCHLINE E
SEE SHEET C-10 FOR CONTINUATION OF MATCHLINE E (STA 1+55)

GEOTECHNICAL GENERAL NOTE:

1. GEOTECHNICAL INFORMATION HAS NOT BEEN PROVIDED FOR THIS PROJECT. THEREFORE, ASSUMPTIONS WERE MADE BASED ON SOIL CHARACTERISTICS IN THE AREA (REFER TO SHEET C-1). IF SOILS ARE DIFFERENT IN THE FIELD THAN LISTED IN THE GEOTECHNICAL REPORT, VENTURE ENGINEERING, P.A. MUST BE NOTIFIED IMMEDIATELY BEFORE WORK CAN CONTINUE.
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LEGEND
GRIDLOK 370

DESCRIPTIONS	DATE
REVISIONS	

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 44480 MARK MAGRATH 10/14/24

Venture Engineering, P.A.
312 WEST MILLBROOK ROAD SUITE 237
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EMAIL ADDRESS: BMONDSCHEIN@VENTURE-E.COM
LICENSE NO. C-2590

SERENITY SUBDIVISION
PHASE 3-5 - RETAINING WALLS
PINEY GROVE RAWLS ROAD
HARNETT COUNTY, NC

RETAINING WALL PROFILE #12 & #13
SERENITY SUBDIVISION - PHASE 3- 5 - HARNETT COUNTY, NC

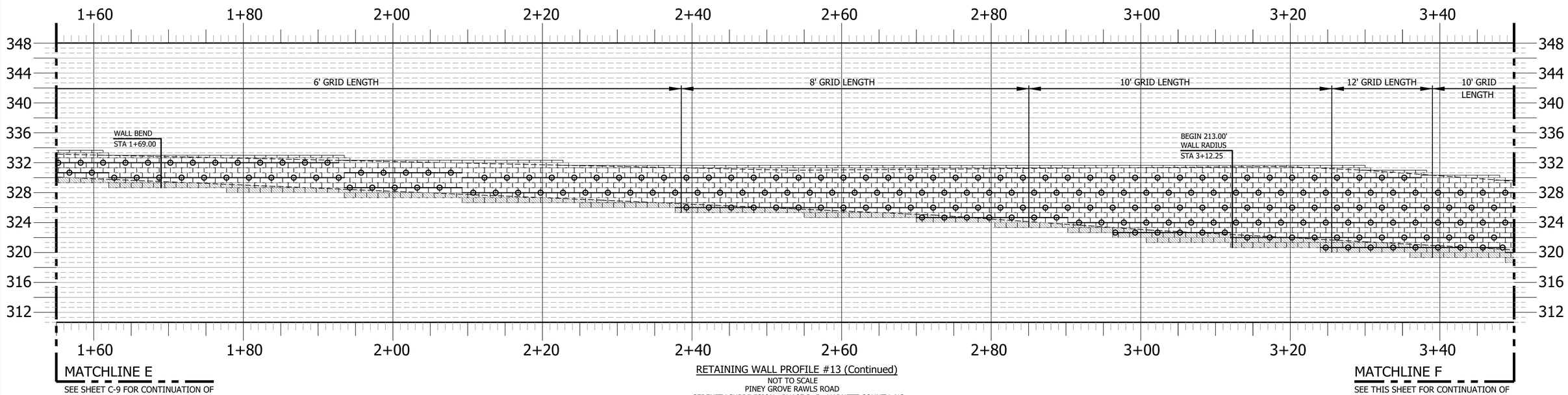
DATE: October 14, 2024
DES: TLH
CHECKED: KLY
APPROVED: MJM

SCALE
HORIZONTAL: N/A
VERTICAL: N/A

DRAWING NUMBER
C-9

SERENITY SUBDIVISION - PHASE 3- 5 RETAINING WALL CONSTRUCTION - HARNETT COUNTY, NORTH CAROLINA

VE PROJECT NO: 00240001 SERENITY SUBDIVISION - PHASE 3- 5



MATCHLINE E

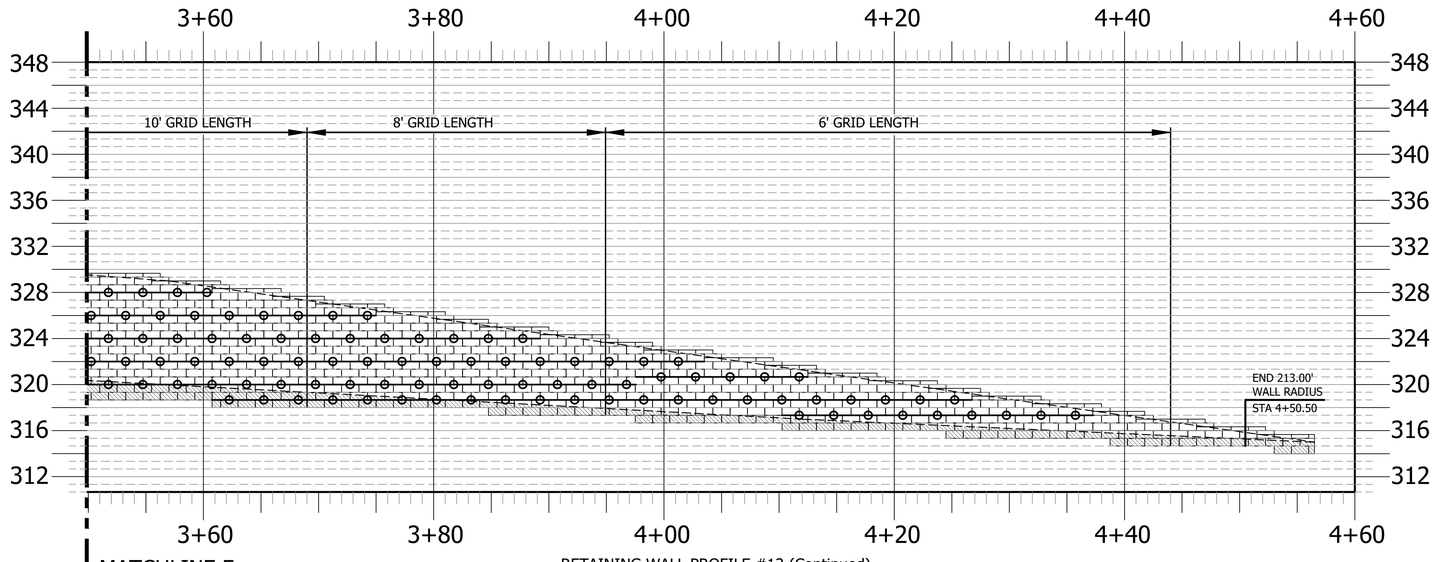
SEE SHEET C-9 FOR CONTINUATION OF MATCHLINE E (STA 1+55)

RETAINING WALL PROFILE #13 (Continued)

NOT TO SCALE
PINEY GROVE RAWLS ROAD
SERENITY SUBDIVISION - PHASE 3- 5 - HARNETT COUNTY, NC

MATCHLINE F

SEE THIS SHEET FOR CONTINUATION OF MATCHLINE F (STA 3+50)



MATCHLINE F

SEE THIS SHEET FOR CONTINUATION OF MATCHLINE F (STA 3+50)

RETAINING WALL PROFILE #13 (Continued)

NOT TO SCALE
PINEY GROVE RAWLS ROAD
SERENITY SUBDIVISION - PHASE 3- 5 - HARNETT COUNTY, NC

GEOTECHNICAL GENERAL NOTE:

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LEGEND

GRIDLOK 370

DESCRIPTIONS	DATE
REVISIONS	

NORTH CAROLINA PROFESSIONAL SEAL 4480 ENGINEER MARK MAGRATH 10/14/24

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LICENSE NO. C-2590

SERENITY SUBDIVISION

PHASE 3-5 - RETAINING WALLS
PINEY GROVE RAWLS ROAD
HARNETT COUNTY, NC

RETAINING WALL PROFILE #13 (Continued)
SERENITY SUBDIVISION - PHASE 3- 5 - HARNETT COUNTY, NC

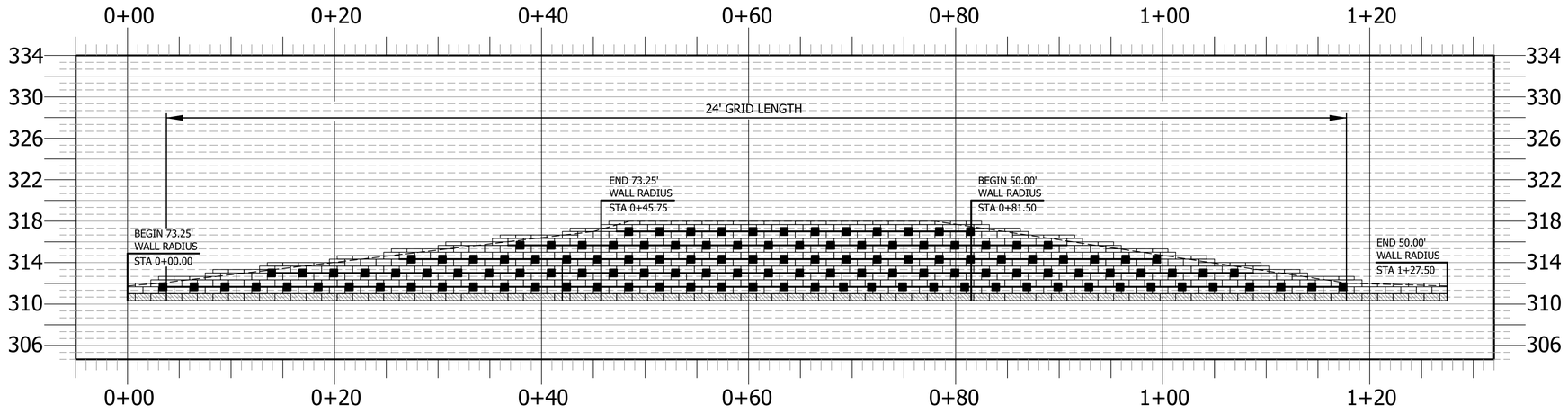
DATE: October 14, 2024
DES: TLH
CHECKED: KLY
APPROVED: MJM

SCALE
HORIZONTAL: N/A
VERTICAL: N/A

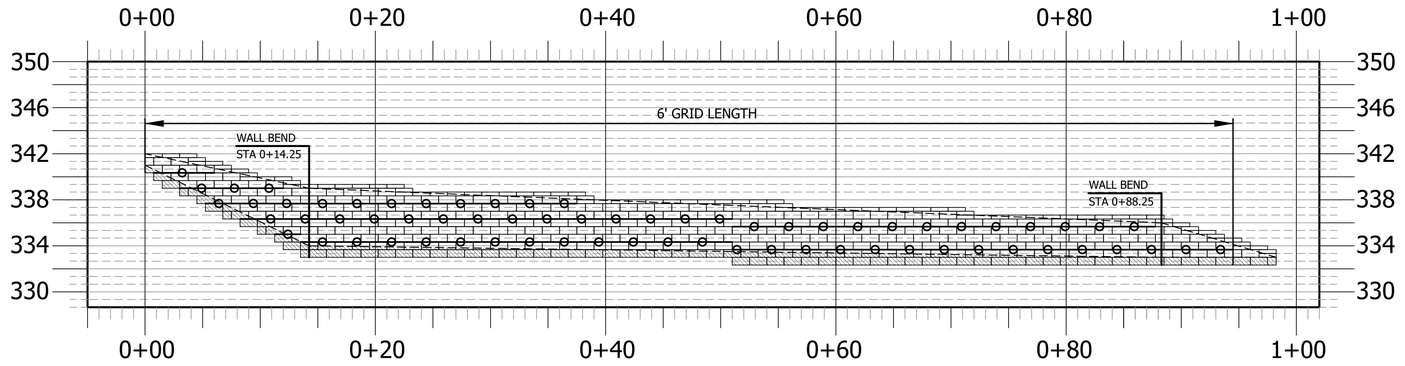
DRAWING NUMBER
C-10

VE PROJECT NO: 00240001 *SERENITY SUBDIVISION - PHASE 3- 5*

SERENITY SUBDIVISION - PHASE 3- 5 RETAINING WALL CONSTRUCTION - HARNETT COUNTY, NORTH CAROLINA



RETAINING WALL PROFILE #14
NOT TO SCALE
PINEY GROVE RAWLS ROAD
SERENITY SUBDIVISION - PHASE 3- 5 - HARNETT COUNTY, NC



RETAINING WALL PROFILE #15
NOT TO SCALE
PINEY GROVE RAWLS ROAD
SERENITY SUBDIVISION - PHASE 3- 5 - HARNETT COUNTY, NC

GEOTECHNICAL GENERAL NOTE:

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LEGEND
GRIDLOK 370

DESCRIPTIONS	DATE
REVISIONS	

NORTH CAROLINA PROFESSIONAL SEAL 4480 ENGINEER MARK MAGRATH 10/14/24

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LICENSE NO. C-2590

SERENITY SUBDIVISION
PHASE 3-5 - RETAINING WALLS
PINEY GROVE RAWLS ROAD
HARNETT COUNTY, NC

RETAINING WALL PROFILE #14 & #15
SERENITY SUBDIVISION - PHASE 3- 5 - HARNETT COUNTY, NC

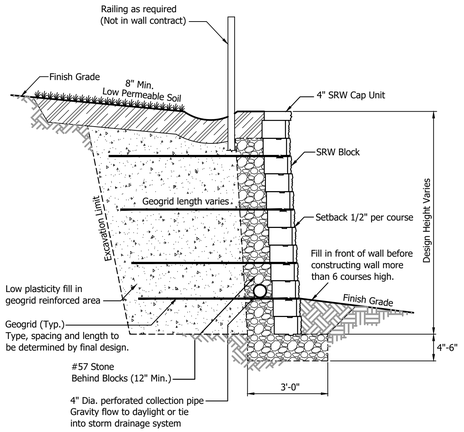
DATE: October 14, 2024
DES: TLH
CHECKED: KLY
APPROVED: MJM

SCALE
HORIZONTAL: N/A
VERTICAL: N/A

DRAWING NUMBER
C-11

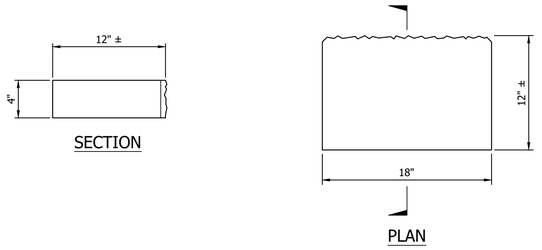
SERENITY SUBDIVISION - PHASE 3- 5 RETAINING WALL CONSTRUCTION - HARNETT COUNTY, NORTH CAROLINA

VE PROJECT NO: 00240001 *SERENITY SUBDIVISION - PHASE 3- 5*



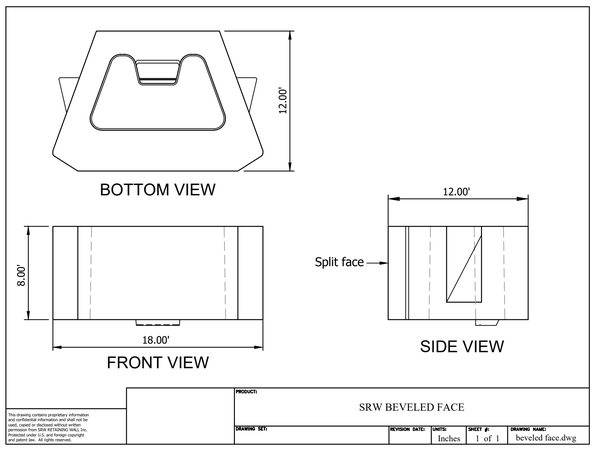
SRW RETAINING WALL
TYPICAL CROSS SECTION

SRW DETAIL	1 of 1 SHEET NO.	DATE



SRW CAP UNIT DETAILS

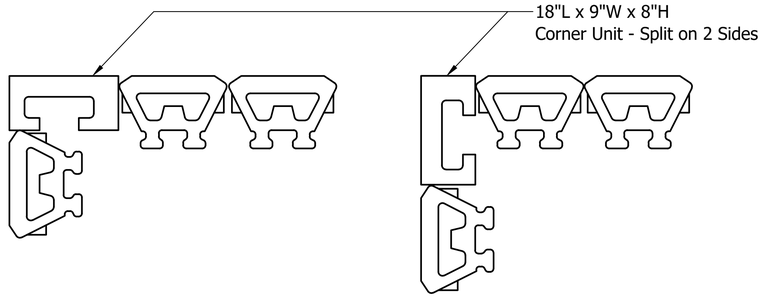
SRW DETAILS	1 of 1 SHEET NO.	2/2008 DATE



PRODUCT: SRW BEVELED FACE

DRAWING SET:	REVISION DATE:	UNITS:	SHEET #:	DRAWING NAME:
		Inches	1 of 1	beveled face.dwg

Note:
Trim Face block to fit
to accomodate setback.



Typical Outside Corner Formation Detail
Design By Others

GEOTECHNICAL GENERAL NOTE:

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DESCRIPTIONS	DATE
REVISIONS	

NORTH CAROLINA PROFESSIONAL SEAL 14480 ENGINEER MARK MAGRATH 10/14/24

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SERENITY SUBDIVISION
PHASE 3-5 - RETAINING WALLS
PINEY GROVE RAWLS ROAD
HARNETT COUNTY, NC

DETAIL SHEET - SHEET 1 OF 3
SERENITY SUBDIVISION - PHASE 3- 5 - HARNETT COUNTY, NC

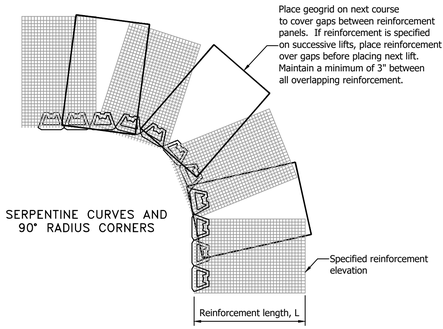
DATE: October 14, 2024
DES: TLH
CHECKED: KLY
APPROVED: MJM

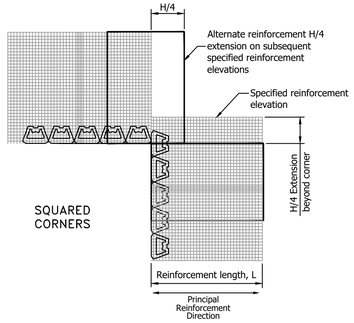
SCALE
HORIZONTAL: N/A
VERTICAL: N/A

DRAWING NUMBER
C-12

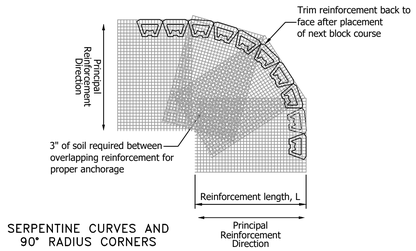
SERENITY SUBDIVISION - PHASE 3- 5 RETAINING WALL CONSTRUCTION - HARNETT COUNTY, NORTH CAROLINA

VE PROJECT NO: 00240001 *SERENITY SUBDIVISION - PHASE 3- 5*





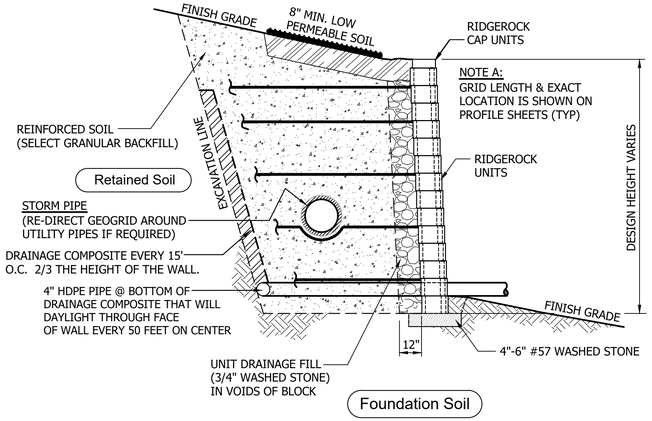
REINFORCEMENT PLACEMENT FOR CONCAVE CORNERS AND RADII



REINFORCEMENT PLACEMENT FOR CONVEX CORNERS AND RADII

SRW RETAINING WALL
GEOGRID PLACEMENT ON CORNERS AND RADII

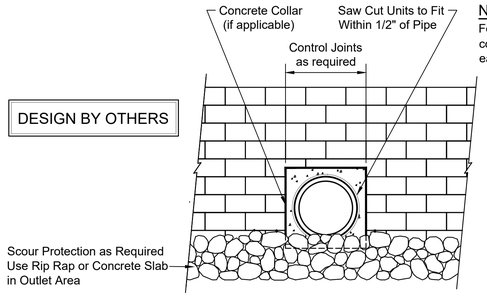
SRW DETAILS | 1 of 1 SHEET NO.



GEOGRID SHOULD NOT BE TORN, DISPLACED OR AUGURED, WHEN FENCE POSTS OR GUARD RAIL POSTS ARE INSTALLED.

TYPICAL DRAINAGE COMPOSITE DETAIL (For Cut Walls Only)

NOT TO SCALE



Note:
For pipes larger than 36", a concrete collar may be cast around pipe for ease of construction and appearance.

Typical Pipe Outlet Detail

Design By Others

GEOTECHNICAL GENERAL NOTE:

1. GEOTECHNICAL INFORMATION HAS NOT BEEN PROVIDED FOR THIS PROJECT. THEREFORE, ASSUMPTIONS WERE MADE BASED ON SOIL CHARACTERISTICS IN THE AREA (REFER TO SHEET C-1).
   IF SOILS ARE DIFFERENT IN THE FIELD THAN LISTED IN THE GEOTECHNICAL REPORT, VENTURE ENGINEERING, P.A MUST BE NOTIFIED IMMEDIATELY BEFORE WORK CAN CONTINUE.
2. A GLOBAL STABILITY ANALYSIS HAS NOT BEEN DONE FOR THIS PROJECT. WE RECOMMEND THAT A GLOBAL S STABILITY ANALYSIS PERFORMED BY A 3RD PARTY GEOTECHNICAL ENGINEER FOR RETAINING WALLS THAT HAVE SLOPES ABOVE, BELOW, BOTH (SLOPES ABOVE & DELOW 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 THRU C-2C AS PROVIDED BY 4D SITE SOLUTIONS CIVIL ENGINEERING & LAND SURVEYING SEALED 09/17/24.
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.

SERENITY SUBDIVISION - PHASE 3- 5 RETAINING WALL CONSTRUCTION - HARNETT COUNTY, NORTH CAROLINA

DESCRIPTIONS	DATE
REVISIONS	

NORTH CAROLINA PROFESSIONAL SEAL 4480 ENGINEER MARK MAGRATH 10/14/24

Venture Engineering, P.A.
312 WEST MILLBROOK ROAD SUITE 237
RALEIGH, NC 27609
P: 919-676-0303 F: 919-676-0301
EMAIL ADDRESS: BMONDSCHEIN@VENTURE-E.COM
LICENSE NO. C-2590

SERENITY SUBDIVISION

PHASE 3-5 - RETAINING WALLS
PINEY GROVE RAWLS ROAD
HARNETT COUNTY, NC

DETAIL SHEET - SHEET 2 OF 3
SERENITY SUBDIVISION - PHASE 3- 5 - HARNETT COUNTY, NC

DATE: October 14, 2024
DES: TLH
CHECKED: KLY
APPROVED: MJM

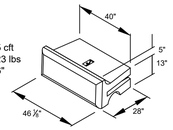
SCALE
HORIZONTAL: N/A
VERTICAL: N/A

DRAWING NUMBER
C-13

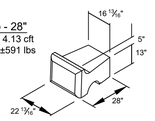
VE PROJECT NO: 00240001 SERENITY SUBDIVISION - PHASE 3- 5

41" SERIES BLOCKS

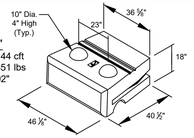
Top - 28"
Volume = 8.55 cft
Weight = ±1223 lbs
C of G = 15.06"



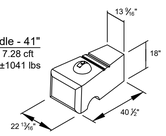
Half Top - 28"
Volume = 4.13 cft
Weight = ±591 lbs



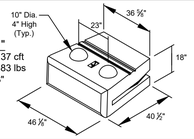
Middle - 41"
Volume = 16.44 cft
Weight = ±2351 lbs
C of G = 20.92"



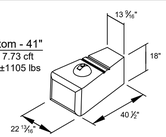
Half Middle - 41"
Volume = 7.28 cft
Weight = ±1041 lbs



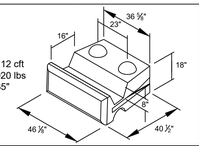
Bottom - 41"
Volume = 17.37 cft
Weight = ±2483 lbs
C of G = 21.3"



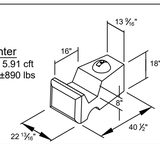
Half Bottom - 41"
Volume = 7.73 cft
Weight = ±1105 lbs



Planter
Volume = 14.12 cft
Weight = ±2020 lbs
C of G = 19.35"



Half Planter
Volume = 5.91 cft
Weight = ±890 lbs

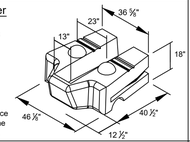


NOTES:
Volume and Center of Gravity (C of G) calculations are based on the blocks as shown.
Center of Gravity is measured from the back of the block.
Half blocks may include a fork lift slot on one side.
Actual weights and volumes may vary.
Weight shown is based on 143 pcf concrete.

DRAWN BY: J_JOHNSON	01/09/09	Redi-Rock® International, LLC	
CHECKED BY:			
APPROVED BY:		DRAWING FILE: 41in Series Blocks 010909.dwg	REVISION: ---
ISSUE DATE:		SCALE: NO SCALE	SHEET NO.: 1 OF 1

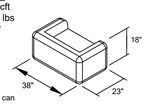
SPECIALTY BLOCKS

Protruding Planter
Volume = 15.45 cft
Weight = ±2210 lbs
C of G = 24.71"



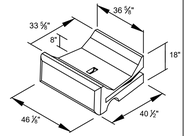
Note: Limestone face shown. Cobblestone face also available.

23" End Block
Volume = 6.79 cft
Weight = ± 970 lbs
C of G = 12.29"

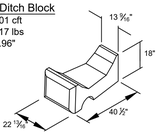


Note: This block can also be used with the 28" Series blocks.

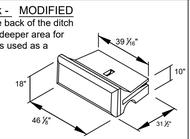
Drain Ditch Block
Volume = 11.28 cft
Weight = ±1614 lbs
C of G = 21.57"



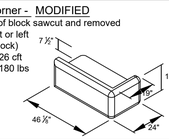
Half Drain Ditch Block
Volume = 5.01 cft
Weight = ±717 lbs
C of G = 22.96"



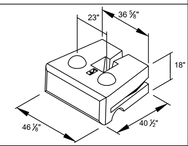
Drain Ditch Block - MODIFIED
(Block poured to the back of the ditch line. This provides deeper area for topsoil when block is used as a top block)
Volume = 8.5 cft
Weight = ±1215 lbs
C of G = 18.1"



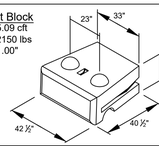
Garden Corner - MODIFIED
(Back edge of block sawcut and removed to make right or left top corner block)
Volume = 8.26 cft
Weight = ±1180 lbs



Anchor Block
Volume = 15.80 cft
Weight = ±2259 lbs
C of G = 21.2"



42½" Short Block
Volume = 15.09 cft
Weight = ± 2150 lbs
C of G = 21.00"

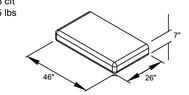


NOTES:
Volume and Center of Gravity (C of G) calculations are based on the blocks as shown.
Center of Gravity is measured from the back of the block.
Half blocks include a fork lift slot on one side.
Actual weights and volumes will may vary.
Weight shown is based on 143 pcf concrete.

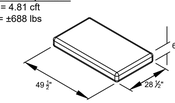
DRAWN BY: J_JOHNSON	01/12/09	Redi-Rock® International, LLC	
CHECKED BY:			
APPROVED BY:		DRAWING FILE: Specialty Blocks Used with 41in Series 011209.dwg	REVISION: ---
ISSUE DATE:		SCALE: NO SCALE	SHEET NO.: 1 OF 1

STEPS

3-Sided Straight Step
Volume = 4.58 cft
Weight = ±655 lbs

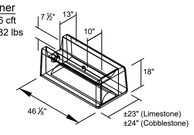


4-Sided 6" Cap Block
Volume = 4.81 cft
Weight = ±688 lbs

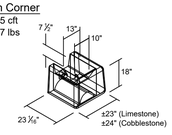


FREESTANDING CORNER BLOCKS

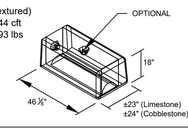
Garden Corner
Volume = 8.26 cft
Weight = ±1182 lbs



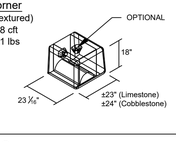
Half Garden Corner
Volume = 4.25 cft
Weight = ±607 lbs



Top Corner
(Smooth or Textured)
Volume = 10.44 cft
Weight = ±1493 lbs

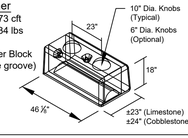


Half Top Corner
(Smooth or Textured)
Volume = 5.18 cft
Weight = ±741 lbs



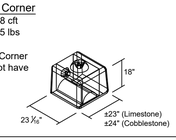
Middle Corner
Volume = 10.73 cft
Weight = ±1534 lbs

(Bottom Corner Block does not have groove)



Half Middle Corner
Volume = 5.28 cft
Weight = ±755 lbs

(Half Bottom Corner Block does not have groove)



NOTES:
Architectural faces on the blocks have varying texture.
Volumes are based on the blocks as shown.
Actual weights and volumes may vary.
Weight shown is based on 143 pcf concrete.

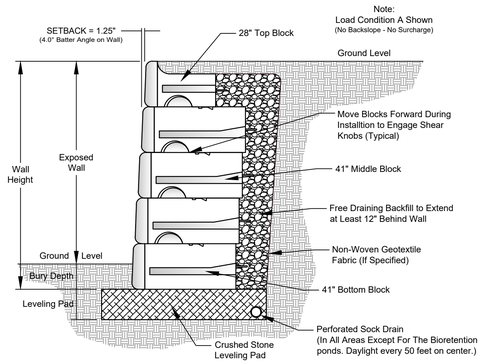
DRAWN BY: J_JOHNSON	10/06/09	Redi-Rock® International, LLC	
CHECKED BY:			
APPROVED BY:		DRAWING FILE: Steps and Corners for 41in Series 100609.dwg	REVISION: ---
ISSUE DATE:		SCALE: NO SCALE	SHEET NO.: 1 OF 1

GEOTECHNICAL GENERAL NOTE:

1. GEOTECHNICAL INFORMATION HAS NOT BEEN PROVIDED FOR THIS PROJECT. THEREFORE, ASSUMPTIONS WERE MADE BASED ON SOIL CHARACTERISTICS IN THE AREA (REFER TO SHEET C-1). IF SOILS ARE DIFFERENT IN THE FIELD THAN LISTED IN THE GEOTECHNICAL REPORT, VENTURE ENGINEERING, P.A MUST BE NOTIFIED IMMEDIATELY BEFORE WORK CAN CONTINUE.
2. A GLOBAL STABILITY ANALYSIS HAS NOT BEEN DONE FOR THIS PROJECT. WE RECOMMEND THAT A GLOBAL S STABILITY ANALYSIS PERFORMED BY A 3RD PARTY GEOTECHNICAL ENGINEER FOR RETAINING WALLS THAT HAVE SLOPES ABOVE, BELOW, BOTH (SLOPES ABOVE & DELOW THE RETAINING WALL) & MULTI-TIERED RETAINING WALLS.

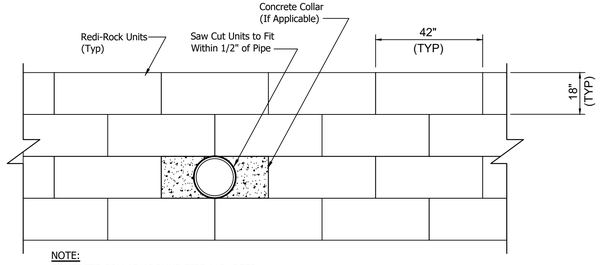
GENERAL DESIGN NOTE:

1. WALL PROFILES WERE CREATED & DESIGNED BY VENTURE ENGINEERING, P.A. PER EXISTING & PROPOSED GRADES AS SHOWN IN PLAN VIEW ON SHEET C-2 THRU C-2C AS PROVIDED BY 4D SITE SOLUTIONS CIVIL ENGINEERING & LAND SURVEYING SEALED 09/17/24.
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.



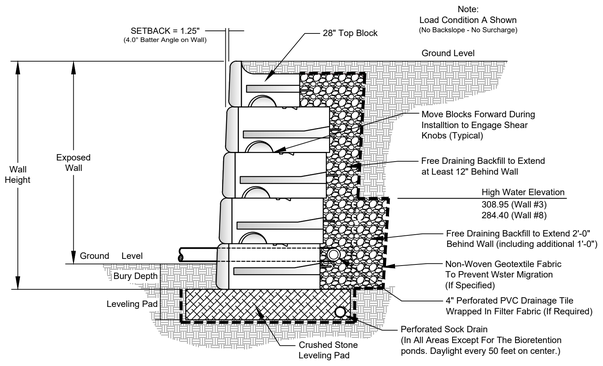
See Redi-Rock.com for Detailed Section Drawings of Each Condition Shown in the Design Charts

Typical Gravity Wall with 41" Blocks
No Scale



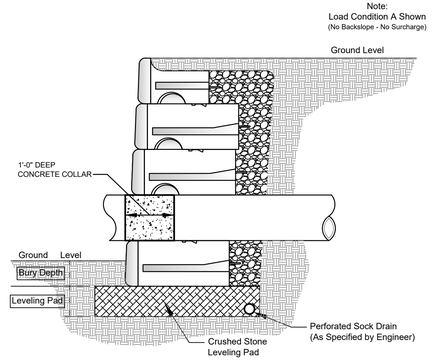
NOTE:
CONCRETE COLLAR AROUND PIPE 1'-0" DEEP
& WIDTH DIMENSIONS VARY.

TYPICAL PIPE OUTLET DETAIL
No Scale

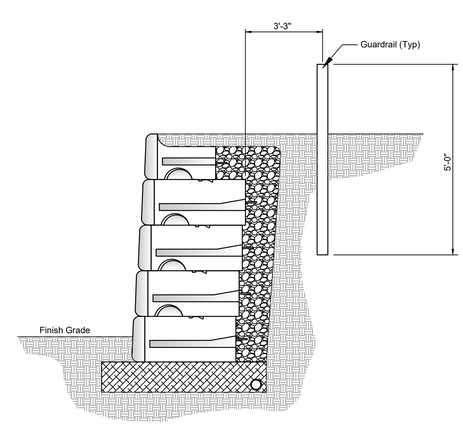


See Redi-Rock.com for Detailed Section Drawings of Each Condition Shown in the Design Charts

Typical Water Application Detail For Redi-Rock Units
No Scale



TYPICAL PIPE OUTLET SECTION
No Scale



See Redi-Rock.com for Detailed Section Drawings of Each Condition Shown in the Design Charts

Typical Guardrail Detail
No Scale

DESCRIPTIONS	DATE
REVISIONS	

NORTH CAROLINA PROFESSIONAL SEAL 44480 ENGINEER MARK MAGRATH 10/14/24

Venture Engineering, P.A.
312 WEST MILLBROOK ROAD SUITE 237
RALEIGH, NC 27609
P: 919-676-0303 F: 919-676-0301
EMAIL ADDRESS: BMONDSCHEIN@VENTURE-E.COM
LICENSE NO. C-2590

SERENITY SUBDIVISION
PHASE 3-5 - RETAINING WALLS
PINEY GROVE RAWLS ROAD
HARNETT COUNTY, NC

DETAIL SHEET - SHEET 3 OF 3
SERENITY SUBDIVISION - PHASE 3- 5 - HARNETT COUNTY, NC

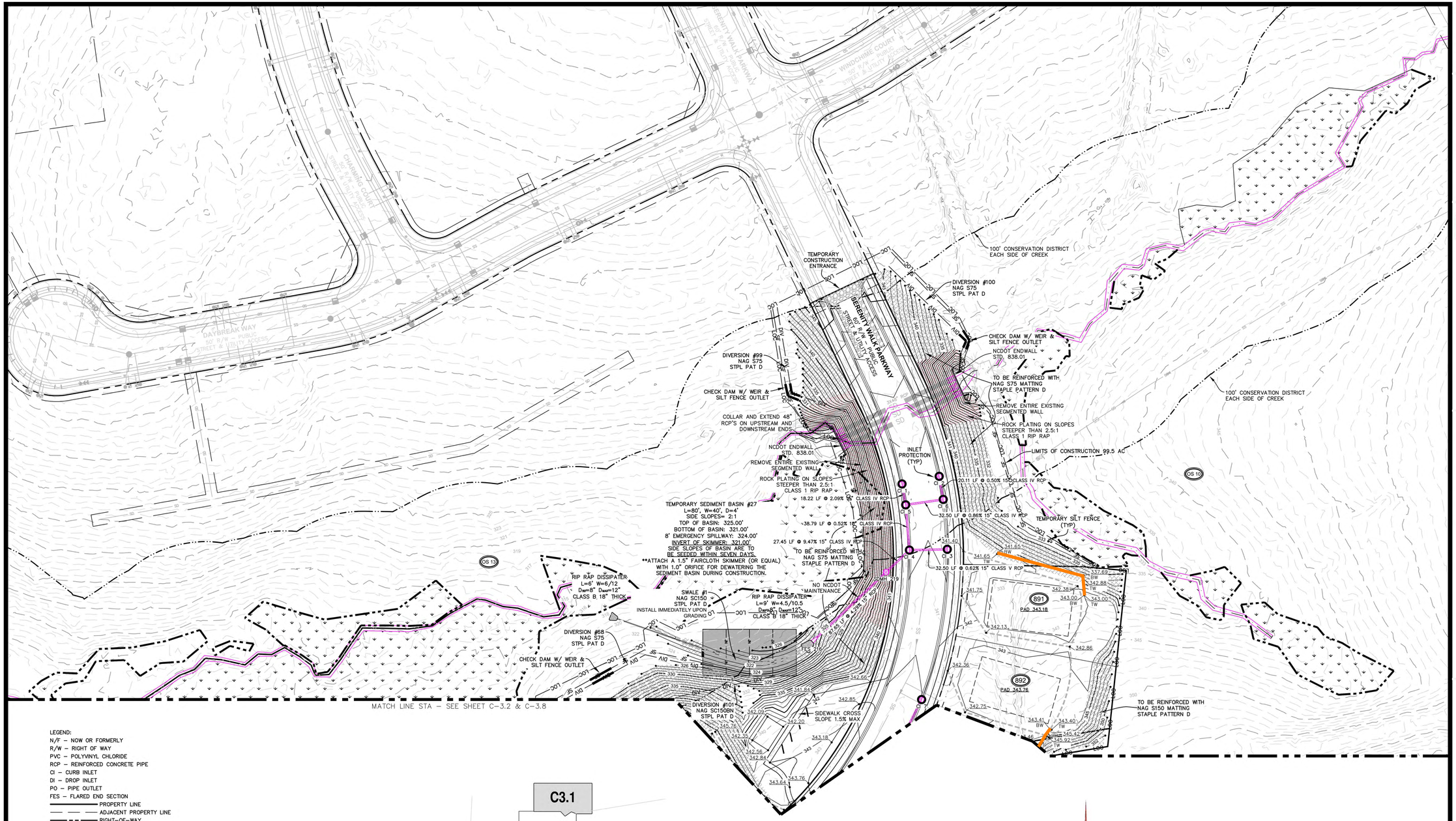
DATE: October 14, 2024
DES: TLH
CHECKED: KLY
APPROVED: MJM

SCALE
HORIZONTAL: N/A
VERTICAL: N/A

DRAWING NUMBER
C-14

SERENITY SUBDIVISION - PHASE 3- 5 RETAINING WALL CONSTRUCTION - HARNETT COUNTY, NORTH CAROLINA

VE PROJECT NO: 00240001 SERENITY SUBDIVISION - PHASE 3- 5



LEGEND:
N/F – NOW OR FORMERLY
R/W – RIGHT OF WAY
PVC – POLYVINYL CHLORIDE
RCP – REINFORCED CONCRETE PIPE
CI – CURB INLET
DI – DROP INLET
PO – PIPE OUTLET
FES – FLARED END SECTION
PROPERTY LINE
ADJACENT PROPERTY LINE
RIGHT-OF-WAY
SETBACK LINE
SS SANITARY SEWER LINE
W WATER LINE
CREEK
WETLANDS
PERMANENT EASEMENT
310 MAJOR CONTOUR
307 MINOR CONTOUR
208.47 SPOT ELEVATION
GAS VALVE
CATCH BASIN
DROP INLET
SANITARY SEWER MANHOLE
CLEANOUT
RIP RAP
CONCRETE
WETLANDS
TURF REINFORCEMENT MATTING
ACCESS/MAINTENANCE EASEMENT
PROPOSED EASEMENT
LOC LOC LIMITS OF CONSTRUCTION
SF SF SILT FENCE LINE
JN JN JUTE NETTING
INLET PROTECTION

811 Know what's below. Call before you dig.

SHEET KEY
C3.1
C3.2
C3.4
C3.3
C3.5
C3.6
C3.7

NC GRID NAD 83 (2011)

GRAPHIC SCALE
40 0 20 40 80 160
(IN FEET)
1 inch = 40 ft.

THE CONTRACTOR MUST CONTACT NORTH CAROLINA ONE CALL CENTER AT 1-800-632-4949 A MINIMUM OF 72 HOURS PRIOR TO DIGGING IN ORDER TO HAVE THE EXISTING UTILITIES LOCATED

I:\Greenfield Communities\1975-Serenity Subdivision\CIVIL ENGINEERING\1975 ESC&SW Sht.dwg • C3.1 ESC&SW • 9/18/2024 10:14:49 AM

4D site solutions
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NORTH CAROLINA PROFESSIONAL SEAL 027452 ENGINEER SCOTT BROWN
09-17-24

REVISIONS
ISSUED FOR CONSTRUCTION

PROJECT NAME
SERENITY SUBDIVISION PH 3-5

DETAILED GRADING AND EROSION CONTROL PLAN

CLIENT
GREENFIELD COMMUNITIES

8601 Six Forks Road - Suite 270
Raleigh, North Carolina 27615
Phone: (919) 630-6641

PROJECT INFORMATION

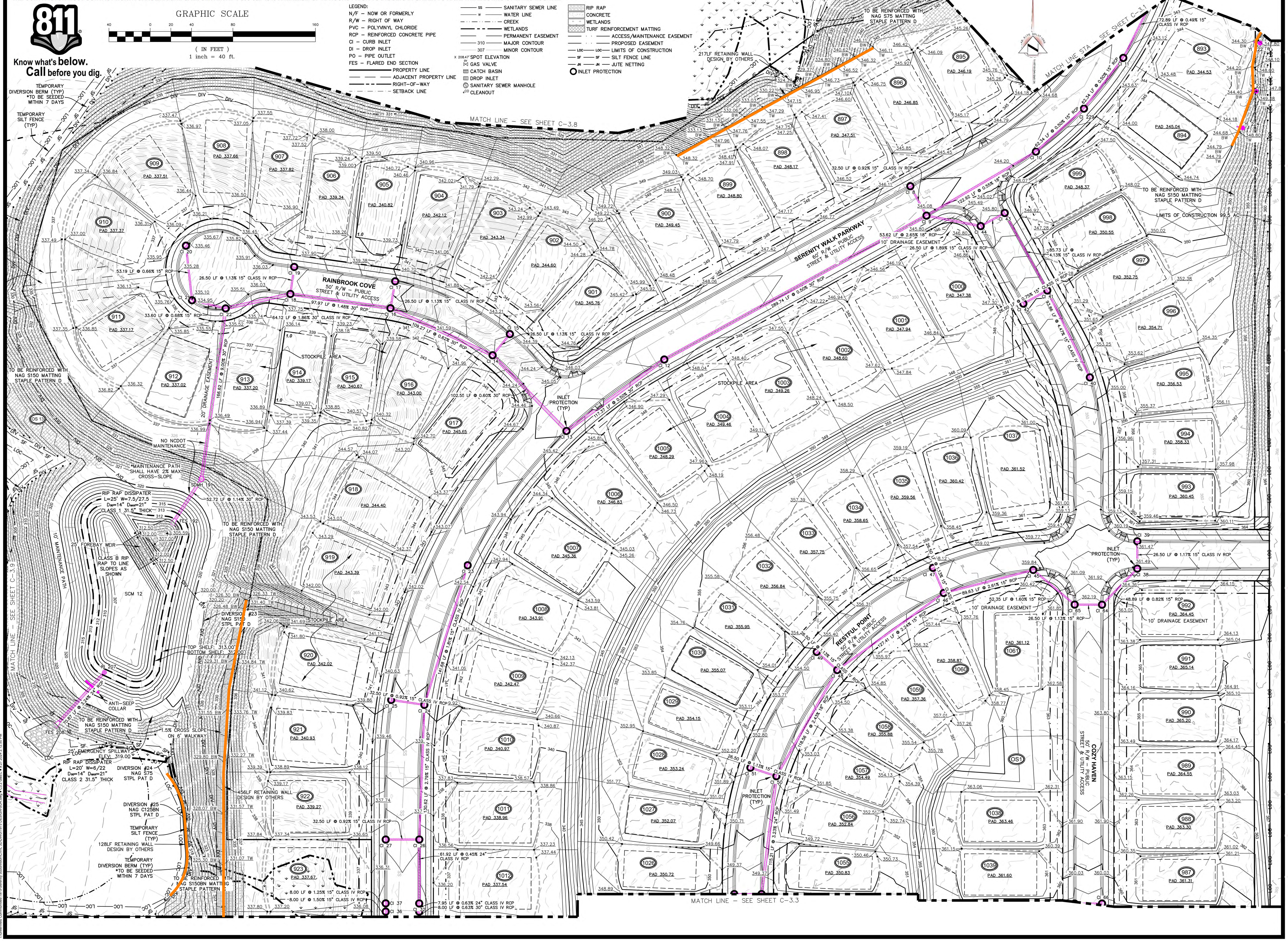
DESIGNED BY:	BRETT/CHRIS
DRAWN BY:	BRETT
CHECKED BY:	SCOTT
PROJECT NUMBER:	1975

DRAWING SCALE
HORIZONTAL: 1"=40'

DATE RELEASED
SEPTEMBER 17, 2024

SHEET NUMBER
C-3.1

THE CONTRACTOR MUST CONTACT NORTH CAROLINA ONE CALL CENTER AT 1-800-632-4949 A MINIMUM OF 72 HOURS PRIOR TO DIGGING IN ORDER TO HAVE THE EXISTING UTILITIES LOCATED



SERENITY SUBDIVISION PH 3-5

DETAILED GRADING AND EROSION CONTROL PLAN

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NORTH CAROLINA PROFESSIONAL SEAL 027452 ENGINEER C. SCOTT BROWN
09-17-24

REVISIONS

ISSUED FOR CONSTRUCTION

PROJECT NAME

SERENITY SUBDIVISION PH 3-5

CLIENT

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PROJECT INFORMATION

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CHECKED BY:	SCOTT
PROJECT NUMBER:	1975

DRAWING SCALE

HORIZONTAL: 1"=40'

DATE RELEASED

SEPTEMBER 17, 2024

SHEET NUMBER

C-3.2

THE CONTRACTOR MUST CONTACT NORTH CAROLINA ONE CALL CENTER AT 1-800-632-4949 A MINIMUM OF 72 HOURS PRIOR TO DIGGING IN ORDER TO HAVE THE EXISTING UTILITIES LOCATED

GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)
1 inch = 40 ft.

SHEET KEY

C3.1
C3.2
C3.4 C3.3
C3.5 C3.6
C3.7

4D SITE SOLUTIONS

NC GRID NAD 83 (2011)

MATCH LINE – SEE SHEET C-3.2

MATCH LINE – SEE SHEET C-3.9

MATCH LINE – SEE SHEET C-3.4

MATCH LINE – SEE SHEET C-3.5

MATCH LINE – SEE SHEET C-3.6

SERENITY WALK PARKWAY
60' R/W – PUBLIC
STREET & UTILITY ACCESS

RESTFUL POINT
50' R/W – PUBLIC
STREET & UTILITY ACCESS

REFLECTION PARKWAY
50' R/W – PUBLIC
STREET & UTILITY ACCESS

HAMMOCK POINT
50' R/W – PUBLIC
STREET & UTILITY ACCESS

COZY HAVEN
50' R/W PUBLIC
STREET & UTILITY ACCESS

PAINTED SKY LANE
50' R/W – PUBLIC
STREET & UTILITY ACCESS

10' DRAINAGE EASEMENT

LIMITS OF CONSTRUCTION 99.5 AC.

TEMPORARY INLET PROTECTION (TYP)

TIMBER GUARD RAIL

HEIGHT OF FOUNDATION WALL (TYP)

STOCKPILE AREA

TEMPO DIVERSION BERM
*TO BE SEEDED WITHIN 7 DAYS

TO BE REINFORCED WITH NAG SC250 MATTING

TO BE REINFORCED WITH NAG S150 MATTING STAPLE PATTERN D

ANTI-SEEP COLLAR

25' EMERGENCY SPILLWAY ELEV: 309.50

25' FOREBAY WEIR

SCM 14
331LF RETAINING WALL
DESIGN BY OTHERS
NO PORTION OF THE WALL SYSTEM MAY BE CLOSER THAN 5' TO THE R/W

CLASS B RIP RAP TO LINE SLOPES AS SHOWN

ALL RETAINING WALL TIE BACKS ARE TO BE 5' MINIMUM OUTSIDE OF THE R/W

SILT FENCE (TYP)

TOP SHELF: 303.50'
BOTTOM SHELF: 302.50'

SDMH 2

OS 1 OS 2 OS 3

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NORTH CAROLINA PROFESSIONAL SEAL 027462 ENGINEER SCOTT BROWN

09-17-24

REVISIONS

ISSUED FOR CONSTRUCTION

PROJECT NAME

SERENITY SUBDIVISION PH 3-5

DETAILED GRADING AND EROSION CONTROL PLAN

CLIENT

GREENFIELD COMMUNITIES

8601 Six Forks Road - Suite 270
Raleigh, North Carolina 27615
Phone: (919) 630-6641

PROJECT INFORMATION

DESIGNED BY:	BRETT/CHRIS
DRAWN BY:	BRETT
CHECKED BY:	SCOTT
PROJECT NUMBER:	1975

DRAWING SCALE

HORIZONTAL: 1"=40'

DATE RELEASED

SEPTEMBER 17, 2024

SHEET NUMBER

C-3.3

THE CONTRACTOR MUST CONTACT NORTH CAROLINA ONE CALL CENTER AT 1-800-632-4949 A MINIMUM OF 72 HOURS PRIOR TO DIGGING IN ORDER TO HAVE THE EXISTING UTILITIES LOCATED

LEGEND:
N/F – NOW OR FORMERLY
R/W – RIGHT OF WAY
PVC – POLYVINYL CHLORIDE
RCP – REINFORCED CONCRETE PIPE
CI – CURB INLET
DI – DROP INLET
PO – PIPE OUTLET
FES – FLARED END SECTION
PROPERTY LINE
ADJACENT PROPERTY LINE
RIGHT-OF-WAY
SETBACK LINE
SS SANITARY SEWER LINE
W WATER LINE
CREEK
WETLANDS
PERMANENT EASEMENT
310 MAJOR CONTOUR
307 MINOR CONTOUR
x 208.47 SPOT ELEVATION
GAS VALVE
CATCH BASIN
DROP INLET
SANITARY SEWER MANHOLE
CLEANOUT
RIP RAP
CONCRETE
WETLANDS
TURF REINFORCEMENT MATTING
ACCESS/MAINTENANCE EASEMENT
PROPOSED EASEMENT
LOC LOC LIMITS OF CONSTRUCTION
SF SF SILT FENCE LINE
JN JN JUTE NETTING
INLET PROTECTION

811 Know what's below. Call before you dig.

GRAPHIC SCALE
40 0 20 40 80 160
(IN FEET)
1 inch = 40 ft.

MATCH LINE – SEE SHEET C-3.4
MATCH LINE – SEE SHEET C-3.3
MATCH LINE – SEE SHEET C-3.6

STOCKPILE AREA

SILENT CREEK RUN
50' R/W – PUBLIC
STREET & UTILITY ACCESS

PAINTED SKY LANE
50' R/W – PUBLIC
STREET & UTILITY ACCESS

DIVERSION #36 NAG SC150BN STPL PAT D
CHECK DAM W/ WEIR & SILT FENCE OUTLET
DIVERSION #37 NAG SC150BN STPL PAT D
TEMPORARY DIVERSION BERM (TYP) *TO BE SEEDED WITHIN 7 DAYS
DIVERSION #27 NAG S150 STPL PAT D
TO BE REINFORCED WITH NAG SC250 PERMANENT MATTING & NO NCDOT MAINTENANCE
20' DRAINAGE EASEMENT
10' DRAINAGE EASEMENT
TEMPORARY INLET PROTECTION (TYP)
DIVERSION #48 NAG P300 STPL PAT D
DIVERSION BERM (TYP) *TO BE SEEDED WITHIN 7 DAYS
SWALE #2 NAG SC150 STPL PAT D INSTALL IMMEDIATELY UPON GRADING
TEMPORARY SEDIMENT TRAP #24 L=65', W=25', D=4' SIDE SLOPES= 2.5:1 TOP OF BASIN: 285.00' BOTTOM OF BASIN: 281.00' 8' EMERGENCY SPILLWAY: 284.00' SIDE SLOPES OF TRAP ARE TO BE SEEDED WITHIN SEVEN DAYS.
TEMPORARY SILT FENCE (TYP)
DIVERSION #38 NAG SC150BN STPL PAT D
DIVERSION #39 NAG S75BN STPL PAT D
PERMANENT WET POND #15
WATER SURFACE: 295.50'
HIGH WATER: 296.79' (1YR)
TOP OF POND: 302.00'
INVERT OF POND: 290.50'
RISER 3' X 4' (INSIDE DIMS)
TOP: 299.00'
INV: 295.50'
BLOCKING: 0.5'X4'X5'
*AFTER SITE IS STABILIZED CONVERT SEDIMENT BASIN TO PERMANENT WET POND AS SHOWN.
DIVERSION #40 NAG SC150 STPL PAT D
TEMPORARY SEDIMENT TRAP #25 L=55', W=23', D=5' SIDE SLOPES= 2.5:1 TOP OF BASIN: 273.00' BOTTOM OF BASIN: 268.00' 8' EMERGENCY SPILLWAY: 272.00' SIDE SLOPES OF TRAP ARE TO BE SEEDED WITHIN SEVEN DAYS.
200' CONSERVATION DISTRICT EACH SIDE OF CREEK
DIVERSION #41 NAG SC150BN STPL PAT D
LIMITS OF CONSTRUCTION 99.5 AC
*MAINTENANCE PATH SHALL HAVE 25% MAX CROSS-SLOPE
10' MAINTENANCE PATH
TEMPORARY SEDIMENT BASIN #15 L=270', W=135', D=11' SIDE SLOPES= 2:1 TOP OF BASIN: 302.00' BOTTOM OF BASIN: 291.00' 25' EMERGENCY SPILLWAY: 301.00' INVERT OF SKIMMER: 295.50' SIDE SLOPES OF BASIN ARE TO BE SEEDED WITHIN SEVEN DAYS. **ATTACH A 3" FAIRCLOTH SKIMMER (OR EQUAL) WITH 3" ORIFICE FOR DEWATERING THE SEDIMENT BASIN DURING CONSTRUCTION. REFERENCE STORM PROFILES FOR ADDITIONAL GRADING DETAIL FOR THE BASIN
DIVERSION #42 NAG S75 STPL PAT D
DIVERSION #43 NAG C125BN STPL PAT D
CHECK DAM W/ WEIR & SILT FENCE OUTLET
25' FOREBAY WEIR
CLASS B RIP RAP TO LINE SLOPES AS SHOWN
SCM 15
RIP RAP DISSIPATERS L=28' W=10.5/31.5 D=10" Dwe=15" CLASS 1 22.5" THICK
RIP RAP DISSIPATERS L=12' W=6/14 D=8" Dwe=12" CLASS B 18" THICK
RIP RAP DISSIPATERS L=24' W=9/27 D=10" Dwe=15" CLASS 1 22.5" THICK
ANTI-SEEP COLLAR
25' EMERGENCY SPILLWAY ELEV. 301.00
TOP SHELF: 296.00' BOTTOM SHELF: 295.00'
TEMPORARY SEDIMENT BASIN #20 L=70', W=30', D=3' SIDE SLOPES= 2.5:1 TOP OF BASIN: 275.00' BOTTOM OF BASIN: 271.00' 25' EMERGENCY SPILLWAY: 274.00' INVERT OF SKIMMER: 274.00' SIDE SLOPES OF BASIN ARE TO BE SEEDED WITHIN SEVEN DAYS. **ATTACH A 2.5" FAIRCLOTH SKIMMER (OR EQUAL) WITH 1.8" ORIFICE FOR DEWATERING THE SEDIMENT BASIN DURING CONSTRUCTION.
TO BE REINFORCED WITH NAG SC150BN MATTING STAPLE PATTERN C
TO BE REINFORCED WITH NAG S150BN MATTING STAPLE PATTERN C
DIVERSION #46 NAG SC250 STPL PAT D
RIP RAP DISSIPATER L=15' W=7.5/17.55 D=8" Dwe=12" CLASS B 18" THICK
SILT FENCE (TYP)
INLET PROTECTION (TYP)
NO NCDOT MAINTENANCE
10' DRAINAGE EASEMENT

SHEET KEY
C3.1
C3.2
C3.4 C3.3
C3.5 C3.6
C3.7

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www.4Dsitesolutions.com

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 027462 CHRISTOPHER SCOTT BRETT
09-17-24

REVISIONS
ISSUED FOR CONSTRUCTION

PROJECT NAME
SERENITY SUBDIVISION PH 3-5

DETAILED GRADING AND EROSION CONTROL PLAN

CLIENT
GREENFIELD COMMUNITIES

8601 Six Forks Road - Suite 270
Raleigh, North Carolina 27615
Phone: (919) 630-6641

PROJECT INFORMATION

DESIGNED BY:	BRETT/CHRIS
DRAWN BY:	BRETT
CHECKED BY:	SCOTT
PROJECT NUMBER:	1975

DRAWING SCALE
HORIZONTAL: 1"=40'

DATE RELEASED
SEPTEMBER 17, 2024

SHEET NUMBER
C-3.5

LEGEND:
N/F – NOW OR FORMERLY
R/W – RIGHT OF WAY
PVC – POLYVINYL CHLORIDE
RCP – REINFORCED CONCRETE PIPE
CI – CURB INLET
DI – DROP INLET
PO – PIPE OUTLET
FES – FLARED END SECTION
PROPERTY LINE
ADJACENT PROPERTY LINE
RIGHT-OF-WAY
SETBACK LINE
SANITARY SEWER LINE
WATER LINE
CREEK
WETLANDS
PERMANENT EASEMENT
310 MAJOR CONTOUR
307 MINOR CONTOUR
X 208.47' SPOT ELEVATION
GAS VALVE
CATCH BASIN
DROP INLET
SANITARY SEWER MANHOLE
CLEANOUT
RIP RAP
CONCRETE
WETLANDS
TURF REINFORCEMENT MATTING
ACCESS/MAINTENANCE EASEMENT
PROPOSED EASEMENT
LOC LIMITS OF CONSTRUCTION
SF SILT FENCE LINE
JN JUTE NETTING
INLET PROTECTION

4D SITE SOLUTIONS

NC GRID NAD 83 (2011)

SHEET KEY
C3.1
C3.2
C3.4
C3.3
C3.5
C3.6
C3.7

MATCH LINE – SEE SHEET C-2.3

MATCH LINE – SEE SHEET C-3.5

MATCH LINE – SEE SHEET C-3.7

TO BE REINFORCED WITH NAG SC250 MATTING

DIVERSION #49 NAG S75 STPL PAT D

CHECK DAM W/ WEIR & SILT FENCE OUTLET

SILT FENCE (TYP)

CHECK DAM W/ WEIR & SILT FENCE OUTLET

PERMANENT WET POND #14
WATER SURFACE: 303.00'
HIGH WATER: 304.75' (1YR)
TOP OF POND: 310.50'
INVERT OF POND: 297.50'
RISER 3' X 4' (INSIDE DIMS)
TOP: 308.30'
INV: 303.00'
BLOCKING: 1'X5'X4'
*AFTER SITE IS STABILIZED CONVERT SEDIMENT BASIN TO PERMANENT WET POND AS SHOWN.

DIVERSION #47 NAG SC150BN STPL PAT D

*MAINTENANCE PATH SHALL HAVE 2% MAX CROSS-SLOPE

DIVERSION #65 NAG SC150BN STPL PAT D

TEMPORARY SEDIMENT BASIN #14
L=215', W=130', D=12.5'
SIDE SLOPES= 2:1
TOP OF BASIN: 310.50'
BOTTOM OF BASIN: 298.00'
20' EMERGENCY SPILLWAY: 309.50'
INVERT OF SKIMMER: 303.50'
SIDE SLOPES OF BASIN ARE TO BE SEEDED WITHIN SEVEN DAYS.
**ATTACH A 3" FAIRCLOTH SKIMMER (OR EQUAL) WITH 2.9" ORIFICE FOR DEWATERING THE SEDIMENT BASIN DURING CONSTRUCTION. REFERENCE STORM PROFILES FOR ADDITIONAL GRADING DETAIL FOR THE BASIN

RIP RAP DISSIPATERS L=15' W=7.5/17.5 D=8" D50=12" CLASS B 18" THICK

RIP RAP DISSIPATERS L=22.5' W=10.5/31.5 D=10" D50=15" CLASS 1 22.5" THICK

10' MAINTENANCE PATH

FES 198

FES 210

NCDOT MAINTENANCE ENDS HERE

REMOVE ENTIRE EXISTING SEGMENTED WALL

ROCK PLATING ON SLOPES STEEPER THAN 2.5:1 CLASS 1 RIP RAP

NCDOT ENDWALL STD. 838.01

TO BE REINFORCED WITH NAG S75 MATTING STAPLE PATTERN D

26.50 LF @ 1.13% 15" CLASS IV RCP

40.00 LF @ 1.13% 18" CLASS IV RCP

83.03 LF @ 0.57% 24" RCP

128.03 LF @ 3.54% 18" CLASS IV RCP

LIMITS OF CONSTRUCTION 99.5 AC

100' CONSERVATION DISTRICT EACH SIDE OF CREEK

PARENT TRACT BOUNDARY

DIVERSION #50 NAG C125BN STPL PAT D

CHECK DAM W/ WEIR IN CENTER IN FRONT OF SILT FENCE OUTLET (TYP)

TO BE REINFORCED WITH NAG SC250 PERMANENT MATTING

TEMPORARY DIVERSION BERM TO BE REINFORCED WITH NAG S150BN MATTING STAPLE PATTERN D

DIVERSION #51 NAG S75 STPL PAT D

TEMPORARY SILT FENCE (TYP)

DIVERSION #66 NAG S75 STPL PAT D

TEMPORARY DIVERSION BERM TO BE SEEDED WITHIN 7 DAYS (TYP)

DIVERSION #52 NAG C125BN STPL PAT D

REFLECTION PARKWAY 50' R/W – PUBLIC STREET & UTILITY ACCESS

RAIN WATER RIDGE 50' R/W – PUBLIC STREET & UTILITY ACCESS

HEIGHT OF FOUNDATION WALL (TYP)

204LF RETAINING WALL DESIGN BY OTHERS

TEMPORARY INLET PROTECTION (TYP)

END CONSTRUCTION AT TOP OF SLOPE IMPROVEMENTS SHOWN ON SLOPE ARE FUTURE

10' DRAINAGE EASEMENT

48.44 LF @ 0.58% 15" CLASS IV RCP

230.84 LF @ 2.97% 15" CLASS IV RCP

104.35' LF @ 3.01% 15" CLASS IV RCP

26.50 LF @ 1.13% 15" CLASS IV RCP

PAD 314.92
PAD 317.48
PAD 319.03
PAD 319.85
PAD 321.02
PAD 322.97
PAD 322.23
PAD 324.61
PAD 324.94
PAD 326.48
PAD 322.71
PAD 321.25
PAD 319.85
PAD 318.15
PAD 316.45
PAD 314.70
PAD 312.99
PAD 311.24
PAD 314.46
PAD 316.15
PAD 322.43
PAD 326.49
PAD 324.76
PAD 328.36
PAD 327.72
PAD 328.46
PAD 328.20
PAD 327.00
PAD 325.20
PAD 322.88

811 Know what's below. Call before you dig.

GRAPHIC SCALE
40 0 20 40 80 160
(IN FEET)
1 inch = 40 ft.

THE CONTRACTOR MUST CONTACT NORTH CAROLINA ONE CALL CENTER AT 1-800-632-4949 A MINIMUM OF 72 HOURS PRIOR TO DIGGING IN ORDER TO HAVE THE EXISTING UTILITIES LOCATED

I:\Greenfield Communities\1975 Serenity Subdivision\CIVIL 3D\DWG\1975 DESIGN4 SUR.dwg • C3.6 GMD • 9/18/2024 4:09:59 AM

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NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 027462 SCOTT BROWN
09-17-24

REVISIONS
ISSUED FOR CONSTRUCTION

PROJECT NAME
SERENITY SUBDIVISION PH 3-5

DETAILED GRADING AND EROSION CONTROL PLAN

CLIENT
GREENFIELD COMMUNITIES

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Raleigh, North Carolina 27615
Phone: (919) 630-6641

PROJECT INFORMATION

DESIGNED BY:	BRETT/CHRIS
DRAWN BY:	BRETT
CHECKED BY:	SCOTT
PROJECT NUMBER:	1975

DRAWING SCALE
HORIZONTAL: 1"=40'

DATE RELEASED
SEPTEMBER 17, 2024

SHEET NUMBER
C-3.6

THE CONTRACTOR MUST CONTACT NORTH CAROLINA ONE CALL CENTER AT 1-800-632-4949 A MINIMUM OF 72 HOURS PRIOR TO DIGGING IN ORDER TO HAVE THE EXISTING UTILITIES LOCATED

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civil engineering | land surveying
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www.4Dsitesolutions.com

NORTH CAROLINA PROFESSIONAL SEAL 027452 ENGINEER SCOTT BROWN
09-17-24

REVISIONS

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PROJECT NAME

SERENITY SUBDIVISION PH 3-5

DETAILED GRADING AND EROSION CONTROL PLAN

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GREENFIELD COMMUNITIES

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CHECKED BY:	SCOTT
PROJECT NUMBER:	1975

DRAWING SCALE

HORIZONTAL: 1"=40'

DATE RELEASED

SEPTEMBER 17, 2024

SHEET NUMBER

C-3.7

THE CONTRACTOR MUST CONTACT NORTH CAROLINA ONE CALL CENTER AT 1-800-632-4949 A MINIMUM OF 72 HOURS PRIOR TO DIGGING IN ORDER TO HAVE THE EXISTING UTILITIES LOCATED

LEGEND:
N/F – NOW OR FORMERLY
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PVC – POLYVINYL CHLORIDE
RCP – REINFORCED CONCRETE PIPE
CI – CURB INLET
DI – DROP INLET
PO – PIPE OUTLET
FES – FLARED END SECTION
PROPERTY LINE
ADJACENT PROPERTY LINE
RIGHT-OF-WAY
SETBACK LINE
SS SANITARY SEWER LINE
W WATER LINE
CREEK
WETLANDS
PERMANENT EASEMENT
310 MAJOR CONTOUR
307 MINOR CONTOUR
x 208.47 SPOT ELEVATION
GAS VALVE
CATCH BASIN
DROP INLET
SANITARY SEWER MANHOLE
CLEANOUT
RIP RAP
CONCRETE
WETLANDS
TURF REINFORCEMENT MATTING
ACCESS/MAINTENANCE EASEMENT
PROPOSED EASEMENT
LOC LIMITS OF CONSTRUCTION
SF SILT FENCE LINE
JN JUTE NETTING
INLET PROTECTION

SHEET KEY
C3.1
C3.2
C3.4
C3.3
C3.5
C3.6
C3.7

4D SITE SOLUTIONS
NC GRID NAD 83 (2011)

811 Know what's below. Call before you dig.

GRAPHIC SCALE
40 0 20 40 80 160
(IN FEET)
1 inch = 40 ft.

INSET FOR EXPANDED VIEW OF SHEET C3.2 & C3.4

10' STORM DRAIN MAINTENANCE AND ACCESS EASEMENT
DIVERSION #69 NAG S150BN STPL PAT D
53.19 LF @ 0.66% 15" RCP
26.50 LF @ 1.13% 15" CLASS IV RCP
33.60 LF @ 0.68% 15" RCP
164.12 LF
911 PAD 337.17
912 PAD 337.02
913 PAD 337.20
20' DRAINAGE EASEMENT
155.62 LF @ 8.00% 30" RCP
TO BE REINFORCED WITH NAG S150 MATTING STAPLE PATTERN D
CHECK DAM W/ WEIR & SILT FENCE OUTLET
NO NCDOT MAINTENANCE
*MAINTENANCE PATH SHALL HAVE 2% MAX CROSS-SLOPE
SCM 11
TEMPORARY SEDIMENT BASIN #12
L=230', W=100', D=13'
SIDE SLOPES= 2:1
TOP OF BASIN: 320.00'
BOTTOM OF BASIN: 307.00'
25' EMERGENCY SPILLWAY: 319.00'
INVERT OF SKIMMER: 312.50'
SIDE SLOPES OF BASIN ARE TO BE SEEDED WITHIN SEVEN DAYS.
**ATTACH A 3' FAIRCLOTH SKIMMER (OR EQUAL) WITH 2.5" ORIFICE FOR DEWATERING THE SEDIMENT BASIN DURING CONSTRUCTION.
REFERENCE STORM PROFILES FOR ADDITIONAL GRADING DETAIL FOR THE BASIN
DIVERSION #21 NAG SC150BN STPL PAT D
PERMANENT WET POND #12
WATER SURFACE: 312.50'
HIGH WATER: 313.98' (1YR)
*TOP OF POND: 320.00'
INVERT OF POND: 306.50'
RISER 3' X 4' (INSIDE DIMS)
*TOP: 318.00'
INV: 312.50'
+BLOCKING: 2"X4"X5'
*AFTER SITE IS STABILIZED CONVERT SEDIMENT BASIN TO PERMANENT WET POND AS SHOWN.
RIP RAP DISSIPATER L=25' W=7.5/27.5 Dwp=14" Dwp=21" CLASS 1 31.5" THICK
52.72 LF @ 1.14% 30" RCP
FES 122
25' FOREBAY WEIR
CLASS B RIP RAP TO LINE SLOPES AS SHOWN
10' MAINTENANCE PATH
SCM 12
TO BE REINFORCED WITH NAG S150 MATTING STAPLE PATTERN D
CHECK DAM W/ WEIR IN CENTER IN FRONT OF SILT FENCE OUTLET (TYP)
DIVERSION #22 NAG S150 STPL PAT D
TOP SHELF: 313.00' BOTTOM SHELF: 312.00'
DIVERSION #23 NAG S150 STPL PAT D
ANTI-SEEP COLLAR
TO BE REINFORCED WITH NAG S150 MATTING STAPLE PATTERN D
1.5% CROSS SLOPE ON 6' WALKWAY
SCM 13
EMERGENCY SPILLWAY ELEV: 319.00
RIP RAP DISSIPATER L=20' W=6/22 Dwp=14" Dwp=21" CLASS 2 31.5" THICK
DIVERSION #25 NAG S75 STPL PAT D
DIVERSION #25 NAG C125BN STPL PAT D
TEMPORARY SILT FENCE (TYP)
128LF RETAINING WALL DESIGN BY OTHERS
TEMPORARY DIVERSION BERM (TYP) *TO BE SEEDED WITHIN 7 DAYS
TO BE REINFORCED WITH NAG S150BN MATTING STAPLE PATTERN C
456LF RETAINING WALL DESIGN BY OTHERS
SEE SHEET C-3.2
MATCH LINE – SEE SHEET C-3.3
MATCH LINE – SEE SHEET C-3.4
TEMPORARY SEDIMENT BASIN #13
L=305', W=120', D=13'
SIDE SLOPES= 2:1
TOP OF BASIN: 315.00'
BOTTOM OF BASIN: 302.00'
20' EMERGENCY SPILLWAY: 314.00'
INVERT OF SKIMMER: 307.50'
SIDE SLOPES OF BASIN ARE TO BE SEEDED WITHIN SEVEN DAYS.
**ATTACH A 4' FAIRCLOTH SKIMMER (OR EQUAL) WITH 3.5" ORIFICE FOR DEWATERING THE SEDIMENT BASIN DURING CONSTRUCTION.
REFERENCE STORM PROFILES FOR ADDITIONAL GRADING DETAIL FOR THE BASIN
CHECK DAM W/ WEIR & SILT FENCE OUTLET (TYP)
PERMANENT WET POND #13
WATER SURFACE: 307.50'
HIGH WATER: 309.42' (1YR)
TOP OF POND: 315.00'
INVERT OF POND: 301.50'
RISER 3' X 4' (INSIDE DIMS)
TOP: 312.50'
INV: 307.50'
BLOCKING: 1"X5"X4'
*AFTER SITE IS STABILIZED CONVERT SEDIMENT BASIN TO PERMANENT WET POND AS SHOWN.
DIVERSION #26 NAG C125BN STPL PAT D
DIVERSION #29
DIVERSION #30 NAG S75 STPL PAT D
TEMPORARY DIVERSION BERM (TYP) *TO BE SEEDED WITHIN 7 DAYS
TO BE REINFORCED WITH NAG S75 MATTING STAPLE PATTERN D
20' EMERGENCY SPILLWAY ELEV: 314.00
DIVERSION #31 NAG SC150 STPL PAT D
RIP RAP DISSIPATER L=40' W=12/44 Dwp=14" Dwp=21" CLASS 2 31.5" THICK
CLASS B RIP RAP TO LINE SLOPES AS SHOWN
*MAINTENANCE PATH SHALL HAVE 2% MAX CROSS-SLOPE
30' FOREBAY WEIR
TOP SHELF: 308.00' BOTTOM SHELF: 307.00'
76.77 LF @ 5.80% 42" RCP
FES 206
RIP RAP DISSIPATER L=35' W=10.5/38.5 Dwp=14" Dwp=21" CLASS 2 31.5" THICK
SILT FENCE OUTLET (TYP)
TEMPORARY DIVERSION BERM (TYP) *TO BE SEEDED WITHIN 7 DAYS
TO BE REINFORCED WITH NAG S150BN MATTING STAPLE PATTERN C
*456LF RETAINING WALL DESIGN BY OTHERS
1.5% CROSS SLOPE ON 5' WALKWAY
DIVERSION #28 NAG S150 STPL PAT D
LIMITS OF CONSTRUCTION 99.5 AC
DIVERSION #32 NAG C125BN STPL PAT D
200' CONSERVATION DISTRICT EACH SIDE OF CREEK
PAD 320.66
PAD 320.64
940
939
NO NCDOT MAINTENANCE
SCM 14
90.06 LF @ 1.80% 54" RCP

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NORTH CAROLINA PROFESSIONAL SEAL 027462 ENGINEER SCOTT BROWN
09-17-24

REVISIONS
ISSUED FOR CONSTRUCTION

PROJECT NAME
SERENITY SUBDIVISION PH 3-5

DETAILED GRADING AND EROSION CONTROL PLAN

CLIENT
GREENFIELD COMMUNITIES

8601 Six Forks Road - Suite 270
Raleigh, North Carolina 27615
Phone: (919) 630-6641

PROJECT INFORMATION

DESIGNED BY:	BRETT/CHRIS
DRAWN BY:	BRETT
CHECKED BY:	SCOTT
PROJECT NUMBER:	1975

DRAWING SCALE
HORIZONTAL: 1"=40'

DATE RELEASED
SEPTEMBER 17, 2024

SHEET NUMBER
C-3.9