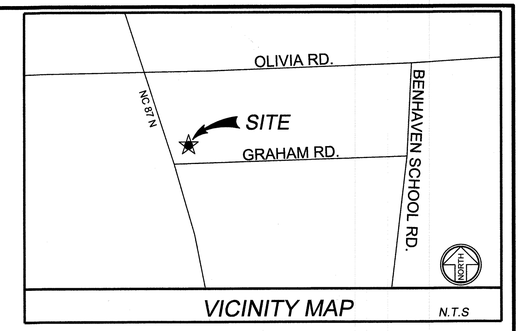
3D COMMUNITY CHURCH

SITE DEVELOPMENT PLANS



2020 HRW REQUIRED UTILITY NOTES
(Revision 8 – March 2020)

The following utility notes should be added to the coversheet of utility plans for projects located in Harnett County:

WATER

A. The Fire Marshal's Office shall approve all hydrant types and locations in new subdivisions. However, Harnett Regional Water (HRW) prefers the contractors to install one of the following fire hydrants:
1. **Mueller - Super Centurion 250 A-423 model with a 5¼" main valve opening three way (two hose nozzles and one pumper nozzle);**
2. **American Darling - Mark B-84-B model with a 5¼" main valve opening three way (two hose nozzles and one pumper nozzle);**
3. **Waterous - Pacer B-67-250 model with a 5¼" main valve opening three way (two hose nozzles and one pumper nozzle) or approved equal for standardization.**

B. Fire hydrants are installed at certain elevations. Any grade change near any fire hydrant, which impedes its operation, shall become the responsibility of the Utility Contractor for correction. Corrections will be monitored by the HRW Utility Construction Inspector and the Harnett County Fire Marshal.

C. The Professional Engineer (PE) shall obtain and provide the NCDEQ "Authorization to Construct" permit to the Utility Contractor before the construction of the water line shall begin. The Utility Contractor must post a copy of the NCDEQ "Authorization to Construct" permit issued by the North Carolina Department of Environmental Quality (NCDEQ) on site prior to the start of construction. The permit must be maintained on site throughout the entire construction process of the proposed water lines that will serve this project.

D. The Utility Contractor shall notify Harnett Regional Water (HRW) and the Professional Engineer (PE) at least two days prior to construction commencing. The Utility Contractor must schedule a pre-construction conference with Mr. Alan Moss, HRW Utility Construction Inspector at least two (2) days before construction will begin and the Utility Contractor must coordinate with HRW for regular inspection visitations and acceptance of the water system(s). Construction work shall be performed only during the normal working hours of HRW which is 8:00 am – 5:00 pm Monday through Friday. Holiday and weekend work is not permitted by HRW.

E. The Professional Engineer (PE) shall provide HRW and the Utility Contractor with a set of NCDEQ approved plans marked "Released for Construction" at least two days prior to construction commencing. The Registered Land Surveyor (RLS) should stake out all lot corners and the grade stakes for the proposed finish grade for each street before the Utility Contractor begins construction of the water line(s). The grade stakes should be set with a consistent offset from the street centerline so as not to interfere with the street grading and utility construction.

F. The Utility Contractor shall provide the HRW Utility Construction Inspector with material submittals and shop drawings for all project materials prior to the construction of any water line extension(s), and associated water services in Harnett County. The materials to be used on the project must meet the established specifications of HRW and be approved by the Engineer of Record prior to construction. All substandard materials or materials not approved for use in Harnett County found on the project site must be removed immediately when notified by the HRW Utility Construction Inspector.

G. The water main(s), fire hydrants, service lines, meter setters and all associated appurtenances shall be constructed in strict in accordance with the standard specifications of the Harnett Regional Water (HRW). The Utility Contractor shall be responsible to locate the newly installed water main(s), water service lines and all associated meter setters and meter boxes for other utility companies and their contractors until the new water main(s) have been approved by the North Carolina Department of Environmental Quality, Division of Environmental Health, Public Water Supply Section (NCDEQ, DEH, PWS) and accepted by HRW.

H. Prior to acceptance, all services will be inspected to insure that they are installed at the proper depth. All meter boxes must be flush with the ground level at finish grade and the meter setters must be a minimum of 8" below the meter box lid. Meter setters shall be centered in the meter box and supported by brick, block or stone.

I. The Utility Contractor shall provide the Professional Engineer (PE) and HRW Utility Construction Inspector with a set of red line drawings identifying the complete water system installed for each project. The red line drawings should identify the materials, pipe sizes and approximate depths of the water lines as well as the gate valves, fire hydrants, meter setters, blow off assemblies and all associated appurtenances for all water line(s) constructed in Harnett County. The red line drawings should clearly identify any deviations from the NCDEQ approved plans. All change orders must be approved by HRW and the Professional Engineer (PE) in writing and properly documented in the red line field drawings.

J. Potable water mains crossing other utilities and non-potable water lines (sanitary sewer, storm sewer, RCP, etc.) shall be laid to provide a minimum vertical distance of twenty-four (24") inches between the potable water main and all other utilities. NCDOT requires the new water mains to be installed under the storm water lines. The potable water main shall be installed with twenty-four (24") inches of vertical separation and with ductile iron pipe when designed to be placed under a non-potable water line such as sanitary sewer or storm sewer lines. If these separations cannot be maintained then the water main shall be installed with ductile iron pipe. Both the potable water main and the non-potable water line must be cast iron or ductile iron pipe (DIP) if the state minimum separations cannot be maintained. The ductile iron pipe must be laid so the mechanical joints are at least (10') feet from the point where the potable water main crosses the non-potable water line.

K. Potable water mains installed parallel to non-potable water lines (sanitary sewer, storm sewer, RCP, etc.) shall be laid to provide a minimum horizontal distance of ten (10') feet between the potable water main and sanitary sewer mains, sewer laterals and services. The horizontal separation between the potable water main and any other utility or storm sewer shall not be less than five (5') feet. The potable water main must be ductile iron pipe if this horizontal separation of ten (10') feet cannot be maintained. The ductile iron pipe shall extend at least ten (10') feet beyond the point where the minimum required horizontal separation of ten (10') feet can be re-established.

L. Meter setters shall be installed in pairs on every other lot line where possible to leave adequate space for other utilities to be installed at a later time. The meter setters shall be installed at least one (1') foot inside the right-of-way and at least three (3') to five (5') feet from the property line between the lots.

M. HRW requires that meter boxes for ¾" services shall be 12" wide x 17" long ABS plastic boxes at least 18" in height with cast iron lids/covers. Meter boxes for 1" services shall be 17" wide x 21" long ABS plastic boxes at least 18" in height with plastic lids and cast iron flip covers in the center of the lids. Meter boxes for 2" services shall be 20" wide x 32" long ABS plastic boxes at least 20" in height with plastic lids and cast iron flip covers in the center of the lids.

N. Master meters must be installed in concrete vaults sized for the meter assembly and associated appurtenances so as to provide at least eighteen (18") inches of clearance between the bottom of the concrete vault and the bottom of the meter setter. The master meter must be provided test ports if the meter is not equipped with test ports from the manufacturer in accordance with the HRW established standard specifications and details. Ductile iron pipe must be used for the master meter vault piping and valve vault piping. The Utility Contractor must provide shop drawings for the meter vaults to HRW prior to ordering the concrete vaults.

O. The Utility Contractor will install polyethylene SDR-9 water service lines that cross under the pavement inside a schedule 40 PVC conduit to allow for removal and replacement in the future. Two (2) independent ¾" water service lines may be installed inside one (1) – two (2") inch schedule 40 PVC conduit or two (2) independent 1" water service lines may be installed inside one (1) – three (3") inch schedule 40 PVC conduit, but each water service shall be tapped directly to the water main. Split services are not allowed by HRW. If sidewalks are proposed, the conduit must extend past the sidewalk.

P. The water main(s), fire hydrants, gate valves, service lines, meter setters and associated appurtenances must be rated for 200 psi and hydrostatically pressure tested to 200 psi. The hydrostatic pressure test(s) must be witnessed by the HRW Utility Construction Inspector. The Utility Contractor must notify HRW when they are ready to begin filling in lines and coordinate with Harnett Regional Water to witness all pressure testing.

Q. The Utility Contractor shall conduct a pneumatic pressure test using compressed air or other inert gas on the stainless steel tapping sleeve(s) prior to making the tap on the existing water main. This pneumatic pressure test must be witnessed by the HRW Utility Construction Inspector. The Utility Contractor shall use Romac brand stainless steel tapping sleeve(s) or approved equal for all taps made in Harnett County. All new water line extensions must begin with a resilient wedge type gate valve sized equal to the diameter of the new water line extension in order to provide a means of isolation between Harnett Regional Water's existing water mains and the new water line extensions under construction.

R. All water mains will be constructed with SDR-21 PVC Pipe or Class 50 Ductile Iron Pipe rated for at least 200 psi or greater. All pipes must be protected during loading, transport, unloading, staging, and installation. PVC pipe must be protected from extended exposure to sunlight prior to installation.

S. All water mains will be flushed and disinfected in strict accordance with the standard specifications of the Harnett Regional Water. All water samples collected for bacteria testing will be collected by the HRW Utility Construction Inspector and tested in the HRW Laboratory.

T. All fittings larger than two (2") inches diameter shall be ductile iron. HRW requires that mechanical joints be assembled with grip rings as "Megalug" fittings are not approved by Harnett Regional Water for pipe sizes smaller than twelve inches (12") diameter. PVC pipe used for water mains shall be connected by slip joint or mechanical joint with grip rings. Glued pipe joints are not allowed on PVC pipe used for water mains in Harnett County.

U. HRW requires that the Utility Contractor install tracer wire in the trench with all water lines. The tracer wire shall be 12 ga. insulated, solid copper conductor and it shall be terminated at the top of the valve boxes or manholes. No spliced wire connections shall be made underground on tracer wire installed in Harnett County. The tracer wire may be secured with duct tape to the top of the pipe before backfilling.

V. The Utility Contractor will provide Professional Engineer (PE) and the HRW Utility Construction Inspector with a set of red line field drawings to identify the installed locations of the water line(s) and all associated services. All change orders must be pre-approved by HRW and the Professional Engineer (PE) in writing and properly documented in the red line field drawings.

W. The Utility Contractor shall spot dig to expose each utility pipe or line which may conflict with construction of proposed water line extensions well in advance to verify locations of the existing utilities. The Utility Contractor shall provide both horizontal and vertical clearances to the Professional Engineer (PE) to allow the PE to adjust the water line design in order to avoid conflicts with existing underground utilities. The Utility Contractor shall coordinate with the utility owner and be responsible for temporary relocation and/or securing existing utility poles, pipes, wires, cables, signs and/or utilities including services in accordance with the utility owner requirements during water line installation, grading and street construction.

X. Prior to the commencement of any work within established utility easements or NCDOT right-of-ways the Utility Contractor is required to have a signed NCDOT encroachment agreement posted on site and notify all concerned utility companies in accordance with G.S. 87-102. The Utility Contractor must call the NC One Call Center at 811 or (800) 632-4949 to verify the location of existing utilities prior to the beginning of construction. Existing utilities shown in these plans are taken from maps furnished by various utility companies and have not been physically located or verified by the P.E. (i.e. TELEPHONE, CABLE, WATER, SEWER, ELECTRICAL POWER, FIBER OPTIC, NATURAL GAS, ETC.). The Utility Contractor will be responsible to repair any and all damages to the satisfaction of the related utility company.

Y. The Utility Contractor shall provide HRW with at least one (1) fire hydrant wrench and one (1) break-away flange kit for every subdivision with fire hydrants developed in Harnett County. These items must be provided to HRW before the final inspection will be scheduled by the HRW Utility Construction Inspector. In addition, the Utility Contractor shall install a 4" x 4" concrete valve marker at the edge of the right-of-way to identify the location of each gate valve installed in the new water system with the exception of the fire hydrant isolation valves. The contractor shall measure the distance from the center of the concrete marker to the center of the valve box. This distance (in linear feet) shall be stamped on the brass plate located on the top of the concrete valve marker. In lieu of installing the concrete valve markers, the Utility Contractor may provide at least two measurements from two independent permanent above ground structures to the Professional Engineer (PE) in the red line drawings to identify the valve locations. The Professional Engineer (PE) must include these measurements in the As-Built Record Drawings submitted to HRW.

Z. The Utility Contractor will be responsible for any and all repairs due to leakage damage from poor workmanship during the one (1) year warranty period once the water system improvements have been accepted by Harnett Regional Water. Harnett Regional Water will provide maintenance and repairs when requested and bill the Developer and/or Utility Contractor if necessary due to lack of response within 48 hours of notification of warranty work. The Utility Contractor will be responsible for any and all repairs due to damages resulting from failure to locate the new water lines and associated appurtenances for other utilities and their contractors until the water lines have been approved by NCDEQ and accepted by HRW. The final inspection of water system improvements cannot be scheduled with HRW until the streets have been paved; the rights-of-way and utility easements have been seeded and stabilized with an adequate stand of grass in place to prevent erosion issues on site.

AA The Engineer of Record is responsible to insure that construction is, at all times, in compliance with accepted sanitary engineering practices and approved plans and specifications. No field changes to the approved plans are allowed without prior written approval by HRW. A copy of each engineer's field report is to be submitted to HRW as each such inspection is made on system improvements or testing is performed by the contractor. Water and sewer infrastructure must pass all tests required by HRW specifications and those of all applicable regulatory agencies. These tests include, but are not limited to: air test, vacuum test, mandrel test, visual test, pressure test, bacteriological test, etc. A HRW Inspector must be present during testing and all test results shall be submitted to HRW. All tests must be satisfied before the final inspection will be scheduled with the HRW Inspector. The Engineer of Record must request in writing to schedule the final inspection once all construction is complete. The Developer's Engineer of Record and the HRW Utility Construction Inspector shall prepare a written punch list of any defects or deficiencies noted during the final inspection, should any exist. Upon completion of the punch list, the Developer's Engineer of Record will schedule another inspection. In the event the number of inspections performed by the HRW exceeds two, additional fees may be accessed to the Developer.

SHEET SCHEDULE			
SHEET TITLE	**SHEET NO:**	**ORIGINAL DATE**	**LATEST REVISION DATE**
COVER SHEET	1	JANUARY 13, 2021	FEBRUARY 10, 2021
EXISTING CONDITION	2	JANUARY 13, 2021	FEBRUARY 10, 2021
OVERALL SITE LAYOUT PLAN	3	JANUARY 13, 2021	FEBRUARY 10, 2021
INITIAL EROSION AND SED. CONTROL PLAN	4	JANUARY 13, 2021	
INTERMEDIATE ERO. AND SED. CONTROL PLAN	5	JANUARY 13, 2021	FEBRUARY 10, 2021
FINAL EROSION AND SED. CONTROL PLAN	6	JANUARY 13, 2021	FEBRUARY 10, 2021
SEDIMENT AND EROSION CONTROL NARRATIVE	7	JANUARY 13, 2021	
NCGO1 GROUND STABILIZATION AND MATERIALS HANDLING PLAN SHEET	8	JANUARY 13, 2021	
NCGO1 SELF-INSPECTION, RECORDKEEPING AND REPORTING PLAN SHEET	8.1	JANUARY 13, 2021	
SEDIMENT AND EROSION CONTROL DETAILS	8.2	JANUARY 13, 2021	
SEDIMENT AND EROSION CONTROL DETAILS	8.3	JANUARY 13, 2021	
SITE HORIZONTAL CONTROL PLAN	9	JANUARY 13, 2021	FEBRUARY 10, 2021
GRADING AND DRAINAGE PLAN	10	JANUARY 13, 2021	FEBRUARY 10, 2021
WATER LINE PLAN AND PROFILE	11	JANUARY 13, 2021	FEBRUARY 10, 2021
WATER LINE DETAILS	12	JANUARY 13, 2021	
LANDSCAPE PLAN	13	JANUARY 13, 2021	FEBRUARY 10, 2021
SWALE DRAINAGE MAP	D1	JANUARY 13, 2021	

REVISION OCCURRENCE LIST

1	2/10/2021	PER HARNETT COUNTY DRB REVIEW COMMENTS
REVISION NO.	DATE	REVISION DESCRIPTION

THIS SET IS CURRENT THROUGH SHEET DATED: FEBRUARY 10, 2021

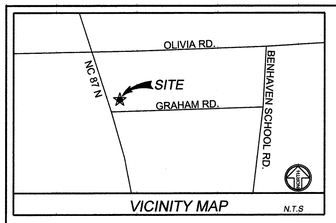
NORTH CAROLINA PROFESSIONAL SEAL 035670 ENGINEER JAMES E. HILLIARD

2/16/21

AS OWNER OF RECORD, I HEREBY FORMALLY CONSENT TO THE PROPOSED DEVELOPMENT SHOWN ON THIS SITE PLAN AND ALL REGULATIONS AND REQUIREMENTS OF THE HARNETT COUNTY ORDINANCES.

SIGNED: _____

HILLIARD ENGINEERING, PLLC
749 Walker Road, Sanford, NC 27332
PO Box 249, Sanford, NC 27331
Phone: (919) 352-2834
e-mail: jhilliard@hilliardengineering.com
NC License #: P-0836

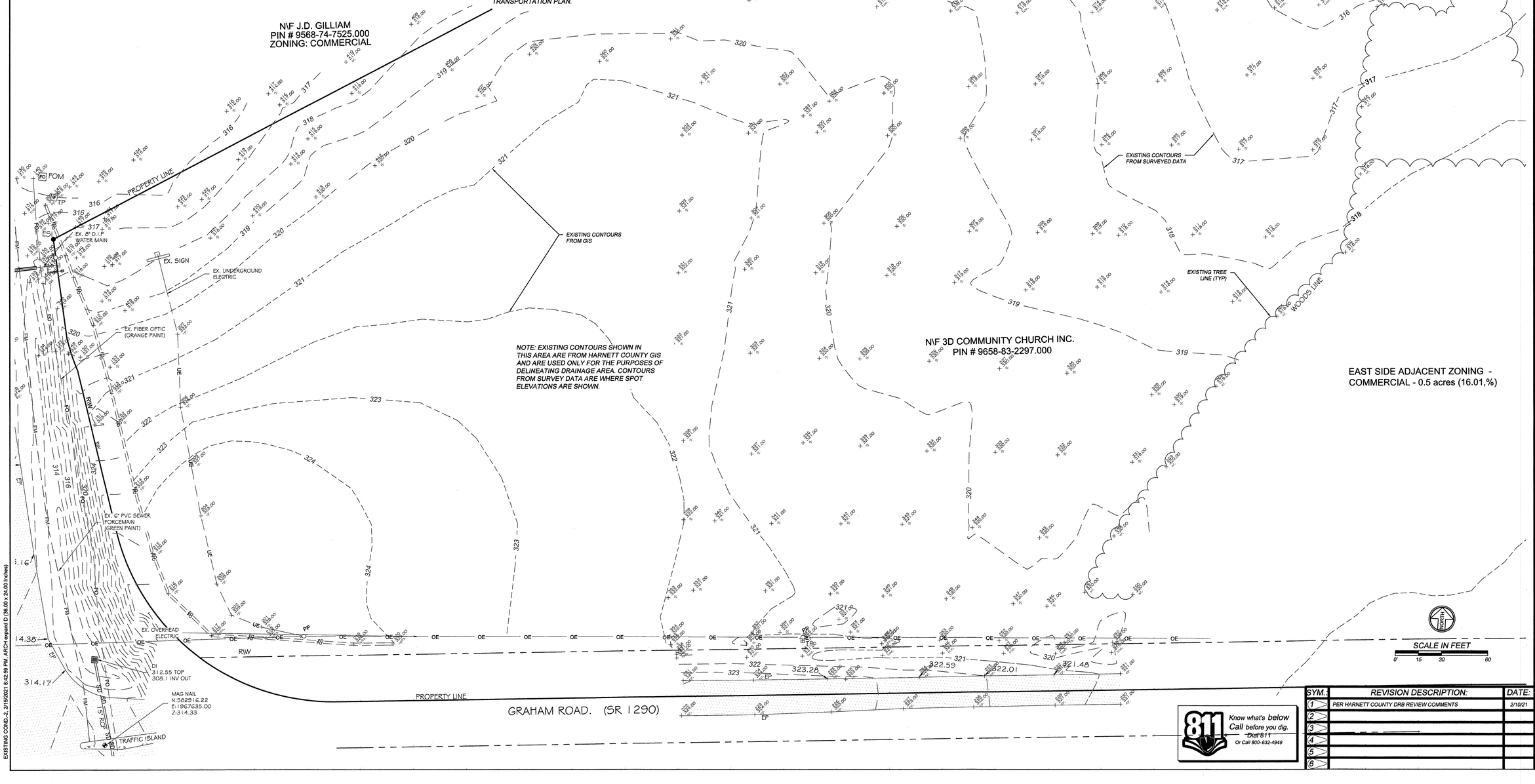


GENERAL NOTES:

1. THE GENERAL CONTRACTOR SHALL VERIFY AND BE RESPONSIBLE FOR ALL DIMENSIONS AT THE JOB SITE.
2. ALL UTILITIES OR STRUCTURES NOT INDICATED FOR REMOVAL OR MODIFICATION ARE TO REMAIN AND BE PROTECTED FROM DAMAGE.
3. ALL WASTE MATERIAL GENERATED FROM CLEARING AND DEMOLITION ACTIVITIES SHALL BE DISPOSED OFF-SITE IN ACCORDANCE WITH ALL APPLICABLE RULES AND REGULATIONS
4. REMOVE TOPSOIL AND STOCKPILE APPROPRIATELY ON-SITE TEMPORARY STOCKPILES SHALL BE LOCATED WITHIN CONSTRUCTION LIMITS
5. PROTECT ALL ADJACENT PROPERTIES, THE GENERAL PUBLIC AND ALL OF THE OWNER'S FACILITIES. SHOULD DAMAGE OCCUR, NOTIFY ENGINEER IMMEDIATELY.
6. THE INTENT OF THE LIMITS OF CONSTRUCTION (LOC) SHOWN ON THE DRAWINGS IS TO DEFINE THE GENERAL AREA TO CONSTRUCT, INSTALL AND/OR MODIFY THE SITE IMPROVEMENTS. TYPICALLY, THE LOC WILL FOLLOW RIGHT-OF-WAY OR PROPERTY BOUNDARIES. HOWEVER, FOR CLARITY PURPOSES, THE LOC MAY BE SHOWN IN CERTAIN LOCATIONS FOR READABILITY PURPOSES. THE CONTRACTOR SHALL CONTACT THE OWNER'S REPRESENTATIVE REGARDING ANY QUESTIONS AS TO THE EXACT LOCATION OF THE LOC PRIOR TO BID AND PRIOR TO BEGINNING CONSTRUCTION. ALL ITEMS SHOWN ON THESE PLANS THAT DO NOT SPECIFICALLY STATE 'NOT-IN-CONTRACT (NIC) SHALL BE INCLUDED IN THE BID COST, INCLUDING ITEMS THAT MAY BE OUTSIDE THE LOC BOUNDARY.
7. LOCATIONS OF EXISTING UTILITY LINES HAVE BEEN TAKEN FROM UTILITY RECORDS SUPPLEMENTED BY FIELD INSPECTIONS AND SHOULD INDICATE IN GENERAL THE TYPE OF UNDERGROUND FACILITIES NOW IN SERVICE. LOCATIONS SHOWN ARE NOT GUARANTEED. DEVELOPERS OR CONTRACTOR SHALL NOT ONLY MAKE SUBSURFACE INVESTIGATIONS BUT SHALL ALSO ALLOW FOR CONTINGENCIES WHICH MIGHT ARISE BY REASON OF ENCOUNTERING UNRECORDED LINES OR LINES BEING IN DIFFERENT LOCATIONS THAN INDICATED ON THIS PLAN. PRIOR TO ANY CONSTRUCTION ACTIVITY OR EXCAVATION ON THE SITE, THE GENERAL CONTRACTOR SHALL NOTIFY ALL UTILITY COMPANIES TO VERIFY AND/OR FIELD-LOCATE THEIR RESPECTIVE UTILITIES (THE NORTH CAROLINA ONE CALL CENTER: 1-800-632-4949). ALL DAMAGED INCURRED TO EXISTING UTILITY LINES DURING CONSTRUCTION SHALL BE REPAIRED AT THE GENERAL CONTRACTORS EXPENSE.
8. ALL WASTE MATERIAL SHALL BE LEGALLY DISPOSED OF OFF-SITE.
9. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH APPLICABLE LOCAL, STATE AND OSHA REGULATIONS.
10. DISTURBED AREAS NOT COVERED BY ASPHALT OR OTHER IMPERMEABLE SURFACES SHALL BE SEEDED AND STABILIZED PER SPECIFICATIONS.
11. ALL TRAFFIC CONTROL DEVICES, PAVEMENT MARKINGS, SIGNS AND SIGNALS SHALL BE DESIGNED, INSTALLED AND MAINTAINED IN CONFORMANCE WITH THE STANDARDS SET FORTH IN THE NORTH CAROLINA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.
12. THIS PLAN INDICATES THE MAJOR DEMOLITION COMPONENTS TO BE REMOVED AND/OR, RELOCATED. HOWEVER, THE CONTRACTOR SHALL DEMOLISH AND/OR RELOCATED ALL MISCELLANEOUS COMPONENTS NOT SPECIFICALLY INDICATED ON THIS PLAN TO PROVIDE A CLEAN SITE FOR THE INSTALLATION OF THE NEW IMPROVEMENTS.
13. SURVEY, BASE MAPPING & TOPOGRAPHICAL DATA PROVIDED BY

    MIKE CAIN SURVEYING
    2509 PIEDMONT DRIVE
    SANFORD, NC 27330
    LICENSE # L-3403

14. THIS DEVELOPMENT IS WITHIN ONE MILE OF A VOLUNTARY AGRICULTURAL DISTRICT.
15. THIS DEVELOPMENT IS WITHIN THE FIVE MILE MILITARY CORRIDOR OVERLAY ZONE AND MAY BE SUBJECTED TO MILITARY TRAINING ACTIVITIES.
16. NC 87 IS ON THE HARNETT COUNTY COMPREHENSIVE TRANSPORTATION PLAN.



749 Walker Road, Sanford, NC 27332
PO Box 249, Sanford, NC 27331
Phone: (919) 352-2834
e-mail: jhillard@hillardengineering.com
NC License #: P-0836

NORTH CAROLINA PROFESSIONAL SEAL 035250 ENGINEER JAMES E. HILLIARD
2/16/21

HILLIARD ENGINEERING, PLLC

EXISTING CONDITION

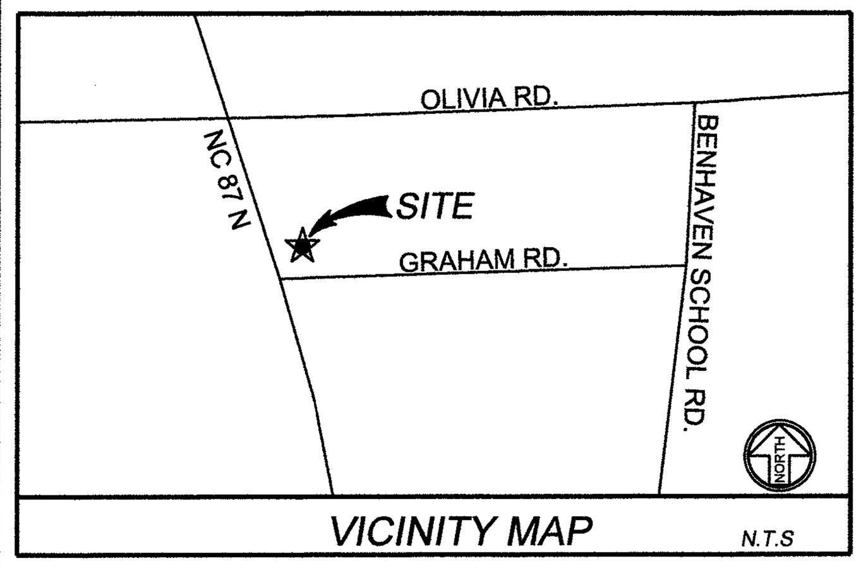
3D COMMUNITY CHURCH
HARNETT COUNTY, NORTH CAROLINA

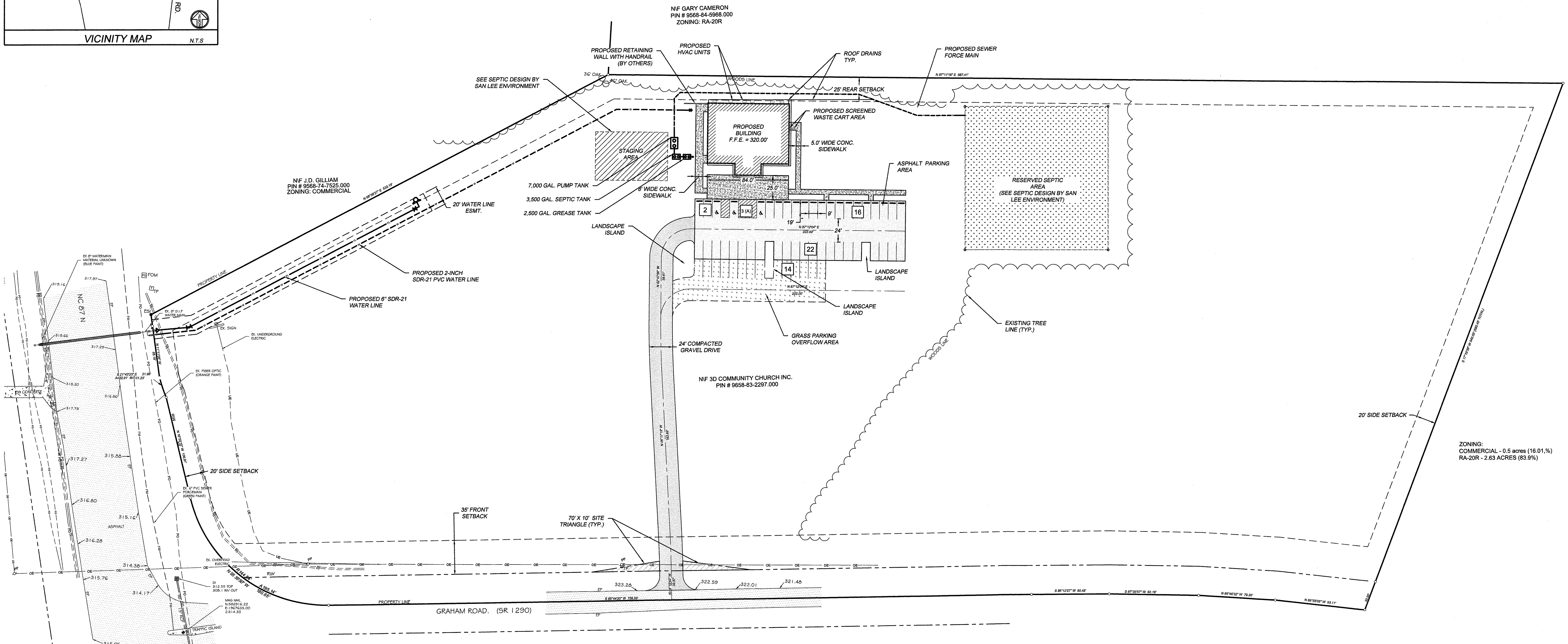
SYM.	REVISION DESCRIPTION:	DATE:
1	PER HARNETT COUNTY DRB REVIEW COMMENTS	2/10/21
2		
3		
4		
5		
6		

DESIGNED BY:	JEH
DRAWN BY:	JLF
APPROVED BY:	JEH
SHEET:	2
	CIVIL

811 Know what's below Call before you dig. Dial 811 Or Call 800-632-4949

EXISTING COND.-2, 2/15/2021 8:42:59 PM, ARCH expand D (36.00 x 24.00 Inches)





SITE DEVELOPMENT NOTES:

1. THE GENERAL CONTRACTOR SHALL VERIFY AND BE RESPONSIBLE FOR ALL DIMENSIONS AT THE JOB SITE.
2. CONTRACTOR SHALL VERIFY THE LOCATION OF ALL EXISTING UTILITIES AND SHALL BE RESPONSIBLE FOR ANY DAMAGE RESULTING FROM HIS ACTIVITIES. CALL UTILITY LOCATOR SERVICE BEFORE DIGGING.
3. ALL CONSTRUCTION AND MATERIALS SHALL BE IN ACCORDANCE WITH HARNETT COUNTY AND NCDOT STANDARDS AND SPECIFICATIONS.
4. LOT WILL BE SERVED BY SEPTIC.
5. NCDEQ EROSION CONTROL PERMIT WILL BE REQUIRED, AND ALL EROSION CONTROL REGULATIONS WILL BE COMPLIED WITH.
6. CONSTRUCTION DRAWINGS MUST BE APPROVED PRIOR TO CONSTRUCTION.
7. ALL TRAFFIC CONTROL DEVICES, PAVEMENT MARKINGS, SIGNS AND SIGNALS SHALL BE DESIGNED, INSTALLED AND MAINTAINED IN CONFORMANCE WITH THE STANDARDS SET FORTH IN THE NORTH CAROLINA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.
8. ALL APPLICABLE SIGNS SHOULD BE SETBACK AT LEAST 10' FROM NCDOT RIGHT OF WAY, SUBJECTED TO NCDOT REVIEW.
9. THIS DEVELOPMENT IS WITHIN ON MILE OF A VOLUNTARY AGRICULTURAL DISTRICT.
10. THIS DEVELOPMENT IS WITHIN THE FIVE MILE MILITARY CORRIDOR OVERLAY ZONE AND MAY BE SUBJECTED TO MILITARY TRAINING ACTIVITIES.
11. DUMPSTER / CONTAINERS SHALL BE SCREENED ON ALL SIDES THAT ARE VISIBLE TO THE RIGHT OF WAY AND NEIGHBORHOOD PROPERTIES.
12. ALL MECHANICAL AREAS LOCATED AROUND BUILDINGS SHALL BE SCREENED FROM THE VIEWS OF STREETS AND ADJACENT PROPERTY.
13. NC 87 IS ON THE HARNETT COUNTY COMPREHENSIVE TRANSPORTATION PLAN.
14. THE OWNER WILL BE RESPONSIBLE FOR MAINTENANCE OF THE PARKING AREAS, DRIVE AISLES, AND ALL LANDSCAPE BUFFERING.

PROPERTY AREA:

14.2 ACRES PROJECT PROPERTY
(PER PLAT BOOK 2018, PG 357, DB 366 PG 306-307:
15.21 AC TOTAL PROPERTY, 1.01 AC IN RIGHT OF WAY)

IMPERVIOUS AREA:

- ASPHALT PARKING: 13,174.0 SF
- ABC DRIVEWAY: 9,582.3 SF
- CONCRETE SIDEWALK: 1,921.0 SF
- BUILDING: 5,532.0 SF
- CONCRETE PAD: 2,100.0 SF
- TOTAL IMPERVIOUS AREA: 32,309.3 SF
- PROJECT PROPERTY AREA: 14.20 AC = 618,552 SF
- IMPERVIOUS PERCENTAGE: 5.22%

WATER DEMAND / SEWER DESIGN FLOW:

- 5 GAL/SEAT X 225 SEATS = 1,125 GAL/DAY
- RESIDENTIAL EQUIVALENT: 3.125

PARKING REQUIREMENT:

- 1 SPACE PER 4 SANCTUARY SEATS X 225 SEATS PROPOSED
- 57 TOTAL PARKING SPACES REQUIRED
- 54 STANDARD SPACES PROVIDED
- 3 ACCESSIBLE SPACES PROVIDED

SECTION 6.0 - EDUCATIONAL & INSTITUTIONAL USES:

- 6.2 - A MIN. OF 50% OF REQUIRED PARKING SHALL BE ASPHALT AND/OR CONCRETE; THE REMAINING PARKING MAY BE GRASS
- ALL GRAVEL DRIVES SHALL BE 6" THICK ABC
- ASPHALT PARKING AREAS SHALL BE 6" ABC & 2" S9.5B
- GRASSED PARKING AREAS SHALL BE MAINTAINED IN A DUST FREE MANNER

OWNER:

3D COMMUNITY CHURCH:
SITE PHYSICAL ADDRESS: 658 GRAHAM ROAD, SANFORD, NC 27331

MAILING ADDRESS: 100 UPCHURCH FARM ROAD, SANFORD, NC 27331

ZONING:

COMMERCIAL - 13.6 acres (95.44%),
RA-20R - 0.65 acres (4.56%)

- REAR SETBACK: 25 FT
- SIDE SETBACK (CORNER LOT): 20'
- FRONT SETBACK: 35'

STREAM CLASSIFICATION

STREAM INDEX: 18-20-13-3-5
STREAM NAME: DRY CREEK
DESCRIPTION: FROM SOURCE TO GUM SWAMP
CLASSIFICATION: C
RIVER BASIN: CAPE FEAR

NO WETLANDS WERE OBSERVED ON THE PROPERTY

THIS PROPERTY DOES NOT LIE WITHIN A NC WATER SUPPLY WATERSHED.

SURVEY NOTES:

- SITE INFORMATION FROM SURVEY DATED 9/2/20

MIKE CAIN SURVEYING
2509 PIEDMONT DRIVE
SANFORD, NC 27330
LICENSE # L-3403

NORTH

SCALE IN FEET
0' 25 50 100

811 Know what's below. Call before you dig. Dial 811. Or Call 800-632-4949

SYM.:	REVISION DESCRIPTION:	DATE:
1	PER HARNETT COUNTY DRB REVIEW COMMENTS	2/10/21
2		
3		
4		
5		
6		

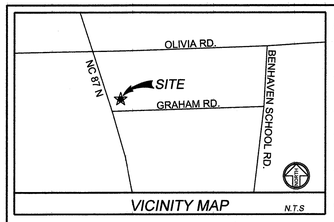
NORTH CAROLINA PROFESSIONAL SEAL 035670 ENGINEER JARROD E. HILLIARD
2/16/21

HILLIARD ENGINEERING, PLLC
749 Walker Road, Sanford, NC 27332
PO Box 249, Sanford, NC 27331
Phone: (919) 352-2834
e-mail: jhilliard@hilliardengineering.com
NC License #: P-0836

OVERALL SITE LAYOUT PLAN

3D COMMUNITY CHURCH
HARNETT COUNTY, NORTH CAROLINA

DESIGNED BY:	JEH
DRAWN BY:	JLF
APPROVED BY:	JEH
SHEET:	3
	CIVIL



VICINITY MAP N.T.S

EROSION CONTROL MEASURE - INITIAL PHASE:

1. *ENSURE ALL APPROVALS HAVE BEEN OBTAINED PRIOR TO ANY LAND DISTURBANCE.*
2. *CONDUCT ON-SITE PRE-CONSTRUCTION MEETING WITH THE CONTRACTOR, OWNER, ENGINEER AND CONSTRUCTION MANAGER TO REVIEW THE PROJECT AND EROSION CONTROL SEQUENCES.*
3. *CONTRACTOR TO LOCATE ALL EXISTING UTILITIES WITHIN AND IMMEDIATELY ADJACENT TO THE PROJECT AREA.*
4. *INSTALL CONSTRUCTION ENTRANCE AT LOCATION SHOWN ON THE PLAN - OFF OF EDGE OF EXISTING PAVEMENT ON GRAHAM ROAD.*
5. *FLAG LIMITS OF ALL DISTURBED AREA AS SHOWN ON THE PLANS FOR INSTALLATION OF PERIMETER EROSION CONTROL DEVICES - SILT FENCE AND SILT FENCE OUTLET WHERE SHOWN.*
6. *INSTALL ALL EROSION CONTROL DEVICES SHOWN ON THE PLAN.*
7. *CLEAR AND GRUB SITE (WHERE REQUIRED) AND LEGALLY DISPOSE OF ALL DEBRIS OFF SITE.*
8. *WITHIN 14 CALENDER DAYS OF COMPLETION OF ANY PHASE OF GRADING, GROUND COVER SHALL BE PROVIDED ON EXPOSED SLOPES AND PERMANENT GROUND COVER SHALL BE PROVIDED FOR ALL DISTURBED AREAS WITHIN 14 CALENDER DAYS OR 60 CALENDER DAYS (WHICHEVER IS SHORTER) FOLLOWING COMPLETION OF CONSTRUCTION OR DEVELOPMENT.*
9. *THE CONTRACTOR SHALL CONDUCT SELF-INSPECTIONS OF THE EROSION AND SEDIMENTATION CONTROL MEASURES AND COMPLETE THE FOLLOWING COMBINED SELF-INSPECTION FORM FOUND ON THE DEMLR WEBSITE https://files.nc.gov/ncdeq/Energy%20Mineral%20and%20Land%20Resources/Stormwater /NPDES%20General%20Permits/DEMLR-CSW-Monitoring-Form-Rev-August-8-2019.pdf TWELVE MONTHS OF COMPLETE INSPECTION FORMS SHALL BE KEPT ON-SITE AND AVAILABLE FOR INSPECTION AT ALL TIMES. IT IS RECOMMENDED A COPY BE KEPT IN A PERMITS BOX . (GS 113A-54.1 (E), 15ANCA 04B.0131, NCG01 PART III SECTIONS A AND B).*
10. *"EROSION AND SEDIMENT CONTROL(E&SC) PERMIT AND A CERTIFICATE OF COVERAGE (COC) MUST BE OBTAINED BEFORE ANY LAND DISTURBING ACTIVITIES OCCUR. A COPY OF THE E&SC PERMIT, THE COC, AND A HARD COPY OF THE PLAN MUST BE KEPT ON SITE, PREFERABLY IN A PERMITS BOX, AND ACCESSIBLE DURING INSPECTION." THE COC CAN BE OBTAINED BY FILLING OUT THE ELECTRONIC NOTICE OF INTENT (E-NOI) FORM ATDEQ.NC.GOV/NCG01. PLEASE NOTE, THE E-NOI FORM MAY ONLY BE FILLED OUT ONCE THE PLANS HAVE BEEN APPROVED.*
11. *"SELF-INSPECTIONS FOR EROSION AND SEDIMENTATION CONTROL MEASURES ARE TO BE PERFORMED AT LEAST ONCE EVERY SEVEN CALENDAR DAYS AND WITHIN 24 HOURS OF EVERY RAIN EVENT OF GREATER THAN 1 INCH. ANY NEEDED REPAIRS SHALL BE MADE IMMEDIATELY TO MAINTAIN MEASURES AS DESIGNED. ALL ESC MEASURES SHALL BE MAINTAINED AS SPECIFIED IN THE CONSTRUCTION DETAILS ON THIS PLAN. A RAIN GAUGE SHALL BE INSTALLED AT THE PROJECT SITE FOR MONITORING.*
12. ***TOTAL SITE DISTURBED AREA = 3.65 ac.***

STREAM CLASSIFICATION

STREAM INDEX: 18-20-13-3-5
STREAM NAME: DRY CREEK
DESCRIPTION: FROM SOURCE TO GUM SWAMP
CLASSIFICATION: C
RIVER BASIN: CAPE FEAR

SELF INSPECTION NOTE:

THE LANDOWNER, THE FINANCIALLY RESPONSIBLE PARTY, OR THE LANDOWNER'S OR THE FINANCIALLY RESPONSIBLE PARTY'S AGENT SHALL PERFORM AN INSPECTION OF THE AREA COVERED BY THE PLAN AFTER EACH PHASE OF THE PLAN HAS BEEN COMPLETED AND AFTER ESTABLISHMENT OF TEMPORARY GROUND COVER IN ACCORDANCE WITH G.S. 113A-57(2). THE PERSON WHO PERFORMS THE INSPECTION SHALL MAINTAIN AND MAKE AVAILABLE A RECORD OF THE INSPECTION AT THE SITE OF THE LAND-DISTURBING ACTIVITY. THE RECORD SHALL SET OUT ANY SIGNIFICANT DEVIATION FROM THE APPROVED EROSION CONTROL PLAN, IDENTIFY ANY MEASURES THAT MAY BE REQUIRED TO CORRECT THE DEVIATION, AND DOCUMENT THE COMPLETION OF THOSE MEASURES. THE RECORD SHALL BE MAINTAINED UNTIL PERMANENT GROUND COVER HAS BEEN ESTABLISHED AS REQUIRED BY THE APPROVED EROSION AND SEDIMENTATION CONTROL PLAN. THE INSPECTIONS REQUIRED BY THIS SUBSECTION SHALL BE IN ADDITION TO INSPECTIONS REQUIRE BY G.S. 113A-61.1. SEE NCGO1 INSPECTION, RECORDKEEPING AND REPORTING PLAN SHEET.

GENERAL NOTES:

PURSUANT TO G.S. 133-A57(2), THE ANGLE FOR GRADED SLOPES AND FILLS SHALL BE NO GREATER THAN THE ANGLE THAT CAN BE RETAINED BY VEGETATIVE COVER OR OTHER ADEQUATE EROSION-CONTROL DEVICES OR STRUCTURES.
IN ANY EVENT, SLOPES LEFT EXPOSED WILL, WITHIN 7 OR 14 CALENDAR DAYS OF COMPLETION OF ANY PHASE OF GRADING, BE PLANTED OR OTHERWISE PROVIDED WITH TEMPORARY GROUND COVER, DEVICES, OR STRUCTURES SUFFICIENT TO RESTRAIN EROSION. PERMANENT GROUNDCOVER WILL BE PROVIDED FOR ALL DISTURBED AREAS WITHIN 15 WORKING DAYS OR NO MORE THAN 90 CALENDER DAYS (WHICHEVER IS SHORTER) FOLLOWING COMPLETION OF CONSTRUCTION.

PURSUANT TO G.S. 113A-57(3), PROVISIONS FOR PERMANENT GROUNDCOVER SUFFICIENT TO RESTRAIN EROSION MUST BE ACCOMPLISHED FOR ALL DISTURBED AREAS WITHIN 15 CALENDAR DAYS OR 60 CALENDAR DAYS (WHICHEVER IS SHORTER) FOLLOWING COMPLETION OF CONSTRUCTION OR DEVELOPMENT.

ANY BORROW MATERIAL BROUGHT ONTO THIS SITE MUST BE FROM A LEGALLY PERMITTED MINE SITE OR OTHER APPROVED SOURCE. A SINGLE-USE BORROW OR WASTE AREA SITE IS ONLY PERMISSIBLE IF IT IS OPERATED UNDER CONTROL OF THE FINANCIALLY RESPONSIBLE PERSON OR FIRM THAT IS DEVELOPING THIS SITE. AN APPROVED EROSION AND SEDIMENT CONTROL PLAN IS REQUIRED FOR ALL SINGLE USE BORROW AND WASTE SITES.

EROSION CONTROL DESIGN, DETAILS AND MAINTENANCE SPECIFICATIONS SHALL COMPLY WITH CURRENT NORTH CAROLINA EROSION AND SEDIMENT CONTROL PLANNING AND DESIGN MANUAL.

SYMBOL	PRACTICE	DESCRIPTION
CE	CONSTRUCTION ENTRANCE	*A STONE STABILIZED PAD LOCATED AT ANY POINT THAT TRAFFIC WILL BE LEAVING A CONSTRUCTION SITE TO A PUBLIC RIGHT-OF-WAY, STREET, ALLEY, SIDEWALK, OR PARKING PLOT WHICH WILL REDUCE OR ELIMINATE THE TRANSPORT OF MUD FROM THE CONSTRUCTION SITE.*
SF	SILT FENCE	*A TEMPORARY STRUCTURE USED TO SLOW THE VELOCITY OF RUN-OFF, CAUSE SEDIMENT DEPOSITION AT THE STRUCTURE, AND FILTER SEDIMENT FROM RUN-OFF.*
SFO	SILT FENCE OUTLET PROTECTION	*A TEMPORARY STRUCTURE AS A REINFORCED OUTLET AT LOW POINTS OF THE SILT FENCE. INSTALL #57 WASHED STONE AT UPSTREAM FLOW WITH HARDWARE CLOTH. (SEE DETAIL)*
TD	TEMPORARY DIVERSION	*A TEMPORARY RIDGE OR EXCAVATED CHANNEL OR COMBINATION RIDGE AND CHANNEL CONSTRUCTED ACROSS SLOPING LAND ON A PREDETERMINED GRADE.*
CL	CONSTRUCTION LIMITS	*A DEFINED AREA THAT ALL LAND DISTURBANCE WILL OCCUR DURING CONSTRUCTION.*
SK	SKIMMER SEDIMENT BASIN	*AN EARTHEN EMBANKMENT SUITABLY LOCATED TO CAPTURE RUNOFF, WITH A TRAPEZOIDAL SPILLWAY LINED WITH AN IMPERABLE GEOTEXTILE OR LAMINATED PLASTIC MEMBRANE, AND EQUIPPED WITH A FLOATING SKIMMER FOR DEWATERING.*
BF	POROUS BAFFLE	*POROUS BARRIERS INSTALLED INSIDE A TEMPORARY SEDIMENT TRAP, SKIMMER BASIN, OR SEDIMENT BASIN TO REDUCE THE VELOCITY AND TURBULENCE OF THE WATER FLOWING THROUGH THE MEASURE, AND TO FACILITATE THE SETTLING OF SEDIMENT FROM THE WATER BEFORE DISCHARGE.*
OP	OUTLET PROTECTION	*RIP RAP CHANNEL / BANK PLACED BELOW DRAINAGE OUTLETS TO REDUCE THE VELOCITY OF FLOW, EROSION, AND STABILIZE GRADES DOWNSTREAM OF OUTLET STRUCTURES.*
TD	TEMPORARY DIVERSION	*A TEMPORARY RIDGE OR EXCAVATED CHANNEL OR COMBINATION RIDGE AND CHANNEL CONSTRUCTED ACROSS SLOPING LAND ON A PREDETERMINED GRADE.*

N\F GARY CAMERON
PIN # 9568-84-5968.000
ZONING: RA-20R

N\F J.D. GILLIAM
PIN # 9568-74-7525.000
ZONING: COMMERCIAL

N\F 3D COMMUNITY CHURCH INC.
PIN # 9658-83-2287.000

SEDIMENT SKIMMER BASIN NO. 1 WITH BAFFLES
MIN. STORAGE VOLUME AT CREST OF SPILLWAY : 2,664 C.F.
MIN. SURFACE AREA AT CREST OF SPILLWAY : 2,993 S.F.
TOP OF DAM ELEV. : 317.0'
BOTTOM OF BASIN ELEV. : 313.5'
SEDIMENT CLEANOUT ELEV. = 314.5'
SKIMMER SIZE : 4.0" W/ 1.0"Ø ORIFICE

EM.SPILLWAY ELEV. : 315.50'
EM. SPILLWAY WIDTH : 10'
EM. SPILLWAY SLOPE : 0.5%
LINE W/ ENKA MATTING OR EQUIV.

TEMP. DIVERSION DITCH:
DEPTH: 1.3 FT
BOTTOM WIDTH: 2 FT
SIDE SLOPE: 3:1
LINED WITH ENKA MATTING, NORTH AM. GREEN P500 OR SOD

CONSTRUCTION LIMITS FOR LANDSCAPING AREAS

TOPSOIL STOCKPILE AREA

~ AREAS OF UNDISTURBANCE ~

~ AREAS OF UNDISTURBANCE ~

GRAHAM ROAD. (SR 1290)

SCALE IN FEET
0' 20 40 80

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2		
3		
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6		

NORTH CAROLINA PROFESSIONAL SEAL 035670 ENGINEER JAMES E. HILLIARD
2/16/21

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HILLIARD ENGINEERING, PLLC

INITIAL EROSION AND SEDIMENTATION CONTROL PLAN

3D COMMUNITY CHURCH
HARNETT COUNTY, NORTH CAROLINA

DESIGNED BY:	JEH
DRAWN BY:	JLF
APPROVED BY:	JEH
SHEET:	4
	CIVIL

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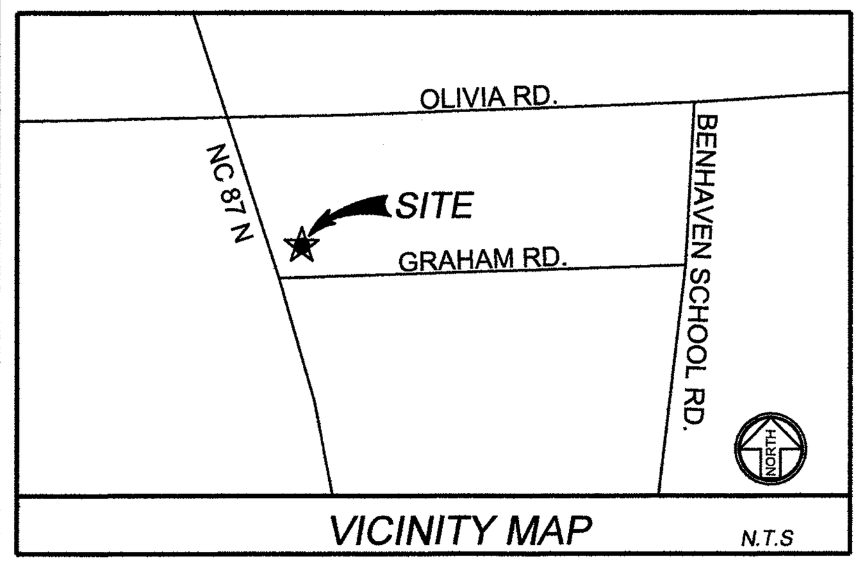
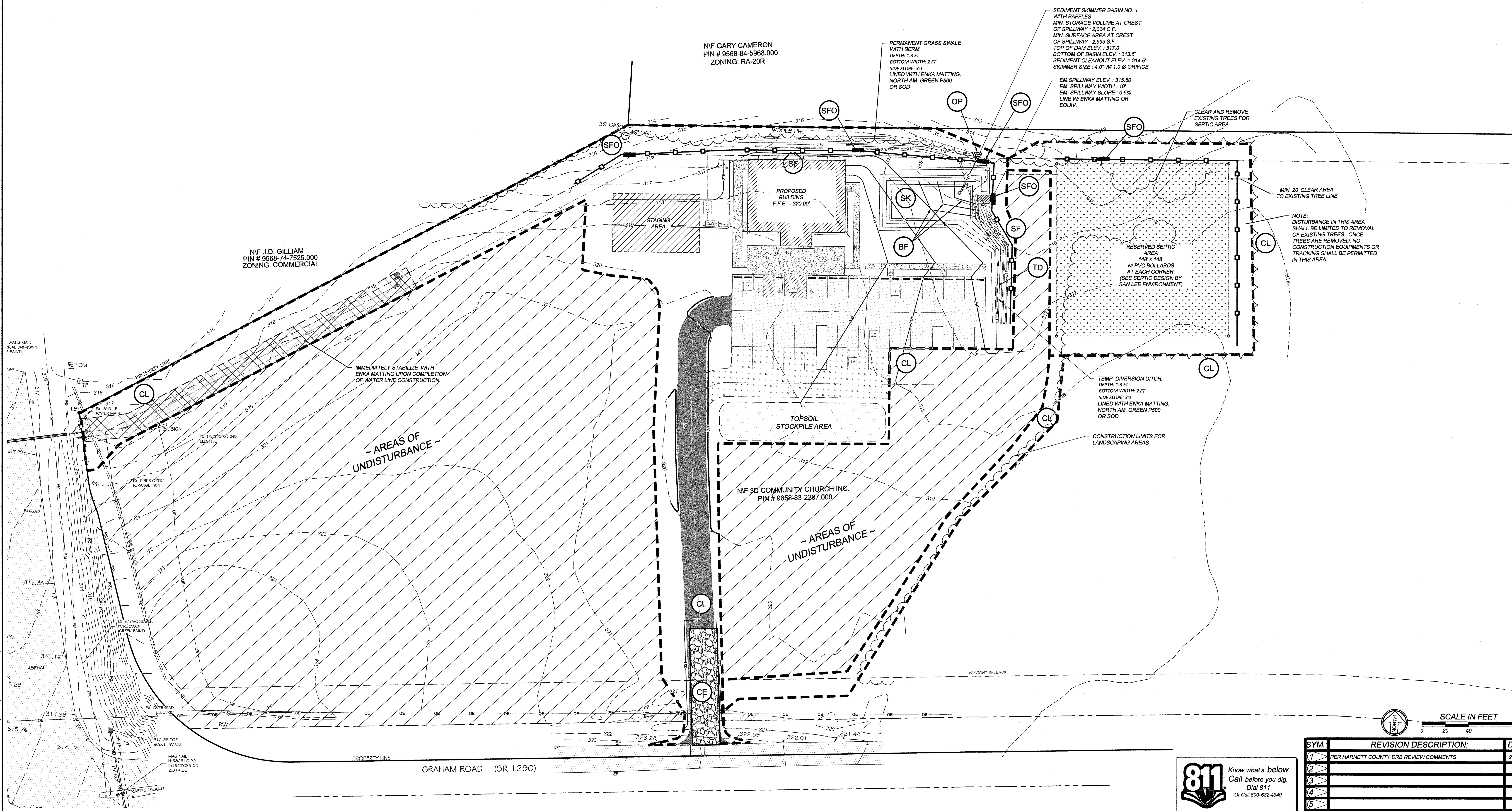


CONSTRUCTION SEQUENCE & EROSION CONTROL MEASURES - INTERMEDIATE PHASE:

1. CHECK ALL SILT FENCE AND REPAIR AS NECESSARY. ASSURE ANY ERODED AREA ARE STABILIZED WITH TEMPORARY SEEDING AND MULCH.
2. STRIPPED AND ROUGH GRADE PRIVATE DRIVE AND SITE AREA FOR DEVELOPMENT. PLACE TOPSOIL IN TOPSOIL AREA AS SHOWN ON THE PLANS.
3. INSTALL THE WATER SYSTEM AS SHOWN ON THE PLANS.
4. INSTALL INLET / OUTLET BMP'S WHERE REQUIRED.
5. GRADE AND PREPARE SUBGRADE FOR PAVEMENT AREA.
6. PLACE COMPACTED G.A.B.C FOR ASPHALT CONSTRUCTION.
7. FINISH FINE GRADING THE PRIVATE DRIVE COMMON AREAS.
8. COMPLETE ALL REMAINING SITE IMPROVEMENTS.
9. PLACE ASPHALT, PAVEMENT MARKINGS, AND SIGNAGE.

SYMBOL	PRACTICE	DESCRIPTION
CE	CONSTRUCTION ENTRANCE	A STONE STABILIZED PAD LOCATED AT ANY POINT THAT TRAFFIC WILL BE LEAVING A CONSTRUCTION SITE TO A PUBLIC RIGHT-OF-WAY, STREET, ALLEY, SIDEWALK, OR PARKING PLOT WHICH WILL REDUCE OR ELIMINATE THE TRANSPORT OF MUD FROM THE CONSTRUCTION SITE.
SF	SILT FENCE	A TEMPORARY STRUCTURE USED TO SLOW THE VELOCITY OF RUN-OFF, CAUSE SEDIMENT DEPOSITION AT THE STRUCTURE, AND FILTER SEDIMENT FROM RUN-OFF.
CL	CONSTRUCTION LIMITS	A DEFINED AREA THAT ALL LAND DISTURBANCE WILL OCCUR DURING CONSTRUCTION.
SFO	SILT FENCE OUTLET PROTECTION	A TEMPORARY STRUCTURE AS A REINFORCED OUTLET AT LOW POINTS OF THE SILT FENCE. INSTALL #57 WASHED STONE AT UPSTREAM FLOW WITH HARDWARE CLOTH. (SEE DETAIL)
OP	OUTLET PROTECTION	RIP RAP CHANNEL / BANK PLACED BELOW DRAINAGE OUTLETS TO REDUCE THE VELOCITY OF FLOW, EROSION, AND STABILIZE GRADES DOWNSTREAM OF OUTLET STRUCTURES.


N\F GARY CAMERON
PIN # 9568-84-5968.000
ZONING: RA-20R
N\F J.D. GILLIAM
PIN # 9568-74-7525.000
ZONING: COMMERCIAL
N\F 3D COMMUNITY CHURCH INC.
PIN # 9658-83-2297.000
PERMANENT GRASS SWALE WITH BERM
DEPTH: 1.3 FT
BOTTOM WIDTH: 2 FT
SIDE SLOPE: 3:1
LINED WITH ENKA MATTING, NORTH AM. GREEN P500 OR SOD
SEDIMENT SKIMMER BASIN NO. 1
WITH BAFFLES
MIN. STORAGE VOLUME AT CREST OF SPILLWAY : 2,664 C.F.
MIN. SURFACE AREA AT CREST OF SPILLWAY : 2,993 S.F.
TOP OF DAM ELEV. : 317.0'
BOTTOM OF BASIN ELEV. : 313.5'
SEDIMENT CLEANOUT ELEV. = 314.5'
SKIMMER SIZE : 4.0" W/ 1.0"Ø ORIFICE
EM.SPILLWAY ELEV. : 315.50'
EM. SPILLWAY WIDTH : 10'
EM. SPILLWAY SLOPE : 0.5%
LINE W/ ENKA MATTING OR EQUIV.
CLEAR AND REMOVE EXISTING TREES FOR SEPTIC AREA
MIN. 20' CLEAR AREA TO EXISTING TREE LINE
NOTE:
DISTURBANCE IN THIS AREA SHALL BE LIMITED TO REMOVAL OF EXISTING TREES. ONCE TREES ARE REMOVED, NO CONSTRUCTION EQUIPMENTS OR TRACKING SHALL BE PERMITTED IN THIS AREA.
RESERVED SEPTIC AREA
148' x 148'
w/ PVC BOLLARDS AT EACH CORNER.
(SEE SEPTIC DESIGN BY SAN LEE ENVIRONMENT)
PROPOSED BUILDING
F.F.E. = 320.00'
STAGING AREA
TOPSOIL STOCKPILE AREA
IMMEDIATELY STABILIZE WITH ENKA MATTING UPON COMPLETION OF WATER LINE CONSTRUCTION.
TEMP. DIVERSION DITCH:
DEPTH: 1.3 FT
BOTTOM WIDTH: 2 FT
SIDE SLOPE: 3:1
LINED WITH ENKA MATTING, NORTH AM. GREEN P500 OR SOD
CONSTRUCTION LIMITS FOR LANDSCAPING AREAS
~ AREAS OF UNDISTURBANCE ~
~ AREAS OF UNDISTURBANCE ~
GRAHAM ROAD. (SR 1290)
PROPERTY LINE
TRAFFIC ISLAND
SCALE IN FEET
0' 20 40 80
NORTH

SYM.	REVISION DESCRIPTION:	DATE:
1	PER HARNETT COUNTY DRB REVIEW COMMENTS	2/10/21
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NORTH CAROLINA PROFESSIONAL SEAL 035670 ENGINEER JARROD E. HILLIARD
2/16/21

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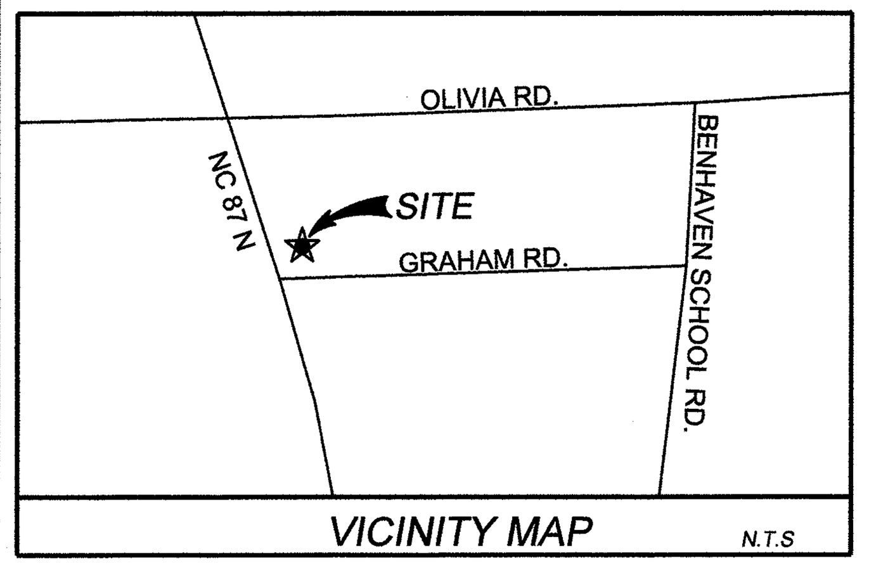
HILLIARD ENGINEERING, PLLC

INTERMEDIATE EROSION AND SEDIMENTATION CONTROL PLAN

3D COMMUNITY CHURCH
HARNETT COUNTY, NORTH CAROLINA

DESIGNED BY:	JEH
DRAWN BY:	JLF
APPROVED BY:	JEH



CONSTRUCTION SEQUENCE & EROSION CONTROL MEASURES - FINAL PHASE:

1. ONCE SITE HAS BEEN VEGETATED AND STABILIZED, COMPLETE THE INSTALLATION OF THE STORM DRAINAGE PIPES. INSTALL EROSION CONTROL DEVICES AS SHOWN ON THE PLANS.

2. UPON COMPLETING ALL SITE IMPROVEMENTS AND FINAL GRADING, STABILIZE ALL DISTURBED AREAS PER LANDSCAPE PLAN. WATER AND MAINTAIN ALL LANDSCAPED AREAS TO ENSURE PROPER GROUND COVERAGE PRIOR TO FINAL APPROVAL.

3. SEE SEEDING SCHEDULE PROVIDED IN EROSION CONTROL DETAIL.

4. PERIMETER MEASURES MUST BE LEFT INPLACE UNTIL ALL UPLAND AREAS ARE PERMANENTLY STABILIZED. AFTER SITE IS PERMANENTLY STABILIZED,REMOVE ALL TEMPORARY EROSION CONTROL MEASURES AND PROVIDE PERMANENT SEEDING WHERE TEMPORARY MEASURES HAVE BEEN REMOVED AND GROUND COVER IS NOT ADEQUATE. SEDIMENT BASINS MAY NOT BE REMOVED OR CONVERTED TO PERMANENT BMPS UNTIL ALL UPLAND AREAS ARE PERMANENTLY STABILIZED. (GS 113A-57(3). 15A NCAC 04B. 0113)

5. WHEN THE PROJECT IS COMPLETE, THE PERMITTEE SHALL CONTACT DEMLR TO CLOSE OUT THE E&SC PLAN. AFTER DEMLR INFORMS THE PERMITTEE OF THE PROJECT CLOSE OUT, VIA INSPECTION REPORT, THE PERMITTEE SHALL VISIT DEQ.NC.GOV/NCG01 TO SUBMIT AN ELECTRONIC NOTICE OF TERMINATION (e-NOT). A $100 ANNUAL GENERAL PERMIT FEE WILL BE CHARGED UNTIL THE e-NOT HAS BEEN FILLED OUT.

SYMBOL	PRACTICE	DESCRIPTION
(CL) ■ ■ ■ ■ ■	CONSTRUCTION LIMITS	A DEFINED AREA THAT ALL LAND DISTURBANCE WILL OCCUR DURING CONSTRUCTION.

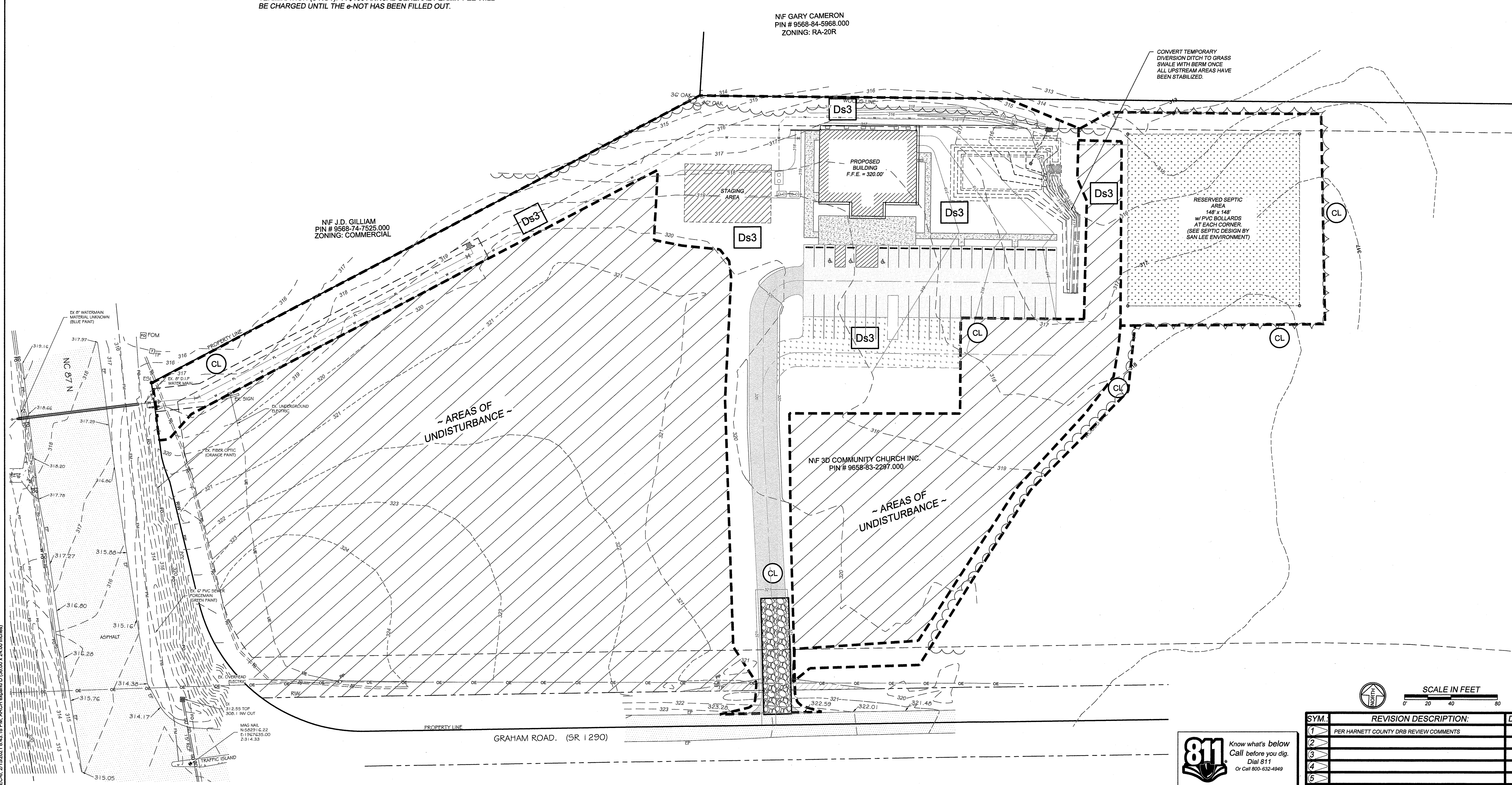
SEEDING SCHEDULE FOR PERMANENT VEGETATION Ds3

SCHEDULE NO.	COMMON NAME OF SEED	RATE PER ACRE (LBS.)	PLANTING DATES
1	COMMON BERMUDA (HULLED)	210	MARCH 16 TO AUG. 31
	TALL FESCUE	140	
2	COMMON BERMUDA (UNHULLED)	175	SEPT. 1 TO MARCH 15

NOTES:

GIANT BERMUDA SEED, INCLUDING NK-37, SHALL NOT BE USED.

THE CONTRACTOR SHALL OBTAIN A SATISFACTORY STAND OF PERENNIAL VEGETATION WHOSE ROOT SYSTEM SHALL BE DEVELOPED SUFFICIENTLY TO SURVIVE DRY PERIODS AND WINTER WEATHER, AND BE CAPABLE OF RE-ESTABLISHMENT IN THE SPRING. THE PERENNIAL VEGETATIVE COVER SHALL HAVE A MINIMUM COVERAGE DENSITY OF 70% FOR THE SEEDED AREAS. CONTRACTOR SHALL DETERMINE ALL RATES OF APPLICATION NECESSARY TO PRODUCE THE REQUIRED STAND OF GRASS, AND SHALL FOLLOW THE APPLICATION PROCEDURES AS SPECIFIED HEREIN.



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SYM.:	REVISION DESCRIPTION:	DATE:
1	PER HARNETT COUNTY DRB REVIEW COMMENTS	2/10/21
2		
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NORTH CAROLINA PROFESSIONAL SEAL 035670 ENGINEER JARROD E. HILLIARD
2/16/21

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HILLIARD ENGINEERING, PLLC

FINAL EROSION AND SEDIMENTATION CONTROL PLAN

3D COMMUNITY CHURCH
HARNETT COUNTY, NORTH CAROLINA

DESIGNED BY:	JEH
DRAWN BY:	JLF
APPROVED BY:	JEH
SHEET:	6
	CIVIL

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NATURE AND PURPOSE OF CONSTRUCTION

THE PURPOSE OF THIS PROJECT IS TO PROVIDE CONSTRUCTION OF CHURCH THAT INCLUDES BUILDING, PAVED AND GRASSED PARKING AREAS, WATER LINE AND SEPTIC SYSTEM CONSTRUCTION. THE PROJECT WILL INVOLVE CONSTRUCTION OF CONVEYANCE SWALE FOR STORMWATER DISCHARGE.

THE TOTAL DISTURBED AREA IS 3.65 ACRES.

PERMANENT VEGETATION SHALL BE ESTABLISHED QUICKLY UPON COMPLETION OF THE ROADWAY GRADING AND INFRASTRUCTURES IN ORDER TO REDUCE THE AMOUNT OF SEDIMENT RUNOFF FROM THE SITE.

SITE IS NOT IN FLOOD PLAN.

NO WETLANDS WERE OBSERVED ON THE SITE.

NOTE:

PURSUANT TO G.S. 133-A57(2), THE ANGLE FOR GRADED SLOPES AND FILLS SHALL BE NO GREATER THAN THE ANGLE THAT CAN BE RETAINED BY VEGETATIVE COVER OR OTHER ADEQUATE EROSION-CONTROL DEVICES OR STRUCTURES.
IN ANY EVENT, SLOPES LEFT EXPOSED WILL, WITHIN 7 OR 14 CALENDAR DAYS OF COMPLETION OF ANY PHASE OF GRADING, BE PLANTED OR OTHERWISE PROVIDED WITH TEMPORARY GROUND COVER, DEVICES, OR STRUCTURES SUFFICIENT TO RESTRAIN EROSION. PERMANENT GROUNDCOVER WILL BE PROVIDED FOR ALL DISTURBED AREAS WITHIN 15 WORKING DAYS OR NO MORE THAN 90 CALENDER DAYS (WHICHEVER IS SHORTER) FOLLOWING COMPLETION OF CONSTRUCTION.

PURSUANT TO G.S. 113A-57(3), PROVISIONS FOR PERMANENT GROUNDCOVER SUFFICIENT TO RESTRAIN EROSION MUST BE ACCOMPLISHED FOR ALL DISTURBED AREAS WITHIN 15 CALENDAR DAYS OR 60 CALENDAR DAYS (WHICHEVER IS SHORTER) FOLLOWING COMPLETION OF CONSTRUCTION OR DEVELOPMENT.

NOTE:

EFFECTIVE OCTOBER1, 2010, PERSONS CONDUCTING LAND-DISTURBING ACTIVITIES LARGER THAN ONE ACRE MUST INSPECT THEIR PROJECT AFTER EACH PHASE OF THE PROJECT AND DOCUMENT THE INSPECTION IN WRITING. KEEP WRITTEN INSPECTION REPORTS ON CONSTRUCTION SITE IN WHICH IT SHOULD BE READILY AVAILABLE FOR EROSION CONTROL INSPECTOR'S REVIEW WHEN VISITING SITE.

SELF-INSPECTION REPORT FORMS ARE AVAILABLE AS AN EXCEL SPREADSHEET FROM LAND QUALITY WEB SITE: www.dlr.enr.state.nc.us/pages/sedimentation_new.html

SEEDING SCHEDULE

NOTE

TEMPORARY SEED MIX SHALL BE USED FOR ALL AREAS EXPOSED GREATER THAN 21 CALENDAR DAYS AND SUBJECT TO FURTHER DISTURBANCE. PERMANENT SEED MIX SHALL BE CHECKED FOR ADEQUACY ON JULY 15. AN ADEQUATE COVER SHALL HAVE 50 SPRIGS OF BERMUDA OR SERICEA LESPEDEZA PER ONE SQUARE FOOT.

TEMPORARY SUMMER SEED MIX — (TO BE FOLLOWED BY PERMANENT FALL SEED MIX)

	SPECIES	RATE (LB./ACRE)
MARCH 1 - SEPT. 1	GERMAN MILLET	120

TEMPORARY WINTER SEED MIX — (TO BE FOLLOWED BY PERMANENT SPRING SEED MIX)

	SPECIES	RATE (LB./ACRE)
SEPT. 1 - MARCH 1	WINTER RYE (GRAIN)	200
	KOBE LESPEDEZA	120

PERMANENT SPRING SEED MIX

	SPECIES	RATE (LB./ACRE)
MARCH 1 - JULY 1	PENSICOLA BAHIAGRASS	60
	COMMON BERMUDA	25
	SERICEA LESPEDEZA	30

PERMANENT FALL SEED MIX

	SPECIES	RATE (LB./ACRE)
SEPT. 1 - NOV. 1	COMMON BERMUDA	30
	SERICEA LESPEDEZA (UNSCARIFIED)	30
	KOBE LESPEDEZA	10

SOIL AMENDMENTS

TO BE INCORPORATED INTO THE TOP 3 INCHES OF SOIL IN AREAS WITH SLOPES 2:1 OR FLATTER
APPLY FERTILIZER (10-10-10) AT A RATE OF 1000 LB/ACRE
APPLY LIME (GROUND AGRICULTURAL LIMESTONE) AT A RATE OF 4000 LB/ACRE
APPLY SUPERPHOSPHATE (0-49-0) AT A RATE OF 200 LB/ACRE

* REQUIRED FOR PERMANENT SEED MIX ONLY

MULCH

APPLY 4,000 LB/ACRE GRAIN STRAW OR EQUIVALENT COVER.
ANCHOR MULCH WITH ROVING, NETTING OR BY TACKING WITH ASPHALT EMULSION AT A RATE OF 400 GAL./ACRE

MAINTENANCE

MINIMUM OF 1" OF RAINFALL A WEEK (IF NOT SUPPLIED NATURALLY, CONTRACTOR SHALL SUPPLY THE REMAINING AMOUNT UNTIL GROUND COVER HAS BEEN ESTABLISHED).

WATER

REFERTILIZE IN THE SECOND YEAR UNLESS THE GROWTH IS FULLY ADEQUATE.
MOW WHEN THE AVERAGE PLANT HEIGHT EXCEEDS 6 INCHES.
RESEED, FERTILIZE AND MULCH DAMAGED AREAS IMMEDIATELY.

EROSION CONTROL MAINTENANCE SCHEDULE

LAND GRADING: PERIODICALLY CHECK ALL GRADED AREAS AND THE SUPPORTING EROSION AND SEDIMENTATION CONTROL PRACTICES, ESPECIALLY AFTER HEAVY RAINFALLS. PROMPTLY REMOVE ALL SEDIMENT FROM DIVERSIONS AND OTHER WATER-DISPOSAL PRACTICES. IF WASHOUT OR BREAKS OCCUR, REPAIR THEM IMMEDIATELY. PROMPT MAINTENANCE OF SMALL ERODED AREAS BEFORE THEY BECOME SIGNIFICANT GULLIES IS AN ESSENTIAL PART OF AN EFFECTIVE EROSION AND SEDIMENTATION CONTROL PLAN.

TEMPORARY GRAVEL CONSTRUCTION ENTRANCE/EXIT: MAINTAIN THE GRAVEL PAD IN A CONDITION TO PREVENT MUD OR SEDIMENT FROM LEAVING THE CONSTRUCTION SITE. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH 2-INCH STONE. AFTER EACH RAINFALL, INSPECT ANY STRUCTURE USED TO TRAP SEDIMENT AND CLEAN IT OUT AS NECESSARY. IMMEDIATELY REMOVE ALL OBJECTIONABLE MATERIALS SPILLED, WASHED, OR TRACKED ONTO PUBLIC ROADWAYS.

OUTLET STABILIZATION STRUCTURE: INSPECT RIP RAP OUTLET STRUCTURES AFTER HEAVY RAINS TO SEE IF ANY EROSION AROUND OR BELOW THE RIP RAP HAS TAKEN PLACE OR IF STONES HAVE BEEN DISLODGED. IMMEDIATELY MAKE ALL NEEDED REPAIRS TO PREVENT FURTHER DAMAGE.

DROP INLET PROTECTION (TEMPORARY): INSPECT THE FABRIC BARRIER AFTER EACH RAIN AND MAKE REPAIRS AS NEEDED. REMOVE SEDIMENT FROM THE POOL AREA AS NECESSARY TO PROVIDE ADEQUATE STORAGE VOLUME FOR THE NEXT RAIN. TAKE CARE NOT TO DAMAGE OR UNDERCUT THE FABRIC DURING SEDIMENT REMOVAL. WHEN THE CONTRIBUTING DRAINAGE AREA HAS BEEN ADEQUATELY STABILIZED, REMOVE ALL MATERIALS AND ANY UNSTABLE SEDIMENT AND DISPOSE OF THEM PROPERLY. BRING THE DISTURBED AREA TO THE GRADE OF THE DROP INLET AND SMOOTH AND COMPACT IT. APPROPRIATELY STABILIZE ALL BARE AREAS AROUND THE INLET.

SEDIMENT FENCE (SILT FENCE): INSPECT SEDIMENT FENCES AT LEAST ONCE A WEEK AND AFTER EACH RAINFALL. MAKE ANY REQUIRED REPAIRS IMMEDIATELY. REMOVE SEDIMENT DEPOSITS AS NECESSARY TO PROVIDE ADEQUATE STORAGE VOLUME FOR THE NEXT RAIN AND TO REDUCE PRESSURE ON THE FENCE. TAKE CARE TO AVOID UNDERMINING THE FENCE DURING CLEANOUT. REMOVE ALL FENCING MATERIALS AND UNSTABLE SEDIMENT DEPOSITS AND BRING THE AREA TO GRADE AND STABILIZE IT AFTER THE CONTRIBUTING DRAINAGE AREA HAS BEEN PROPERLY STABILIZED.

DUST CONTROL: MAINTAIN DUST CONTROL MEASURES THROUGH DRY WEATHER PERIODS UNTIL ALL DISTURBED AREAS HAVE BEEN STABILIZED.

TREE PRESERVATION AND PROTECTION: REPAIR ANY DAMAGE TO PROTECTED TREE AS FOLLOW SHOULD DAMAGE TO CROWN, TRUNK, OR ROOT SYSTEM OCCUR.

(REFERENCE NCDENR MANUAL, PAGE 6.05.3 AND 6.05.4)

REPAIR ROOTS BY CUTTING OFF THE DAMAGED AREAS AND PAINTING THEM WITH TREE PAINT. SPREAD PEAT MOSS OR MOIST TOPSOIL OVER EXPOSED ROOTS.

REPAIR DAMAGE TO BARK BY TRIMMING AROUND THE DAMAGED AREAS AS SHOWN IN FIGURE 6.05b, TAPER THE CUT TO PROVIDE DRAINAGE, AND PAINT WITH TREE PAINT.

CUT OFF ALL DAMAGED TREE LIMBS ABOVE THE TREE COLLAR AT THE TRUNK OR MAIN BRANCH. USE THREE SEPARATED CUTS AS SHOWN IN FIGURE 6.05c TO AVOID PEELING BARK FROM HEALTHY AREAS OF THE TREE.

GROUND STABILIZATION REQUIREMENTS

CONTRACTOR SHALL BE REQUIRED TO ESTABLISH GROUND STABILIZATION AS PER FOLLOWING CHART.

SITE AREA DESCRIPTION	STABILIZATION TIME FRAME	STABILIZATION TIME FRAME EXCEPTIONS	APPLICABLE THIS PROJECT
PERIMETER DIKES, SWALES, DITCHES AND SLOPES	7 DAYS	NONE	YES
HIGH QUALITY WATER (HQW) ZONES FLATTER THAN 4:1	7 DAYS	NONE	NO
SLOPES STEEPER THAN 3:1	7 DAYS	IF SLOPES ARE 10' OR LESS IN LENGTH AND ARE NOT STEEPER THAN 2:1 14 DAYS ARE ALLOWED	NO
SLOPES 3:1 OR FLATTER	14 DAYS	7 DAYS FOR SLOPES GREATER THAN 50 FEET IN LENGTH	YES
ALL OTHER AREAS WITH SLOPES FLATTER THAN 4:1	14 DAYS	NONE (EXCEPT FOR PERIMETER AND HQW ZONES)	YES
TYPICAL GROUND COVER STABILIZATION TYPES - GRASS AND OR SOD, WHEAT STRAW, MULCH, BIODEGRADABLE STRAW MATTING, SYNTHETIC MATTING, ETC.			

SEED BED PREPARATION

1. RIP THE ENTIRE AREA TO 6" DEPTH.
2. REMOVE ALL LOOSE ROCK, ROOTS, AND OTHER OBSTRUCTIONS LEAVING SURFACE REASONABLY SMOOTH AND UNIFORM.
3. APPLY AGRICULTURAL LIME, FERTILIZER, AND SUPERPHOSPHATE IN ACCORDANCE WITH "SEEDING SCHEDULE" AND MIX WITH SOIL.
4. CONTINUE TILLAGE UNTIL A WELL-PULVERIZED, FIRM, REASONABLY UNIFORM SEEDBED IS PREPARED 4 TO 6 INCHES DEEP.
5. SEED ON A FRESHLY PREPARED SEEDBED AND COVER SEED LIGHTLY WITH SEEDING EQUIPMENT OR CULTIPACK AFTER SEEDING. SEED ACCORDING TO "SEEDING SCHEDULE."
6. MULCH IN ACCORDANCE WITH "SEEDING SCHEDULE" IMMEDIATELY AFTER SEEDING.
7. INSPECT ALL SEEDING FOR COMPLIANCE WITH THE REQUIREMENTS OF THE "SEEDING SCHEDULE". MAKE NECESSARY REPAIRS AND RESEED WITHIN THE PLANTING SEASON, IF POSSIBLE, OR THE DAMAGED AREA SHALL BE REESTABLISHED FOLLOWING THE ORIGINAL LIME, FERTILIZER, AND SEEDING REQUIREMENTS.

EROSION CONTROL CONSTRUCTION SEQUENCES

PHASE 1 - INITIAL

1. ENSURE ALL APPROVALS HAVE BEEN OBTAINED PRIOR TO ANY LAND DISTURBANCE. THE CONTRACTOR SHALL CONTACT DEMLR - RALEIGH OFFICE AT LEASE 48 HOURS PRIOR TO COMMENCING THE LAND-DISTURBING ACTIVITY. THE CONTACT NUMBER IS (919) 791-4200.
2. CONDUCT ON-SITE PRE-CONSTRUCTION MEETING WITH THE CONTRACTOR, OWNER, ENGINEER AND CONSTRUCTION MANAGER TO REVIEW THE PROJECT AND EROSION CONTROL SEQUENCES.
3. CONTRACTOR TO LOCATE ALL EXISTING UTILITIES WITHIN AND IMMEDIATELY ADJACENT TO THE PROJECT AREA.
4. INSTALL CONSTRUCTION ENTRANCE AT LOCATION SHOWN ON THE PLAN - OFF OF EDGE OF EXISTING PAVEMENT ON GRAHAM ROAD.
5. FLAG LIMITS OF ALL DISTURBED AREA AS SHOWN ON THE PLANS FOR INSTALLATION OF PERIMETER EROSION CONTROL DEVICES - SILT FENCE AND SILT FENCE OUTLET WHERE SHOWN.
6. INSTALL ALL EROSION CONTROL DEVICES SHOWN ON THE PLANS.
7. CLEAR AND GRUB SITE (WHERE REQUIRED) AND LEGALLY DISPOSE OF ALL DEBRIS OFF SITE.
8. WITHIN 14 CALENDER DAYS OF COMPLETION OF ANY PHASE OF GRADING, GROUND COVER SHALL BE PROVIDED ON EXPOSED SLOPES AND PERMANENT GROUND COVER SHALL BE PROVIDED FOR ALL DISTURBED AREAS WITHIN 14 CALENDER DAYS OR 60 CALENDER DAYS (WHICHEVER IS SHORTER) FOLLOWING COMPLETION OF CONSTRUCTION OR DEVELOPMENT.
9. THE CONTRACTOR SHALL CONDUCT SELF-INSPECTIONS OF THE EROSION AND SEDIMENTATION CONTROL MEASURES AND COMPLETE THE FOLLOWING COMBINED SELF-INSPECTION FORM FOUND ON THE DEMLR WEBSITE : https://files.nc.gov/ncdeq/Energy%20Mineral%20and%20Land%20Resources/Stormwater/NPDES%20General%20Permits/DEMLR-CSW-Monitoring-Form-Rev-August-8-2019.pdf TWELVE MONTHS OF COMPLETE INSPECTION FORMS SHALL BE KEPT ON-SITE AND AVAILABLE FOR INSPECTION AT ALL TIMES. IT IS RECOMMENDED A COPY BE KEPT IN A PERMITS BOX. (GS 113A-54.1 (E), 15ANCAC 04B.0131, NCG01 ART III SECTIONS A AND B).
10. "EROSION AND SEDIMENT CONTROL(E&SC) PERMIT AND A CERTIFICATE OF COVERAGE (COC) MUST BE OBTAINED BEFORE ANY LAND DISTURBING ACTIVITIES OCCUR. A COPY OF THE E&SC PERMIT, THE COC, AND A HARD COPY OF THE PLAN MUST BE KEPT ON SITE, PREFERABLY IN A PERMITS BOX, AND ACCESSIBLE DURING INSPECTION." THE COC CAN BE OBTAINED BY FILLING OUT THE ELECTRONIC NOTICE OF INTENT (E-NOI) FORM ATDEQ.NC.GOV/NCG01. PLEASE NOTE, THE E-NOI FORM MAY ONLY BE FILLED OUT ONCE THE PLANS HAVE BEEN APPROVED.
11. "SELF-INSPECTIONS FOR EROSION AND SEDIMENTATION CONTROL MEASURES ARE TO BE PERFORMED AT LEAST ONCE EVERY SEVEN CALENDAR DAYS AND WITHIN 24 HOURS OF EVERY RAIN EVENT OF GREATER THAN 1 INCH. ANY NEEDED REPAIRS SHALL BE MADE IMMEDIATELY TO MAINTAIN MEASURES AS DESIGNED. ALL ESC MEASURES SHALL BE MAINTAINED AS SPECIFIED IN THE CONSTRUCTION DETAILS ON THIS PLAN. A RAIN GAUGE SHALL BE INSTALLED AT THE PROJECT SITE FOR MONITORING.

PHASE 2- INTERMEDIATE

1. **CHECK ALL SILT FENCE AND REPAIR AS NECESSARY. ASSURE ANY ERODED AREA ARE STABILIZED WITH TEMPORARY SEEDING AND MULCH.**
2. **STRIPPED AND ROUGH GRADE PRIVATE DRIVE AND SITE AREA FOR DEVELOPMENT. PLACE TOPSOIL IN TOPSOIL AREA AS SHOWN ON THE PLANS.**
3. **INSTALL THE WATER SYSTEM AS SHOWN ON THE PLANS.**
4. **INSTALL INLET / OUTLET BMP'S WHERE REQUIRED.**
5. **GRADE AND PREPARE SUBGRADE FOR PAVEMENT AREA.**
6. **PLACE COMPACTED G.A.B.C FOR ASPHALT CONSTRUCTION.**
7. **FINISH FINE GRADING THE PRIVATE DRIVE COMMON AREAS.**
8. **COMPLETE ALL REMAINING SITE IMPROVEMENTS.**
9. **PLACE ASPHALT, PAVEMENT MARKINGS, AND SIGNAGE.**

PHASE 3 - FINAL

1. ONCE SITE HAS BEEN VEGETATED AND STABILIZED, COMPLETE THE INSTALLATION OF THE STORM DRAINAGE PIPES. INSTALL EROSION CONTROL DEVICES AS SHOWN ON THE PLANS.
2. UPON COMPLETING ALL SITE IMPROVEMENTS AND FINAL GRADING, STABILIZE ALL DISTURBED AREAS PER LANDSCAPE PLAN. WATER AND MAINTAIN ALL LANDSCAPED AREAS TO ENSURE PROPER GROUND COVERAGE PRIOR TO FINAL APPROVAL.
3. SEE SEEDING SCHEDULE PROVIDED IN EROSION CONTROL DETAIL.
4. PERIMETER MEASURES MUST BE LEFT INPLACE UNTIL ALL UPLAND AREAS ARE PERMANENTLY STABILIZED. AFTER SITE IS PERMANENTLY STABILIZED, REMOVE ALL TEMPORARY EROSION CONTROL MEASURES AND PROVIDE PERMANENT SEEDING WHERE TEMPORARY MEASURES HAVE BEEN REMOVED AND GROUND COVER IS NOT ADEQUATE. SEDIMENT BASINS MAY NOT BE REMOVED OR CONVERTED TO PERMANENT BMPS UNTIL ALL UPLAND AREAS ARE PERMANENTLY STABILIZED. (GS 113A-57(3). 15A NCAC 04B. 0113)
5. WHEN THE PROJECT IS COMPLETE, THE PERMITTEE SHALL CONTACT DEMLR TO CLOSE OUT THE E&SC PLAN. AFTER DEMLR INFORMS THE PERMITTEE OF THE PROJECT CLOSE OUT, VIA INSPECTION REPORT, THE PERMITTEE SHALL VISIT DEQ.NC.GOV/NCG01 TO SUBMIT AN ELECTRONIC NOTICE OF TERMINATION (e-NOT). A $100 ANNUAL GENERAL PERMIT FEE WILL BE CHARGED UNTIL THE e-NOT HAS BEEN FILLED OUT.

NORTH CAROLINA PROFESSIONAL SEAL 035670 ENGINEER JAMROD E. HILLIARD
2/16/21

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HILLIARD ENGINEERING, PLLC

EROSION CONTROL NARRATIVE

3D CHURCH COMMUNITY CHURCH
HARNETT COUNTY, NORTH CAROLINA

SYM.:	REVISION DESCRIPTION:	DATE:
1	NCDNER COMMENTS DATED 03/18/2020	
2		
3		
4		
5		
6		

DESIGNED BY:	JEH
DRAWN BY:	JLF
APPROVED BY:	JEH
SHEET:	7
	CIVIL

GROUND STABILIZATION AND MATERIALS HANDLING PRACTICES FOR COMPLIANCE WITH THE NCG01 CONSTRUCTION GENERAL PERMIT

Implementing the details and specifications on this plan sheet will result in the construction activity being considered compliant with the Ground Stabilization and Materials Handling sections of the NCG01 Construction General Permit (Sections E and F, respectively). The permittee shall comply with the Erosion and Sediment Control plan approved by the delegated authority having jurisdiction. All details and specifications shown on this sheet may not apply depending on site conditions and the delegated authority having jurisdiction.

SECTION E: GROUND STABILIZATION

Required Ground Stabilization Timeframes		
Site Area Description	**Stabilize within this many calendar days after ceasing land disturbance**	**Timeframe variations**
(a) Perimeter dikes, swales, ditches, and perimeter slopes	7	None
(b) High Quality Water (HQW) Zones	7	None
(c) Slopes steeper than 3:1	7	If slopes are 10' or less in length and are not steeper than 2:1, 14 days are allowed
(d) Slopes 3:1 to 4:1	14	-7 days for slopes greater than 50' in length and with slopes steeper than 4:1 -7 days for perimeter dikes, swales, ditches, perimeter slopes and HQW Zones -10 days for Falls Lake Watershed
(e) Areas with slopes flatter than 4:1	14	-7 days for perimeter dikes, swales, ditches, perimeter slopes and HQW Zones -10 days for Falls Lake Watershed unless there is zero slope

Note: After the permanent cessation of construction activities, any areas with temporary ground stabilization shall be converted to permanent ground stabilization as soon as practicable but in no case longer than 90 calendar days after the last land disturbing activity. Temporary ground stabilization shall be maintained in a manner to render the surface stable against accelerated erosion until permanent ground stabilization is achieved.

GROUND STABILIZATION SPECIFICATION

Stabilize the ground sufficiently so that rain will not dislodge the soil. Use one of the techniques in the table below:

Temporary Stabilization	Permanent Stabilization
• Temporary grass seed covered with straw or other mulches and tackifiers • Hydroseeding • Rolled erosion control products with or without temporary grass seed • Appropriately applied straw or other mulch • Plastic sheeting	• Permanent grass seed covered with straw or other mulches and tackifiers • Geotextile fabrics such as permanent soil reinforcement matting • Hydroseeding • Shrubs or other permanent plantings covered with mulch • Uniform and evenly distributed ground cover sufficient to restrain erosion • Structural methods such as concrete, asphalt or retaining walls • Rolled erosion control products with grass seed

POLYACRYLAMIDES (PAMS) AND FLOCCULANTS

1. Select flocculants that are appropriate for the soils being exposed during construction, selecting from the *NC DWR List of Approved PAMS/Flocculants*.
2. Apply flocculants at or before the inlets to Erosion and Sediment Control Measures.
3. Apply flocculants at the concentrations specified in the *NC DWR List of Approved PAMS/Flocculants* and in accordance with the manufacturer's instructions.
4. Provide ponding area for containment of treated Stormwater before discharging offsite.
5. Store flocculants in leak-proof containers that are kept under storm-resistant cover or surrounded by secondary containment structures.

EQUIPMENT AND VEHICLE MAINTENANCE

1. Maintain vehicles and equipment to prevent discharge of fluids.
2. Provide drip pans under any stored equipment.
3. Identify leaks and repair as soon as feasible, or remove leaking equipment from the project.
4. Collect all spent fluids, store in separate containers and properly dispose as hazardous waste (recycle when possible).
5. Remove leaking vehicles and construction equipment from service until the problem has been corrected.
6. Bring used fuels, lubricants, coolants, hydraulic fluids and other petroleum products to a recycling or disposal center that handles these materials.

LITTER, BUILDING MATERIAL AND LAND CLEARING WASTE

1. Never bury or burn waste. Place litter and debris in approved waste containers.
2. Provide a sufficient number and size of waste containers (e.g dumpster, trash receptacle) on site to contain construction and domestic wastes.
3. Locate waste containers at least 50 feet away from storm drain inlets and surface waters unless no other alternatives are reasonably available.
4. Locate waste containers on areas that do not receive substantial amounts of runoff from upland areas and does not drain directly to a storm drain, stream or wetland.
5. Cover waste containers at the end of each workday and before storm events or provide secondary containment. Repair or replace damaged waste containers.
6. Anchor all lightweight items in waste containers during times of high winds.
7. Empty waste containers as needed to prevent overflow. Clean up immediately if containers overflow.
8. Dispose waste off-site at an approved disposal facility.
9. On business days, clean up and dispose of waste in designated waste containers.

PAINT AND OTHER LIQUID WASTE

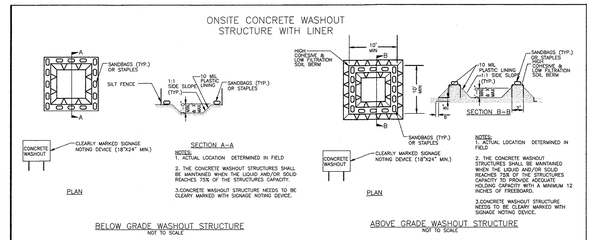
1. Do not dump paint and other liquid waste into storm drains, streams or wetlands.
2. Locate paint washouts at least 50 feet away from storm drain inlets and surface waters unless no other alternatives are reasonably available.
3. Contain liquid wastes in a controlled area.
4. Containment must be labeled, sized and placed appropriately for the needs of site.
5. Prevent the discharge of soaps, solvents, detergents and other liquid wastes from construction sites.

PORTABLE TOILETS

1. Install portable toilets on level ground, at least 50 feet away from storm drains, streams or wetlands unless there is no alternative reasonably available. If 50 foot offset is not attainable, provide relocation of portable toilet behind silt fence or place on a gravel pad and surround with sand bags.
2. Provide staking or anchoring of portable toilets during periods of high winds or in high foot traffic areas.
3. Monitor portable toilets for leaking and properly dispose of any leaked material. Utilize a licensed sanitary waste hauler to remove leaking portable toilets and replace with properly operating unit.

EARTHEN STOCKPILE MANAGEMENT

1. Show stockpile locations on plans. Locate earthen-material stockpile areas at least 50 feet away from storm drain inlets, sediment basins, perimeter sediment controls and surface waters unless it can be shown no other alternatives are reasonably available.
2. Protect stockpile with silt fence installed along toe of slope with a minimum offset of five feet from the toe of stockpile.
3. Provide stable stone access point when feasible.
4. Stabilize stockpile within the timeframes provided on this sheet and in accordance with the approved plan and any additional requirements. Soil stabilization is defined as vegetative, physical or chemical coverage techniques that will restrain accelerated erosion on disturbed soils for temporary or permanent control needs.



CONCRETE WASHOUTS

1. Do not discharge concrete or cement slurry from the site.
2. Dispose of, or recycle settled, hardened concrete residue in accordance with local and state solid waste regulations and at an approved facility.
3. Manage washout from mortar mixers in accordance with the above item and in addition place the mixer and associated materials on impervious barrier and within lot perimeter silt fence.
4. Install temporary concrete washouts per local requirements, where applicable. If an alternate method or product is to be used, contact your approval authority for review and approval. If local standard details are not available, use one of the two types of temporary concrete washouts provided on this detail.
5. Do not use concrete washouts for dewatering or storing defective curb or sidewalk sections. Stormwater accumulated within the washout may not be pumped into or discharged to the storm drain system or receiving surface waters. Liquid waste must be pumped out and removed from project.
6. Locate washouts at least 50 feet from storm drain inlets and surface waters unless it can be shown that no other alternatives are reasonably available. At a minimum, install protection of storm drain inlet(s) closest to the washout which could receive spills or overflow.
7. Locate washouts in an easily accessible area, on level ground and install a stone entrance pad in front of the washout. Additional controls may be required by the approving authority.
8. Install at least one sign directing concrete trucks to the washout within the project limits. Post signage on the washout itself to identify this location.
9. Remove leavings from the washout when at approximately 75% capacity to limit overflow events. Replace the tarp, sand bags or other temporary structural components when no longer functional. When utilizing alternative or proprietary products, follow manufacturer's instructions.
10. At the completion of the concrete work, remove remaining leavings and dispose of in an approved disposal facility. Fill pit, if applicable, and stabilize any disturbance caused by removal of washout.

HERBICIDES, PESTICIDES AND RODENTICIDES

1. Store and apply herbicides, pesticides and rodenticides in accordance with label restrictions.
2. Store herbicides, pesticides and rodenticides in their original containers with the label, which lists directions for use, ingredients and first aid steps in case of accidental poisoning.
3. Do not store herbicides, pesticides and rodenticides in areas where flooding is possible or where they may spill or leak into wells, stormwater drains, ground water or surface water. If a spill occurs, clean area immediately.
4. Do not stockpile these materials onsite.

HAZARDOUS AND TOXIC WASTE

1. Create designated hazardous waste collection areas on-site.
2. Place hazardous waste containers under cover or in secondary containment.
3. Do not store hazardous chemicals, drums or bagged materials directly on the ground.

NCG01 GROUND STABILIZATION AND MATERIALS HANDLING

EFFECTIVE: 04/01/19

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2/16/21

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HILLIARD ENGINEERING, PLLC

EROSION CONTROL STABILIZATION

3D CHURCH COMMUNITY CHURCH
HARNETT COUNTY, NORTH CAROLINA

SYM.	REVISION DESCRIPTION:	DATE:
1		
2		
3		
4		
5		
6		

DESIGNED BY:	JEH
DRAWN BY:	JLF
APPROVED BY:	JEH
SHEET:	8.0
	CIVIL

PART III
SELF-INSPECTION, RECORDKEEPING AND REPORTING

SECTION A: SELF-INSPECTION

Self-inspections are required during normal business hours in accordance with the table below. When adverse weather or site conditions would cause the safety of the inspection personnel to be in jeopardy, the inspection may be delayed until the next business day on which it is safe to perform the inspection. In addition, when a storm event of equal to or greater than 1.0 inch occurs outside of normal business hours, the self-inspection shall be performed upon the commencement of the next business day. Any time when inspections were delayed shall be noted in the Inspection Record.

Inspect	Frequency (during normal business hours)	Inspection records must include:
(1) Rain gauge maintained in good working order	Daily	Daily rainfall amounts. If no daily rain gauge observations are made during weekend or holiday periods, and no individual-day rainfall information is available, record the cumulative rain measurement for those un-attended days (and this will determine if a site inspection is needed). Days on which no rainfall occurred shall be recorded as "zero." The permittee may use another rain-monitoring device approved by the Division.
(2) E&SC Measures	At least once per 7 calendar days and within 24 hours of a rain event ≥ 1.0 inch in 24 hours	1. Identification of the measures inspected, 2. Date and time of the inspection, 3. Name of the person performing the inspection, 4. Indication of whether the measures were operating properly, 5. Description of maintenance needs for the measure, 6. Description, evidence, and date of corrective actions taken.
(3) Stormwater discharge outfalls (SDOs)	At least once per 7 calendar days and within 24 hours of a rain event ≥ 1.0 inch in 24 hours	1. Identification of the discharge outfalls inspected, 2. Date and time of the inspection, 3. Name of the person performing the inspection, 4. Evidence of indicators of stormwater pollution such as oil sheen, floating or suspended solids or discoloration, 5. Indication of visible sediment leaving the site, 6. Description, evidence, and date of corrective actions taken.
(4) Perimeter of site	At least once per 7 calendar days and within 24 hours of a rain event ≥ 1.0 inch in 24 hours	If visible sedimentation is found outside site limits, then a record of the following shall be made: 1. Actions taken to clean up or stabilize the sediment that has left the site limits, 2. Description, evidence, and date of corrective actions taken, and 3. An explanation as to the actions taken to control future releases.
(5) Streams or wetlands onsite or offsite (where accessible)	At least once per 7 calendar days and within 24 hours of a rain event ≥ 1.0 inch in 24 hours	If the stream or wetland has increased visible sedimentation or a stream has visible increased turbidity from the construction activity, then a record of the following shall be made: 1. Description, evidence and date of corrective actions taken, and 2. Records of the required reports to the appropriate Division Regional Office per Part III, Section C, Item (2)(a) of this permit.
(6) Ground stabilization measures	After each phase of grading	1. The phase of grading (installation of perimeter E&SC measures, clearing and grubbing, installation of storm drainage facilities, completion of all land-disturbing activity, construction or redevelopment, permanent ground cover). 2. Documentation that the required ground stabilization measures have been provided within the required timeframe or an assurance that they will be provided as soon as possible.

NOTE: The rain inspection resets the required 7 calendar day inspection requirement.

PART III
SELF-INSPECTION, RECORDKEEPING AND REPORTING

SECTION B: RECORDKEEPING

1. E&SC Plan Documentation

The approved E&SC plan as well as any approved deviation shall be kept on the site. The approved E&SC plan must be kept up-to-date throughout the coverage under this permit. The following items pertaining to the E&SC plan shall be kept on site and available for inspection at all times during normal business hours.

Item to Document	Documentation Requirements
(a) Each E&SC measure has been installed and does not significantly deviate from the locations, dimensions and relative elevations shown on the approved E&SC plan.	Initial and date each E&SC measure on a copy of the approved E&SC plan or complete, date and sign an inspection report that lists each E&SC measure shown on the approved E&SC plan. This documentation is required upon the initial installation of the E&SC measures or if the E&SC measures are modified after initial installation.
(b) A phase of grading has been completed.	Initial and date a copy of the approved E&SC plan or complete, date and sign an inspection report to indicate completion of the construction phase.
(c) Ground cover is located and installed in accordance with the approved E&SC plan.	Initial and date a copy of the approved E&SC plan or complete, date and sign an inspection report to indicate compliance with approved ground cover specifications.
(d) The maintenance and repair requirements for all E&SC measures have been performed.	Complete, date and sign an inspection report.
(e) Corrective actions have been taken to E&SC measures.	Initial and date a copy of the approved E&SC plan or complete, date and sign an inspection report to indicate the completion of the corrective action.

2. Additional Documentation to be Kept on Site

In addition to the E&SC plan documents above, the following items shall be kept on the site and available for inspectors at all times during normal business hours, unless the Division provides a site-specific exemption based on unique site conditions that make this requirement not practical:

(a) This General Permit as well as the Certificate of Coverage, after it is received.

(b) Records of inspections made during the previous twelve months. The permittee shall record the required observations on the Inspection Record Form provided by the Division or a similar inspection form that includes all the required elements. Use of electronically-available records in lieu of the required paper copies will be allowed if shown to provide equal access and utility as the hard-copy records.

3. Documentation to be Retained for Three Years

All data used to complete the e-NOI and all inspection records shall be maintained for a period of three years after project completion and made available upon request. [40 CFR 122.41]

PART III
SELF-INSPECTION, RECORDKEEPING AND REPORTING

SECTION C: REPORTING

1. Occurrences that Must be Reported

Permittees shall report the following occurrences:

(a) Visible sediment deposition in a stream or wetland.

(b) Oil spills if:
- They are 25 gallons or more,
- They are less than 25 gallons but cannot be cleaned up within 24 hours,
- They cause sheen on surface waters (regardless of volume), or
- They are within 100 feet of surface waters (regardless of volume).

(c) Releases of hazardous substances in excess of reportable quantities under Section 311 of the Clean Water Act (Ref: 40 CFR 110.3 and 40 CFR 117.3) or Section 102 of CERCLA (Ref: 40 CFR 302.4) or G.S. 143-215.85.

(d) Anticipated bypasses and unanticipated bypasses.

(e) Noncompliance with the conditions of this permit that may endanger health or the environment.

2. Reporting Timeframes and Other Requirements

After a permittee becomes aware of an occurrence that must be reported, he shall contact the appropriate Division regional office within the timeframes and in accordance with the other requirements listed below. Occurrences outside normal business hours may also be reported to the Department's Environmental Emergency Center personnel at (800) 858-0368.

Occurrence	Reporting Timeframes (After Discovery) and Other Requirements
(a) Visible sediment deposition in a stream or wetland	• ***Within 24 hours***, an oral or electronic notification. • ***Within 7 calendar days***, a report that contains a description of the sediment and actions taken to address the cause of the deposition. Division staff may waive the requirement for a written report on a case-by-case basis. • If the stream is named on the NC 303(d) list as impaired for sediment-related causes, the permittee may be required to perform additional monitoring, inspections or apply more stringent practices if staff determine that additional requirements are needed to assure compliance with the federal or state impaired-waters conditions.
(b) Oil spills and release of hazardous substances per Item 1(b)-(c) above	• ***Within 24 hours***, an oral or electronic notification. The notification shall include information about the date, time, nature, volume and location of the spill or release.
(c) Anticipated bypasses [40 CFR 122.41(m)(3)]	• ***A report at least ten days before the date of the bypass, if possible***. The report shall include an evaluation of the anticipated quality and effect of the bypass.
(d) Unanticipated bypasses [40 CFR 122.41(m)(3)]	• ***Within 24 hours***, an oral or electronic notification. • ***Within 7 calendar days***, a report that includes an evaluation of the quality and effect of the bypass.
(e) Noncompliance with the conditions of this permit that may endanger health or the environment[40 CFR 122.41(l)(7)]	• ***Within 24 hours***, an oral or electronic notification. • ***Within 7 calendar days***, a report that contains a description of the noncompliance, and its causes; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time noncompliance is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance. [40 CFR 122.41(l)(6). • Division staff may waive the requirement for a written report on a case-by-case basis.

PART II, SECTION G, ITEM (4)
DRAW DOWN OF SEDIMENT BASINS FOR MAINTENANCE OR CLOSE OUT

Sediment basins and traps that receive runoff from drainage areas of one acre or more shall use outlet structures that withdraw water from the surface when these devices need to be drawn down for maintenance or close out unless this is infeasible. The circumstances in which it is not feasible to withdraw water from the surface shall be rare (for example, times with extended cold weather). Non-surface withdrawals from sediment basins shall be allowed only when all of the following criteria have been met:

(a) The E&SC plan authority has been provided with documentation of the non-surface withdrawal and the specific time periods or conditions in which it will occur. The non-surface withdrawal shall not commence until the E&SC plan authority has approved these items,
(b) The non-surface withdrawal has been reported as an anticipated bypass in accordance with Part III, Section C, Item (2)(c) and (d) of this permit,
(c) Dewatering discharges are treated with controls to minimize discharges of pollutants from stormwater that is removed from the sediment basin. Examples of appropriate controls include properly sited, designed and maintained dewatering tanks, weir tanks, and filtration systems,
(d) Vegetated, upland areas of the sites or a properly designed stone pad is used to the extent feasible at the outlet of the dewatering treatment devices described in Item (c) above,
(e) Velocity dissipation devices such as check dams, sediment traps, and riprap are provided at the discharge points of all dewatering devices, and
(f) Sediment removed from the dewatering treatment devices described in Item (c) above is disposed of in a manner that does not cause deposition of sediment into waters of the United States.

NCG01 SELF-INSPECTION, RECORDKEEPING AND REPORTING | EFFECTIVE: 04/01/19

NORTH CAROLINA PROFESSIONAL SEAL 035670 ENGINEER JAMES E. HILLIARD
2/16/21

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HILLIARD ENGINEERING, PLLC

EROSION CONTROL INSPECTION

3D CHURCH COMMUNITY CHURCH
HARNETT COUNTY, NORTH CAROLINA

SYM.:	REVISION DESCRIPTION:	DATE:
1		
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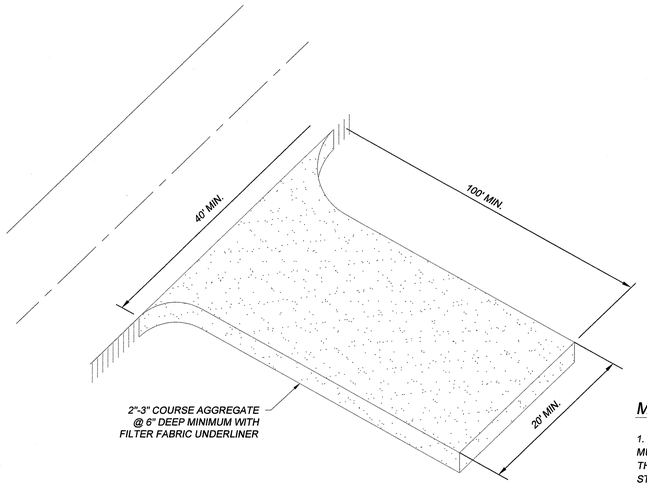
5		
6		

DESIGNED BY:	JEH
DRAWN BY:	JLF
APPROVED BY:	JEH
SHEET:	8.1
	CIVIL



CE **TEMPORARY GRAVEL CONSTRUCTION ENTRANCE DETAIL**

NOT TO SCALE

CONSTRUCTION SPECIFICATIONS:

1. CLEAR THE ENTRANCE AND EXIT AREA OF ALL VEGETATION, ROOTS, AND OTHER OBJECTIONABLE MATERIAL AND PROPERLY GRADE IT.

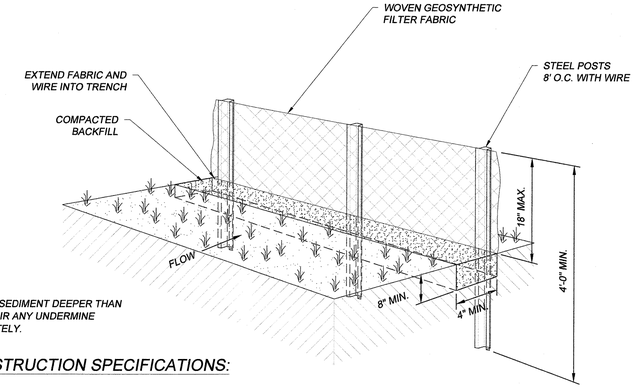
2. PLACE THE GRAVEL TO THE SPECIFIC GRADE AND DIMENSIONS SHOWN ON THE PLANS, AND SMOOTH IT.

3. PROVIDE DRAINAGE TO CARRY WATER TO A SEDIMENT TRAP OR OTHER SUITABLE OUTLET.

4. USE GEOTEXTILE FABRICS BECAUSE THEY IMPROVE STABILITY OF THE FOUNDATION IN LOCATIONS SUBJECT TO SEEPAGE OR HIGH WATER TABLE.

MAINTENANCE:

1. MAINTAIN THE GRAVEL PAD IN A CONDITION TO PREVENT MUD OR SEDIMENT FROM LEAVING THE CONSTRUCTION SITE. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH 2-INCH STONE. AFTER EACH RAINFALL, INSPECT ANY STRUCTURE USED TO TRAP SEDIMENT AND CLEAN IT OUT AS NECESSARY. IMMEDIATELY REMOVE ALL OBJECTIONABLE MATERIALS SPILLED, WASHED, OR TRACKED ONTO PUBLIC ROADWAYS.



NOTE:

REMOVE SEDIMENT DEEPER THAN 12". REPAIR ANY UNDERMINE IMMEDIATELY.

CONSTRUCTION SPECIFICATIONS:

CONSTRUCTION:

1. CONSTRUCT THE SEDIMENT BARRIER OF STANDARD STRENGTH OR EXTRA STRENGTH SYNTHETIC FILTER FABRICS.

2. ENSURE THAT THE HEIGHT OF THE SEDIMENT FENCE DOES NOT EXCEED 24 INCHES ABOVE GROUND SURFACE.

3. CONSTRUCT THE FILTER FABRIC FROM A CONTINUOUS ROLL CUT TO THE LENGTH OF THE BARRIER TO AVOID JOINTS. WHEN JOINTS ARE NECESSARY, SECURELY FASTEN THE FILTER CLOTH ONLY AT A SUPPORT POST WITH 4 FEET MINIMUM OVERLAP TO THE NEXT POST.

4. SUPPORT STANDARD STRENGTH FILTER FABRIC BY WIRE MESH FASTENED SECURELY TO THE UPSLOPE SIDE OF THE POSTS. EXTEND THE WIRE MESH SUPPORT TO THE BOTTOM OF THE TRENCH. FASTEN THE WIRE REINFORCEMENT, THEN FABRIC ON THE UPSLOPE SIDE OF THE FENCE POST. WIRE OR PLASTIC ZIP TIES SHOULD HAVE MINIMUM 50 POUND TENSILE STRENGTH.

5. WHEN A WIRE MESH SUPPORT FENCE IS USED, SPACE POSTS A MAXIMUM OF 8 FEET APART. SUPPORT POSTS SHOULD BE DRIVEN SECURELY INTO THE GROUND A MINIMUM OF 24 INCHES.

6. EXTRA STRENGTH FILTER FABRIC WITH 6 FEET POST SPACING DOES NOT REQUIRE WIRE MESH SUPPORT FENCE. SECURELY FASTEN THE FILTER FABRIC DIRECTLY TO THE POSTS. WIRE OR PLASTIC ZIP TIES SHOULD HAVE MINIMUM 50 POUND TENSILE STRENGTH.

7. EXCAVATE A TRENCH APPROXIMATELY 4 INCHES WIDE AND 8 INCHES DEEP ALONG THE PROPOSED LINE OF POSTS AND UPSLOPE FROM THE BARRIER.

8. PLACE 12 INCHES OF THE FABRIC ALONG THE BOTTOM AND SIDE OF THE TRENCH.

9. BACKFILL THE TRENCH WITH SOIL PLACED OVER THE FILTER FABRIC AND COMPACT. THOROUGH COMPACTION OF THE BACKFILL IS CRITICAL TO SILT FENCE PERFORMANCE.

10. DO NOT ATTACH FILTER FABRIC TO EXISTING TREES.

MATERIAL:

1. USE SYNTHETIC FILTER FABRIC OF AT LEAST 95% BY WEIGHT OF POLYOLEFIN OR POLYESTER, WHICH IS CERTIFIED BY THE MANUFACTURER OR SUPPLIER AS CONFORMING TO THE REQUIREMENTS IN ASTM D 6461.

2. ENSURE THAT POSTS FOR SEDIMENT FENCES ARE 1.33 LB/LINEAR FT STEEL WITH A MINIMUM LENGTH OF 4 FEET. MAKE SURE THAT STEEL POSTS HAVE PROJECTIONS TO FACILITATE FASTENING THE FABRIC.

3. FOR REINFORCEMENT OF STANDARD STRENGTH FILTER FABRIC, USE WIRE FENCE WITH A MINIMUM 14 GAUGE AND A MAXIMUM MESH SPACING OF 6 INCHES.

MAINTENANCE:

1. INSPECT SEDIMENT FENCES AT LEAST ONCE A WEEK AND AFTER EACH RAINFALL. MAKE ANY REQUIRED REPAIRS IMMEDIATELY.

2. SHOULD THE FABRIC OF A SEDIMENT FENCE COLLAPSE, TEAR, DECOMPOSE, OR BECOME INEFFECTIVE, REPLACE IT PROMPTLY.

3. REMOVE SEDIMENT DEPOSITS AS NECESSARY TO PROVIDE ADEQUATE STORAGE VOLUME FOR THE NEXT RAIN AND TO REDUCE PRESSURE ON THE FENCE. TAKE CARE TO AVOID UNDERMINING THE FENCE DURING CLEANOUTS

4. REMOVE ALL FENCING MATERIALS AND UNSTABLE SEDIMENT DEPOSITS AND BRING THE AREA TO GRADE AND STABILIZE IT AFTER THE CONTRIBUTING DRAINAGE AREA HAS BEEN PROPERLY STABILIZED.

SF **SILT FENCE DETAIL**

NOT TO SCALE

CONSTRUCTION SPECIFICATIONS

1. PLACE STONE TO THE LINES AND DIMENSIONS SHOWN IN THE PLAN ON A FILTER FABRIC FOUNDATION.

2. KEEP THE CENTER STONE SECTION AT LEAST 9 INCHES BELOW NATURAL GROUND LEVEL WHERE THE DAM ABUTS THE CHANNEL BANKS.

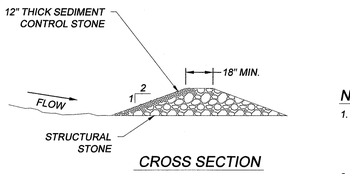
3. EXTEND STONE AT LEAST 1.5 FEET BEYOND THE DITCH BANK TO KEEP WATER FROM CUTTING AROUND THE ENDS OF THE CHECK DAM.

4. PROTECT THE CHANNEL AFTER THE DAM FROM HEAVY FLOW THAT COULD CAUSE EROSION.

6. MAKE SURE THAT THE CHANNEL REACH ABOVE THE MOST UPSTREAM DAM IS STABLE.

7. ENSURE THAT OTHER AREAS OF THE CHANNEL, SUCH AS CULVERT ENTRANCES BELOW THE DAM, ARE NOT SUBJECT TO DAMAGE OR BLOCKAGE FROM DISPLACED STONES.

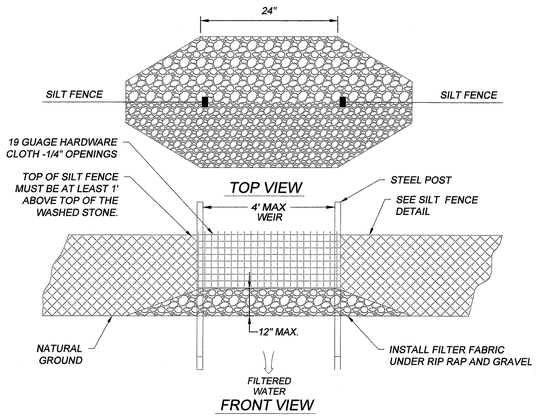
8. SEE SILT FENCE DETAIL FOR CONSTRUCTION SPECIFICATIONS.



CROSS SECTION

NOTES:

1. STRUCTURAL STONE SHALL BE CLASS "B" STONE FOR EROSION CONTROL PURPOSES. SEDIMENT CONTROL STONE SHALL BE #5 OR #57 STONE.
2. OUTLETS TO BE PLACED AT LOW POINTS ALONG SILT FENCE.



TOP VIEW

FRONT VIEW

MAINTENANCE

INSPECT DAM AND CHANNELS AT LEAST WEEKLY AND AFTER EACH SIGNIFICANT (1/2 INCH OR GREATER) RAINFALL EVENT AND REPAIR IMMEDIATELY. CLEAN OUT SEDIMENT, STRAW, LIMBS, OR OTHER DEBRIS THAT COULD CLOG THE CHANNEL WHEN NEEDED.

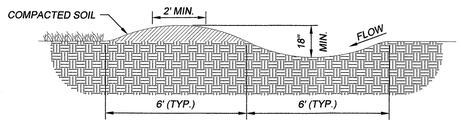
ANTICIPATE SUBMERGENCE AND DEPOSITION ABOVE THE DAM AND EROSION FROM HIGH FLOWS AROUND THE EDGES OF THE DAM. CORRECT ALL DAMAGE IMMEDIATELY. IF SIGNIFICANT EROSION OCCURS AROUND DAM, ADDITIONAL MEASURES CAN BE TAKEN SUCH AS, INSTALLING A PROTECTIVE RIPRAP LINER IN THAT PORTION OF THE CHANNEL (PRACTICE 6.31, RIPRAP-LINE AND PAVED CHANNELS).

REMOVE SEDIMENT ACCUMULATED BEHIND THE DAMS AS NEEDED TO PREVENT DAMAGE TO CHANNEL VEGETATION, ALLOW THE CHANNEL TO DRAIN THROUGH THE DAM, AND PREVENT LARGE FLOWS FROM CARRYING SEDIMENT OVER THE DAM.

ADD STONES TO DAM AS NEEDED TO MAINTAIN DESIGN HEIGHT AND CROSS SECTION.

SFO **SILT FENCE OUTLET DETAIL**

NOT TO SCALE



CONSTRUCTION SPECIFICATIONS

1. REMOVE AND PROPERLY DISPOSE OF ALL TREES, BRUSH, STUMPS, AND OTHER OBJECTIONABLE MATERIAL.

2. ENSURE THAT THE MINIMUM CONSTRUCTED CROSS SECTION MEETS ALL DESIGN REQUIREMENTS.

3. ENSURE THAT THE TOP OF THE DIKE IS NOT LOWER AT ANY POINT THAN THE DESIGN ELEVATION PLUS THE SPECIFIED SETTLEMENT.

4. PROVIDE SUFFICIENT ROOM AROUND DIVERSIONS TO PERMIT MACHINE REGRADING AND CLEANOUT.

5. VEGETATE THE RIDGE IMMEDIATELY AFTER CONSTRUCTION, UNLESS IT WILL REMAIN IN PLACE LESS THAN 30 WORKING DAYS.

MAINTENANCE

INSPECT TEMPORARY DIVERSIONS ONCE A WEEK AND AFTER EVERY RAINFALL. IMMEDIATELY REMOVE SEDIMENT FROM THE FLOW AREA AND REPAIR THE DIVERSION RIDGE. CAREFULLY CHECK OUTLETS AND MAKE TIMELY REPAIRS AS NEEDED. WHEN THE AREA PROTECTED IS PERMANENTLY STABILIZED, REMOVE THE RIDGE AND THE CHANNEL TO BLEND WITH THE NATURAL GROUND LEVEL AND APPROPRIATELY STABILIZE IT.

TD **TEMPORARY DIVERSIONS**

SCALE: N.T.S.

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HILLIARD ENGINEERING, PLLC

NORTH CAROLINA PROFESSIONAL SEAL 035670 ENGINEER JARROD E. HILLIARD

2/16/21

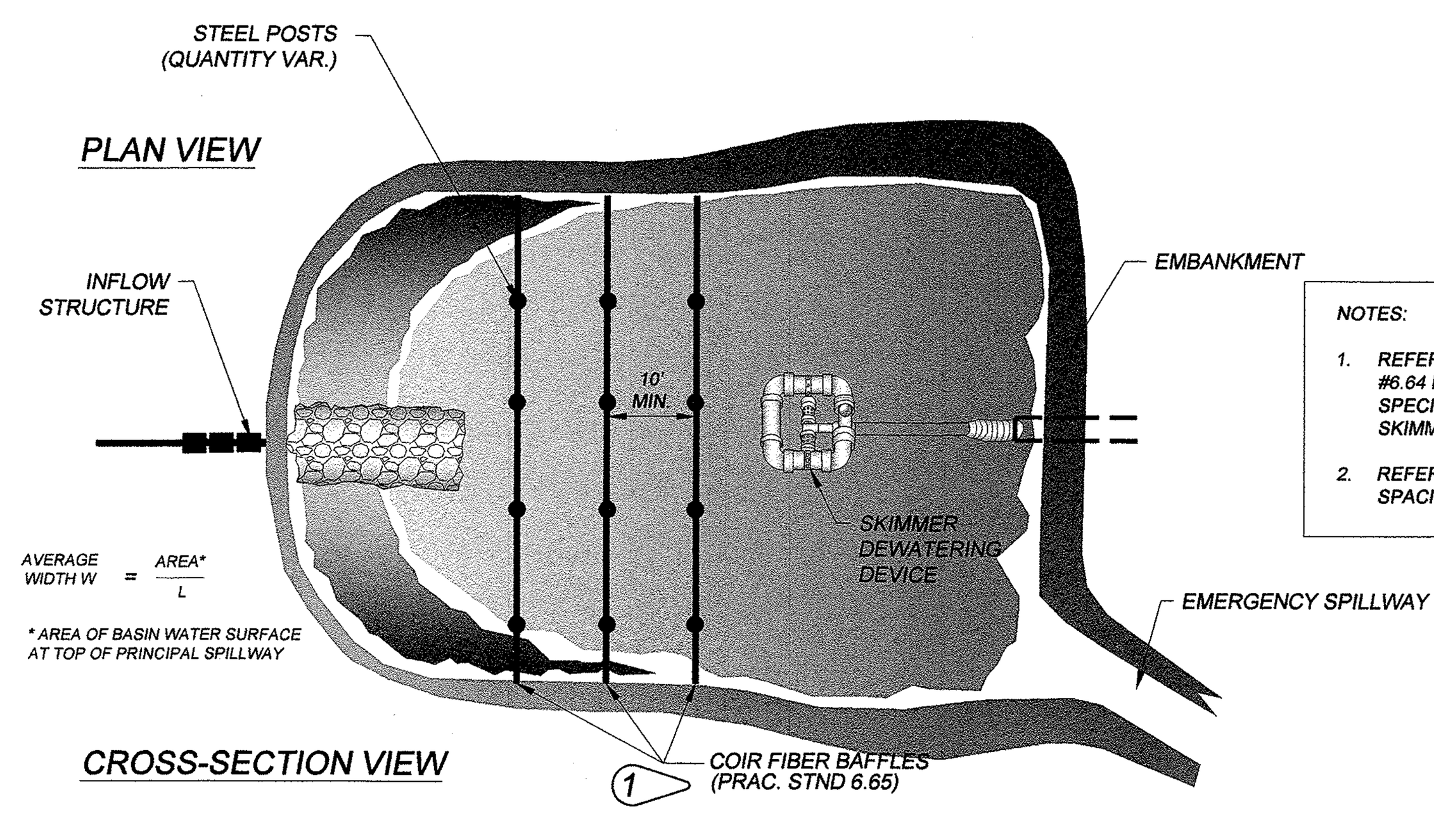
EROSION CONTROL DETAILS

3D CHURCH COMMUNITY CHURCH
HARNETT COUNTY, NORTH CAROLINA

SYM.	REVISION DESCRIPTION:	DATE:
1		
2		
3		
4		
5		
6		

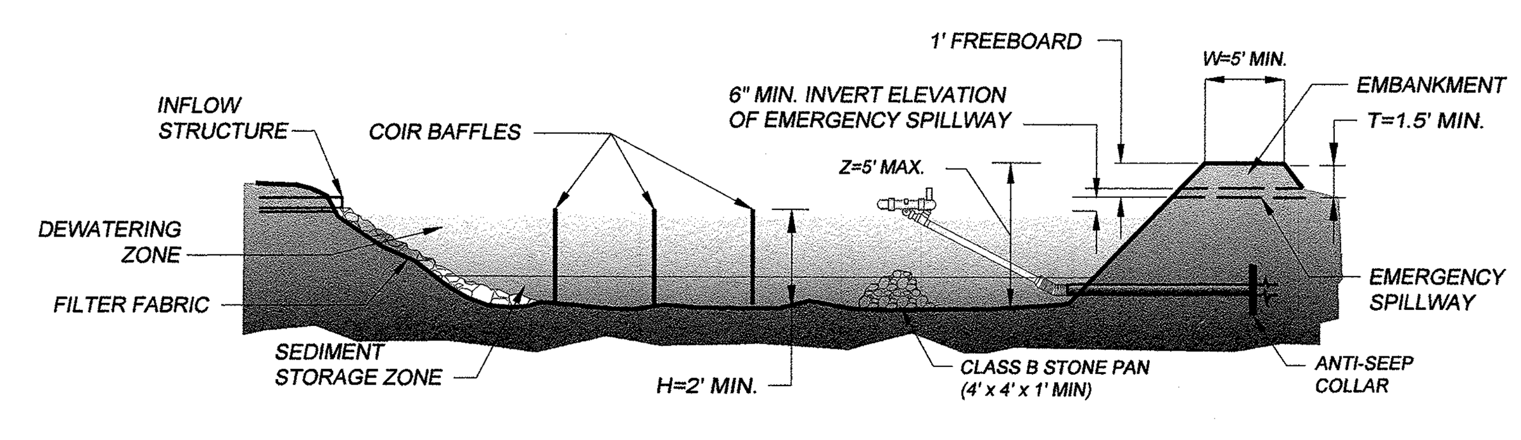
DESIGNED BY:	JEH
DRAWN BY:	JLF
APPROVED BY:	JEH
SHEET:	8.2
	CIVIL

SKIMMER SEDIMENT BASIN DESIGN CRITERIA	
DRAINAGE AREA (ACRES)	< 10 AC.
MIN. LENGTH TO WIDTH RATIO	2:1
MAX. LENGTH TO WIDTH RATIO	6:1
MIN. VOLUME REQUIRED	1800 (CU. FT. PER AC. DISTURBED)
SURFACE AREA REQUIRED	325 (SQ. FT. PER CFS Q10)



NOTES:

1. REFER TO NCESCPDM SECTION #6.64 FOR ADDITIONAL DESIGN SPECIFICATIONS REGARDING SKIMMER SEDIMENT BASINS.
2. REFER TO STD. 524.1 FOR BAFFLE SPACING AND INSTALLATION.



SIDE VIEW

SK SEDIMENT SKIMMER BASIN

SCALE: N.T.S.

CONSTRUCTION SPECIFICATION

1. CLEAR, GRUB, AND STRIP AREA UNDER THE EMBANKMENT OF ALL VEGETATION AND ROOT MAT. REMOVE ALL SURFACE SOIL CONTAINING HIGH AMOUNTS OF ORGANIC MATTER AND STOCKPILE OR DISPOSE OF IT PROPERLY. HAUL ALL OBJECTIONABLE MATERIAL TO THE DESIGNATED DISPOSAL AREA. PLACE TEMPORARY SEDIMENT CONTROL MEASURES BELOW BASIN AS NEEDED.

2. ENSURE THAT FILL MATERIAL FOR THE EMBANKMENT IS FREE OF ROOTS, WOODY VEGETATION, ORGANIC MATTER, AND OTHER OBJECTIONABLE MATERIAL. PLACE THE FILL IN LIFTS NOT TO EXCEED 9 INCHES, AND MACHINE COMPACT IT. OVER FILL THE EMBANKMENT 6 INCHES TO ALLOW FOR SETTLEMENT.

3. SHAPE THE BASIN TO THE SPECIFIED DIMENSIONS. PREVENT THE SKIMMING DEVICE FROM SETTLING INTO THE MUD BY EXCAVATING A SHALLOW PIT UNDER THE SKIMMER OR PROVIDING A LOW SUPPORT UNDER THE SKIMMER OF STONE OR TIMBER.

4. PLACE THE BARREL (TYPICALLY 4-INCH SCHEDULE 40 PVC PIPE) ON A FIRM, SMOOTH FOUNDATION OF IMPERVIOUS SOIL. DO NOT USE PREVIOUS MATERIAL SUCH AS SAND, GRAVEL, OR CRUSHED STONE AS A BACK FILL AROUND THE PIPE. PLACE THE FILL MATERIAL AROUND THE PIPE SPILLWAY IN 4-INCH LAYERS AND COMPACT IT UNDER AND AROUND THE PIPE TO AT LEAST THE SAME DENSITY AS THE ADJACENT EMBANKMENT. CARE MUST BE TAKEN NOT TO RAISE THE PIPE FROM THE FIRM CONTRACT WITH ITS FOUNDATION WHEN COMPACTING UNDER THE PIPE HAUNCHES.

PLACE A MINIMUM DEPTH OF 2 FEET OF COMPACTED BACK FILL OVER THE PIPE SPILLWAY BEFORE CROSSING IT WITH CONSTRUCTION EQUIPMENT, IN NO CASE SHOULD THE PIPE CONDUIT BE INSTALLED BY CUTTING A TRENCH THROUGH THE DAM AFTER THE EMBANKMENT IS COMPLETE.

5. ASSEMBLE THE SKIMMER FOLLOWING THE MANUFACTURES INSTRUCTIONS, OR AS DESIGNED.

6. LAY THE ASSEMBLED SKIMMER ON THE BOTTOM OF THE BASIN WITH THE FLEXIBLE JOINT AT THE INLET OF THE BARREL PIPE. ATTACH THE FLEXIBLE JOINT TO THE BARREL PIPE AND POSITION THE SKIMMER OVER THE EXCAVATED PIT OR SUPPORT. BE SURE TO ATTACH A ROPE TO THE SKIMMER AND ANCHOR IT TO THE SIDE OF THE BASIN. THIS WILL BE USED TO PULL THE SKIMMER TO THE SIDE FOR MAINTENANCE.

7. EARTHEN SPILLWAYS - INSTALL THE SPILLWAY IN UNDISTURBED SOIL TO THE GREATEST EXTENT POSSIBLE. THE ACHIEVEMENT OF PLANNED ELEVATIONS, GRADE, DESIGN WIDTH, AND ENTRANCE AND EXIT CHANNEL SLOPES ARE CRITICAL TO THE SUCCESSFUL OPERATION OF THE SPILLWAY. THE SPILLWAY SHOULD BE LINED WITH THE LAMINATED PLASTIC OR IMPERMEABLE GEO TEXTILE FABRIC. THE FABRIC MUST BE WIDE AND LONG ENOUGH TO COVER THE BOTTOM AND SIDES AND EXTEND ONTO THE TOP OF THE DAM FOR ANCHORING IN A TRENCH. THE EDGES MAY BE SECURED WITH 8-INCH STAPLES OR PINS. THE FABRIC MUST BE LONG ENOUGH TO EXTEND DOWN THE SLOPE AND EXIT ONTO STABLE GROUND. THE WIDTH OF THE FABRIC MUST BE ONE PIECE, NOT JOINED OR SPLICED; OTHERWISE WATER CAN GET UNDER THE FABRIC. IF THE LENGTH OF THE FABRIC IS INSUFFICIENT FOR THE ENTIRE LENGTH OF THE SPILLWAY, MULTIPLE SECTIONS, SPANNING THE COMPLETE WIDTH, MAY BE USED. THE UPPER SECTIONS SHOULD OVERLAP THE LOWER SECTIONS SO THAT WATER CANNOT FLOW UNDER THE FABRIC. SECURE THE UPPER EDGE AND SIDES OF THE FABRIC IN A TRENCH WITH STAPLES OR PINS. (ADAPTED FROM " A MANUAL FOR DESIGNING, INSTALLING AND MAINTAINING SKIMMER SEDIMENT BASINS." FEBRUARY 1999 J.W. FAIR CLOTH & SON.)

8. INLETS - DISCHARGE WATER INTO THE BASIN IN A MANNER TO PREVENT EROSION. USE TEMPORARY SLOPE DRAINS OR DIVERSIONS WITH OUTLET PROTECTION TO DIVERT SEDIMENT LADEN WATER TO THE UPPER END OF THE POOL AREA TO IMPROVE BASIN TRAP EFFICIENCY (REFERENCES: RUNOFF CONTROL MEASURES AND OUTLET PROTECTION).

9. EROSION CONTROL - CONSTRUCT THE STRUCTURE SO THAT THE DISTURBED AREA IS MINIMIZED. DIVERT SURFACE WATER AWAY FROM BARE AREAS. COMPLETE THE EMBANKMENT BEFORE THE AREA IS CLEARED. STABILIZE THE EMERGENCY SPILLWAY EMBANKMENT AND ALL OTHER DISTURBED AREAS ABOVE THE CREST OF THE PRINCIPAL SPILLWAY IMMEDIATELY AFTER CONSTRUCTION (REFERENCES: SURFACE STABILIZATION).

10. INSTALL POROUS BAFFLES AS SPECIFIED IN PRACTICE 6.65

11. AFTER ALL THE SEDIMENT-PRODUCING AREAS HAVE BEEN PERMANENTLY STABILIZED, REMOVE THE STRUCTURE AND AIL THE UNSTABLE SEDIMENT. SMOOTH THE AREA TO BLEND WITH THE ADJOINING AREAS AND STABILIZE PROPERLY (REFERENCES: SURFACE STABILIZATION).

MAINTENANCE

INSPECT SKIMMER SEDIMENT BASINS AT LEAST WEEKLY AND AFTER EACH SIGNIFICANT RAINFALL EVENT AND REPAIR IMMEDIATELY. REMOVE SEDIMENT AND RESTORE THE BASIN TO ITS ORIGINAL DIMENSIONS WHEN SEDIMENT ACCUMULATES TO ONE-HALF THE HEIGHT OF THE BATTLE. PULL THE SKIMMER TO ONE SIDE SO THAT THE SEDIMENT UNDERNEATH IT CAN BE EXCAVATED. EXCAVATE THE SEDIMENT FROM THE ENTIRE BASIN, NOT JUST AROUND THE SKIMMER OR THE FIRST CELL. MAKE SURE VEGETATION GROWING IN THE BOTTOM OF THE BASIN DOES NOT HOLD DOWN THE SKIMMER.

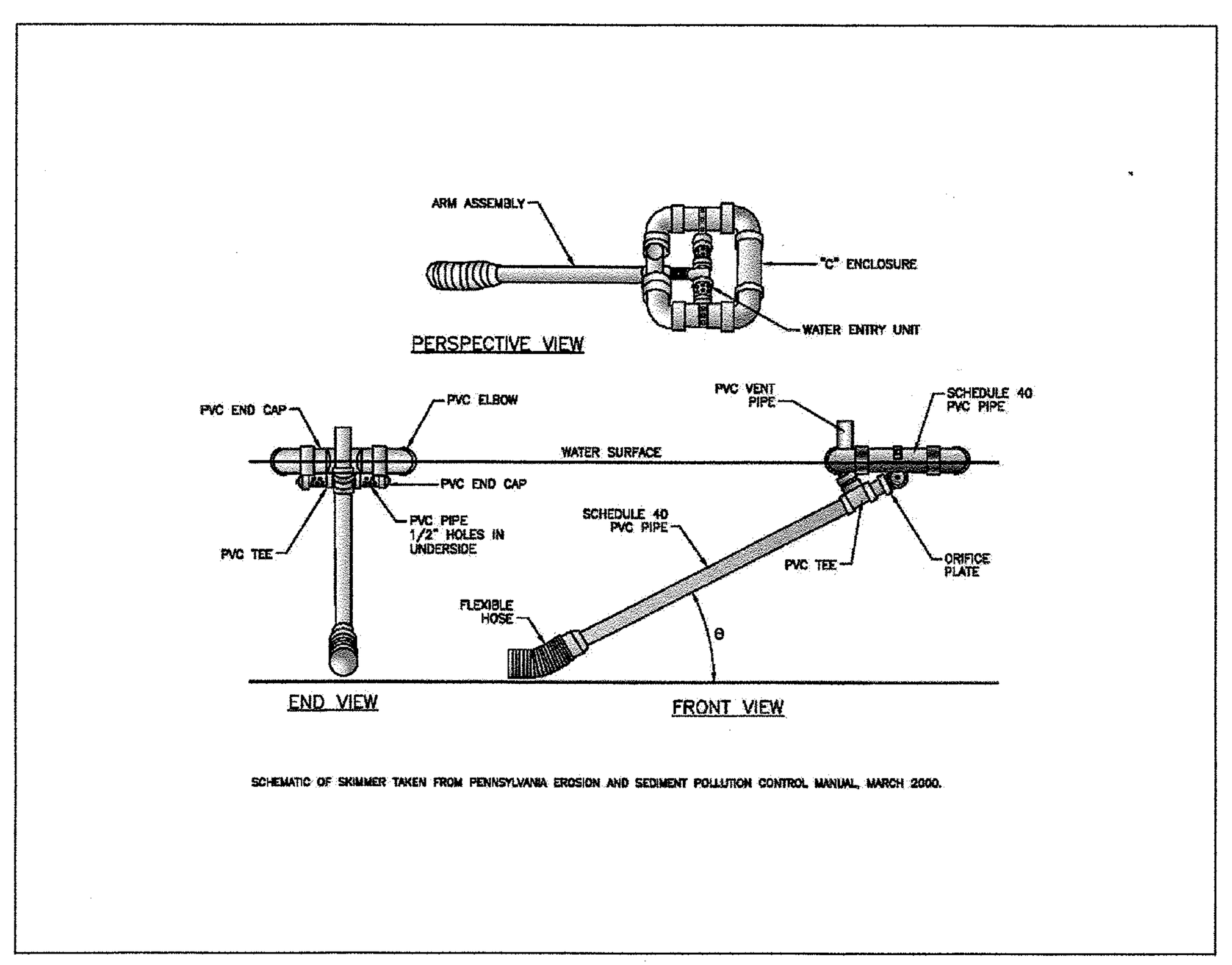
REPAIR THE BAFFLES IF THEY ARE DAMAGED. RE-ANCHOR THE BAFFLES IF WATER IS FLOWING UNDERNEATH OR AROUND THEM.

IF THE SKIMMER IS CLOGGED WITH TRASH AND THERE IS WATER IN THE BASIN, USUALLY JERKING ON THE ROPE WILL MAKE THE SKIMMER BOB UP AND DOWN AND DISLODGE THE DEBRIS AND RESTORE FLOW. IF THIS DOES NOT WORK, PULL THE SKIMMER OVER TO THE SIDE AND REMOVE DEBRIS. ALSO CHECK THE ORIFICE INSIDE THE SKIMMER FOR DEBRIS.

IF THE SKIMMER ARM OR BARREL PIPE IS CLOGGED, THE ORIFICE CAN BE REMOVED AND THE OBSTRUCTION CLEARED WITH A PLUMBER'S SNAKE OR BY FLUSHING WITH WATER. BE SURE AND REPLACE THE ORIFICE BEFORE REPOSITIONING THE SKIMMER.

CHECK THE FABRIC LINED SPILLWAY FOR DAMAGE AND MAKE ANY REQUIRED REPAIRS WITH THE FABRIC THAT SPANS THE FULL WIDTH OF THE SPILLWAY. CHECK THE EMBANKMENT, SPILLWAYS, AND OUTLET FOR EROSION DAMAGE, AND INSPECT THE EMBANKMENT FOR PIPING AND SETTLEMENT. MAKE ALL NECESSARY REPAIRS IMMEDIATELY. REMOVE ALL TRASH AND OTHER DEBRIS FROM THE SKIMMER AND POOL AREAS.

FREEZING WEATHER CAN RESULT IN ICE FORMING IN THE BASIN. SOME SPECIAL PRECAUTIONS SHOULD BE TAKEN IN THE WINTER TO PREVENT THE SKIMMER FROM PLUGGING WITH ICE.



GENERAL NOTES :

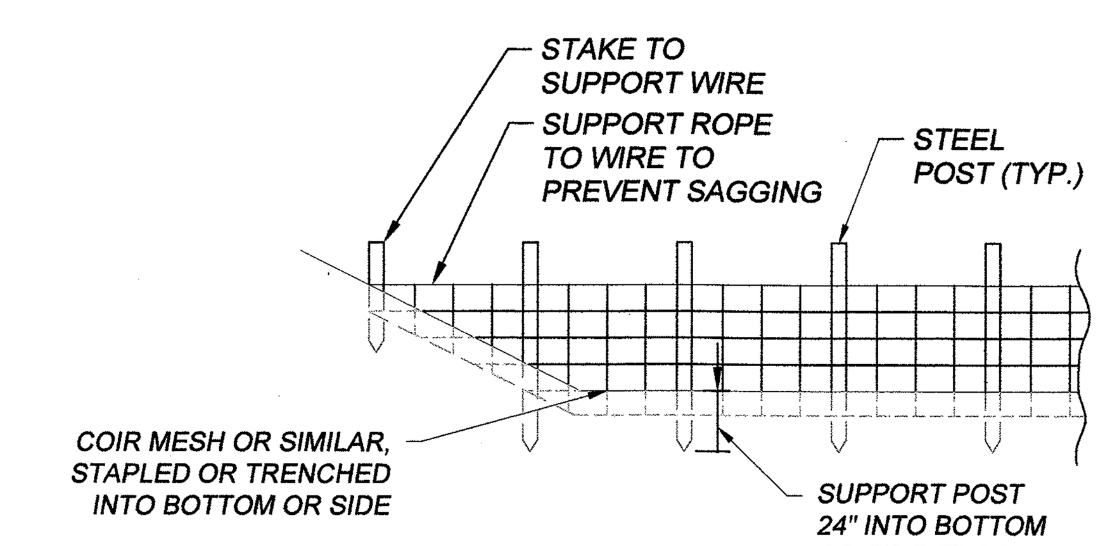
1. PROPER DESIGN MUST BE COMPLETED TO MINIMIZE PIPING AROUND DISCHARGE PIPE.
2. PROPER ORIFICE OPENING MUST BE SELECTED TO ENSURE POND DRAINS IN CORRECT AMOUNT OF TIME. MODIFICATIONS MAY BE REQUIRED IF FIELD CONDITIONS WARRANT A CHANGE.
3. EMBANKMENT MUST BE COMPACTED TO DESIGN SPECIFICATIONS.
4. EMERGENCY SPILLWAY MUST BE CORRECTLY SIZED AND EROSION PROTECTION INSTALLED.
5. EROSION PROTECTION MUST BE INSTALLED ALONG THE EMBANKMENT AND AT THE DISCHARGE END OF THE PIPE.
6. INSPECT SYSTEM REGULARLY TO ENSURE IT IS FUNCTIONING IN A CORRECT MANNER.
7. EIGHT SIZES OF SKIMMERS ARE AVAILABLE, REFER TO THE FLOW SHEET, CUT SHEET, AND INSTRUCTIONS ON WEB SITE FOR EACH SIZE.

SKIMMER DEWATERING DEVICE

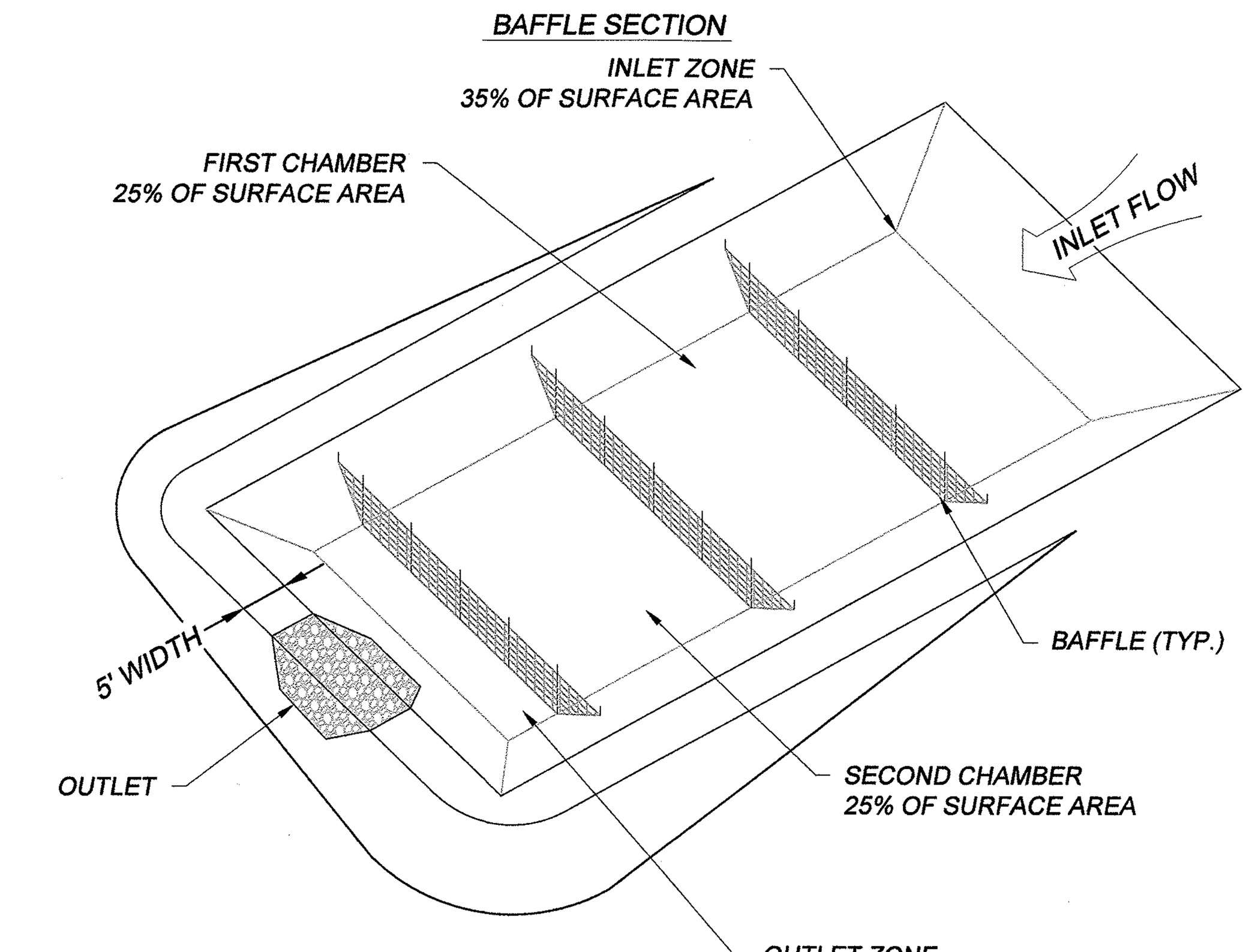
NOT TO SCALE

MAINTENANCE

1. PULL SKIMMER OVER TO THE SIDE OF BASIN AND REMOVE DEBRIS AND EXCESS SEDIMENTS THAT HAVE ACCUMULATED FROM RAINFALL EVENTS.
2. IF THE SKIMMER IS CLOGGED WITH TRASH AND THERE IS WATER IN THE BASIN, JERK THE SKIMMER TO BOB UP AND DOWN TO DISLODGE THE DEBRIS AND RESTORE FLOW. CHECK ORIFICE INSIDE THE SKIMMER FOR CLOGGING AND REMOVE AS NEEDED.
3. IF SKIMMER ARM OR BARREL PIPE IS CLOGGED, REMOVE THE ORIFICE AND THE OBSTRUCTION CAN BE CLEARED WITH PLUMBER'S SNAKE OR BY FLUSHING WITH WATER. REPLACE THE ORIFICE BEFORE REPOSITIONING THE SKIMMER.



BAFFLE SECTION



BAFFLE PLAN

BF BAFFLES FOR TEMPORARY SEDIMENT TRAPS

NOT TO SCALE

CONSTRUCTION SPECIFICATIONS:

GRADE THE BASIN SO THAT THE BOTTOM IS LEVEL FRONT TO BACK AND SIDE TO SIDE.

INSTALL POSTS OR SAW HORSES ACROSS THE WIDTH OF THE SEDIMENT TRAP.

STEEL POSTS SHOULD BE DRIVEN TO A DEPTH OF 24", SPACED A MAXIMUM OF 4' APART, AND INSTALLED UP THE SIDES OF THE BASIN AS WELL. THE TOP OF THE FABRIC SHOULD BE 6" HIGHER THAN THE INVERT OF THE SPILLWAY. TOPS OF BAFFLES SHOULD BE 2" LOWER THAN THE TOP OF THE BERMS.

INSTALL AT LEAST THREE ROWS OF BAFFLES BETWEEN THE INLET AND OUTLET DISHARGE POINT. BASINS LESS THAN THE TOP OF THE BERMS.

WHEN USING POSTS, ADD A SUPPORT WIRE OR ROPE ACROSS THE TOP OF THE MEASURE TO PREVENT SAGGING.

WRAP POROUS MATERIAL, LIKE JUTE BACKED BY COIR MATERIAL, OVER A SAWHORSE OR THE TOP WIRE. HAMMER REBAR INTO THE SAWHORSE LEGS FOR ANCHORING. THE FABRIC SHOULD HAVE FIVE TO TEN PERCENT OPENINGS IN THE WEAVE. ATTACH FABRIC TO A ROPE AND A SUPPORT STRUCTURE WITH ZIP TIES, WIRE OR STAPLES.

THE BOTTOM AND SIDES OF THE FABRIC SHOULD BE ANCHORED IN A TRENCH OR PINNED WITH 8" EROSION CONTROL MATTING STAPLES.

DO NOT SPLICE THE FABRIC, BUT USE A CONTINUOUS PIECE ACROSS THE BASIN

MAINTENANCE:

INSPECT BAFFLES AT LEAST ONCE A WEEK AND AFTER EACH RAINFALL. MAKE ANY REQUIRED REPAIRS IMMEDIATELY.

BE SURE TO MAINTAIN ACCESS TO THE BAFFLES. SHOULD THE FABRIC OF A BAFFLE COLLAPSE, TEAR DECOMPOSE OR BECOME INEFFECTIVE, REPLACE IT PROMPTLY.

REMOVE SEDIMENT DEPOSITS WHEN IT REACHED HALF FULL TO PROVIDE ADEQUATE STORAGE VOLUME FOR THE NEXT RAIN AND TO REDUCE PROESSURE ON THE BAFFLES. TAKE CARE TO AVOID DAMAGING THE BAFFLES DURING CLEANOUT. SEDIMENT DEPTH SHOULD NEVER EXCEED HALF THE DESIGNED STORAGE DEPTH.

AFTER CONTRIBUTING DRAINAGE AREA HAS BEEN PROPERLY STABILIZED, REMOVE ALL BAFFLE MATERIALS AND UNSTABLE SEDIMENT DEPOSITS, BRING THE AREA TO GRADE, AND STABILIZE IT.

SYM.:	REVISION DESCRIPTION:	DATE:
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NORTH CAROLINA PROFESSIONAL SEAL 035670 ENGINEER JARROD E. HILLIARD
2/16/21

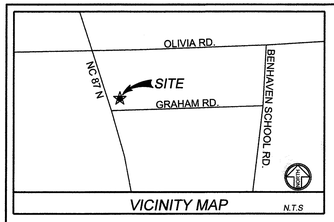
HILLIARD ENGINEERING, PLLC
749 Walker Road, Sanford, NC 27332
PO Box 249, Sanford, NC 27331
Phone: (919) 352-2834
e-mail: jhilliard@hilliardengineering.com
NC License #: P-0836

EROSION CONTROL DETAIL

3D CHURCH COMMUNITY CHURCH
HARNETT COUNTY, NORTH CAROLINA

DESIGNED BY:	JEH
DRAWN BY:	JLF
APPROVED BY:	JEH
SHEET:	8.3
	CIVIL

ero-detaill 8.3, 2/15/2021 8:43:43 PM, ARCH expand D (36.00 x 24.00 Inches)



N\F GARY CAMERON
PIN # 9568-84-5968.000
ZONING: RA-20R

N\F J.D. GILLIAM
PIN # 9568-74-7525.000
ZONING: COMMERCIAL

N\F 3D COMMUNITY CHURCH INC.
PIN # 9658-83-2297.000

CURVE	RADIUS	ARC LENGTH	CHORD LENGTH	CHORD BEARING	DELTA ANGLE
C1	1000.00'	35.39'	35.39'	N 05°16'30" W	2°01'39.17"
C2	1000.00'	80.91'	80.90'	N 04°32'37" W	3°29'23.44"
C3	30.00'	47.12'	42.43'	S 42°12'04" W	90°00'00.00"
C4	30.00'	47.12'	42.43'	N 42°12'04" E	90°00'00.00"

NORTH CAROLINA PROFESSIONAL SEAL 035250 ENGINEER JAMES E. HILLIARD
2/16/21

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HILLIARD ENGINEERING, PLLC

SITE HORIZONTAL CONTROL PLAN

3D COMMUNITY CHURCH
HARNETT COUNTY, NORTH CAROLINA

SYM.	REVISION DESCRIPTION:	DATE:
1	PER HARNETT COUNTY DRB REVIEW COMMENTS	2/10/21
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DESIGNED BY:	JEH
DRAWN BY:	JLF
APPROVED BY:	JEH
SHEET:	9
	CIVIL

Know what's below Call before you dig. Dial 811 Or Call 800-632-4949

SCALE IN FEET 0 15 30 60

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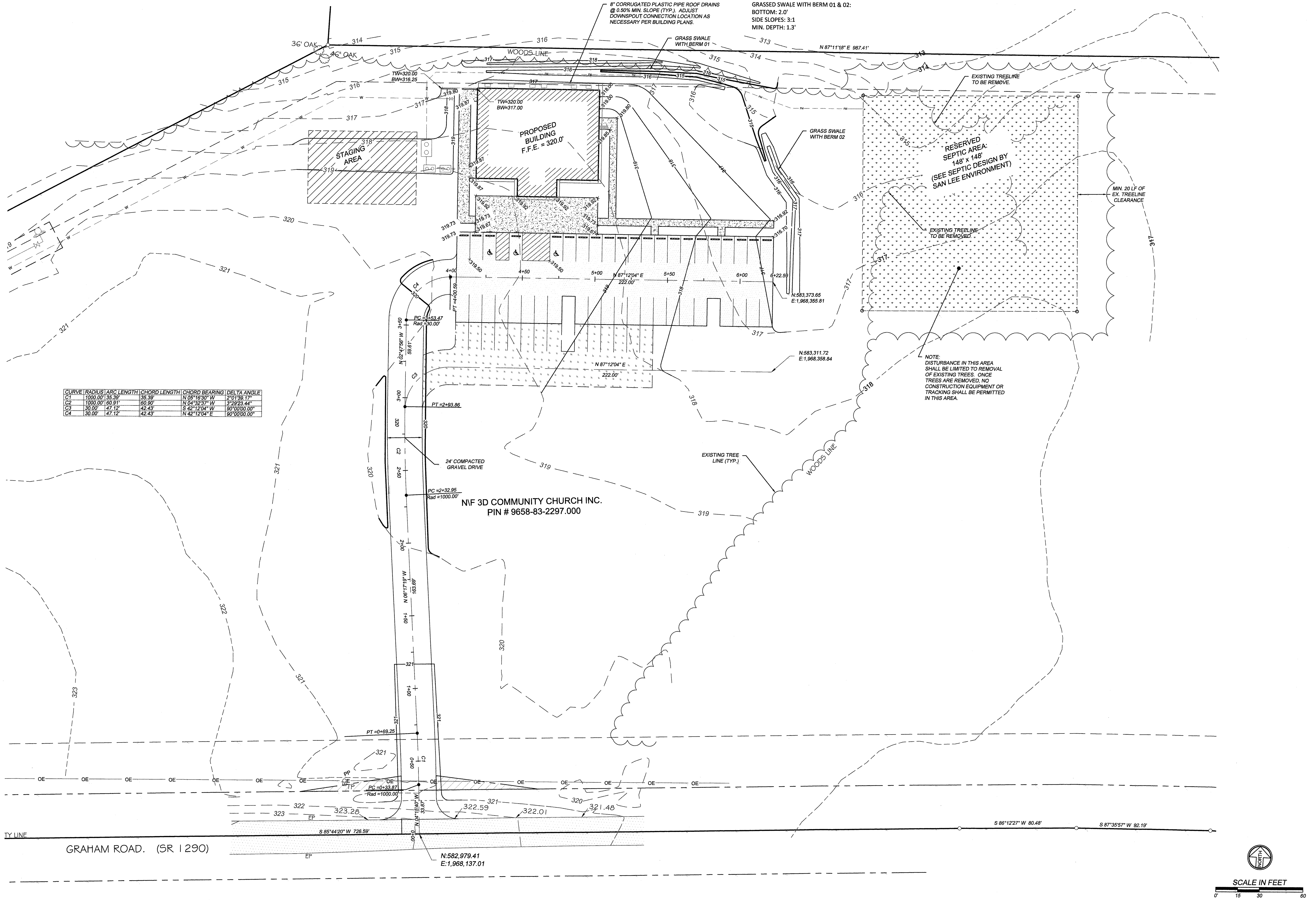

CURVE	RADIUS	ARC LENGTH	CHORD LENGTH	CHORD BEARING	DELTA ANGLE
C1	1000.00'	35.39'	35.39'	N 05°16'30" W	2°01'39.17"
C2	1000.00'	60.91'	60.90'	N 04°32'37" W	3°29'23.44"
C3	30.00'	47.12'	42.43'	S 42°12'04" W	90°00'00.00"
C4	30.00'	47.12'	42.43'	N 42°12'04" E	90°00'00.00"

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 035670 JARROD E. HILLIARD
2/16/21

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HILLIARD ENGINEERING, PLLC

GRADING AND DRAINAGE PLAN

3D COMMUNITY CHURCH
HARNETT COUNTY, NORTH CAROLINA

SYM.:	REVISION DESCRIPTION:	DATE:
1	PER HARNETT COUNTY DRB REVIEW COMMENTS	2/10/21
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APPROVED BY:	JEH

SHEET:
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CIVIL

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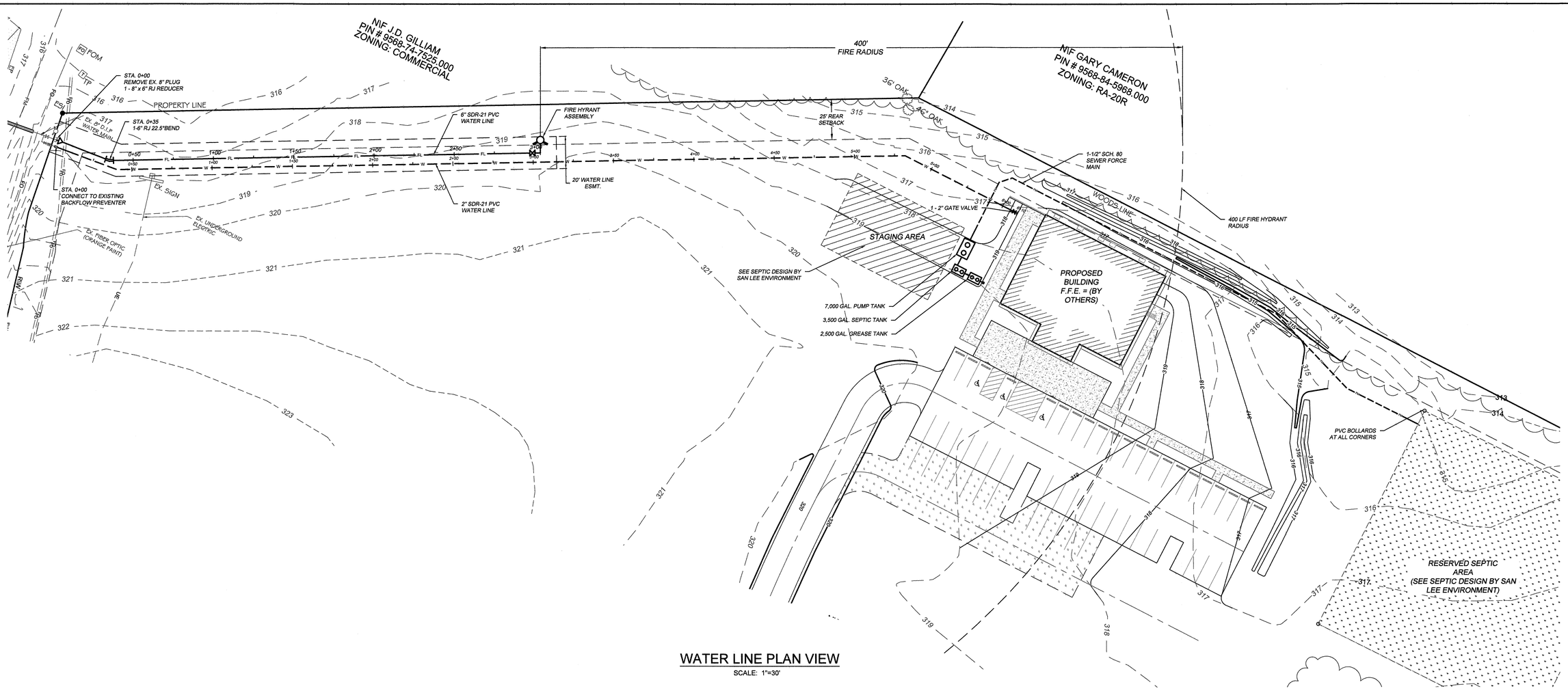
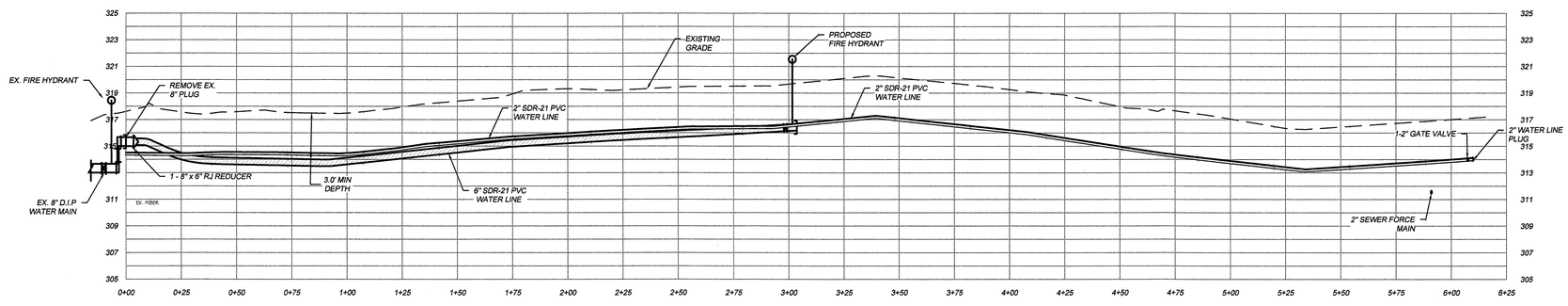
GRADING-10, 2/15/2021 8:43:53 PM, ARCH expand D (36.00 x 24.00 Inches)



WATER LINE PLAN VIEW

SCALE: 1"=30'



WATER LINE PROFILE

SCALE: Hoz. 1"=30' Vert. 1" = 5'

WASTEWATER TREATMENT NOTES:

THE PROPOSED DEVELOPMENT WILL BE SERVED BY SEPTIC SYSTEM.

SCALE IN FEET
0' 15 30 60

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NORTH CAROLINA PROFESSIONAL SEAL 035870 ENGINEER JARROD E. HILLIARD
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HILLIARD ENGINEERING, PLLC

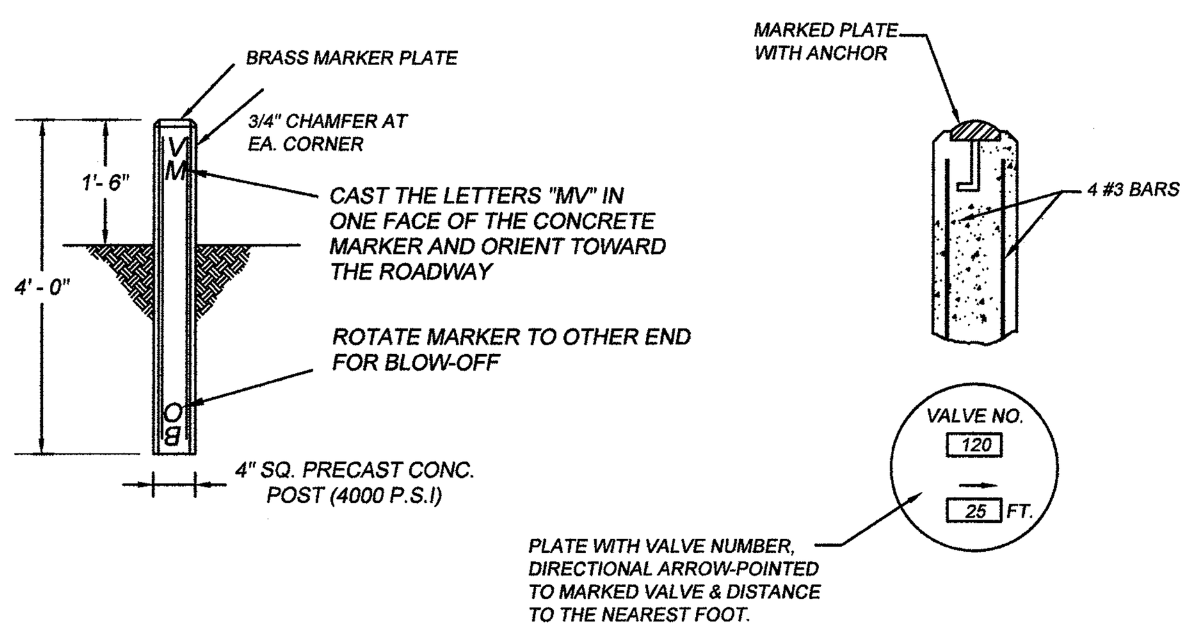
WATER LINE PLAN & PROFILE

3D COMMUNITY CHURCH
HARNETT COUNTY, NORTH CAROLINA

DESIGNED BY:	JEH
DRAWN BY:	JLF
APPROVED BY:	JEH
SHEET:	11
	CIVIL

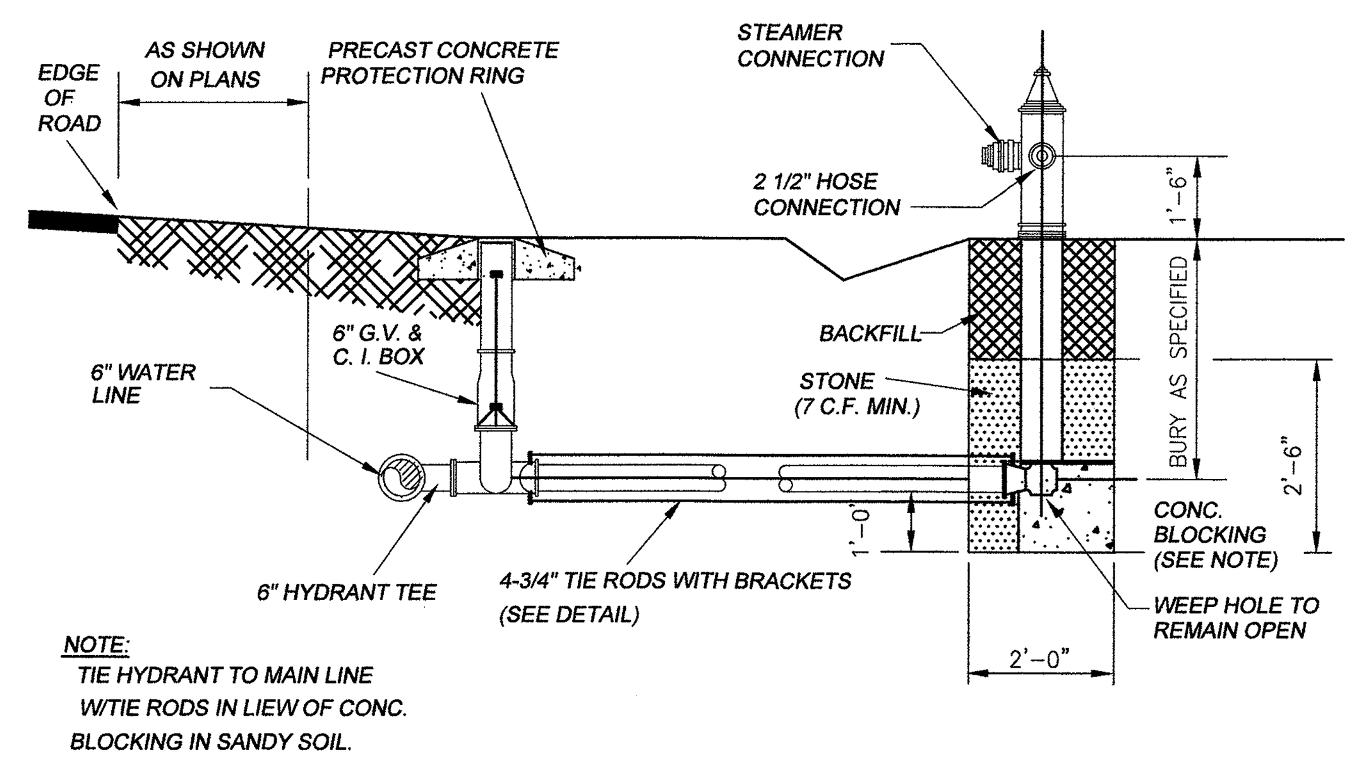
WL-P&P-11, 2/15/2021 8:43:58 PM, ARCH expand D (36.00 x 24.00 Inches)

NOTES:
PAINT MARKER BLUE AFTER INSTALLATION



TYPICAL VALVE MARKER DETAIL

NO SCALE

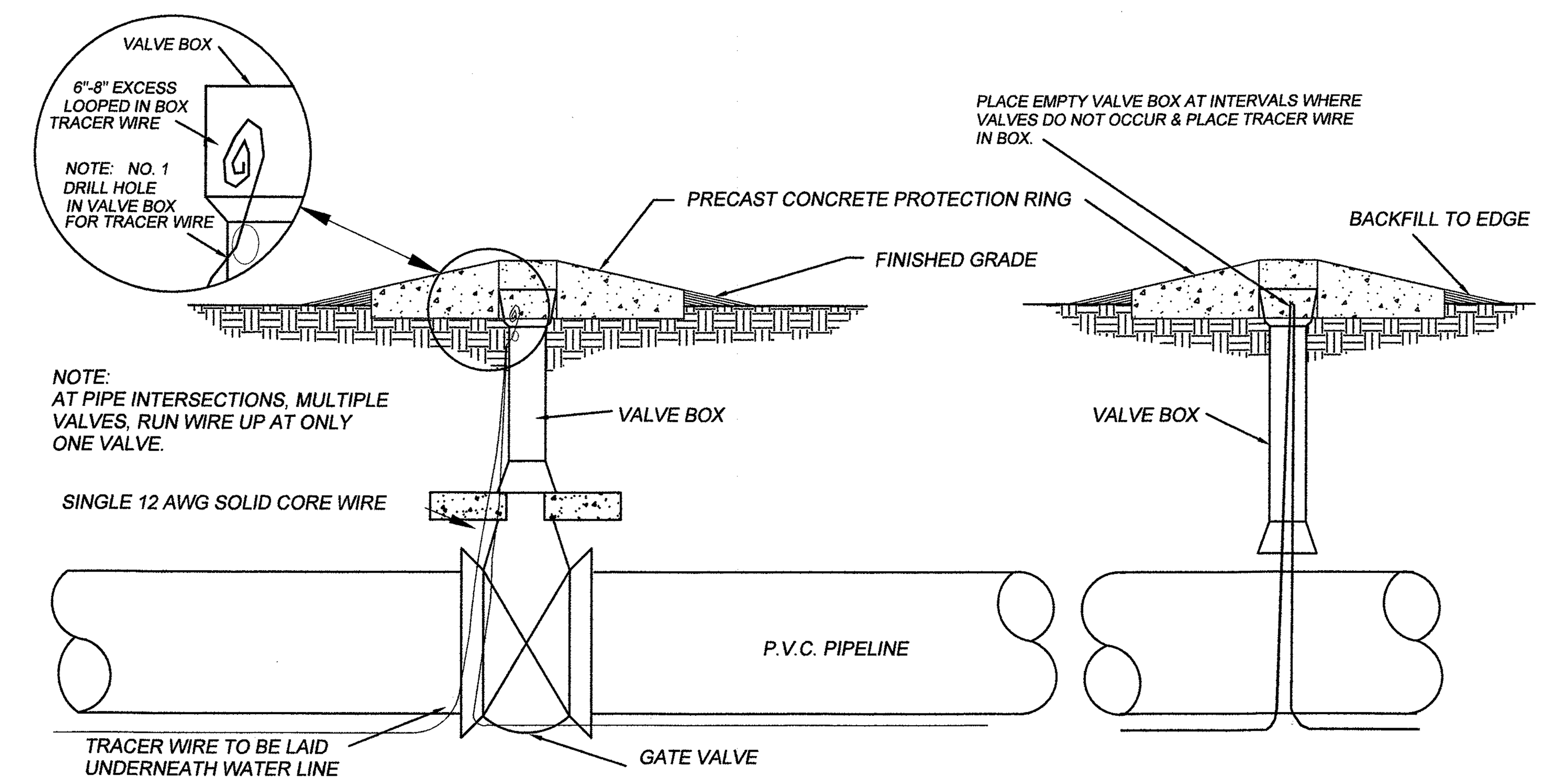


NOTE:
TIE HYDRANT TO MAIN LINE W/TIE RODS IN LIEW OF CONC. BLOCKING IN SANDY SOIL.

TYPICAL FIRE HYDRANT INSTALLATION DETAIL

NO SCALE

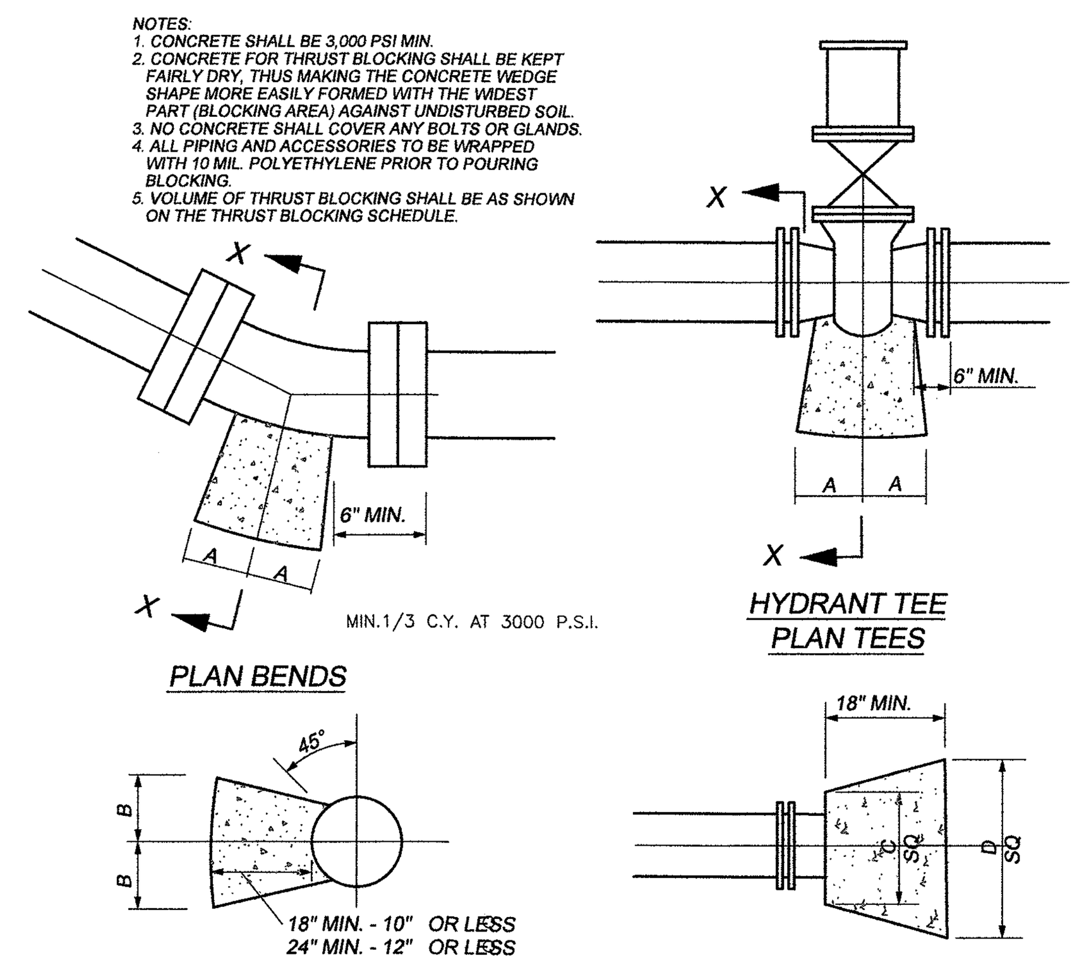
NOTES:
1. DRILL HOLE IN VALVE BOX TO INSERT TRACER WIRE,BRING UP TO INSIDE AND ROLL UP AT LEAST 6"-8" EXCESS
2. PLACE TRACER WIRE IN VALVE BOX AT 1,000" INTERVALS OR AS NOTED ON THE PLANS, TYPICAL.
3. DO NOT SPLICE WIRE WHEN BEGINNING A NEW SPOOL. INSTEAD INSTALL A VALVE BOX AND ATTACH EACH WIRE WITH A BRASS SCREW TO THE VALVE BOX.



TYPICAL TRACER WIRE INSTALLATION DETAIL

NO SCALE

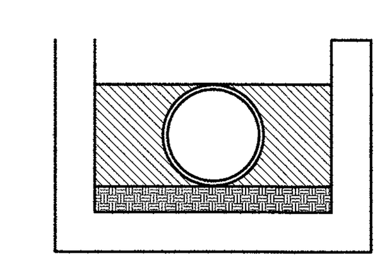
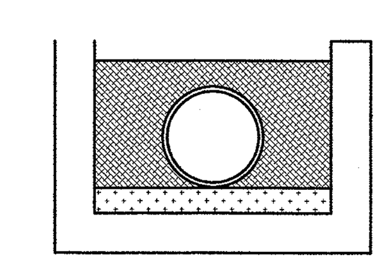
NOTES:
1. CONCRETE SHALL BE 3,000 PSI MIN.
2. CONCRETE FOR THRUST BLOCKING SHALL BE KEPT FAIRLY DRY, THUS MAKING THE CONCRETE WEDGE SHAPE MORE EASILY FORMED WITH THE WIDEST PART (BLOCKING AREA) AGAINST UNDISTURBED SOIL.
3. NO CONCRETE SHALL COVER ANY BOLTS OR GLANDS.
4. ALL PIPING AND ACCESSORIES TO BE WRAPPED WITH 10 MIL. POLYETHYLENE PRIOR TO POURING BLOCKING.
5. VOLUME OF THRUST BLOCKING SHALL BE AS SHOWN ON THE THRUST BLOCKING SCHEDULE.



PIPE SIZE	90° BEND		45° BEND		221/2° BEND		11/4° BEND		TEE		PLUG	
	A	B	A	B	A	B	A	B	A	B	C	D
4"	8"	12"	8"	8"	6"	6"	6"	6"	8"	9"	10"	16"
6"	10"	12"	8"	10"	8"	8"	8"	8"	10"	10"	12"	18"
8"	15"	13"	10"	10"	8"	8"	8"	8"	10"	12"	12"	24"
10"	16"	14"	10"	12"	6"	10"	6"	10"	11"	14"	14"	25"
12"	20"	16"	12"	14"	8"	12"	8"	12"	14"	16"	16"	30"
14"	22"	18"	14"	16"	10"	14"	10"	14"	16"	18"	18"	34"
16"	26"	20"	16"	18"	12"	16"	12"	16"	18"	20"	20"	36"

TYPICAL THRUST BLOCK DETAIL

NO SCALE

LAYING CONDITIONS	DESCRIPTION	PROJECT USE
 TYPE 3	PIPE BEDDED IN 4" MININUM JOB EXCAVATED MATERIAL. BACKFILL LIGHTLY CONSOLIDATED TO TOP OF PIPE.	ALL DUCTILE IRON GRAVITY SEWER LINE.
 TYPE 4	PIPE BEDDED IN SAND, GRANULAR MATERIAL OR GRADED GRAVEL TO THE DEPTH OF 1/8 PIPE DIAMETER, 4" MIN. JOB EXCAVATED MATERIAL COMPACTED TO 4" ABOVE TOP OF PIPE. (APPROX. 95% STANDARD PROCTOR, AASHTO T-99)	ALL PVC WATER LINE AND PVC FORCE MAIN.

TYPICAL LAYING CONDITIONS DETAIL

NO SCALE

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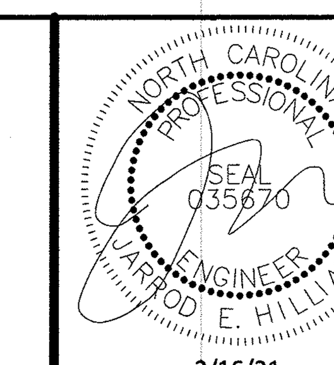

2/16/21

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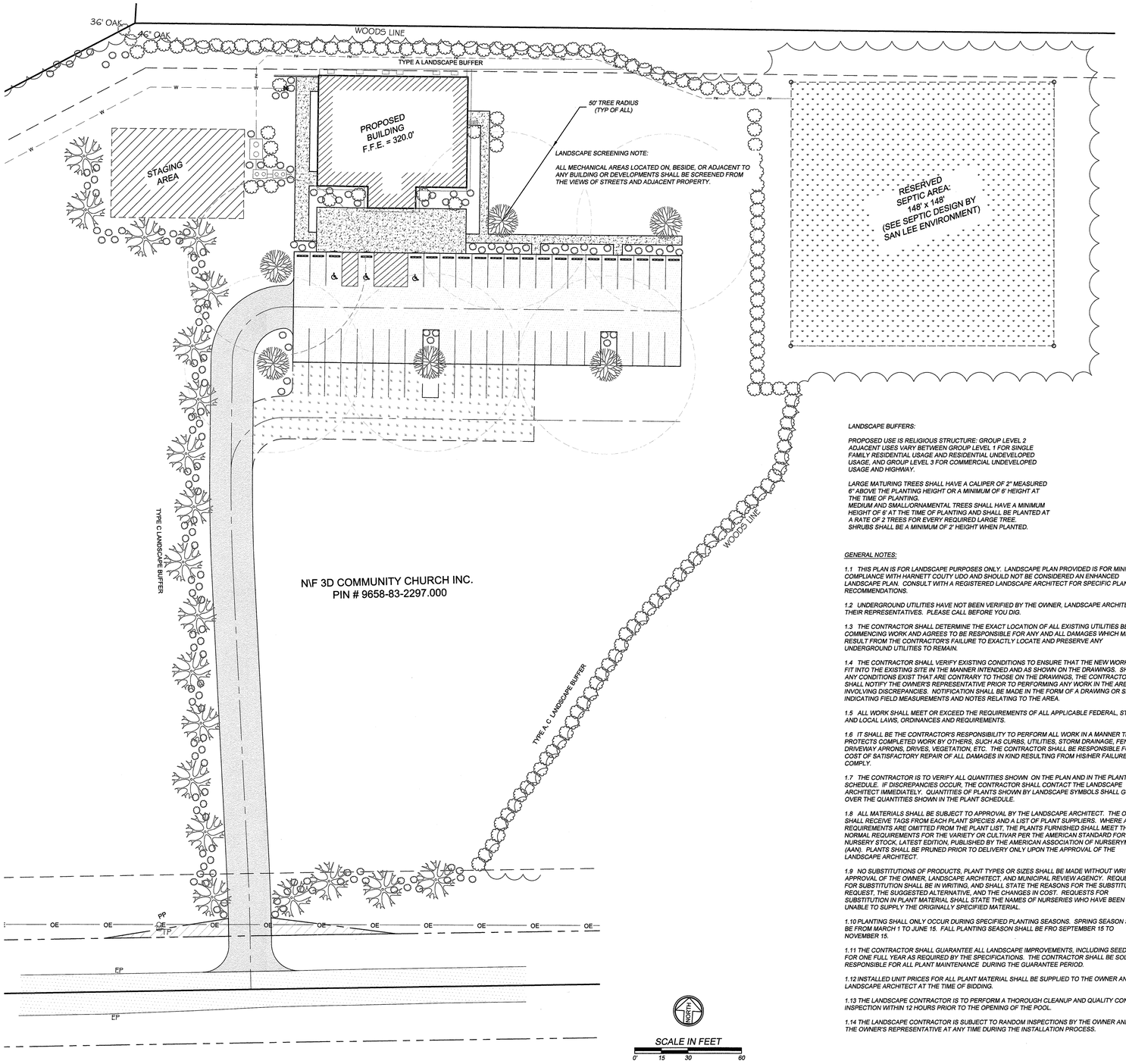
HILLIARD ENGINEERING, PLLC

WATER LINE DETAILS

3D COMMUNITY CHURCH
HARNETT COUNTY, NORTH CAROLINA

DESIGNED BY:	JEH
DRAWN BY:	JLF
APPROVED BY:	JEH
SHEET:	
12	
CIVIL	

WL-DET-12, 2/15/2021 8:44:03 PM, ARCH expand D (36.00 x 24.00 Inches)



LANDSCAPE BUFFERS:

PROPOSED USE IS RELIGIOUS STRUCTURE: GROUP LEVEL 2 ADJACENT USES VARY BETWEEN GROUP LEVEL 1 FOR SINGLE FAMILY RESIDENTIAL USAGE AND RESIDENTIAL UNDEVELOPED USAGE, AND GROUP LEVEL 3 FOR COMMERCIAL UNDEVELOPED USAGE AND HIGHWAY.

LARGE MATURING TREES SHALL HAVE A CALIPER OF 2" MEASURED 6" ABOVE THE PLANTING HEIGHT OR A MINIMUM OF 6' HEIGHT AT THE TIME OF PLANTING.
MEDIUM AND SMALL/ORNAMENTAL TREES SHALL HAVE A MINIMUM HEIGHT OF 8' AT THE TIME OF PLANTING AND SHALL BE PLANTED AT A RATE OF 2 TREES FOR EVERY REQUIRED LARGE TREE.
SHRUBS SHALL BE A MINIMUM OF 2' HEIGHT WHEN PLANTED.

GENERAL NOTES:

1.1 THIS PLAN IS FOR LANDSCAPE PURPOSES ONLY. LANDSCAPE PLAN PROVIDED IS FOR MINIMUM COMPLIANCE WITH HARNETT COUTY UDO AND SHOULD NOT BE CONSIDERED AN ENHANCED LANDSCAPE PLAN. CONSULT WITH A REGISTERED LANDSCAPE ARCHITECT FOR SPECIFIC PLANTING RECOMMENDATIONS.

1.2 UNDERGROUND UTILITIES HAVE NOT BEEN VERIFIED BY THE OWNER, LANDSCAPE ARCHITECT, OR THEIR REPRESENTATIVES. PLEASE CALL BEFORE YOU DIG.

1.3 THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK AND AGREES TO BE RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT RESULT FROM THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY UNDERGROUND UTILITIES TO REMAIN.

1.4 THE CONTRACTOR SHALL VERIFY EXISTING CONDITIONS TO ENSURE THAT THE NEW WORK SHALL FIT INTO THE EXISTING SITE IN THE MANNER INTENDED AND AS SHOWN ON THE DRAWINGS. SHOULD ANY CONDITIONS EXIST THAT ARE CONTRARY TO THOSE ON THE DRAWINGS, THE CONTRACTOR SHALL NOTIFY THE OWNER'S REPRESENTATIVE PRIOR TO PERFORMING ANY WORK IN THE AREA INVOLVING DISCREPANCIES. NOTIFICATION SHALL BE MADE IN THE FORM OF A DRAWING OR SKETCH INDICATING FIELD MEASUREMENTS AND NOTES RELATING TO THE AREA.

1.5 ALL WORK SHALL MEET OR EXCEED THE REQUIREMENTS OF ALL APPLICABLE FEDERAL, STATE, AND LOCAL LAWS, ORDINANCES AND REQUIREMENTS.

1.6 IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PERFORM ALL WORK IN A MANNER THAT PROTECTS COMPLETED WORK BY OTHERS, SUCH AS CURBS, UTILITIES, STORM DRAINAGE, FENCES, DRIVEWAY APRONS, DRIVES, VEGETATION, ETC. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COST OF SATISFACTORY REPAIR OF ALL DAMAGES IN KIND RESULTING FROM HIS/HER FAILURE TO COMPLY.

1.7 THE CONTRACTOR IS TO VERIFY ALL QUANTITIES SHOWN ON THE PLAN AND IN THE PLANT SCHEDULE. IF DISCREPANCIES OCCUR, THE CONTRACTOR SHALL CONTACT THE LANDSCAPE ARCHITECT IMMEDIATELY. QUANTITIES OF PLANTS SHOWN BY LANDSCAPE SYMBOLS SHALL GOVERN OVER THE QUANTITIES SHOWN IN THE PLANT SCHEDULE.

1.8 ALL MATERIALS SHALL BE SUBJECT TO APPROVAL BY THE LANDSCAPE ARCHITECT. THE OWNER SHALL RECEIVE TAGS FROM EACH PLANT SPECIES AND A LIST OF PLANT SUPPLIERS. WHERE ANY REQUIREMENTS ARE OMITTED FROM THE PLANT LIST, THE PLANTS FURNISHED SHALL MEET THE NORMAL REQUIREMENTS FOR THE VARIETY OR CULTIVAR PER THE AMERICAN STANDARD FOR NURSERY STOCK, LATEST EDITION, PUBLISHED BY THE AMERICAN ASSOCIATION OF NURSERYMEN (AAN). PLANTS SHALL BE PRUNED PRIOR TO DELIVERY ONLY UPON THE APPROVAL OF THE LANDSCAPE ARCHITECT.

1.9 NO SUBSTITUTIONS OF PRODUCTS, PLANT TYPES OR SIZES SHALL BE MADE WITHOUT WRITTEN APPROVAL OF THE OWNER, LANDSCAPE ARCHITECT, AND MUNICIPAL REVIEW AGENCY. REQUESTS FOR SUBSTITUTION SHALL BE IN WRITING, AND SHALL STATE THE REASONS FOR THE SUBSTITUTION REQUEST, THE SUGGESTED ALTERNATIVE, AND THE CHANGES IN COST. REQUESTS FOR SUBSTITUTION IN PLANT MATERIAL SHALL STATE THE NAMES OF NURSERIES WHO HAVE BEEN UNABLE TO SUPPLY THE ORIGINALLY SPECIFIED MATERIAL.

1.10 PLANTING SHALL ONLY OCCUR DURING SPECIFIED PLANTING SEASONS. SPRING SEASON SHALL BE FROM MARCH 1 TO JUNE 15. FALL PLANTING SEASON SHALL BE FRO SEPTEMBER 15 TO NOVEMBER 15.

1.11 THE CONTRACTOR SHALL GUARANTEE ALL LANDSCAPE IMPROVEMENTS, INCLUDING SEEDING, FOR ONE FULL YEAR AS REQUIRED BY THE SPECIFICATIONS. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL PLANT MAINTENANCE DURING THE GUARANTEE PERIOD.

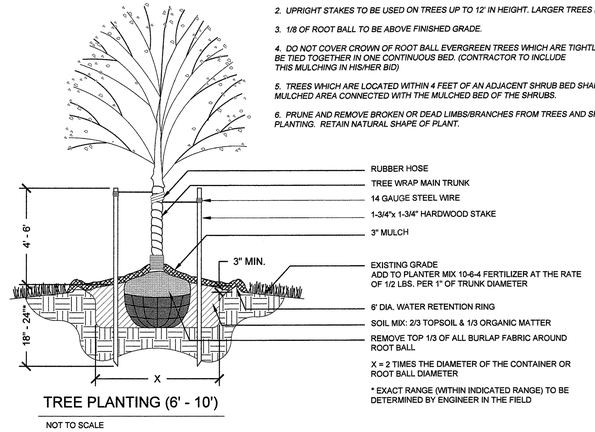
1.12 INSTALLED UNIT PRICES FOR ALL PLANT MATERIAL SHALL BE SUPPLIED TO THE OWNER AND LANDSCAPE ARCHITECT AT THE TIME OF BIDDING.

1.13 THE LANDSCAPE CONTRACTOR IS TO PERFORM A THOROUGH CLEANUP AND QUALITY CONTROL INSPECTION WITHIN 12 HOURS PRIOR TO THE OPENING OF THE POOL.

1.14 THE LANDSCAPE CONTRACTOR IS SUBJECT TO RANDOM INSPECTIONS BY THE OWNER AND/OR THE OWNER'S REPRESENTATIVE AT ANY TIME DURING THE INSTALLATION PROCESS.

NOTE:

1. CONTRACTOR TO REGRADE, SOD OR HYDROSEED, AND STRAW MULCH ALL AREAS DISTURBED AS A RESULT OF HIS/HER WORK.
2. UPRIGHT STAKES TO BE USED ON TREES UP TO 12' IN HEIGHT. LARGER TREES MUST BE GUYED.
3. 1/8 OF ROOT BALL TO BE ABOVE FINISHED GRADE.
4. DO NOT COVER CROWN OF ROOT BALL EVERGREEN TREES WHICH ARE TIGHTLY SPACED SHALL BE TIED TOGETHER IN ONE CONTINUOUS BED. (CONTRACTOR TO INCLUDE THIS MULCHING IN HIS/HER BID)
5. TREES WHICH ARE LOCATED WITHIN 4 FEET OF AN ADJACENT SHRUB BED SHALL HAVE THEIR MULCHED AREA CONNECTED WITH THE MULCHED BED OF THE SHRUBS.
6. PRUNE AND REMOVE BROKEN OR DEAD LIMBS/BRANCHES FROM TREES AND SHRUBS AFTER PLANTING. RETAIN NATURAL SHAPE OF PLANT.

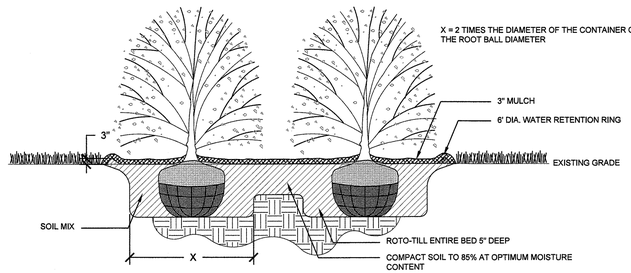


TREE PLANTING (6' - 10')

NOT TO SCALE

NOTE:

1. BEDS TO HAVE SMOOTHLY CONTOURED AND CLEANLY DEFINED EDGES. BEDS SHALL CURVILINEAR EXCEPT AS NOTED ON PLAN.
2. PROPOSED BEDS MUST BE LAID OUT ON SITE AND APPROVED BY OWNER, IF REQUESTED BY OWNER.
3. REMOVE TOP 1/3 OF ALL BURLAP FABRIC AROUND ROOT BALL.
4. COMPLETELY REMOVE ALL STRINGS, RIBBONS, AND TABS FROM THE PLANT.
5. SCARIFY ROOTS ON POT BOUND PLANTS.
6. PLANT SPACING VARIES - (SEE PLAN)
7. ALL SHRUBS TO BE PLANTED IN MULCHED BEDS.
8. PRUNE ALL BROKEN, DISEASED, AND WEAK BRANCHES.
9. ALL SHRUB BEDS TO BE COMPLETELY EXCAVATED OF ALL EXISTING SOIL TO REQUIRED DEPTH AND BACKFILLED WITH REQUIRED SOIL MIX.
10. SOIL MIX: 2/3 TOPSOIL & 1/3 ORGANIC MATTER.
11. TOP DRESS BED WITH 10-6-4 FERTILIZER AT THE RATE OF 5 LBS. PER 100 S.F. OF BED AREA.



SHRUB PLANTING BED

NOT TO SCALE

TREE/SHRUB PLAN LIST:	BOTANICAL NAME	SIZE	COUNT	SYMBOL
COMMON NAME				
LARGE TREES:				
RED MAPLE	ACER RUBRUM	2" CAL, 6' HT	20	
SMALL TREES:				
DYNAMITE CRAPE MYRTLE	LAGERSTROEMIA	1.5" CAL, 6' HT	6	
SHRUBS:				
CARISSA HOLLY	LIES CORNUTAL 'CARISSA'		141	
EVERGREEN JUNIPER			170	

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DESIGNED BY:	JEH
DRAWN BY:	JLF
APPROVED BY:	JEH
SHEET:	13
	CIVIL

NORTH CAROLINA PROFESSIONAL SEAL 035670 ENGINEER J. E. HILLIARD

2/16/21

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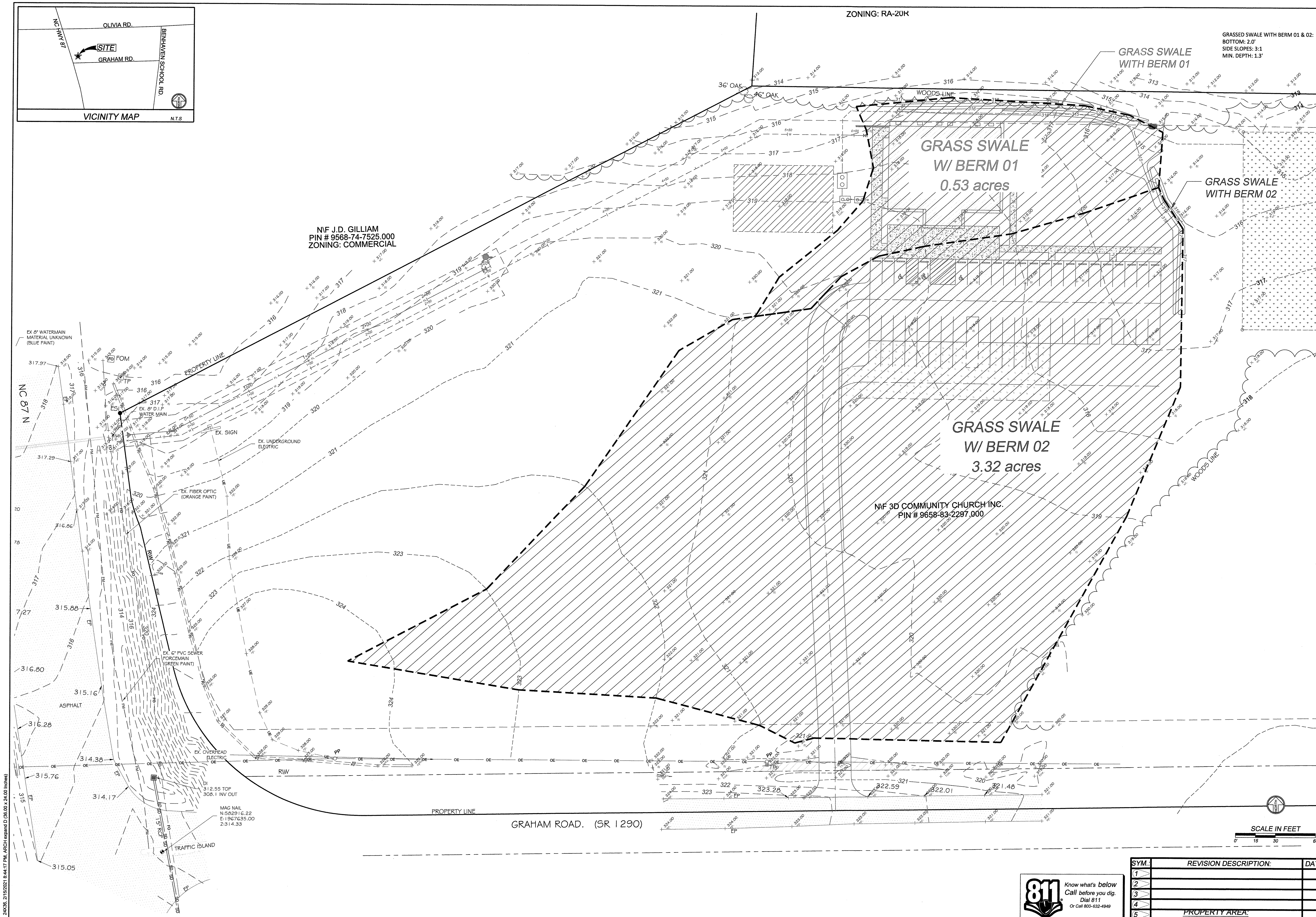
HILLIARD ENGINEERING, PLLC

LANDSCAPE PLAN

3D COMMUNITY CHURCH
HARNETT COUNTY, NORTH CAROLINA

LANDSCAPE-13, 2/15/2021 8:44:06 PM, ARCH expand D (36.00 x 24.00 Inches)



SYM.:	REVISION DESCRIPTION:	DATE:
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NORTH CAROLINA PROFESSIONAL SEAL 035670 ENGINEER JARROD E. HILLIARD
2/16/21

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HILLIARD ENGINEERING, PLLC

SWALE DRAINAGE MAP

3D COMMUNITY CHURCH
HARNETT COUNTY, NORTH CAROLINA

DESIGNED BY:	JEH
DRAWN BY:	JLF
APPROVED BY:	JEH
SHEET:	
D1	
CIVIL	

24X36, 2/15/2021 8:44:17 PM, ARCH expand D (36.00 x 24.00 Inches)